Newsletter

Number 28, December 1988.
Editor: Ian St George,
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Editorial

Thom Pendrigh reports on *Corybas cryptanthus* In the Oxford area of North Canterbury in this issue; Mark Hanger reports on orchids in the Wilderness Reserve near Te Anau; Doug McCrae writes about host trees for perching orchids in the Far North. These are model sets of observations, and we would be delighted to receive such a paper from any reader.

But lesser efforts are welcome too. Put pen to paper and tell us what you have seen.

Notes

♦ Error. Bruce Irwin points out that in his tabulation for *Corybas unguiculatus* (Newsletter 23: p9 - eight lines from the foot of the page), "column" should read "labellum".

♦ Gordon Sylvester reports *Earina mucronata* on beech trees beside the river at Turangi.

♦ Ida Collett writes from Riverton, "We made a visit to the Pourakino forest last weekend. *Corybas macranthus* are up and forming flowers (quite a large colony of them); *C. orbiculatus* (= *rivularis*) (a small group) in flower; and *C. trilobus* (common) still flowering."

♦ I had some questions on Latin botanical terms often applied to orchid names that Dan Hatch kindly answered for me. *Sensu lato* = in a broad sense - e.g. *Acianthus reniformis* as Rupp saw it. *Sensu stricto* = in a narrow sense - e.g. *Cyrtostylis reniformis* R.Br. *Sensu originali*s = in the original sense, where there have been several interpretations.

♦ Max Gibbs writes, "The transplanted *Chiloglottis gunnii* plants at Iwitahi have come through and it looks as though ail clumps have survived. There is, however, evidence of foraging by an animal or bird as some of the shoots had been pulled bodily out of the ground. I intend to make some exclusion cages to protect the plants and see what happens. *Pterostylis alobula* was not found at Iwitahi this year but is quite thick (in patches) at Whakamoana Point by the Lake as is *P. trullifolia* - both just finished flowering (28 September). I also found several patches of *Pterostylis* sp. which have very broad leaves similar to *P. areolata*, so it will be interesting to see them in flower."

♦ Members should be aware that the *N.Z. Botanical Society Newslette*r often carries material of interest to native orchid enthusiasts (Editor, Dr Anthony Wright, Auckland Institute and Museum, Private Bag, Auckland). The September issue has reports of *Corybas carsei* and *Pterostylis micromeg*a from the Waikato by Peter de Lange, and the text of a letter from Dr Alex McKay to Dr Lucy Moore confirming her story in Moore and Irwin's *Oxford book of New Zealand plants* about the Maori canoe Te Winika. The canoe, now in the Waikato Museum, was named Te Winika because the totara tree from which it was carved in 1838 had been festooned with *Dendrobium cunninghamii* - "winika" in Maori.

♦ *A clue to insect pollination*? Lying flat on the moss and leaf mould of a dark beech forest floor trying to focus my camera lens on *Townsonia viridis*, I was grateful to the inventor of the electronic flash, for without him the habitat shot would have been difficult Indeed. But what had seemed a perfectly clean specimen in the dim light, appeared eventually in the slide crisscrossed and bedecked with shining, distracting, annoying spider webs. Spiders are not silly: they set webs to trap insects. They set them over *Dendrobium cunninghamii* flowers too. Has anyone seen them on other orchids?

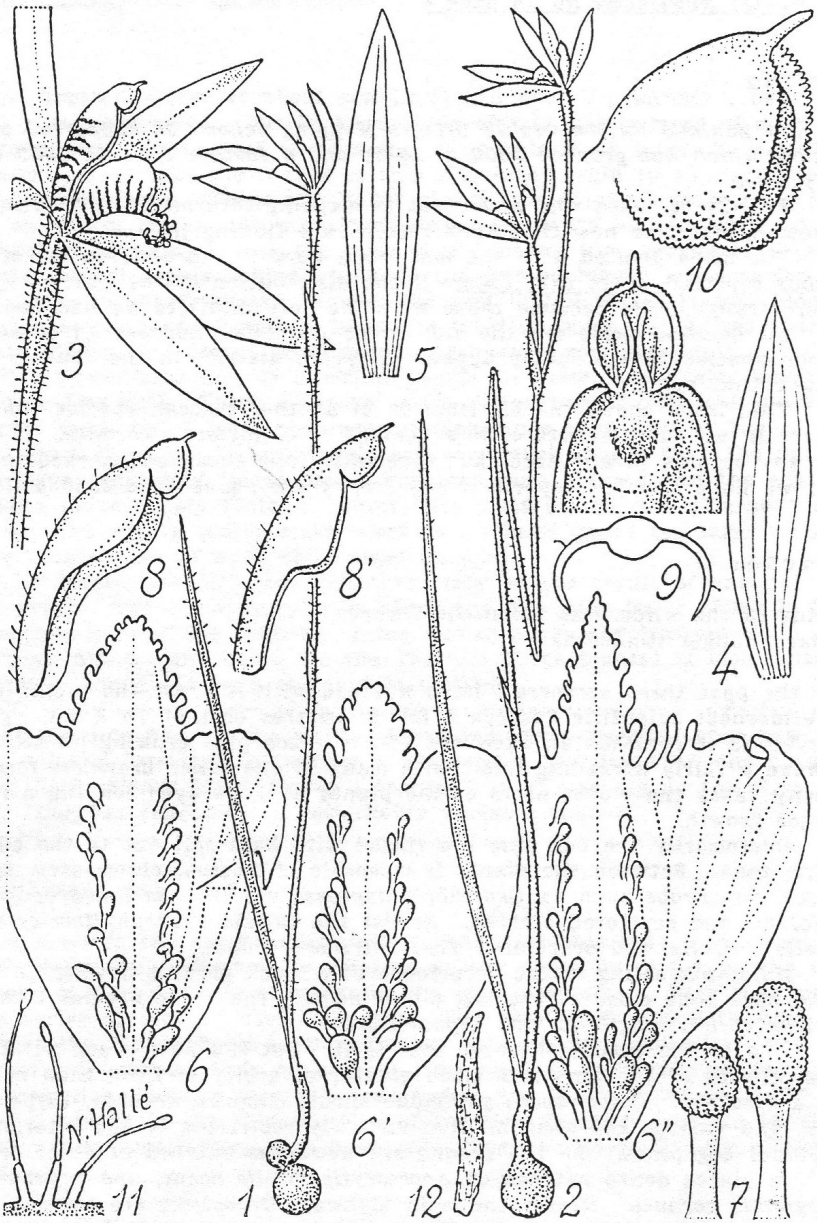
♦ The Victorian Group of the Australasian Native Orchid Society has for sale the new edition of its book *Cultivation of native orchids*, a 96-page update water colour and monochrome illustrations, with all the name changes in the propose *Checklist of Australian native orchid*s (at press) by Mark Clements. A$9.95 plus $2.80 post from PO Box 285, Cheltenham, Victoria 3192, Australia.

