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Newsletter 55 June 2006

There are no prizes for guessing that this newsletter will have a bit in it about Cyclone Larry. At first we thought we would get out a special issue but, unfortunately, we have had far too much to do in an effort to get back to normal.

SEVERE TROPICAL CYCLONE " LARRY": FORCE FIVE

Don Lawie

At age 66 I have experienced three "fair dinkum" cyclones (not counting a typhoon in Hong Kong in 1966): Agnes in 1956, when I walked through an Alexandra palm forest which disintegrated around me after I had released our draught horses; Winifred in February 1986 which I shared with Pauline and our four children, here at home in Josey Park. And 20 March 2006 when Larry came through.

Tropical cyclones are a part of life in our area; we build and plan in the sure knowledge that, sooner or later, we will suffer from one. When Winifred came we had only been here for ten years and were still in the process of turning a cow paddock into a rainforest retreat and cassowary sanctuary. The wind blew steadily from the south all day and most of the night but caused little structural damage to our house. The surrounding rainforest was severely affected with many trees snapped high up the trunk, others uprooted, and branches large and small torn off. Within a few years the evidence of the cyclone was hidden in new growth: the snapped trees simply re-grew, the rainforest has evolved in a cyclone-tolerant manner.

The kids grew up and left home; Pauline went to Brisbane to attend the 4th birthday of our only grandchild. February and March are our worst months for rain, flooding and cyclones. The weather bureau first warned us of Larry on Thursday 16 March. It came in a straight trajectory, crossed the coast in the vicinity of Innisfail (about 30km in a straight line from us), blew across the mile-high Bellenden Ker/Bartle Frere Range and created severe damage to everything in its path from coast to Tablelands and inland. We had re-roofed our home 18 months previously and had taken the opportunity to strengthen and reinforce the upper timbers. We have a Cyclone Drill which we carry out when Bureau warnings sound serious: take the whirlybird off the roof and install a steel cap, bring the generator and fuel to the house, park vehicles under cover, pick up anything that is a potential missile, take down all hanging plants and store them, have a handy supply of rope, nails, hammers etc. to repair any breaches that occur. Do a final check and sit tight. We always have supplies of food, fuel etc. and alternative lighting and cooking since we are flooded in for several weeks each wet season.

Winifred blew steadily from the south so I stowed generator and tools on the north of the house. Larry blew unswervingly from the North and water blasted everything on that side in 300 kmph wind. The wind started about 6 a.m. and it was all over by 10 a.m. Had it continued any longer damage would have been catastrophic. We had little real damage: a broken window that allowed masses of rain in until blocked; the downstairs beer fridge blown open, big bottles of home brew smashed all over the place, and water and leaf debris forced through the tiniest of openings. Outside, the slide-on caravan was sucked out of the shed, picked up and thrown back at the shed - smashing several posts and causing the shed to collapse around the caravan.

Forest damage was massive. We are surrounded on three sides by tall rainforest and have planted local trees, mostly cassowary food trees, up to the forest edge. These trees cope by discarding leaves, then twigs, small and large branches and finally the upper part of the tree. They re-grow rapidly afterwards. Some very large trees however, mainly exotics, were uprooted and in falling caused others to go down. This resulted in a backyard of timber, on, over, or into the ground in a complete tangle. Some trees resisted the wind and are now dangerously exposed. (I felled a small one last week - the main trunk was 60 feet long and neatly dissected the garden shed which I thought was safely out of the way). The house was safe since we have only shrubs in its immediate vicinity but the lawn was covered in branches. Pauline will write elsewhere of the garden and shadehouses. Of course most of the trees supported epiphytic orchids, ferns etc.

The urban areas of Babinda and Innisfail and closely settled rural areas on the Atherton Tableland were seriously affected. When I finally got into Babinda there was hardly a house without a protective tarpaulin and many were totally destroyed. The three designated shelter areas - RSL Hall, Picture Theatre and 80 year old hotel - all suffered near terminal damage. Relief efforts were in place as soon as the wind stopped. SES, Army, Red Cross, service clubs all performed miracles of relief from immediate danger for people. State and Federal governments provided emergency money and the generous people of Australia have given twenty million dollars to the Premier's fund. Our isolated community of East Russell was cut-off by the flooded Russell River for a total of 31 days. We pulled together, cleared our road without outside assistance and worked as a team to help one another. SES was marvellous, doing a daily floodboat run with supplies, generator fuel, and people. We had two medevacs due to over enthusiastic clearing activity, and the moral support from outside via the media was lifesaving.

