The New Zealand Native Orchid Journal

118

Notice is hereby given that the

Annual General Meeting

of the

New Zealand Native Orchid Group Inc

will be held at

Te Kauri Lodge, 3679 State Highway 31, RD8 Te Awamutu 3878

on

Saturday 27 November at 7 p.m.

Agenda

1.Present and apologies
2.2009 minutes and issues arising
3.Chair's report
4.Treasurer's report
5.Elections
6.Presentation of 2010 Hatch Medal
7.General business

For information on the venue, accommodation, field trips, etc, please contact Eric Scanlen
eascanlen@ihug.co.nz

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Thelymitra "mangawhai", photograph by Kevin Matthews (see p.22).

Mapping: Gordon Sylvester.

Original papers

The type locality 13: Ian St George

Notes

Aussie notes: David McConachie

The column: Eric Scanlen

Mapping 2010: Gordon Sylvester

The last mapping update was published in Journal 111. Since then the *Colour field guide* has been published in two editions, I acquired the lists of Tony Druce, and Graeme Jane kindly looked over those lists and added his records. This has made our records into possibly the largest of their kind; certainly in New Zealand – at last count about 25,000 records.

I recognise that there is no universally accepted New Zealand orchid list, but for the sake of clarity I have simplified as far as possible, listing taxa from the last "Editors list" in Journal 115.

Tony Druce"s lists are of interest as he visited a lot of places not normally accessible to others. Some of his records are as early as 1948, but all of the names are consistent with those published in the *Flora of New Zealand* vol. II, 1969. Some of the names he used related to the fashion at the time: e.g. *Caladenia catenata*. Fortunately these changes are easy to follow so names can be assigned correctly to those currently recognised.

One problem is the constant stream of nomenclature changes. For example *Chiloglottis cornuta* has changed its name twice – *Simpliglottis* then reverted back to *Chiloglottis*. How very confusing this must be to the nonscientific person.

Another issue is the recognition that several of our "species" are in fact aggregates of several taxa, only one of which will eventually be found to match the type; in such cases (*Thelymitra longifolia*, *Nematoceras trilobum*, etc) all "aff." and "agg." records have been lumped except records of recent and universally accepted taxa split off – whether tagnamed or formally described. The proliferation of such tagnamed plants makes a massive 190 recorded taxa. I have not recorded all of these as they are covered elsewhere, and generally are restricted to a single location.

It is a good practice to revisit sites previously visited, if only to check past records. You may also be fortunate enough to discover a new record in the process, especially if you visit at a different time from that previously recorded.

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The New Zealand Native Orchid Journal

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Original papers

A new species of epiphytic orchid for N.Z., near Whangarei

By Sarah Beadel, Matt Renner, Ursula Brandes, Wildland Consultants (Sarah.Beadel@wildlands.co.nz)
Reprinted from Trilepedia September 2010.

We recently found a "new" species of minute epiphytic orchid growing on gorse (*Ulex europaeus*) plants amongst secondary species of vegetation in northern New Zealand, on a hillside in the Waipu Ecological District, to the south-west of Whangarei. The initial collection was by UB, the initial identification was by MR, and SB and MR have subsequently revisited the site. The species is thought to be *Taeniophyllum norfolkianum*, previously known only from Norfolk Island, where it occurs on the undersides of *Araucaria* branches on the slopes of Mt Bates. Fewer than 1000 plants of *T. norfolkianum* are known to occur on Norfolk Island (Department of the Environment, Water, Heritage and the Arts 2007 and 2009), where it is threatened, classified as "vulnerable", based on the IUCN red book classification system. *Taeniophyllum* is a new genus for New Zealand, and *T. norfolkianum* is only the ninth indigenous epiphytic orchid species to be found in New Zealand: the other species are *Adelopetalum tuberculatum, Earina autumnalis, Earina mucronata, Earina aestivalis, Drymoanthus adversus, Drymoanthus flavus, Ichthyostomum pygmaeum* and *Winika cunninghamii*. The genus *Taeniophyllum* has over 170 species. The defining characteristic of the genus within the Orchidaceae is that the plants have no leaves, and the roots contain chlorophyll that performs photosynthesis. This group of orchids is highly specialised; Attenborough (1995) made the following observations: "One orchid, *Taeniophyllum*, has roots that are even more versatile. Its scientific name means, rather unattractively, 'tapeworm leaf'. Its roots have not only developed into flat, tapeworm-like shapes several yards long that writhe statically all over the branch on which the plant sits, but they have also become green and manufacture the orchid's food. The true leaves, no longer needed, have been reduced to tiny scales on the minute stem that carries the flowers."

Taeniophyllun norfolkianum is a very small plant. The roots are only about 1 mm diameter; we observed plants with roots up to 25 mm long, radiating out to form patches 3–5 cm across. The flowers, 4–6 per cluster, are 7–10 mm long, tubular, and yellow-green. We found about 140 *T. norfolkianum* plants growing on four gorse (*U. europaeus*) shrubs in a mosaic of mixed secondary indigenous forest and shrubland, and gorse scrub and shrubland. The open mixed scrub comprised tree ferns (mamaku, *Cyathea medullaris*) and silver fern (*Cyathea dealbata*), kanuka (*Kunzea* sp.), mahoe (*Melicytus ramiflorus* subsp. *ramiflorus*), gorse (*U. europaeus*) and pate (*Schefflera digitata*), with scattered mapou (*Myrsine australis*) and kahikatea (*Dacrycarpus dacrydioides*). The *T. norfolkianum* plants were growing on branches and stems in the gorse canopy open to the light. One plant was observed epiphytic on another gorse plant on a pasture margin, about 70 m from the main site. The plants were flowering and fruiting when observed in November 2009 and it appeared that some plants were at least two years old because we observed the remains of the previous year's flower stalks as well as 2009 flower stalks on some of the plants. The currently known population may not be the only occurrence of this species at this site because there are large amounts of suitable habitat and many host plants. **(See Fig.1, p.11)**

See also http://www.nzpcn.org.nz/flora_details.asp?ID=6662

Pterostylis patens—some thoughts

by Gordon Sylvester

While I was rereading J115 prior to checking the mapping information, the article on the type locality attracted my attention. As was Ian's intention!

In my wanderings about the Hokitika/ Kumara/ Taramakau areas I have noted several strange species of the *Pterostylis* persuasion, in particular with severely bent back lateral sepals. I have recorded these as Mahinapuna Forest (Sandstone), Taramakau River (Fowlie) and a couple of other nondescript locations (The Pt. Fowlie site has been seriously modified by the cow cocky stripping all of the ground cover off and piling it up in huge heaps and converted it to grazing). I am now wondering if they are in fact the true *Pterostylis patens* as described on page 9 column 1. Hmmm some work needs to be done here.

While on mapping matters I have a strange location for *Pterostylis irwinii*. Charleston!

Charleston is on the coast at an elevation of about 20m. The landscape is seriously altered by gold mining. The vegetation is scrub 2nd regeneration. While I had no other reason to look into this record, I decided to look at the other known sites with attention to altitude. No surprises there: all were within 100m of each other. Erua (Type locality) is 740-760m above sea level. Takaka Hill (Bob's Lookout) 760-780 m. And finally Arthurs Pass location is about 850m above sea level. It would clearly indicate a preference for high altitude conditions temperature etc.

This of course now leaves us with a conundrum: just what was observed at Charleston on the coast? And given the observed characteristics of *Pt. irwinii*, this now leaves the door open for other similar looking plants to step up to the mark.

Hopefully the recorder (Kendyll) took some photographs of her discovery; to resolve this particular issue the publication of those photos will be of enormous value to us all. I am now altering the data base to reflect this argument.

Having obtained and "translated " the records kept by Tony Druce of his identification of plants especially in scenic reserves, I have now added these to the database. There is one list of huge value to us, that for ER 26 Moawhango Waiouru (an area of mystery in almost all of our maps).

The other important data came to me from Graeme Jane's computer while we were at Arthurs Pass. I have to record my thanks to Graeme for spending a lot of hours sorting out his list for my purposes and then transferring it to a zip drive to enable me to update the whole data base.

As a result of both of these activities, we now have in excess of 37,000 records of orchid locations. While a lot of Tony Druce's records are pre-Field Guide, it is no real difficulty to make the necessary corrections. Suffice to say the NZNOG orchid list has now achieved some importance as a repository that is not equalled anywhere in the country.

Anyone wishing to obtain a copy of these data needs "Microsoft Access", and the ability to read a data DVD. As you can appreciate the list is always going to be dated as soon as new information arrives.

