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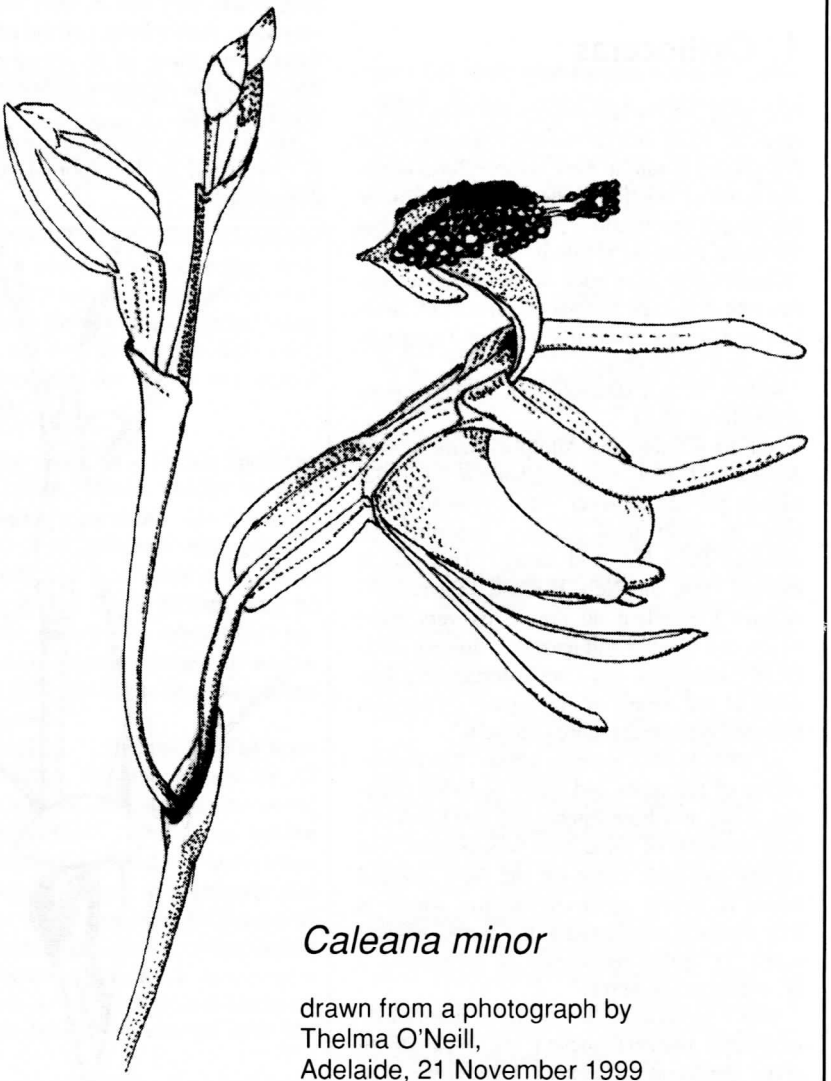


Caleana minor

drawn from a photograph by
Thelma O'Neill,
Adelaide, 21 November 1999

From the editor

1. Orthoceras

Just what are the differences between *Orthoceras strictum* and *O. novae-zeelandiae*? The NZ species is said to have shorter floral bracts and a round labellum, whereas the Australian has longer bracts and a pointed labellum, but we know there are plants in NZ and in South Australia that show each of these characteristics (the drawings and photograph of *O. strictum* in Curtis's *Student's flora of Tasmania*, e.g., show short bracts).

Robert Brown described *O. strictum* from Australia in 1810.

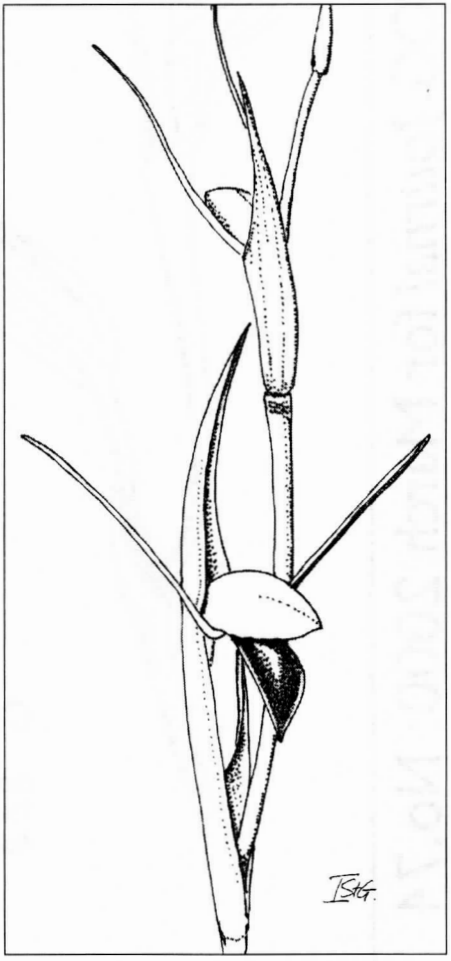
Achille Richard and Adolphe-Pierre Lesson described *Diuris novae-zeelandiae* in 1832; Lesson painted a flower with a pointed labellum. In 1840 John Lindley described *O. solandri* from NZ, and wrote, "That this is distinct from the New Holland (Tasmanian) species I entertain no doubt; its very short bracts and smaller and narrower flowers sufficiently attest that; but I am unfortunately destitute of the means of stating the differences between the species more precisely."

In 1989 Mark Clements wrote, "On examination of the types and study of living material, it has now been established that Lindley's interpretation of these taxa was correct. The earliest available name for the New Zealand taxon is *Diuris novae-zeelandiae* which is here formally transferred to the correct generic name. *O. novae-zeelandiae* is considered a New Zealand endemic."

Which (apart from flower size, a notoriously unreliable marker) doesn't tell us anything about structural differences. I guess we must simply accept that two astute observers who have seen Australian and NZ plants together are in no doubt they are different.

In November I saw *O. strictum* alive in the Adelaide Hills. These were big flowers, their long bracts well above, their lateral sepals very long, their labella pointed and longer, I fancy, than those of *O. novae-zeelandiae*. But really, the structural differences are decidedly subtle.

Are there two species? Do we have both? Is there truth in the reported chromosome difference?



Orthoceras strictum
Adelaide Hills, November 1999

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 The *Journal* is published quarterly from March, and deadline for copy is the first of the month preceding. We prefer copy to be typed or sent on disk or by email. **Subscription** $30 in NZ, $35 elsewhere.

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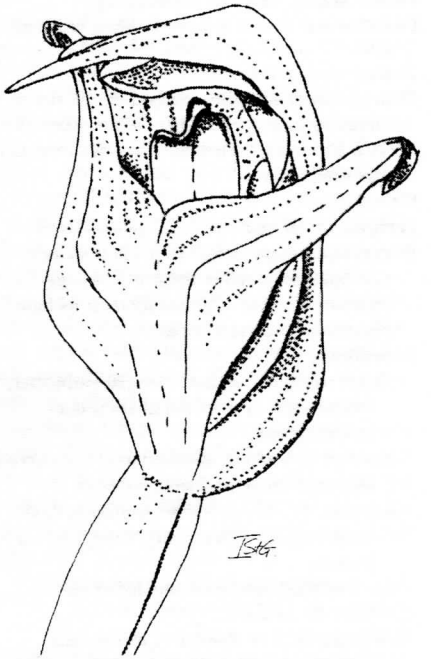
2. Another *Pterostylis* having affinities with *P. montana*?

The plant I illustrated as *P. montana* in the *Nature guide* (p123) now puzzles me, and I wonder if it is a separate taxon. I don't know anyone who is sure of the true identity of *P. montana*, but I have taken it to be the small, usually bronze-coloured plant with rather broad, pointed, upright leaves, and a short-tepalled upright flower whose lateral sepals are flat and forward-facing; the labellum tip is always twisted to the right as you look into the flower (fig. below), and the stigma is prominent — globular to cordate.

I have had another look at a couple of specimens of the plant I illustrated in the *Nature guide* this November. It is often bronzed, small, has the same leaves, shares the same damp habitat as *P. montana*, flowers at the same time and has an upright flower with a twisted labellum and flat lateral sepals. But its lateral sepals are externally rotated, outfacing, reducing the entrance to the flower and making the flower look narrower from the front, tighter, pinched, pearshaped; and both flowers I examined had a flat oval stigma.

Although individual flowers of *P. montana* vary in size, most are larger overall than those of this taxon.

Is it different?



Pterostylis montana, typical form, Wairarapa, October 1999. Note the broad flat lateral sepals and the labellum tip twisted to the right.

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3. Craigie Lea

The Eastern Wairarapa ecological region has until recently been relatively unreported botanically speaking. People like Aalbert Rebergen from DoC Masterton, Tony Silbury of Mt Bruce and Pat Enright are finding all sorts of rarities in the many pockets of native vegetation now being formally protected.

Craigie Lea station, out towards the coast from Te Wharau, has been sold for forestry, but the new owners are interested in protecting a 200 hectare area of bush and scrub. I looked for native orchids there with Aalbert and Pat on 10 November. We found

Acianthus sinclairii in seed;
Caladenia atradenia just over;
C. chlorostyla in flower;
Caladenia aff. *carnea* – perhaps 3 taxa all in flower —
C. variegata??, *C pusilla??*, *C. minor??*
Corybas iridescens just over;
C. macranthus in flower;
Corybas in the *C. rivularis* group, in seed, possibly *C.* "Waiouru";
Corybas in the *C. trilobus* agg:
With floral bract below leaf:

Square leaf, probably *Corybas* "Trotters", in fruit;
Wide short leaf, ?? *C. hypogaea*;
With fruit above round leaf.
Cyrtostylis reniformis over;
Earina autumnalis over;
Microtis unifolia in flower;
M. aff. *parviflora* (seen December 1998);
Orthoceras novae-zeelandiae early bud;
Pterostylis banksii in flower;
P. cardiostigma in flower;
P. graminea in flower;
P. montana in flower;
P. aff. *montana* "pearshape" in flower;
Thelymitra intermedia in flower;
T. aff. *ixioides* in flower;
T. longifolia in flower;
T. aff. *longifolia* in bud;
Thelymitra nervosa in flower: light blue with darker spots on petals; unusual column, rather like that of *T. hatchii*, lacking the tubercles on the posterior lobe: 6-10 flowers on a stem.

Twenty-seven taxa is most impressive for an orchid habitat. I look forward to returning later in the season.

There were some delightful surprises. Several new taxa were added to those so far reported from the Eastern Wairarapa.

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4. Some important diagnostic features of Microtis in Australia

Bob Bates has written widely on the Australian forms of Microtis, and has an extensive revision of the South Australian members of the genus in preparation. He is the acknowledged maestro of the Microtis. I asked him, when he was kindly guiding me to orchid spots in the Adelaide Hills on 21 November, what are the various features that help in separating the new taxa? He emailed me a couple of days later with this list:

Habitat: we have semi-aquatic species like *M. orbicularis* which may even flower under water... in which case the flowers set seed without opening, peatbog species, woodland, heath, desert rock outcrops etc.

Flowering time (only really useful where several taxa occur in the same area.)

New tubers produced adjacent old or distant, tuber large or small.

Leaf bases striated or not. Leaves longer or shorter than flower spike. Leaf apex lax or rigid, solid or hollow.

Colour of plant: eg red in *M. orbicularis*, yellow in *M. atrata*, pale green, shiny, matt, verdant, blue-green.

Flower spike: spacing of flowers, shape eg conical like the *M. parviflora* complex, short and dense like the *M. brevifolia* complex, long and dense like in *M. media*, or attenuated and sparse like the *M. rara* complex.

Flower stance: very erect or nodding.

Floral bract straight or twisted, blunt or acuminate.

Pedicel long or short.

Ovary short or elongate, humped or not, flat or curved surfaces, dehiscing at top or sides (this often allows me to determine species from last year's remains).

Flower size.

Perfume or not (apricot, none, general floral).

Dorsal sepal shape: long, deep, blunt, acuminate, apex decurved or upturned, strongly ribbed or not, size of granulations at its base, margins downcurved or flat.

Labellum:

shape: triangular, square, elongate, orbicular, ovate, wider or narrower at apex, constricted or not.

position: pendulous, apressed to ovary, curved in a semi-circle, suddenly reflexed.

margins: smooth, crenulate, papillose, thickened, ragged, with regular or irregular callosities.

apex: bilobed, the lobes rounded or oblong, truncate, apiculate.

calli: presence or absence of apical callus, size, shape, and position, smooth or rough, same colour as labellar surface or not,

nectary shallow or deep, transverse or a pit.

surface shiny, smooth or papillose.

Position of **lateral sepals** varies but in some

species there are special features, eg in *M. familiaris* these hug the ovary and are not rolled, in *M.occultans* they are hidden etc

Position of **petals** does not help a lot but if they are very short and obtuse or elongate with pale edges it may help.

There's more (Bob wrote) but this will give you an idea: how do plants dry if dried under the same conditions? turn dark, stay green, go pale?

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5. *Caleana minor*

I had never seen Caleana minor, so I was keenly looking forward to a morning with Bob Bates in the Adelaide Hills on 21 November, seeing and photographing a number of orchids similar to the NZ ones: Orthoceras strictum, Thelymitra juncifolia, Gastrodia sesamoides. Then I was excited to see Caleana major and used a good bit of my last film on that. The consequence was by the time we reached the colony of Caleana minor I found I had no more film. I envied a NOSSA member, Thelma O'Neill, who was taking several pictures.

Never mind, I thought. Chris Ecroyd had offered years ago to show me NZ's only known surviving colony, in the thermal area of Rotorua. He emailed in response to my enquiry on Thursday 9 December to say there was one flower stem this year, with two good flowers, one open at that stage, the other just ready to open. He agreed to pick me up from Iwitahi, and we arrived in Rotorua after a couple of orchideous stopovers in drenching rain. I was soaked to the skin, but, my enthusiasm undampened, paid my $18 to enter the thermal wonderland and we walked with mounting anticipation (on my part at least) to the colony of Caleana minor. But of that, more later....

Australia has about eleven Caleana taxa, at least three included in *C. minor* . They are named for George Caley, Australian botanist. The *C. minor* I saw in the Adelaide Hills was in a dry, sandy, inhospitable-looking spot, rather like the habitat of *Thelymitra matthewsii*.

