



Newsletter

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Editor: Ian St George,

45 Cargill St. DUNEDIN.



Original papers

***Pterostylis cardiostigma* D. Cooper - A new Record for Waitakeres**

by E.D. Hatch, Laingholm

On 21 October 1989, on a Botanical Society field trip to Mount Donald McLean, Mrs Maureen Young found several plants of what appeared to be *Pterostylis cardiostigma*, not previously found north of Kawhia. On 28 October, by the kindness of Bryn and Sandra Jones, I was able to look over the area and confirm Mrs Young's determination. Undoubtedly *P. cardiostigma*. Flowerless plants, or plants in early bud are easily confused with *P. banksii*, but when the flower is open there is no mistaking it. Very erect and compact, not unlike a swamp bittern with its beak pointed to the sky. The main points of identification are the lobed, heart-shaped, protruding stigma, usually smothered in pollen (the flowers are self-fertile), and the short "tails" to the sepals.

The plants occurred in several colonies spread along a quarter of a kilometre, down a broad ridge to the west of the Donald McLean track. The plant association was dominated by open, windswept manuka about 5m high, with occasional rewarewa, several *Coprosma* species, *Olearia furfuracea* and *Pseudopanax crassifolius*. The ground cover consisted largely of *Gahnia* species; *Blechnum* "black spot" and *fraseri*; the ubiquitous *Schoenus tendo* and the moss *Leucobryum*.

P. cardiostigma grew in twig debris among the manuka. Twenty-one plants were observed, of which nine were in flower or late bud. A voucher specimen has been deposited in AK.

P. cardiostigma is illustrated in

Cooper D. *NZ Journal Botany* 1983; 21: 97 - drawings, reprinted in *NZ Native Orchid Group Newsletter* 1983; 6; 8 and again in 1989; 31; 10.

Johns and Molloy. *Native orchids of NZ*. p51 t74. 1983 - over the name *Pterostylis* "Day's Bay" - a particularly good photograph.

Irwin J.B. *NZ Native Orchid Group Newsletter* 1986; 20: 4 - drawing of a plant from Iwitihi.

Other orchids noted in the area were *P. banksii* and *P. graminea* var. *graminea* in flower; *P. alobula* and *P. trullifolia* dying back; *Chiloglottis cornuta* in flower (one plant with three leaves); plentiful *Corybas oblongus* and a single plant of *C. macranthus*.

Also a colony of *Caladenia catenata* with seven plants in seed and one with a single late flower. *C. catenata*, with red-purple flowers, appears in the Waitakeres to be confined to the Manukau breccia along the west coast.



Pterostylis cardiostigma D. Cooper |
ridge descending to the west of Donald McLean Track Whatipu
Waitakere Ranges S.Jones / D.Hatch
28.10.1989
twig debris under windswept
manuka

Orchid touring in Victoria and South Australia., 1988 – part 4

by Doug McCrae, Auckland.

South Australia

From the air the Mount Lofty ranges loom out of a flat, parched landscape. Passing over these forested hills the Adelaide Plains, with their almost continuous cover of tiled roofs, can be seen stretching out in a huge basin to the southern seas.

Most of South Australia is dry and unsuitable for orchids, the largest areas off habitat being the Mount Loftys which border the city. Due to a warm, dry climate, even here the terrestrial orchids must grow and flower in the very short period of the wetter season - often only three months long.

About 150 orchid species are to be found in South Australia. Some of these are endemic to the state. One, *Monodenia bracteata*, is a South African adventive which has spread from Western Australia.

The world-renowned Adelaide Botanic Gardens are well worth a visit. Adjacent to the gardens is the State Herbarium where I was fortunate enough to meet Joe Weber who is writing up *Thelymitra* for the *Flora of Australia* to be published around 1993. Another project Joe and Bob Bates have well in hand for publication soon is *Orchids of South Australia*.

The Native Orchid Society of South Australia has a shade house near the herbarium where a collection of terrestrial orchids is kept. The old quarantine facility has been converted to an orchid house also. Temperature control gives three separate environments in which many kinds of exotic orchids are grown. These facilities are not open to the public and I was fortunate to be given the opportunity by Roy Hargreaves and Bob Bates to view the collections.

Scott Creek Conservation Park - Adelaide Hills

The NOSSA Group is currently surveying the orchids here. I was invited along for a day's orchiding with half a dozen members, led by Bob Bates. The day was warm and sunny as we made the first stop next to the ruins of the Almanda silver mine.

The habitat throughout the Park consists of tall eucalypt forest on rather dry sandy hills. Little variation in cover was noted, although some grassy areas, a few rocky outcrops and eroded areas were investigated as well as the forest.

During the day, no less than fifty-four species were noted, including a number of species that are either not found or I had not seen in Victoria the previous week.

The huge *Thelymitra grandiflora* took the place of Victoria's *T. aristata* here, plants being very robust and reaching about 80cm in height. *T. mucida*, *T. holmesii*, *T. benthamiana*, *T. luteociliium* and *T. aff. pauciflora* were plants I had not seen in Victoria. Others seen throughout the Park included *T. pauciflora*,

T. rubra, *T. carnea* (flesh coloured, same as NZ plants), *T. ixioides*, *T. juncifolia*, *T. antennifera*, *T. nuda* and *T. flexuosa*.

Caladenia was well represented with *C. tentaculata* the most common species. Others noted were *C. menziesii*, *C. aff. patersonii*, *C. leptochila*, *C. gladiolata*. *C. carnea*, aff. *carnea* var. *minor*, *C. rigida*, *C. pusilla*, *C. reticulata*.

Among the wildlife seen by some of the group was a 2m long brown snake which had made its way back into its hole before the rest of us got to it.

There was the odd skink and occasionally we came across "stumpies". These are short-tailed, thick-scaled lizards about 30cm long and 50-60mm wide. Like other reptiles they often lie on tracks warming themselves in the sun. They are not aggressive and can be easily handled.

Most *Pterostylis* had finished flowering but identifiable species included *P. cucullata*, *P. robusta*, *P. curta*, *P. longifolia*, *P. plumosa*, *P. cf. nana*, *P. alata*, *P. vittata*, *P. foliata*, *P. pedunculata*, and *P. nutans*.

Corybas too were past flowering but leaves of *C. diemenicus* and *C. incurvis* were identified. *Calochilus robertsonii* was common throughout as was *Glossodia major*. *Microtis* was represented by *M. unifolia*, *M. parviflora* and *M. frutetora*. Most of the *Diuris* had set seed with the flowering species identified *D. corymbosa* x *maculata*, *D. lanceolata*, *D. maculata* and *D. corymbosa*. *Acianthus caudatus* and *A. exsertus* were in seed and *Cyrtostylis reniformis* was flowering. *Prasophyllum elatum* and *P. cf. patens* were the only members of this genus noted. *Monodenia* in spike was seen at both ends of the Park so it is probably becoming widespread throughout.

Bob and Sharon Bates kindly gave me board during my stay. This afforded the opportunity to compare and discuss the similar and related orchids of both NZ and Australia. Bob is very knowledgeable of Australian orchids and is doing fine work on the pollination strategies and pollinators of many species. The large amount of work Bob is doing on orchids is all the more remarkable considering he is employed full time as a school teacher. Orchid study is only a part time hobby!

The NOSSA Committee arranged an evening at Mr and Mrs Robjohn's residence for me to show the CONZED native orchid slides. As in Melbourne, the slides were well received with many oohs and aahs when our *Corybas* and *Pterostylis* popped up on the screen. This meeting provided a good opportunity to exhibit the NZ orchid flora which generally is not well known in Australia.

Kenneth Sterling Conservation Park - Carey Gully (Adelaide Hills)

Another NOSSA member, Rosemary Taplin, very kindly escorted me to another area of the Hills and to Cleland Park for a good look at some of the animals I had not seen in the wild. Carey Gully is a tall eucalypt forest which has not been burned for some time. There was a fairly dense understorey which restricted orchids mainly to the tracksides.