***Pterostylis* "sandstone" (Figs 2, 3)**

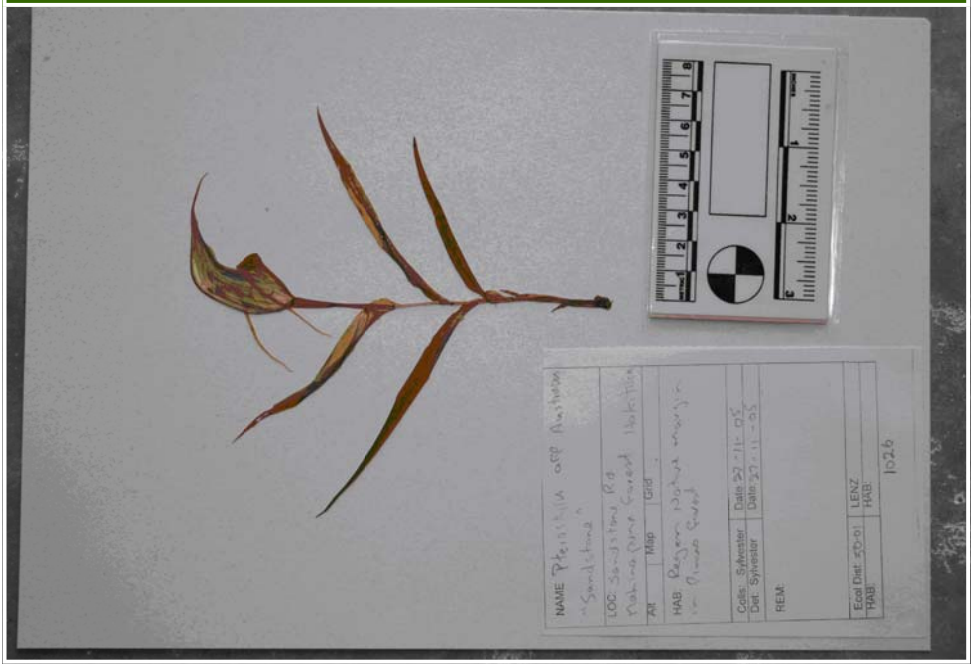
Tagnamed for the location it was first found in. An exotic forest belonging to West Coast Forests planted in the 1960's. Was found on Sandstone Road blocks E2344107 N5824248. Similar species have also been noted at Callaghans also, about 20kms away at E 2359882 N 5834398.

Plant 140mm high, internodes varied, shortest at base.. Lowest portion of stem covered by 2 overlapping leaf sheaths. Leaves, (4) changing length and shape upwards.

Mid leaves longest 10cm x 10mm wide cauline almost horizontal, not overtopping

Above: Fig.1: New Zealand's newest orchid, *Taeniophyllum norfolkianum,* growing on gorse; described by Sarah Beadel, Matt Renner, Ursula Brandes, Wildland Consultants , on page 9 of this issue. [*Taenia* = a fillet or headband].

Below: Fig.2: *Pterostylis* "sandstone" - see p.10.



Figs 3: Pterostylis "Sandstone".
Fig. 4: Pterostylis "Fowlie".
See Gordon Sylvester, page 10.

galea, linear lanceolate acuminate, midrib prominent, slightly grooved above
Green/white solitary flower erect, swollen, dorsal sepal 40mm long 30mm high vertical then horizontal, tip acuminate, cerise
Lateral sepals diverging at a sharp angle with long filiforme cerise caudae.
Labellum long triangular, arched in upper thirds.
Column shorter than labellum
Stigma oblong median.
Ovary 20mm long
Hab: found in bush margins and open bush
Flowers late November

***Pterostylis* "Fowlie" (Fig.4)**

Tagnamed for the location it was found at. A farm located at E 2378207 N5826691 on the Taramakau River owned by Alan Fowlie.
Plant 160mm high. Single flower; stem 2mm wide x 100mm long. Leaf bracts 2 ; Leaves 4-5 on opposites on stem, changing shape and length upwards, midleaf 90mm x 10mm.
Leaves very erect, upper two equal to galea, two lower leaves are usually shorter. Linear-lanceolate, acuminate. Keel prominent
Green flower solitary, erect. Dorsal sepal to 80mm long, vertical in lower half almost horizontal in upper half. Which is 50mm long.
Lateral sepals diverging at a wide angle with long filiform caudae reflexed below the horizontal plane.
Labellum has prominent mid ridge coloured cerise, very narrow tip and broad at midline ending in a hook like process with numerous much branched fimbriate.
Ovary extends to 30mm on fertilization.
Stigma oblong 8mm long
Flowers late Nov-early Dec.
Hab; Med light clearings in bush.

The editor apologises for failing to publish the photographs accompanying this paper in the last issue. They appear in this, on pages 11 and 12.

Pterostylis "domesticus" at Wood Creek

by Gael Donaghy

I needed an easy day after a big day on the Croesus track so Graeme and I headed for the Wood Creek Walk on 23 December, at an old gold mining area inland from Hokitika. There just were enough orchids to keep me happy as we wandered around the track through forest largely modified by the mining over 100 years ago. Near the end of the loop in more open scrub we came across a group of *Pterostylis*, and an argument began - something like this:

Gael: It's one of those horrible *P*. aff *montana* thingies.

Graeme: No, I think it's a South Island *P. graminea*, because it's so small and nodding.

Gael: Rubbish - the leaves are not right, and look its lateral sepals are flat, not rolled.

Graeme: But SI graminea do have wider leaves.

Gael: The labellum is red, and SI *P. graminea* has a black midrib on the labellum.

Graeme: yes but the red is very dark, almost black and the tip is quite elongate

Gael: There is also a lot of red on these plants, even though they are shaded. *P. graminea* is never highly coloured like this. Though I must admit I wonder why some of the so-called *P*. aff *montana* are not *P*. aff *graminea*!

Graeme: Well its so small yet the base of the lateral sepals is quite flat. I still think it's more graminea-ish than aff montana-ish,

While the verbal ping pong continued I took photos and Graeme wandered further on finding several more clumps, some plants of which were duly photographed.

The photos show that the plants are quite variable - some plants have lateral sepals well short of the dorsal sepal, while other had laterals almost as long as the dorsal. The tallest individual, which I photographed, was 10.5 cm - overall it was a small and dainty plant.

Finally, after half an hour, in an attempt to settle the dispute, one flower was dissected. The stigma was parallel sided, and mostly below the column wings, typical of *P. graminea*. The basal appendage on the labellum is only weakly curved and not strongly angular as in *P. montana*. But the labellum colour and twisted tip are more reminiscent of *P. montana*. Hence we still disagree.

Readers: have a look at the pictures **(Figs 5-8)** and let the editor know on which side of the divide you would put our P. "domesticus".

Other orchids at this spot were *Aporostylis bifolia, Earina autumnalis, Earina mucronata, Nematoceras acuminatum, Nematoceras longipetalum, Petalochilus chlorostylus, Pterostylis banksii, Pterostylis irsoniana, Singularybas oblongus, Winika cunninghamii.*

Finishing what is to be done

by Ian St George

If language is incorrect, then what is said is not the same as what was meant; and if what is said is not the same as what was meant, what is to be done cannot be finished.

Confucius, 400 BC

For beauty and perfection science requires conciseness and brevity.

Linnaeus 1753

I have thought it unseemly for the editor of a scientific journal to criticise work that he has accepted in the same issue. But today "The Column" has himself criticised a paper by Bruce Irwin that I thought had dealt finally and convincingly with the matter of who first misapplied the epithet "rivularis" to the plant we now know as *Nematoceras acuminatus*.

Further, the Column has acknowledged my "...recent constructive debate on the subject", which might lead some readers to infer that I agree with his propositions.

I do not, and I will explain.

In para 2 he claims all of the adjectives in Hooker's description of the leaf of *Corysanthes rivularis* ("orbicular ovate ovate-cordate or oblong-cordate, obtuse acute or acuminate") refer to the leaf shape. I don't think so. Here are definitions of terms from the authoritative *Flora of Australia Glossary*

- oblong: a two-dimensional shape, having the length greater than the width but not many times greater, and the sides parallel.
- orbicular = circular or nearly so.

- ovate = a two dimensional shape, like a section through the long axis of an egg, and attached by the wider end.
- cordate = of a leaf blade, broad and notched at the base; heart-shaped (in two dimensions).
- obtuse = blunt or rounded at the apex, the converging edges separated by an angle greater than 90 degrees.
- acute = terminating in a distinct but not protracted point, the converging edges separated by an angle less than 90 degrees.
- acuminate = tapering gradually to a protracted point.

Of these, oblong orbicular ovate and cordate do describe the shape of a whole leaf, but acute obtuse and acuminate do not – they quite clearly describe the tip. Acuminate is a little ambiguous, I will allow, but following the unambiguous obtuse and acute, must also refer to the tip. Furthermore the set of adjectives describing the leaf shape are not separated by commas, and have "or" before the last, a structure Hooker repeated for the second set. Hooker was fussy about the precision of his botanical terminology and his grammar.

The Column asserts that Hooker made "no mention of the ½ mm linear apiculus at the tip of the leaf" (only true if all the adjectives describe the whole leaf, which they don't). Hooker described it *after* describing the leaf shape—not as "linear" but as "obtuse acute or acuminate". (He wrote similarly of *Chiloglottis cornuta:* "leaf linear-oblong, acute"; of *Pterostylis micromega* "Lower leaves... ovate-oblong or lanceolate, obtuse or acute"; and of others similarly).

The Column then claims Hooker effectively lumped into *Corysanthes rivularis* not only 17 taxa in the *N. rivulare* aggregate, but also *N. acuminatum.* That might be a reasonable statement if Hooker had been aware there were several taxa in *N. rivulare*, but he was not: the splitting of *N. rivulare* has been a recent process. In this situation a lumper is a taxonomist who places several recognised taxa into one: *not* a taxonomist who recognised only one taxon because he was alive in the 19th and not the 20th century.

