



# Journal

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**PLEASE NOTE THE EDITOR'S  
NEW ADDRESS**

## Editorial

### What you want from your Group

Thanks to those who replied to the questions sent with the subscription letter. Many people expressed satisfaction with the Journal and the activities of the Group, but there were a number of excellent suggestions.

Excerpts from some of the detailed suggestions are given below. Please pay heed, you organisers, growers, artists and writers, for responding to these is over to you -

¶ "More drawings of the structures of native orchids. More excerpts of letters by members, ie. opinions, ideas, as these make enjoyable reading. For growers of native orchids, maybe an exchange column (or sale column) may eliminate problem of 'spade mentality'.

¶ "A publication showing the columns of *Thelymitra* spp. (either photos or Bruce's drawings) and their current names, would be very useful."

¶ "Could we somehow persuade or assist Bruce Irwin to publish his

beautiful drawings of our NZ orchids? If he would agree, they would be a wonderful complement to good colour photographs and would provide the details necessary in a really useful field guide."

¶ "I would like to see some of the 'oddities' of our native orchids described by members just so that some record of the variations now being noticed can be referred to in later years. But that requires our group of amateurs to recognise that they have the capability of making such a botanical description - with or without drawings or photos - that can be interpreted unambiguously. Perhaps we could have a template form as a guide with a list of the appropriate terminology to use.... the glossary in the DSIR publication *Wetland plants in New Zealand* by Peter Johnson and Pat Brooke (1989) has the best set of identifiers with drawings to illustrate each term (or most of them) that I have seen for a while. That book also has a section on orchids! Something like that to standardise the presentations could be of value in the future.

¶ "I was also wondering if we could have a national photographic contest as most of us take photos • several categories - orchids, habitats, close-ups, people taking orchid photos (moments like these) etc - just for fun but to encourage members to exhibit some of their photos - the end result could be your photographic field guide!"

¶ "I would support a subscription increase, but more to increase size or frequency of *Journal*, rather than use of colour. Regular colour would seem to

be an unnecessary extravagance, but could be useful occasionally to highlight species differences for identification/variation of form etc - i.e. useful rather than decorative." 5

¶ "Perhaps only two issues of the *Journal* with colour photographs, e.g. the June and December issues.... I would like to see more scientific papers published. Perhaps a small section on research botanists currently dealing with orchids ... Could a tuber bank be established to circulate orchid tubers to members? Some of the easier to grow orchids could be tried. The Victorian branch of ANOS has a tuber bank.... What about a two week field trip to Western Australia? (I went on one last year with members of the ANOS group in Victoria - found over one hundred orchids."

¶ "Please could we have another update of species per region, or regions for each species, to see the progress of the mapping reports? I think it an *excellent* idea to omit the names of scenic reserves where orchids are found, in *Journal* articles, to protect them. Anyone wanting more information can always contact someone living in the area."

¶ "Sorry to be negative, but I am now of the opinion that the more we publicise the whereabouts of orchids, the more endangered they will become. Of the above suggestions I am only in favour of (a field guide), as long as precise localities are not given."

¶ Bruce Irwin writes, "I agree wholeheartedly with Noeline Clements's reluctance to publicise

exact locations of orchids (NZNOG Journal No36). Since 1983 I have been keeping an eye on a thriving colony of *Thelymitra aemula* near Katikati. During that time I have shown the colony to a few orchid enthusiasts and mentioned the locality to others.

"Bob and Beryl Goodger also observe the colony and in September of this year, reported that all was well.

"Imagine my feelings, when early in November I could find no *aemula*, only an equivalent number of rough divots. Plants of *T. pauciflora* and *T. carnea* remained untouched. I presume that the culprit saw the plants in flower last year, realised their identity and comparative rarity, and resolved to collect them in bud this season. Has anyone tried to sell you twenty *Thelymitra* plants with beautiful clear blue flowers?

"The only other colony known to me in the Bay of Plenty was a small one a few kilometres further south. It too has been destroyed - perhaps by the same 'orchid lover'. Did I supply the information which enabled this crime to be carried out?"

*Such tragedies must not be caused by this Journal, the organ of a Group whose major aims include conservation. Authors should note that in future reports should NOT detail exact locations. Where these are detailed the editor will alter material to mention only general areas or Ecological Regions. Leaders of field trips should also take particular care - I too have had the experience of finding divots where I had guided a group the previous season - Ed.*

¶ "I suggest that an approach be made to district botanical societies, probably

through the NZ Botanical Society to conduct local field days and/or workshops on NZ native orchids. Most of the members of NZNOG are probably members of botanical societies."

¶ "... I would enjoy field days and learn a lot from them, as there's such a variety of orchids all times of the year."

¶ "As I am not very knowledgeable about native orchids I was wondering if you could do a section especially for beginners telling us which orchids to look for in the coming seasons, areas, etc. I am sure there must be many more ignorant people like myself wishing to learn more but put off by very technical details."

¶ "Perhaps some more general information on common species, where to find them, what they look like. Trying to encourage younger people and those that can't find rare and endangered species."

¶ "If we have a field guide with colour photographs of all species then colour in the Journal is less important.... I think the Journal is very good as it is."

¶ "Perhaps a *systematic* coverage and update of each family - ie. at least one per issue - would eventually give us the equivalent of a field guide in loose leaf form."

¶ "Coloured illustrations suggestion excellent. Not having much botanical training, the illustration of text is so much more explanatory to me.... Many people with overseas correspondents look for the coloured stickers on

envelopes and parcels. I began asking booksellers and gift shops - both said that many overseas people are asking for such stickers - currently these are produced in Canada! and imported to NZ - subjects such as pink kittens and blue dogs! There's an opening for someone with initiative here. Forest & Bird, Fisheries and Orchid Group subjects are all appealing and a change from Mitre Peak and a geyser." - *I enquired from a local printer who quoted (for full colour) \$1300 origination, and \$1200 for 50,000 stickers, i.e. 5c each cost. Even if we sold at 20c each we would have to sell 12,500 to break even. Are there 25 people out there who would each spend \$100 on 500 stickers? Perhaps pastel kittens and dogs have more universal appeal! Yecch! It's a good idea though: if anyone knows of a cheap Taiwanese printer, please let me know - Ed.*

¶ "I think the Journal is pretty good as it is - with the addition of colour it would be even better."

¶ Tim Funnell writes, "Colour would certainly improve the Journal. I would like to see some cultivation notes. I grow a few terrestrials and would like to know how others are doing. Although the Journal logs where people have found orchids and the conservation of them, cultivation seems a dirty word. To me conservation has two meanings (1) to make sure the orchids have a natural place to live so that future generations can enjoy their beauty and so that nature will survive, and that (2) to make sure some survive in cultivation in case the first point isn't reached. So if anyone does send in their cultivation notes, successes and failures, this would be appreciated. I can write something on

*Pterostylis banksii* if you like." (yes, please - Ed.)

"It's a pity there isn't the money around to set up a research centre as there is a lot of work to be done."

"A suggestion for a book on orchids: a loose leaf binder with pages the size of the Journal. On some pages have photos and line drawings of flowers and whole plants. The pages would be numbered, e.g. Section A page 1: one species/variety per page, e.g. *Thelymitra decora* on one page, *T. formosa* on another, *T. hatchii* on another and so on. These would be permanent pages as the plants themselves don't change that much. What does change is man's commentary on them: this could be on temporary pages, replacing only those pages that need to be changed, e.g. name changes, new information, etc. The initial cost would be a little high, but yearly replacement and supplementary pages wouldn't. We would have one book instead of several and it would be up to date on a yearly basis.