Orchids seen here included *Caladenia carnea*, *C. tentaculata*, *Diuris corymbosa*, *Glossodia major*, *Lyperanthus nigricans*, *Pterostylis nana*, and *Thelymitra pauciflora*, *T. aff. pauciflora*, *T. ixioides* and *T. rubra*.

Mt Bold Reservoir - Adelaide Hills

This habitat was a mixture of open grassy slopes, rocky outcrops and tall eucalypt bush with wide tracks. Soil was sandy and mostly well drained.

On the grassy slopes flowering specimens of the following species were noted: *Glossodia major*, *Microtis parviflora*, *Thelymitra pauciflora*, *T. aff. pauciflora*, *T. ixioides* and *T. rubra*.

After careful negotiation of a blackberry thicket (in my shorts) we saw *Caladenia carnea*, *C. leptochila* and *C. reticulata* growing among the rocky outcrops on the opposite hillside. *Thelymitras* included *T. antennifera*, *T. grandiflora* and only the second sighting made on my southern states tour of *T. x macmillanii*. The parents of this hybrid would appear to be either (*T. antennifera* x *T. rubra*) or (*T. antennifera* x *T.*

pauciflora). The column arms were quite plumose.

This was to be my last trip before winging my way home to New Zealand. The great diversity and numbers of orchids in Australia, compared with the New Zealand flora, left me stunned. It is no wonder that this section of the Australian flora attracts so much interest from the amateur and professional botanist grower alike.

The friendliness and helpfulness of all the Australians I met made the tour very satisfying indeed.

(This concludes a four-part series).

Dispersal of *Chiloglottis cornuta*

by Brian Molloy, Botany Division, DSIR Lincoln.

The establishment of *Chiloglottis cornuta* in relatively old stands of planted pines and other introduced conifers is now a well known fact in various parts of the country. There are several examples in and around Christchurch.

Recently, a novel demonstration of the orchid's taste for pines was brought to my attention by the ranger of Riccarton Bush in Christchurch, Jack Wildermouth. A small colony of this orchid was observed on the shaded edge of the Bush in the nursery area used for propagating native trees and shrubs. It is growing in pure sawdust which is used throughout the nursery as a foundation for lining out container-grown plants.

The sawdust supporting *C. cornuta* was delivered to the nursery about two years ago by a contractor who draws his supply from several local sawmills. So there is little chance of tracing the sawdust to a particular mill or plant location. I understand that the contractor stockpiles the sawdust prior to making his deliveries to nurseries and the like.

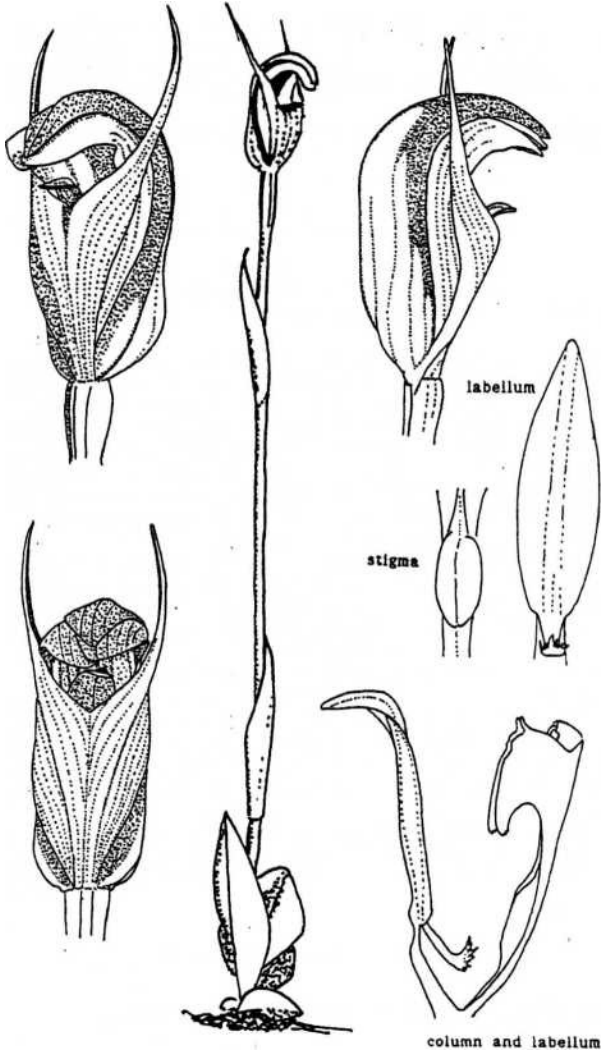
The occurrence of *C. cornuta* at Riccarton Bush raises several interesting questions. Was the seed derived in the first place from a plantation, or was it blown into the contractor's stockpile, or indeed to the nursery at Riccarton Bush? Will the orchid now spread into the Bush, a museum piece of kahikatea forest that was formerly widespread in this region? We may not be able to determine the origin of this orchid in the nursery, and time alone will answer the latter question.

If anyone wishes to grow *C. cornuta*, then a semi-shaded plot of moist pine sawdust is certainly worth a try. The species extends vegetatively at a fair pace, and there is no shortage of material in existing old pine stands for transplanting.

***Pterostylis foliata* J.B. Hook. In Otago**

by Ian St George

Pterostylis foliata has not been easily found in Otago. Petrie reported it from Signal Hill, Mijburn and Tuapeka Mouth in 1895, but the first site is overgrown with exotic weeds, and the others are farmland now. GM Thomson noted in his turn-of-the-century diaries *P. foliata* "collected about Black Jack's Point and



Pterostylis foliata

Signal Hill". Few of the later writers or recent experts on our local flora have referred to the species at all. Perhaps it was destroyed by enthusiasts: The *Otago Witness* of 13 December 1894 reported an excursion of the Dunedin Naturalists' Field Club -

Taking advantage of the last holiday, several members met at Duke St at 9 a.m. to do the long post-poned trip. The route taken was up the Waterworks Creek, and in the solitary clump of manuka north of the reservoir work was begun by noting the little green orchid *Pterostylis foliata* In flower.

The Club's notes of 1894 tell us the truth: "A patch of *P. foliata* was run against and was eagerly collected".

A couple of years ago I was excited to receive from Barbara McGann in Oamaru a rather spent *Pterostylis* that I took to be *P. foliata*, but last year it came up in my shadehouse and it was *P. areolata*.

Last year I found a small colony of *P. foliata* at Shag Point - Just a couple of plants, and they were rapidly eaten down to the rosette by the burgeoning rabbit population. This year I placed exclusion cages over a number of emerging plants on 1 October, and took one home. It grew rapidly, flowered at 6cm height on 19 October, and continued to grow, the flower still perfect with its lateral sepals elongating further and its stem reaching 19cm by 5 November, when the flower began to die off. It had set fruit by 20 November.

In the wild this year I found fourteen plants that remained untouched by the rabbits; four flowered, the rest remaining as rosettes, including one that had flowered last year: the tallest was 23cm. All four set fruit.

In mid-December, on an outing with the Otago Orchid Society, a further site was found in tussock grassland on the Horse Range.

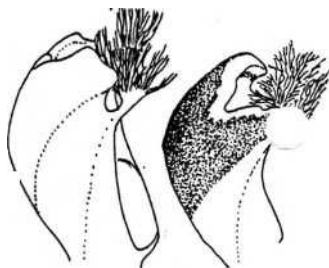
Notes

◆Noeline Clements writes from Northland: "We have purchased a 22 acre block of land so we can continue growing native trees, ferns, etc.... *Drymoanthus adversus* is present, mainly growing on the large volcanic boulders; only a small amount of *Earina mucronata* but plenty of *Microtis unifolia* and *Thelymitra pauciflora*...."