Furthermore the Column asks, "Why didn't J.D. Hooker publish the 'acute or acuminate' leaved orchid in the 1853 Flora?" The question assumes those epithets apply to the leaf-shape (which they don't), and that Hooker had seen *N. acuminatum* (which he hadn't). There is no evidence that Hooker ever saw *N. acuminatum:* there is no specimen at Kew, as Clements found when the *Corybas rotundifolia* error was discovered (and as I can personally confirm). The plant that Hooker found at Auckland Is. had a "withered" (note, not "dried" as last season's would have been) capsule in November, when *N. acuminatum* near Invercargill is in full flower; and he described its leaf as for *N. rivulare*, "orbicular… ovate… cordate… (its tip) acute". In other words, it was a round-leaved, early-flowering *Nematoceras*, not *N. acuminatum.*

Perhaps Kirk, like the Column, misread Hooker when he lumped his triangular-leaved 1867 Great Barrier orchid into *Corysanthes rivularis.* Certainly it is *N. acuminatum*, and very surprisingly his appears to be the first collection of the species. Colenso never collected it (nor has anyone reported it to our mapping scheme from Colenso's "forests and glens and solitudes" in coastal or central Hawke's Bay or the Wairarapa, where—if it exists at all—it must be vanishingly rare). Nobody found it until Kirk.

Colenso was critical of Kirk's ability, and repeatedly opposed the suggestion that Kirk write the 2nd edition of the *Handbook.* That is not to say Kirk was not a good botanist, but he did have his critics.

Hooker has been misread on this matter by intelligent people, so one must concede that in his laudable quest for Linnaean brevity he wrote what now, in the light of new discoveries, and with the bias of hindsight, appears ambiguous. Kirk (at best) misread him, misnamed his new Great Barrier orchid and began a cascade of subsequent errors. Hatch and Clements should have called the triangular-leaved plant "C. cuneata" (cuneate = wedge-shaped) otherwise they were right.

This issue is closed.

The type locality: Ian St George

13: Whangaroa and *Acianthus rivularis* A. Cunn.

Allan Cunningham's account

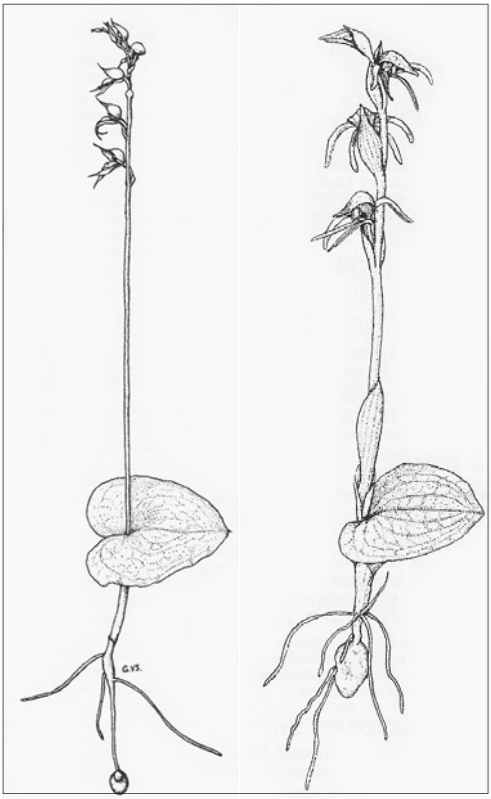
Nematoceras rivulare was described by Allan Cunningham in 1837 as *Acianthus rivularis* [1]. After his Latin description he wrote,

"*New Zealand (Northern Island). Discovered growing among moss upon rocks in the bed of a briskly running rivulet, flowing through a deep shaded ravine near Wangaroa, Nov. 1826.—A. Cunningham.—1833, R. Cunningham*."

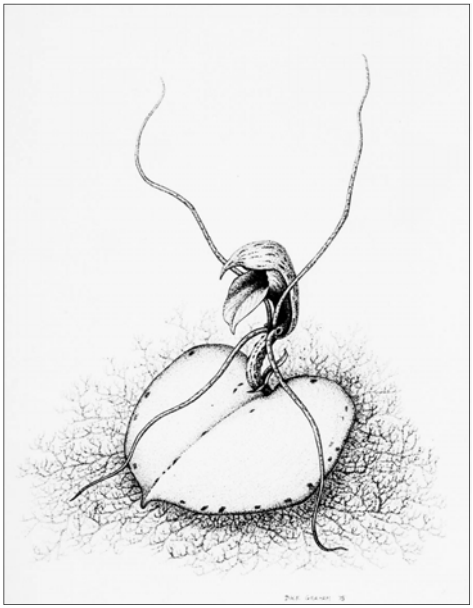
In 1826 he had written in his diary (in a well-nigh illegible hand),

"Monday 6 Nov. Rain having set in abt. the middle part of yesterday, fell in continuous heavy showers throughout the aftn. during the night and in the earlier parts of the forenoon of this Day.—Engaged within doors.—About noon the Clouds broke, rain ceased, and the weather appearing disposed to take up, invited me to take a short walk to the forests in the neighbd.—It may be recollected that His Maj. Ship Dromedary, after visiting sevl. parts of New Zealand for timber in 1820? finally obtained her cargo of spars for First rations of the Royal Navy, from Wangaroa, which has been favoured for the vast bulk and length of the Cowdie, the only timber adapted by reason of its strength for the above purpose. Before however spars of the great dimensions required, could be convey'd from their native grounds to the ship in the Harbour of W. ___miles distant, it became absolutely necessary to construct a road formn. for this timber carriage; the line of which being still at this date in existence altho' in many parts partially overgrown with plants, clearly shews, the labour that was *** in this preparatory work, in which bridges of ___ length were thrown over the deep creeks, thus conveyg. the mountain pines into the River—This road I traced this aftn. to the wood where these spars were cut, which led me over a ridge whose opposite declivity was densely clothed with Timber.

"I employed a few Hours of the aftn. beneath its sombre shades,—and altho' the timbers were of the prevailing kinds I was much struck with their Bulk and stature. Cowdie—Kiakaitea in the bottoms. Demm. Totarra—Laurus 2 sp.— – of the Rewa Rewa (Knightia) I at length gathered rich flowg. spns. the ornament of these woods & only sp. of Proteaceæ known to exist—I believe in New Z.—I observed the Cowdie season's capsules still on the branches of the old wood, & from circumstances I conclude this then depends on wingd seeds, in the autumn of this year (April & May) when the Cowdie cones are fully matured. A Dianella frequent on the margins of these woods furnished me with flowg. spns. and the Fuchsia in like spots ripe fruit, named —— eaten by the Natives, who devour it with relish (altho to me insipid) because I apprehend as New Zeal. produces no fruit of real good flavour (to an European) the Natives have yet to learn what constitutes flavour or taste in fruit.— These woods were heavy with Ripogonium of which vine I gathered duplicate seeds.— I ranged long in these dark parts at the cost of much fatigue, without however advantage as no one of the Trees whose upper branches I have so often survey'd, yet presenting fructn.—in tracing however the purling rill that rapidly fell thro' the forest over a declining gravelly bed, I was exceedingly gratified by a Discovery I did not expect—it was another subject of the Orchideæ, which grew abundantly in the damp moss on the banks, which are usually in heavy rain covd. with water— It appears to be a new Lyperanthus and might be thus characterized. *Ad. filamentosus. folio profundicordato mucronato punctato, labio inferiora periantha. tetraphyllo. foliolis fili formibus longiforme acuminatis.*



Above left: *Acianthus fornicatus* R.Br;
right *Lyperanthus nigricans* R.Br. Drawn by GV Scammell for HMR Rüpp's "Orchids of New South Wales" 1943.



Nematoceras rivulare, drawn by Digby Graham.

labelli disco papilloso, marginale lanciforme eroso-crenulatis." [2]

On the next page he related a further discovery: "In these moist woods I observed a few plants of the new Pterostylis, as also of an Acianthus, whose stalks bore the remains of two or three flowers—it may be one of the sp. described by Mr. B. as that of Port Jackson, but its condition was such as afforded me no charr. sufft. to determine its sp. the aristo of the perianthium simply showing me its genus." This must have been *Acianthus sinclairii*, well past flowering by November, for years confused with Robert Brown's *Acianthus fornicatus* (Type locality Port Jackson).

Unsure where to place his new plant, Cunningham at first thought it a *Lyperanthus*—presumably from his familiarity with the Australian *Lyperanthus nigricans* R.Br. Some time later he must have decided it too was an *Acianthus.*

Certainly Allan Cunningham must also have found it at the Rainbow Falls at Kerikeri, for he wrote to Colenso after his April to September 1838 visit, asking if the latter had found, "my little darling, the subaqueous Acianthus of the cavern of the great falls of Keri Keri and Wangaroa." [3]

Richard Cunningham

Seven years later his brother Richard Cunningham spent the 1833–4 orchid season in the Whangaroa region, and after Richard's death in 1835 in Australia WJ Hooker wrote, "Cunningham commenced his botanical labours on the hills, around the harbour and valley of Whangaroa…. In those secluded dells, which are never warmed by a genial solar ray, he found several beautiful *Epilobia*, and in the rocky beds of small brooks, and

growing below the surface of those rapid gurgling streams, was observed that charming little plant of *Orchideæ*, an *Acianthus*, first seen by his brother in 1826, bearing its remarkable flowers." [4]

Captain Cruise

Where then purls the rill, or gurgles the stream, or briskly runs the rivulet that is the type locality for Cunningham's *Acianthus rivularis*?