New to me is the information oh page 63: "It has been suggested that ethylene gas stimulates the flowering of some species. Ripening bananas are a readily available source of ethylene. Spectacular flowering rates have been achieved by placing tuberoids of *Caladenia menziesii* in a plastic bag with a ripening banana for a few weeks prior to planting out. More experiments must be carried out in this area using different hard-to-flower species and those which flower well after bush fires. Ethylene gas is known to be produced during the intense heat of a bush fire." *I knew you could ripen kiwi fruit in a plastic bag with apples - which also produce ethylene - and I have heard of people putting chopped banana skin in their orchid potting mix (I could never understand why), but this is fascinating - Ed.*

♦ We now exchange with publications from other affiliated A.N.O.S. groups, among them the Wollongong and District Native Orchid Society *Bulletin*, which says of our *Newsletter*, "... all the articles are interesting. People say they have problems pronouncing botanical names for orchids but how would they go with the common names of NZ trees, e.g. Tanekaha, Taraire, Rewarewa, Kohekohe, Kahikatea, etc?" *Good to read that Pterostylis nutans, extinct in N.Z., is so easily found in their area - Ed.*

♦ Doug McCrae writes (20 September), "Bruce Irwin and I spent the last week in the North Cape area. The orchid survey is proceeding well with a number of new and interesting finds for the Park. Records to date on this survey extend the species list by at least twelve. Some notables include *Calochilus herbaceus* and possibly *C. paludosus*. No previous record had been made for *Caladenia* but there are three, possibly four species there. Two of the undescribed northern *Thelymitra* have also been noted together with one small colony of *Corybas matthewsii*."

♦ Standing on the red earth west of Noumea beside a flowering New Caledonian wild orchid (*Eriaxis rigida*, shoulder-high and easily spotted from the rental car at 80km/h) I was delighted to see a familiar face. Under a tussock-like plant was *Caladenia catenata*, the petals and sepals pure white and rather stouter than in the New Zealand version, but otherwise identical. Halle has described and illustrated it (PI. 184 of Nicolas Halle. *Flore de la Nouvelle Caledonie Vol 8, Orchidacees* p461). We saw five different wild orchids flowering, a small sample of the many New Caledonian orchids listed. New Caledonia shares *C. catenata* with us, and also *Spiranthes sinensis, Microtis unifolia, Orthoceras strictum*, a species similar to *Thelymitra longifolia*, a *Corybas*, a *Drymoanthus*, a *Pterostylis*, a *Calochilus*, and an *Earina*.



PL. 184. — **Caladenia catenata** (Sm.) Druce : **1, 2,** vue générale × 0,9; **3,** détail d'une fleur, colonne 6,2 mm; **4,** sépale latéral; **5,** pétale 12 × 4 mm; **6, 6'; 6",** labelles à plat vus par-dessus, long. 4-8 mm; **7,** deux poils en massue des labelles; **8, 8',** colonnes en vue latérale; **9,** colonne, détail et coupe; **10,** anthère, 1,5 mm; **11,** poils de l'ovaire; **12,** graine, long. 0,4 mm. — *MacKee 22431*, sauf : *6', 8', Vieillard 1325; 6",* 12, *Cribs 1317.*

Mapping

The New Zealand Native Orchid Group's Mapping Scheme is supported by Lottery Science, which has granted $500 in 1987, and a further $600 in 1988 towards the scheme.

Thanks to those who have sent in mapping returns; it is proving an interesting exercise now that some returns are flowing in.

The maps printed with the last issue were of the distribution of *Corybas trilobus* reported up to that date. If the distribution of the species appeared rather strange, it is because these were the only districts we had reports from, not because these are the only areas *C. trilobus* appears. I chose a common species that probably appears in every district in the country in order to make that point.

This issue shows the distribution of another common species that probably appears in all the districts of New Zealand - *Chiloglottis cornuta*. If you have seen any orchids in any area (but especially from those not marked in this map - for we have had few reports if any from these), please do send a list.

Articles

Orchids in the Wilderness Scientific Reserve
by Mark Hanger (Dunedin)

Over the past three summers I have watched with interest the orchid flora of the Wilderness Scientific Reserve a few kilometres east of Te Anau. The area is reserved as it contains an excellent stand of bog pine growing on stony ground. All have a fairly spreading habit with many of the lower branches forming roots. In many cases the oldest parts of the plants have decayed leaving a ring of younger growth.

