

**A TALE OF TWO GREENHOODS**

Kate Vlcek

Threatened Species Officer, DSE Warrnambool

This is the story of two of the Threatened *Pterostylis* species I work with. It began two years ago when I'd just started my position with the Department here in south western Victoria. Andrew (my new boss) and I visited a coastal reserve near Portland where we work with a very rare species known from only a handful of sites within the park, around 50 flowering plants. This was the Portland Long-tongue Shell Orchid (*Pterostylis* sp aff *dolichochila*) a fairly small, single flowered Greenhood, with lovely chocolate coloured markings, that can be found growing in beds of moss under Melaleucas.

Our job that day was to hand pollinate flowers to ensure seed production for collection. I'd practised hand pollination on a pot of *Caleana* and also a pot of *Chiloglottis*, where I'd found how easy it was to simply place the pollen onto the stigma, the sticky disc directly under the anther, but I'd never applied my skills in-situ. It was very dark under the Melaleucas. The flowers were very small and fiddly. We used toothpicks. We marked the plants and returned several weeks later to check on the results. One of my flowers had been successfully pollinated; the other hadn't. I thought nothing more of it.

The following year (2007) Andrew completed the hand pollination and I went and collected the seed. Around this time, we were alerted by local field naturalists and ANOS Victoria members to a population of *Pterostylis chlorogramma* (Green-striped Greenhood) growing at Mt. Clay (State Forest near Portland). The species was known to occur in the general area but had not been seen for several years. *Pterostylis chlorogramma* is one of the tall Greenhoods, easily confused with other members of the 'longifolia complex'. The species is scattered over a handful of locations in southern Victoria, mostly east of Melbourne, known from approximately 300-400 plants.

My first job was to thoroughly survey the area and locate all the plants to identify the size and distribution of the population. It's quite a pleasant place to work. The habitat consists of damp, tall Stringybark (eucalypt) forest with a diverse understorey dominated by Small Grass Tree (*Xanthorrhoea minor*), heaths, peas, Acacias and a profusion of other wildflowers including orchids. Cockies constantly scream overhead. One of the difficulties is that *Pterostylis melagramma* (Tall Greenhood), very similar in appearance to *P chlorogramma*, grows side by side with it at this site. So first I needed to learn to tell the two apart. *P chlorogramma* is generally more robust, with larger, glossy flowers. It also has strong distinct stripes on the galea - those of *P melagramma* are generally blurry and less defined, as well as a lighter shade of green.

All is revealed when one opens the flowers and looks inside. *P chlorogramma* has enlarged basal flanges, which are semi-circle shaped and often meet or touch in the centre of the flower, blocking the entrance. These are sometimes referred to as 'tonsils' and are actually the base of the petals. *P melagramma* lacks these flanges. Having learnt that little trick, I counted the *chlorogramma* plants, 28 in all. Natural pollination levels were monitored and found to be healthy; some seed was collected.

This year, management of the Portland Long-tongue Shell Orchid was handed over to me. I

identified a problem with the seed we'd collected in the two previous years. *Pterostylis alata* grows alongside *P* sp aff *dolichochila* and the two species cross readily, producing a confusing array of natural hybrids. Some of the seed pods we'd collected were the result of natural pollination events, and while I could vouch for the identity of these plants, I could not identify the source of the pollen – it may have come from an *alata* or hybrid. As a result, this year, we would only collect seed from hand pollinated plants which we marked. I set out with my toothpicks to 'do the deed', carefully identifying each individual flower first.

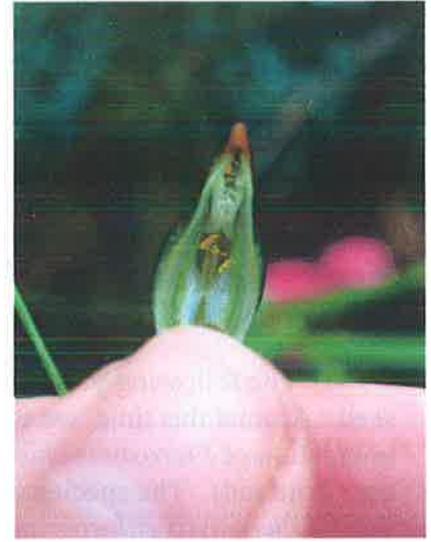
I encountered problems pollinating; the pollen was quite dry and crumbly (usually a sign the flowers are no longer fresh) and the stigma was very un-receptive – the pollen didn't seem to stick. I smeared it underneath the anther to no avail. My next obstacle was the pair of brown wings covering the central area of the column. They were in the way and very difficult to hold open while attempting to insert the pollen onto the column behind them. Of the 25 or so flowers I attempted to pollinate, not a single one resulted in fertilisation. What was I doing wrong? I'd had a 50% success rate the first year. For me, the answer lay not in a textbook, which would have been easier but not nearly so much fun, but within the flowers of another nearby greenhood species, *Pterostylis chlorogramma*.



