

SGAP CAIRNS BRANCH EXCURSION TURNED INTO AN ORCHID DELIGHT

Mary Gandini

The August outing was to a private property near Julatten. (West of Mossman which is north of Cairns) The large property was grazing land with an old Litchi orchard. A track led us through rainforest to the beautiful creek that ran through the landscape. On the track to the creek was a tall thin tree hosting several orchids. The tree's leaves were three-nerved and looked myrtaceous. Nearby were *Rhodamnia sessiliflora* saplings so we assumed that the host tree was the same species. At about eye-level was a substantial *Dockrillia teretifolia* (pencil orchid). There was no sign of buds, although it is flowering time. Further up the trunk was a fine specimen of *Dendrobium tetragonum*, again with no sign of flowers. (Mine have just finished.) Higher still was a *Cymbidium madidum*.

Tristaniopsis exiliflorus lined the water's edge and the rainforest began immediately imparting a cool moist microclimate. On the steep rocky creek bank there was a colony of *Dendrobium speciosum*. The pseudobulbs were long and thin in the low light, but the leaves were large and fleshy. September is flowering time for these orchids but there were no visible inflorescences forming. A lone *Pholidota imbricata* was close by.

A few hundred metres up the creek were more *D. speciosum* and a lone *Dendrobium discolor* (golden orchid). Charlie said there were many more of these orchids before the area was plundered some years ago. Fortunately, it is now surrounded by private property and access is not possible.

Then the "piece de resistance" showed itself – a magnificent *Robiquetia gracilistipes*. It trailed all over the top of a rock face and down the side. Its many branches were loaded with seed capsules. It must have had an excellent flowering a couple of months ago. What a sight it would have been! Even though the flowers are not spectacular, being a dull yellow, the sheer number of them on the long pendulous inflorescences would have been impressive. The plant was in top condition with all parts green and the leaves glossy and plump. There were more plants higher up the cliff. It is to be hoped that many of the millions of seeds in the capsules will find ideal conditions to germinate and produce many more plants. The photo shows only part of this magnificent plant.



Robiquetia gracilistipes

Photos:

plant
 M Gandini

flowers
 P Lawie



ORCHID FUNGUS

Leon wrote thanking us for information about fungi and orchids. Her reason for asking was that a lady in the Stirling Ranges in WA said the orchid seed is so tiny it can ride on an ant's foot and when it falls off it will not germinate unless the right fungus is present. When they were there last year the Stirling Ranges had had a bush fire and they saw a couple of the orchids that had not been there before or had not been seen for a long time, probably since the last fire.

Leon continued: There are more orchids in the Warrumbungles in Victoria since the fires. Nature has a marvellous way of rejuvenating itself. There will probably be more native orchids than ever were in the wild. The bush also copes with droughts and fires. Do you find that the orchids are now flowering more prolifically than ever? Weeds are the main problem. Also feral insects, etc. They can wipe out native plants. I guess it is because they are so vigorous in their growth.

Pauline: Plants do seem to flower prolifically after a natural disaster, fearing extinction?, but it is my belief that they then require many good seasons to prosper

GARDEN MAGIC

Rob Gourlay was so enthusiastic about the wonderful results achieved by applying the microbe product eMCHp – now called Biostart – to his orchids that we thought it would be good to try it on our plants. I contacted the manufacturer and found they did not deal in small quantities but they gave me the names of the closest distributors, in Innisfail and Tolga. We were not far from Tolga one day so called in. They did not have small quantities of Biostart but suggested something that a local bloke named Garry thought was magic, Huma-Tech Liquid Humus. We immediately knew the bloke was Garry Sankowsky as he was singing the praises of humic acid when he hosted a SGAP visit. Of course we bought some.

We then visited the Innisfail business. They had no Biostart at all but would let us know when it came in. Not only did they bottle a litre for us but the office girl delivered it to our front door, and it was extremely cheap. It was labelled empH. The agronomist had written the application rate on the bottle but not the dilution rate so I rang him. He could not have been more helpful, said the products could be mixed and asked that I let him know the outcome both with the orchids and also in my kitchen garden.