◆The First Australasian Native Orchid Conference and Show (28-30 September 1990) will have a photographic and an art/china painting section - photographs, paintings or drawings of Australasian species are welcome, and may be sold or simply exhibited. Our Group will have a display table for badges, stamps and books. There will be displays of Australian orchids, and pre- and post- conference tours. If you have not received a brochure about this Important conference, or If you require further information on the art, china painting, or photographic sections, please write to the Editor. The organisers hope for a good sized entry from New Zealand.

◆Barbara Hoggard writes from the Far North (22 November). "After our disastrous 9000 acre fire twelve months ago Doug McCrae expected the orchids to reappear. It has been too wet to search over the flats yet but I did find, In an unburnt corner just over our boundary, a patch of *Cryptostylis* - 30-50 plants - not showing signs of flowering, though the plant I have under cover is in bloom now.

Margaret and John Perry suggested exploration. I would think that *Cryptostylis* is fairly well spread over the North - we previously found two separate patches on our property and as it is also known from Ohia across the harbour it is reasonable to assume it exists widely here - if it escapes pigs released for sport, goats, fires and "over-enthusiastic collectors"



♦Mark Hanger reported *Thelymitra pauciflora* from Southland and Otago sites two years ago - the Wilderness Reserve near Te Anau (Ecological District 76), and the Blue Mountains, near Tapanui (Ecological District 68). This considerably extended their previously recognized southern limit, given as mid Canterbury by Moore In *Flora II*. This year I found *T. pauciflora* in the Twelve Mile Creek/Lake Dispute area near Queenstown (Ecological District 66, altitude c. 2500ft, flowering on 23 November), and at Shag Point In North Otago (Ecological District 66, sea level, well past flowering on 18 November) - Ed.

♦P.T. Chandler writes from Wellington, "The following are recent sightings around Wellington - 1 July: In the Botanical Gardens on a spur just below the Meteorological Office (Ecological District 39), numerous plants of *Pterostylis alobula* In bloom. 16 October: On the large boulders at Cape Turakirae (Ecological District 38) were plants of *Earina autumnalis* and *Dendrobium cunninghamii*, not in bloom. 29 October: at Sinclair Head (Ecological District 39) alongside the four-wheel vehicle track several clumps of small plants of *Thelymitra longifolia* in bloom - an unexpected habitat on this very exposed coast. 12 November: In the alpine plantation at Otari plant museum several plants of *T. longifolia* - these were about the same size as the Sinclair Heads plants, about 16cm tall In bloom; at the museum they are called the "weed orchid".

♦Dan Hatch notes "*Gastrodia minor* is recorded for the first time from the Hunua Ranges (Ecological District 9), growing at Mounoukai with manuka and *Cupressus benthamii* - E. Scanlan 14 Dec 1989" - and Ida Collett reports *G. minor* from Gabriel's Gully near Lawrence (Ecological District 68), under manuka - Ed.

♦*Pinus nigra* again: I visited a small remnant stand between Lake Mahinerangi and Waipori Falls (Ecological District 68) on December 16. There were mats of *Chiloglottis cornuta*, some larger than others, with a distinct purplish tinge to the flowers, the labellum quite purple, with a flattish broad callus rather than the usual four distinct calli. *Aporostylis bifolia* was there, as were *Adenochilus gracilis* In large numbers - as at Iwitahi, the fruits grazed off, presumably by possums - Ed.

♦Val Smith writes: (29 Oct) Lucys Gully - Kaitoke Range - *Pterostylis banksii* flowering prolifically - I had previously thought we had only *var. patens* In Egmont National Park - plus at least two other *Pterostylis* I cannot put a name to. Perhaps In the future some knowledgeable person can produce articles with drawings to help identify the many species In this genus, and point out their differences, especially external differences for those of us who are not into dissecting flowers. *Knowledgeable persons please note* - Ed. (18 Nov) Puniho Track - a number of *P. cardiostigma* In flower or still in bud at several locations In bush up the track. (9 Dec) Mangorei Track, Pouakai Range - *P. montana* In flower, not far from where I had first seen it last year - a very pale flower, short lateral sepals curling forward and a very twisted labellum. Nearby were a

few more plants, darker in colour, labellums not as twisted, and sepals of one just starting to curl forward. Were they the same species at different stages of flower development or from slightly different habitats? Or were they different species? (27 Dec) Summit Track, Veronica Walk - I took about thirty people on a native orchid walk for the first event on the Taranaki Summer Nature Programme. We found nine of the ten different species I had hoped to find - none of them prolific except *P. patens* which was in flower nearly all the way up the track. In addition, one of the group at the rear found a group of *Caladenia* plants in bud, which I was not able to identify. We concluded the walk at the Visitor Centre with a selection of slides of native orchids I have photographed in Egmont National Park.

♦ John Dodunski writes from New Plymouth, "... I have found a *Pterostylis* that I am unable to categorise. Maybe it's *P. micromega (furcata?)*. I've found it on wet mossy ground on "papa" cliff face and in a boggy patch at the start of Rerekapa track (Uruti - Ecological District 24). The flower is white with a pale green midline along the top of the galea; caudae are threadlike above the galea. The top leaf does not overtop the flower, it has three or four leaves, narrow, pale green to slightly yellowish with crinkled edges. The cross-section is V- shaped, length from 2-4cm with a thin texture. Column from ovary to pollinae 1.5cm, stigma thin, narrow, almost imperceptible with column. Labellum 1cm long, arched, pale green to cream with a prominent red ridge and a small nodule on the tip. Plants were growing in sunlight. *P. banksii* and *P. montana* were also present.... We also came across some plants of *Corybas oblongus* with wide flaring labellum almost three times the size of plants close to Mt Taranaki - maybe due to a difference in nutrients".

Bruce Irwin examined John's drawing and description, and was unable to identify the plant.

Historical reprints

The discovery and re-discovery of *Caleana minor* in New Zealand

As Cheeseman recorded in 1892, the Rev. Spencer found *Caleana minor* near Rotorua. In his *Manual* (1906), Cheeseman later reported *C. minor* at Kaitaia and at Waiotapu, found by R.H. Matthews and H.J. [sic] Matthews respectively. Chris Ecroyd reported its rediscovery ninety years later in 1982, near Rotorua, and this remains the only known locality in New Zealand. Chris Ecroyd reports that in September 1989 there were twenty-five leaves. Two plants have been lost since 1982, one from spraying nearby broom with 245-T. Chris was away for sixteen days in late October-November when he would normally use an insecticide around the plants. On returning he found only one flower stalk remaining of the three present on 22 September. Last year about seven flower stalks produced seven flowers, and in 1987 twenty-three flowers were produced. One flower stalk can produce up to five flowers.

Cheeseman T.F. On some recent additions to the New Zealand flora. *Transactions of the NZ Institute* 1891. 24; 411-2.

Caleana minor, R. Br. (Bentham, "Flora Australiensis," vi., (366)

I am indebted to the Rev. F. H. Spencer for numerous fresh specimens of this singular little plant, collected by him in the vicinity of Rotorua township. The discovery is an interesting one, both on account of its adding a new genus to our flora, and from its affording another proof of the close connection between the Orchidea of New Zealand and Australia. Mr. Spencer's specimens exactly match the plate of the species given in Fitzgerald's "Australian Orchids," and there can be no doubt of the identity of the New Zealand with the Australian plant. Probably it is not uncommon in the Rotorua and Taupo districts, and has been overlooked until now from its small size and inconspicuous character, and from the short duration of its flowering-period. The following description has been drawn up from Mr. Spencer's specimens:—

Very delicate and glabrous, 6in.-8in. high, usually slightly tinged with red. Leaf solitary, radical, very narrow-linear, rather fleshy, channelled. Flowers 1-3, greenish tinged with red, small, barely 1in. long (including the ovary) ; pedicels 1in., with minute subtending bracts. Sepals narrow-linear, slightly dilated above the middle, nearly equal in size; the dorsal one attached just above the top of the ovary, the lateral affixed to the basal projection of the column. Petals rather smaller. Labellum uppermost, very remarkable in. shape, the lower portion claw-like, and articulated on to the basal projection of the column; the upper part expanded into a broad lamina, which is peltately attached to the claw. This lamina is convex on its outer or upper side, concave towards the column or on its lower side, rounded at the base, narrowed towards the apex and bluntly 2-lobed. The concave side is smooth, the convex or outer side covered with close-set reddish tubercles, which are longest on the margins. Column horizontal, rather long, with a broad basal projection, broadly winged, concave, forming a horizontally-placed cup or pouch.