Richard Alexander Cruise was Captain of HMS *Dromedary*, and he left a detailed account of the ship's 1820 visit [5]:

"March 28th.... To any one acquainted with New Zealand, the name of Wangarooa must be familiar, as being the scene of the destruction of the Boyd. This ill-fated ship sailed from Port Jackson for England in 1809, with the intention of calling at New Zealand for a cargo of spars. She had seventy persons on board exclusive of some New Zealanders, who were passengers to their own country, and amongst whom was the son of one of the chiefs of Wangarooa; he was called Tarra, but during his intercourse with the English he had laid aside his native title and taken the name of George, by which he is now universally known….

"June 21st.... Light winds and variable. In the morning the ship was towed to the heads, and afterwards warped into the harbour, and at seven P.M. anchored off the native fort, or pah.

"22d, Thursday.... At daylight the anchor was weighed, and the ship was warped to the southern side of the pah, where she was moored.

"The harbour of Wangarooa and a considerable part of the surrounding country belongs to the chief, Teperree, while George's residence is about eight miles to the southward of where the Dromedary anchored, and on the banks of a river called the Kameemy.

Friday June 23rd. At noon, the tide being about half-flood, we rowed to the mouth of the Kameemy, and meeting some wild-ducks upon it, we continued to pull up the stream until we found ourselves at George's settlement. The water in many places was so shallow, that, though the boat was small, it was necessary to drag it over the shoals for some distance; nor did the launch arrive for a considerable time after. Many cowry trees grew over the steep banks that overhang the river, but they were too short to form part of the ship's cargo; and that part of the forest, whence those of proper size were to be obtained, lay in a deep valley, or ravine, a mile and a quarter to the right. The intermediate ground was at first level, but afterwards undulating and intersected with a swamp and a deep and rapid brook. The hill under which the trees grew thickest was steep; but it was thought that the spars, when cut and lightened by being trimmed, might be hove to the top of it, by means of a capstan, and dragged to the water's edge by the ten bullocks, with the united strength of the natives and the crew. It was therefore proposed to make a road from the wood to the river, to build a bridge over the brook, and to fill up the swamp with fascines."

Where is the Kameemy river?

The Kamimi is no longer on our maps, but an account of the *Boyd* massacre in 1810 tells us, "The Pakehas on the vessel had no idea of what was brewing. Their relationship with the Maori appeared cordial, and after three days Captain Thompson was invited to follow some Maori canoes from the up-harbour Pah (presumably Te Aara's) up the harbour and into the forest to search for some suitable kauri trees to fell. To be useful as spars, they needed to be poles which were perfectly straight, some 80ft long by 20 inches wide, and due to their size and weight, they would need to be close to the water so they could be floated down to the ship and hauled aboard with the windlass. With his chief officer and three men, Captain Thompson set off down the harbour, closely following the Maori canoes to the entrance of the Kamimi River, where it drained out of the Kaeo valley." [6]

Kamimi is thus an old name for the Kaeo river: draining the Kaeo valley, 8 miles south of the harbour entrance.

Figs 5-7: *Pterostylis* "domesticus" (see p.13)

Fig. 8: *Nematoceras rivulare* from near Whangaroa, 3Oct 2000, earliest of many in the colony with orbicular leaf as found by Allan Cunningham nearby on 6 Nov 1826. See p.24 & p.36. (photograph Eric Scanlen)

Fig.9: *Acianthus sinclairii* (above) and Fig.10: *Diplodium alobulum* (below) from Awhitu

Gastrodia elata, Korean name Cheon-ma, Chinese name Tian-ma, resembles our native species, being saprophytic, leafless, and 60-100 cm tall with oblong, fleshy rhizomes 10-18 cm long. Flowers are yellowish brown.

Figs 11, 12: see p.25.

Fig.13: ***Thelymitra hatchii (concinna)*** at Boyle village (see p.28)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Boyle village orchids by Gary Penniall,

See p.28

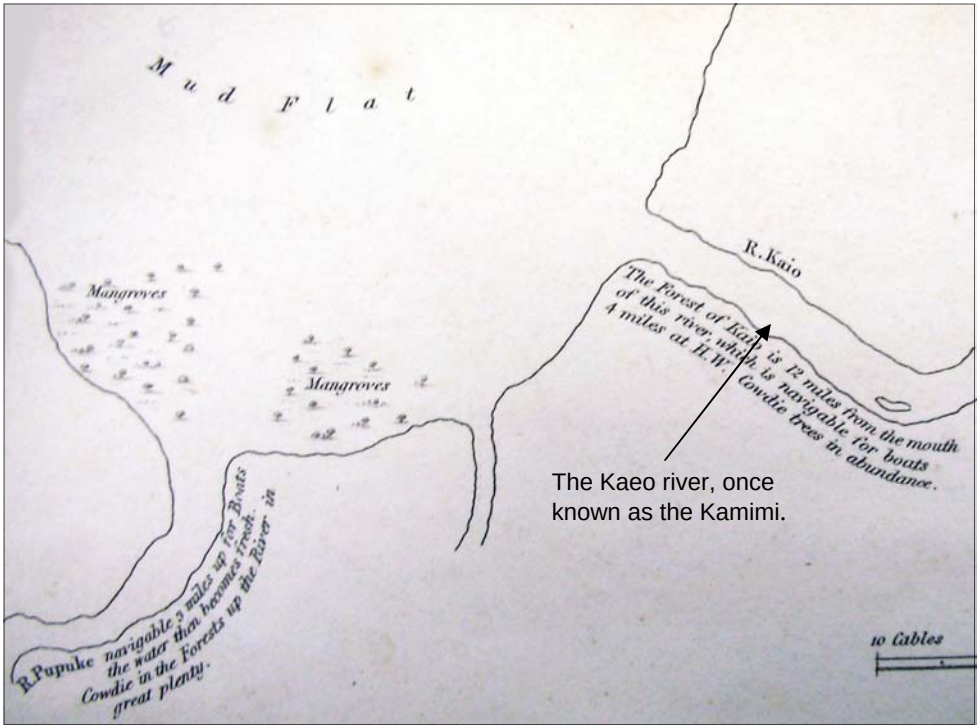
The *Dromedary* crew were revisiting the place where the *Boyd* had collected good kauri spars. Capt. Cruise's account of the road says "The intermediate ground was at first level, but afterwards undulating and intersected with a swamp and a deep and rapid brook." That ties in quite well with Waikoura Rd, and 1¼ miles is about right too. Thus Waikoura Rd was probably constructed on the same route as the *Dromedary's* road.

What's there now?

One of the streams running under the Waikoura Rd into the Kaeo River and thence into Whanga-

Right: Whangaroa Harbour and close environs today; the arrow marks the spot where Eric Scanlen found *Nematoceras rivulare.*

Below: detail of "Wangeroa Bay, New Zealand (North Isle) 1834; T. Woore HMS Alligator and FA Cudlip, HMSS Buffalo.



The Kaeo river, once known as the Kamimi.

roa Harbour is the Pahuhu Creek, and Eric Scanlen, with several of the field trip bound for Te Paki, found the orchid there on 3 October 2000. He said they had little hope of finding open flowers so early in its season but the first of the colony **(Fig.8)** was open on the rocky banks of the burbling brook. Other specimens were in bud at that time, with filamentous tepals still tightly coiled. Ground water seepage surely keeps the colony wet thoughout the year in this steep gully, under the shade of second growth native forest where the sun never shines. The road in was private with a notice banning anyone from entry unless on quarry business. However, the quarry was unattended this Friday and the owners hadn't replied to an email request for access, so the field party parked their cars at the end and tramped say 200m across the stream, over a spur and straight down to the orchid colony. It would have been hard to miss. In heavy rain, the stream in flood would inundate the colony, much as Allan Cunningham's first find in this vicinity. A second field trip on 2 November 2000, found "plenty of good flower" according to Eric's diary.

The history of the name changes has been traversed in these columns. The orchid is now known as *Nematoceras rivulare* (A.Cunn.) Hook.f. Fl. Nov.-Zel. 1: 251 (1853).

Acknowledgement
I am grateful to Eric and Gloria Scanlen for help with deciphering Cunningham's handwriting and for helpful duscussion.

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2. Cunningham A 1826. Journal in New Zealand, 28 Aug-25 Nov 1826. Alexander Turnbull Library fMS-059-060, Vol.1.
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5. Cruise RA 1823. Journal of a ten months' residence in New Zealand. Longman, Hurst, Rees, Orme and Brown, London.
6. http://www.myrasplace.net/myra/boyd1.htm

Notes etc

Melanie Brigden sent 4 tasty-looking sachets (pictured below). She wrote…

Shouting at me in my local mart, "Tall Gastrodia Tea with Cornflakes" (below).

It turns out, thanks to Google, that this is *Gastrodia elata*, the dried tuber of which subdues liver wind, headaches, and convulsions [1]. It's a genuine traditional Chinese herb. The obligatory associated legend tells the story of the 'Gastrodia Man': who made his living collecting the tubers for herbal medicine. He learned, as NOG members know, that flowering is not reliable. As his harvest was not consistent he believed *Gastrodia* must come from the heavens and spread the story to this effect [2].

There are a number of bio-tech sites flogging capsules, powders and slices of *Gastrodia elata*. Science replaces legend as a marketing tool. A modern bio-tech company website tells us the derivative gastrodine "may be just as effective as conventional drugs for the treatment of vascular dementia" [3]. Considering it is classed 'vulnerable' in the endangered species list IUCN3.1 [4] and wild collection is prohibited in the mountains of Korea, Japan and China [5], I wondered how they are sourcing their product.

