Coordinator

ASGAP INDIGENOUS ORCHID STUDY GROUP ISSN 1036-9651

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Newsletter 51 June 2005

A VISIT TO THE PALUMA RAINFOREST

The Orchadian of March 2004 had a comprehensive article: "Orchids of the Paluma and Crystal Creek Area" by the eminent Orchidologist Dr P S (Bill) Lavarack. We read this article with considerable interest and some concern: interest since, though the area is relatively close to us we had only had a fleeting visit there, and concern since the author had given considerable detail as to just where to find many species of orchid in the wild. The official end to the wet season in mid-May this year and a touch of cool weather gave us the ideal opportunity to have a look at Paluma. Pauline and I stocked up the trailer-tent with supplies and reference books and set off down the Bruce Highway to the National Parks camping area at Big Crystal Creek just 250 km south of home.

Some scene-setting here: The Paluma range rises to a maximum height of 1063 metres from the narrow coastal plain, 60 km north of Townsville and 40 km south of Ingham, in North Queensland. The approach road from the coastal highway ascends rapidly to Paluma "village", climbing 880 metres in 20 km. The upland area comprises the southern limit of the Queensland World Heritage Wet Tropics rainforest and is home to a variety of plants, birds and animals that are not found further south in Australia.

Dr Lavarack lists about 36 orchid species that have been found in the Paluma rainforests, plus a larger number from the adjacent upland and lowland open forests. Our visit did not coincide with the flowering times of many orchids but the time was ideal for us, and we set off with high hopes to see what we could find. Our travelling reference library included Lavarack and Gray's *Australian Tropical Orchids* plus David Jones' *Native Orchids of Australia*. We left Dockrill's precious volumes at home for research on our return. In case orchids were not as plentiful as expected we also took two bird books, SGAP Townsville's *Plants of the Dry Tropics* and as much general info about the area as we could gather.

The drive up the range passes by a large, deep, gorge populated by very tall emergent Hoop Pines (*Araucaria cunninghamii*) which give a strong indication of the way that the Wollemi Pine gorge would look. Although Hoop Pines are excellent epiphyte hosts we could not spot a single orchid on them, though stopping places are very rare. We did see one *Cymbidium madidum* early in the day to commence our orchid count. Paluma town promotes itself as "The Village in the Clouds". There are virtually no services but it does have very good facilities for the day visitor plus accommodation for those who wish to stay. Several well maintained walking tracks offer an insight into the rainforest and there are some spectacular views over the coast. The short (580 m) walk in town led us through some typical mountain rainforest and we saw several flourishing colonies of *Dendrobium adae*, high in the trees.

Lunch on the "village green" saw a change from botany to ornithology: the few establishments in town make a practice of putting out bird feeding tables - even the environment education centre - and they are proud of the number and variety of rare birds that

CHILOGLOTTIS VALIDA (?)

by Kate Vlcek

(A Common Bird Orchid)

Chiloglottis is a small (approx. 8) family of terrestrial orchids. They grow in colonies in open forest and are easiest to find by looking for the leaves, which stand out from the dry bush floor, unlike the flowers (due to their brownish colouration). These orchids have quite a robust appearance, less dainty and fragile-looking than other genera – the flower is quite large in relation to the leaves and its stalk is short and thick.

These drawings are from a flower I've grown in cultivation that must have been slightly damaged while it was forming, as the dorsal sepal and column have an uneven, lopsided form. I believe this orchid is *Chiloglottis valida*, but I guess it could also be *C gunnii*, as I don't know the difference. Both are known as the Common Bird Orchid. As I drew this flower the sensitive labellum kept flipping back up into an uncharacteristic 'closed' position (quite frustrating!).

I was given the plant a year ago by an APS member who has thousands of them growing on her property in Dayelsford. I have seen them growing all around the Ballarat region; Brisbane Ranges, Dayelsford/Creswick area and Scarsdale, but not North of the Divide where it's drier. They tend to flower later in the Spring (mid-October to December). Despite being a novice, I find them easy to grow and, as an added bonus, the tubers multiply yearly. The flowers vary in colour from greenish through to maroon or brown; this one was maroon/brown. Distinct features are the heart shaped labellum and the calli/glands, which are very black and shiny – the one at the front is bigger and round. The leaves are fairly large (up to 7 or 8 cms long), in pairs, sitting somewhat flatly on the ground, are soft and very green and appear before the flower. New leaves are funnel-shaped and slowly unfurl. The flower stalk and bud emerge from the centre of the two leaves.