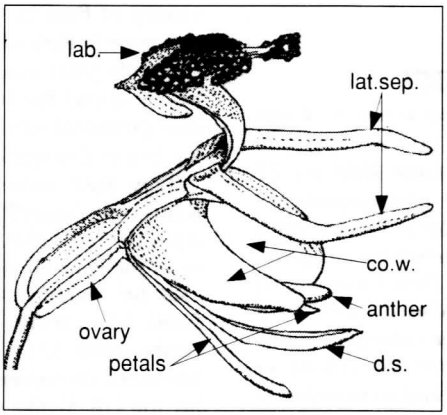
New Zealand plants are regarded as transtasman vagrants. Cheeseman recorded in 1891: "I am indebted to the Rev. FH Spencer for numerous specimens of this singular little plant, collected by him in the vicinity of Rotorua township" [1]. Spencer sent more to Kirk who noted, "This remarkable little plant was detected near Rotorua by my friend the Rev. FH Spencer, who after protracted search succeeded in obtaining four or five specimens..." [2].

They have turned up elsewhere. The Kaitaia missionary RH Matthews sent specimens to Cheeseman, with a note, "I cannot resist the temptation of sending a small orchid for identification. So far have only found 3 specimens – on the 11th" (of December 1898) [3]. The last reference in the Matthews correspondence is in a letter by his son HB Matthews to Cheeseman dated 24 October 1912, "*Caleana* plants are plentiful...". Indeed, his photograph shows at least 16 stems. In the 1906 *Manual* Cheeseman added to the Kaitaia and Rotorua sites "Waiotapu, HJ Matthews" [Henry John Matthews (1859-1909)], and in the 1924 second edition, mentioned Harry Carse as a supplier of Kaitaia specimens. The last collection was in 1924 by K.W. Allison in Rotorua at the site of the old airport in Fenton St (about 500-700m from the present site, now covered in houses). The herbarium voucher is AK 24833 and the only details are "open, poor grd, amongst short open manuka (on edge of alum stream on what is now the aerodrome)". There is a letter from Spencer to Cheeseman dated Jan 27, 1891 in which he says "I came across it on the low lying ground to the west and south of the Sanatorium in poor soil, amongst the manuka". (C. Ecroyd, *pers.*

com.)

The plant was not reported for many years – collected almost to extinction by the Christian gentlemen. Then in 1979 Chris Ecroyd found three plants in a small colony at Rotorua, as he wrote later [4]. In 1994 he reported the results of 15 years of monitoring; the population had reached a peak of 57 plants in 1991, but by 1994 had declined to 37 [J52 p34].

Chris wrote recently, "Caleana probably had a scattered distributed in Rotorua from Whaka through to the Sanatorium area, a distance of about 3.5km, and has been here for more than a 100 years. I think it is unlikely to have long distance dispersed to this relatively small area on more than one occasion. In other words I think it was probably still here in small numbers but not recorded from 1924 to 1979. Some of the early herbarium collections certainly would have helped decimate the local population of this species." (*pers. com.*).



That is the colony I visited with Chris Ecroyd on 12 December 1999. It is a mossy patch of sandy soil among low manuka scrub, not thermally heated, with good light and drainage.

The flower thus has structures one would normally associate with insect pollination, and indeed in Australia there is a thynnid wasp-pollinated form of *Caleana minor*. The NZ plant appears to be the self-pollinating form however (the insect-pollinated form would not survive at all here without its pollinator). HB Matthews did say in his 24 October 1912 letter to Cheeseman, "my father's specimens, of which there are a lot of Caleana specimens (gathered from the middle of December-Jan) I note that many of them are two and three-flowered and in every instance all the flowers on each stalk are fully out, no buds showing; my plant has one flower only fully out with often 1 or 2 buds in a rather backward state; the dark bronze tubercular lip when touched or shaken springs back with often a perceptible click. I am sending you a number of specimens gathered on the 21 inst. Most of the plants (which are plentiful) will be out in flower in about a week." I did wonder if he was describing an insect-pollinated December-flowering taxon collected by his father, and a self-pollinating October-flowering form collected by himself, but Bob Bates assures me the flowers are long-glasting, and even the self-pollinating forms often have all flowers open at once.

This same self-pollinating form is the one I saw in the Adelaide Hills. There some individuals have lost the spring in the labellum, or lost the labellum altogether, further adaptations away from insect-pollination.

Chris Ecroyd and I climbed the last short rise to the site. By now my pulse had quickened and my eyes were wide in expectation.

The site was bare.

The Caleana minor was gone, grazed off by wallabies, the descendants of some animals introduced years ago from Australia.

The wallaby is now extinct in the Adelaide Hills (wiped out, perhaps, by enraged amateur botanists).

Thelma O'Neill kindly lent me a slide from which to draw the cover picture for this issue of the Journal.

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3. Hatch ED. Orchid extracts from the Matthews correspondence. *NZNOG Historical Series* 1989; 6: 8.
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6. NZ Caladenias

Eric Scanlen did us a service by questioning conventional wisdom in the naming of our small caladenias [J72 p22]. He suggested NZ has *C. pusilla* and *C. fuscata*, and the plant we have been calling *C. chlorostyla* is really *C. minor*. He suggested the plant we have been calling "big pink" is Colenso's *C. variegata*. Was he right?

Yes and no, in my view.

I think we do have *C. pusilla:* I have photographs of flowers from a colony in the Rimutakas. Clements noted in 1989 [*Australian Orchid Research* 1, under *C. minor*, p28 and *C. pusilla*, p29] that most of the specimens on Rogers' *C. carnea* var. *pygmaea* sheet (which contained *C. pusilla*) were *C. minor*, so others have been confused before us (see Historical Series in this issue).

I am not so sure of *C. fuscata:* the descriptions have a flower with forward-jutting lateral lobes to the labellum, and I have never seen flowers here to match some of the Australian pictures.

I am sure he is right about "big pink" being *C. variegata*. The match with Colenso's description is just too good.

That leaves us with his most contentious assertion: that *C. chlorostyla* is really *C. minor*, based on the observation it is the only caladenia with a fringed labellar midlobe (like the one illustrated by Fitch) that grows where the type specimen was found. Clements noted [*loc.cit.* p28] only one specimen on Hooker's *C. minor* sheet was in fact *C. minor*: all the rest were *C. alata*. Fitch drew a flower with a short fringed midlobe, rounded tepals and horizontal sepals [J72: cover picture]. The midlobe of *C. chlorostyla* is long, its tepals pointed and its sepals vertical. Pink caladenias with short fringed midlobes, rounded tepals and horizontal sepals certainly grow around Wellington and the southern Wairarapa, but the amount and depth of fringing varies considerably, even within one colony, and the fringing doesn't show well in photographs. The flower Edgerley found in the far north and sent to Hooker (i.e. the one on the type sheet) is critical.

For my money then (and I hope I am not just being defensive here), the photographs in the *Nature guide* are correctly labelled, except *C.* aff. *carnea* on p31 is *C. variegata*. I would add *C. pusilla* to Dan Hatch's [J73 p16] list, and recognise that there are still a few in the "aff. *carnea*" group that need description, and that *C. bartlettii* and its affs. need sorting.

Furthermore, after looking at Iwitahi plants closely this year, I confirm my view that there are another three taxa (*C. alpina*, *C. lyallii* and *C.* aff. *lyallii*) currently included in *C. lyallii*. All have toothed edges to the base of the midlobe

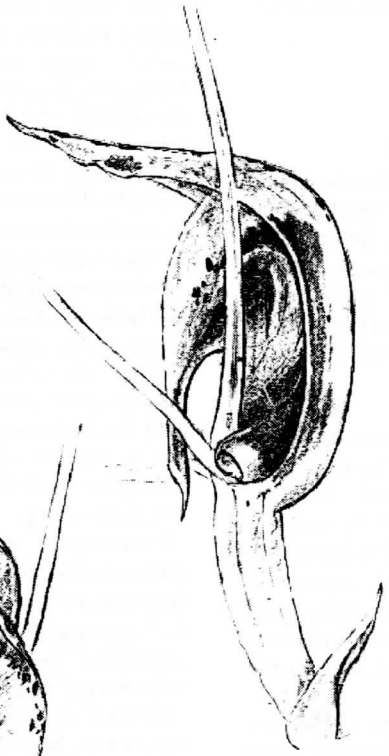
I think *C. alpina* is the big plant with 1cm wide leaves, broad flower parts, and a labellum with six rows of calli [my Fig. 5 in J63 p5]: *C. lyallii* is smaller, the leaf 0.5cm wide, the flower parts a little narrower, the labellum bearing 4 rows of calli reducing to 2 at the base [Figs. 1, 2 and lower 4 in J63 p5]: the third is a much smaller plant, the size of its flower parts nearer to *C. variegata* ("big pink") than to *C. lyallii*, its labellum bearing two clear rows of calli, with a few extra scattered onto the lateral lobes, sometimes approaching 4 rows.

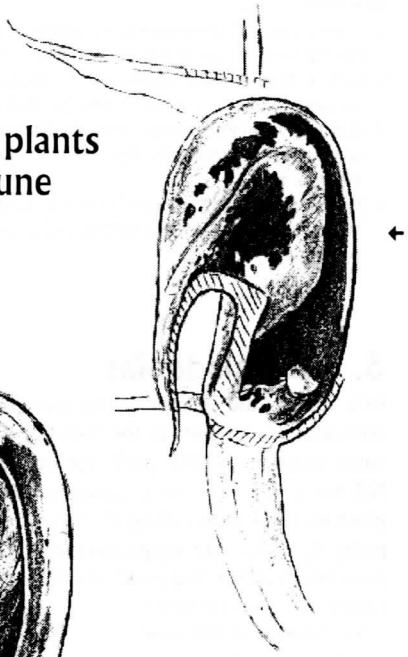
Orchid observations:

Bruce Irwin

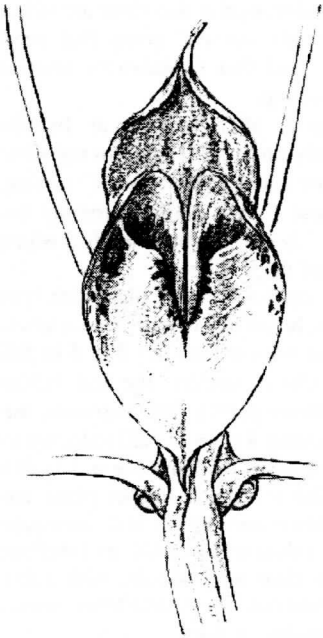
1. *Corybas papa* cultivated from plants found between Raetahi & Ohakune

Bruce wrote (8 October), "Last weekend I checked my shadehouse and found a pot of unidentified Corybas from a wetland 5km east of Ohakune sported three flowers. I was surprised to see they were *Corybas papa*. This new colony was a large one and clearly flourishing."





↑ Note unusual amount of red above flat between flexures. Pale green streak inside sliver of dull red at margin, which reached the level of the arrow. A few red splashes on column.
Note: labellum carries more red than on flowers from Taranaki yet clearly *C. papa*.

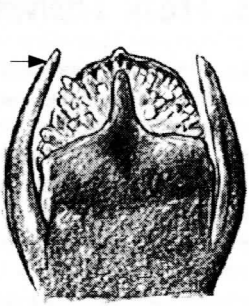


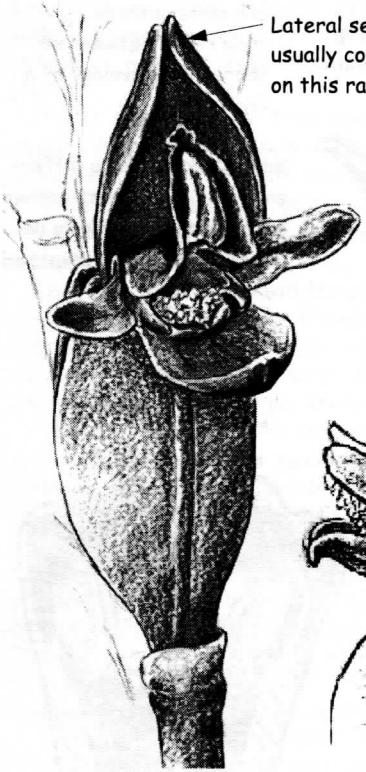
↑ This drawing made after flower freshened in the fridge: labellum apex now close to ovary.

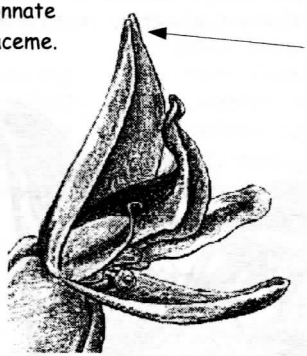
←After being picked the apex of the labellum assumed a forward jutting attitude raising it to reveal the origin of the lateral sepals. Note the 3 fls all had a definite red area (as in *C.* "whiskers") above the flat between the flexures. This red spilled out a little onto the apron of the labellum and onto outer (upper) margins.

2. *Prasophyllum colensoi?*

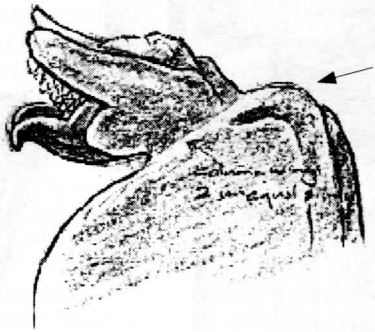
Bruce wrote, "My (December) trip to Ruapehu yielded a surprise; I collected a couple of plants of *Prasophyllum colensoi* on which the column wings *were* as long as the anther – as long but not longer. I have never seen wings as long as the anther before. I have thus found at least one flower which agrees with David Jones's diagnosis."

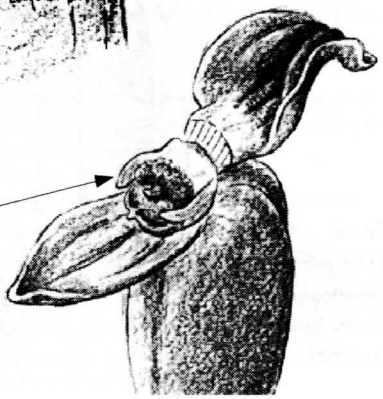






National Park 30 Dec. `99. Lateral sepals connate except at very tips (some flowers halfway). Column appendages more or less equal to anther. Perhaps *P. tadgellianum* (reinstated by D.Jones *Muelleria* 9: 51-62, 1996). This is the only time I recall seeing column arms equal to anther.