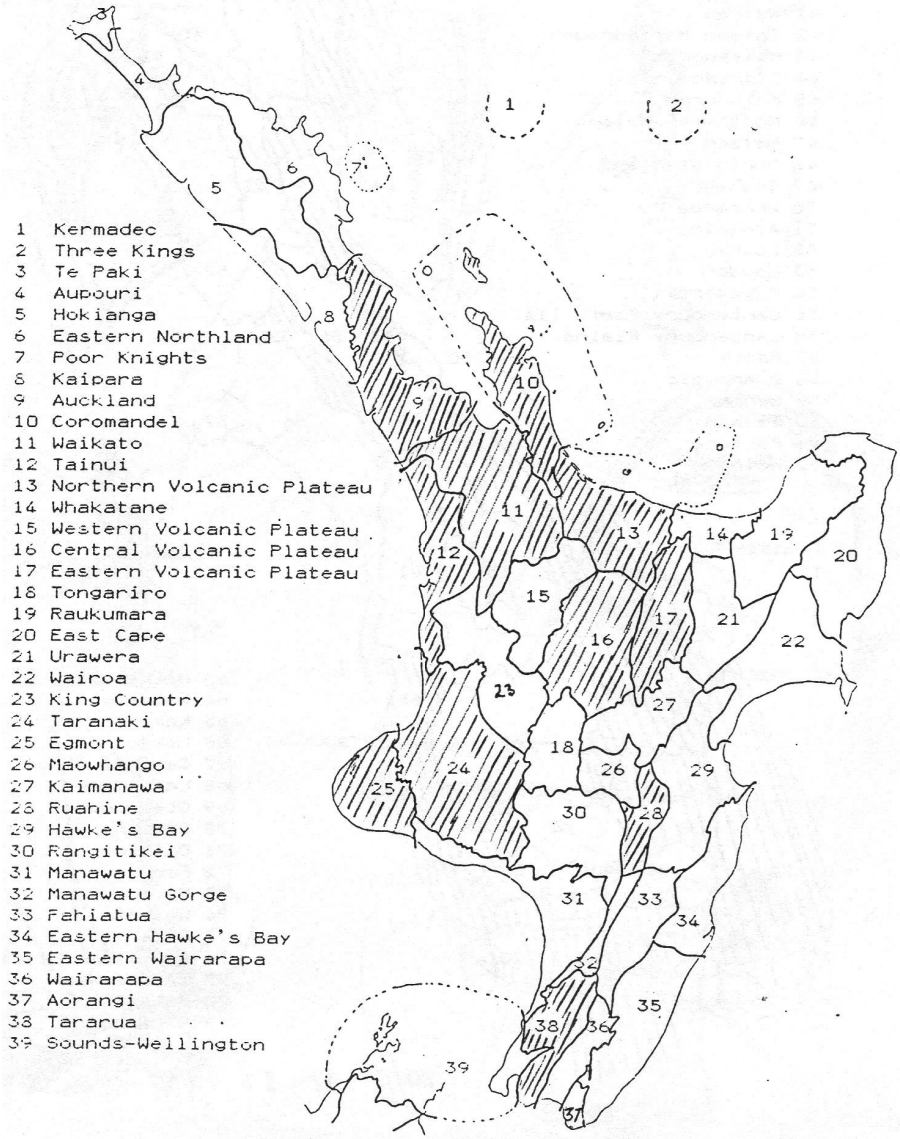
Customarily the bog pine are ringed with bare soil out to the edge of the rooting zone. Between the plants is a mosaic of mosses, club mosses, sparse grasses, subshrubs such as *Gaultheria depressa* var. *n.z.* and *Leucopogon suavolens*, and scattered orchids. Amidst the mosaic *Prasophyllum colensoi*, *Microtis unifolia*, and occasional *Thelymitra* are found.

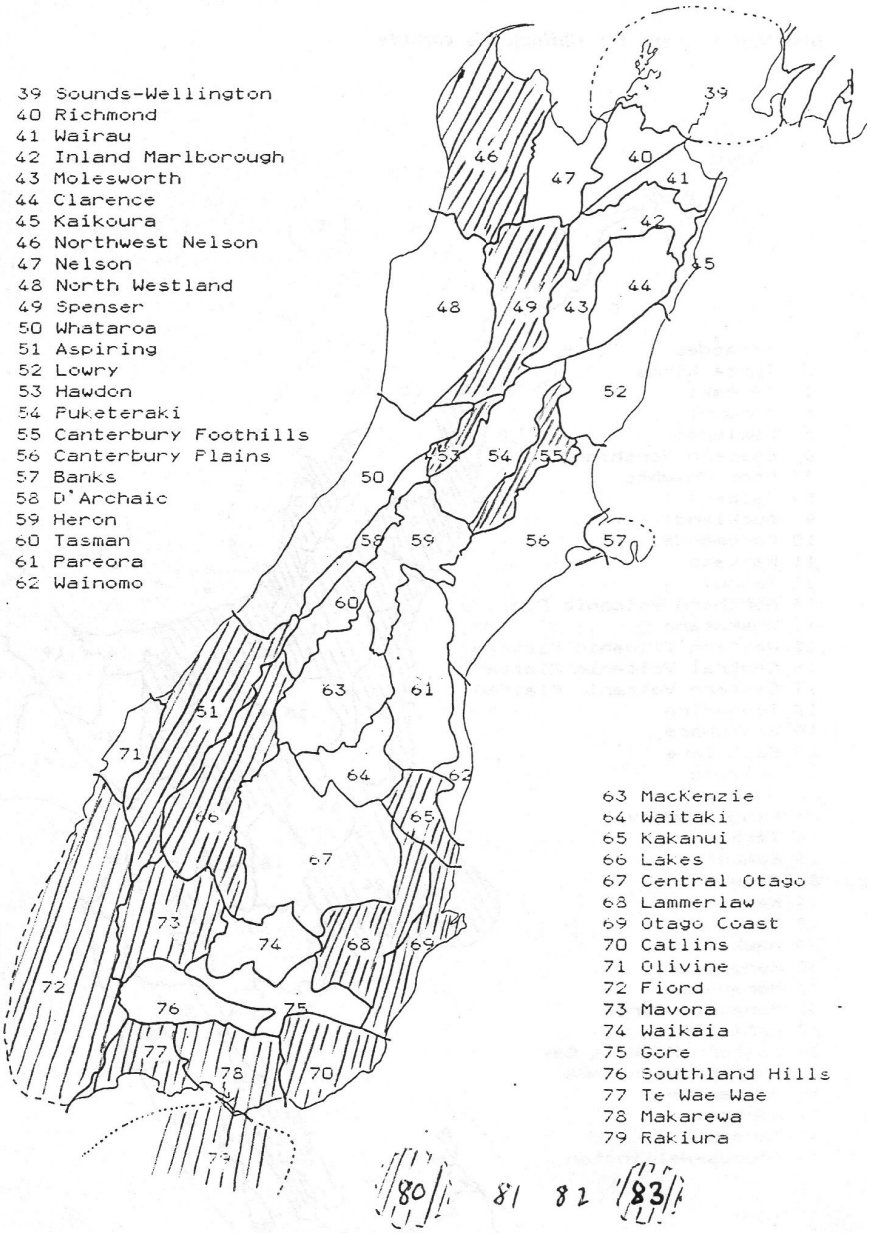
More interesting is the occurrence of a much greater number of *Thelymitra* in the bare zone close to the bog pine clumps. The three species I have seen are *T. hatchii, T. longifolia, and T. pauciflora*.