Chinese herbalists tried to cultivate *Gastrodia*, but failed until biologists in the 1960s discovered that the plant needs two fungi in order to survive and reproduce. It needs the *Armillaria mellea* soil fungi for nutrition; and requires a second fungus called *Mycena osmundicola* to create the edible tuber and occasionally produce flowering stems [6]. In 1962 Ella Campbell identified *Armillaria mellea* (now known in New Zealand as *Armillaria novae-zealandiae)* as the symbiotic partner for our *G. cunninghamii* [7].

After the mutual relationship was understood, the pill and powder companies

had their product. It appears that these days the biotech companies get their material not from the heavens but from farmers who prepare the ground with the mycelium of the fungi and woodchips. The mature tubers are boiled, fumed with sulphur, dried, and flattened by hand [8]. This lovely pastoral story is balanced by another website that gives excited descriptions of laboratory culture. Take your pick.

Another aspect of the symbiotic discovery was that most of the medicinal benefits associated with *Gastrodia* are actually produced by the *Armillaria* [9]. As I read on, I wouldn't be surprised if laboratory production of the fungi accounts more for the powder in my sachets than orchid tubers.

It is interesting that the Chinese tale of Gastrodia Man is reflected in a Maori legend that Huperei (*G. cunninghamii)* was not a plant of the earth but a creature of supernatural beings [10]. Then again, a web page told me that the Maori tribe find the tubers by watching where bandicoots are digging them up [11].

Its all a bit much over my sulphur-fumed cornflakes. **See Figs 11, 12).**

References

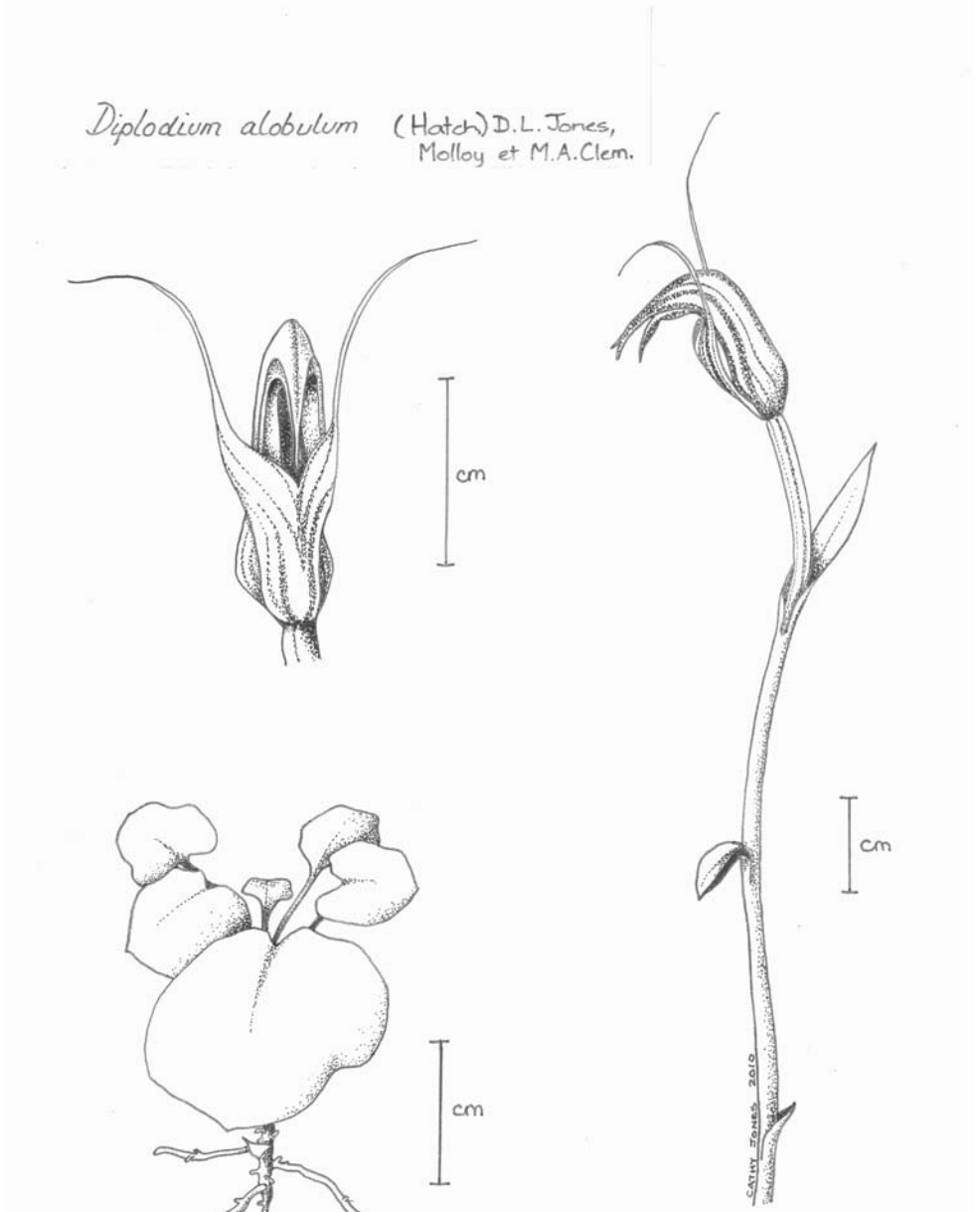
1. Extracted from www.fzrm.com/herbextract/tallgastrodiatuber.htm , site of a Chinese herbal products company. They will sell you powdered gastrodia in 25kg bags.
2. ibid
3. ibid.
4. www.wikipedia.org/wiki/gastrodia_elata
5. *Medicinal Plants in the Republic of Korea'* p129 extracted from www.wpro.who.int
6. Extracted from www.answers.com/topic/gastrodia
7. *The New Zealand Garden Journal (Journal of the Royal New Zealand Institute of Horticulture), Vol. 2, No. 3, September 1997, pp. 7-9.* by Graham Harris, sourced from www.rnzih.org.nz/pages/blackorchid.htm
8. ibid
9. Article by Dr S Dharmananda of Oregon, USA, January 2004, extracted from www.itmonline.org/arts/gastrodia22.htm , also for the image of the three tubers
10. Graham Harris
11. itmonline
12. *Medicinal Plants*

Melanie also commented: "By the way, re Mike Lusk's plea on track-side destruction in J116… the section of Mt Somers Track to Sharplin Falls used to have *Corybas* alliance sp. (incl. the big one) in abundance. Now—a wide path and the banks all cut away.

Winter orchids: Judith Tyler emailed (15 July), "Brian and I were in the Paki Paki Dune Forest last Sunday with Levin Native Flora Group and saw *Diplodium alobulum, Nematoceras trilobum* in flower; and both Earinas and Winika - but not in flower. No sign of *Chiloglottis (Myrmechila) rapiziformis* which was transplanted."

Did Colenso discover *Thelymitra sanscilia?* At the end of the section on *Thelymitra* (under *T. pauciflora*) in his *Flora of NZ*, JD Hooker wrote, "I have received from Mr Colenso specimens of a *Thelymitra* in acetic acid, resembling *T. Forsteri* in all respects, except that the staminodia are subulate, sharply toothed, and not feathery; they are too soft and decayed for determination, as is often the case with specimens thus pickled." Above that entry Hooker had described *T. Forsteri* (*T. longifolia*), *T. imberbis* (*T. carnea*), *T. pulchella*, *T. uniflora* (*T. cyanea*), and *T. pauciflora.* Thus he knew this was not one of those. What else could a flower with sharply toothed, pointed, bare column arms be?

Tricia Aspin emailed (9 August), "It's a while since I've reported the unusual from Awhitu. Our farm is next to Awhitu Regional Park on the western shores of the Manukau Harbour and we run frequently through the Park. I went for a run around Awhitu Regional Park on Thusday (5.8.10) and poked round along the cliff top scrub to see what is coming up in the way of plants. Much



A delightful drawing by Cathy Jones, recently gracing the cover of the NZ Botanical Society's *Newsletter*, and reproduced here with permission.

to my surprise perched right on top of the cliff edge under a stunted pohutukawa I found a colony of *Acianthus sinclairii* - not a very good pic as it was difficult to keep a good foothold on the brink of the cliff **(Fig.9)**. Then just along a couple of metres when I was admiring the bright red fruiting bodies on the *Cladina floekeana* (lichen) I saw a *Diplodium alobulum* **(Fig.10)**. Peering a bit closer under a manuka bush I saw a whole carpet of them in flower - an absolutely wondrous sight. I never thought I'd find these two so close to the sea. I am used to finding them in the bush. There used to be old pines here and so the soil probably lends itself to orchids now. The area is open to the north and east and these plants would occasionally be washed with salt spray on high tides when the wind is off the harbour. *Thelymitra pauciflora* or *longifolia* plants are emerging also but I have them elsewhere in the Park and on cliff tops over at Matakawau Point a little to the south of here. I thought you might be interested as the habitat is unusual."