"The idea comes from Campbell-Patterson's Stamp Catalogue which, I believe, is updated half-yearly.

"Pages with photos on good quality paper while those with commentary on a lesser quality. The book could be broken into sections by stiff card with a protruding marker covered in a clear plastic material. Each section would have its own orchid genus, e.g. *Corybas* in one section, *Thelymitra* in another, etc, etc."

¶ Rodney Boon writes, "More on cultivation and propagation, including

research articles in *in vitro* propagation (I believe some successful work was done on native orchids at DSIR/MAF? Palmerston North) including media recipes.

"I would like to see adverts for native orchids available to purchase provided we are assured they are only taken from threatened areas or propagated in cultivation. I don't know of any reputable sources from which I can increase my small collection.

"Photos used must be top quality - Johns & Molloy, Orchid Digest standard (some photos in the recent book were not up to the required standard). I am editor if the NZ Carnivorous Plant Society Inc Journal. We include a 6"x4" colour photo in each issue - cost 55c each for a run of 200. Seems a cost-effective method although attaching photo with double-sided adhesive takes a little time." - *what a good idea!* - Ed.

### ¶ Proposed field trip to Cobb Valley

Jean Mowbray wants to gage interest in a possible field trip to the Cobb Valley next season. Transport could be from Wellington in a light aircraft to Motueka if a plane load were guaranteed, to cut down on travel time, or alternatively, a minibus from Picton. There would need to be a minimum of two whole days on location. Huts are there, but crowded at holiday times and long weekends. If you are interested, please reply to Jean Mowbray, 8 Downsview Place,

Pukerua Bay, Wellington.

Summary of suggestions -

- ¶ More letters to the editor,
- ¶ More illustrations in the Journal,
- ¶ Exchange, sale, or tuber bank,
- ¶ Field guide, perhaps loose-leaf,
- ¶ Descriptors of 'new\*' or 'odd' orchids,
- ¶ Photographic competition,
- ¶ Articles on botanists working with orchids,
- ¶ Regular updates on mapping,
- ¶ No publication of exact localities,
- ¶ More field trips,
- ¶ A beginners' section or systematic coverage of species,
- ¶ Coloured stickers of orchids,
- ¶ Cultivation notes from growers, availability of honestly acquired plants, *in vitro* notes.
- ¶ A research centre,
- ¶ Colour photos in the Journal.

These suggestions all require the attention and commitment of at least one member of the Group to achieve them. Please write to the Editor if you think you can help.

WHAT EMERGES MORE CLEARLY THAN ANY OTHER PERCEPTION IS THE NEED FOR MORE ILLUSTRATIONS IN THE JOURNAL. SEND ME YOUR WORKS, YOU ARTISTS.

## Original papers

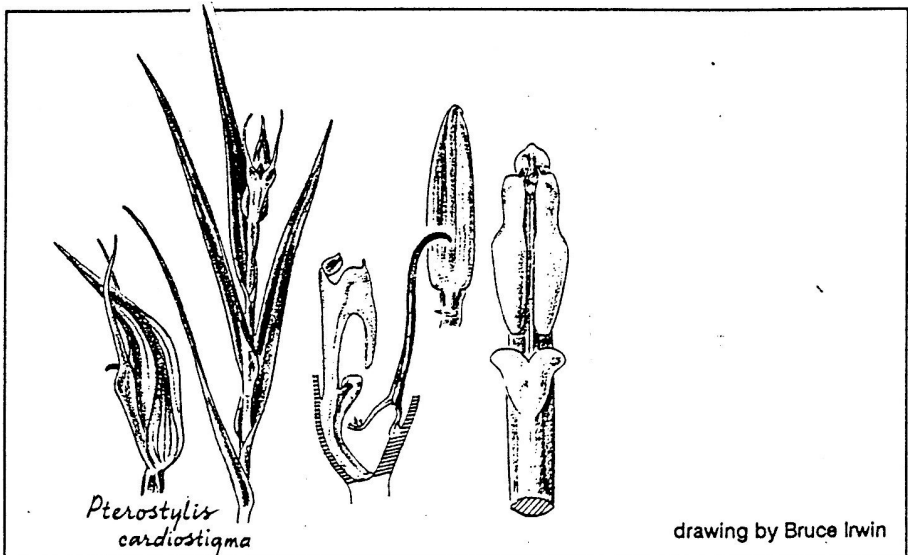
The northward march of *Pterostylis cardiostigma* D.Cooper  
by Maureen Young, Warkworth (reprinted from the Auckland Botanical Society  
*Journal*).

On 24 November 90 a Forest and Bird field trip was held in a patch of privately owned bush on the Mahurangi Peninsula near Warkworth. The bush has been fenced for fifteen years and occupies a series of gullies. The canopy is largely kanuka, with some puriri, tawa and miro.

About a dozen plants of *Pterostylis cardiostigma* were found at quite widely spaced intervals along the track. Most of the flowers were withering, but two were still in their prime. The plants had the unmistakable look of the species - strong growth form with

reddish stems, reddish midribs to the leaves, and narrow, upward pointing flowers with short, red lateral sepals. The largest plant was 50cm tall.

Four days later three more plants of *P. cardiostigma* were found in second growth bush near the Waiwhiu river, north of the Dome. This site is seventeen kilometres to the northwest of the first. The flowers on these plants were withering, but when compared with the flowers of *Pterostylis banksii*, which was growing nearby, still showed the features of *P. cardiostigma*.

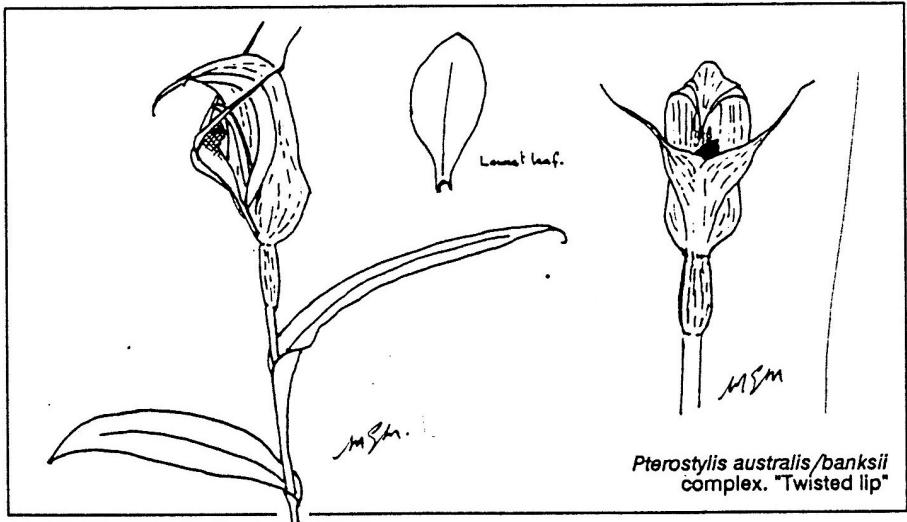
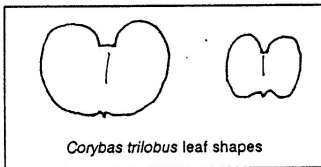