*Pterostylis* sp aff *dolichochila*  
(greener version)  
Portland Long-tongue Shell Orchid



*Pterostylis chlorogramma*



*Pterostylis chlorogramma*  
Pollinated

As these two greenhoods flower at similar times and occur within 30 or so kilometres of each other, I generally split my day in half over the two species to minimise travel. So as usual I stopped in at Mt Clay on my way back to Warrnambool to check on the *chlorogrammas*. This time to monitor natural pollination levels and subsequent seed pod production. The population had increased from the previous year, with 36 flowering plants found. However, to my surprise, of the 100 or so flowers, only two had been pollinated. This represented a real decrease from the previous year, and it quickly became clear that I'd need to intervene.

I was able to pick up some nicely sticky pollen on the tip of a toothpick. Holding the labellum down with my left thumb I was again confronted by those troublesome wings covering the column. I managed to separate these slightly and slide the pollen through the gap. But just like the Shell Orchids, there was no sticky stigma ready to receive the pollen from me. This was very frustrating; it shouldn't be so difficult. Was the flower I'd used not fresh enough? I knew this could result in a dry stigma, so tried again with a fresher flower - same thing. One last attempt. I opened the flower.

There I saw my lesson, my lack of knowledge, and I laughed. This flower had recently been naturally pollinated. I could see the pollen sitting there smeared like egg yolk, almost smiling up at me. There is a gap below the column wings and above the basal flanges, where the column is exposed. This was the spot, the stigma. The gnat that had recently visited this flower had shown me the error of my ways - as clearly as a little sign saying 'Pollen goes here' but with no words needed. It was a wonderful example of insect to human communication.

Now I also knew why my attempts at the Shell Orchid had been unsuccessful. I'd assumed the stigma was always located directly under the anther – after all, I'd successfully pollinated *Caleana*, *Caladenia*, *Chiloglottis* and even another *Pterostylis* species. My initial success with the Shell Orchid in 2006 had led me to assume I knew my way around these flowers when, in fact, it was nothing more than a fluke. I'd been fighting my way past those column wings all this time, wondering why it was so difficult, over-complicating something simple.

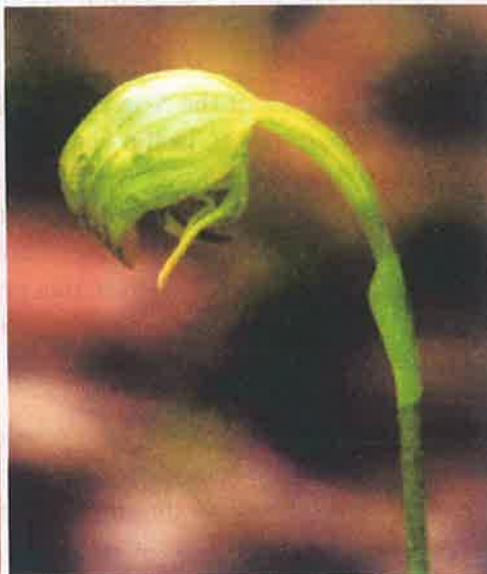
I can now apply what I learnt to the five other *Pterostylis* species I work with. One day I hope to find the responsible insect still trapped inside a flower, so that I can thank it in person before having it identified. Then we will be able to acknowledge by species name our small but very important six-legged helper. There is much to be learnt from these silent teachers. It is wonderful to still be surprised by what I see and find, to be able to read the subtle signs of nature, to hear the little gnat say 'Down here, Silly' and to be humbled by its simple insect wisdom.

(Photographs: *Pterostylis* sp aff *dolichochila* Jeff Blackman, both *Pterostylis chlorogramma* Kate Vlcek)

## PTEROSTYLIS HISPIDULA

Margaret Bradhurst

I have not been orchid-hunting very much recently. However, one orchid which attracted attention on an Australian Plant Society walk in May was *Pterostylis hispidula*. It is the Small Nodding Greenhood and it is interesting to compare it with *Pterostylis nutans* ((Nodding Greenhood). *P hispidula* flowers earlier than *P nutans* and has smaller less nodding flowers. The lateral sepals point out sideways from the flower whereas *P nutans* tend to point forwards. *P nutans* has a longer labellum. (Margaret usually does her orchid hunting in the Royal National Park south of Sydney.)