And to the casual observer that is it. But it's not. Deep within the actual clumps of bog pine is a much greater diversity of flora than is apparent from a distance. Cottonwood, porcupine shrub, manuka, corokia, turpentine shrub, and various coprosma all live virtually restricted to the interior of individual bog pines. On the ground are numerous patches of other orchids.

In places dense patches of *Aporostylis bifolia* occur, and nearby *Chiloglottis cornuta*. Nearer the main highway *Pterostylis* are common, particularly P*terostylis banksii* and a rather pointed form of *P. montana*. Not to be outdone there is a solitary spider orchid, probably *Corybas trilobus*.

Distribution maps for *Chiloglottis cornuta*




39 Sounds-Wellington
40 Richmond
41 Wairau
42 Inland Marlborough
43 Molesworth
44 Clarence
45 Kaikoura
46 Northwest Nelson
47 Nelson
48 North Westland
49 Spenser
50 Whataroa
51 Aspiring
52 Lowry
53 Hawdon
54 Puketeraki
55 Canterbury Foothills
56 Canterbury Plains
57 Banks
58 D'Archaic
59 Heron
60 Tasman
61 Pareora
62 Wainomo
63 MacKenzie
64 Waitaki
65 Kakanui
66 Lakes
67 Central Otago
68 Lammerlaw
69 Otago Coast
70 Catlins
71 Olivine
72 Fiord
73 Mavora
74 Waikaia
75 Gore
76 Southland Hills
77 Te Wae Wae
78 Makarewa
79 Rakiura
80
81
82
83

Corybas cryptanthus from the Oxford area of North Canterbury
by Thom Pendrigh, Oxford.

On 13 January 1988 Dean Pendrigh and I were walking the Coopers Creek track to Ryde Falls when I noticed a small group of fresh *Corybas* type seed stems. *C. trilobus* is common In this area but at this time of year most of the old seed stems are well decayed. It was the new seed stems that caught my attention.

The stems were 2-7cm tall, pale pinkish-brown with fine deep red flecks. There was no leaf and no green colouring. At the base of the stem there was a prominent scale leaf. The rhizome was whitish also with red flecking. With a magnifying glass I was able to see the minute tubers at intervals along the rhizome. All this matched the description and diagrams for C. cryptanthus in *Flora Vol II* and in E.D. Hatch's articles.

I have now found plants in several locations and all have been in light shaded conditions under black beech. Some were growing under black beech leaf and wood compost but mostly they were under moss (*Ptychomnion aciculare, Dicranoloma robustum* and *Thidium furfurosum*). There is always a compost of black beech litter within the moss. The three species of moss mentioned all have a soft open texture in the underlying decaying section which would allow for free growth of the rhizome and unrestricted development of the flower.

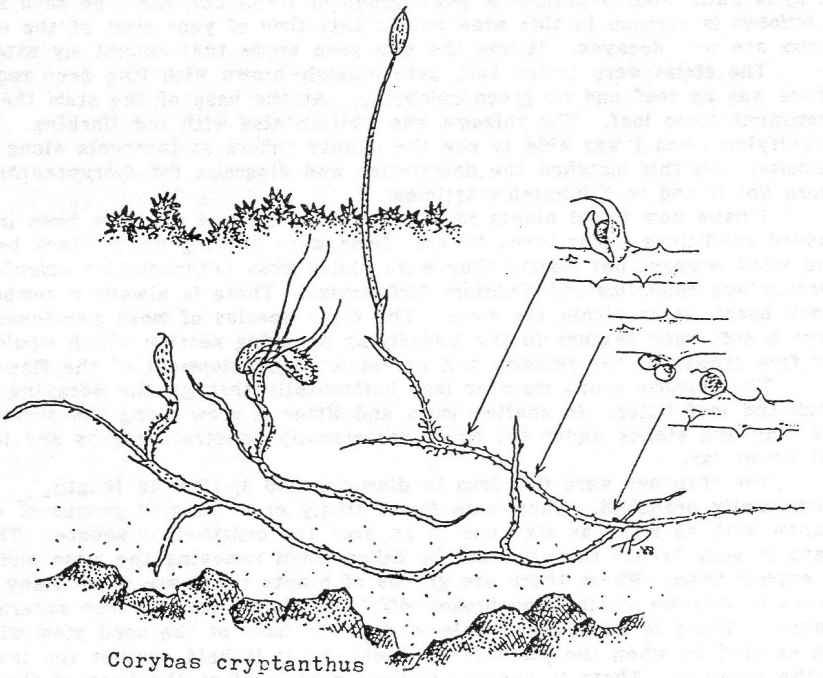
The rhizome grows more or less horizontally through the decaying level of moss and leaf litter. In shallow moss and litter it grew along the surface of the clay and stones under the moss, occasionally penetrating gaps and hollows but never far.

The rhizomes were 0.5-2mm in diameter and l-15cm in length, occasionally branched. They were found singly or in tangled groups of several plants, with as many as six buds in an area ten centimetres square. The whole plant is very brittle so care must be taken when removing the moss and debris to expose them. Where there are groups of plants there are often many small pieces of rhizome which have broken off (possibly to develop into separate plants). There is an obvious scale leaf at the base of the seed stem which is not so obvious when the plant is in flower, as it is held against the lower part of the labellum. There is another obvious scale leaf at the base of the flower stem. The scales of the rhizome are scattered about 1cm apart with the minute tubers placed in the axils. These minute scales and the tubers which are about 0.25mm diameter really need to be viewed through a magnifying glass.