**Lake Chalice orchid survey**

by Mark Moorhouse, Nelson

During the last week of December 1990 I made a survey of orchids in the Lake Chalice area, Ecological Region 40, and report here the following species and their relative rarity ("rare" indicates less than three plants found). *Caladenia lyallii* - sub-alpine shrubland, rare, fl. *Caladenia minor* - mixed manuka-beech forest, common, fl. *Caladenia cornea* - as above, less common, fl. *Adenochilus gracilis* - beech forest, rare, fl. *Aporostylis bifolia* - manuka forest, two small colonies,

fl. *Chiloglottis cornuta* - common, large variety of aspects, fl. and fr. *C. cornuta* with dark purple calli and tip of labellum, rare. *Corybas triobus* - mostly associated with beech, vast colonies but only two predominant leaf shapes, very few fr. *Corybas rivularis* - small colony mossy bank of stream, no fl. or fr. *Thelymitra longifolia* - very common, sunny aspects, bud or fl. *T. hatchii* - not uncommon, sunny aspects, early bud, 3 fl. *Thelymitra sp.nov.* or hybrid. *Pterostylis australis/banksii* complex, not uncommon, colonies favour the *P. australis* characteristics, many display the twisted lip of *P. montana*. *Prasophyllum colensoi* - exposed dry aspects, common, fl. and fr. *Microtis* or *Prasophyllum pumilum/nudum* - sunny banks, no fl. *Gastrodia sesamoides* - shaded beech, bud, fl.



*Pterostylis australis/banksii* complex. "Twisted lip"

Three weeks in the South Island by Val Smith, New Plymouth

(Exact localities have been edited -Ed)

I have just returned from nearly three weeks in the South Island, making a circuit through Kaikoura, the Lewis Pass, Greymouth, Westport, the Buller Gorge, Nelson Lakes and the Wairau Valley back to Picton, walking a number of short tracks, many through historic gold and coal mining areas. I was on the lookout for orchids of course, in spite of its being past the flush of the season, and was hoping to find *Prasophyllum nudum* and/or *Gastrodia minor*. I didn't, but I did see a number of *Thelymitra pulchella*, both blue, and white striped with blue, and *T dentata* (I think!) which I had to coax open gently - both near Reefton.

Not as spectacular, but possibly of more interest, was what I believe might have been a *Microtis parviflora* near Charleston. It caught my eye as appearing slightly different from the common *M. unifolia* which had nearly all finished flowering in the vicinity, and when I looked at it more closely I could see that it had a narrow reddish labellum and the lateral sepals were not curled back as they are in *M. unifolia*. I didn't see any other similar ones around. Incidentally, I was quite "chuffed" when later checking in *Flora*

*II* to read that one of the localities for *M. parviflora* is near Charleston.

Inland from Punakaiki I noticed two orchid seed heads, but could find no trace of accompanying leaves. Could they be of *Corybas cryptanthus*? The two stems were about 10cm apart, growing in the crevice between two small rocks at ground level in predominantly beech forest. The





stems were whitish, flecked lightly with red-brown, were flexible and each supported an orchid seed capsule, brown and dry but not yet split open. One stem was about 20cm high, the other about 12cm. The gap between the rocks was too narrow to be able to clear the leaf litter away, but one stem appeared to have a small scale at its base. What a pity it is rather too far for me to be able to check the plants earlier in the year!

As well as these, the various tracks and areas produced other orchids, some still flowering, but most finished. My list is as follows:

Hanmer (28-29 Dec), Track ' 1: *Gastrodia cunninghamii* (fl, aphids on stem), *Chiloglottis comuta* (leaves & a few faded fl), *Thelymitra longifolia* (aphids - sickly looking). Track 2: *Pterostylis patens* (small, fl), *Prasophyllum colensoi* (bud), *T. longifolia* ? (bud, nearly out & finished fl), *Corybas rivularis* (leaves - in moss in water seepage), *Caladenia lyallii* (fl, above bushline).

Lewis Pass (30 Dec), Track 1: *Thelymitra cyanea* (buds), *Prasophyllum colensoi* (fl), *Aporostylis bifolia* (fl - plentiful). Track 2: *Chiloglottis cornuta* (fl), *Corybas trilobus* (leaves), *Thelymitra longifolia* (buds).

Reefton (31 Dec 90 - 1 Jan 91), Track 1: *Gastrodia* ? (bud), *Corybas rivularis* (leaves & seedheads), *C. acuminatus* (leaves & seedheads), *C. trilobus* (leaves), *Pterostylis irsoniana* (fl - nearly finished), *Thelymitra dentata* (coaxed fl open). Track 2: (all finished fl, or leaves only) *Corybas rivularis*, *C. acuminatus*, *C. oblongus*, *C. trilobus*, *Pterostylis irsoniana*, *Thelymitra longifolia*, *Caladenia carnea*.

Track 3: *Thelymitra pulchella* (blue & white fl), *T. longifolia* (fl & bud), *Aporostylis bifolia* (fl), *Caladenia camea* (fl & fr), *Adenochilus gracilis* (fr), *Pterostylis* ? (fr, fairly short wide leaves).

Greymouth: I saw Ulrich Walther's lovely native orchid photos at his picture framing shop.

Paparoa National Park (3-6 Jan), Track 1: *Pterostylis cardiostigma* (fr), *Adenochilus gracilis* (fr), *Caladenia carnea* (fl & fr), *Aporostylis bifolia* (fl & fr), *Gastrodia* ? (just finished fl), *Corybas rivularis* (leaves), *G trilobus* (leaves), *Thelymitra cyanea* (fl), *T. dentata* (fl), *Microtis unifolia* (fl). Track 2: *Earina mucronata* (fl), *Earina autumnalis*, *Dendrobium cunninghamii*, *Bulbophyllum pygmaeum*, *Pterostylis irsoniana* (fl & fr), *P. cardiostigma* (fr), *P. banksii* ? (fr), *Corybas rivularis* (leaves), *G trilobus* (leaves), and the two leafless seedheads already mentioned - *C. cryptanthus* ? Track 3: *Corybas rivularis* (leaves & fr), *Pterostylis banksii* (fl & fr), *P. montana* ? (fl & fr).

Charleston (8-10 Jan), Track 1: *Microtis unifolia* (mostly finished fl), *M. parviflora* ? (1 only, fl), *Thelymitras* (finished fl - on roadside). Track 2: *Corybas oblongus* (fr), *Pterostylis* ? (finished fl).

Nelson Lakes (12 Jan), Track: *Gastrodia cunninghamii* ? (fl, bud and finished according to altitude - pale fl, 8-12 on stem), *Chiloglottis comuta* (few fl), *Pterostylis* ? (finished fl), *Corybas trilobus* (leaves), *Thelymitra* (bud), *Adenochilus gracilis* (still in fl at higher altitude, finished lower down), *Caladenia camea* (fr), *C. lyallii* (fl, above bushline). Roadside: *Thelymitra cyanea* (fl).

One other find, before Christmas, was very pale green, almost colourless *Corybas trilobus* growing on Egmont. They were growing along with the narrower dark red form which at the time had almost finished flowering, and

seemed similar to those in Max Gibbs's photo in *NZ orchids: natural history and cultivation*.

I am looking forward to the time when I can take my holidays earlier in the orchid year.

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## Iwitahi 1990

by Max Gibbs, Taupo

After a period of fine sunny weather, the native orchids at Iwitahi were in perfect condition for the field days in December. Before we ventured out for the first walk, Morley West presented, on behalf of Tony Oosten, the science project which won the Secondary Schools Science Fair at Palmerston North earlier in the year. The significance of this project is that in the age of high technology, a project on botany, and on a New Zealand native orchid at that, should be chosen for top honours.