*Pterostylis hispidula*



*Pterostylis nutans*

(Photographs supplied by Margaret.)

## DENDROBIUM BIGIBBUM

Pauline Lawie

Every year for the past seven years, members of the Cairns and Tablelands Branches of the Society for Growing Australian Plants have spent a weekend working in the Cooktown Botanic Gardens. We normally work, and I mean work, all day Saturday and on Sunday morning, then give ourselves a reward on Sunday afternoon, usually a look around some bit of scrub not too far from Cooktown. As Don and I organise the weekend, the majority of the people who take part are Indigenous Orchid Study Group members – we take our receipt book up with us and twist arms until we are begged for membership! It was not surprising therefore that the main achievement this year was the "placing" of approximately 30 Cooktown orchids in the Gardens. We were warned, 'They will all be stolen', but we had no intention of tying the plants on with bright pink bailing twine, as had been done in the past, and decided it was worth taking a chance. Chris Evans from Tablelands Branch organised for a local grower to supply us with \$100 worth of flowering size plants with acceptable provenance.

With so many orchid enthusiasts among us, I guess it was inevitable that getting the plants into the trees was executed "committee" style: multiple "placings" in only one or two places; plants, with all roots removed, both glued with liquid nails and tied with pantyhose to limb or trunk by a man up the top of an extension ladder 'not there', 'there', where they were not too exposed but would get some sun, on the seaward side of the tree to catch any moisture laden breezes. It sure will be interesting to how they get on, how many survive and whether or not we can find them again when they are not in flower. A bit of a gamble perhaps, but we all thought it was well worth it.

The new curator of the Gardens asked us to write a letter of support for a grant he was seeking and we responded:

"As leaders of the Indigenous Orchid Study Group of the Association of Societies for Growing Australian Plants, we are pleased to support your proposal to include all the rare and threatened plants of the Cape York Peninsula into the Cooktown Botanic Gardens. We are very familiar with the history of the Gardens, its importance, its site and its potential.

"When Don and I first visited the Cooktown Botanic Gardens in 2002 we were so overwhelmed with the historical importance of the Gardens and their tourism potential that we set about organising a party to carry out work we saw was needed. The then Vegetation Services Manager, Diana Wood, was equally enthusiastic.

"We took our proposal to the Cairns Branch of the Society for Growing Australian Plants and then to the Tablelands Branch, and our first work party set to in the Gardens in October 2002. We then discovered that both these Branches of SGAP were involved when the Cook Shire Council decided to re-establish the Gardens in 1986. It was at that time that the SGAP Garden was initially planted. Both these Branches of SGAP have provided workers for a weekend every June since. We will be there again this year over the weekend of 21/22 June. The work carried out over this period ranges from basic weeding to provision of advice from highly qualified naturalists and botanists, GPS work, and the hard yakka of planting, mulching and fencing.

"Cooktown Botanic Gardens is of great significance to the whole of Australia because of the plant collections of Banks and Solander from around the Endeavour River. These are arguably the most important early Australian botanical collections. We feel that this aspect of the Gardens is paramount. Our Branches have provided plants for the Banks and Solander garden to replace those destroyed by wallabies time and time again.

"There is no doubt the work of the early Chinese artisans is historically important and needs to be highlighted.

"Needless to say orchids are our prime interest and we will be pleased to this year introduce to the Gardens many Cooktown orchids. We hope these will be the just the first of the rare and threatened plants from Cape York Peninsula to bring these Gardens greater recognition."

## TAXONOMY – Again

An article in the March issue of *Growing Australian*, the magazine of the Australian Plants Society – Victoria, makes clear that people interested in orchids are not the only ones terrorised by the taxonomists.

Two taxonomists, one Austin Mast, an American based in Florida, and the other, Kevin Thiele recently appointed as the Head of the West Australian Herbarium, have decided that *Dryandras* should all be *Banksias*. Tony Cavanagh, the author of this article, would like the "new" taxonomists to explain what they are doing and why. He feels it is 'high time that there was a lot more dialogue between the taxonomists and other professionals in the horticultural, nursery and Australian plants business. Wanting to find the truth is one thing, but "science for science's sake" and hang the practical consequences, is something else again.' Hear! Hear!