I applied the Liquid Humus and empH mixed to my orchids; some of the leaves went brown and some dropped off. I was very brave and applied the empH to the roots only; this time without ill effect. Whether either product has been beneficial I still don't know. We went away for a month and the electronic timer in my shade house delivered a different water regime from that I follow when at home. We had unusually cold weather over a long period. Thirdly I decided to use my electronic timer manually and it worked exactly as I set it – water for 30 minutes in an hour's time. I checked to see that it had turned itself off, but I did not turn off the water. Two or three days later I noticed how wet the garden was below the shade house. So, do I credit humic acid, empH, the unusual cold, or the thorough drenching for my profusely flowering orchids? More research is indicated. (Does empH = Biostart?)

What happened in the kitchen garden made it obvious that both the humic acid and the microbes were beneficial. I applied both products to my strawberry beds, after adding compost, and before planting the runners. Lots of tomato plants sprang up. Some I transplanted. Expecting these to die from wilt, I decided to leave many of the others for replacements. None died and the ones left in the strawberry beds took off and started flowering so quickly that I did not have the heart to pull them out. I thought I might be able to tell which plants were "Tiny Tims" but had to leave them just in case they were big tomatoes – well, they cost over \$6 kg. Some are big tomatoes and the others look like Tiny Tims on steroids. I have some strawberries bigger than I've ever grown before, many more inflorescences, some of which developed adventitious roots, but the tomatoes have pretty much taken over. I have the most amazing crop of oxalis too!

MAKING A PRESENTATION ON ORCHIDS

Pauline

In our last newsletter I asked what members thought about producing a resource to use when making a presentation about native orchids. Well, nobody thought nothing! When Don and I were asked shortly afterwards to give a talk to the Friends of the Sugarworld Botanic Gardens, I quickly put together what I could find to use in a PowerPoint presentation. It just didn't jell. When the Secretary of the Friends quizzed me the week beforehand about what electronic equipment we would need, I told her we would not need any; we were all organised for a show and tell.

We made some small corsages and collected heaps of cuttings for giveaways – all exotics of course. Don spoke about orchid plants in general and entertained with some interesting stories on promiscuity, the plant hunters and the introduction of orchids into cultivation. I followed up with tips of how I grow what where, and showed samples of everything I use including slabs, mixes and pots. We were delighted to be told the middle-aged audience much preferred the show and tell to a PowerPoint presentation and I was subsequently given five exotic species by one of the Friends who grows "real" orchids. He actually grows fabulous phallies for the wedding market. It was a very rewarding experience and we learned, "you don't give handouts before speaking; they come in handy if you get very nervous and need to gather your thoughts."

ORCHID GOLD

Don Lawie

In our Newsletter No 57, we told the story of an adventure Pauline and I had in search of a large, isolated colony of Golden Orchids (*Dendrobium discolor*). We found a plethora of plants, but the flowering season was almost over, and the selection of flowers and colours was not as wide as we had hoped. In addition, many of the plants were bearing well-developed pods – a sure indication that whatever the pollinator was for these plants, it was doing its job well. We did not reach our objective – a feature named Tom's Rock, due to high tides, giant granite rocks, and smashed rainforest. We determined to try again this year during peak flowering season at a low daytime tide.

On September 6 this year low tide of 0.63m was predicted at 11.54 a.m. We set off from the end of the road at Bramston Beach, but had to take to the rocks after about half a kilometre since the tide was still not low enough and there was a strong onshore wind causing a heavy chop against the rock edges. We were just able to get past the final rock barrier with its jagged, oyster encrusted edges and vertical drops, then the last kilometre or so was easy walking along a broad sandy beach with the mountain retreating for some distance on our left.