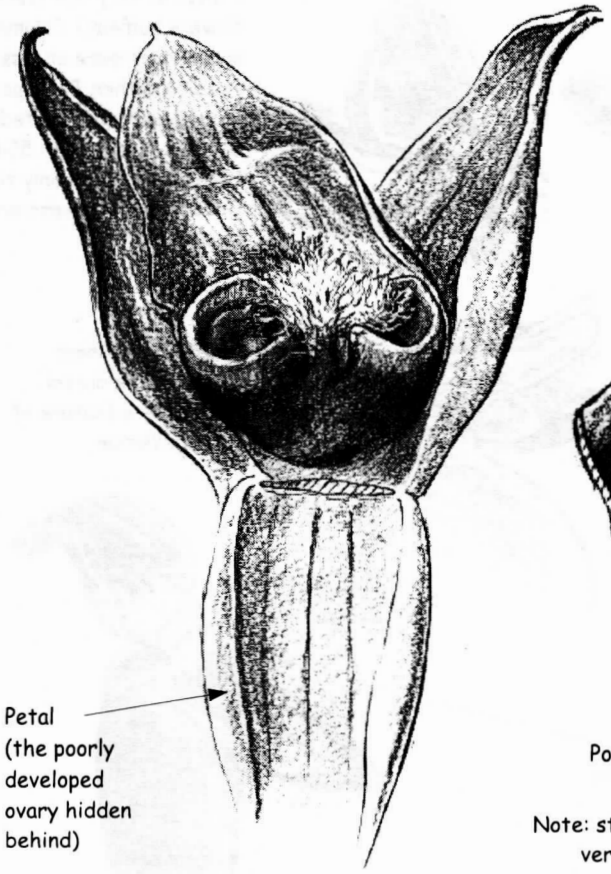
3. Freak *Thelymitra hatchii.*

Bruce found *Thelymitra hatchii* flowers with distorted columns at Erua in December:

"One flower (only one on any single plant) had two well-formed columns sharing a single pair of column-arms. Another flower had four more or less complete columns plus one or two sterile partially-formed ones. What really interested me was that on these freak flowers the single style was centred on the ovary – not springing as usual from the column itself. The stigma (or stigmas?) were represented by illformed lobes on the top of the style much as in any lily. It did seem to support the theory that orchids evolved from lilies."

2 sepals
2 petals
2 post-anther lobes
2 column arms (1 each side)
2 complete anthers
1 style rising between anthers in the manner of a lily.

Second flower (on a different plant) had 4 post-anther lobes plus 2 very poorly developed small lobes attached to tepals.



Petal
(the poorly developed ovary hidden behind)

Pollinia apparently viable.

Note: stigma not viable, its pedestal very like the style of a lily.

Stewart Island and Waikato orchids: Peter de Lange

Peter sent in this report of orchids he found on Stewart Island:

New records for the Island: *Thelymitra formosa* (scarce, Voucher in AK), *Pterostylis paludosa* (scarce, Voucher in AK), *Earina aestivalis* (abundant, occ. sympatric with *E. mucronata*, voucher in AK).

I found determination of the *Pterostylis montana* complex down there hideous! I saw plenty of *P.* "Catlins" (which is, by the way, also on Kapiti Island), but I never knowingly saw the true *P. montana*, despite being in the Type Locality. There was also plenty of *P. australis, P. banksii*, and a series of forms linking both species (hybrids perhaps?).

A full list of what I saw on Stewart Island is *Corybas oblongus, C. macranthus, Microtis oligantha, M. unifolia, Waireia stenopetala, Winika cunninghamii, Earina aestivalis, E. mucronata, E. autumnalis, Thelymitra longifolia, T. pulchella, T. formosa, T. hatchii, T. cyanea, Prasophyllum colensoi, Chiloglottis cornuta, Drymoanthus flavus, Pterostylis australis* (incl. bizarre forms with ribbed almost dentate basal leaves very like *P. micromega), P. banksii, P.* "Catlins", *P. paludosa, P. graminea sens. str., Townsonia deflexa, Adenochilus gracilis, Aporostylis bifolia, Caladenia lyallii, C. chlorostyla* (at least something that looks identical to what I know as this species in the North Island), *C.* aff. *carnea* "Type Things", and *Gastrodia* "long column" (the yellowish-green, Freesia scented taxon).

Earina aestivalis remains the enigma it has always been. Despite the fact that I had remained far from convinced about its claims to being a valid species since I was taught the species by the late Tony Druce and Geoff Park I have always collected plants corresponding to *E. aestivalis* anyway for Brian Molloy. I now gather that there is good evidence which confirms that the species is indeed distinct from *E. mucronata* after all (B.P.J. Molloy pers. comm.). Thus I guess the Orchid Group should keep a look out for it, because it is certainly not as scarce/elusive as some people think. Key characters *are not* the very short column (which, despite Cheeseman's description is not necessarily a reliable feature). I find the penchant for coastal forest, and the more open growth form, with fewer, shorter, broader, deeply veined leaves, and conspicuous spotting on the stem and leaf sheaths, serve to distinguish it from *E. mucronata*, with which it is often sympatric. Flowering time is less useful, because *E. aestivalis* is not necessarily the strictly summer-flowering species people have assumed, e.g., I have seen it flowering in October and *E. mucronata* in January. Past concerns over variation in column size and flowering times, can be accounted for by hybridism between species – certainly I have collected evidence suggestive of hybridism around Tongaporutu and White Cliffs,and so have others elsewhere (B.P.J. Molloy pers. comm.).

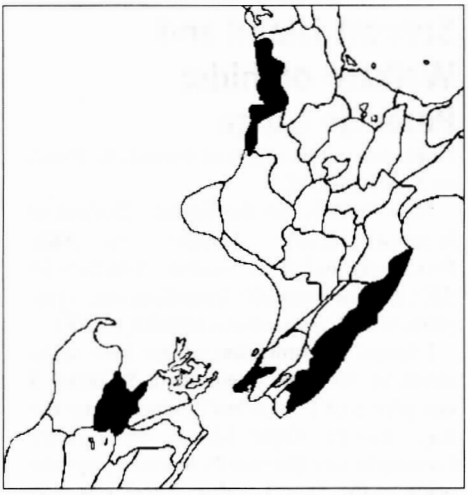
Anyway to assist with Orchid Group mapping and record keeping I know of *E. aestivalis* from the following general locations (all records are supported by vouchers lodged in AK/CHR): Ahipara, Bream Head, Little & Great Barrier, Woodhill, Waitakere, Awhitu, from Kawhia to White Cliffs (along coast), Orongorongo River (Wellington), From Heaphy Track coastline south to Punakaiki, Chatham Island, and now of course Stewart Island.

On other matters Pat Enright told me about a new population of *Pterostylis porrecta* near Porirua. Sure enough his directions revealed that over a small stretch of track the species is very common at this site.

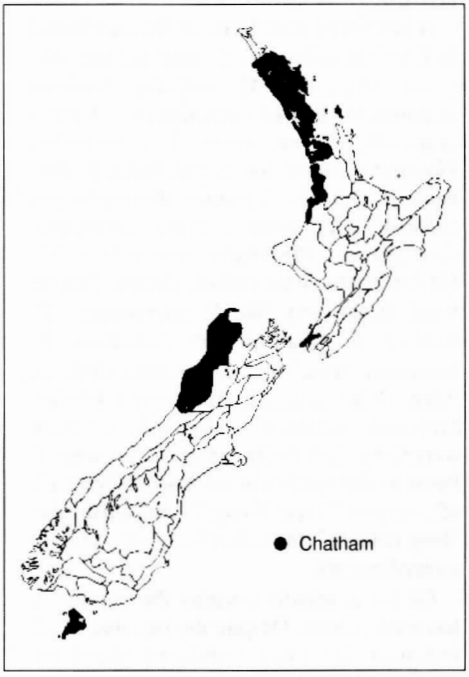
I was getting used to *P. porrecta* being a "southerner" when I was surprised to stumble upon a few plants on the remote north-western end of Pirongia Forest Park – taking that range's orchid flora up to 41 different species (de Lange unpubl. data), and helping fill out the blank pages of this orchid's biogeography.

Other good finds from the Waikato last year included my confirmation with Lisette Collins (DoC Waikato) that *Pterostylis micromega* still survives at Opuatia where a new population of 21 plants (3 flowering) was located. I last saw it there in 1990 with Doug McCrae (then it was 100+ plants, but that site has been drowned under a sea of the aggressive royal fern Osmunda regalis). Our new find grew in one of my footprints left in 1990!!! I was also pleased to discover many hundreds of a new Pterostylis allied to *P. graminea*. I discovered this at Opuatia in 1986 (WAIK!), and in 1987 I showed it to Bruce Irwin who handed me identical plants from Hinehopu Mire, Lake Rotoiti (WAIK!) which he had just drawn. I recollect he wasn't that impressed, and convinced me they were "just *P. graminea*" – at the time I had never seen *P. graminea* so I wasn't going to argue. In any case it turns out that these diminutive peatbog plants are not *P. graminea* but just what they are is another matter – similar plants have been gathered from Taranaki, and collectively their identity awaits Brian Molloy's cautious deliberation.

I consider Opuatia a special place, always surprises. Last year Lisette and I were surprised to find *P. banksii*, the new "graminea type thing", *P. micromega* and *Prasophyllum patens* all within spitsthrow of each other, and all on peat. I have never seen *P. banksii sens. str.* growing on peat before – has anyone else?



Known ecological regions for *Pterostylis porrecta*



Known ERs for *Earina aestivalis*

The column: Eric Scanlen

1. Blue *Thelymitra* "bee" is insect pollinated

Ian St George was in Auckland and found time for a day's orchid hunting with Allan Ducker and the Column. It was an unseasonably hot 31 October so thelymitra were a must. Albany Scenic Reserve showed only early buds on *Thelymitra pulchella* and caladenia seemed to be absent. Late buds on *T. aemula,* and several puzzling thelymitra with the points almost meeting on the column's post anther lobes [*cf.* J58 p28 for Bruce Irwin's drawing & p26, the "p-a lobe" on Berggren's reconstructed type specimen] were no consolation and nor were some half open *T. longifolia* plus masses of mostly spent *Pterostylis graminea.* Some stunted *P. agathicola* were still open and *Corybas cheesemanii* peduncles towered over their tiny leaves but as usual, no sign of *Calochilus herbaceus* nor *P. cardiostigma* [J64 p4] whose site was now smothered in young kanuka. *Thelymitra* "darkie" columns in closed flowers on purplish green stems, definitely raised some interest (*T.* "Ahipara" look-alikes, just a form of *T. pauciflora* says P. de Lange). They had sprouted where umbrella fern had been cleared on the trackside The seemingly slow start to the day had some glum faces sitting down to drinkies — about 2m from a *T. tholiformis* with three flowers open (**Fig. 1**)! Cameras were deployed in a new burst of enthusiasm with several flowering specimens showing up. Allan didn't want to take the same flowers so hunted around and videoed another without examining it too closely — but it was an open *T. aemula*! The Column who has been earnestly seeking this, was 3m from it but has missed out again and didn't realise until we were viewing Allan's video weeks later.

Where to next? The Column had seen *T.* aff. *ixioides* half open when Elizabeth MacKenzie showed the Mid-North Forest & Bird her place near Hatfields Beach, only the day before. So a call on Allan's yuppy 'phone saw them welcomed and gratefully heading that way. *T.* aff. *ixioides* was still only half open and no amount of warm breath on this spotted blue would induce it to open wider. *Microtis unifolia* and *M. parviflora* raised a spark of interest in the Editor but, on a track not visited on Saturday, a colony of ten or so, pale lilac *T. intermedia* were in full bloom (**Fig. 2**). One had 3 flowers open. This was a most unexpected surprise and out flopped all the cameras again. James MacKenzie was lured from his digger to view this wonder and two uninitiated contractors also stole a look. "Is that it?" said one and the other indicated a much prettier blue iris weed, as his choice. Who asked them anyway? Certainly Cynthia MacKenzie was interested to see an open lilac flower in a second colony by the driveway. The puzzling bud from Albany earlier in the day had of course, also been *T. intermedia* alias *T.* "pseudopauciflora".

Not far from the former *T. intermedia* find, Allan spotted a colony of bigger, healthier and deeper blue flowers. Ian saw a native bee on one flower but it was too quick for the photographers. Whilst the Column had another of the colony pinned back to some moss, with camera paraphernalia only 50mm away, a native bee arrived and busied herself in and around the column (**Fig 3**), unfazed by the gear and six flash blasts which captured her doing what? Her pollen bags seemed to be full when she arrived and her sallies under the cilia, around the back and onto the post-anther (or mid) lobe, seemed aimless and frustrated. The bee then flew off, straight to another *T.*

"bee". It seems that our bee was duped into visiting this flower (perhaps mistaking it for the iris weed?) and pollinated it by accident — mostly from own pollen? The Editor failed dismally to capture the bee in a film cassette whilst trying to preserve the flower but Allan who was videoing the pinned back flower, filmed a like bee arriving and kicking the stuffing out of the cilia. His amazed exclamations will sadly have to be erased for family viewing of this excellent footage. What is this insect pollinated, blue *Thelymitra* "bee"? The Editor would be most interested to hear of other finds and any earlier tags. The Victorian *Thelymitra megcalyptra* bears a striking resemblance.

A red stemmed caladenia seen near the *T.* aff. *ixioides* on Saturday was spent with seed capsule swelling but Ian spotted several slenderest early buds of another caladenia species in a dry mossy habitat which demands further inspection. Fate, it seems, has decreed a poor caladenia season just when the Column has put his beleaguered reputation on the line [J72 p22].

The view from the cliff-top track was undoubtedly superb, but Allan noted two *T. tholiformis* in bud. Also a dense colony of long petioled *Corybas trilobus* caught the Editor's eye. They had dry, spherical and empty capsules on long, thread-like, wiry peduncles reminiscent of Colenso's *Corysanthes hypogaea* [J73 p38].

Ian had a flight to catch so the sunburnt and weary trio departed well pleased with the luck of the draw on this hot day of the thelymitra.

