

C. lyallii + *C. alpina* pt



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Calochilus herbaceus flower and plant in bud from Te Paki, Northland.
drawing by Catherine Beard

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Calochilus herbaceus, drawing by Catherine Beard.



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From the editor

September orchids in South Australia

The 19th of September 1996 found us in the company of guide Bob Bates who led us to five different sites in the hills to the north of Adelaide.

What is astonishing about South Australia (apart from the smooth, spicy richness of the local red wines) is the sheer number of orchids on the ground, and yet the endangered status of many from the ravages of mankind.

A few impressions: *Pyrorchis* (renamed from *Lyperanthus*) was abundant in leaf, yet we saw not one flower — it does need the stimulus of fire, and there had been no bushfires for some time.

Thelymitra, *Caladenia* and *Pterostylis* were familiar yet unfamiliar — same genus but very different species; those big (some as big as your hand) Aussie *Caladenias* are extraordinary flowers, each species with its distinct insect pollinator. They are the genus that the Australians call "spider orchids", many with filamentous petals and sepals — see the photographs opposite.

Diuris was startling in its colour, beauty and variety — hybrids were common (as with the large *Caladenias*), a reflection of the insect-pollinated status of these species. Perhaps that is the reason they have never settled in New Zealand. Another sign suggesting insect pollination was the presence of contemporaneously flowering plants of the same colour as the orchids — many yellow blooms where the yellow *Diuris* and *Thelymitra antennifera* were also flowering; blue and pink lilies and irises about the size of *Thelymitra* flowers.

The nonspecificity of some insect pollinators and the discovery of a wide range of pollen on the stigmas of, for instance,

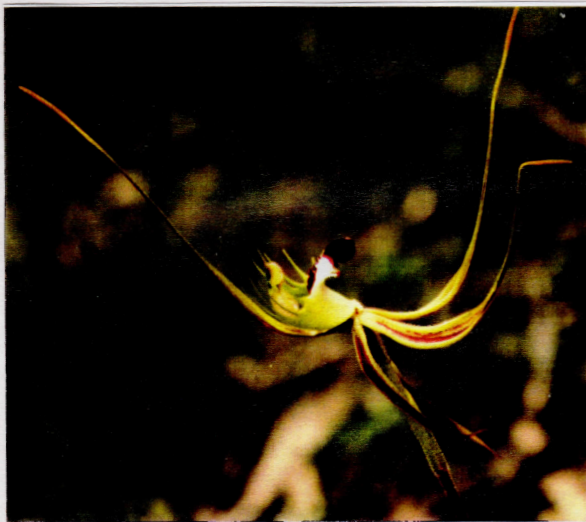
Thelymitra, have suggested that contemporaneously flowering adjacent plants may act as models for the floral mimicry of some *Thelymitra* and *Diuris*.

On the other hand Bob Bates and others in Australia are studying specific insect pollination syndromes. The specificity of single species of insects as pollinators of single species of orchids — for instance many *Caladenia* or *Chiloglottis* species — has led to careful reappraisal of some plants, and to the separation of new species from previously lumped groups.

Glossodia major was another delight - large enamel-purple horizontal flowers in groups of up to several dozen were gems. As was the big kangaroo that lolloped lazily off ahead of us.

The word is, *Pterostylis* may soon be split into four separate genera. That won't affect us as much here as in Australia, since we do not have representatives of all four potential genera. I saw the common *P. pedunculata*, *P. curta*, one of the *P. nana* complex, and one of the *P. rufa* complex — an interesting tiny desert plant, its rosette leaves acting as an upturned umbrella to catch raindrops to nourish the tuber, able to withstand drought. *Pterostylis nana* has six recognised species in South Australia (and none of them is the same as our *Pterostylis puberula*) but that is nothing compared to *P. rufa*: one species ten years ago, now split into perhaps a hundred. How do the taxonomists keep up?

I am grateful to Bob Bates for his time as our guide, and I also take this opportunity to thank him for his many (often involuntary) contributions to our *Journal*, highlighting the similarities and differences between our orchid flora.



Some South
Australian
Caladenias



Caladenia lyallii, *alpina* et al.

The separation by David Jones of *Caladenia lyallii* from the larger Australian *C. alpina* and smaller Tasmanian *C. cracens* (see report and illustration in J61, pp6-9) relied on a number of features, but the key to the taxonomic treatment was the absence of stalked marginal calli on the labellar midlobe of *C. lyallii*.

C. alpina has "3-5 pairs of stalked linear marginal calli near the base, decrescent, sessile and irregular to the apex of the midlobe"; *C. cracens* has "5-8 pairs of linear marginal calli, decrescent to the apex of the midlobe"; while *C. lyallii* has "4-7 pairs of sessile, irregular marginal calli near the base (rarely one pair stalked) decrescent to the apex of the midlobe". The lateral lobes of *C. lyallii*'s labellum have "distal margins with several, irregular, short teeth".

The other points of difference among the three species include the general size of the plants, the width of the leaves, size of flowers, the shape of the lateral and midlobes of the labellum, and tapering of the column.

Jones based his observations on the examination of 67 specimens of *C. lyallii*, all but one collection (Taupo, Gibbs) from the South Island, and on photographs of the Type specimen (the Type locality is Otago).

Central North Island forms of *C. lyallii* appear to be different from the Otago forms, and in any case there are two different forms in each of the two areas.

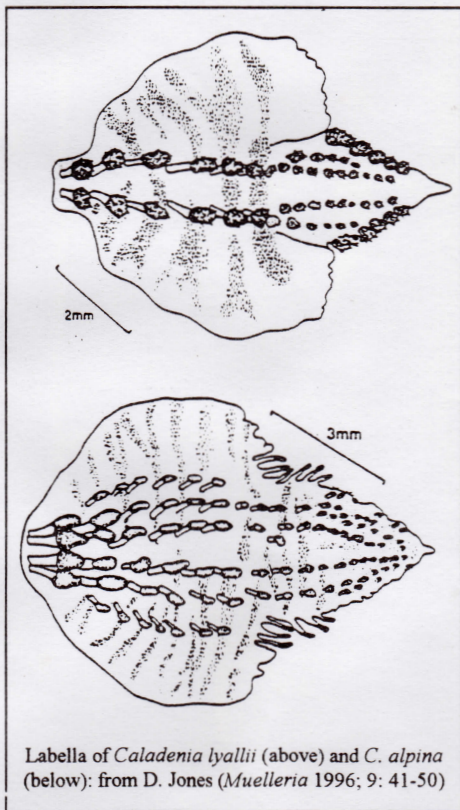
I examined one from the Rimutakas (Puffer track) on 10 November (Fig.1). It had many of the features listed by Jones, but it did have three pairs of linear marginal calli in the angle between the midlobe and lateral lobes, and it had no sessile marginal calli. Furthermore it had four rows of calli right to the base of the labellum, whereas Jones's diagram showed four rows fading to two at the base. I examined several (of what Max Gibbs identified as the larger of the two Iwitahi forms) from the old reserve at Iwitahi (thanks to Trevor Nicholls and Robbie Graham) and they were exactly the same (Fig.2), except for fewer calli on the plate.

The small, all-white Iwitahi form (all the others have red markings) is structurally similar, but much smaller — closer in size to

Caladenia aff. *carnea* than *C. Lyallii* (Fig.3 — preserved specimen).

Then I had a chance to examine flowers from Shag Point, and from Herbert State Forest, Otago (thanks to Barbara McGann). Those from Shag Point (Fig.4) were less robust than those from Herbert (Fig.5), which had broader sepals and petals, a more equilateral triangular midlobe (cf. the tall isosceles triangle of the Shag Point flowers), had six rows of calli fading into four (cf. a clear four from Shag Point), but both forms had 3-4 pairs of linear marginal calli near the base of the midlobe.

Do they break off in dried specimens? Where exactly does the midlobe become the lateral lobes? How short do "linear marginal calli" have to be before they become "irregular, short teeth"?