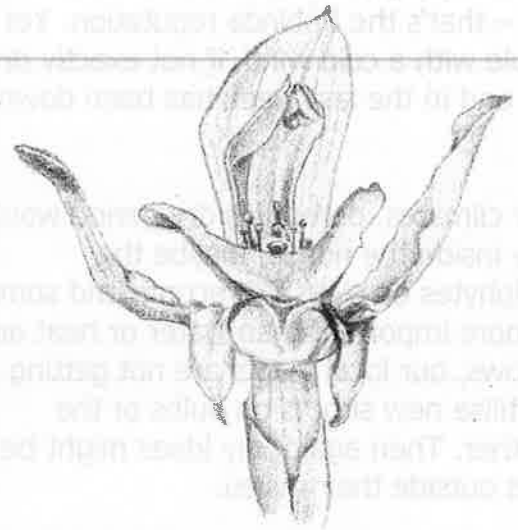
LIFE AND DEATH

Whenever I buy an orchid I find out where it comes from and try to learn what conditions it requires. With indigenous orchids we have many reference books to consult and can have a pretty good guess at the climatic conditions in the habitat, but without personal knowledge of an area, I am often wide of the mark. When I buy or am given a ground orchid or exotic I'm usually told, "It needs a dry period". But how dry and when? My knowledge of overseas climatic conditions is far too general. Besides, did this orchid come from overseas or was it raised nearby?

Seduced by the beautiful flowers, buttercup yellow with red markings, I bought a *Spathoglottis lobbii* (syn. *S affinis*) from a nurseryman at Malanda and was issued with the warning "It needs a dry period". He was too busy for me to ask when it should be kept dry, or whether it had been raised in his nursery at an altitude of about 800m, and I did not want to defend my decision to buy when I live on the wet coast at an altitude of 11 m, though I'm sure he was not too concerned with its longevity. (I actually bought it for Don as he has quite some success with *Spathoglottis* but I then decided to look after it for him). *Botanica's Pocket Orchids* told me – after I arrived home – it "grows in open, rocky areas at altitudes of 600 – 1000m."

My method of ensuring a "dry period" was to immerse the pot in water for about half an hour and then let it dry out in the early morning sun. The regularity of immersions was determined by how hot and dry the weather was. During the heat of summer I put it in my

a greener, undamaged specimen



Chiloglottis valida (?)
24/11/04

shadehouse where it was overhead watered for 40 minutes twice a week. The first year it produced some leaves and another bulb. This year we have had four beautiful blooms. Yet my *Spathoglottis plicata* in the garden don't flower all that well, and I've not yet managed to grow *Spathoglottis paulineae* from 3 km up the road. I think my trouble is that I believe my own press – we live in the wettest area in Australia – and I don't water my plants enough.

Similarly, whether intentional or not, people try to replicate the conditions of a rescued or bought plant. However, did that plant need to be rescued because it had started growing in an unsuitable place? Also, was that beautifully flowering plant crawling all over the pot sold because the owner could not be bothered repotting?

My trips through the Forty Mile Scrub over many years stamped hot, dry and dusty on my brain, so I imagined that any orchids found in that area needed to be kept hot, dry and dusty – well, hot and dry at least. That, of course, was before I understood the micro-climate. I now have an area under the eaves on the eastern side of the house where I can hang orchids from drier climates, but I do water them well at least twice a week.

Sometimes I am asked similar questions about orchids which do well in our area and my answers are probably equally wide of the mark. I'm sure many people believe these plants need to be kept hot and humid, if not actually wet all the time – that's the Babinda reputation. Yet we too have cold and dry weather. It is currently miserable with a cold wind, if not exactly dry; the mercury has hovered around 20^0 these last few days and in the last week has been down to 13^0 in my shadehouse.

For lowland tropical plants wintering over in cooler climates, perhaps a dry period would not go astray either. For pots in a warm area, particularly inside the house, maybe the immersion method using tepid water would work. For epiphytes on slabs I'd recommend some protection from cold winds, but I think air movement is more important than water or heat and humidity at this time of the year. As the thermometer shows, our local plants are not getting much heat right now. I'd also resist the temptation to fertilise new shoots on bulbs or the burgeoning root tips on epiphytes until more settled weather. Then again, my ideas might be suspect as I've never tried to grow lowland tropical plants outside their milieu.