Gary Penniall emailed with photographs taken in the vicinity of Boyle village. "The *Thelymitra hatchii* **(Fig.13)** were numerous but none managed to open naturally as conditions not quite to their liking. The photos of thelymitras and their columns were taken after I put a small bowl of water beside a picked flower stem and covered it with a plastic shopping bag which worked a treat in morning sunlight. The small thelymitras **(Figs 14, 15)** were discovered by Claire. They were in a large colony on edge of plateau just above lodge we stayed in and numbered in the hundreds. These opened freely fairly early in morning and stayed open until quite late in afternoon both days and the morning of the time we were there. All plants were very small between ten to fifteen centimetres in height with leaves coppery coloured on top and green underneath. Dorsal and lateral sepals were a mauve pinkish colour and the petals powder blue with slightly spotty appearance. Column with slight blue tinge and post anther lobe very similar to *Thelymitra longifolia*. Hooded with yellow edge and brownish on top. White bushy cilia on column arms and flower stems deep purple."
From road side - Lewis Pass - *Prasophyllum* with fly on dorsal sepal **(Fig.16)**; *Petalochilus nothofageti, P. chlorostylus* from track, Boyle Village **(Figs 17, 20)**; under Manuka on plateau above back packers lodge at Boyle Village, Glynn found this colony of Petalochilus (Caladenia). The first one found we thought deformed as tepals twisted. After finding another dozen all the same Margaret christened them twisted tepals **(Figs 18, 19)**. The colony was quite large and we saw forty to fifty plants. Also *Pterostylis oliveri* and *P. australis* in same area.
The deformed Petalochilus chlorostylus and P. aff. chlorostylus have the appearance of herbicide contact. The Thelymitra hatchii extends the known range of T. concinna Col. The small Thelymitra is common in Otago—Ed.

To the NZ Native Orchid Group,

Robbie & Sue Graham would like to extend a warm thank you to the group for our unexpected gift of a Certificate of Appreciation. That was a very nice surprise and beautifully designed, too! It brought back many happy memories of times with the orchid enthusiasts (and experts!) at Iwitahi and we wish you all the best for current and future endeavours to study and preserve our special native orchids.

Cover & Figs 21-23: *Thelymitra* "mangawhai" - see p.32.

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Mike Lusk's Hawke's Bay Orchids

(p. 33)

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Does every spider orchid in New Zealand have its fungus gnat? Marsden Fund supports a three-year project to answer this intriguing question.

By Carlos A. Lehnebach, Curator of Botany, Museum of New Zealand Te Papa Tongarewa. Wellington. CarlosL@tepapa.govt.nz

Pollination of New Zealand spider orchids has remained a mystery for many years. The first record of insects visiting flowers of spider orchids in NZ dates from 1927, when Geo Thomson reported observations of fungus gnats visiting flowers of *Corysanthes macrantha* (*Nematoceras macranthum*) and *Corysanthes rivularis* (an Otago *Nematoceras* sp.) in his article "The pollination of New Zealand flowers by birds and insects". Later on, van der Pijl and Dodson (1966) suggested that the flowers of spider orchids resemble fungi, both visually and in their odour. They argued that these features attract female fungus gnats which seek to lay their eggs on the flowers and by doing so act as pollinators. Dafni and Bernhardt (1990) corroborated this assumption and suggested that pollination in Spider Orchids occurs by "brood site deception", and only pregnant female fungus gnats are exploited.

The occurrence of such highly elaborate pollination mechanisms in the New Zealand flora is very unusual. Insect pollination systems have been considered unspecialised and imprecise in New Zealand. Unfortunately, this general assumption has provided grounds for believing that plant-pollinator interactions have not actively contributed to the speciation and morphological diversification of our flora.

Another peculiarity of spider orchids in New Zealand is the diversity in flower morphology and colour that some species exhibit. One clear example is the species *Nematoceras trilobum*, which is one of the most widespread spider orchids in the country. It is also one of the most variable, and it has been suggested that up to 25 taxa are probably included under the name. Some of the most commonly found 'forms' have been given tag names that reflect the area where they are found, for instance "Rimutaka", or the colour of their flowers, for example "green form" or "red form" at Iwitahi Orchid Reserve.

At least four populations made up of "green" and "red" forms have been found in different parts of New Zealand. Chromosome counts done by Murray Dawson *et al*. (2007) suggest that there are two entities. Plants of the green form have 32 chromosomes while those of the red form 72. The occurrence of these mixed populations is very interesting because theoretical models predict that they are evolutionarily unstable and in the long term one of the forms will be lost to extinction (or swamped by the other form) unless they are reproductively isolated. Reproduction isolation, in turn, can be achieved by flowering at different times or using different pollinators. Since these two orchids flower at the same time, it would be expected that they are using a species-specific pollination system.

To understand how these two forms of *N. trilobum* remain reproductively isolated when growing together, we will conduct a three-year study, funded by the Marsden Fund (http://www.marsden.royalsociety.org.nz), to gather evidence from field observations, herbarium material, pollination experiments and DNA sequences and fingerprinting techniques (like those from SCI!). We expect that this multiple-approach will provide sufficient information to:

1) Uncover the pollination mechanism(s) used by these orchids.

2) Evaluate the effect of chromosome number on the specificity of the orchid pollination interaction

3) Detect the extent of gene flow between entities of different chromosome numbers

growing together in the same site.

Most of the genetic work will be done at Victoria University while the morphological measurements of herbarium specimens will be done at Te Papa. There is also a pollination component in our study, and this part will be done mainly by a Masters student under the supervision of Alastair Robertson (Massey University), who is an Associate Investigator in this grant.

To make sure our results are sound and a faithful representation of the interactions between these orchids and their pollinators we need to study several mixed populations of *N. trilobum* along New Zealand. If you come across any populations of *N. trilobum* with plants of both of these forms growing together, please keep us in mind and contact us! They could be the key to understanding speciation in New Zealand Spider Orchids!

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The Marsden Fund press release was received on 25 September 2010, and announced that a Marsden Fast-Start grant will help Dr Carlos Lehnebach at the Museum of New Zealand Te Papa Tongarewa to investigate the fertilisation process in the New Zealand spider orchid and relate this to the evolution of a range of genetically distinct populations.

Ultimately, these results will increase understanding of the ecology of the spider orchid and contribute to scientific knowledge about how populations with such specialised fertilisation methods evolve to become genetically separate, while living in the same environment.

Total Funding (over 3 years): $300,000

Principal researcher: Dr Carlos Lehnebach, Museum of New Zealand Te Papa Tongarewa. Email: CarlosL@tepapa.govt.nz

Associate investigator: Associate Professor Alastair Robertson, Massey University

Marsden Fund Contact: Dr Dean Peterson, Manager: Research Funding (04) 470 5783, 027 500 5553, dean.peterson@royalsociety.org.nz, http://www.marsden.royalsociety.org.nz.

Kevin Matthews emailed (16 September), "This *Thelymitra* plant off Cove Road, Mangawhai is on a steep sidling amongst Kauri ricker forest; growing in clay substrate along with *Nematoceras* "pygmy" and *Diplodium alobulum.* The leaf was well advanced on 21 July 10 and I had a feeling it was something different and worthy of following up. It is closest to *T.* aff *longifolia* but with an arched column, very deep split postanther lobe and a pleasant vanilla scent no doubt for insect pollination **(Cover & figs 21-23)**. You can see it has dropped its load of clumped pollinia behind the stigma. The 2 flowered, 2 bract peduncle is 220mm, the slightly V section flimsy leaf also 220mm x 4mm, the dainty flower is 18mm from tip to tip of those green tinged lateral sepals. The labellum is notably smaller than the sepals. The dorsal sepal is also green tinged. The (2nd) top flower is opening this morning for the first time along with the lower flower once again. The top flower also has the deep split to the postanther. You will also note that the cilia are very compressed on right angle column arms. The Thely leaf at the Cove Road site wasn't common but was scattered over a wide area of the steep sidling. My management of it

here at home has probably advanced the flowering time by a week to a fortnight which puts it at the same flowering time as my very fragrant early flowering *T.* aff *longifolia* growing here on the farm. I've seen notched postanther on *T.* aff *longifolia* but nothing like this deep split on this *T.* "mangawhai" which is reminiscent of the *T. pauciflora* postanther lobe. I've scanned Australian *Thelymitra* for something similar but with no luck."

Mike Lusk emailed (28 September) with **Hawke's Bay news**, "After the usual winter lull with only the ever reliable *Diplodium alobulum, Acianthus sinclarii* and the occasional *D. trullifolium* and *Cyrtostylis rotundifolia* to admire, the early *Nematoceras* are up and about. At Boundary Stream Mainland Island last week I was pleased to find sheets of *N. hypogaeum* **(Fig.26)** in mixed beech and manuka, and on a very wet roadside, *N. iridescens* **(Fig.25)**. I recently found more *Drymoanthus flavus* plants—they seem quite happy growing low on the trunks of kamahi trees although some do become covered in (and possibly smothered by), a sooty mould. Returning from the sanctuary I stopped at a wet shaded roadside cliff just south of Tutira to check the *N. orbiculatum* **(Fig.24)** which is thriving especially in the areas beyond the reach of the trimming machine, which in places functions as an earth mover.

"At the Cape Kidnappers Sanctuary while counting wetas in rifleman nest boxes I was pleased to see plenty of *A. sinclarii* just past flowering and *N. trilobum* agg. leaves, along with *D. adversus* in bud. Trying to sex 15 large and agitated wetas in a small box up a tree tends to focus the attention.

"*Thelymitra* leaves are all over the place but it's a bit early here for flower spikes. Rabbit numbers are building up locally and I expect that many Thelymitras will be eaten before they flower.