Labella of *Caladenia lyallii* (above) and *C. alpina* (below): from D. Jones (*Muelleria* 1996; 9: 41-50)

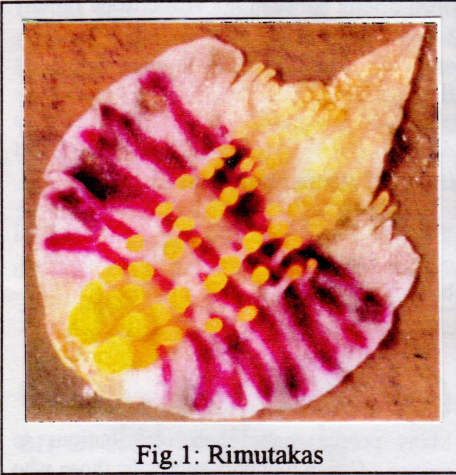


Fig. 1: Rimutakas

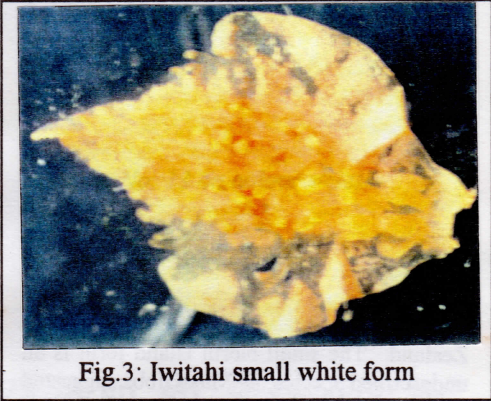


Fig. 3: Iwitahi small white form

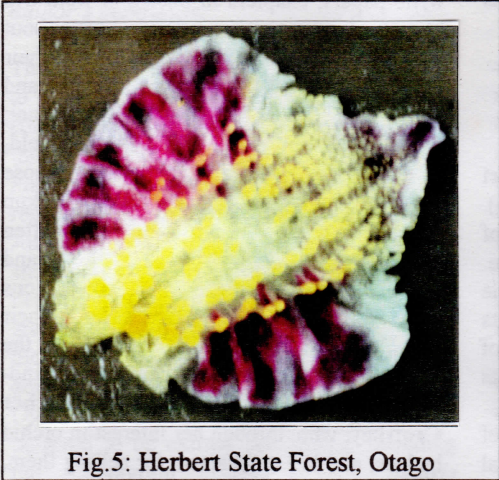


Fig. 5: Herbert State Forest, Otago



Fig. 4: Shag Point, Otago

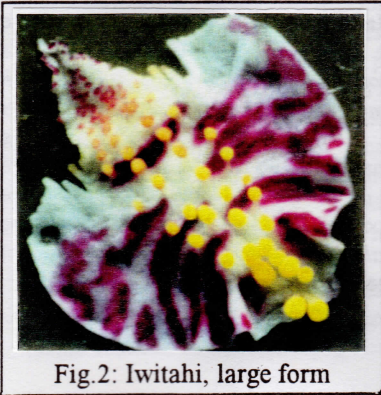


Fig. 2: Iwitahi, large form

The labella of
Caladenia aff. lyallii
from different locations
in New Zealand

The only specimen I have seen with a labellum like that illustrated by Jones for *Caladenia lyallii* was one from Arthur's Pass in Canterbury; it had no linear marginal calli, but had an irregular wavy margin in the region between the mid- and lateral lobes. In fact the robust Herbert flowers were, like many I have examined in the past from around Dunedin, exactly like Jones's drawings of *Caladenia alpina*. These plants often have 1cm-wide leaves too.

My view? There are three species in New Zealand. The small North Island form is an undescribed species, as Max Gibbs suggested years ago. The larger North Island form, which is the same as the smaller Otago form, is *C. lyallii* if Jones is right in identifying it with the Type. The larger Otago form is either *C. alpina* or another, similar species.

A longitudinal report

Bob Talbot has submitted a gem of a report for this issue (see Original Papers, page 16). It is a longitudinal report — a series of observations of the same plants over time. Most of our reports are of field trips or the like — one-point-in-time glimpses of plants and habitats — useful and interesting of course, but they tell us little of how plants behave over a period.

Bob has revisited the same colonies of *Bulbophyllum pygmaeum* during several weeks, and has found that

- some flowerstalks grow for about two weeks then produce flowers that lose their pollinia after another week, then finally close a further fortnight later, but
- other flowerstalks produce "pseudoflowers" that remain closed.

Both flowers and "pseudoflowers" are fertile, though the ovaries of the "pseudoflowers" swell much earlier than those of normal flowers.

Is Bob wrong? Did the "pseudoflowers"

open briefly between his visits, to be rapidly fertilised and to close again? Or is he right, and the plant formed small non-opening flowers destined from the start for self-pollination, alongside larger open flowers designed for pollination by some other agent (insect or wind)?

As he says, next year will be interesting. When you start to make longitudinal observations, you may find some answers, but you certainly find more questions.

Some good people

Many people make their contributions to ensure a Group like ours succeeds: those who write papers, chapters in books, or field trip reports, those who simply let us know about something orchidaceous that takes their fancy, those whose drawings and photographs grace the pages of the *Journal*; those who organise forays into the field, conferences and weekends like Iwitahi; those who provide the scientific botanical backup and comment that stops us from too often making fools of ourselves; those editors and authors of Australian orchid publications who allow us to re-use their material. Their names are well-known to you from the *Journal*. I wish to pay tribute to two behind-the-scenes people. The first is **Heather Crofskey**, who, through her interest in orchid badges, and her enthusiasm for selling them, has raised well over \$1000. The other is the late **Malcolm Campbell** whose hybrids have in the past raised a significant sum: a *Dendrobium cunninghamii* x *Dendrobium kingianum* cross is advertised for sale in this issue. They have enabled us to keep the subscription lower and to use much more colour in 1996-97 than would otherwise have been possible. (Currently each issue of the *Journal* costs \$200 for printing, \$150 for postage but \$360 per A4 colour page).

TWO NZNOG BOOKS AVAILABLE



Field Guide to the New Zealand orchids

by Ian St George, Bruce Irwin and Dan Hatch

◆
The field guide, published in 1996 with the support of the NZ Lottery Grants Board, contains brief notes and black-and-white drawings of all New Zealand species, formally named or informally tagnamed, together with distribution maps resulting from the Group's Mapping Scheme.

The New Zealand orchids: natural history and cultivation

by Ian St George and Doug McCrae

◆
The natural history and cultivation book, published in 1990, was sold out but is now available again after the discovery of a lost cache; chapters by Chris Ecroyd, Bob Goodger, Dan Hatch, Bruce Irwin, Doug McCrae, Brian Molloy, Val Smith and Ian St George, on a range of subjects.

◆
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Original papers

Hunuas and Waitakeres *Corybas rivularis* complex.

by Eric Scanlen, Papakura

Bent on getting some good shots of *Corybas acuminatus*, Graham Marshall and the column tackled the waterfall on Prisoners Stream in the Hunuas on 22 September 1996. There it was in full flower but the locally plentiful member of the *Corybas rivularis* complex was also in early flower and got duly photographed as well, despite the best flowers being in moss at the brink of the falls. Bruce Irwin identified the 3-D images as *Corybas* "Kaimai" (Fig. 1). This is the only known site for any of the *Corybas rivularis* complex in the Hunuas unless any readers have further information?



Figure 1: *Corybas* "Kaimai"

Dan Hatch mentioned by 'phone that "The Waitakere *Corybas rivularis* were apparently all *Corybas* 'whiskers'." so Allan Ducker and your doughty column made a flying afternoon visit to firstly the Fairy Falls off Mountain Road on 10 October 1996 to photograph the last two flowers of a compact

colony of, sure enough, *Corybas* "whiskers" (Fig. 2).



Figure 2: *Corybas* "whiskers"

The inside of the labellum with no apiculus looks to have been shaved with a blunt razor leaving stubble all over. The column's shots from Opanuku Stream of 29 October 1960 show very similar flowers which of course could have evolved a little since then. (The new *Field Guide* shows an apiculus on *Corybas* "whiskers"! Bruce, by letter says that all his drawings show one, but the column's slides of seven flowers in three sites showed a solitary apiculus bearer at the Bridal Veil Falls at Raglan, in a colony otherwise innocent of them). Apparently, the northern form only, is without apiculus. A short excursion up the Parau Track by Lower Nihotupu Dam confirmed a huge colony of *Corybas macranthus* in gorse and black punga where Allan held the flash-gun and swears he didn't fiddle with the buttons but

the shots all came out over-exposed!