Tony had investigated the premise that the variation in the *Corybas trilobus* plants was due to the presence of more than one species of *Corybas*. His results from studying the leaf forms indicated that the variation was probably a natural diversity of form of the one species. But, as all good scientists say, more work is required. The project was a masterpiece being exceptionally well presented and is a credit to Tony and his teacher, Morley West. It is hoped that Tony can produce a synopsis for the *NOG Journal*. I also hope that sometime in the future, Morley can find another student who is keen enough to do the follow up work of chromosome counts.

Besides that, I have a collection of photographs of the flowers which need to be explained if they are all *Corybas trilobus*.

After morning tea we set off and the contingent of thirty-odd native orchid enthusiasts were treated to a magnificent display of *Calochilus robertsonii* beneath the gum trees. Most plants were in flower and there seemed to be a lot more flowers than last year. Unfortunately there was no sign of the non-red flowered plants found last year. Perhaps these just didn't flower this year. A sadder thought is that someone removed them.

As we moved along the road to the reserve, we found large numbers of *Thelymitra decora* and *T. pauciflora* fully open in the bright sun. There were, however, surprisingly few *T. longifolia* in bloom although there were lots of buds. The usual display of *Chiloglottis comuta* greeted us under the pines and these were thickly interspersed with *Adenochilus gracilus*, both of which were found growing out of rotting logs as well as in the pine needles. The patches of *Chiloglottis gunnii*, both natural and transplanted, had good quantities of flowers and the

effects of the exclusion cages were easily seen. Patches of *Aporostylis bifolia* with red blotched leaves were found in bud or just opening and, of course, large patches of *C. trilobus* leaves were dotted through the trees. There were very few seed pods on these plants; perhaps three or four in total. In past years large numbers of plants had seed capsules. The last of the *Caladenia lyallii* flowers were closing while *C. iridescent* and *C. catenata* were starting to open. A few of the taller pink-flowered *Caladenia* were also found but it seemed as though we were too early for the full flush of flowering of these plants.

About this time, Morley West remarked to Trevor Nicholls that there was nothing new in the reserve, only to find he was standing beside a very robust *Thelymitra* which was obviously a long way off flowering. Suggested species - *T. formosa*. (I checked the plant in January and found only one bud left and the flowers gone. Opening the bud, I found blue petals and sepals, a pinkish purple column with almost no back and bright yellow cilia tufts. This matches *T. formosa* except that the lateral petals had dark spots. I'll leave that one for next year). Only three plants were found in the reserve. A search of the Clements Mill site in the Kaimanawa Forest failed to find any flowers on plants of the unusual *Thelymitra* we found there last year. That *Thelymitra* also had no back to the column and spots on the lateral petals.

Plants of a similar robustness found under the *P. nigra* opposite the reserve proved to be *C. robertsonii* which had developed an elongated growth

probably in response to the lower light level under the pines. Flowers on the stems were about 3cm apart and appeared to be greener with less prominent red stripes on the dorsal sepal and petals. The hairy labellum was just as spectacular and possibly brighter because of the lack of pumice dust which lies as a thick coating on the plants beside the road. Elsewhere under the pines other colonies of *C. robertsonii* were found where tree falls had left an opening through the canopy. About thirty plants were found, including several in the reserve area.

On an earlier visit to Iwitahi, I had found a small patch of *Pterostylis foliata* under the pines and endeavoured to lead the group to these. Not as easy as I thought but we eventually located them nicely in flower. We also located and labelled several colonies of various native orchid species which were worthy of transplanting to the reserve area and to the Waipahihi Botanical Society's gardens at Taupo in autumn.

On the Sunday we were joined by a contingent of 55 people from Hawke's Bay. While Trevor Nicholls took that group to view the orchids, I took the original group on a search for the non-red form of *Aporostylis bifolia*. A large colony of these plants were eventually found with buds just emerging from the flower bracts. Quite markedly less advanced than the red blotched plants some of which had flowers just opening. We also found a group of *Gastrodia minor* just emerging and nearby was the dry stem of a larger *Gastrodia* more than a metre tall.

It was a very interesting weekend and a lot of fun. My navigation skills fell

into disrepute as I managed to take wrong turnings at several points. These were only minor excursions and we didn't lose anyone. Just!

Subsequent to that weekend I have been keeping an eye on the various orchid species to photograph the flowers as they opened. In an earlier article I asked if anyone else had found the large form of *Caladenia lyallii* with six rows of calli on the labellum. The plants at Iwitahi this year produced both the large flowers with six rows and the smaller flowers with four rows. I also noticed that there was a further distinction in that the flowers of some plants had no red bars on the labellum as is normally found. This results in flowers with either four or six rows of calli and with or without red bars on the labellum, and they all look like *C. lyallii*. Brian Molloy suggests that they are natural variations but it would be interesting to find how far the variations are spread through the country.

The profusion of *Thelymitra* under the pines has always interested me. These plants never flowered when the rest of the *Thelymitras* on the roadsides were in flower. In fact they flower about a month later when the heat under the pines is sufficient to dry the pine needles to a crisp. They were mostly *T. decora* and *T. longifolia* with a lesser number of *T. pauciflora*. The *T. longifolia* were in two major sizes. The usual robust plants with lots of flowers and a smaller spindly plant, often less than 10cm tall, with very few flowers, often only one or two. I came across a massed flowering of these latter plants in a small hollow and it was quite spectacular, especially as the sun was shining on them through a gap in the trees. The *T. decora* flowers

ranged from white with blue spots to dark blue with almost black spots. The colours also ran from deep purple with almost black spots to the softest pink which had startling sky blue spots. In each of these variations the column was characterised by the presence of almost black tubercles around the dark purple-red collar unlike the column of *T. pauciflora* which was smooth with a bright yellow collar. *Thelymitra pauciflora* also varied in colour from the usual mauve to a vivid pink. Then there was the *Thelymitra* with pink petals with blue spots but the column of *T. pauciflora*. ??

*Gastrodia sesamoides* is confirmed within the reserve area and follows the flowering succession of *G. minor* and *G. cunninghamii*. Both these latter species formed large colonies with extensive root 'mats. It was not uncommon to find both species growing in the same place and even intermingling. The flowering times were quite different with *G. minor* being in fruit before *G. cunninghamii* buds started to open. Similarly, *G. sesamoides* buds didn't start to open until well into January long after *G. cunninghamii* was in fruit.

Of some interest was the size range of the different species. *Gastrodia minor* ranged from a mere 5cm up to 20cm tall with most at about 15cm. *G. cunninghamii* were mostly about 30cm tall with some shorter and others reaching over 1 metre (1.2m for the tallest). *Gastrodia sesamoides* was still developing but plants are mostly 50 to 100cm tall and some which are obviously going to be much taller than that. The overlap in sizes is particularly

striking especially in one group where all three species have emerged in the same small area about 2m square. The roots under these colonies formed thick mats through the pine needles while the kumara-shaped tuber of *G. sesamoides* was deeper with only the ends in the needles which covered their finer root system.

Visits to Iwitahi have been curtailed somewhat now as the fire ban has closed the forest. Some thought needs to be given to the future of native orchid areas like Iwitahi. These appear to be few and far between through New Zealand and almost all are in danger of destruction. At Iwitahi and Hanmer, the situation is somewhat unusual in that the orchids are growing under exotic pine forest rather than native forest. This means there is no conservation statute that can be used to protect the orchids. The real pity is that the orchids have developed into massed colonies over many years and their absence

beneath other pine species, particularly in the Kaingaroa State Forest around Iwitahi, would suggest that a special relationship favours their growth under *P. nigra*.