Hab. Shaded, places among *Leptospermum*, vicinity of Rotorua. Flowers in December and January.

The flowers have a most singular and bizarre appearance, and are well worth careful study. Owing to the ovary being recurved, the column is the lowest part of the flower, and. forms a shallow cup or pouch. Directly over it is the broad lamina of the labellum, hanging from a delicate claw or ribbon which curves upwards from the basal projection of the column. A very slight pressure and it then swings over and descends on to the column, which it closes as with a lid. After a period of rest, it again assumes its previous position. No doubt this remarkable movement is connected with the fertilisation of the plant. It seems probable that small Diptera or other minute insects alight on

the labellum, which then capsizes, imprisoning the insects in the concavity of the column ; that they then disturb the pollinia, and either fertilise the flower with its own pollen, or when escaping convey the pollinia to other flowers. The latter supposition appears to me the most likely; but Mr. Fitzgerald, who has had good opportunities of studying the fertilisation of the plant in Australia, considers that it is almost invariably self-fertilised.

C.E. Ecroyd. Rare New Zealand orchids. *Forest and Bird* 1982. 14: 37-8.

ONE OF New Zealand's endangered plants is a very small but remarkable orchid named *Caleana minor*. The genus *Caleana* has four species, all Australian, with only *Caleana minor* extending to New Zealand.

THEY ARE commonly known as duck orchids, because part of the flower called the labellum is shaped like a duck's head, and at its base there is a hinge-like structure which represents the duck's neck. The wings are represented by the downward pointing broad column.

Caleana minor grows to about 15 cm tall with a very delicate, slender red stem. It has from one to seven small green flowers, with a purple

Right: Recent efforts to protect the very rare orchid *Caleana minor* have been rewarded with these amazing flowers.

David Blake photo



Below, left: The rare bearded orchid *Calochilus robertsonii*.

Below, right: *Calochilus paludosus*, a beautiful bearded orchid.

By C. E. Ecroyd

labellum and reddish tips to both sepals and petals.

It usually flowers in December, but may flower from October to January. There is only a single leaf 3 cm to 9 cm long, very narrow and channelled, and it may be withered at flowering time.

It is pollinated in a most remarkable way by small insects. When they alight on the hinged labellum it overbalances, shutting the insect in the pouch formed by the column. After a struggle, which must dislodge the pollen and self-fertilise the flower, the insect escapes.



Found at two places

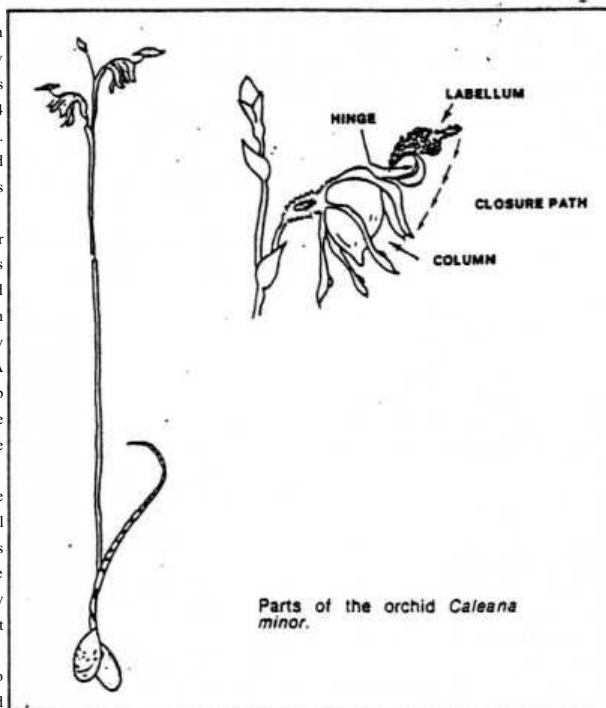
This rare little orchid has been found at only two localities in New Zealand. A small number of plants were collected from 1891 to 1924 near Rotorua by the Rev. F. H. Spencer and Mr K. W. Allison and near Kaitaia by the Matthews brothers.

In 1979, when searching for another rare orchid, *Calochilus robertsonii*, near Rotorua, I stumbled across one small *Caleana minor* in full flower. I was amazed at the way the flower snapped shut on touch. A few other New Zealand orchids trap "visiting" insects, including the distinctive hooded orchids of the genus *Pterostylis*.

Further searching of this site revealed two slender red stalks, all that remained of a further two plants after attack by insect larvae. These three plants remain the only specimens at present known to exist in New Zealand.

In 1980 all three plants failed to flower after being severely attacked by insect larvae. Attempts will be made this summer to protect them, but unless further as-yet-undiscovered plants exist, this species must surely be on the verge of extinction in New Zealand.

Very thorough searching of the surrounding area has revealed several other plant species of interest. The two comb ferns *Schizaea fistulosa* and *Schizaea dichotoma* were discovered within a few metres of the *Caleana minor*.



Schizaea dichotoma is more common further north, particularly in kauri forest, and is exceedingly rare in the central North Island.

A few plants of the beautiful bearded orchid *Calochilus robertsonii* and its close relation *Calochilus paludosus* have also been found in the vicinity. The photos of these two orchids reproduced in this article are from a new book on

native orchids to be published this year by John Johns and Dr B. P. J. Molloy.

Leave it alone

Anyone finding a rare orchid should not try to move it by digging it up. It is very unlikely to survive in cultivation and therefore should be left growing where it is found.



Copy of a photograph taken by H.B. Matthews of plants found in the vicinity of
Kaitala: *Caleana minor* - alas, long gone from the area.

N.B.

Mapping

The NZNOG Mapping Scheme is supported by Lottery Science.

The Mapping Scheme aims to provide an up-to-date distribution map for every New Zealand species, an important undertaking in this time of environmental pollution, changing climatic conditions and land development, with their effects on native plants.

The response from our members has been tremendous - the majority of Districts have had some reports, but a few Districts have had no reports, and quite a few have had only a few orchids reported: below is the collation by Ecological District number.

You will see that some of the unreported Districts are remote and some are offshore islands rarely visited, but a number are places where someone in the Group must have seen orchids. Remember, we do not just want reports of rarities, we would ideally like a report of every orchid in every District.

If you have records (after 1982) of orchids that are not listed here by the District in which you saw them, please write to the editor - a simple list headed with the District number (or the name of the locality if you are unsure of the District) will be greatly appreciated.