Further south at the Karamatura Track, *Pterostylis banksii* held up proceedings briefly before the plunge was taken up the massive and slippery boulders of the Karamatura Stream. The column vows to wear a crash helmet on any future trip here because, when he slipped, a twig first flicked off his hat *then* he banged his pate on a rock. In some form of recompense, a luxuriant colony of Allan's orchid find appeared at the top of the rapids. Not *Corybas* "whiskers" but *Corybas* "Kaimai" however with labella held straight down (Fig. 3) instead of angled forward as in the Hunua specimens.

Next year's list includes Cascades specimens downstream of Waitakere Dam and others that Allan has spotted at Piha off Glen Esk Road.

The Owhango squelch

By Eric Scanlen, Papakura

Bruce Irwin was anxious to track down a small round leafed *Corybas* reported in the Erua swamp. Could it be the same as the subalpine *Corybas* "round leaf" found at 1,300m altitude at Whakapapa last year? He co-opted a small party, all helpless to resist when native orchids are mentioned, to squelch 'round the swamps of Ruapehu from the Owhango Ski Post on the week-end of 9-10 November, the seed incentive being to check out the above possibility. Bruce must have a direct line to Hughie because, no sooner had arrangements been finally set at only three days notice, than an anticyclone began wedging its way down the Tasman in time to supply us with a day and a half of fine balmy weather, quite contrary to the long term forecasts.

The narrowest piece of forest (bush lawyer, pampas and huge rimus) was selected for an undignified descent to bring us to the swamp margin in question. The prime suspect was immediately found in the eerie hush of the



Figure 3: *Corybas* "Kaimai"

mossy forest edge. Flowers were not in short supply and they proved to be the normal dark maroon southern form of *Corybas trilobus* but with that curiously round leaf (Fig. 4). It had better not be a new species because names are running short, "rotundifolius", "round leaf" and "orbiculatus" have already been taken. What about "circular leaf" or even "Ringo" perhaps? Numerous *Pterostylis* aff. *montana* were also in attendance. This form has a non-twisted labellum with a ridge down its keel (Fig. 5). The swamp narrowed here with a noticeable current between the reeds so it became irresistible to check for early signs of *Prasophyllum* aff. *patens* and *Pterostylis micromega* but we had to be satisfied with some properly tri-lobed *Corybas trilobus*.



Figure 4: *Corybas trilobus* "round leaf"



Figure 5: *Pterostylis* aff. *montana*

The mystery of the round leafed *Corybas trilobus* having been solved to some extent, the party headed for the Rangataua wetland for a study of the curious grouping of *Corybas* in this piece of tea-tree swamp.

Corybas "rest area", target number one, was found last year but kept secret from your long-suffering column. This year, horror of horrors, it was conspicuous by its absence despite a thorough search by nine pairs of eyes! However, *Corybas* "sphagnum"



Figure 6: *Corybas* "sphagnum"

(similar to *Corybas* "Waiouru" but with wide spreading lateral sepals) which was in short supply last year was now abundant (Fig. 6).

Two colonies of *Corybas macranthus* and another of *Corybas papa* also came to light. (Caution from Bruce, in hindsight, the old flower photographed could be a wilting *Corybas* "rest area", these two have similarities in occasional flowers). Sue Bergerson lost her footing whilst stepping gracefully from grass head to grass head and went knee deep in the bog. Graham Marshall complained of her suffusing his car with the boggy aroma all the way back to the Ski Post. They checked out a *Corybas cryptanthus* site at Ohakune on the way, but drew a blank on these capricious under-forest-floor-flowerers. Try saying that fast

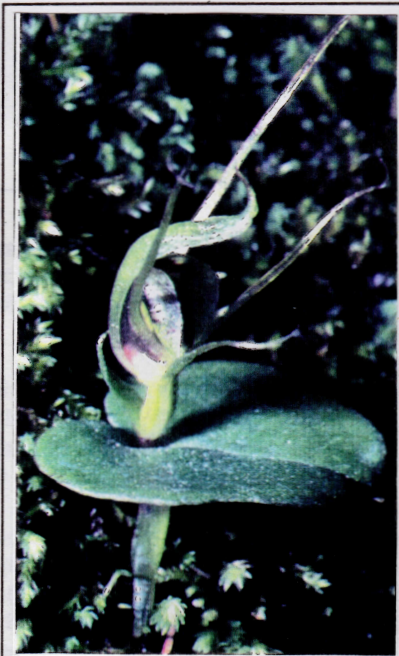


Figure 7: *Corybas* "rest area"

after a couple of whiskies. Catherine Beard, it should be noted, found a plant which she could not identify (carve a notch in your Flora cover). Numbers of these eye-catching

purple puff balls were sprouting under the beech at the edge of the Rangataua Swamp.

The seven remaining stalwarts, still intent on seeing *Corybas* "rest area", found it at — where else — but the rest area where Bruce first found it on the Desert Road. However, recent Ruapehu ash had smothered and caused flooding to the bulk of the colony! Thankfully, about 30 plants had survived and two had fresh flowers (Fig. 7). Notice how the dorsal sepal turns up more than in *Corybas papa*. The party lowered the water level somewhat by diligently scraping two drains in the ash to leave the plants in swamp instead of in free standing water. Bruce had long ago spotted another colony of round leafed *Corybas* on a perpendicular bank across the fast flowing stream close by but he had never found a patsy to either ford the turbulence or descend the bank to check it out. The column had to open its mouth and say it looked easy so was then shamed into slithering down the bank in a shower of debris, clinging to shrubs and trying to look intrepid but no doubt he disappointed all by not falling into the frigid flow. This bank colony was well stocked but held only two flowers, one withered and one damaged which Bruce recognised also as *Corybas* "rest area". Depressingly, a clump of *Pterostylis humilis*, which had been perhaps injudiciously marked with a plastic bag on a branch above, had disappeared. In its place was a neat rectangular hole. The culprit is most unlikely to have a suitable habitat for this subalpine species. Need one say, thus do our rare orchids become endangered.

After circumnavigating Ruapehu, the party enjoyed a convivial and excellent meal at the Owhango Restaurant followed by the column's 3-D slide show of the farthest north orchids, by a warm fire at the Ski Post.

Sunday breakfast included a little baiting of the botanists with Marilyn Merrett rising to their defence when it was suggested that writers naming or revising species, did not subject their papers to the rigorous peer

review accorded to other branches of science and engineering, hence the plethora of name changes especially in the orchids.

An invasion of Ross and Helen Bishop's tasteful landscape garden followed before an assault was made on the Whakapapa pipeline orchids, by four dedicated tail-enders. Last year's field party had foundered here in the rain but had found flower on the subalpine *Corybas* "round leaf" (was *Corybas* "trilobus round leaf"). This time, top-eye-of-the-day Graham Dickson, came up with a flower (Fig. 8) after numerous barren



Fig 9: green form of *C. trilobus*

leaves had been found. The long dorsal sepal on an otherwise *Corybas trilobus* flower, defines this charmer which likes its feet wet. Moss lined old channel beds on both side of the Whakapapanui held flowering plants under dead grass leaves and shrub canopy which protect it from the worst of the frosts. Close by, palest green *Corybas trilobus* (Fig



Figure 8: *Corybas trilobus* "round leaf"

9) in drier situations, were also spotted by Graham. Anne Fraser's ready thermos provided steaming coffee for a cool picnic lunch by the brawling stream whilst the four solved the problems of the world in philosophical debate.

Bruce's final revelation was yet another round leaved orchid, temporarily identified as *Corybas* "Mangahuia", not in a swamp this time but wetter, one had to stand in the waters of the Mangahuia with the rain, to photograph these look-alikes to *C. "sphagnum"* with their similar longish, straight dorsal sepals. The hastily taken photos show the inside of the labellum covered in the same minuscule bumps as *C. "rest area"*, *C. "sphagnum"*, *C. papa* and *C. "Waiouru"*. It has a terminal apiculus and makes one wonder, just how many forms or species remain in the *Corybas rivularis* complex? Who would like to grow them from seed to determine the degree of hybridisation?