Beach side vegetation was standard for Tropical North Queensland – masses of *Scaevola sericea* at beach edge, and above them massive, gnarled old specimens of trees with the furrowed stems and scaly bark that Golden orchids love to grow on. Beach Calophyllum, *Calophyllum inophyllum*, and Beach Almond, *Terminalia catappa*, were the two main ones here, bearing flowering orchids in profusion along limbs and in niches in the trunks. But the real masses of orchids were terrestrial/lithophytic, at the top of the big granite slides where they adjoined the mountain's foot and only sparse grass was able to compete with them. Here the orchid patches were contiguous, with stems commonly over a metre in length, and many, many spikes of flowers with distal buds yet to unfurl their beauty to the brisk sea breeze. A pair of beach stone curlews skittered along in front of us, diligently luring us away from their nest, little knowing that we would never dream of disturbing their fragile home.

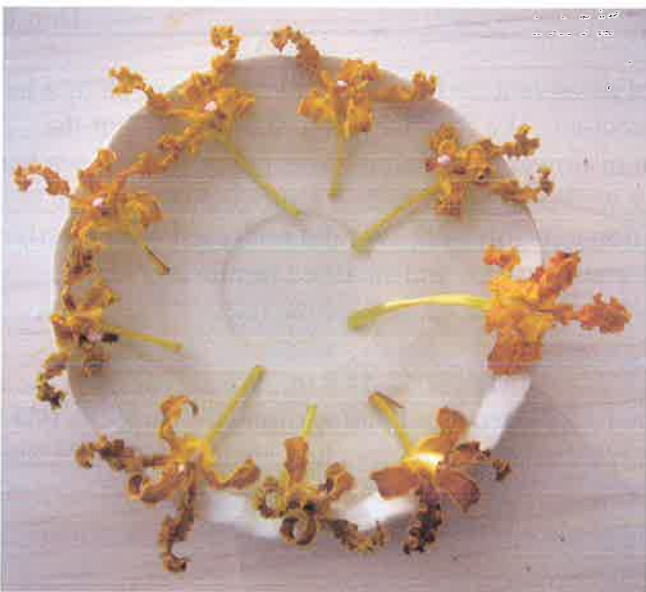
We came to Tom's Rock at last. It is a lone, black granite pyramid with its foot in the ocean and its back extending behind the beach. A mountain stream flows from a mangrove patch inland, past the rock and across the beach to the sea in a shallow, crystal-clear stream of pure rainforest water. Just behind the rock the creek widens to a large pool lined with granite flows beside shrubs festooned with flowering *Hoya australis*, *Hibbertia scandens*, and *Dianella caerulea*, not to mention the ever-present Golden Orchid flowers. There was no sign of humanity anywhere on our trip, and we sat on the rock

flow and ate our lunch in awe of the beauty of Nature all around us. (This creek and pool is supposed to be “full of crocs” but we looked in vain for the reptile to appear in this Paradise).

Pauline examined the orchid flowers and noted a wide variety in colour and form, which she will detail below. We made our way back along the beach with a little less rock scrambling this time and on the way we saw a Sea Eagle lift off from the ocean, wings beating heavily to gain altitude with a large fish firmly grasped in his talons. As he rose above our heads he was joined by a smaller raptor which we at first thought may be either his mate, or a juvenile learning the fishing technique; but no, it was a mugging encounter. The smaller bird flew repeatedly at the big eagle, we assume in the hope that it would drop its catch, but the bigger bird evaded each onrush, and circling to gain height, both birds disappeared from our view beyond a nearby hill. Nothing to do with orchids, but what a finish to our walk!

Back home, we found we had been so entranced by the multitude of sights we had experienced that our notes were far too sketchy; there’s an even lower tide later this month – we think that we’ll HAVE to go back again

GOLDEN FLOWERS – Pauline



To paraphrase a well known axiom, pictures are more descriptive than words.