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2. Hunuas and Waitakeres *Corybas rivularis* complex: sequel

An orchid Dan Hatch first saw back in the early 1940s and reported in Dorothy Cooper's historic Newsletter No. 1 [March 1982] as *Corybas orbiculatus*, was growing on the sea cliff at Kaitarakihi Reserve, "a mere metre or two above the breaking waves." The name has since been corrected to *C. rivularis*, since recognised as a complex due to the dogged dedication of Bruce Irwin and helpers. Allan Ducker, who had Guy Fawksed in the area in his youth, scrambled around the roots of the pohutukawas there late on 27 Sept. 1999 and jubilantly found this round leafed *Corybas* in flower and videoed it in the failing light. His sister Evelyn, pricked his bubble by telling him there were more in a gulch in view of the Manukau Heads. So Allan, Graham Marshall and the Column clambered over the oysters at dead low water on 3 October, squelched into the mire girt by sandstone cliffs and nailed a sizeable colony of *Corybas* "Mangahuia" (**Fig. 4**) according to Bruce. Sue Bergerson had to see it on 6 Oct. and plugged her ears whilst the Column got some better shots in this most vexing of photographer's muck holes. But *C.* "Mangahuia" grows on a bank of the Mangahuia Stream west of Ruapehu, 246km to the south and bears a close resemblance to *C.* "Sphagnum" [J63p10] growing even further south at Rangataua Swamp. Bruce has yet to separate either of these distinctly from some other members of the *C. rivularis*

complex. There may be a link from Mangahuia to Kaitarakihi in *C.* "veil" (**Fig. 5**) from the Bridal Veil Falls near Raglan [J58p21 & J65p23 reported as *C.* "Waiouru" *sensu* Irwin] but for the moment let Dan's find of 50+ years ago, be *Corybas* "Kaitarakihi". In common with the rivularis complex, it insists on continual fresh water seepage (or waterfall spray) and the former occurs only within 2m of high tide around this reserve.

Allan had the forethought to bring an aluminium ladder and the Column, who carried it across the Kakamatua estuary, had to explain to bewildered dog exercisers just why he would want to. One only round leaf was found on the drier Cornwallis side so the Kaitarakihi colony is still isolated and vulnerable.

This seashore is the southern limit of the Waitakeres so add *C.* "Kaitarakihi" to the *C.* "whiskers" and *C.* "Kaimai" recorded in J63p8 as members of the Waitakere *rivularis* complex. Some further mysteries in the J63 article have been elucidated as bulleted here.

- The perfumed taxon, *C.* "whiskers", attracts numerous species of flies which have been filmed but one has yet to be seen actually pollinating.
- Allan showed us *C.* "whiskers" on the Waitakere, the upper Opanuku near the Fairy Falls and the Pararaha Streams, to add to those found in 1960 by Arthur Mead and Marguerite Crookes lower down the Opanuku Stream. **Fig. 6** is an unusually dark *C.* "whiskers" from the midst of a normal greener colony on the Waitakere Stream.
- Note that **Fig. 6** is viewed from below and a folded-under apiculus shows at the tip of the labellum — just as Bruce predicted — requiring much placatory grovelling. All *C.* "whiskers" it seems do have apiculi; they just don't show in most of the Column's photo's.
- Allan also fossicked out *C.* "Kaimai" [J63p8&9] on the Piha and Karamatura Streams. Dan saw this one on the Farley Track side near Lower Huia Dam but only leaf showed this year among the crowding parataniwha (*Elatostema rugosum*).
- Allan's Waitakere Dam round leafed orchid [J63p9] turned out to be *C. macranthus*.
- The solitary *C.* "Kaimai" colony at the waterfall on Workmans Stream (Prisoners Creek to the locals) is still the only colony of a rivularis complex taxon reported in the Hunua Ranges, to the Column's knowledge. Some abseiling into the rugged Konini Stream could be of rivularis interest. Flowers aplenty were atop the Workmans Stream falls on 16 Oct. but only two flowered below among thousands of leaves.

3. Further finds for the far north

Seven members converged on Te Paki on 6 November but not as fast as planned. The Column's old Carona blew the radiator in lane 4 of Auckland's Southern Motorway during the rush hour traffic jam. Margaret Menzies and Val Smith stopped behind and were soon horrified as all lanes sped up despite the blockage. The polite cop who pushed the car to the side with all the lanes halted may have noticed the Column's nervous twitch because he was the soul of discretion. Bruce Irwin's "new" Bluebird stood-in and performed immaculately to let the orchid hunting begin in earnest.

Drymoanthus adversus (**Fig.7**) at Langs Beach, in full flower on roadside totara, caused some delays with all the cameras out and close-up videos by Allan Ducker. Then the route through the Maungataniwha Range [J73 p26] brought jubilation when the elusive *Corybas rivularis* s.s. (**Fig.8**) was found in full flower on a moss matted rock,

by a crystal clear stream, near the summit. Four years and four days had passed since the Group's last contact with Allan Cunningham's "little darling" at the Takahue Saddle [J58 pp10, 34] in the rain. Have a look at Dan Hatch's shot [J63 p19] of his captive from the Rainbow Falls at Kerikeri (where only wandering jew now blooms). That pursed-mouth look showed up exactly on flowers just opened here in the Maungataniwhas. Later, it seems, the labellum drops into the **Fig.8** position.

Nothing else seemed to matter as the famished party wolfed delicately into pies, fries and chips at Waitiki Landing that evening. Just as well; Bruce had set his heart on, and had brought his microscope especially for, nailing down the five or so forms of *Thelymitra* aff. *longifolia* abounding at Rubbish Dump Hill. Only this year they had failed to fire and the few with good spikes out in the open were curiously blighted at the top — from a late frost, we later heard. Serves him right for distracting the Column trying to hurry photography of *D. adversus* that morning with bellows (both sorts) and reversed tele. lens.

The Column had come with a burning desire to consolidate his *Caladenia* findings [J72 p22] but here too fate had decreed it was not to be this year. An occasional, in-capsule, furry red stem showed but not one flower at RDH. Some new colonies of *Pterostylis tasmanica* on the south face and several blackened *Thelymitra matthewsii* at the known site, eased the disappointment but the afternoon found the whole party nosing around in the Shenstone Block trying to make the best of a bad job. All the *Thelymitra* were shut on this hot 9th November and calls of "What's this?!" kept arising from immature or spent columns when tepals were prised open on *T. aemula, tholiformis,* aff. *longifolia, pauciflora* and *intermedia* (or "pseudopauciflora"). One with pale lilac tepals and a two piece, yellow domed midlobe, was pronounced as *T. tholiformis* by Bruce but some of us wanted to argue. Allan did find a pink *Caladenia* with solitary and slender marginal calli at the base of the mid-lobe; interesting but spent (*cf.* **Fig.9**). A convivial dinner at Waitiki Landing's Kanuka Restaurant brought some solace but the discussion that evening revolved around Allan's instant replay videos of the day's *Thelymitra* columns.

The ritual dawn cuppa was reinstated next morning, after some pointed hints the day before, to get the women-folk up and about. Porridge and toast preceded a determined sally on Shenstone to wring some worth from the field trip. Pellucid peduncles abounded, up to 250mm tall on *Corybas cheesemanii* (with green leaf) and *C. cryptanthus* (with translucent, pink flecked leaf). Margaret found more areas of her *C. rotundifolius* with larger green leaves and shorter peduncles than the above and *Caladenia minor* (alias *chlorostyla*) were still open in some numbers. *Gastrodia* aff. *sesamoides* were sprouting, one in late bud right on the track edge and an open *Calochilus herbaceus,* found uncharacteristically in shady tea-tree, caused much camera clicking. But more stimulation was needed and it wasn't long in coming. DoC's Miriam Ritchie, "resting" after weed eradication duties on Motuopao Id. kept the ladies company and spotted a large, actually open, pink *Caladenia* with a wide cobra-hooded column. No one had seen anything quite like this before. By the following day it was almost white (**Fig.10**) and examination of its labellum under a 30 power lens showed a continuum of papillae, including all over the calli. (**Fig.11**) Let us call it *Caladenia* "papillosa" until some enterprising botanist gets to describe it or reject it as a mutant. Later Anne Fraser spotted another similar, some hundreds of metres away and fortunately, Margaret photographed it. Meanwhile, Allan and the Column, with a DoC slash-hook and pink tape, had set out to flag a track from Fri 1 to Prime Site [J69

p24] to cut 3km of tramping from the round trip. The all enveloping *Hakea* and tea-tree plus the overcast sky, soon had them disoriented beyond belief. Coming out onto a promontory they found to their chagrin, their Prime Site target directly behind them! Confidence shattered, they back-tracked and made a grumpy new start on a compass course which led them into thick *Hakea* for the lunch break. The Column complained so Allan bustled off into some open manuka nearby — where they sat beside a large colony of red stemmed *Caladenia*! Most were spent, some were still in bud and one pink beauty was in prime, beautiful flower (**Fig.9**). Lunch stopped in mid-chew as the lenses and photo' gear were cranked into action. With its unique speckled dorsal sepal, Allan tagged it *Caladenia* "speckles". It was the same taxon Anne had found spent, the day before. His 1995/6 video tapes that night, revealed it also at Barbara Hoggard's, Kaimaumau and elsewhere in the Shenstone Block. Far from consolidating the Column's views on the *Caladenia*, these two extra taxa were only complicating things so the culprits were told so in no uncertain terms. The Column did a mischief to his back after lunch and denies that scrambling into a pine tree (to reconnoitre the track route) but with his pack on, had anything to do with it. The rain descended that evening but a great dinner cooked by Sue Bergerson and the other girls plus the day's finds, made a memorable day.

On Thursday, Allan took the ladies to the Papawiri Hill Track to check on *Thelymitra* "rough leaf" and *T. sanscilia* [J70 p34] They found only the Navy unbogging a 4WD. Where had all the *Thelymitra* gone? Bruce and the Column took their crook backs down the easier Shenstone track looking fruitlessly for the *Caladenia* "papillosa" reported by the five girls yesterday. (Who can follow directions from a woman?)

The Column, on his own after Bruce returned for lunch, actually found a colony of about 12 *Thelymitra* "sky" [J70 pp33, 34] some with almost open flowers in a well lit area of tall manuka. The all apple-green leaves varied from narrow, Veed and upright (identifiable from buds), to 15mm broad, limp and almost flat (and buds too immature for ID). He marked the entry spot with orange twine, but the whole party later missed it whilst hunting across the track for *C.* "papillosa". This got heavily photographed but the twine-blindness wasted a whole hour before *T.* "sky" was recaptured. Allan videoed a fine, blown-open flower. Bruce suspected it to be *T.* "Ahipara" and said so. The Column replied "Ahipara my foot" so that's what it became for two whole days. Peter de Lange, Gillian Crowcroft and Lisa Forester, in 1990, had transferred a colony of *T.* "Ahipara" from the Sandhills Road Swamp (being drained) to Lake Ohia and other sites. One flower opened in the hot car boot. Compare Gillian's photo' in J67 p30, with the J70 p34 shots of *T.* "sky" and you will understand why the debate.

The 5:30 predawn Friday was alive with bawling sheep, baying hunt-aways and throbbing 4X4 motors; the prize for using DoC's shearers' quarters for accommodation. Allan did take the ladies to new pastures in pines on the divide whilst Bruce drew the column of *T.* "sky" [J70 p34] The Column also spied out a proposed Shenstone route of Allan's, past some *Hakea*-enclosed, bare iron pan, to our flagged track. Simon Job, the DoC Field Manager, was interested for the improved access and for pine ring-barking purposes. NZNOG too are interested for the access and more good orchid habitat so the day was not a complete loss despite the orchid drought. Sight-seeing to Te Hapua that evening was the highlight of the day, deflated a little by a flat tyre on Allan's car.

8:30 am on 13 November saw the party moving out to Houhora to get Allan's puncture fixed then on to Lake Ohia for a break in the drive home, re-acquaintance with

Cryptostylis subulata, still sporting good flowers and finally, a look at the fabled *T.* "Ahipara"! Bruce and Allan got onto original populations well out in the black ooze, (pers. com. P. de Lange). The remainder paddled around the rushes at the "lake" edge and found transplants by Peter et al, still in fine fettle but tightly shut, of course. *T.* "Ahipara's" column closely resembles *T.* "darkie's" [J62 p10] but the mid-blue tepals are paler and the purplish green stems are not the dark purple of *T.* "darkie". Allan and the Column thought that the unidentified plants they had seen with the "darkie" column at Albany Scenic Reserve on 31 October, could be *T.* "Ahipara" and kicked themselves for not filming them then.

A lunch stop near the Matauri Bay turnoff, yielded massed, blue striped *T. pulchella*, many half open, with fans of yellow cilia and, on Allan's videos, dark wart-like backs to the column (à la *T. nervosa* only smaller). The warm breath treatment had some effect in opening flowers and gave Margaret and Val opportunities to test their photographic skills. Some spent *T.* aff. *longifolia* raised some enthusiasm with Bruce; Margaret scraped the nose of her really new Pulsar but orchidwise, that was it for another field trip of missed targets, unexpected surprises and motoring woes.

Postscript

- The Carona now has a new second hand radiator and is as reliable (?) as ever.
- Bruce sought his earliest drawings at home and found *T.* "Ahipara" lining up with the L. Ohia taxon. *T.* "sky" is something else. Dr. Brian Molloy [1] mentioned two pairs of undescribed *Thelymitra* taxa with chromosome counts of 60 and 84 but they are omitted from his excellent Fig. 11, "Putative cytoevolution in *Thelymitra*" where he shows likely parents of several NZ species. Could *T.* "rough leaf" and *T.* "sky", with similar columns, be one pair? Brian (*pers. com.*) hinted that *T.* "rough leaf" is one of the four but the similar columned *T.* "sky" is definitely not. He did not

Legends for colour photographs ▶

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Fig.1. *Thelymitra tholiformis*, Albany Scenic Reserve.
Fig.2. *Thelymitra intermedia*, E. MacKenzies' property
Fig.3. Native bee (*Leioproctus* sp.) on *Thelymitra* "bee" (similar to Australian *T. megacalyptra*)
Fig.4. *Corybas* "whiskers"; an unusually dark colour morph; note turned-up apiculus. Fig.5. *Corybas* "veil" from Bridal Veil falls; similar to *C.* "Kaitarakihi".
Fig.6. *Corybas* "Kaitarakihi"; some had cupped leaves, some had flat.