C. trilobus is a good reference in locating *C. cryptanthu*s as they both seem to require similar habitat conditions and are often found together. As *C. cryptanthus* flowers and seeds later than *C. trilobus* the time to look for *C. cryptanthus* fresh seed stems would be when *C. trilobus* stems are finished and decaying. (In the Oxford area this is in January and early February). The rhizomes of both plants have a similar appearance in that they are both whitish and can be flecked with red. The confirming features are the green leaf (if present) of *C. trilobus* and the minute tubers and scales of *C. cryptanthus* which lacks any green leaf or obvious tuber. The red flecking on *C. cryptanthus* seed stems fades with age giving it an even more *C. trilobus* appearance.

The largest colony I have located was scattered over an area of roughly 100 square metres. I counted over forty seed stems and estimate over 100 flowering plants.

Rhizome with bud 30 July 1988; first mature flower 10 September; new seed stems (seed Intact) 13 January; seed stems (all seed dispersed) 5 February.



Corybas cryptanthus

Thom Pendrigh
27 Burnett St.
OXFORD
North Canterbury

20/9/89

Some trees that support perching orchids in the Far North
by Doug McCrae, Paranui, Kaitaia.

Bulbophyllum pygmaeum
Dacrydium kirkii, Te Paki highlands - low on trunks. Taraire (*Beilschmedia tarairi*), Te Paki highlands. Paranui - on trunks and in heads. Kauri *(Agathis australis*), Te Paki highlands - on trunks and in heads. Rewarewa (Knightia excelsa), Peria, Te Paki highlands - low to high on trunks. Celery pine (*Phyllocladus trichomanoide*s), Paranui, Paihia - on trunks.

Bulbophyllum tuberculatum
Kahikatea, Takahue, Paranui - low on trunks. Nikau (*Rhopalostylis sapida*), Takahue - low on trunks. Kauri, Paranui - low on trunks.

Dendrobium cunninghamii
Manuka (*Leptospermum scoparium*), Peria - in regenerating bush. Pohutukawa (*Metrosideros excelsa*), Whangaroa - on trunks and limbs of old trees. Puriri (*Vitex lucens*), Te Paki highlands - on upper branches. Rewarewa, Peria, Te Paki highlands, Paranui - low on trunks. Taraire, Te Paki highlands, Paranui - on trunks and limbs. Totara (*Podocarpus totara* and *P. hallii*), Takahue saddle - on trunks. Kauri, Paranui - low on trunks. Celery Pine, Paranui - on trunks.

Drymoanthus adversus
Carpodetus serratus, Paranui, Takahue - on limbs. Kahikatea, Paranui, Takahue - low to high on trunks. Lancewood (*Pseudopanax crassifolius*), Te Paki highlands - on trunks of large trees. Rimu (*Dacrydium cupressinum*), Herekino S.F. - in heads. Rewarewa, Te Paki highlands, Peria, Paranui - on trunks.
Tawa (*Beilschmedia tawa*), Paranui - on trunks and limbs. Celery pine, Paranui - on trunks.

Earina aestivalis
One plant of this species was noted earlier this year in a small forest remnant on Tauroa Peninsula. It was growing adjacent to *E. mucronata* on a decaying stump. No identification of the supporting species was made.

Earina mucronata
Cyathodes robusta, Tauroa Peninsula - semiterrestrial at base of shrub.
Cyathea dealbata, Paranui, Takahue. *Dicksonia* sp., Paranui, Takahue.
Eucalyptus sp., Takahue - large plant at junction of trunk and limb. Totara, Takahue - on trunks and limbs in association with climbing rata. Nikau, Paranui. Manuka, Peria. Rimu, Herekino S.F., Paranui - in upper branches. Taraire, Paranui - on trunks and limbs. Kauri, Paranui - in heads. Rewarewa, Peria, Paranui, Paihia - on trunks. Celery pine, Paranui - high on trunks.

Earina autumnalis
Nikau, Paranui. Manuka, Peria - at junction of trunks and branches. Puriri, Takahue Saddle - on limbs

Corybas trilobus in Otago,
by Ian St George, Dunedin.

Down here it is the middle of July when our first orchid of the season appears. It is *Corybas trilobus*, and though it is common elsewhere in the province, the place I find it first is among the leaf litter under beech trees at the Five Mile Creek near Queenstown. (It is midwinter, 300 metres above sea-level, the ground out in the open still stiff with frost, the air ice-cold In the green glade of the creek; the waterfalls have icicles at the edges). It is a tiny plant, 2cm tall, the leaf a centimetre or less across, each with a flower 8mm high and a centimetre long.

Quite hard to see, but the flower is always above the leaf, its bright green convex dorsal sepal here and there if you search. "Dorsal sepal short, spathulate (spoon-shaped), obtuse and concave to cucullate (hooded) to its broad tip, arched over top of labellum," wrote Lucy Moore in *Flora II*, and these plants fit: the lateral sepals are rather longer than the petals.

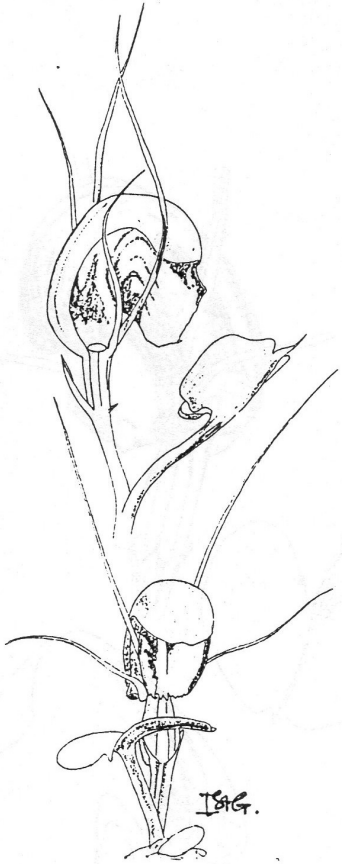
"Labellum auriculate (with an ear-shaped appendage) at base, lamina very abruptly deflexed, broad and rounded, margin finely denticulate (toothed) and often incurled except at its lower edge." Precisely.