Chris Ecroyd has suggested that an approach to Timberlands might allow a cooperative venture with small areas of *Pinus nigra* being planted adjacent to the existing blocks at Iwitahi as the older stands of *P. nigra* are literally falling down. Properly managed such forest areas could provide a permanent habitat for the native orchids to the benefit of Timberlands through positive publicity and to the public. At the present count we have 37 different species of native orchid under or beside the pine forest at Iwitahi. Many of these also have question marks about their true identity. There are also those other 'variations' which need to be described and preserved lest they are lost forever when the present habitat is destroyed.

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## The flowering times of southern orchids

by Ian St George, Dunedin

After a number of years one can detail the flowering times of orchids in the south of New Zealand, and these are tabulated in the centre pages of this issue that follow.

Flowering times I have observed are marked "x". For those species I have not yet seen in flower, but which have been reported from Otago and Southland, northern flowering times are marked "o" (from Dorothy Cooper's A field guide to New Zealand native

orchids). One might expect that flowering times in the south would be later than in the north, but what emerges is that the times are within the northern range, but are (on the whole) brief, and relatively constant from year to year.

Three outstanding southern orchid habitats are mentioned specially - species I have seen at Shag Point north of Dunedin are marked "S", at the Longwoods forest near Invercargill "L" and in the Twelve Mile Creek - Lake Dispute area near Queenstown "D".

Flowering times of southern orchids

	°July°	Aug°	°Sep°	°Oct°	°Nov°	°Dec°	°Jan°	°Feb°	°Mar°	°Apr°	°May°	°June°	
1. Acianthus sinclairii	°	°	°	°	°	°	°	°	°	°	°	°	
2. Acianthus viridis	°	°	°	°	°	°	°	°	°	°	°	°	L
3. Adenochilus gracilis	°	°	°	°	°	°	°	°	°	°	°	°	LD
4. Aporostylis bifolia	°	°	°	°	°	°	°	°	°	°	°	°	SL
5. Bulbophyllum pygmaeum	°	°	°	°	°	°	°	°	°	°	°	°	
6. Caladenia catenata	°	°	°	°	°	°	°	°	°	°	°	°	L
7. Caladenia minor	°	°	°	°	°	°	°	°	°	°	°	°	SD
8. Caladenia lyallii	°	°	°	°	°	°	°	°	°	°	°	°	SL
9. Chiloglottis cornuta	°	°	°	°	°	°	°	°	°	°	°	°	SLD
10. Corybas acuminatus	°	°	°	°	°	°	°	°	°	°	°	°	L
11. Corybas cryptanthus	°	°	°	°	°	°	°	°	°	°	°	°	
12. Corybas macranthus	°	°	°	°	°	°	°	°	°	°	°	°	SLD
13. Corybas oblongus	°	°	°	°	°	°	°	°	°	°	°	°	
14. Corybas rivularis	°	°	°	°	°	°	°	°	°	°	°	°	S
15. Corybas trilobus	°	°	°	°	°	°	°	°	°	°	°	°	SLD
16. Corybas "short tepals"	°	°	°	°	°	°	°	°	°	°	°	°	
17. Dendrobium cunninghamii	°	°	°	°	°	°	°	°	°	°	°	°	L
18. Drymoanthus adversus	°	°	°	°	°	°	°	°	°	°	°	°	
19. Drymoanthus "spotted leaf"	°	°	°	°	°	°	°	°	°	°	°	°	
20. Earina autumnalis	°	°	°	°	°	°	°	°	°	°	°	°	L
21. Earina mucronata	°	°	°	°	°	°	°	°	°	°	°	°	L
22. Gastrodia cunninghamii	°	°	°	°	°	°	°	°	°	°	°	°	LD
23. Gastrodia minor	°	°	°	°	°	°	°	°	°	°	°	°	D
24. Gastrodia "long column"	°	°	°	°	°	°	°	°	°	°	°	°	
25. Lyperanthus antarcticus	°	°	°	°	°	°	°	°	°	°	°	°	L
26. Microtis oligantha	°	°	°	°	°	°	°	°	°	°	°	°	SD
27. Microtis unifolia	°	°	°	°	°	°	°	°	°	°	°	°	SLD
28. Prasophyllum colensoi	°	°	°	°	°	°	°	°	°	°	°	°	SLD
29. Pterostylis areolata	°	°	°	°	°	°	°	°	°	°	°	°	
30. Pterostylis australis	°	°	°	°	°	°	°	°	°	°	°	°	LD
31. Pterostylis banksii	°	°	°	°	°	°	°	°	°	°	°	°	LD
32. Pterostylis "aff. cynocephala"	°	°	°	°	°	°	°	°	°	°	°	°	
33. Pterostylis foliata	°	°	°	°	°	°	°	°	°	°	°	°	S
34. Pterostylis graminea	°	°	°	°	°	°	°	°	°	°	°	°	
35. Pterostylis montana	°	°	°	°	°	°	°	°	°	°	°	°	SL
36. Pterostylis "aff. montana"	°	°	°	°	°	°	°	°	°	°	°	°	SLD
37. Pterostylis tristis	°	°	°	°	°	°	°	°	°	°	°	°	
38. Pterostylis venosa	°	°	°	°	°	°	°	°	°	°	°	°	D
39. Pterostylis "Catlins"	°	°	°	°	°	°	°	°	°	°	°	°	
40. Spiranthes sinensis	°	°	°	°	°	°	°	°	°	°	°	°	
41. Thelymitra cyanea	°	°	°	°	°	°	°	°	°	°	°	°	SLD
42. Thelymitra decora	°	°	°	°	°	°	°	°	°	°	°	°	S
43. Thelymitra formosa	°	°	°	°	°	°	°	°	°	°	°	°	D
44. Thelymitra hatchii	°	°	°	°	°	°	°	°	°	°	°	°	SLD
45. Thelymitra longifolia	°	°	°	°	°	°	°	°	°	°	°	°	SLD
46. Thelymitra pauciflora	°	°	°	°	°	°	°	°	°	°	°	°	SD
47. Thelymitra pulchella	°	°	°	°	°	°	°	°	°	°	°	°	SLD

New Zealand Native Orchid Group Journal

Number 37, March 1991

¶ Nancy Adye continues her valuable mapping reports on orchids of the North Island's eastern extremity (Ecological Regions 19, 20, 21, 22). She includes mention of host trees for some perching orchids: *Earina mucronata* on *Dicksonia squarrosa*, totara, kahikatea, black maire, rimu and kamahi (*Weinmania racemosa*)] *Earina autumnalis* on totara, black maire, rimu and tawari (*Ixerba brexioides*); *Drymoanthus adversus* on *Olearia rani*, kanuka, and *Coprosma robusta*.

*Thelymitra pauciflora* is much more plentiful at Shag Point this season, and I found numbers in the Silverpeaks Forest area near Dunedin (E.R. 69), flowering in late November.

A couple of years ago I noticed a single very large *Thelymitra* five yards off the northern motorway out of Dunedin, growing in gravel-covered clay. Much too long past flowering to identify which species, and I forgot about it. This season (23 December 90) there were about fifty plants with thirty-eight stems, each with two to fifteen heads. The lower heads had set fruit, the upper were in bud, the middle were mature but not open: it was *T. formosa* (E.R. 69). Through January new fruit set without my seeing any flowers open fully.