To my great disappointment I have made another discovery concerning micro-climates. I moved a large *D superbum* from the shelter of the shade house to where we could admire it while we have afternoon tea. It was at the stage where the largest bud was not yet fully formed and there were several inflorescences in different stages of development. The new area has a concrete floor which absorbs the afternoon sun and is much brighter and dryer than the shade house. Development of all but the first bud was arrested. Further inflorescences did develop but these too suffered from a different watering regime. To account for different water needs, the plants in my shadehouse have different growing media but all get the same amount of water.

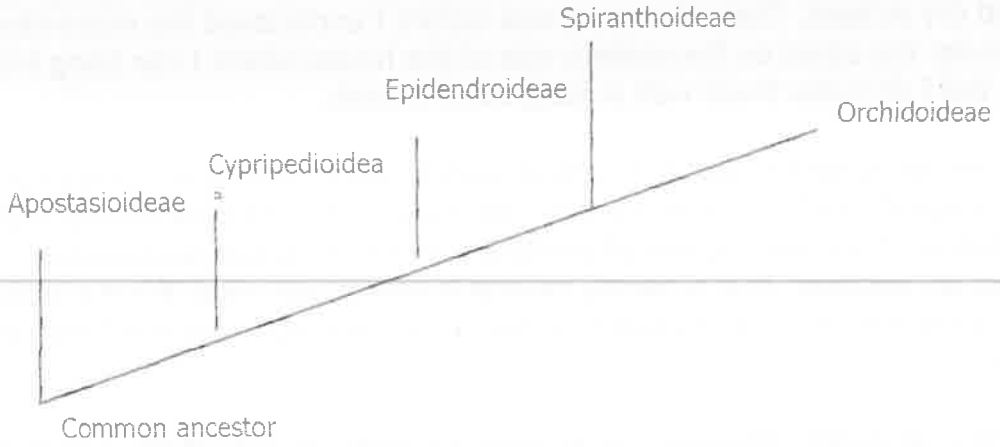
APOSTASIOIDEAE-Primitive Orchids

by Mary Gandini

Apostasioideae is a sub-family of Orchidaceae and contains two genera - *Apostasia* and *Neuwiedia. Apostasia wallichii* is the only member of the sub-family present in Australia. Also present in tropical Asia, it is relic of a once wider distribution. It is a terrestrial orchid with elongate stems and stilt roots without velamen. Leaves are spiral, convolute and non-articulate.

Storage nodules are found on the roots. Apostasioideae is regarded as a link between orchids and lily-like plants, although *Neuwiedia*, with three anthers, is probably more primitive than *Apostasia* which has two anthers. The third anther has been replaced with a staminode. From an evolutionary concept the family is sister to the remaining orchids which have only one fertile anther united with the female structures to form the column.

What this means is that all orchids are descended from an unknown common ancestor with three anthers. Sub-family Apostasioideae was the first to branch off the family tree. Next to branch was the Cypripedioideae, then Epidendroideae, followed by Spiranthoideae and last of all, the Orchidoideae, as shown in the diagram.



The inflorescence of *Apostasia wallichii* is terminal, erect and spreading and the flowers are spiral. Unlike orchids in general, the lip or labellum of *Apostasia wallichii* is similar to the petals. Two stamens and a staminode are partly united with each other and the slender style to form a tube that is analogous to the tubular structure in the Solanum family (tomatoes). In this family the filaments form a tube and each anther opens by a pore that has to be 'buzzed' or vibrated by a bee to release the pollen. However, in *Apostasia* the two fertile lateral stamens are introrse, i.e. facing inwards. Each anther opens longitudinally and not by a pore so that when they dehisce (open) the pollen is released inwards (within the tube). This may facilitate autogamy or self-fertilisation and a resulting high seed set. On the other hand, the tubular arrangement suggests 'buzz- pollination' and bees have been observed around *Apostasia*. Cross pollination is therefore quite likely to occur. Powdery pollen is in monads and not grouped into pollinia like more developed orchids. Primitive features are fleshy fruit, three locular ovary, abscission layer between ovary and perianth and crustose seed coat.

References: Dockrill, A W (1992), Australian Indigenous Orchids, Vol.1. Surrey Beatty & Sons NSW.
Dressler, R L (1993), Phylogeny & Classification of the Orchid Family. Dambridge University Press.

Mary suggests it is possible that further studies and DNA work may alter these findings. There is a good photograph taken by Bruce Gray on p 29 of Dockrill's *Indigenous Orchids of Australia.*

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