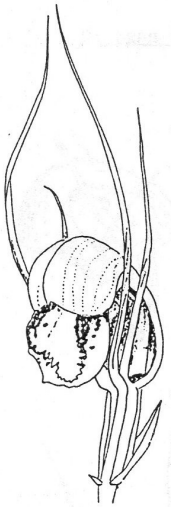
The labellum flexes at a very thickened part of its structure, and the cut surface here exudes a sweet sticky syrup, rich in sugar - I tested it, mashed and well diluted, with diabetic urine sticks, and it contains much more sugar than the rest of the labellum. A nectary, clearly, to attract insects. The column is quite horizontal; the stigma is extended toward the front and top of the column to form below the pollinia a concave rostellum, a shelf that separates pollinia from stigma to prevent self-fertilisation (much more clearly a third stigmatic lobe than is obvious in many other orchids). When you dissect it you see that the labellum so abruptly deflexes that an entering insect would drop over the ridge.

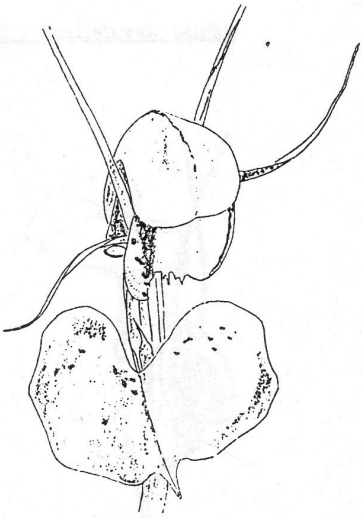
G.M. Thomson wrote about the fertilisation of New Zealand orchids over a hundred years ago, and the part of his paper relating to *Corybas* is reprinted in this issue. I have read elsewhere that the insect crawls out via the opening in the auricle of the labellum. but this is a tiny, flattened aperture, perhaps 1mm x 0.6mm - has anybody actually seen this happen?

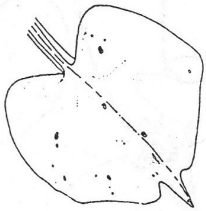
These New Zealand spider orchids, of Malaysian origin, are certainly adapted for insect fertilisation. But in none of the flowers I examined were the pollinia disturbed. There must be very few insects in the Five Mile Creek in midwinter - hardly even a sandfly - and I have never seen fruit stems in this colony. Indeed, although flowering plants continue to appear well into September, by then flowerless leaves also begin to emerge, and soon the flowers can no longer be found among the profusion of leaves.

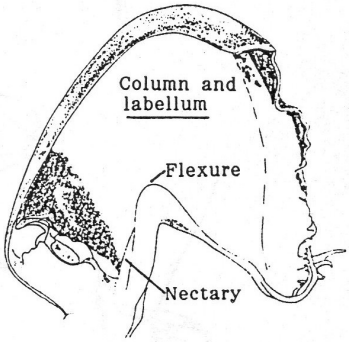
No doubt insect pollination does take place from time to time, and the lengthening stems disperse seed over some distance. Then vegetative division increases the local colony size, perhaps increases the number of flowers in following seasons, and thus increases the chance of one or two being insect pollinated to reprime the cycle. With the horizontal column and the rostellum clearly separating pollen from stigma there seems little chance of self-fertilisation by other than insect intervention, and though shrinkage of the rostellum late in the life of the flower is said to occur In some orchids to allow self-fertilisation, I have not seen this in *Corybas*.