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Fig.7. *Drymoanthus adversus* from Langs Beach.
Fig.8. *Corybas rivularis* s.s. from the Maungataniwha Range.
Fig.9. *Caladenia* "speckles"; note solitary marginal callus.
Fig.10. *Caladenia* "papillosa"; note slender tepals.
Fig.11. *Caladenia* "papillosa" with stick; not close enough to see papilla; note marginal callus on side lobe.
Fig.12. Purple-stemmed *Thelymitra longifolia* from Tarawera village.

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Fig.13. Stereo pair of Matakawau *T. longifolia* with coherent pollinia (behind stigma) & pollen crumbs on top of stigma.
Fig.14. *Pterostylis porrecta* at Elsthorpe.
Fig.15. *T. longifolia* with no dark cap on midlobe.
Fig.16. *T.* "comet" at Blowhard Reserve, Kawekas.
Fig.18. *T. longifolia* with cream cilia, Comet track.
Fig.19. Emarcy Gem.

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Fig.17. *T. nervosa* with *pauciflora* column.
Fig.20. Emarcy Gem S1 B cross.
Fig.21. Malcolmcampbell Emarcy Gem Magneta.
Fig.22. One of several taxa of *P.* aff. *montana.*
Fig.23. *Danhatchia australis* with 3 flowers open.

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Fig. 1 ↑
Fig. 6 ↓

Fig. 2 ↗

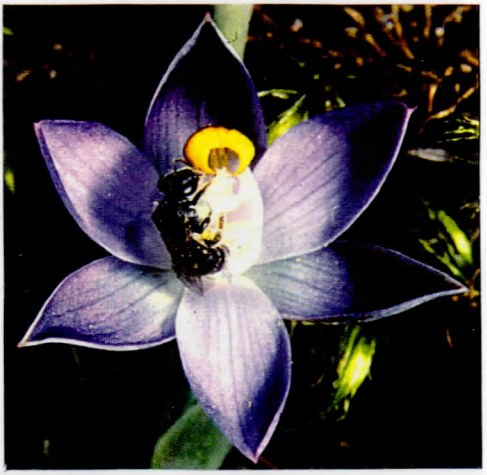

Fig. 3 →

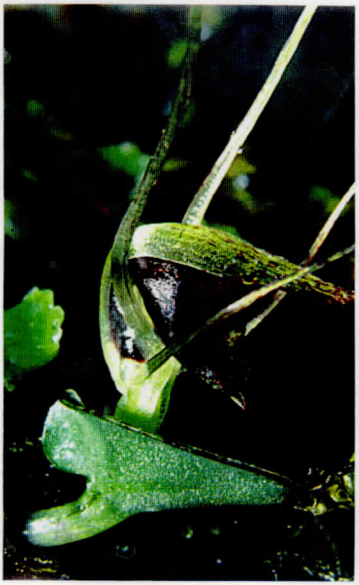

Fig. 4 ↘
Fig. 5 ↓

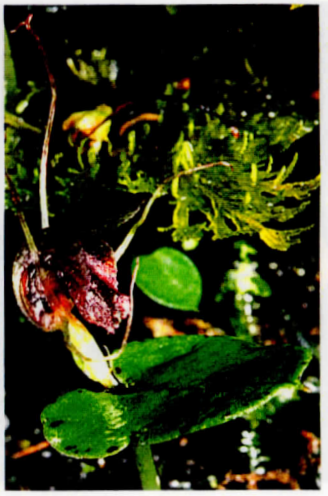

Fig. 10 →

↖ Fig. 7

Fig. 8 ↑

← Fig. 9.

Fig. 12 ↓

Fig. 11 →

↑ 17

↗ 22

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Fig. 20↑ Fig. 21 ↓ Fig. 23 →

comment on *T.* "Ahipara" and *T.* "darkie", also sharing like columns, but they could be one unnamed pair. It seems there are still more Thelymitra to sort out in the far north.

- The Column dragged Peter de Lange, DoC's Rare Plants Scientist, over to Albany Scenic Reserve on 21 Nov. to see the supposed *T.* "Ahipara". Not so says Peter. Just a look-alike *T.* aff. *pauciflora* but he is sending a specimen to Brian as a check.

Acknowledgements
The Column is grateful for comments from A Ducker, EA Fraser, JB Irwin, P de Lange, M Menzies, BPJ Molloy, V Smith and I St George.

Reference

1. Molloy B.P.J., and Dawson M.I. Speciation in Thelymitra (Orchidaceae) by natural hybridism and amphidiploidy. *J. Botany* Vol. 36 1998.

4. Kawekas special

Who could resist an offer to hunt for *Thelymitra* "Comet", not reported in the wild since 1992, and to photograph *Pterostylis porrecta* in situ at Elsthorpe? Bruce Irwin and the Column for starters. Bill Liddy set the ball rolling but the testy twosome started without him on Sat. 4 Dec. with lunch on the pine needles at the Iwitahi Reserve — right beside a *Caladenia variegata* [J72 p27] with no stray calli. In the 1998 transplant, these two had examined a dozen or more *C. variegata*, all lacking the stray calli mentioned by Colenso. So now a search was instituted and some ten others were spotted, all having the stray calli plus the double twin rows of yellow topped calli down the disc. What a strange variance from one year to the next?

Mini rabbit scratchings and some conical holes in the pine-needles had the pair puzzled but when they baled up Trevor Nicholls for morning tea the following Tuesday, they heard how bush robins, with much wing fluttering, drill out the conical holes with their bills for grubs whilst blackbirds scratch up and eat the *Pterostylis* tubers [*cf.* J69 p22. Also J43 p17 for Aussie parallels]. Back on Saturday, healthy and open *Thelymitra nervosa* and dark callused *Chiloglottis cornuta* drew the camera like magnets before the journey continued.

A metal dump, by a cutting at Tarawera, made a nice stop for a breather and for numerous purple stemmed *T. longifolia*, no taller than 150mm and all in open white flower, on a sun drenched and scarified slope. (**Fig. 12**) Bruce and the Column had long been seeking *T. longifolia* s.s. to find what clearly distinguishes it from *T.* aff. *longifolia* in its many forms. What had we here? with no perfume (to those ageing olfactory organs), only one flower open in each spike and all the pollinia neatly tucked down behind the stigma; hence not insect pollinated? A stigma/rostellum was carefully dismantled with the tweezers, showing intact pollinia shells (usually indicating insect pollination). Hmm. Comparison with *T. matthewsii* [J69 p26 & J73 p19] shows that coherent pollinia *can* occur in a self pollinating *Thelymitra*. In *T. matthewsii* pollinia shells fall onto the front of the stigma from the hood-like anther [J69 p19] and the stickiness sucks the shells into bits. In *T. longifolia*, pollinia shells get held on the back of the stigma as the column extends, lifting the anther case clear. "Pollen tubes are at once emitted into the substance of the stigma." [Cheeseman J52 p6]. But, what of the late, pink *T. longifolia* from Matakawau [J71 p26]? Some remnant pollen **crumbs** from the anther case (just visible behind the cilia in the **Fig. 13** stereo), have landed on the stigma which had curled back over seemingly **intact pollinia**? This one is betting both ways. The Column has his money on the Tarawera plants being one of several self pollinating *T. longifolia* taxa, despite no evidence of crumbly pollinia. What do you the jury think?

Some pale mauve/pink *T. pauciflora* (closed) at another road cutting was a reve-

lation to the Column, accustomed to mid blue ones.

At Bay View, Napier, our genial host, Bill Liddy, mapped out an itinerary for Sunday including the Column sitting in the kiddie seat at the back of his flash ute. Definitely better than on the deck but there was some creaking and groaning as the limbs unfolded at Elsthorpe next morning.

In a remarkable 3.5Ha reserve here, of mature forest on flat land, no orchids at all could be found — except *Pterostylis porrecta* with a *most* sensitive labellum. Bruce triggered the first so the camera got set up by a second which the Column triggered so a third was chosen (**Fig. 14**) across the track in some dry blackberry — which was removed with exaggerated care. It worked — a prime specimen with labellum outstretched — but the sight in the viewfinder told a different story; it *had* just triggered and the labellum made an excellent seal in the back of the dorsal sepal. The exasperated Column cunningly levered the labellum out with tweezers holding a small ball of moss for a wedge. Out flitted a tiny fungus gnat the size of a sand-fly which at once explained who was the culprit and why the labellum had to have such a hair trigger. How else would it sense such a tiny pollinator? Bill and Bruce spotted a similar fly at another group of *P. porrecta* and triumphantly captured one, they thought, in a film cassette. But the can was innocent of any fly when the Column opened it later to photograph the bug. Tracking down orchid pollinators was never going to be a simple task.

Next stop? Touchwood Books, out beyond Otamauri, in a farm outhouse where Peter Arthur let us browse in peace through a huge collection of NZ nature books both new and old. Sales were brisk.

At Forest & Bird's Blowhard Reserve for lunch, 13 km from our Comet hut target, Bruce found, near the car park, a *Thelymitra longifolia* with no dark patch on the column. (**Fig. 15**) Then Bill spotted a lovely colony of wide open (which clown said) *T. pauciflora*? (**Fig. 16**). The Column got pics of both whilst the others lunched, in order to stem the objections about time-waste (the things we photographers have to bear!) and still didn't dummy to the pale blues being *Thelymitra* "Comet"!! The light didn't dawn until the slides were processed a week later, followed by that stupid feeling all over again but, without the pics, we would never have known, would we? Bruce reckoned he hadn't had a good look at the pale blues and Bill said he was looking for pink ones as in Ian's *Nature Guide*. Now Bill ponders if he hadn't first sighted this orchid here. Perhaps the tag name of this seemingly non seeding hybrid should be corrected to *Thelymitra* "Blowhard"? The last gasp here (get it?) was a wide open *T. nervosa* which the Column announced as *T. pauciflora* with spots; well, look at the column! (**Fig. 17**) It was Bruce's turn to call out "My foot!"

Up at the Comet Road, a large flowered *T. longifolia* with creamy cilia (**Fig. 18**) was wide open by the drain — where we could hear Bill's front left tyre hissing its demise. The Column got 12 pics and then helped them change the wheel. Who said he was slow? Can anyone ID the tiny dead fly on the stigma? Further up, were massed *Pterostylis patens*, numerous *P.* aff. *montana* also barren *Corybas trilobus* as were some thin, round-leafed *Corybas* spp. and a few alpine style *Prasophyllum colensoi*. A colony of *P. montana* caused some wrinkled brows and scratching noises. They had flat, uncurled lateral sepals and the labellum twisted only 45° to the right; not the usual 90°. But leaves did have that coppery colour. Where does one draw the line between *P. montana* and *P.* aff. *montana*? Near the Comet Hut, at some 1,000m altitude, a quick search turned up plenty of nice *Prasophyllum colensoi* but no *T.* "Comet". So the trio left for dinner (Bill is a great cook) elated at their day but blissfully un-

aware of one salient find.

On Monday 6 Dec, Bill showed us hundreds of clustered flowers in his small hanging basket of *Winika cunninghamii*, far more flowers than on plants in the wild, also Malcolm Campbell's *Sarcomoanthus* Emarcy Gem (**Fig. 19**, *Drymoanthus adversus* x *Sarcochilus ceciliae* J52 p13), a bigger flower on Emarcy Gem S1B (**Fig. 20**) cross by John Dodunski, still showing the *D. adversus* blotches, and tiny *Macolmcampbell* Emarcy Magneta hybrid by Bill Fransen from Emarcy Gem x *Plectorrhiza tridentata*, **Fig 21**. Malcolm had flasked both from seed provided by Bill F. and John. A nice result from a minuscule native parent and skilled propagators.

The ute with you-know-who, knees up on the kiddie seat, then took us to Littles Clearing near the Kaweka Trig. but with a stop for drinkies at the Puketitiri Reserve. Another amazing remnant of flat land forest crowded with towering NZ conifers. The Ranger said they had exterminated the stoats and polecats to rejuvenate the bird life but, there was now a plague of mice! These may have eaten the orchids [J49 p26 for Aussie proof] because there were precious few. (So stoats are good for orchid conservation??) At around 1,000m altitude, Littles Clearing (two grassy, subalpine bogs on ridge-tops) displayed some lovely subalpine flowers but orchids were best on the neck of scrubby bush connecting the bogs. A *Pterostylis* aff. *montana* (**Fig. 22**) with a rod-like apex to the labellum, set it aside (for the Column at least) from five or more others of this catch-all name.

The drive home down that ridge road threatened by three dazzling lightning strikes followed by immediate thunder claps, was otherwise uneventful. The Hawkes Bay O.S. received the 3-D slide show well at their excellent dinner meeting with Gaelic dance entertainment. Many thanks to Bill Liddy for his hospitality and the memorable *Thelymitra* days in the Kawekas.

Postscript; Bill has been back to the Blowhard and reports that ovaries appear to be swelling on *T.* "Comet". Brian Molloy also reports that its pollen stains well hence should be viable. Why can't expert propagators get it to set seed at low altitude?

Matakawau Dec. `99

This year, 'Tricia Aspin was onto the *Danhatchia australis* colonies the moment they emerged, on 15 December '99. She said there were buds "coming up everywhere" which the Column took with a grain of salt but Peter de Lange, who took him out to Matakawau on 22 Dec, counted 44 colonies to add a grain of spice to the salt. One modest colony, in a small horse-shoe layout, had 19 stems, one with three open flowers! (**Fig. 23**) This taraire, puriri, nikau, kauri forest is unusually open even for taraire bush but then the owner's cows once had free access. One has to wonder if the cow disturbance and organic fertilizer explains the vigour of the *D. australis* high in these old sand-hills. An insect-felled stem was sequestered by Peter for DNA material to Brian Molloy, and isozyme material for Dr. Karl Robatsch of Austria.

Karl wants to compare *D. australis* morphologically with Goodyerinae (Physurinae R. Schlechter) as did Lucy Moore [1, p165] but he is concerned that DNA analyses give some controversial answers with apparently identical plants from widely separated sites showing differences, yet related species can have identical sequences. In this actively growing science, picking the best DNA sequence amongst millions, would be the trick to master. Dan, by 'phone, was philosophical about the genus named after him being under threat.