The distribution of *Danhatchia australis*

by E.D. Hatch, Laingholm

In the *NZNOG Journal* 61: p5 December 1996, Dr. Ella Campbell suggested that an account of the distribution of this orchid would be useful. There are several points of view extant, one being that since the information has already been published, albeit scattered in various journals over the last 40 years, it is pointless to repeat it. On the other hand, Mrs. Maureen Young was adamant that it should be done and that I was the bloke to do it, having all the information at my fingertips (filed in a folder actually).

In the North Island the plant occurs mainly in State forests and public parks, though sometimes in forest remnants on farms; in mixed kauri/taraire forest from Waipoua southwards to a line drawn roughly between Papakura and Kennedy's Bay. Growing in deep leaf-litter beside streams or where there is underground water, the orchid is found almost always within root-reach of the taraire (*Beilschmiedia tarairi*). Nikau (*Rhopalostylis sapida*) is often, but not invariably present in the association. Where several flower-stems occur in a clump, they have usually developed from the terminal buds of a single branching rhizome.

Danhatchia australis, having very little or no chlorophyll, is parasitic on the puffball fungus *Lycoperdon perlatum*, which in its turn grows in mycorrhizal association with the rootlets of the taraire [1]. The fungus is widespread in New Zealand forests and is not confined to the taraire.

Dr. Ross Beaver, commenting on the Karekare locality, considered that because the orchid was not directly connected to the taraire, it was possible that it might be found in association with other trees, provided the fungus was present [2], and this proved to be correct when *Danhatchia* was later found in the South Island, where the taraire does not occur. Dr. Beaver also examined the leaf bracts under the microscope and reported

(pers.comm.) that occasional chloroplasts did occur along the midribs, suggesting that the orchid was once, long ago, an ordinary green-leaved plant and has since degenerated into its present dependent condition.

The orchid is now considered to have Asian affinities in the Subtribe *Goodyerinae* [3/4], and it is perhaps relevant that the taraire also came into New Zealand from the north. [5]. They may even have come down together, as it were hand in hand.

In the following list I have given the first record only. 'Also EDH' indicates that I have examined the site myself, not necessarily finding the orchid!

- 1: Waipoua State forest (northern bank of the Waipoua river). 28.1.1955. E. Kulka. AK 108769 (2). Oddly enough, in spite of a mass of taraire and a number of botanically minded foresters, only the one specimen has ever come out of Waipoua forest.
- 2: Atuanui State forest (Glorit). The type locality. 24.12.1962 Ross & James Beaver AK 108769 (1) Holotype. Also EDH.
- 3: Atuanui State forest. Below the Walkway, 3 flower stems on a small stream 30.12.1983 EDH (photos only)
- 4: Hooper's bush, farm remnant. Glorit. 29.12.1985 M. Young
- 5: Nevill's bush, farm remnant. Kaipara Flats. 5.1.1986 M. Young (specimens in Warkworth Museum).
- 6: Maranui bush, farm remnant. Hoteo North. 12.1.1986 M. Young
- 7: McElroy's Scenic Reserve, Mahurangi 6.12.1991 M. Young
- 8: Kaukapakapa, hill behind the hall 18.2.1967 L.H. Moore. Also EDH (specimens in CHR)
- 9: Kaukapakapa, Whakatiwai Scenic Reserve 1.1968 L.H. Moore. Also EDH (specimens in CHR)
- 10: Karekare, Waitakere Ranges 18.11.1973 R.E. Beaver. Also EDH (specimens in AK)

- 11: Kirk's Bush Reserve, Papakura
27.12.1966 J. Horsman. Also EDH
(specimens in AK)
- 12: Taiharuru Bay, NE Coromandels
10.1.1982 J. Smith Dodsworth AK 156545
- 13: Burrill's Bay, Great Barrier Island
4.1.1983 A.E. Wright AK 169936
- 14: c. 500m south of the Needle, Great
Barrier Island 9.1.1984 R.E. Beever REB
83089 (specimens in CHR)
- 15: near Tryphena, Great Barrier Island
6.1.1984 R.E. Beever REB 83068, and
10.1.1984 REB 83090 (specimens in CHR)
- 16: Matuku Bay, Waiheke Island 27.1.1994
R.E. Beever.

In the South Island,

- 17: Kaihoka Lakes Reserve, NW Nelson, on
old consolidated sand dunes. 1.1984 N.
Smart (specimens in CHR?) (photos seen

EDH) The only recorded locality without
taraira. Nikau however was present.

Acknowledgements - Mrs. Maureen Young
and Dr. Ross Beever read through my
original note and added localities and dates
and made other corrections.

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Report on the orchids on Voyage 1393

Observations by Trevor Nicholls and Karlie Birchall

Ulva Island (Paterson Inlet, Stewart Island) — 12 December 1996

Pterostylis: *P. montana*, *P. aff. montana*, *P.
venosa* — Karlie says that is what they were
and I would tend to agree. *Corybas trilobus*
under ancient macrocarpa — Karlie says that
she has seen this association elsewhere.
Also there were quite a few to be seen along
the track and the leaves were very variable in
appearance. There was no sign of flowers or
fruit. *C. oblongus* was present in profusion
along both sides of the nature walk. There
were a large number of flowers and there
appeared to be the beginning of fruit set.
Some of the leaves had distinct veining. *C.
macranthus* — here was what appeared to be
a small patch. No flowers or fruit.
Dendrobium cunninghami — there was one
flower visible on one small group of plants

near the landing. *Earina mucronata* — there
were several sightings; only one lot on a tree
fern was in flower. *Thelymitra* sp. in bud
and it had all the appearance of being *T.
longifolia*. *Chiloglottis cornuta* — very few
plants with only one patch with flowers.
Aporostylis bifolia — there were great
numbers of these, all spotted leaf, most in
bud and no flowers were seen.

The orchid of the day — *C. oblongus*

Auckland islands

Erebus Cove — 14 December

Corybas oblongus in considerable numbers
with many in flower and some had veined
leaves. *C. acuminatus* — one patch and it
had finished flowering. *Chiloglottis cornuta*
— there were not many and they were not in
flower. *Lyperanthus antarcticus* — found

one group of 43 plants with two in flower, nearby a second plot with 17 plants with 11 in flower. *Aporostylis bifolia* — there were good numbers of these and they all had spotted leaves. NB — Saw a patch of odd funnel shaped *Corybas* leaves. I thought of the reference to a similar sighting in NZNOGJ 60. Found more later in a patch of *C. oblongus* and found that this oddity occurred where they were to be found growing through patches of moss. It was not wind related as these occurred as often in shelter as not.

Ranui Cove

Aporostylis bifolia were mostly in bud and a fair number in flower, about a quarter of the plots were green leaved. *Thelymitra cyanea* (was previously and incorrectly known as *venosa*) identified by its distinctive leaf. The plants were widespread and mostly in bud. *Lyperanthus antarcticus* were seen in frequent groupings on the track up to the lookout. A very small percentage of the stands were in flower, about as many in bud and the rest showing no signs. It would appear that they have quite a spread out flowering period. The spikes had one to three flowers. Most common was two. *Chiloglottis cornuta* — a few small groups and a few in flower. *Corybas oblongus* — these were present in large numbers, from bud to forming fruit. *Microtis* sp. — saw what appeared to be the leaves of *Microtis*. NB at first I thought that *C. oblongus* had not been recorded for Auckland Islands but found a mention of it, along with *Chiloglottis cornuta*, listed in *NZ Journal of Science* Sept 1958 p478.

The orchid of the day — *L. antarcticus*

Enderby Island — 15 December

Zone A — Walking through the trees

Chiloglottis cornuta — very few and no flowers. *Corybas trilobus* — a few stands and no flowers.

Zone B — Walking through the scrub on to the moor land. *Thelymitra longifolia* was to be seen throughout the scrub. *Aporostylis bifolia* was to be seen in considerable number — spotted leaves.

Chiloglottis cornuta was not as common.

Lyperanthus antarcticus — only one lot was found. NB We continued to see the distortion of leaves and saw the shortening of the flower spikes from growing in the moss beds. This last was most noticeable with *C. cornuta*.