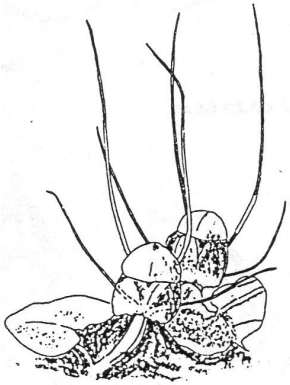






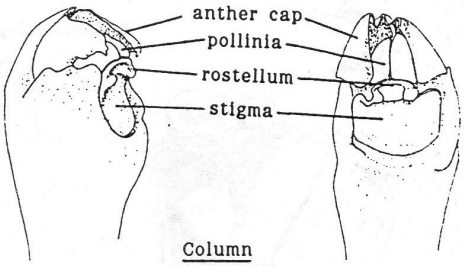


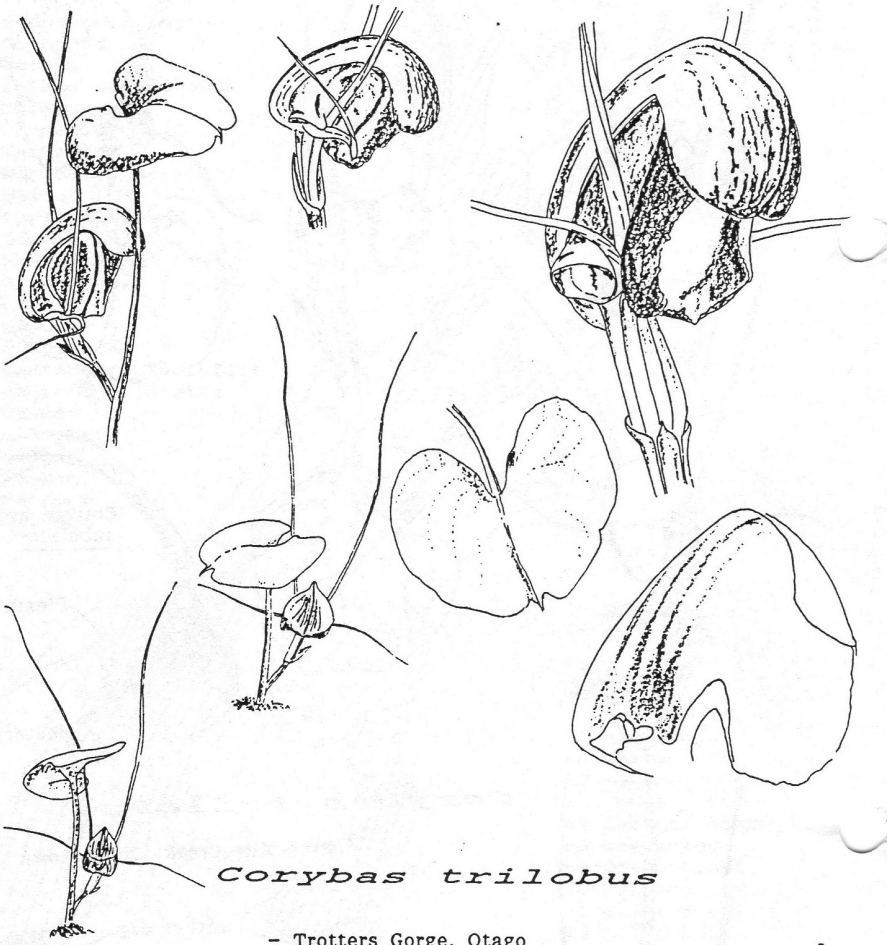




Corybas trilobus

- Five Mile Creek, Queenstown

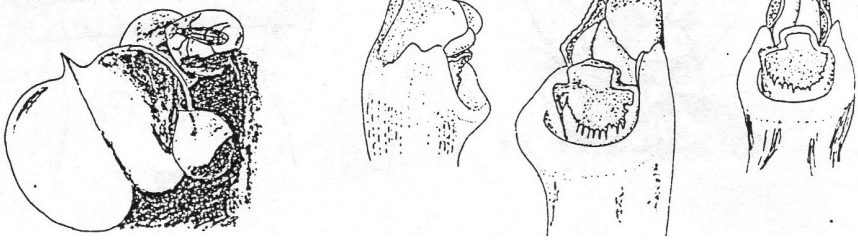




Corybas trilobus

- Trotters Gorge, Otago

DAG.



At Trotters Gorge at about sea-level and near the warmer coast is another *C. trilobus* colony, but in August the site is still a mass of dried-off fern-fronds, with not a leaf to be seen. It is only much later, in mid October (well into spring) that the leaves of this *C. trilobus* begin to appear beneath the manuka, among ferns. These are larger plants, the colony a mass of 2-3cm leaves on 4-8cm stalks, the occasional flower below its leaf by early to mid November: scanning across the tops of the leaves from ground level you see long dark lateral sepals poking up above the massed leaves, some curled below them, unable to penetrate the canopy; the rest of the flower is well hidden below the leaves. The flower is large, its labellum much darker red than the mountain plants, the dorsal sepal green but heavily red-pigmented.

The flower structure is otherwise much the same, and again, Moore's description fits well. There are some minor differences if you look closely - the dorsal sepal has a more prominent median ridge than that of the Queenstown flower, the lateral sepals are very much longer than the petals, the auricle larger and more flared, the anther cap more pointed and the edges of the stigma quite deeply toothed. Fruit flies visit in the late afternoon and I have seen one with a pollen mass stuck to its head (much too large an insect to have crawled out of even this larger auricle).

The details are different, but these may be the result of unequal environments. The consistency with which the flowering times differ is less easy to explain, and the position of the flower above the leaf (in the Queenstown plants) and below (in the Trotters Gorge plants) is also quite consistent - though in each the leaf is stalked.

At Martin's Bay, in the warmer Fiordland environment, I once saw a very large *C. trilobus* flowering in October - the leaves 5cm diameter, the plant 10cm tall, the dark, almost black flower 1.5cm tall; it was as big as the *C. macranthus* nearby. *Corybas trilobus* is a remarkably variable species.

Historical reprint

There is a lot in the early writing about native orchids that is relevant still, as Brian Molloy implied when he referred to the paper by Gudex on the Waikato host trees of *Drymoanthus adversus* in the last Newsletter. With this issue we begin a series of reprints from the past. This first is from G.M. Thomson, a teacher at the High Schools in Dunedin, an enthusiastic naturalist, later a Member of Parliament. It is an excerpt from his "On the means of Fertilization among some New Zealand Orchids", read before the Otago Institute on 11 June 1878, and printed in the *Transactions of the New Zealand Institute* 1878, XI: 418-426. It is copied here with permission from the Royal Society of New Zealand.

Tribe ARETHUSEÆ

(3.) *Corysanthes macrantha*.

Both this species and *C. rivularis* were examined by me, but the flowers arc almost identical in structure, the difference not affecting the relations of

the parts. They arc very striking in appearance, owing to their lurid purple colour, and the long twisted sepals and petals, which give them an extraordinary resemblance to a large spider sitting on a leaf. The upper sepal is large, prominent, and helmet-shaped, and projects forward over the flower. The labellum is large and involute, almost semi-cylindrical, with its external margin fimbriated and expanded downwards into a longish tip. It is not attached continuously at its base. On each side of the flower, when in bud, a small slit is seen, which widens by nu expansion of tho margin (which is thus caused to arch slightly outwards) into a small circular aperture. By the contact of the in-turned edges of the labellum, and the overlapping of the upper sepal, a horizontal aperture is left in the month of the flower, which bends at right-angles a little way in, and opens into a tolerably large cavity. Placed quite at the bottom of this is the short, thick column, lying almost horizontally in *C. rivularis*, and somewhat more erect in *C. macrantha*. The stigmatic cavity is deep, and on its posterior margin is the rostellum. This is formed of large cells, covered with a very delicate membrane. If this be touched with a bristle, it is almost instantly ruptured, and a small, very viscid drop of matter exudes. In withdrawing the bristle the pollinia are brought away with it. The anther is terminal (posterior), and has broad lateral projections. The pollinia are four in number, in two pairs, and in the form of plates. The flowers do not appear to secrete any nectar, but when the surface of the labellum is slightly punctured, a considerable amount of sweetish purple juice exudes, which is probably grateful to insects. From the shape of the flowers, it is necessary to cut them longitudinally to see the parts. Looking at the position of the anther and stigma, it appears to me almost impossible that self-fertilization can take place; at the same time it is somewhat difficult to suggest any satisfactory way in which an insect could accomplish cither this or cross-fertilization. I presume that any insect entering the flower would have to back out again by the same way ns it entered, and in doing so it would come in contact with the rostellum, and would remove the pollinia on its head. It is also probable that, in endeavouring to obtain from a second flower any of the sweet juices from tho tissue at the base of the labellum, it would slightly advance its head, so as to bring the pollinia attached to it on to the stigma. Again, it is possible that self-fertilization might he secured by an insect thus getting the pollinia on its head, and then endeavouring to push its way down through the small lateral apertures. In doing so, it would almost certainly smear the stigma with pollen from the same flower, and I have sometimes been inclined to think that such did take place. At the same time, this would seem like putting an unnecessary difficulty in the way of what is usually a very simple process, and therefore no great value is to be attached to this idea.