Back at Matakawau, an *Earina mucronata*, hanging from a low bough, suffered some critical examination because of

its short column and delicate perfume. Possibly Cheeseman's *E. aestivalis* [3]? 'Tricia ruefully indicated a good cluster of those huge seed capsules on a *Drymoanthus adversus*. She had found no flowers this season but here was proof that at least some had eluded her.

Word spread swiftly in the next day or so about the abundance of possibly NZ's least attractive orchid. So a party of eight descended on Stella Christoffersen and 'Tricia on 27 Dec, including Bruce Irwin from Tauranga and Anne Fraser from Ongarue, day tripping! The Column fancied photographing Dan Hatch examining *Danhatchia* but Dan was tied up with family. Josie Driessen was too (birthdays or something?) but she suggested the sawhorse for a stile at the barbed wire fence.

Several new colonies had erupted in the five intervening days. Scores, if not hundreds of flowers were open and the three flowers on one stem were still open looking as fresh as ever. 'Tricia found four flowers open on this stem on the first day of the millennium (plus more new colonies erupting) but the first three had wilted on 8 January. Three flowers open for at least ten days and many flowers opening is at variance with St George *et al* [2] and the Column's observations at McElroy's Reserve. Persistent flowering and numerous flowers open suggests insect pollination but checking with the three authors of ref. 2, they said that not enough is known about this strange little epiparasite. The column arrangements still indicate self pollination and as Bruce says, "Many species allow time for insect pollination before (resorting to) self pollinating." The Column's pics show flowers indistinguishable from Glorit, McElroys and Kirks Bush specimens.

Allan Ducker, with Colleen's assistance, videoed the lemon scented *Earina mucronata*, whose ID was still in doubt then a more thorough examination showed short columns and ovaries on newly opened flowers but long columns and ovaries on mature flowers. This is the late flowering, perfumed taxon with wide open flowers, still being lumped with Sept./Oct. flowering *E. mucronata*. Dan [1 p.160] and Bruce (pers. comm.) report separate individual plants in cultivation with flowering times varying from September to January. Perhaps a DNA analysis would solve this hoary old debate!

Our 'Tricia, who came 2nd in her age group in the world orienteering in 1997 (1st in 1992), had to leave early to go fishing with her grandchildren. She didn't catch a fish and missed out on our lunch-time treat. In the dappled shade of the broadleaf forest, Stella with the sawhorse for a stand, treated the appreciative assembly to a private showing of her tasteful water-colours of forest litter. Not just ordinary litter but selected plots where a yellow leaf or a red berry (no orchids mind you!) had brought a spark of colour to the curling brown leaves. The scruffy sawhorse may well get polished up and displayed, with a plaque in honour of the occasion.

Before the field party dispersed to their far corners, Stella pointed *them*/it (what a language) at the *Gastrodia* aff. *sesamoides* in the Matakawau pine reserve. Two plants, fully a metre tall (not a patch on Bruce's 1.5m Atiamuri specimen) were laden with full seed capsules. Most other stalks had had their tops and all the capsules eaten off (dogs again? [J71 p11]) but the stems were unmistakable, especially the one with an exposed tuber.

Mark Matakawau on the map as a great spot for *Danhatchia australis*.

References

1. Moore, L.B. & Edgar, E. *Flora of New Zealand* Vol. II, Gvt. Printer 1970
2. St George, I. Irwin, J.B. Hatch, E.B. *Field Guide to New Zealand Orchids*. NZNOG 1996
3. St George, I. *Cheeseman on Orchids* No. 4 of the NZNOG Historic Series 1989

Notes, letters, questions, comments

Harold Waite wrote (19 October), "Last week I took a trip to the north to Lake Ohia; found some Thelymitra, only one in a shady spot in flower, the others finished — three weeks ago they were only in bud. I have been photographing the orchids for 25 years but gave my slides about 5 years ago to the Auckland Bot Soc, and have started going back to the places around Auckland where they were found 20-25 years ago, and no sign as **the changes have arrived to smother them**. Even in Northland the kikuyu grass has smothered sites that I visited years ago. Was at your book launch at Epsom and purchased a copy to take with me; I must congratulate you and others on the photographic records in it: the book is a treasure for the years ahead."

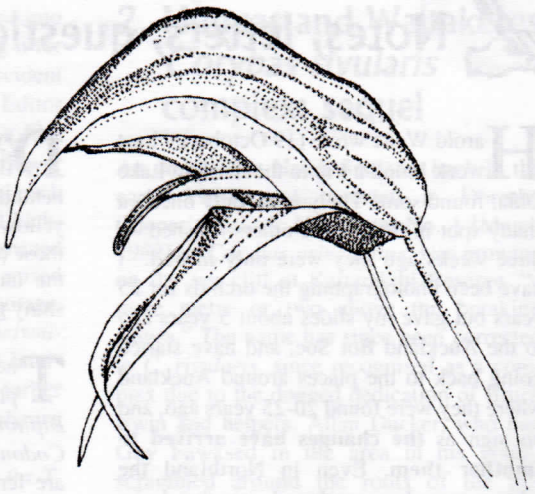
Richard Anthony **Salisbury** 1761-1829 who first described *Corybas* in 1807.

Drymoanthus adversus has a range of flower colours, and one in the hills behind Wellington's Eastbourne has plain yellow-green blooms, exactly the colour of those of *D. flavus*, but the typical calli inside the lateral lobes of the labellum, and the shiny green leaves betray its true identity.

The native **Chilean orchid flora** comprises 49 species in the genera *Aa, Bipinnula, Brachystele, Chloraea, Codonorchis, Gravilea* and *Habenaria*. All are terrestrial, most are also found in Argentina but 34% are endemic to Chile. Threats include collection, land development, urbanisation and logging of forests. Feral pigs introduced for hunting actively devour orchid tubers and have destroyed entire populations.
– Carlos Lehnebach: Current status of the Chilean orchid flora. Orchid Conservation News 2: 8-10, September 1999.

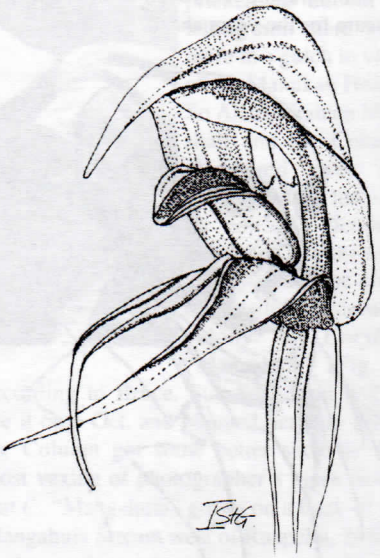
***Pterostylis tasmanica* near Gisborne?** Josie Driessen wrote, "Apropos the paper on *Pterostylis tasmanica*, I have been re-reading an old NZ youth novel by Joyce West, *Drover's Road*, published 1953, about a sheep station back in the hills 100 miles from Gisborne. In it the author mentions *Pterostylis barbata* being found '... above bush ... a little flower on a stem rising straight out of the ground; it was green in colour, with a hood and a tiny dangling sort of beard coloured yellow and purple....' Unfortunately all her place names are fictional except Gisborne but all this author's stories are based on her own experiences and she did live in the E. Cape area. This was probably *P. tasmanica* and I wonder if it is still in that area."

***Pterostylis porrecta* in Porirua?** Peter Beveridge has discovered the biggest population of *Pterostylis porrecta* yet found: in the Porirua Scenic Reserve, not a stone's throw from one of the country's largest cities: several hundred plants, the first one flowering in midnovember, the majority in flower by 1 December.



Pterostylis porrecta
at Porirua Scenic Reserve

Ruth Rudkin of Sydney notes of **birds that eat orchids**, "There are two Australian mound building birds, the Brush Turkey in New South Wales and the Mallee Fowl in South Australia. In each case the birds wait until the orchid, generally a pterostylis species, appears above ground. Then the bird digs down to the tuber and eats it. These birds build large mounds of rotting material in which they lay their eggs, and then take no further interest. The young are able to forage for themselves as soon as hatched."



Barbara McGann, Oamaru, wrote, "I visited **Shag Point** 24 October — dozens of *Pterostylis foliata,* many flowering well although none were over 10-11cm tall. I was surprised the rabbits had not nibbled them down. There were a few golden-bronze *Pterostylis montana.* Some *Corybas macranthus* flowering and another corybas species (? *C. iridescens*) with tightly rolled leaves emerging from the soil. A few thelymitra with slender budded stems, plenty of others showing leaves. Microtis leaves spiking up everywhere. No sign of anyone else having hunted for orchids across the clay/manuka face — despite Shag Point being highlighted in the *Otago Daily Times* article on your book.

"A good number of my orchid spotting patches in Herbert Forest have disappeared with logging operations but it is always of interest to check massively-disturbed areas year by year. The thelymitras especially eventually find daylight again. With locked metal gates across most of the Herbert Forest roads I had little access after Dec '98. I applied for, and received, a key and entry

Pterostylis micromega
near Waverley, 24 November 1999

permit in recent weeks. The forest will be under new owners next year so it remains to be seen whether continued access will be granted."

She wrote later, "On 13 November Dave Houston, the local DoC officer, led a party to Macrae's Flat, principally to update us on skink research and recovery. During the day Dave drew attention to various plants including these two Pterostylis orchids. No time to identify them on site so with Dave's permission I hurriedly plucked the brownish stem and the green plant. The brownish species was in a fairly dry area, and a search showed others exactly the same around. No noticeable rosette of leaves.... Fiddling with tweezers and hand lens I've tried to determine whether the labellum of the lowest flower has a forward projection at the back — I can see a raised dark green 'patch' but it is not markedly pointing forward. Could this be ***Pterostylis tristis***? I fancied William Colenso's 'dingy-looking' description applied.... *(It certainly was P. tristis, much easier to identify with a microscope: the first time I had seen it — Ed.)*

"(At a different site) there were several dozen green Pterostylis — some flowering.... Is the plant ***P. tanypoda***? The rear end of the labellum appears to have an 'appendage with a knob which juts forward'". *(It was — Ed.).*

Barbara wrote again on 7 December, enclosing a specimen of ***Thelymitra pauciflora*** from Herbert State Forest, its southernmost record *(all the plants I reported as T. pauciflora in the far south were actually T. intermedia — Ed.).*

I had my first sight of ***Pterostylis micromega*** at Ihupuku swamp near Waverley on 24 November, thanks to Jim Campbell, Colin Ogle and the people at Wanganui DOC (look left).

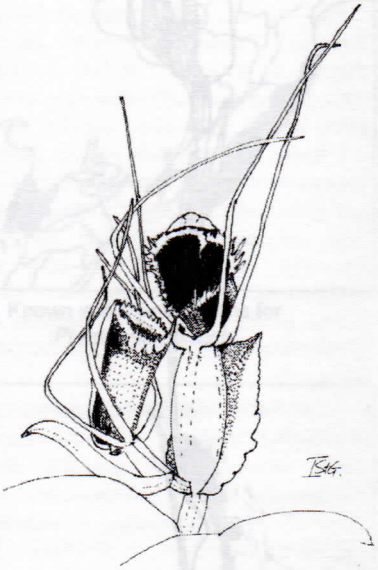
When Federico Halbinger, of the Mexican Orchid Association, photographed flowers of many of the species of Barkeria **under ultraviolet light**, he showed some with similar color looked amazingly different under UV. Bees can see in the UV wavelength range so perhaps the prominent and distinctive markings shown by some species under UV light may be signals to pollinators.

Jim Forrest wrote (17 November), "***Thelymitra* 'comet'** is in full flower at the moment, later than most years for some reason. This year I kept some pots in the shade house, the rest outside. Those outside did slightly better — larger leaves and healthier. They started flowering a few days earlier, otherwise little difference."

One of my FLOS, as I have indicated before, is the **roadside between Whenua Tapu** and the sea at Plimmerton. It has not disappointed this season. On 13 November I found *Pterostylis montana* nearly finished flowering; a pterostylis like *P. banksii* but with short spiky upright leaves; *P. foliata* fruiting; *Prasophyllum colensoi* in early flower; two kinds of *Microtis* aff. *unifolia* flowering and a third in early bud; white *Thelymitra longifolia* (anther cap elongated and pollinia firmly adherent to the back of the stigma) and scented pink *T.* aff. *longifolia*, its pollinia gone, but not on the stigmas of the flowers I examined; *T. intermedia* in fruit; *T. pauciflora* in bud; another colony-forming thelymitra in early bud, probably one of the *T. pulchella* complex; *Orthoceras* in early bud; *Acianthus* in seed; a caladenia in fruit, some with two heads, and another tall species in early bud. As usual, more questions than answers.

The Puffer track at Kaitoke just on the Wellington side of the Rimutaka Hill road is always a delight in orchid season. December 1 was good for showing some contrasts. *Thelymitra intermedia* with its red crooked stems and red-tinted V-leaves bore up to 8 good ripe fruit while green *T. pauciflora* was still in late bud; what I think is *Caladenia minor*, bright pink with a short fringed labellar midlobe, contrasted with *C. chlorostyla* with its long fringed midlobe; heavy, large-flowered *Microtis unifolia* with its short woody flower-stems contrasted with softer, smaller *M.* aff. *unifolia;* the stiff, upright leaves of a few late *Pterostylis graminea* contrasted with the arching, soft, wider leaves of *P. porrecta* I had seen a couple of days earlier at Porirua; clumps of budding *T.* aff. *pulchella* contrasted with lanky singletons of *T.* x *dentata*.

The second flower of large specimens of ***Corybas oblongus*** arises from where the "fertile bract" usually arises, as this drawing of a plant from the Puffer Track demonstrates ⬇.



Update the maps!

A 2nd edition of the Group's *Field Guide* is planned for late 2000, incorporating taxonomic changes and recent distribution reports.
If you are aware of orchid sites not included in the current maps please write to the editor as soon as possible.

Other islands' orchids: Mauritius

From "*Angraecum cadetii* in Mauritius" by Dave Roberts, published in *Orchid Conservation News* 1999; 2: 13-14, and reproduced here with the permission of the author and editors.

The orchids of Mauritius have not been well studied and little is known about their reproductive biology.

Eighty-nine species have been described of which nine are endemic; however, twenty-four species have been extirpated or have become extinct (Strahm & Bosser, 1996). These figures will undoubtedly change as we learn more about these orchids.