A. Species by District

1. Kermadec:
2. Three Kings:
3. Te Pahi: *Acianthus sinclairii*. *Bulbophyllum pygmaeum*. *Caladenia alata*. *C. minor*, *C. "green column"*, *Calochilus herbaceus*. *Corybas acuminatus*. *C. oblongus*. *C. trilobus*, *C. "aff. unguiculatus"*. *Cyrtostylis oblonga*. *Dendrobium cunninghamii*, *Drymoanthus adversus*. *Earina autumnalis*. *E. mucronata*. *Gastrodia sesamoides*. *Microtis parviflora*, *M. unifolia*. *Orthoceras strictum*. *Prasophyllum pumilum*. *P. "aff. patens"*, *Pterostylis alobula*, *P. plumosa*. *P. trullifolia*. *P. "rubricaulis"*. *Spiranthes sinensis*. *Thelymitra aemula*. *T. carnea*. *T. longifolia*. *T. matthewsii*. *T. pauciflora*. *T. pulchella*. *T. "aff. ixioides"*. *T. "darkie"*, *T. "rough leaf"*.
4. Aupouri: *Acianthus sinclairii*, *Caladenia alata*. *C. minor*, *C. "green column"*, *Calochilus herbaceus*. *Corybas oblongus*, *C. trilobus*. *C. "aff. unguiculatus"*. *Cryptostylis subulata*. *Cyrtostylis oblonga*. *Earina mucronata*. *Microtis parviflora*. *M. unifolia*. *Orthoceras strictum*. *Prasophyllum colensoi*. *P. pumilum*. *Pterostylis plumosa*, *P. trullifolia*. *Spiranthes sinensis*. *Thelymitra aemula*. *T. carnea*, *T. longifolia*. *T. pauciflora*. *T. pulchella*. *T. "aff. ixioides"*. *T. 'Ahipara'*. *T. "darkie"*, *T. "pink whiskers"*. *T. "rough leaf"*.
5. Hokianga: *Acianthus sinclairii*. *Bulbophyllum pygmaeum*. *B. tuberculatum*, *Caladenia alata*. *C. minor*. *C. "green column"*. *Calochilus herbaceus*, *C. paludosus*, *Chiloglottis cornuta*. *Corybas acuminatus*. *C. cheesemanii*. *C. oblongus*. *C. rivularis*. *C. trilobus*. *C. "aff. unguiculatus"*. *Cyrtostylis oblonga*. *Dendrobium cunninghamii*. *Drymoanthus adversus*. *Earina aestivalis*. *E. autumnalis*. *E. mucronata*, *Microtis parviflora*. *Microtis unifolia*, *Orthoceras strictum*. *Prasophyllum colensoi*. *P. pumilum*. *Pterostylis alobula*. *P. banksii*. *P. trullifolia*. *P. "rubricaulis"*. *Thelymitra aemula*. *T. carnea*. *T. cyanea*. *T. longifolia*. *T. pauciflora*. *T. pulchella*. *T. "aff. ixioides"*. *T. "darkie"*, *T. "pink whiskers"*. *T. "rough leaf"*.
6. Eastern Northland: *Bulbophyllum pygmaeum*, *Corybas "aff. unguiculatus"*, *Earina mucronata*, *Microtis unifolia*, *Orthoceras strictum*, *Pterostylis banksii*, *P. trullifolia*, *Thelymitra aemula*, *T. carnea*, *T. longifolia*, *T. pauciflora*. *T. pulchella*.
7. Poor Knights:

8. Kaipara: *Acianthus sinclairii*, *Caladenia catenata*, *C. minor*, *C. "green column"*, *Chiloglottis cornuta*, *C. acuminatus*, *C. oblongus*, *C. trilobus*, *Cyrtostylis oblonga*, *Earina mucronata*, *Microtis parviflora*, *M. unifolia*, *Orthoceras strictum*, *Pterostylis banksii*, *P. "rubricaulis"*, *Thelymitra aemula*, *T. longifolia*, *T. pauciflora*, *T. "aff. ixioides"* *Yuania australis*.
9. Auckland: *Acianthus sinclairii*, *Bulbophyllum pygmaeum*, *B. tuberculatum*, *Caladenia catenata*, *C. iridescens*, *C. minor*, *Chiloglottis cornuta*, *Corybas acuminatus*, *C. carsei*, *C. cheesemaniae*, *C. macranthus*, *C. oblongus*, *C. rivularis*, *C. trilobus*, *C. "aff. unguiculatus"*, *Cyrtostylis oblonga*, *Dendrobium cunninghamii*, *Drymoanthus adversus*, *Earina autumnalis*, *E. mucronata*, *Gastrodia minor*, *Microtis unifolia*, *Orthoceras strictum*, *Prasophyllum pumilum*, *Pterostylis alobula*, *P. banksii*, *P. brumalis*, *P. cardiostigma*, *P. graminea*, *P. plumosa*, *P. trullifolia*, *P. "rubricaulis"*, *Thelymitra aemula*, *T. carnea*, *T. hatchii*, *T. longifolia*, *T. pauciflora*, *T. pulchella*, *T. "intermedia"*, *Yuania australis*.
10. Coromandel: *Acianthus sinclairii*, *Aporostylis bifolia*, *Bulbophyllum pygmaeum*, *Caladenia iridescens*, *C. minor*, *Chiloglottis cornuta*, *Corybas acuminatus*, *C. cheesemaniae*, *C. macranthus*, *C. oblongus*, *C. rivularis*, *C. trilobus*, *Cyrtostylis oblonga*, *Dendrobium cunninghamii*, *Drymoanthus adversus*, *Earina autumnalis*, *E. mucronata*, *Gastrodia cunninghamii*, *G. sesamoides*, *Microtis unifolia*, *Orthoceras strictum*, *Prasophyllum nudum*, *P. pumilum*, *"aff. patens"*, *Pterostylis alobula*, *P. banksii*, *P. brumalis*, *P. graminea*, *P. patens*, *P. trullifolia*, *P. "rubricaulis"*, *Thelymitra aemula*, *T. carnea*, *T. formosa*, *T. longifolia*, *T. pauciflora*, *T. pulchella*, *T. "aff. ixioides"*, *Yuania australis*.
11. Waikato: *Acianthus sinclairii*, *Bulbophyllum pygmaeum*, *Calochilus robertsonii*, *Chiloglottis cornuta*, *Corybas carsei*, *C. cheesemaniae*, *Dendrobium cunninghamii*, *Drymoanthus adversus*, *Earina autumnalis*, *E. mucronata*, *Microtis unifolia*, *Orthoceras strictum*, *Pterostylis alobula*, *P. banksii*, *P. trullifolia*.
12. Tainui: *Acianthus sinclairii*, *Bulbophyllum tuberculatum*, *Chiloglottis cornuta*, *Corybas acuminatus*, *C. trilobus*, *Earina autumnalis*, *E. mucronata*, *Microtis unifolia*, *Orthoceras strictum*, *Orthoceras strictum forma viride*, *Pterostylis banksii*, *Thelymitra longifolia*.
13. Northern Volcanic Plateau: *Acianthus sinclairii*, *Bulbophyllum pygmaeum*, *B. tuberculatum*, *Caladenia catenata*, *C. iridescens*, *Caleana minor*, *Calochilus robertsonii*, *Chiloglottis cornuta*, *Corybas acuminatus*, *C. macranthus*, *oblongus*, *C. rivularis*, *C. trilobus*, *Dendrobium cunninghamii*, *Drymoanthus adversus*, *Earina autumnalis*, *E. mucronata*, *Gastrodia cunninghamii*, *Microtis unifolia*, *Orthoceras strictum*, *Prasophyllum colensoi*, *Pterostylis alobula*, *P. banksii*, *P. cardiostigma*, *P. graminea*, *P. trullifolia*, *P. "rubricaulis"*, *P. "aff. montana"*, *Spiranthes sinensis*, *Thelymitra aemula*, *T. carnea*, *T. decora*, *T. formosa*, *T. hatchii*, *T. longifolia*, *T. pauciflora*, *T. "aff. ixioides"*.
14. Whakatane: *Drymoanthus adversus*, *Thelymitra longifolia*.
15. Western Volcanic Plateau: *Corybas trilobus*, *Gastrodia minor*, *Prasophyllum "aff. patens"*.
16. Central Volcanic Plateau: *Acianthus sinclairii*, *Chiloglottis cornuta*, *Corybas acuminatus*, *C. cheesemaniae*, *C. macranthus*, *C. oblongus*, *C. rivularis*, *C. trilobus*, *Earina autumnalis*, *E. mucronata*, *Gastrodia cunninghamii*, *G. minor*, *Microtis oligantha*, *M. parviflora*, *M. unifolia*, *Orthoceras strictum*, *Prasophyllum colensoi*, *Pterostylis alobula*, *P. banksii*, *P. trullifolia*, *Thelymitra cyanea*, *T. decora*, *T. longifolia*.
17. Eastern Volcanic Plateau: *Adenochilus gracilis*, *Aporostylis bifolia*, *Caladenia catenata*, *C. iridescens*, *C. lyallii*, *Calochilus robertsonii*, *Chiloglottis cornuta*, *Chiloglottis gunnii*, *Corybas macranthus*, *C. trilobus*, *Gastrodia minor*, *Microtis unifolia*,