When one is balancing on a slippery slope some metres above thrashing waves, as Don described, taking photographs is not uppermost in one's mind. Comparing flower form and colour is not right up there either, so it was not till we returned home that I examined the collected flowers. We had realised that two of them were somewhat different as can be seen in my photograph at left: The one at 3 o'clock is a double – it is two perfect flowers with the stems and labellums fused, and the dorsal sepals intertwined. The one at 5 o'clock is reddish/brown, the petals are gently undulating, not twisted and the sepals are neither undulate nor twisted.

This second flower is the one that made me quite excited and the reason we want to go back again. It is identical to one we collected up near Cooktown, which I wanted to believe was a hybrid between *Dendrobium discolor* and *Dendrobium semifuscum*. This time I wanted to believe it was a cross between *D discolor* and *D canaliculatum* as I know *semifuscum* does not occur here.

We hit the books and found the earliest reference we had was *Australian Plants* in which A W Dockrill revealed the name *Dendrobium discolor* dates back to 1810. *Dendrobium fuscum* was described as a species by R D FitzGerald in *The Sydney Morning Herald* in 1879, and under this name W H Nicolls painted a beautiful depiction in 1933. In 1964 Dockrill reduced it to a variety of *D discolor* in *Australian Plants*. (Bill Paine bemoaned the fact that he could not find a suitable colour slide for a plate of these plants.) It has since been given species status again but with a different genus in "that beautiful picture book". The one comment consistently made about *D discolor* is that it is very variable, and Len Lawler believes the flower we have found in two different places comes within the variable range. Another variation, described in 1878 is var. *fimbriolabium*, and as Bruce Gray is reported to have said that *D discolor* does hybridise with *D canaliculatum*, our search is not yet finished.

You too can research an orchid which grows in abundance in your area; they may not all be identical!

POLLEN, POLLINATION AND POLLINATORS

Don Lawie

An article in Brisbane's daily newspaper, *The Courier Mail*, on 31/8/07 was titled "Trapped for All Eternity". The story is taken from the British journal *Nature* and concerns the discovery by a Harvard researcher in the Dominican Republic of a bee preserved in a drop of amber which was estimated to be in the vicinity of 20 million years old. Amber-enclosed insects are not uncommon, particularly in the northern hemisphere, and "ant-in-amber" beads are commonly worn as jewellery items in Scandinavian countries.

There is a difference to this bee-in-amber specimen, since the bee's back is covered in many large pieces of pollen which have been identified as being orchid pollen. This is reported to be the first time that the fossil record has presented concrete evidence of the interaction between bees and orchids, and gives us a firm clue that the relationship is indeed ancient.

Orchids are distinguished from all other flowering plants by the fact that their sexual reproductive parts occur close together in a column, which contains the pollen and stigma separated only by an ingenious structure termed a rostellum. This acts a bit like a bolster in a double bed, but is much more complicated. The rostellum is shaped according to the preferred pollinator – be it bee, gnat, ant or other insect – so that the stigma is protected from receiving the pollen from its own column, but is in the right place for a pollen-bearing pollinator to deposit its load in the correct position. Moreover, the rostellum contains a viscidium (literally – a gluepot!) which dabs a spot of glue on the pollinator as it moves across the rostellum past the flower's pollen store – the pollinium. Orchid pollen is not like that of other flowers; it occurs in large aggregates termed pollinia, each containing many pollen grains. This is to ensure adequate fertilisation since the orchid gynoecium contains innumerable ovules which result in a fruit containing some millions of seeds. Such a life promoting package is precious and it is important that it be conveyed to its destination in a reliable fashion, hence the orchid/insect interaction which from the fossil evidence we now know to have been in action for at least 20 million years.

Other flowering plants conduct their pollen to stigma process in various ways. Sea grasses simply release their pollen to the current and hope that due their vast areas fertilisation will occur. A similarly simple technique is that of most terrestrial grasses which, growing in large masses, hurl their pollen grains to the wind and the receptive stigmas catch what they can – something like bridesmaids at a wedding chasing the bride's bouquet, or the groom's attendants?