Recent studies I have been conducting suggest there are other taxa to be described from Mauritius and a number of species are in decline. The main focus of my studies is on the reproductive biology and conservation of Mauritian orchids.

The rarest of the orchids is the epiphytic *Angraecum cadetii*, which is reduced to only thirteen known individuals, of which four are flowering plants, none of which have produced seed in the last two seasons.

Angraecum cadetii Bosser belongs to the section *Hadrangis*, whose members are endemic to the Mascarene Islands. It was described in 1987 and named after the Réunion botanist Th. Cadet, having been confused with the Réunion endemic *A. bracteosum* for many years. On Réunion, *A. cadetii* occurs in the humid forests around St Philippe from 300 - 1000m, where it is described as rare (Bosser, 1987). The situation on Mauritius is much more critical.

It was once found in the South-West of Mauritius in and around an area called Les Mares. This region was once covered in *Pandanus* marsh, heathland and patches of *Sideroxylon* thicket, which supported numerous species of orchids, many of which were found only in these vegetation types.

Unfortunately, much of this area in the wet uplands was cleared for the planting of softwoods beginning in 1967, and during the early 1970s, extended to Les Mares, the last known stronghold for *A. cadetii*. Between 1973 and 1981, 30.6km^2 of Les Mares was cleared for softwood forestry under the auspices and finance of the World Bank. Fortunately much of what little remains is found within the boundaries of the Black River Gorges National Park. However, the region has been invaded by aggressive exotic plant species, particularly the Strawberry Guava *Psidium cattleianum*, which smothers out the native vegetation and prevents regeneration, resulting in monotypic stands of guava.

As a result of this habitat destruction and degradation, only 13 individuals of *A. cadetii* are now known, making it probably the rarest of the Mauritian orchids. Fruit success has been non-existent since I started my studies but there is some hope that the species can reproduce without human intervention, since pollinia removal has been observed. However, flower and plant density is so low that the probability of the pollinator removing pollinia and then depositing them successfully is very slim. Studies on artificial pollination and micropropagation have begun.

Collecting of native orchids is comparatively rare. Since *A. cadetii* is not showy, poaching is not a threat to its survival. Clearly however, without some urgent intervention this species could well become extinct on Mauritius in a few years.

References

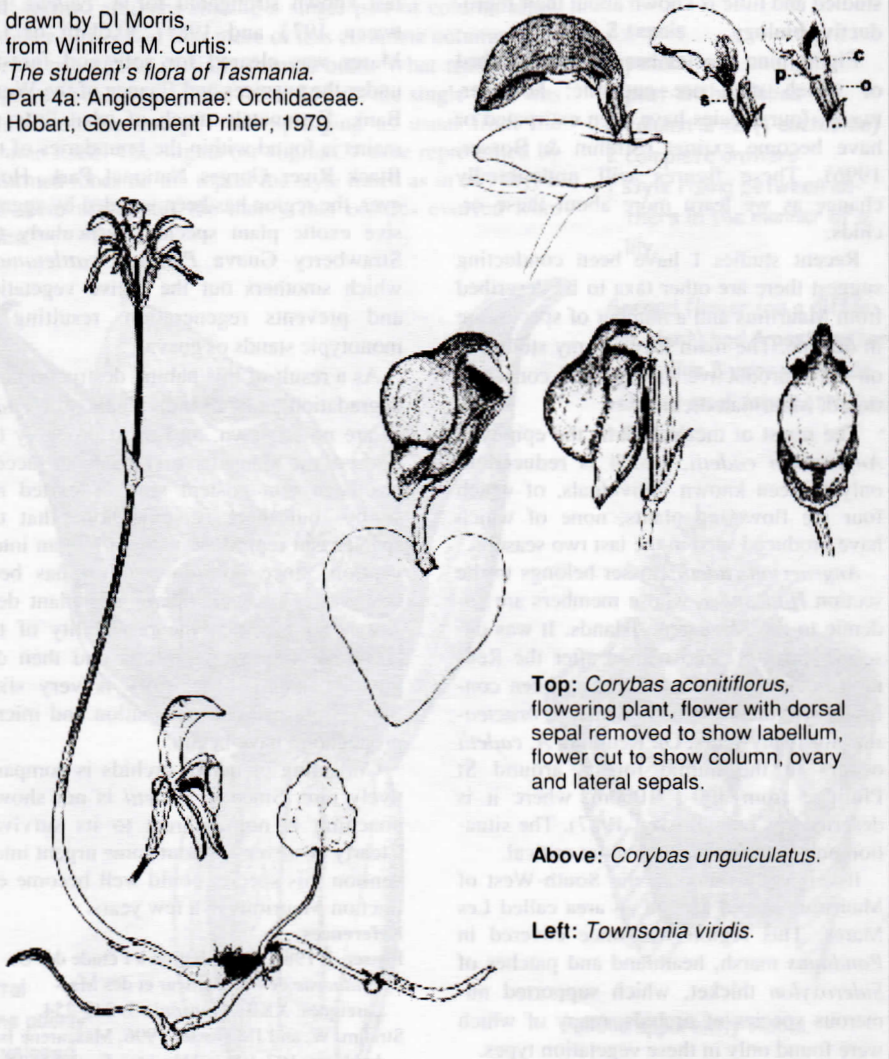
Bosser, J. 1987. Cuntribution à l'étude des *Orchidaceae* de Madagascar et des Mascareignes. XXII. *Adansonia* 3: 249-254.

Strahm. W, and JM Bosser 1996. Mascarene Islands pp. 107-108 in Hágsater. E. and V. Dumont, (Eds). *Orchids -- Status Survey and Conservation Action Plan*. IUCN, Gland, Switzerland and Cambridge, UK.

Close relations: orchids like ours

1. Tasmanian orchids

drawn by DI Morris,
from Winifred M. Curtis:
The student's flora of Tasmania.
Part 4a: Angiospermae: Orchidaceae.
Hobart, Government Printer, 1979.



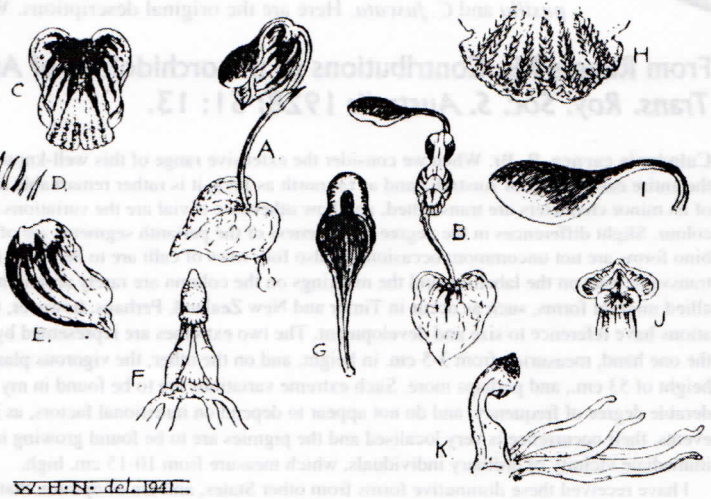
Top: *Corybas aconitiflorus,* flowering plant, flower with dorsal sepal removed to show labellum, flower cut to show column, ovary and lateral sepals.

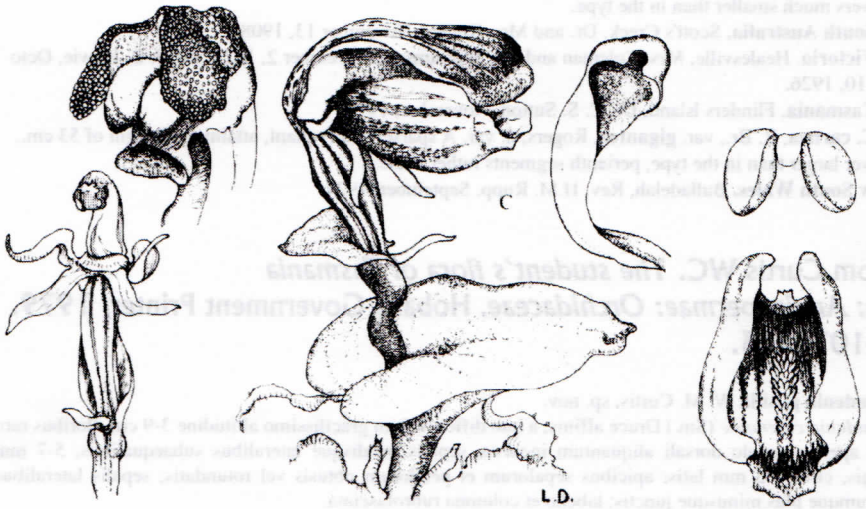
Above: *Corybas unguiculatus.*

Left: *Townsonia viridis.*

2. *Corybas fordhamii* *next page* ➔➔

Corybas fordhamii: A—plant from side. B—plant from front. C—labellum from front. D—cilia from lower lip. E—labellum from side. F—column from front. G—dorsal sepal from below. H—lower lip of labellum-lamina, showing rows of cilia. I—dorsal sepal from side. J—anther case open (pollen masses removed), also stigma. K—column sepals and petals from side. Drawing by WH Nicholls, from Rüpp HMR. A new species of *Corysanthes* (Orchidaceae): *C. fordhamii*. *Trans. R. Soc. S.A.* (1941); 58: 83-4. ➔





↑*Corybas fordhamii:* habit, flower with hood and labellum removed, tip of column showing anthers and pollinia, pollinia, hood, and labellum. Drawing by L. Dutkiewicz, from Jessop JP and Toelken HR (eds). *Flora of South Australia IV.* Handbooks Committee, Adelaide, 1986. Chapter on Orchidaceae by JZ Weber and R Bates, page 2080.

Historical reprints

Eric Scanlen suggested the true identity of *Caladenia minor* is what we have been calling *C. chlorostyla*, and further, New Zealand has the Australians *C. pusilla* and *C. fuscata*. Here are the original descriptions. What do you think?

From Rogers RS. Contributions to the orchidology of Australia. *Trans. Roy. Soc. S. Australia* 1928; 51: 13.

Caladenia carnea, R. Br. When we consider the extensive range of this well-known orchid, throughout the entire eastern half of Australia and as far north as Java, it is rather remarkable how persistently some of its minor characters are transmitted, and how otherwise trivial are the variations in regard to form and colour. Slight differences in the degree of acuteness of the perianth segments are often observed, and albino forms are not uncommon; occasionally also four rows of calli are to be found instead of two, but the transverse bars on the labellum and the markings on the column are rarely absent. and characterise even allied migrant forms, such as occur in Timor and New Zealand. Perhaps, however, the most notable variations have reference to size and development. The two extremes are represented by the pigmyy form on the one hand, measuring from 3-5 cm. in height, and on the other, the vigorous plant which may attain a height of 53 cm., and perhaps more. Such extreme variations are to be found in my folders with a considerable degree of frequency, and do not appear to depend on nutritional factors, as in this State at all events, their occurrence is very localised and the pigmies are to be found growing in small colonies in the immediate vicinity of ordinary individuals, which measure from 10-15 cm. high.

I have received these diminutive forms from other States, and am of opinion that they, as well as the giant forms, are sufficiently important to be recognised as varieties.

C. carnea, R. Br. var. **pygmaea**, Rogers, n. var. An extremely slender plant, from 3-5 cm. high, with flowers much smaller than in the type.

South Australia. Scott's Creek, Dr. and Mrs. Rogers, November 13, 1908.

Victoria. Healesville, Mrs. Coleman and Mr. Williamson, November 2, 1923; Mr. J. B. Howie, October 10, 1926.

Tasmania, Flinders Island, Dr. C. S. Sutton, November, 1912.

C. carnea, R. Br., var. **gigantea**, Rogers, n. var. A sparsely hairy plant, attaining a height of 53 cm., flower larger than in the type, perianth segments rather acute.

New South Wales. Bulladelah, Rev. H.M. Rupp, September, 1924.

From Curtis WC. *The student's flora of Tasmania 4a: Angiospermae: Orchidaceae.* Hobart, Government Printer, 1979. pp107, 133.

Caladenia pusilla W. M. Curtis, sp. nov.

Caladenia catenatae (Sm.) Druce affinis, a quo differt habitu gracilissimo altitudine 3-9 crn, floribus raro late apertis; sepalo dorsali aliquantum incurvo, sepalis petalisque lateralibus subaequalibus, 5-7 mm longis, circa 2·5 mm latis; apicibus sepalorum et petalorum obtusis vel rotundatis; sepalis lateralibus plerumque plus minusque junctis; labello et columna rubrofasciata.

Holotypus: The Plains, Naracoopa, King Island, Tasmania, leg. P. Barnett et W. M. Curtis, 29.10.1976. (HO 29978).

Caladenia catenata· (Sm.) Druce (syn. *C. carnea* R. Br.) sens. lat, is a highly variable taxon; two named varieties that have often been confused are *C. carnea.* var. *pygmaea* R. S. Rogers in Trans. Roy.

Soc. S. Aust. 51: 13 (1927) and *C. carnea* var. *minor* (Hook. f) Hatch in Trans. Roy. Soc. N.Z. 75 (3): 368 (1945). H. M. R. Rupp in Proc. Linn. Soc. N.S.W. 69: 74 (1944) quoted *C. minor* Hook. f., Fl. Nov. Zel. 1: 247, t. 56b (1853) as a synonym of *C. carnea* var. *pygmaea* Rogers. But Hatch (l.c.) based his variety *minor* on Hooker's species and considered that Rupp's concept of the variety *pygmaea* was not that of Rogers. The species **C. pusilla** W. M. Curtis is clearly distinct from *C. minor* Hook. f. in the form of the flower but includes a number of specimens previously accepted as *C. carnea* var. *pygmaea* Rogers. The syntypes of *C. carnea* var. *pygmaea* appear to be variable and some (including the only one of Tasmanian origin 'Flinders island, Dr C. S. Sutton, Nov. 1912') may fall within the limits of *C. pusilla*. There is need for further study of the *C. catenata* complex.