- Prasophyllum colensoi*, *Pterostylis banksii*, *P. cardiostigma*, *P. graminea*, *P. patens*, *Thelymitra longifolia*, *T. pauciflora* (?).
18. Tongariro: *Acianthus viridis*, *Adenochilus gracilis*, *Aporostylis bifolia*, *Caladenia iridescens*, *C. lyallii*, *Gastrodia cunninghamii*, *Microtis unifolia*, *Orthoceras strictum*, *Prasophyllum colensoi*, *P. "aff. patens"*, *Pterostylis banksii*, *P. cardiostigma*, *P. micromega*, *P. patens*, *Thelymitra cyanea*, *T. decora*, *T. formosa*, *T. hatchii*, *T. longifolia*, *T. pauciflora*, *T. pulchella*, *T. "aff. ixioides"*.
19. Raukumara: *Microtis parviflora*, *Pterostylis graminea*.
20. East Cape:
21. Urewera: *Dendrobium cunninghamii*, *Earina autumnalis*, *E. mucronata*, *Microtis unifolia*.
22. Wairoa:
23. King Country:
24. Taranaki: *Bulbophyllum pygmaeum*, *Caladenia catenata*, *Chiloglottis cornuta*, *Corybas acuminatus*, *C. oblongus*, *C. rivularis*, *C. trilobus*, *Dendrobium cunninghamii*, *Drymoanthus adversus*, *Earina autumnalis*, *E. mucronata*, *Microtis unifolia*, *Orthoceras strictum*, *Pterostylis alobula*, *P. banksii*, *P. montana*, *Thelymitra longifolia*.
25. Egmont: *Adenochilus gracilis*, *Aporostylis bifolia*, *Bulbophyllum pygmaeum*, *Caladenia catenata*, *C. lyallii*, *Chiloglottis cornuta*, *Corybas acuminatus*, *C. macranthus*, *C. oblongus*, *C. rivularis*, *C. trilobus*, *Dendrobium cunninghamii*, *Drymoanthus adversus*, *Earina autumnalis*, *E. mucronata*, *Gastrodia cunninghamii*, *Microtis unifolia*, *Orthoceras strictum*, *Prasophyllum colensoi*, *Pterostylis banksii*, *P. cardiostigma*, *P. humilis*, *P. irsoniana*, *P. montana*, *P. patens*, *P. venosa*, *Thelymitra hatchii*, *T. longifolia*.
26. Maowhango:
27. Kaimanawa: *Caladenia catenata*, *Chiloglottis cornuta*, *Corybas trilobus*, *Earina mucronata*, *Prasophyllum colensoi*, *Pterostylis banksii*, *P. patens*, *Thelymitra cyanea*, *T. longifolia*.
28. Ruahine: *Chiloglottis cornuta*, *Corybas trilobus*, *Dendrobium cunninghamii*, *Microtis unifolia*, *Orthoceras strictum*, *Pterostylis patens*, *P. venosa*.
29. Hawke's Bay: *Orthoceras strictum*, *Thelymitra longifolia*.
30. Rangitikei: *Chiloglottis cornuta*, *Corybas trilobus*.
31. Manawatu: *Corybas trilobus*, *Microtis unifolia*, *Orthoceras strictum*.
32. Manawatu Gorge:
33. Pahiatua:
34. Eastern Hawke's Bay:
35. Eastern Wairarapa:
36. Wairarapa: *Acianthus sinclairii*, *Corybas macranthus* (?), *C. trilobus*, *Drymoanthus adversus*, *Earina mucronata*, *Microtis unifolia*, *Pterostylis banksii*, *P. graminea*, *Thelymitra longifolia*.
37. Aorangi:
38. Tararua: *Acianthus sinclairii*, *A. viridis*, *Bulbophyllum pygmaeum*, *Caladenia catenata*, *C. iridescens*, *C. lyallii*, *Chiloglottis cornuta*, *Corybas acuminatus*, *C. cheesemani*, *C. macranthus*, *C. oblongus*, *C. rivularis*, *C. trilobus*, *Cyrtostylis oblonga*, *Dendrobium cunninghamii*, *Drymoanthus adversus*, *Earina autumnalis*, *E. mucronata*, *Gastrodia cunninghamii*, *G. sesamoides*, *Lyperanthus antarcticus*, *Microtis unifolia*, *Orthoceras strictum*, *Prasophyllum colensoi*, *Pterostylis alobula*, *P. australis*, *P. banksii*, *P. cardiostigma*, *P. foliata*, *P. graminea*, *P. montana*, *P. plumosa*, *P. trullifolia*, *Thelymitra cyanea*, *T. decora*, *T. formosa*, *T. hatchii*, *T. longifolia*, *T. pauciflora*, *T. pulchella*, *T. "aff. ixioides"*.
39. Sounds-Wellington: *Acianthus sinclairii*, *Bulbophyllum pygmaeum*, *Caladenia iridescens*, *Chiloglottis cornuta*, *Corybas acuminatus*, *C. cheesemani*, *C.*