Zone C — the first *Bulbinella* field. *Prasophyllum* sp. — these were scattered through the field 1-3 plants at a time. The buds were too immature to confirm, but *P. colensoi* has already been reported.

Orchid of the day — *Bulbinella rossii*!!
(honorary orchid)

Carnley Harbour, Musgrave Peninsula — 16 December

Chiloglottis cornuta was sparse upon the ground and no flowers. *Corybas trilobus* was seen in large numbers and a large number of plots. About half of the stands had flowers — red form. Possibly means that the ones that we have seen without flowers are the green form and have finished flowering. Noticed at least three of these stands to have very rounded leaves similar to *C. macranthus* but the flowers appeared to be more like *C. trilobus*. I am hopeful that these will show up in the photographs taken. Could they be *C. "round leaf"*? interesting! *C. oblongus* was spread along the track with 2-3 plants to sizable plots. Most of them had veined leaves. *C. "?"* Karlie found a metre square plot of *C. "?"*; they had a leaf shape of *C. acuminatus* heavily ridged and small albino flowers. A mutant and sterile? Hopefully it will show up on film. (At the Iwitahi weekend in January we saw a video of an alba form of *C. oblongus*. Ours could have been the same but the flowers waning and this would explain their apparent smallness. *Aporostylis bifolia* was to be seen on the higher end of the track and out

on the top. There were several green leaved stands. Again seen in the moss and distorted. *Lyperanthus antarcticus* had a similar distribution. Good numbers and the same proportion in flower etc. *Caladenia* sp. was seen by the lower buildings but there was no possible means of identifying them. Only leaves were visible.

Orchid of the day — *C. trilobus*

Campbell island

Camp Cove to Tucker Cove — 17 Dec.

A — Track through *Dracophyllum*: *Chiloglottis cornuta* — small stand mostly in flower. *Corybas trilobus* — two stands on opposite sides of the track. One had stippled leaves and the other was quite normal.

B — On the plateau: *Aporostylis bifolia* — these were scattered among the low shrubs and the majority of them were stunted by the moss and/or bog. Many of them were in flower. In fact it was only the flower that allowed precise identification because the leaves were so distorted. *Prasophyllum* sp. — found two plants in close proximity to each other. *Lyperanthus antarcticus* was scattered around the area in small groups. At the top of the board walk down to Tucker Cove there was a 'field' of them and unlike any others we have seen the majority of them were in flower. They were growing in a very wet area which was mostly sphagnum moss!

C — Track down to Tucker Cove: *Corybas trilobus* — there were two very healthy colonies right in the middle on the walking track. On first viewing had thought that the first colony was *C. rivularis*. *Chiloglottis cornuta* — one scattered colony.

D — From Tucker to Met Station: *Corybas trilobus*. Found healthy plots of considerable size here and there along the whole traverse.

Orchid of the day — the field of *L.*

Antarcticus.

Beeman Cove to herb fields — 18 Dec.

Corybas trilobus — this was seen early on in the *Dracophyllum* and then no more until a sighting halfway to the saddle. *Chiloglottis cornuta* — it was recurring from the beginning of the track to just short of the end of the board walk. It was present in both its normal and in its distorted forms. *Aporostylis bifolia* was only seen in its distorted form. *Lyperanthus antarcticus* — only saw the one colony with most of them in flower. *Corybas macranthus* was found in flower, by Karlie near the Mt Azimuth saddle. This may be a first sighting — not sure. This means that both the possible parents for hybridising *C. trilobus* "round leaf" are in the islands. If *C. macranthus* is here I expect it is to be found on Auckland Island as well.

Orchid of the day — *Chiloglottis cornuta*

The event of the trip — to see a field of mega-herbs surrounded by mega-birds!

Observations on the flowering of *Bulbophyllum pygmaeum*

by Bob Talbot, Bell Block, New Plymouth.

This report is based on one and a half months' observation in an area of over a hectare. The area contained more than thirty plants, from small ones covering 2-4 sq. cm to those covering several square metres. Most

of these plants were intertwined through moss, with their dimpled pseudobulbs of about 5mm diameter, each with a solitary 5mm long leaf covered in tiny hairlike projections.



Bulbophyllum pygmaeum — flower upper left, pseudoflower lower left

Pushing upwards from the base of some of the pseudobulbs was a stalk on which a small flower was forming; this process took two or three weeks. When formed and open it was

3mm across the flower — creamy-white to green with tiny yellow pollinia just showing.

In the observed flowers the pollinia remained intact for about a week, then disappeared. No insects were seen at any of

the flowers for the whole of the observation period. but I suspect some insect was attracted to these flowers — or could it be the wind? This flowering period lasted for a full three weeks and the odd few 3.5 weeks — that is, from first opening to closure with ovary starting to swell.

Another interesting aspect to this plant is that it appears to throw pseudoflowers: they start forming as normal flowers might, but

the tip remains closed and creamy-white (just what a finished flower looks like). The ovary then starts to swell as if self-fertilisation has taken place. The whole process is faster than that of a normal flower, taking less than two weeks.

These observations have raised quite a few questions which will require further study next year: with luck things may further fall into place.

Notes



Somebody on the internet discussion group *Orchid List Digest* was wondering why many orchids show **resupination** (i.e. the flower twists through 180° so the labellum is lowermost). Prof Joseph Arditti responded, "The term resupination was invented by Linnaeus as a diagnostic tool. Darwin wrote about it in his book on orchid pollination. A number of German orchid specialists worked on the phenomenon after Darwin. Some of their work is very interesting. Oakes Ames wrote about it also. In the late 1970s and early 1980s Mrs. Noes Soedion (Flora Sari Orchids, Jakarta, Indonesia), the late Dr Les Nyman (my postdoctoral fellow at the time) and I worked on resupination in the Flora Sari garden. Prof. Helen Nair., Department of Botany, University of Malaya. Kuala Lumpur, Malaysia worked on it in 1987 (while I was there on sabbatical leave).

"Our work resulted in several papers which were published in the *Botanical Gazette* 145: 215-221 (1984) and 146:181-187 (1985) and *Lindleyana* 6: 154-161 (1991) and 7:185-193, 1992. Dr. Robert Ernst and I published a review on it in *Orchid Biology Reviews and Perspectives* VI, 1994 (Wiley Interscience).

"These publications contain extensive bibliographies. In short, positioning of the flower to create a landing platform is one theory, but I do not think that this is critical.

Exposing patterns which may attract pollinators is another possibility. Providing space for flowers to open is yet another. Resupination is a gravitropic phenomenon which seems to conform with the Cholodny-Went theory of gravitropism and is probably controlled by auxin." — *Aha! So! Just as I thought.* — Ed.



Matthew Renner made contact by email: "Very good to see **NZNOG on the internet**. Peter J. de Lange reports finding *Gastrodia* in the inner city of Auckland. Well, me too. On 2 December I found five plants of what I think is *Gastrodia sesamoides* growing beneath a birch tree outside the Nestle NZ building on the corner of Broadway and George St in Newmarket. I'm as miffed as Mr de Lange as to where they came from. Last year I was 'wandering around' in the Waitakere ranges where I came across a *Thelymitra* that I consider to be identical to David Jones' *Thelymitra media*. But who knows?"



Cathy Jones (11 December), sent **white *Corybas trilobus*** (just a few red markings) from Kahurangi National Park at 1240m altitude — very similar (except in colour) to the late-flowering *C.* "Trotters" with its notched dorsal sepal, flower below the leaf,

somewhat nodding flower. She wrote, "I have also found *Pterostylis cardiostigma* at Tennyson Inlet, *P. irsoniana* in the Wairau valley, and *P. montana* there too, *Caladenia carnea* and *C. aff. iridescens* at Mistletoe Bay in the Sounds, and a beautiful *Thelymitra decora* there too."



Dan Hatch sent a photograph of *Corybas rivularis* plants in cultivation collected from the original Kerikeri Falls site years ago. →



Readers' further suggestions:

- ♦ "Activities for Wellington members: visits to wellknown areas when the orchids are in flower", and "What does the Group do in Wellington? I read the magazine about excursions in *other* regions too regularly but obviously either nothing is done in this respect in Wellington or more likely I have missed out!"

- ♦ "Could membership be promoted even further by holding occasional outings with NOG members from Wellington, for example, joining Wanganui Bot. Soc. for an outing or evening programme?"