The pollinator has to have a reason to visit the chosen plant. 'Normal' flowers use colours which are vibrant and attractive, shapes that perhaps stir some atavistic insect impulse, and perfumes that are aimed at a particular receptor. Rewards are also provided, generally as energy laden nectar which the insect collects along with the pollen. Nectar is easy for a plant to produce since it consists primarily of carbohydrates, and simple sugars are a product of the plant's photosynthesis. Our Australian orchids, unlike many other plants, do not have a large leaf/plant ratio. Moreover, most of our terrestrials, apart from only having a few leaves, retreat beneath the ground for much of the year. As a result, the compounds produced by photosynthesis are not in such abundance that the plant can offer them to an outside agency. The bee which visited the orchid 20 million years ago, whilst collecting many pollinia, probably received no nectar to speed it on its way.

What then attracted the archaic bee to the orchid? We know that orchids make use of all the above methods to attract their pollinators, and they go further so as to ensure that the precious pollinia are not wasted. The centre petal of an orchid flower is very highly differentiated from the other two petals and is termed a "labellum", a lip. This can have multiple uses. The colours can be very bright, the shape is such that the pollinator can use it as a landing platform in his journey, and it provides a clear route to the pollinia-containing column.

The September 2007 issue of *The Orchadian* has some wonderful photographs of the orchid's other method of attracting pollinators – sexual mimicry. The orchid's labellum in such cases serves not just as a landing platform but is developed so as to present a very credible imitation of a female insect of

the pollinator's species. This imitation can be so realistic it is rumoured that the type specimen of *Chiloglottis reflexa* does not have a labellum since the original collector thought that he had removed an insect stuck to the flower! Physical resemblance to a female insect is reinforced by the flower's emission of a pheromone which can be detected at a distance by the male insect. He then flies upwind of the pheromone trail until he sees the assumed siren awaiting him and homes in. *The Orchadian* article details research that shows the power of the chemical attractant in that the male insects sometimes try to couple with the wrong part of the flower, indicating that olfactory attraction is stronger than visual evidence. Love is blind, but the nose knows!!

FINANCIAL STATEMENT 2006-2007

BALANCE BROUGHT FORWARD 1/7/06		\$813 19
INCOME: Subscriptions, grants, donations	260 00	
Bank Interest	44	260 44
		1,073 53
EXPENDITURE: Printing	51 85	
Postage	96 00	
Stationery	13 30	
Miscellaneous (coloured ink)	70 00	231 15
BALANCE CARRIED FORWARD 30/6/07		<u>\$842 08</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 \$842 08, ten 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.

ANNUAL REPORT 2006 – 2007

Study Group leaders are obliged to provide a report each year to the ASGAP Study Group Co-ordinator, and it has occurred to us that our members are entitled to know the content of that report.

The four newsletters produced this year – Numbers 56 to 59 – followed the usual pattern with members' trip reports, cultural notes, erudite dissertations on the nature of orchids and a further report on the cyclone devastation of orchid habitat in Far North Queensland.

Particular orchids discussed were *Dendrobium discolor*, *Bulbophyllum johnsonii*, *Eulophia zollingeri* – found at a unusually low elevation – *Chiloschista phyllorhiza*, *Plectorrhiza tridentata*, *Caleana minor* and *Pterostylis uliginosa*, with many others getting a mention.

Two matters raised in our newsletters are causing considerably acrimony throughout the orchid fraternity. One is the prescriptive laws which treat all orchids in Queensland as rare and threatened, making it impossible for individuals to lawfully rescue doomed plants. The second is the wanton changing of orchid names, impacting equally on hybridisers, botanists and people who just want to learn about our native orchids. One can only hope that in the future common sense can be brought to bear in both instances.

Congratulations to Jan Sked on receiving the ASGAP Australian Plants award in the Amateur Category. Jan received recognition, among other things, for her work as long term Queensland Study Group Co-ordinator and a total of ten years as ASGAP Study Group Coordinator.

Read all about it in Queensland Region Bulletin September 2007