- macranthus*, *C. oblongus*, *C. rivularis*, *C. trilobus*, *Dendrobium cunninghamii*, *Earina autumnalis*, *E. mucronata*, *Gastrodia cunninghamii*, *Microtis unifolia*, *Orthoceras strictum*, *Prasophyllum pumilum*, *Pterostylis alobula*, *P. banksii*, *P. cardiostigma*, *P. foliata*, *P. graminea*, *P. plumosa*, *P. trullifolia*, *Thelymitra cyanea*, *T. decora*, *T. hatchii*, *T. longifolia*, *T. pauciflora*, *T. pulchella*.
40. Richmond: *Acianthus sinclairii*, *Bulbophyllum pygmaeum*, *Caladenia iridescens*, *Corybas oblongus*, *C. rivularis*, *Dendrobium cunninghamii*, *Drymoanthus adversus*, *Earina autumnalis*, *E. mucronata*, *Gastrodia sesamoides*, *Microtis unifolia*, *Orthoceras strictum*, *Prasophyllum pumilum*, *Pterostylis alobula*, *P. banksii*, *P. foliata*, *P. graminea*, *P. montana*, *P. trullifolia*, *Thelymitra carnea*, *T. decora*, *T. hatchii*, *T. pauciflora*.
41. Wairau: *Corybas rivularis*, *Gastrodia sesamoides*, *Orthoceras strictum*.
42. Inland Marlborough:
43. Molesworth:
44. Clarence:
45. Kaikoura:
46. Northwest Nelson: *Acianthus sinclairii*, *A. viridis*, *Adenochilus gracilis*, *Aporostylis bifolia*, *Bulbophyllum pygmaeum*, *Caladenia catenata*, *C. iridescens*, *C. lyallii*, *Calochilus paludosus*, *Chiloglottis cornuta*, *Corybas acuminatus*, *C. cheesemani*, *C. macranthus*, *C. oblongus*, *C. rivularis*, *C. trilobus*, *Dendrobium cunninghamii*, *Earina autumnalis*, *E. mucronata*, *Gastrodia cunninghamii*, *G. minor*, *Lyperanthus antarcticus*, *Microtis oligantha*, *M. parviflora*, *M. unifolia*, *Orthoceras strictum*, *Prasophyllum colensoi*, *P. pumilum*, *Pterostylis alobula*, *P. australis*, *P. banksii*, *P. foliata*, *P. graminea*, *P. humilis*, *P. irsoniana*, *P. micromega*, *P. montana*, *P. oliveri*, *P. plumosa*, *P. trullifolia*, *P. venosa*, *Thelymitra carnea*, *T. cyanea*, *T. decora*, *T. formosa*, *T. hatchii*, *T. longifolia*, *T. pauciflora*, *T. pulchella*, *T. "aff. ixioides"*, *Yuania australis*.
47. Nelson: *Acianthus sinclairii*, *Adenochilus gracilis*, *Aporostylis bifolia*, *Caladenia iridescens*, *Calochilus paludosus*, *Chiloglottis cornuta*, *Corybas cryptanthus*, *C. macranthus*, *C. oblongus*, *C. rivularis*, *C. trilobus*, *Dendrobium cunninghamii*, *Earina mucronata*, *Gastrodia cunninghamii*, *G. minor*, *Microtis unifolia*, *Orthoceras strictum*, *Prasophyllum nudum*, *Pterostylis alobula*, *P. areolata*, *P. banksii*, *P. foliata*, *P. graminea*, *P. humilis*, *P. irsoniana*, *P. montana*, *P. oliveri*, *P. trullifolia*, *Thelymitra carnea*, *T. cyanea*, *T. decora*, *T. hatchii*, *T. longifolia*, *T. pauciflora*.
48. North Westland: *Bulbophyllum pygmaeum*, *Chiloglottis cornuta*, *Corybas rivularis*, *Dendrobium cunninghamii*, *Orthoceras strictum*, *Prasophyllum colensoi*, *P. nudum*, *Pterostylis graminea*, *Thelymitra carnea*, *T. cyanea*, *T. pauciflora*, *T. pulchella*.
49. Spenser: *Acianthus viridis*, *Adenochilus gracilis*, *Aporostylis bifolia*, *Caladenia catenata*, *C. lyallii*, *Chiloglottis cornuta*, *Corybas acuminatus*, *C. macranthus*, *C. oblongus*, *C. rivularis*, *C. trilobus*, *Dendrobium cunninghamii*, *Earina autumnalis*, *E. mucronata*, *Gastrodia cunninghamii*, *G. minor*, *Microtis unifolia*, *Prasophyllum colensoi*, *P. nudum*, *Pterostylis australis*, *P. banksii*, *P. graminea*, *P. irsoniana*, *P. oliveri*, *Thelymitra carnea*, *T. cyanea*, *T. hatchii*, *T. longifolia*, *T. pauciflora*, *T. pulchella*.
50. Whataroa: *Adenochilus gracilis*, *Aporostylis bifolia*, *Bulbophyllum pygmaeum*, *Chiloglottis cornuta*, *Corybas acuminatus*, *C. oblongus*, *C. trilobus*, *Drymoanthus adversus*, *Lyperanthus antarcticus*, *Prasophyllum colensoi*, *P. nudum*, *Pterostylis australis*, *P. banksii*, *P. graminea*, *P. irsoniana*, *Spiranthes sinensis*.
51. Aspiring: *Adenochilus gracilis*, *Aporostylis bifolia*, *Chiloglottis cornuta*, *Corybas acuminatus*, *C. macranthus*, *C. oblongus*, *C. rivularis*, *C. trilobus*, *Gastrodia*

- cunninghamii*, *Lyperanthus antarcticus*, *Microtis oligantha*, *Prasophyllum colensoi*, *Pterostylis banksii*, *P. montana*, *P. venosa*, *Thelymitra cyanea*, *T. longifolia*.
52. Lowry: *Chiloglottis cornuta*, *Chiloglottis gunnii*.
53. Hawdon: *Acianthus viridis*, *Chiloglottis cornuta*, *Corybas trilobus*, *Lyperanthus antarcticus*, *Pterostylis graminea*, *P. montana*, *P. oliveri*, *Thelymitra hatchii*.
54. Puketeraki: *Chiloglottis cornuta*, *Corybas trilobus*, *Pterostylis oliveri*.
55. Canterbury Foothills: *Caladenia catenata*, *C. lyallii*, *Chiloglottis cornuta*, *Corybas cryptanthus*, *C. macranthus*, *C. rivularis*, *C. trilobus*, *Gastrodia cunninghamii*, *G. minor*, *Microtis unifolia*, *Prasophyllum colensoi*, *Pterostylis areolata*, *P. banksii*, *P. irsoniana*, *P. montana*, *P. tristis*, "aff. *cycnocephala*", *Thelymitra cyanea*, *T. formosa*, *T. hatchii*, *T. longifolia*, *T. pauciflora*, *T. pulchella*.
56. Canterbury Plains: *Pterostylis tristis*, "aff. *cycnocephala*", *Thelymitra hatchii*, *T. longifolia*, *T. pauciflora*.
57. Banks: *Gastrodia cunninghamii*.
57. D'Archaic:
59. Heron:
60. Tasman: *Caladenia lyallii*.
61. Pareora:
62. Wainomo:
63. Mackenzie: *Prasophyllum colensoi*.
64. Waitaki:
65. Kakanui: *Caladenia lyallii*, *Chiloglottis cornuta*, *Corybas macranthus*, *C. trilobus*, *Gastrodia cunninghamii*, *G. minor*, *Microtis oligantha*, *M. unifolia*, *Pterostylis banksii*, *P. foliata*, *P. graminea*, *P. montana*, *P. "aff. montana"*, *Thelymitra cyanea*, *T. decora*, *T. hatchii*, *T. longifolia*, *T. pauciflora*, *T. pulchella*.
66. Lakes: *Adenochilus gracilis*, *Aporostylis bifolia*, *Caladenia catenata*, *Chiloglottis cornuta*, *Corybas macranthus*, *C. rivularis*, *C. trilobus*, *C. "short tepals"*, *Earina mucronata*, *Gastrodia cunninghamii*, *G. minor*, *Lyperanthus antarcticus*, *Microtis oligantha*, *M. unifolia*, *Prasophyllum colensoi*, *Pterostylis australis*, *P. banksii*, *P. venosa*, *P. "aff. cycnocephala"*, *Thelymitra cyanea*, *T. formosa*, *T. longifolia*, *T. pauciflora*, *T. pulchella*.
67. Central Otago: *Lyperanthus antarcticus*, *Pterostylis "aff. cycnocephala"*.
68. Lammerlaw: *Adenochilus gracilis*, *Aporostylis bifolia*, *Caladenia lyallii*, *Chiloglottis cornuta*, *Corybas macranthus*, *C. rivularis*, *C. trilobus*, *Gastrodia minor*, *Prasophyllum colensoi*, *Thelymitra pauciflora*.
69. Otago Coast: *Adenochilus gracilis*, *Aporostylis bifolia*, *Caladenia catenata*, *C. lyallii*, *Chiloglottis cornuta*, *Corybas macranthus*, *C. oblongus*, *C. rivularis*, *C. trilobus*, *Dendrobium cunninghamii*, *Drymoanthus "spotted leaf"*, *Earina autumnalis*, *E. mucronata*, *Gastrodia cunninghamii*, *G. minor*, *Lyperanthus antarcticus*, *Microtis oligantha*, *M. unifolia*, *Prasophyllum colensoi*, *Pterostylis areolata*, *P. australis*, *P. banksii*, *P. graminea*, *P. montana*, *P. venosa*, *P. "aff. cycnocephala"*, *P. "aff. montana"*, *Thelymitra cyanea*, *T. hatchii*, *T. longifolia*, *T. pulchella*.
70. Catlins: *Adenochilus gracilis*, *Aporostylis bifolia*, *Caladenia lyallii*, *C. minor*, *Chiloglottis cornuta*, *Corybas macranthus*, *C. oblongus*, *C. trilobus*, *Dendrobium cunninghamii*, *Drymoanthus "spotted leaf"*, *Earina autumnalis*, *E. mucronata*, *Gastrodia cunninghamii*, *Lyperanthus antarcticus*, *Microtis unifolia*, *Prasophyllum colensoi*, *Pterostylis australis*, *P. banksii*, *P. graminea*, *P. montana*, *P. venosa*, *P. "aff. montana"*, *Thelymitra cyanea*, *T. hatchii*, *T. pulchella*.
71. Olivine: *Spiranthes sinensis*, *Thelymitra longifolia*.
72. Fiord: *Adenochilus gracilis*, *Aporostylis bifolia*, *Bulbophyllum pygmaeum*, *Caladenia*