"On 25 September I visited a couple of reserves just north of Napier. Tongoio and White Pine Bush reserves are so close to each other that they are effectively one, being connected by a well established track which is not on the latest Topomap. The first part of the track in the former leads to a waterfall, close to the base of which, but well clear of the spray zone, are sheets of *N. papillosum* starting to flower **(Fig.28)**. A little further up the track are more *Nematoceras* leaves with just a few early buds. I think they'll turn out to be *N. macranthum*. A scattering of a large broad-leaved *Pterostylis* and a few finer leaved ones suggest the need to visit again in a month. I was pleased to find some *D. adversus* on a fallen Mapou. The upper part of the reserve, White Pine Bush has always been remarkably free of ground orchids although it is much the better quality with some large podocarps and very few of the weeds that are wrecking its associate. There are *D. flavus* and *Adelopetalum tuberculatum* high in the canopy, but in spite of the current gales no branches had come down.

"Waipatiki Reserve is set a short distance back from a sandy beach and features Nikau and tall kanuka, in many places in quite pure stands. Orchids don't like the nikau at all, perhaps because of the dense canopy and the nearly continuous layer of dead leaves. Once into the transition zone plenty of *N. trilobum* leaves appeared as did several flowers, but I'm not brave enough to go beyond 'agg.' **(Fig.27)**. Again the round leaves of presumed *N. macranthum* are to be seen. There are also a few *Pterostylis* and *Microtis* leaves but surprisingly none of any of the Thelymitras. Just as I was thinking I'd seen all there was to see I was delighted to find a small patch of *Cyrtostylis rotundifolia* **(Fig.29)** with leaves that defy its name. The flowers are paler and prettier than the browns of those in the foothills of the local ranges. I had hoped to see *Caladenia* leaves but if there were any they were concealed by the various grasses under the kanuka. These reserves are home to goats but they seem to leave the orchids alone.

"A quick check of the *N. macranthum* in Te Mata park revealed many buds and a single open flower. On close inspection the leaf seems just as papillose as that of *N. papillosum* which is rather inconvenient."

Aussie notes: David McConachie

A trio from *The Kalhari*

Orchids at Teewah Graham Corbin *The Kalhari* July 2010 p.9-10

I spent a weekend at Teewah (Noosa North Shore) in May where I did a spot of orchiding. I only found three orchids in flower but all were quite interesting. The first was a very common orchid *Geodorum densiflorum*. I would have easily found in excess of a hundred of this species growing in the area, itself nothing unusual. What was unusual was a single plant flowering profusely, quite unusual as this species flowers December to February, not late May. I am not sure if this plant was flowering early or late, but it was certainly very confused.

The next flowering orchid was another terrestrial, *Pterostylis parviflora*. This species is supposed to be flowering this time of year and generally grows coastally, so this looks a good match for this orchid. Unfortunately, this is where the match ends as the shape of the flower is not a good match for *Pterostylis parviflora* and the labellum is all wrong as the tip of this plant's labellum was very broad, far broader than *Pterostylis parviflora* according to the books. This plant is definitely closely related to *Pterostylis parviflora* but I do not believe it is actually this species.

The last orchid I found in flower surprised me in that it was growing on the first dune back from the surf. It was copping the full force of the coastal wind and salt spray. There were easily fifty rosettes with many in bud and two plants with open flowers. The forked labellum quickly identified this orchid as *Pterostylis ophioglossa*. Unfortunately, carefully comparing this orchid to the books and benched *Pterostylis ophioglossa* I have photographed show this orchid does not have the usual bulbous base and has a much longer dorsal sepal. It is also quite different to other *Pterostylis ophioglossa* I have previously photographed in the Brisbane area which also do not match the description of *Pterostylis ophioglossa* particularly well. I have tentatively named this orchid as *Pterostylis ophioglossa* but is not a good match for this species and may prove to be a different species if someone studies this orchid in the future.

Well that completed my weekend, three species of flowering orchid but only one with which I am happy with the identification. Just another day indentifying orchids in Queensland…

Native Orchid Sad Story D Moss *The Kalhari* July 2010 p.12

I love to Bush walk and take Photos of Natives Orchids in their natural habitat. One of the places I like to go regularly is Scrub Road, just off the Mt Glorious Road. For the last 3 years my Orchid mates and I have been enthralled by a magnificent specimen of *Peristernanthus hillii*.

Just 2 weeks ago we thought we would have a look to see how it was going. To our horror it was DEAD! Our only explanation at the time was that Roundup from a general spraying of the weeds on this access Road has drifted onto the Orchid and Presto it died.

Motto: be careful when spraying roundup around.

What's Flowering this Month Graham Corbin *The Kalhari* August 2010 p15-18

A few Kabi members visited some of the coastal heath at Coolum early this month. We were quite surprised by the number of orchids already flowering. We first found a couple of

plants of *Cryptostylis subulata* in flower, my second find of this species flowering this year. This is quite early to see this species in flower. Next we found a number of Prasophyllum in bud. These were still a few weeks from flowering and we could not determine the species. Not far away was a Thelymitra in flower, a great find. Unfortunately, it was a cool overcast day and the Thelymitra was not even considering opening. Another species unable to be identified. Our luck just had to change.

Nearby, we found the first of what proved to be hundreds of Diuris in flower. These orchids were found in large groups flowering all throughout the heath. These orchids caused a fair bit of debate as to their identification until we decided on *Diuris* aff. *chrysantha*. These Diuris have the twin basal labellum ridges and lateral sepals broadest at the tips like *Diuris chrysantha* but lack the basal petal tooth of this species.

We also found *Caladenia fuscata* flowering in large numbers throughout the heath. We had seen these flowering in large numbers in similar heath a month previously so this species seems to be having a very good flowering season. Amongst all the flowers, we found one slightly different. It was similar in size but had a much brighter flower with purple calli stalks on the labellum. After much research and discussion, we have settled on *Caladenia* aff. *gracillima* as we cannot find a good match for any described species for this orchid.

Our next find was quite exciting. Hidden under the grass was a small number of Corybas leaves with a few flowers perched on top. Only one flower was still in good condition. This was fairly easy to identify as *Corybas undulatus* as there is nothing else like this species. We did notice that this flower did not have the distinctive labellum rat tail of this species but this may just be a variation of this single flower. It will have to wait until next year until these plants reflower to check if more flowers lack the labellum rat tail or this is a once off variation.

By now, we had already started to find a few *Glossodia minor* flowering in the short grass areas. This soon turned into a drizzle with groups of dozens of flowering plants being located sporadically throughout the heath and then a flood with large groups of flowering plants growing on rock outcrops. It was really encouraging to find such large numbers of this species growing successfully in this area.

To finish off a great day, we found about six *Lyperanthus suaveolens* in flower amongst the heath undergrowth. These distinctive orchids are unlike any other and so were very easy to identify. I seldom find these orchids in flower so it capped off a wonderful but a somewhat frustrating day. It was great to see a great collection of fairly unusual orchids but frustrated by the lack of research into our native orchids around Brisbane such that it was not possible to put names to a couple of the orchids.

The Column: Eric Scanlen

Nematoceras acuminatum and Thomas Kirk

Thomas Kirk, that dedicated curator of the Auckland Herbarium, prior to Thomas Frederic Cheeseman, was also an expert on the flora of Great Barrier Island and published a huge species list for that island [1] in 1868 which the Column Googled for info. In Dec1867, Kirk deposited (WELT 18901) "*Corysanthes rivularis* Hook. f." from Great Barrier, as he recorded in the *Transactions of the NZ Institute*. We know it now as *Nematoceras acuminatum* (**Fig. 30)** He no doubt collected the specimens in Sept or Oct 1867. The timing is important because, in 1864, J.D. Hooker (Hook. f.) had published his monumental *Handbook of the New Zealand Flora,* and Kirk had had ample time to obtain a copy for the herbarium. Hooker had earlier described "*Nematoceras rivularis*, Hook. fil." in his 1853, *Flora Novae Zelandiae Part 1*, where he had thus corrected Allan Cunningham's "*Acianthus rivularis* A. Cunn." (now *Nematoceras rivulare* **Fig. 8**) which Allan found near Whangaroa in 1826. It never was an *Acianthus* but from 1826 until 1853 it was known as "*Acianthus rivularis* A. Cunn." Hooker, in the Flora, correctly described the leaf of in-flower plants as "ovato-cordato" or ovate-cordate in English.

However, in the description of the same orchid in the 1864 Handbook, (*Corysanthes rivularis*, Hook. f.—*Nematoceras*) Hooker blew it, describing the leaf shape as "orbicular ovate, ovate-cordate, obtuse acute or acuminate" (the Column's emphasis). N.B. no mention of the ½ mm linear apiculus at the tip of the leaf, as two of my correspondents assert to account for the "acute or acuminate" error. In so describing the leaf shapes, Hooker effectively lumped in *N. acuminatum* and all 17 of the *Nematoceras rivulare* agg., some in flower, when the leaf elongates in this genus.

Hooker's lumping confused all the experts until 1985 when Hatch and Clements [2] split *Corybas acuminatus* (*Nematoceras acuminatum*) from the lumping and just as well. Recent molecular analysis [3] shows, on the phylogenetic tree, that *N. acuminatum* is an ancestral form, some 6 or 7 branches older than the more recently evolved *N. rivulare* agg. Pertinently, H.B. Matthews' *N.* "viridis" alias whiskers, is shown as one branch more recent, as the true ancestor of all the *N. rivulare* agg. *N. rivulare* "Taranaki" is shown as one of the most recent of the orbicular-cordate leaved *N. rivulare* aggregate.