For a time I could not understand why spiders frequented these flowers so much, but I soon found a sufficient cause. The only insects capable of removing pollen which were found about the flowers were small Diptera probably a species of *Culex*. In several cases these small flies had penetrated into the tube of the flower, and, in their eagerness after the sweet juices found there, brought their heads in contact with both rostellum and stigma, and partly owing to the viscidity of these parts, and partly to the narrowness aud bending of the tube, were unable to withdraw backwards. In some flowers insects were thus found still alive, in others they were dead, while in many others only portions of them, such ns legs, wings, etc., were left, the spiders having devoured the rest. In every case in which a, captured insect was withdrawn from its trap, the pollinia were removed also, securely attached to the front of the head.

I closely examined 143 flowers, and found that in 47 the pollinia were still in the anther cells; from 90 they had been removed, while in 0, dead or living insects were found glued to tho stigma. Of the whole number examined, only a small proportion ultimately produced capsules.

The flowers of this genus will well repay examination.

Papua - New Guinea notes

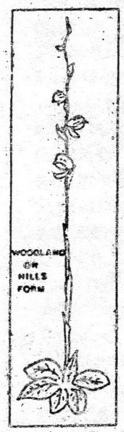
The following excerpt from "The orchid years" by Andree Millar is reprinted from the ANOS Newcastle Bulletin of September 1988. It describes a kind of orchid collecting startling to New Zealanders -

Then one day the Electricity Commission rang up and told me about Lake Sirinumu. This had once been a lovely forested valley but had been flooded for the hydro-electric scheme. The trees had been drowned too, and hundreds of them were still standing above the water, dead but with epiphytic plants on them. They offered me help in collecting the orchids in the name of conservation; they had a flat-bottomed boat and dinghies too, and they would supply a driver whenever I wanted to go. It was a fantastic time. We literally saved thousands of plants from death when the trees finally collapsed into the water. My collectors would run up the dead trees and when we first began, they would drop the plants down to me and the driver in the river truck, but on one occasion a large plant had a snake in it, and we smartly jumped into the water, which was interesting as my helper was a mountain boy and; could not swim. 1 eventually realised that it was a harmless brown python so I climbed back In and we eventually got it out into the water though the boat rocked a bit in the operation. After this we towed a dinghy behind us and dropped the plants into that until we were sure there were no unauthorised residents.

Australian notes

Variations on Pterostylis cycnocephala Fitz. in South Australia
by Bob Bates (reproduced from *NOSSA Journal* September 1988, 12, 7: 68).

Pterostylis cycnocephala is a widespread (but now uncommon In South Australia) spring flowered greenhood with numerous tiny flowers. It Is usually regarded as A member of the so-called "rufa" group of *Pterostylis*. Its scarcity In South Australia Is due to a loss of habitat as It is basically a species favouring more fertile soils.



Before settlement it would have occurred in millions in grassland and in open woodland throughout areas receiving more than 300mm annual rainfall. In drier country and in poorer soils it is replaced by the very similar *P. mutica. P. cycnocephala* can easily be recognised by the dark swan-head appendage on the labellum (*cycnocephal*a = swan head).

There are two distinctly different forms of *P. cycnocephala* in South Australia. The geographic ranges of each overlap but their habitat preferences do not. The dwarf form, which has its flowers crowded on a short scape occurs in alkaline soils (it usually grows on limestone) and is most common near Monarto and Hartley, east of Adelaide, but can also be found on Yorke and Eyre Peninsulas. The tall form has more delicate flowers, well spaced and on a long scape. It occurs in acid soils of open woodland. Near Adelaide it can be found at Cherry Gardens and Mt Barker, but also occurs on Eyre Peninsula, in the Flinders Ranges and in the south east where it can sometimes be found within 100m of the dwarf form.

Both forms are in cultivation in Adelaide and it is fascinating to watch the development of each other when the two are grown together. The dwarf form has flowers that, begin to open while the Inflorescence is still muffled by the basal leaves while the tall form produces a long scape and the first flower may apt open until it is 10cm or more above the basal leaves. There are actually enough differences in the flower to suggest that the two might be treated as separate subspecies, .

The recently named *P. bicolor* from New South Wales and Queensland is very similar to *P. cycnocephala* as it also has a dark coloured appendage on the labellum but in this case the appendage is not in the shape of a swan head. *P. mutica*,
P. bicolor and P. cycnocephala all have very irritable labella - just tap the flower spike and all the labella spring up out of sight ~ making identification, almost impossible!

Some botanists believe that both *P. cycnocephala* and *P. mutica* should be divided into several taxa (species, subspecies or varieties). There are at least three different. *P. mutica* in South Australia!: There are other species involved too. The brown flowered *P. tristis* of New Zealand has also been treated under *P. mutica*. In any case, much further study is needed before the group is satisfactorily sorted out. Perhaps your observations could help.

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