- ♦ "I would like to see the Group provide a forum for members to obtain plant material of readily grown native species legitimately for cultivation. I would like to cultivate particularly *Pterostylis* but do not wish to collect from natural populations. Presumably there are other members who cultivate natives and would like to share surplus tubers with like-minded people. I know this raises the spectre of people raiding natural populations for financial gain, and I am not sure how you deal with this."



I am a simple Journal editor, and report these comments for the notice of members of the Group who may wish to invite other locals when they are in the field, or who may wish to use the Journal to promote tuber exchanges — Ed.

- ♦ "Newcomers to growing native orchids should join an orchid group which is already growing natives and obtain plants that way, rather than take them from the natural state. Acclimatised plants grow better and are less likely to die from being shifted to a different habitat. The activities of the Group could be enhanced by members using the Journal as a communication vehicle to provide contact names and numbers for people preparing to scout new or old territory so that interested parties might join in and learn new areas and see new orchids to them."



Beryl Goodger reported a walk on the **Kauri track in the Long Bay reserve near Coromandel** in mid-november, "... we found at least ten different species of orchids but strangely enough we saw no *Earina* or *Corybas*. Most were abundant except the first three: *Dendrobium cunninghamii*, *Bulbophyllum pygmaeum* (bud), *Cyrtostylis oblonga* (seedpods), *Acianthus sinclairii* (seedpods), *Pterostylis banksii* (just finished flowering), *P. trullifolia* and *P. alobula* (seeds dispersed), *Microtis unifolia* (most flowering), *Thelymitra longifolia* (one or two open), *T. pauciflora* (most just finished flowering), possibly *T. carnea* (seedpods). Later that day we rediscovered the Chiltern Reserve on the 309 Road. It is small and now very much overgrown but as we remembered it; the far bank of the stream still has *Corybas* "Kaimai".



On 22 December Pat Enright and Olaf John found white and blue-flowered *T. hatchii* on the hills above Orongorongo near Wellington; both were fragrant, the white flower quite noticeably more so than the blue.



Bruce Irwin wrote (20 January), "I started for home after Iwitahi then thought I should at least check out a presumed *Gastrodia* aff. *sesamoides* colony west of Atiamuri on the road towards Whakamaru. On 2 Feb 96 I found many quite naked stems but no seed capsules, not even the remains of flowers — just bare stems. If plants produced no seed, why was it that extensive colonies had formed? This year (12 Jan) I found *Gastrodia* aff. *sesamoides* in full bloom flourishing in pine forest where thinning — both of surplus trees and lower limbs — made progress through the area almost impossible. I counted 79 stems while standing at a single point. Groups of twenty to fifty, perhaps twenty feet apart, extended in all directions. I walked

about 100 metres along the forest margins and this pattern remained much the same. The total colony must be enormous. Most stems were in full bloom. Where the topmost flowers were open the lowest had already faded and on a few stems one or two fat capsules had already formed. Presumably within three weeks these will have already dehisced and fallen from the spikes together with all unpollinated flowers. Because of the tremendous amount of litter, plants had to grow very tall to raise flowers above it. I collected a stem more or less at random and possibly shorter than many others. It measured 1.28m from ground level to topmost flower of 31, just fitting neatly under my armpit."

Native orchid hybrids for sale — proceeds to NZNOG

Before he died, Malcolm Campbell gave a Tauranga orchid grower a mother-flask of his *Dendrobium cunninghamii* x *D. kingianum* var. *silcockii* protocorms. There are 500 such plants in flasks of 25-27, ranging in November last year from 2 — 5cm tall.

Now that they have been deflasked, they are growing well and showing hybrid vigour. These plants have been on sale at Iwitahi and at the Taranaki Summer Orchid Display, and are available now. The funds raised will be donated to the NZ Native Orchid Group as a memorial to Malcolm Campbell.

If you are interested, contact Ron Maunder, Box 2107, Tauranga, ph/fax 07 5525570, or John Dodunski, 22 Hartland Place, New Plymouth, ph 06 7582060.



Kaimaumau orchids again.

Neville and Jacqui Hewinson wrote (11 November), "Yesterday seven of us from the Whangarei Orchid Society, three from the BOI Orchid Society and Hazel and Bob Major of NOG went up to Barbara Hoggard's at Kaimaumau for a day trip. There was very little out but we did find a

few *Calochilus herbaceus* in flower and a lot of *Cryptostylis subulata* in flower scattered through the ti-tree."



Wild collection in Peru (from the Internet): "The collection of wild orchids in Peru has become a problem. This is a world-wide issue, by no means limited to orchids, and only very modestly influenced by the export market. Rather, it is door-to-door 'ambulantes' (sales people) and markets where these flowering plants are sold to local people as decorative plants, that are to blame. The plants are mostly discarded after flowering. Another contributor notes the effect on Javanese populations of sales to weekend tourists at popular resorts. I recall driving down from Tarma to San Ramon in Peru and, at each roadside pull-in, being offered plants such as *Epi. radicans* and *Lycastes*, flowering out of the paraffin cans into which they had been hastily stuffed. There is, in essence, no solution to this, save the encouragement of local nursery production of decorative species. Purpose-grown plants will almost always make wild-collected ones look battered and of low quality. A small project near, let us say Cuzco, growing *Masdevallias* for sale as decorative plants, is the surest shield for the decorative wild species."



Karlie Birchall wrote of her trip to the **southern islands**, "... we observed an amazing variety of native orchids growing happily in very cold conditions, especially the *Corybas* clan — in full flower in the second week of December. The biggest thrill for me was finding *Lyperanthus antarcticus* on Auckland and Campbell Islands. Large colonies of up to sixty plants with many in flower. I also discovered *Corybas macranthus* growing on the slopes of Mt Azimuth — not shown in the *Field Guide* on Campbell. Also, on a trip ashore to see the coast watchers hut at Musgrave Peninsula I found a clump of

Corybas that was quite unusual in that although the leaves were green, the flowers were pure white." — see Trevor Nicholls' report on page 14 — Ed.



Another strange *Microtis*. The *Microtis* illustrated below is from Admiral Road near Gladstone in the Wairarapa, collected late January 1997 from grazed pasture, where it is present in thousands of plants. The labellum appears to be somewhere between those of *Microtis unifolia* and *M. parviflora*, and the upturned apiculus of the dorsal sepal excludes it from either. This is another "*Microtis aff. unifolia*". ↓



Microtis aff. unifolia
from the Wairarapa

Conservation

Report on ANOS conference conservation forum

This is taken from a report written by Ruth Rudkin, representative of the Warringah and Sydney native orchid groups.

The Conservation Forum at the 3rd ANOS Conference and Show held at Flinders University in September ran for three hours.

Alan Dash as the ANOS (now ACNOS) Conservation Officer gave a detailed account of the position as it is now with suggestions for the future, especially as regards native orchids. He pointed out that in order to ensure the survival of many species, it is necessary to protect the habitat in which that species occurs, and in the south-east and south-west of the country, orchid species are represented in all habitat classifications. These sectors are just the ones with the greatest concentrations of human population. He suggested that with the limited resource of ANOS, we should liaise and cooperate with mainstream conservation groups and the appropriate authorities. He recommends activities such as recording species in the wild, photographing them, noting pollinators etc. and consulting and cooperating with State National Parks and wildlife Departments. Data so collected is vital for any effective land use planning.

Lorraine Marshall from the Victorian ANOS Group spoke of the problem of inertia and lack of political will in conservation. She remarked that different States had different legislation, and suggested that when new legislation is drafted it be based on that in W.A. In Victoria "heritage" places on private land were often destroyed before they could be conserved.

Bob Bates from N.O.S.S.A. was more optimistic. South Australia had a strong group which lobbied, collected data on orchid species, developed recovery plans with landholders and Bush Care people, did hand pollinating, P.R. work and had developed a "Threatened Species Network" in which 100

people were involved including university students doing research. Unfortunately his funding had now ceased. Also another set back was that now there was only one Ranger for 50 Parks.

Dr. Hugh Possingham from Roseworthy had a mathematical approach to the viability of a population. He said that a Biodiversity Management Plan should be worked out for each geographical region with coloured maps and computer data with geographic information. These should show not only where orchids were but they could be. Populations must be able to move around as species need new habitats. He also pointed out the importance of the influence of the media.