Getting back to Thomas Kirk, he was of course aware of the "acute or acuminate" variants of the leaf on "*Corysanthes rivularis*, Hook. f." from the 1864 Handbook, so, that's what he named his Great Barrier Island orchid, found in 1867 and published in 1868; why wouldn't he? Kirk was possibly the first to put specimens of *N. acuminatum* in an herbarium so he became a target for the recent critics who, instead of championing his cause, were heaping criticism. In 1864, and for the next 121 years that title was correct, according to the undisputed authority of the time, J.D. Hooker followed by T.F. Cheeseman and L.B. Moore. Thus the late Dan Hatch's assertion, in the March 1986 Newsletter 17:4, that Kirk had "unwittingly disposed of Cunningham's species" was out of order. Hooker was a lumper, also perpetrating that other imbroglio, by effectively lumping all 13 of the small *Caladenia* genus into *C. minor*, see J72:22 & J78:31 and causing serious debate, still murmuring.

Whence did J.D. Hooker get his "acute or acuminate" part of the leaf description? Dan Hatch wrote, in part, [4, p3] "In 1839, at 22, Hooker sailed with Sir James Clark Ross's Antarctic expedition as surgeon-naturalist on the *Erebus*. During the course of the voyage

he visited the Auckland and Campbell Islands." So Hooker published in 1844, the botany of these islands in *Flora Antarctica* [4 p16] where Ian St George has included the orchid portion for us. Hooker was unsure of *Acianthus rivularis* A. Cunningham he found there, [4, p17] because he saw only leaves and a withered capsule but he described the leaves as varying "very much in size and shape according to their age; the younger ones are orbicular or ovate and cordate at the base, acute; as they grow older they become orbicular." The leaves of *N. acuminatum* do vary as they grow from orbicular to ovate to acute [2 pp493] but the underlined bit is amiss and could be another species such as the so called *N. macranthum* found there. Trevor Nicholls reported it in J63:15 from Carnley Harbour in the Auckland Islands, on 16 Dec 1996 with flowers more like *N. trilobum.* Could that be *N. sulcatum* perhaps? *N. acuminatum* was recorded in 1994, by Betty Seddon, as *Corybas acuminatus* also at Carnley Harbour, J54:18. Karlie Birchall also in 1996 had *C. acuminatum* (J63:15) but as heavily ridged and with small albino flowers; also *C. macranthum* on Campbell Id. (J63:21). So a form of *N acuminatum* is there and Hooker, it seems, did see its leaves, but he seems to have confused it with that curious *N.* aff. *macranthum* to explain him finding that orbicular, mature leaf shape.

Why didn't J.D. Hooker publish the "acute or acuminate" leaved orchid in the 1853 Flora? Perhaps he had his own doubts about a leaf that started orbicular, grew to acute then changed back to orbicular so J.D. decided to just leave it out in 1853. Who knows? By 1864 he did lump his Auckland Island orchid (s) in with Cunningham's, hence the duplicitous leaf description in the Handbook.

Cheeseman, in his 1906 *Manual of the New Zealand Flora*, included "*Corysanthes rivularis*, Hook. f." but left out Hooker's "orbicular" part of the leaf description because he was in fact describing the now *Nematoceras acuminatum.* That is where the switch formally occurred. His "*C. rotundifolia*, Hook. f." was from the Waitakere Ranges in 1872 (AK 3653) as Dan Hatch reported in N/L 17:4. It could have been either *Nematoceras* "viridis" or *N.* "Kaimai" or *N.* "Kaitarakihi", the only *N. rivulare* agg. known from there. Another sent by R.H. Matthews [5] on 12 Sept 1899 from Kaitaia; most likely *Nematoceras* "Motutangi" was also identified by Cheeseman as *C. rotundifolia* which R.H. Matthews thereafter referred to as "The *Rotundifolia*". This was a sorry mix-up with Colenso's 1846 find, "Nematoceras *rotundifolia*, Hook. fil." in Hooker's 1853 Flora but now we know it as "*Anzybas rotundifolius* (Cheeseman) D.L. Jones & M.A. Clem." R.H. Matthews also sent Cheeseman specimens of *Nematoceras rivulare* s.s. [5 pp34] on 29 Oct 1900 from Okahu Stream Kaitaia, so Cheeseman also lumped that with *Corysanthes rotundifolia* and made it a synonym of *C. orbiculata* Col., in his 1906 Manual. Back in 1900, RHM, who was aware of the clear differences in the flowers and flowering times of his two orbicular leaved Kaitaia orchids, did not argue with the great man.

So it was Cunningham who started the name switch in the first instance, by calling his 1826, orbicular leaved orchid, an *Acianthus*, normally furnished with an acute leaf. Hooker made it a problem in 1864 by lumping it in with his 1844 Auckland Id. mix of two species but in 1906, Cheeseman completed the switch to a wholly acute leaved *Corysanthes rivularis*, possibly influenced by his predecessor's, Kirk's 1867 specimens from Great Barrier.

Kirk also collected orbicular leaved orchids from Great (Big) Omaha, (July 1864 WELT 18877 and Dec 1866 WELT 18879). Dan Hatch, in 1986, N/L 17:4, identified theses specimens as "rivularis sensu. orig." Not so. Kirk erred too calling it the misnamed *Corysanthes rotundifolia* but more or less in accordance with Hooker's weird leaf description in the 1864 Handbook, being, "orbicular, acute or apiculate". The leaf on that orchid of Colenso's, now *Anzybas rotundifolius*, **Fig.31,** is bluntly acute and apiculate. Ian St George's photo of Kirk's

Omaha specimens at WELT shows them to be H.B. Matthews' *Nematoceras* "viridis" alias whiskers, **Fig. 32,** still undescribed today, with orbicular, apiculate leaves but never acute. Kirk missed a chance to describe a new species and at the same time misled his students, including T.F. Cheeseman? for decades.

Would you say that's all plain and simple? The Column didn't find it so. More like chapters of confusion.

Dr Mark A. Clements, visiting Kew and the British Museum, saw that Cunningham's holotype for "Acianthus rivularis," had little to do with the *Corybas rivularis* of the time with its acuminate leaf so, with Hatch's able assistance, he described, in 1985, a new species for Kirk's Great Barrier Id. orchid, *Corybas acuminatus*, now "*Nematoceras acuminatum* (M.A. Clem. & Hatch) Molloy, D.L. Jones & M.A. Clem. Orchadian 13 (10):449 (2002)" to quote its full name and citation, from the Editor's annually revised and peer reviewed orchid list, J115:34. Didn't they do well?

So Kirk had merely followed precedent in naming both the Great Barrier and the Omaha orchids as per Hookers' 1864 Handbook instead of delving somewhat deeper and naming two distinct species, one which wasn't described until 121 years later and another still undescribed today, 142 years later. There is a clear moral to be drawn from these events.

If you are unable to formally describe your strange orchid finds, like most of us, do please tag them and report them to the Editor. Do not lump them where they don't fit.

Acknowledgements

1. Ian St George for his first class photos of the WELT specimens; for the Historic Series; for editing the Journals from which much of the above info was obtained and for recent constructive debate on the subject.
2. Dr Mark Clements for spotting the problem at Kew; for the formal description of *Nematoceras acuminatum* and for the *Nematoceras* phylogenetic tree.
3. The late Dan Hatch for much of the work in describing *Corybas acuminatus* and for triggering this investigation by singling out Kirk-the-innocent as the perpetrator.

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Photographs

Fig.30: Robust, red stemmed form of *Nematoceras acuminatum* from Fairy Falls, Waitakere Range 19 Sept 1998. The leaf shape etc. aligns this with T. Kirk's from Great Barrier Id. 1867. Little resemblance to *N. rivulare* which J.D. Hooker described in part and in error, with an acute or acuminate leaf in the 1864 Handbook.

Fig.8 (p.19): *Nematoceras rivulare* from near Whangaroa, 3Oct 2000, earliest of numerous in the colony with orbicular leaf as found by Allan Cunningham nearby on 6 Nov 1826.

Fig.31: *Anzybas rotundifolius* from Brattys Reserve, Ngunguru, 8 July 1995 with bluntly acute leaf; little resemblance to the *N. rivulare* agg. of Kirk's and Cheeseman's, as *Corysanthes rotundifolia*.

Fig.32: H.B. Matthews' *Nematoceras* "viridis" alias whiskers from Fairy Falls, Waitakere Range on 19 Sept 1998. This is the orchid T. Kirk collected at Great Omaha in 1867 and 1868 and named *Corysanthes rivularis* in error but in accord with Hooker's 1864 leaf and flower description, still undescribed 142 yrs later.

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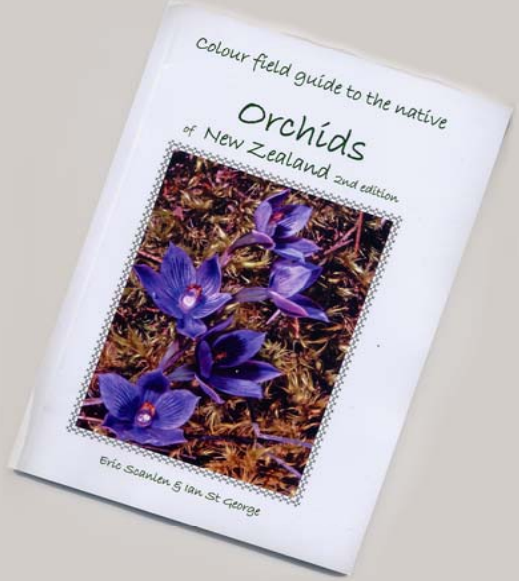

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