C. pusilla W. M. Curtis (is) a very slender plant with flowering stems erect, 3-9 cm high, often growing in clusters. Flowers usually only half-opening. Dorsal sepal erect at the base then somewhat incurved; lateral sepals and petals subequal 5-7 mm long, c. 2·5 mm broad, lanceolate-falcate, apices bluntly pointed or rounded, usually deep pink or pale with deeper central stripe (rarely white), lateral sepals often joined ± completely. Labellum 3-lobed; lateral lobes translucent-white, transversely barred with crimson; mid-lobe narrow-triangular, yellow: calli of blade in 2 rows, slender-stalked with yellow, globular heads. Column slightly incurved, winged narrowly at base, more broadly above, barred and splotched with crimson. Anther papllose, acuminate.

Tas., locally frequent in peaty heaths on King Island, occasional elsewhere. S.A., Vic., N.S.W.

From Clements MA. Catalogue of Australian Orchidaceae. *Australian Orchid Research* (1989); 1: 25.

C. fuscata *(H.G. Reichb.) M. Clements et D. Jones, stat. nov.*
Caladenia carnea R. Br. var. *fuscata* H.G. Reichb., Beitr. Syst. Pflanzenk. 63 (1871). Type: 'Australasia', *Huegel* s.n. (holo W!). Notes: Differs from *C. carnea* in having small solitary flowers, a narrow labellum with pronounced, forward-protruding lateral lobes embracing the small column, and small deflexed acute mid-lobe. Small reddish-brown glands are prominent on the outer surface of the perianth segments, giving a marked brownish colouration from which the species derives its name. This species has long been confused with C. *carnea* but the two taxa are easily recognized and in general occupy different habitats. *C. fuscata* most commonly is found in dry *Eucalyptus* woodlands on the western side of the Great Divide in eastern Australia while *C. carnea* tends to favour wetter areas near the coast and in the ranges. Dist: Veh, Vnp?, Nst, Can, Nss, Nsp, Ncc, Nct, Ncs, Nns, Nnp?, Qdd?

Notes

1. By 1926 Rogers was beginning to see that not all that was being called *Caladenia carnea* would fit easily: he suggested varieties *pygmaea* and *gigantea*.
2. Clements noted in 1989 [*Australian Orchid Research* 1, under C. *minor*, p28 and under *C. pusilla*, p29] that most of the specimens on Rogers' [*C. carnea* var. *pygmaea*] sheet were *C. minor*, but designated the Flinders Island specimen as the lectotype of *C. pusilla*.
3. Clements noted [*loc.cit.* p28] that only one specimen on Hooker's [*C. minor*] sheet was *C. minor:* all the rest were *C. alata*.
4. Curtis had noted of *C. minor:* "Stems 6-12 cm high. Flowers usually solitary, pale pink; sepals and lateral petals subequal, 7-8 mm long, narrow-oblong, subacute to blunt; labellum ... barred with red, margins of midlobe fringed with calli which become very short towards the tip; column usually not barred with red."

Australian notes: David McConachie

1. *The Orchadian* Vol. 13 No. 2, Dec. 1999. The latest issue of *The Orchadian* has two excellent articles about Thelymitras.

The first is **"Self pollinated sun orchids of the *Thelymitra pauciflora* – *T. longifolia* alliance in Australia" by Robert J. Bates pp65-72.**
The *Thelymitra pauciflora* complex is difficult to work with as the flowers only open in warm, sunny weather as most grow in cool, high rainfall areas there are few days suitable for opening during the short flowering season. This problem is compounded by the presence of local forms, by hybrids with species outside the complex and through loss of specialised habitats required by some. There may be as many as twenty different self-pollinated species in this complex.

As they are self-pollinated some species quickly colonise pine plantations and roadsides.

There are very similar taxa throughout South-East Asia, New Guinea and Oceania although the genus is considered to have evolved in Australia and the fine seed of these self-pollinated taxa to have blown overseas.

Most of the species hybridise with other sun-orchids form different sections of the genus; i.e. the pink flowered *T. rubra* and *T. luteochilum*, the yellow *T. antennifera* and the purple spotted *T. ixioides* and *T. juncifolia* as well as *T. nuda*.

There is still much work to be done to sort out the rarer species, but those mentioned above are well enough understood to be formally described in a forthcoming paper."

(This article was written before *Aust. Orchid Research* Vol. 3 was published so doesn't address some of the distribution problems raised therein. D.McC.)

The second article is by **Ronald L. Herberle about "*Thelymitra variegata* (Lindl) F.Muell. – 'The Queen of Sheba'", p77.** The article is accompanied by eight beautiful photographs. This species is West Australian but is related to *T. matthewsii*.

2. "Orchid a shrinking violet – Endangered plant springs from ashes" by David Iliffe, *Illawarra Mercury*, Friday, December 17, 1999 – Reprinted in ANOS Illawarra January 2000 *Bulletin*.

The Illawara Green Hooded Orchid is more of a shrinking violet.

Strangely, for what is arguably one of the world's most beautiful flowers the *Pterostylis gibbosa* as it is known to experts, is so shy it has made it onto the list of endangered plant species.

However yesterday, deep in bushland near Yallah, the rare flower had the combined strength of members of the NSW Fire Brigade and a determined team from the NSW Parks and Wildlife Service doing their darndest to bring it out of its earthly sanctuary.

And their wooing weapon of choice was fire.

According to NPWS spokeswoman Helen Jessop, brandishing a flaming torch and a look of grim resolution, flames could be the catalyst to cause the species to germinate and multiply.

And a lack of regular fires in the region has stunted the breeding program for hundreds of years.

But in this case there were no guarantees.

"Many orchid species are known to germinate from fire" she said.

"But there are no known effects of fire on this particular species so this is a trial burn"

The rare species was the discovery of local orchid enthusiast Graham Bradburn, who said it originated in Sydney before taking a 150-year hiatus from public life.

"It relocated to the Illawara in the '60's," he said.

"I discovered this species on this site in 1986. It had been found in Yallah before then but always on private land so it was very difficult to protect."

With a small group of the endangered plants discovered at the current site (which can't be revealed for security reasons) the

area has been fenced off so a program of propagation can gradually be put into place.

With yesterday's burn, funded by NPWS, complete Ms. Jessop said it would be a little while before its success could be gauged.

3. "A morning's orchid hunting with Ian St. George" by Bob Bates.
***J. NOSSA*, Inc. Vol. 23 No. 11, Dec. 1999**

Ian St George, editor of *New Zealand Native Orchid Journal* and author of the recently published book on New Zealand native orchids, visited Adelaide with wife Kristy on November 18-21. He was keen to see several of our Adelaide Hills orchids which are similar to New Zealand taxa so a morning excursion was arranged for the 21st.

Our first stop at Nurutti Reserve Aldgate revealed the late form of *Thelymitra juncifolia* with small, self-pollinated flowers. Ian's verdict on that one - "same as our New Zealand *T. aff. ixioides*". Kristy found a large patch of *Microtis parviflora* "we have this form in New Zealand" was Ian's comment. Also at Nurutti were *Monadenia* and *Dipodium* which were new to our guests. Our next stop at Gurrs Road, Scott Creek turned up a large colony of *Orthoceras strictum* all with purplish flowers. After recent discussion on the possibility of this species in New Zealand I was surprised when Ian said he had never seen anything in New Zealand with such long floral bracts, tall sepals and long pointed labellum. Also here was a late *Microtis arenaria* and Ian had seen those across the Tasman, likewise with the adjacent patch of *M. frutetorum*.

At Scott Creek oval the *Gastrodia* were mostly finished, nevertheless Ian's verdict was that our *Gastrodia sesamoides* does not occur in New Zealand. The tall *Microtis* here was similar to *M. frutetorum* and again resembled New Zealand forms.

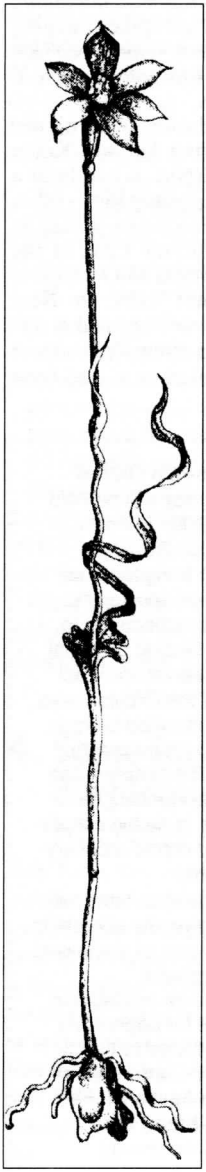
We drove over to Kuitpo to look at duck orchids and who should be there but a group of NOSSA members hard at work weeding out *Monadenia*. The duck orchids were both new to Ian but we suspected the *Caleana minor* to be the same as the New Zealand form (which Ian had not seen). Both are self-pollinated. *Calochilus aff. robertsonii* was similar to the New Zealand plants but the buttercup yellow *Diuris brevifolia* reminded us that no *Diuris* have ever been seen wild in the land of the kiwi. A senescent *Pyrorchis nigricans* lived up to its species name in being totally black! An unusual find on the track was a *Dipodium* spike in bud with a separate spike emerging from half way up the stem – some NOSSA members photographed this one to prove it can happen.

After lunch at Mt. Lofty summit (not exactly Mt. Cook I know) Ian and Kristy had to rush off to the airport. It had been a quick but successful whistlestop tour – other orchids seen included *Pterostylis foliata* in seed (another orchid from the Land of the Long White Cloud), *P. biseta* and *P. excelsa* (the rufa group do not exist in New Zealand), *Caladenia tentaculata* and 8 different *Thelymitra* in seed (New Zealand sun orchids don't flower until most of ours have finished).

The **First International Orchid Conservation Congress** will be held 24-28 September 2001 in Perth, Western Australia.
The Congress will bring together orchid conservation specialists, researchers and practitioners, to develop an understanding of global issues in orchid conservation. It will cover the phylogeny of the Orchidaceae, population biology, pollination biology, propagation science, germplasm storage, conservation genetics and taxonomy with opportunities for specialist workshops in orchid conservation techniques and orchid recovery programs.
Pre- and post-conference tours will explore the incredible diversity of orchids and remarkable wildflowers of southwest Western Australia.
The first circular will be available in April 2000 and a call for papers will follow. Contact Dr Kingsley Dixon, Kings Park & Botanic Garden, West Perth 6005, Western Australia. Fax: 0061 8 9480 3641, Email: orchid-congress@kpbg.wa.gov.au.

Profile of a threatened N.Z. orchid: 2

Reproduced with permission
—from Dopson SR et al. *The conservation requirements of New Zealand's nationally threatened vascular plants.* Biodiversity Recovery Unit, Dept of Conservation, Wellington, 1999.



Thelymitra matthewsii Cheeseman

Family: **Orchidaceae**

Endemic to: Indigenous to New Zealand and Australia.

Common name: Spiral sun orchid

Ranking: A, Critical

In cultivation: No

Descriptor: An orchid with a leaf that spirals round the stem, and dark purple flowers with darker stripes.

Conservancy: Northland

Habitat: Favouring open, depleted gumland.

Threats: Collectors; trampling by people; wind erosion of unstable dune habitat. This species is also under threat in Australia.

Work undertaken to date
Opportunistic survey at Te Paki; monitoring of one population by New Zealand Native Orchid Group members.

Priority sites for survey
Te Paki, Te Aupori Peninsula

Monitoring: objectives and priority sites
Cape Reinga for population dynamics; monitoring at Rubbish Dump Hill site.

Research questions

Management needs
Advocacy to mitigate collection.

Selected references
(none given)

From the internet

Eugene Laurent wrote to Kew's "Orchid Specialist Group" (OSG), "I have given up trying to store **slides in Trinidad** after trying air-conditioning, dessicants, closed containers in cupboards with heating bars and combinations of the above. Trinidad is 10 degrees North Latitude and the humidity gets to 100 % every night. Technology now allows me to use a digital camera or to scan prints and save them on the computer using zip discs. I am now preparing a slide show using Powerpoint for use at our annual Orchid Show...."

A contributor to Kew's Orchid Specialist Group wrote, "Stress should be now onto **saprophytic orchids** like *Didymoplexis pallens, Cymbidium macrorhizon, Galeola lindleyana* – to name a few from the Himalayas that could perhaps only be conserved for posterity in laboratories unless some orchid genius comes up with a solution to cultivate them like their more fortunate cousins!"

Another replied, "...I think we can work towards isolating the host fungus for all saprophytic orchids. You have got to see the magnificence of *Galeola lindleyana* and the exquisite beauty of *Cymbidium macrorhizon* and *Eulophia zollingeri* to appreciate that they need to survive as well. *Didymoplexis pallens* is such a delicate interesting orchid inhabiting bamboo grooves it moves your heart to see it survive and bloom! There are many others besides spread all over the world."

Finn N Rasmussen of the Botanical Institute, University of Copenhagen responded, "I am very interested in the special problems with 'saprophytic' (actually holomycotrophic) orchids. They may actually be grown **if their host-fungus could be cultivated**. Several interesting, apparently autotrophic genera are just as recalcitrant as the chlorophyll-less species, including the entire subfamily Apostasioideae. The theoretical understanding of how these plants grow in nature is improving rapidly right now, and I would not be surprised if successful cultivation is soon achieved.... "

Wojciech Adamowski wrote to the Orchid Specialist Group on *Epipactis helleborine's* invasion of North America. Epipactis planted as a medicinal plant or unintentionally taken from Europe was first observed in 1879 near Syracuse, New York. Next were two Canadian provinces: Ontario 1890 and Quebec 1892. In the following years Epipactis invaded Massachusetts 1902, Michigan 1919, Pennsylvania 1923, Vermont 1925?, Wisconsin 1930, New Hampshire 1942, Ohio 1959?, Virginia 1973-1976?, New Jersey 1978?, Oregon 1985? "For California 1966, Connecticut 1950, Delaware 1964?, Illinois 1955, Indiana 1931, Kentucky 1993, Maine 1960, Maryland 1984, Montana 1940, Rhode Island 1994 and British Columbia 1959 I have only date of first publication. I have no date for: New Brunswick, Newfoundland, Arkansas, Minnesota, New Mexico and West Virginia. Naturalization failed in Missouri 1928, 1981? and Tennesee 1991. In many cases people planted this species in gardens and even in nearby forests as described by Mousley (1927) or Case (1987). It can thrive in very different conditions: many forest types, disturbed places, lawns etc. These data are from many different papers, floras and web pages." *No weed orchids in New Zealand yet, happily — Ed.*