Graeme Bradburn from Wollongong and District Native Orchid Society presented a well thought out paper entitled "Longterm Plan for the Protection of the Native Orchids of NSW". In this paper he listed the Goals, the Management Strategy Plan, Operational Plans, the idea of an orchid Team, Funding and Conservation Network. He felt that an interim committee should be created to begin operation as soon as possible. The Appendix listed the objects of the "Threatened Species Conservation Act (1995 NSW)", with comments, definitions of important terms and lists of vulnerable orchid species.

There were two speakers from WA, Ross Wilton of the WA Group of ANOS and Andrew Brown of the West Australian Native Orchid Study and Conservation Group. Ross warned that nothing should be done that is not reversible. He thought that the further development of Tourism particularly eco-tourism, would assist in the preservation of WA's native orchids. Andrew worked at Kings Park in association with

CALM which had a budget of \$300,000, to buy back land in good condition. He was involved with weed control, salinity problems, recovery of damaged land, water levels and so on. Some of the work on conservation at Kings Park was being sponsored by Alcoa, WestPower and Western Mining.

The basic problems throughout Australia seemed to be the need for conservation of

biodiversity of indigenous flora and the inertia and lack of will to do anything about it. This is where Australasian Council of Native Orchid Societies (ACNOS) comes in, that is, all of us in ANOS. It is pleasing to note that sponsorship for conservation is beginning to help. Santos donated \$250 specifically for Conservation at the Conference.

Small Golden Moths Orchid (*Diuris* sp. aff. *lanceolata*) — an orchid on the edge

by Lorraine Marshall — a paper given at the Adelaide conference, and reprinted here with the author's permission

The Small Golden Moths Orchid is endemic to the Western Basalt Plains Grassland community. This community is listed as threatened on Schedule 2 of the *Flora & Fauna Guarantee Act 1988* (FFG) and is regarded as being one of most endangered in Australia. The grasslands are fragmented and as a result, no recruitment can occur between remnant populations of endemic grassland flora and fauna species, thus increasing the loss of biodiversity in local gene pools. At least one orchid species, the Dwarf Spider Orchid (*Caladenia pumilia*) is believed to be extinct and others, including the Fragrant Doubletail (*Diuris fragrantissima*) are on the brink. Only 2,000 hectares (0.1%) remain of the estimated 2,000,000 hectares that existed prior to European settlement. Of this only 200ha (0.01%) is secure within conservation reserves. The remainder is located on freehold land, road verges, rail reserves and cemeteries and it has been estimated that 70% of this will be lost within the next two years (Hocking *pers comm*).

The Small Golden Moths Orchid, once known from several sites, has gradually become reduced in numbers as a result of a

variety of human pressures and poor management practices. It is now only known to occur for certain on one site at North Altona and is now in a state of decline and threatened with extinction. Past attempts to translocate the orchid to a nearby area proved unsuccessful, possibly due to the absence of the appropriate mycorrhiza (Tonkinson *pers comm*). The land, known as the Slough Estate, is freehold, zoned industrial under the former City of Altona Planning Scheme. The owner intends to develop the site and a part of the land has been sold to Specialized Container Transport P/L. This group now proposes to erect a rail freight centre along with a 1.5 km spur line.

As a result of these threats and the orchid's rarity a Critical Habitat Assessment was prepared and signed off by the Secretary to the Department of Natural Resources and Development. This however, has not been followed through. The area may also be critical habitat for the orchid's pollinator which is believed to be the small native sweat or alkali bee *Lasioglossum lanarium* (Walker 1995).

The orchid has now been given a final recommendation for listing as threatened

taxon under the FFG Act. Several other species listed as threatened under the FFG Act are also known to occur on the land. These include the Plains Rice Flower (*Pimelia spinescens*) and the Small Milkwort (*Comesperma polygaloides*). A scientific survey of the site is to be carried out in order to determine its botanical and fauna values. The primary emphasis will be to establish the location and extent of the population of Small Golden Moths Orchids on the site and the role and needs of the pollinator.

The question that now needs to be asked is how did things get to this point?

The site was well known to botanists and others, including members of Government Departments, ANOS and students from La Trobe University but as is so often the case, no action was taken either to establish the requirements of the orchid or to purchase the site. As a result, series of events have taken place over the past few months that have substantially increased the risk to the orchid, its pollinator and the other Western Basalt Plains Grassland flora and fauna species that occur on the land.

It is now my intention to discuss this and to look at what needs to be done in the future, if we are to avoid a repeat of this situation.

What went wrong?

The first thing that went wrong was the inertia and lack of political will which seems to overcome our ability to act prior to a critical event taking place.

We speak glibly of habitat destruction being a major cause of extinction but how often do we think about what this entails. We are talking about cracks appearing in the biosphere, on which we are all dependent, and because we don't know enough about how natural systems operate, we can't predict at what point these will start to collapse,

We seem to lurch from crisis to crisis with ever increasing despair and failure despite the existence of comprehensive and potentially powerful and proactive

legislation, in Victoria as the *Flora & Fauna Guarantee Act 1988*.

This Act provides a number of measures designed to protect native flora and fauna. The most powerful of these is the ability to declare an area Critical Habitat for a threatened species or community. This provides a clear signal that there are important conservation values, requiring a high level of protection, associated with a particular piece of land. A slight weakness in the Act is the inability to declare an area as being Critical Habitat for a listed ecological community on freehold land. However, as listed communities usually also contain listed species this could be overcome in most cases. The Critical Habitat Assessment signed off for the Small Golden Moths Orchid is of particular significance, because it is the first one signed off in Victoria and possibly Australia.

The Critical Habitat Assessment can be followed up by an Interim Conservation Order. This is made by the Minister and is designed to provide a breathing space, during which negotiations are entered into. To date, no ICO has been implemented. This of course begs the question of why?

The answer would appear to lie in a reluctance to pay compensation. Section 41 of the Act gives a land holder who suffers financial loss the right to apply for compensation. The Secretary to the Department of Natural Resources & Environment (NRE) is then required to determine the amount of compensation to which the person is entitled. This could potentially prove expensive and so, unpopular with tax payers. The Department's preferred approach is to negotiate with the land owner in an attempt to achieve the preservation of the threatened species while permitting development to proceed, albeit in a modified form. Preservation may be through the use of a Land Management Agreement. This is a legal contract between the Department and the land owner made

under the provisions of Section 69 of the *Conservation Forests & Lands Act 1979*. In the case of the Small Golden Moths Orchid it has been suggested that a portion of the site be set aside as open space. To date no area has been determined but the proposed survey will be used to help determine this.

What our long term objectives should be
Our accumulated failures require us to move beyond crisis management. We need to develop new and more effective methods of dealing with conservation issues.

We need to start looking at our planning laws and develop methods of dealing with problems before they arise instead of continually playing some form of catch up which sees us ever further behind. Proper forward planning would eliminate the need for rescue digs, *ex situ* conservation and the unsatisfactory compromises that seem to be so much a part of conservation work.

The effort we put into saving isolated remnants should be directed to encouraging the community and the various levels of Government to recognize the importance of retaining what is left of our natural ecosystems.

At the Federal and State level this could mean encouraging legislators to look beyond the immediate and to work together to achieve uniform, high level flora and fauna controls.

At the State level it may mean amending planning laws in ways that would make the protection of the natural environment the highest priority. For example, legislation could be used to strengthen the requirements on local Councils under State Planning Schemes. The required changes would place the onus on Council to preserve local bushland rather than pushing for development of these areas.

Local Government should be encouraged to work with other agencies and local communities to develop planning policy which would then apply across the board,

rather than the current system of guidelines which may or may not be followed.

Much information is already available and needs only to be properly collated. For example, orchid populations could receive appropriate levels of protection if reference books such as *Orchids of Victoria* were used as source material. This book clearly identifies where orchid populations are located, the threats facing them and proposes courses of action necessary to ensure their future survival.

In addition, we need to carry out research to determine what changes are occurring within local ecosystems and why. Only then can we hope to reverse these changes and restore the balance.