- minor*, *Chiloglottis cornuta*, *Corybas acuminatus*, *C. macranthus*, *C. oblongus*, *C. rivularis*, *C. trilobus*, *Dendrobium cunninghamii*, *Drymoanthus adversus*, *Earina autumnalis*, *E. mucronata*, *Lyperanthus antarcticus*, *Microtis unifolia*, *Prasophyllum colensoi*, *Pterostylis australis*, *P. banksii*, *P. graminea*, *Thelymitra cyanea*, *T. longifolia*.
73. Mavora: *Adenochilus gracilis*, *Aporostylis bifolia*, *Caladenia lyallii*, *C. minor*, *Chiloglottis cornuta*, *Corybas macranthus*, *C. trilobus*, *Gastrodia cunninghamii*, *G. "long column"*, *Prasophyllum colensoi*, *Pterostylis banksii*, *Thelymitra longifolia*.
74. Waikaia:
75. Gore:
76. Southland Hills: *Corybas trilobus*, *Thelymitra pauciflora*.
77. Te Wae Wae: *Acianthus viridis*, *Adenochilus gracilis*, *Aporostylis bifolia*, *Bulbophyllum pygmaeum*, *Caladenia lyallii*, *C. minor*, *Chiloglottis cornuta*, *Corybas acuminatus*, *C. macranthus*, *C. oblongus*, *C. rivularis*, *C. trilobus*, *Dendrobium cunninghamii*, *Drymoanthus "spotted leaf"*, *Earina autumnalis*, *E. mucronata*, *Gastrodia cunninghamii*, *Lyperanthus antarcticus*, *Microtis unifolia*, *Prasophyllum colensoi*, *Pterostylis banksii*, *P. venosa*, *Thelymitra cyanea*, *T. hatchii*, *T. longifolia*, *T. pulchella*.
78. Makarewa: *Chiloglottis cornuta*, *Corybas oblongus*, *Drymoanthus "spotted leaf"*, *Gastrodia minor*, *G. "long column"*, *Microtis oligantha*, *M. unifolia*, *Pterostylis australis*, *P. banksii*, *P. graminea*, *P. montana*, *P. venosa*, *Thelymitra cyanea*, *T. hatchii*, *T. longifolia*, *T. pulchella*.
80. Rakiura: *Adenochilus gracilis*, *Aporostylis bifolia*, *Caladenia catenata*, *Chiloglottis cornuta*, *Corybas acuminatus*, *C. macranthus*, *C. trilobus*, *Dendrobium cunninghamii*, *Drymoanthus "spotted leaf"*, *Earina autumnalis*, *E. mucronata*, *Gastrodia cunninghamii*, *Lyperanthus antarcticus*, *Microtis unifolia*, *Prasophyllum colensoi*, *Pterostylis irsoniana*.
81. Chatham: *Acianthus sinclairii*, *Adenochilus gracilis*, *Aporostylis bifolia*, *Caladenia catenata*, *Chiloglottis cornuta*, *Corybas acuminatus*, *C. macranthus*, *C. oblongus*, *C. trilobus*, *Drymoanthus adversus*, *Earina autumnalis*, *E. mucronata*, *Microtis unifolia*, *Prasophyllum colensoi*, *Pterostylis australis*, *P. banksii*, *P. micromega*, *Thelymitra cyanea*, *T. longifolia*, *T. pulchella*.
82. Bounty:
83. Antipodes:
84. Auckland Is.: *Acianthus viridis*, *Aporostylis bifolia*, *Caladenia catenata*, *Chiloglottis cornuta*, *Corybas acuminatus*, *C. oblongus*, *C. rivularis*, *Lyperanthus antarcticus*, *Thelymitra longifolia*.
85. Campbell:
86. Macquarie:

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- Acianthus viridis*, 18, 38, 46, 49, 53, 77, 83.
- Adenochilus gracilis*, 17, 18, 25, 46, 47, 49, 50, 51, 66, 68, 69, 70, 72, 73, 77, 79, 80.
- Aporostylis bifolia*, 10, 17, 18, 25, 27, 38, 46, 48, 49, 50, 51, 53, 65, 66, 68, 69, 70, 72, 73, 74, 77, 78, 79, 80, 83.
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"*Thelymitra dentata*" is probably a hybrid between *T. pauciflora* and *T. pulchella*. 17?, 38, 46.

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**Australian notes –
"Tantalising- Terrestrials"**

Malcolm Thomas and George and Thelma Spice spoke at the ANOS Victorian Group July 1989 meeting: their talk was reported in the Group's Bulletin, and those parts of interest to New Zealand growers are extracted here.

If you can grow terrestrials you can grow anything! The little devils die down every year and it is a challenge to get them to grow again the next year.

When you put your mix together it is important to make it moist so that the components cling together. After repotting your tuberoids, cover the mix with a layer of *Casuarina* needles or coarse sand - this prevents the mix splashing onto the leaves when watering the plants, and provides an airy environment to help prevent leaf rot. It also provides a good environment for developing seedlings. Squat pots with shallower soil dry more quickly - wet causes tuberoid rot.

If you do not have an orchid house keep your pots under the eaves of your house, under the lemon tree, or in some other sheltered position to keep them dry - pots left in the open will stay wet for weeks at a time in a period of wet weather. But if you are serious about growing terrestrials, think about erecting a shadehouse with a solid roof. The roof should admit light but keep off the rain, the walls should be of shadecloth (at least above bench height) to allow good air movement. Bench tops should be of mesh to allow free air circulation around pots. Solid benches are not as good.

Some people grow terrestrials in their gardens. This requires mesh over the area to protect against blackbirds digging up the tuberoids, and pellets to eradicate slugs and snails.

Watering is critical for growing terrestrials successfully. Over-watering is the prime cause for tuberoids rotting, and until you get your watering correct, the first few years of growing you will lose a lot of plants. Begin therefore with easy-to-grow species (see list at end).

Water by hand with a gentle rose spray. Fill the pots to the top with water, and be sure it drains within ten seconds. Malcolm Thomas has a test pot filled with mix but no orchids, and uses this to test moisture levels. The pots need to be kept constantly moist throughout the growing season: but the moment the leaves begin to yellow watering should be eased off, and by the time they brown they should be having no water. It is time for repotting.

Malcolm spends a lot of time in his orchid house watching his orchids and seeing how they grow. He urges others to do likewise, to learn how to alter conditions to imitate the wild and to help plants multiply and flower well.

(These New Zealand species were included - Ed.)

Impossible-to-grow: *Calochilus robertsonii*, *Gastrodia sesamoides*, *Orthoceras strictum*.

Difficult-to-grow: *Caladenia iridescens*, *Chiloglottis cornuta*, *C. gunnii*, *Corybas unguiculatus*, *Caleana minor*, most of the *Prasophyllums*.

Hard-to-grow: *Caladenia carnea*, *Corybas aconitiflorus*, *Pterostylis cycnocephala*, *P. plumosa*, *Spiranthes sinensis*, *Thelymitra carnea*, *T. ixioides*.

Easiest-to-grow: *Cryptostylis subulata*. *Microtis unifolia*. *Pterostylis nutans*.