In an article entitled "You don't have to call *Dryandra Banksia*" in the August 2008 edition of the *Wildflower Society of Western Australia Newsletter*, Alex George writes: "Having studied these plants for almost 50 years I am concerned that this change is premature, probably wrong, and is having a profound effect on those using the names of these plants, effects that could have been avoided.

"First, however, I wish to point out that *there is no obligation to follow the change simply because it is the latest word, or because herbaria have adopted it.* [his emphasis]. Under the *International Code of Botanical Nomenclature*, scientific names of plants are available for use if they meet certain criteria, and no further direction is given on how to choose which binomial to use, if a plant has more than one available name. In this case, the names of all species of *Dryandra* meet the criteria, and the *user can choose* whichever generic name they prefer. Likewise, the Australian Plant Census, co-ordinated by the major Australian herbaria, has no formal status that required it to be followed. The statement in the web article that a name in *Dryandra* is 'not current' refers only to the usage as practiced by the Western Australian Herbarium."

His final paragraph reads: "I believe that taxonomy should be practical, usable by informed but not necessarily expert users, i.e. it should be based upon readily observable morphological characters. Having studied all species of *Banksia* and *Dryandra* I am satisfied that there are perfectly 'good' characters that distinguish *Dryandra* from *Banksia* and I shall continue to recognise the two genera. Let us accept the new information that confirms their relationship and continue to call them so. No-one can say we are wrong."

If anyone would like a copy of this article, I am sure Alex would be willing to oblige. His email address is [a.george@murdoch.edu.au](mailto:a.george@murdoch.edu.au)

## ANNUAL REPORT 2007 – 2008

The following report was supplied to the ASGAP Study Group Liaison Officer in August.

"All four newsletters produced this year (Numbers 60 to 63 inclusive) included some colour. It is regretted that the equipment we have does no favours to the excellent photographs provided by members. However, we feel that as there are so many professional publications with excellent photographs, efforts to reproduce better photographs in our newsletters would result in more work for us and an increase in subscriptions. This is not a vanity publication.

"There was a good mix of technical information, members' growing experiences, hints, tips and excursion reports. Members are encouraged to keep records of their observations both in their own gardens and wherever they visit. Confirming the existence of orchid colonies, their health or otherwise, and finding new colonies of different species makes excursion reports valuable.

"Unlike practices of other study groups, members cannot exchange seeds or take cuttings from orchids to try to bring more into cultivation. We also support "grow local", though the only orchid we know of which is an environmental weed is an exotic. Efforts to protect plants in the wild or to reintroduce them is complicated, expensive, time consuming, requires much organisation and volunteer hours, yet is still fraught with failure without repeated follow up attention.

"Additionally, two CSIRO CDs, a key to the rainforest orchids and an Orchid Genera ID kit were reviewed, as well as a run down on the Australian Orchid Foundation."

After writing the annual report I (Pauline) have found a problem with excellent photographs in professional publications. I tried Jones' *Field Guide to the Native Orchids of Southern Australia* to find out more about the *Pterostylis* species mentioned in this newsletter. It had only *Pterostylis nutans*, so I took out the Jones' "Pretty Picture Book", only to find that I am being paid back for my caustic comments about it; most of the pages on "The Greenhood Alliance" are stuck together! I'll have to go and see if the same thing has happened to the copy of the book my mate in town bought for \$20. No more pre-publication purchases for me.

In the assets attached to the financial statement which follows, I should also have mentioned the two CSIRO CDs given to us. If any member is interested in trying either of these CDs, just let us know.

FINANCIAL STATEMENT 2007-2008

BALANCE BROUGHT FORWARD 1/7/07			\$842 48
INCOME:			
Subscriptions, grants, donations	190 00		
Bank Interest	47	190 47	1,032 95
EXPENDITURE:			
Printing	62 75		
Postage	89 10		
Stationery	49 05		200 90
BALANCE CARRIED FORWARD 30/6/08			<u>\$832 05</u>

Bendigo Community Bank a/c No. 114 030 240 in the name of SGAP Indigenous Orchid Study Group with the signatures of Donald C Lawie and Pauline M Lawie, one to sign.

ASSETS: The assets of the Indigenous Orchid Study Group consist of \$832 05, five 50c stamps, a reasonable ballpoint pen, the current ream A4 paper and some DL envelopes.

Other assets are the drawings of Kate Vlcek held in trust for the Study Group.