Better biological information would also bring other benefits. For example, it would enable Councils to develop a system of maps, showing areas of biological significance, which would act as overlays to the base zoning maps. Under such a system, a species listed under the FFG Act would be ranked at level I and accorded highest level of protection. This would enable persons proposing to purchase land to go to Council and check for any impediments to development as they currently do for zonings and easements.

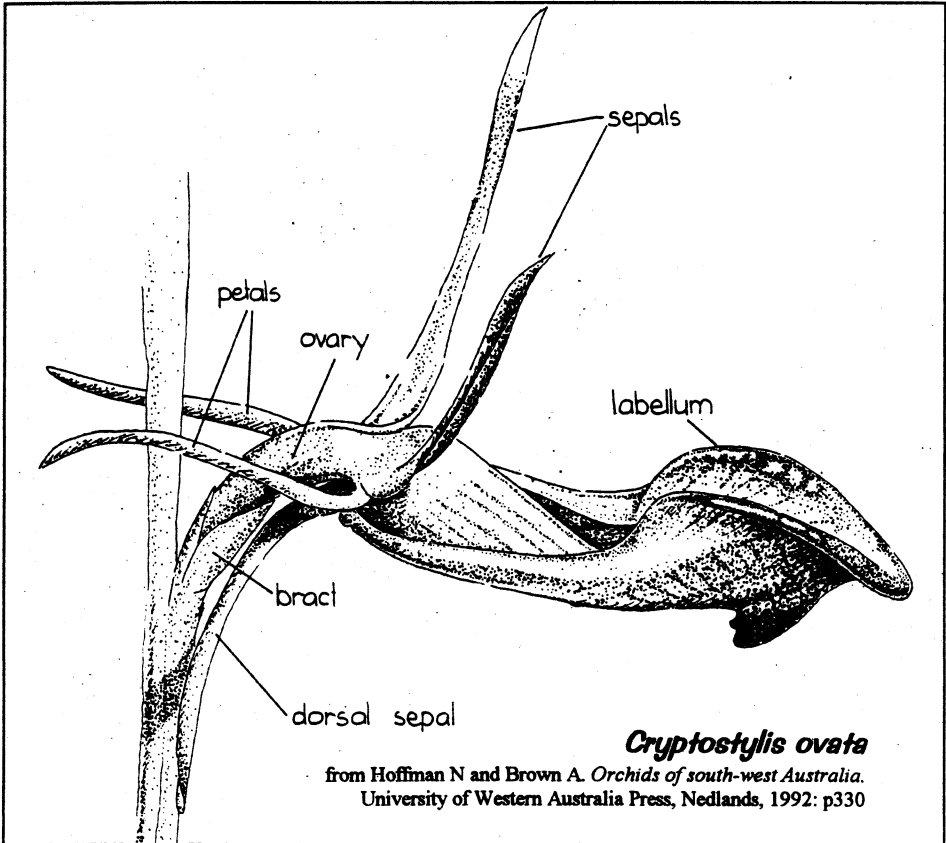
For any of these changes to occur would require a drastic change in our attitude toward land ownership. Under our current system the rights of the land owner are considered paramount and the main emphasis is on development and wealth creation. The changes I envisage would require a return to the view that it is the health of the land that is significant. It will take all of us working together if we are to save what is left of our natural ecosystems. Particularly those at greatest risk, the remnants on the urban fringes such as the Western Basalt Plains Grasslands. There will be costs but with good will and determination it is possible to spread the burden so that it does not fall unfairly on any individual or group of

individuals. Properly presented, the notion that conservation values come first could become widely accepted within the wider community. Our long term survival may depend on it.

In the interim

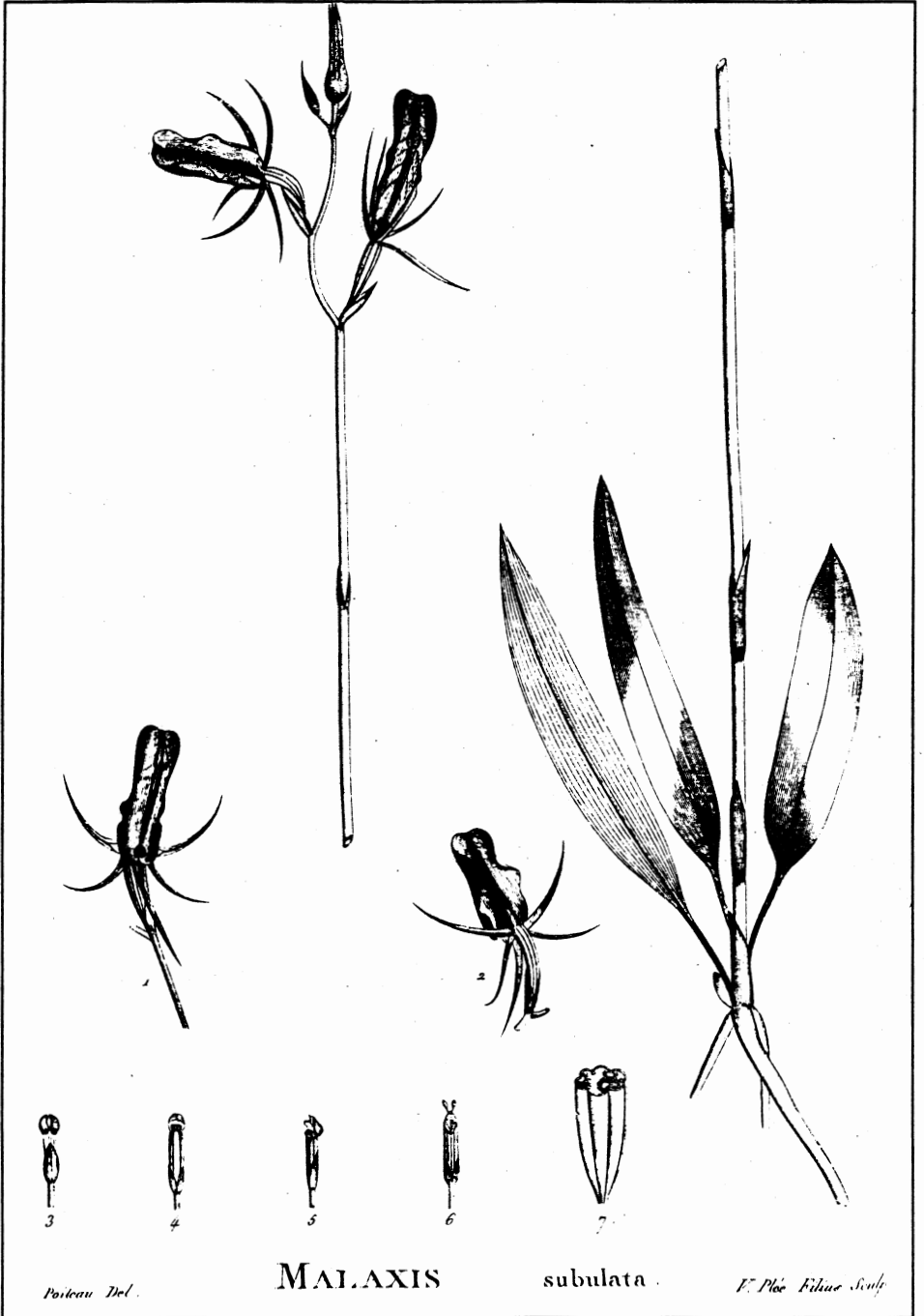
We continue to work to bring change to community attitudes and to encourage the retention of the remaining natural biological communities.

Close relations: orchids like ours



Historical reprint

JLH de la Billardiere first described *Cryptostylis subulata* as *Malaxis subulata* from Tasmania (*Novae Hollandiae Specimen plantarum* 2. Paris, Huzard, 1806: p62, f212). The drawing by Poileau that accompanied his paper is reproduced here, and demonstrates graphically why NZNOG field trippers call the flowers "Texas long-horns". [Digby Graham was the first to report *Cryptostylis subulata* in New Zealand ("An Australian orchid, *Cryptostylis subulata* [Labill.] Reichb.f., in northern New Zealand". *N.Z.J.Bot* 1976; 14: 275)]. →



Posteau Del.

MALAXIS

subulata .

F. Plac. Filice Sculp.