These are the southernmost records of both species. The greenhouse effect? *It seems unlikely that these two have simply been missed down here*

*until now - Ed.*

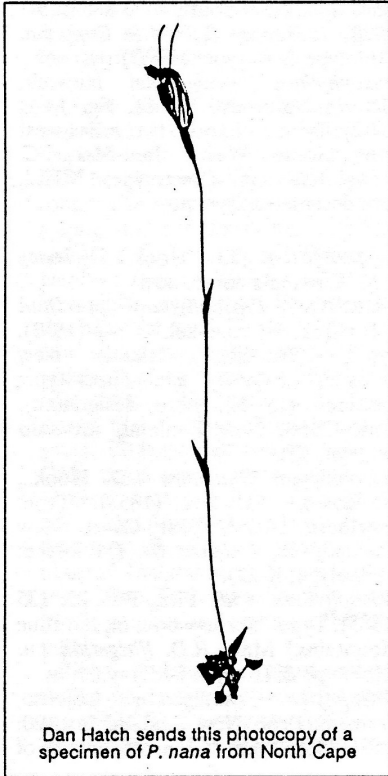
¶ John Dodunski writes, "If any member happens to be in Taranaki any weekend, and feels like viewing native orchids in or around the New Plymouth area, I hope that they feel free to ring me or visit, as often I 'go bush', and would enjoy the company, most weekends. My phone no. is 82060 New Plymouth."

¶ Gordon Sylvester points out that in past Mapping Scheme dispatches a number of species reported (in Newsletter 29) as occurring in Ecological Region 16, were later reported (in Newsletter 33) as in E.R. 17. *The sharp-eyed Gordon is correct. It was my mistake - I thought Iwitahi was in E.R. 16, but later realised it was in E.R. 17. I should have explained - Ed.*

¶ Gordon reports *Corybas cryptanthus* "recently located in the hills behind my place in Wainuiomata in July under red beech forest on an east facing ridge."

¶ Bruce Irwin adds (26 Nov 90) to his comments in the Editorial above, "I must admit that I have been pleased to have been given information about rare species. Last year Mary Bedford of Taumaranui led me to a small colony of *Pterostylis foliata* for instance. *P. foliata* is seldom reported from the

northern half of the North Island. Last year the colony produced two flowers - pods when I saw them. I returned this year, this time too early. Returning to the car I slipped on a greasy section of track, falling heavily on my back. As I recovered myself I found I was 'eyeballing' an unfamiliar rosette. Quite an effective way to find orchids. Also quite painful. Leaf shape immediately suggested *Pterostylis nana* but the size seemed too big for that species.



Dan Hatch sends this photocopy of a specimen of *P. nana* from North Cape

We (Cathy Jones and I) found perhaps twenty plants but unfortunately none showed any signs of flowering, though the rosettes appeared mature. Hopefully I'll be able to find flowers next year if I can get back to the colony - *somewhere in the central North Island*.

"Since then Mary Bedford has told me of another colony of *P. foliata* near Ohakune, and Max Gibbs showed me photos of yet another colony near Taupo. Then a couple of weeks ago David McConachie with a group from the Manawatu Orchid Society discovered about two dozen further plants at *Iwitahi*. *P. foliata* seems to be staging a comeback.

"Another find, this time *somewhere on the Hauraki Plains* was made with NOG member Bev Woolley of Hamilton. We found about thirty plants of *Calochilus paludosus* which in this area is far less common than *C. robertsonii*. Previously I have seen very small numbers in two other central North Island areas only."

¶ "We have tried all local bookshops for A field guide to native orchids by Dorothy Cooper - and can't obtain it. Do you know from where it is obtainable?" Yes, from Mr Philip Tomlinson, 14 Putnam St, Northland, Wellington 5 - Ed.

¶ Lyn Young writes (6 Dec 1990), "We have just returned from a week in Te Anau, and orchidwise it was very disappointing, in fact a disaster. Because of another dry winter the orchids are very late. Where there should be sodden moss and lots of orchids, the forest litter was crackling under foot. We usually find them



flowering at this time, but this is the third year in a row when the winters have been dry and flowering delayed. *Caladenias* sparse, only a few showing leaf yet, *Microtis* only in leaf, *Corybas* just starting to show. *Adenochilus*, only a few showing leaf yet, some with *Prasophyllum* and *Chiloglottis*. Owing to a herbicide spraying programme over the last three years by DOC on the two terraces at Rainbow Reach the *Thelymitras* are almost wiped out. Could only find a few stunted plants, in bud, about 5cm high, in the area which I found to be the most prolific I have ever seen in the South Island. Most disappointing. (My son has *Thelymitra pulchella* and *T. longifolia* flowering in his garden at Fairfield at the present moment). I have not filled in a seasonal distribution sheet, I just didn't have the heart - better luck next year."

¶ Dan Hatch informs us that Tony Druce's latest list of indigenous plants placed the pygmy *Prasophyllums* under *Genoplesium*: the reference is D. Jones

¶ M. Clements. Reinterpretation of the Genus *Genoplesium* R.Br. (Orchidaceae: Prasophyllinae). *Lindleyana* The Scientific Journal of The American Orchid Society 1989. 4 (3): 144: the relevant extract follows -

144: the relevant extract follows -

*G. nudum* (J.D. Hook.) D. Jones & M. Clements *comb. nov.*

BASIONYM: *Prasophyllum nudum* J.D. Hook., *Fl.nov.-zel.* 1:242 (1853). Type: "New Zealand, Northern Island, Port Nicholson and Taupo Lake," *W. Colenso s.n.* (Lectotype: specimen (a) K!, here designated).

*Prasophyllum attenuatum* Fitzg., *Gard. Chron. (new ser.)* 17: 495 (1882). Type:

New South Wales, *R.D. Fitzgerald s.n.* (Holotype: BM!).

*Prasophyllum intricatum* sensu Fitzg., *Austral. orch.* 2(4): [t.6] (1888), non Benth. (1873). Type: "Mount Wilson, in the Blue Mountains, New South Wales," Mar.-Apr. *R.D. Fitzgerald s.n.* (Holotype: BM!).

*Prasophyllum transversum* Fitzg., *J. Bot.* 23: 135 (1885). Type: "Mount Wilson," Apr. *R.D. Fitzgerald s.n.* (Holotype not found; Lectotype: Fitzgerald's plate CBG!, here designated).

*Prasophyllum hopsonii* Rupp, *Proc. Linn. Soc. New South Wales* 53: 341 (1928). J. Hopson & H.M.R. Rupp s.n. (Holotype & Isotype: NSW!) *syn. nov.* *Prasophyllum beagleholei* Nicholls, *Victoria Naturalist* 59: 11, fig. M-U (1942). Type: "Victoria, two miles west from Gorae West," Jan.-Mar., C. Beaglehole s.n. (Lectotype: MEL!, here designated) *syn. nov.*

*G. pumilum* (J.D. Hook.) D. Jones & M. Clements *comb. nov.*

BASIONYM: *Prasophyllum pumilum* J.D. Hook., *Fl. nov.-zel.* 1: 242 (1853). Types: "Northern Island, New Zealand," Edgerley s.n. (Lectotype: specimen (a) K!, here designated); "East Coast, New Zealand," Colenso s.n. (syn. K!). *Prasophyllum tunicatum* J.D. Hook., *Fl. nov.-zel.* 1: 242 (1853). Type: "Northern Island, East Coast, New Zealand," W. Colenso 84. (Holotype: K!; Isotype: K-L!).

*Prasophyllum viride* Fitzg., *Bot.* 23: 135 (1885). Type: "Springwood, on the Blue Mountains," Mar., *R.D. Fitzgerald s.n.* (Holotype & Isotype: BM!) *syn. nov.*

*Prasophyllum variegatum* Colenso, *Trans. & Proc. New Zealand Inst.* 20: 2 08 (1888). Type: "Glenross, county of

Hawke's Bay," 1887, *D.P. Balfour s.n.* (Holotype: K!).

*Prasophyllum dixonii* F.Muell., *Victoria Naturalist* 9: 44 (1892). Type: "Near Kardinia Creek," May 1892, C French & J.E. Dixon *s.n.* (Holotype: MEL) *syn. nov.*

*Prasophyllum aureoviride* Rupp, *Victoria Naturalist* 58:22 (1941). Type: "Castlecrag, Middle Harbour, Port Jackson," May 1940, *H.M.R. Rupp s.n.* (Lectotype: NSW!) *syn. nov.*

*Prasophyllum elmae* Nubling, *Austral. Orchid Rev.* 5: 59 (1940) *nom. illeg.*, no Latin description.

*Prasophyllum elmae* Rupp, *Victoria Naturalist* 59: 122 (1942):

*Prasophyllum aureoviride* Rupp var. *elmae* (Rupp) Rupp et Hunt, *Austral. Orchid Rev.* 11: 92 (1946). Type: "National Park, Port Hackling," Apr. 1927, *E. Nubling s.n.* (Holotype & I so type: NSW!) *syn. nov.*

*Prasophyllum buftonianum* J.J.H. Willis, *Pap. & Proc Roy. Soc. Tasmania* 87: 81 (1953). Type: "Port Davey (Bathurst Harbour), Tasmania," early 1893, J. Bufton *s.n.* (Holotype: MEL: Isotype: NSW!, HO) *syn. nov.*

## Letter to the editor

Sir,

I write with regard to issues of conservation and cultivation of our native orchids and must at once admit to being in a state of some confusion. This state has been brought about by snippets from letters and articles in the Journals of recent times, and I am sure these have not gone unnoticed by other members who may find themselves confused also.

Ref Doug McCrae (June 1990): "removal of species to parts of the country where they have not been known to exist has some implications..... the possibility of fine orchid seed dispersing in wind" etc.

Not long after the above we read a letter (Dec 1990) from a gentleman having been given a *Calochilus* plant from Iwitahi. This is a threatened species with full protection under law and it is known that it cannot be maintained in cultivation. Was this, I wonder, part of the situation Doug McCrae refers to in his article, that some participants in the field days were observed removing *C. robertsonii* from areas not under threat? Were these people members of our Group?

Also in Dec 1990 we have Noeline Clements of Whangarei adding to the Mapping Scheme but saying that she doesn't want reserve names and species

found therein printed in the Journal. Assuming that the Journal goes only to members is she saying that she suspects members of removing plants from the wild?:

Having seen nasty great holes where there were previously growing orchids I can sympathise with her sentiments and it all leads one on to wondering if, in fact, we should want the native orchids to achieve a "higher profile".

We are often told that removal of plants from the wild is rarely defensible unless threatened. It is irresponsible and sometimes illegal - and I suspect more often illegal than not.

There are, however, obviously a number of people attempting to cultivate native orchids, so where did the plants/seeds/tubers etc come from in the first place? It is hard to believe that they all came from threatened areas. What constitutes the state of threat anyway, and who defines it?

If I may quote a small example from personal experience: a couple of summers ago my wife and I found some strong plants of *Orthoceras novae-zeelandiae* on a track margin. Strong healthy plants duly noted and photographed. The next year when we went to see them again we found that the track margins had been enthusiastically "cleared": result - no orchids. Had I known they were thus threatened would I have been justified

in removing them? I think not (academic because I couldn't have known, but it does point things up).

I understand the Australian societies have strong policies regarding conservation/cultivation, maintaining tuber banks and like activities seemingly under strict controls. Likewise, and even stricter, the British societies are working very hard on conservation/reserves - but just let an outsider try and find out where their reserves are.

My feeling is that urgent discussion is needed within the Group now, before the field days become literally open slather on orchid collecting. Doug McCrae and Tim Funnell (Dec 1990) have made some points already but reading both of these letters carefully reveals a number of obviously conflicting points. One thing I strongly agree with is that there is no point in leaving orchids to the bulldozer but I maintain that any collecting for cultivation purposes must be under some sort of control.

Most of the Group's members must have views on these subjects and debate will hopefully lead to policy. For myself I must reiterate that I wonder if we are not publicising our orchids too widely.

Ken Wilson,  
Auckland

Australian notes
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**From "Preliminary report on the results of the Schlechter-Lauterbach commemorative expedition 1989-1990".**

by Mark A. Clements and Paul Zeising

The Australian Botanical Gardens Occasional Publication No 12 consists of a report of nine weeks' field work by the authors, beginning in March 1990 in Papua New Guinea. The chief aim was the collection of scientific specimens of Orchidaceae from old German localities to replace the type material collected by Schlechter (1902 and 1906-8) and Lauterbach but destroyed in World War 2.

The work was successful - about 4000 plants were collected, mostly orchids, and of these half could not be readily identified by reference to standard works - it seems likely that many are undescribed. On the other hand, "The degree of accuracy provided by Schlechter in his extensive work *The Orchidaceae of German New Guinea* (1912) made identification of many flowering specimens collected during this trip a relatively simple matter. Having now worked in areas visited by Schlechter, and recollected many species first described by him, we are firmly of the opinion that most if not all of these species should be recognised

in their own right."

Work continues on the specimens sent back to Canberra, and a full publication is expected in two or three years.

¶ Reg Angus records, in the ANOS Warringah Group Bulletin (December 1990) plants of *Cryptostylis subulata* in his region 5ft 9m tall, with twenty flowers on a raceme! "We grow 'em bigger in Warringah" he justifiably claims.

¶ Worried about a few new species? Spare a thought for the Australians. Bob Bates records {*Journal of the Native Orchid Society of South Australia*, December 1990) on a field trip to the Eyre Peninsula - three (perhaps four) undescribed species of *Prasophyllum*, several new rufa group *Pterostylis*, and perhaps five different *Pterostylis nana* - "A: large-flowered (coastal dunes); B: 'Hills nana.' (Koppio); C: 'mallee nana'; D: 'desert nana' from the Gawler Ranges to the Nullarbor and the edge of the Great Victoria Desert; E: 'swamp nana' (Wanilla Swamp)."

*I wonder which the New Zealand form matches - Ed.*

## Historical reprint

From Charles Darwin. "The Various Contrivances by which Orchids are Fertilised by Insects\*. Popular edition, being the seventh impression of the second edition. London, John Murray, 1904. pp 86-90.

The first edition of Darwin's work was published in 1862. He wrote in the preface to the second edition, "During the two or three years after its appearance I received, through the kindness of various correspondents in different parts of the world, a large number of letters... communicating to me many new and curious facts.... A

large amount of matter has thus been accumulated The work has thus been remodelled."

Amongst the new material were T.F. Cheeseman's papers on the fertilisation of *Pterostylis*, *Acianthus* and *Cyrtostylis*, and Darwin acknowledged this work in the following often-quoted extract.

### CHAPTER III.

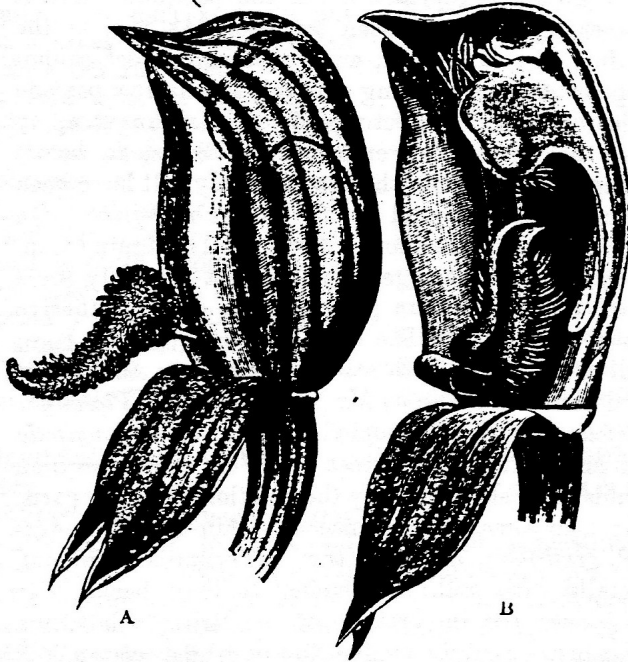
#### ARETHUSEÆ.

*Pterostylis trullifolia* and *longifolia*.—I may here briefly mention some Orchids, inhabitants of Australia and New Zealand, which are included by Lindley in the same family of the Arethuseae with *Cephalanthera* and *Pogonia*, and are remarkable from their labella being extremely sensitive or irritable. Two of the petals and one of the sepals form a hood which encloses the column, as may be seen at A in the accompanying figure of *Pterostylis longifolia*.

The distal portion of the labellum affords a landing-place for insects, in nearly the same manner as with *Cephalanthera*; but when this organ is touched it rapidly springs up, carrying with it the touching insect,

which is thus temporarily imprisoned within the otherwise almost completely closed flower. The labellum

Fig. 14.



PTEROSTYLIS LONGIFOLIA. (Copied from Mr. R. D. Fitzgerald's 'Australian Orchids.')

- A. Flower in its natural state: the outline of the column is dimly seen within.
- B. Flower with the near lateral petal removed, showing the

column with its two shields, and the labellum in the position which it occupies after having been touched.

remains shut from half an hour to one hour and a half, and on reopening is again sensitive to a touch. Two membranous shields project on each side of the

upper part of the column, with their edges meeting in front, as may be seen in fig. B. In this drawing the petal on the near side has been cut away, and the labellum is represented in the position which it assumes after having been touched. As soon as the labellum has thus risen, an imprisoned insect cannot escape except by crawling through the narrow passage formed by the two projecting shields. In thus escaping it can hardly fail to remove the pollinia, as, before coming into contact with them, its body will have been smeared with the viscid matter of the rostellum. On being imprisoned in another flower, and on again escaping by the same passage, it will almost certainly leave at least one of the four pollen-masses on the adhesive stigma, and thus fertilise the flower.

All that I have here said is taken from the admirable description given by Mr. Cheeseman \* of *Pterostylis trullifolia* ; but I have copied the figure of *P. longifolia* from Mr. Fitzgerald's great work on the Australian Orchids, as it shows plainly the relation of all the parts.

Mr. Cheeseman placed insects within several flowers of *P. trullifolia*, and saw them afterwards crawl out, generally with pollinia attached to their backs. -He also proved the importance of the irritable labellum by removing it from twelve flowers whilst young, and in this case insects which entered the flowers would not have been compelled to crawl out through the passage; and not one of these flowers produced a capsule. The flowers seem to be frequented exclusively by Diptera; but what attraction they present is not known, as they do not secrete nectar. Mr. Cheeseman believes that hardly a quarter of the flowers produce capsules ; notwithstanding that on one occasion he examined 110

CHAPT. III. PTEROSTYLIS LONGIFOLIA. 89

flowers in a withered condition, and seventy-one of these had pollen on their stigmas, and only twenty-eight had all four pollinia still within their anthers. All the New Zealand species bear solitary flowers, so that distinct plants cannot fail to be intercrossed. I may add that Mr. Fitzgerald also placed a small beetle on the labellum of *P. longifolia*, which was instantly carried into the flower and imprisoned; afterwards he saw it crawl out with two pollinia attached to its back. Nevertheless he doubts, from reasons which seem to me quite insufficient, whether the sensitiveness of the labellum is not as great a disadvantage as an advantage to the plant.

Mr. Fitzgerald has described another Orchid belonging to the same sub-tribe, *Caladenia dimorpha*, which has an irritable labellum. He kept a plant in his room, and says: "A house-fly lighting on the lip was carried by its spring against the column, and becoming entangled in the gluten of the stigma, and struggling to escape, removed the pollen from the anther and smeared it on the stigma." He adds, "Without some such aid the species of this genus never produce seed." But from the analogy of other Orchids we may feel sure that insects usually behave very differently from the fly which he saw caught on the stigma, and no doubt they carry the pollen-masses from plant to plant. The labellum of another Australian genus, *Calaena*, one of the Arethuseae, is said by Dr. Hooker to be irritable; so that when touched by an insect it shuts up suddenly against the column, and temporarily encloses its prey as it were within a box. The labellum is covered by curious papilla?, which, as far as Mr. Fitzgerald has seen, are not gnawed by insects.



M. Fitzgerald describes and figures several other; genera, and states with respect to *Acianthus fornicatus* and *exsertus* that neither species produce seeds if protected from insects, but are easily fertilised by pollen placed on their stigmas. Mr. Cheeseman has witnessed the fertilisation of *Acianthus sinclairii* in New Zealand, the flowers of which are incessantly visited by Diptera, without whose aid the pollinia are ; never removed. Out of eighty-seven flowers borne by fourteen plants, no less than seventy-one matured capsules. This plant according to the same observer exhibits one remarkable peculiarity, namely, that the pollen-masses are attached to the rostellum by means of the exserted pollen-tubes, which serve as a caudicle; and the pollen-masses are thus removed together with the rostellum, which is viscid, when the flowers are visited by insects. The flowers of the allied *Cyrtostylis* are also much frequented by insects, but the pollinia are not so regularly removed as those of the *Acianthus*; and with *Corysanthes*, only five out of 200

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**The New Zealand Orchids: natural history and cultivation**  
 Ian St George and Doug McCrae

This is one of the best practical guides so far produced on NZ native orchids. Written by members of the NZ Native Orchid Group (founded 1982), it contains biographical sketches on orchidologists dating from Joseph Banks to living experts like Dan Hatch, Brian Malloy, Dorothy Cooper and James Irwin. Chapters, contributed by these folk, include orchid naming, structures and pollination systems. Each chapter is extensively illustrated with diagrams and many species are beautifully pictured in colour.

Another section of the 88-page book covers photographing orchids, drawing on the experience of three keen practitioners.

"The Role of the Herbarium" describes the correct method of collecting data and specimens while 'Perching and Ground Orchid Cultivation', written by Doug McCrae, gives full details on growing including potting media, fertilisers, pest and disease control and watering with notes on specific genera. He also writes on propagation.

If you have not yet ordered your copy of this important book, and copies for all your friends, do so now - from Dan Hatch, 25 Tane Rd, Laingholm, Auckland - \$16 incl p&p per copy (cheque to NZNOG, please) to members.