Pauline came home to an awful mess: I had managed to clear the immediate vicinity of the house and had extracted the caravan from the shed debris and rescued some of its contents, but was still operating on a temporary water supply and generator power until the day she arrived by delayed train. My time was much taken up by my duties as SES co-ordinator for this side of the river and this led me into contact with all our people, giving me first hand view of how ordinary people can cope with such a difficulty and concentrate on helping others.

From Pauline's perspective: I was not here during the cyclone; I arrived home after dark 18 days later. The following day, a rare fine day, I went to look around the yard. Although we have lived here for close on 30 years and the lawn and garden slowly replaced cow paddock according to a plan, I could not tell just where I was - where one garden bed ended and another started. With the tops of trees and many broken branches at my feet, I could not see where the trunks were, which top belonged to which tree. I've had great delight in the past clambering around fallen trees looking for treasure, but this was different.



I've made no attempt to work out how many plants I've lost. A *Dendrobium tetragomum* which once supported 16 flowers at one time is sandwiched between the tree trunk and the ground. I found a tiny piece of *Thrixspermum platystachys* and took it to my shade house, together with a bravely flowering *Schoenorchis micrantha*. They are still there somewhere among the survivors. One of the earliest orchids I ever acquired, a *Bulbophyllum gadgarrense*, was blown off the mount and disappeared for ever.

Don did a fantastic job of collecting all the plants from around the house and moving them to somewhere "safer". This one could not be moved - not even by Larry. It is a *Cymbidium canaliculatum* which comes from dryer climes so is positioned under the eaves on what we've always believed to be the lee side of the house. The glazed length of pipe catches all the afternoon sun. The plant was doing so well it had to be protected from predators by chicken wire. Don added the star picket and ties, now known to withstand a category five cyclone.



Don's shadehouse has rows of roofing screws along the top of the frame. He'll get to it when the shed and the weather allow.

My shadehouse lost its alsonyte roof and most of the sides were left flapping, but the shadecloth roof remained intact. Don very gallantly reattached the shadecloth on my shadehouse and those plants which could withstand the constant rain seem to be OK. He also managed to rescue some of the larger plants, *D discolor* and exotic dendrobies, by chainsawing sections from trunks and standing them together. At least they are alive. Others

we have just had to let get on the best they can. There is no guarantee they would be better off in the shade house and we no longer have the trees to attach them to even if we had the time. With plants I had on crotons, I cut off the sections with orchids attached and just stood them up inside the foliage which has gradually died and dropped, giving them a chance to acclimatise to more light when it finally turned up. The *D bigibbum* so treated is flowering better than ever.

The first orchid I found doing well was a *Pholidota imbricata* which was just recovering from being moved from a too dark spot. It had a long spike promising much enjoyment of magnificent flowers not seen for some time. I remembered it again two months later, the string of dehisced seed pods confirming its earlier promise. It's hard to believe but sometimes, just sometimes, other things are more important than orchids.



One plant whose delights we did not miss is this *Oberonia titania* with its 14 inflorescences. The lemon tree which has been its home for about 12 months is on the "path way" we must follow into the scrub to secure our water supply, a job I had to undertake an unknown number of times during heavy rain Monica gave us. The inflorescences take a long time to develop and the flowers open gradually from the tip up, giving months of pleasure. It is visible from the house, especially when it catches the rays of the late afternoon sun, and it draws me like a magnet. I then have to view all the other orchids on the citrus. Especially lovely now, smothered in flowers, is the *Bulbophyllum macphersonii*, another rescue.

I used to be adamant that epiphytes should not be put on the working fruit trees, but that did not stop orchid seedlings appearing and I could not pull them off! I now feel that the trees are serving a worthwhile purpose and after the depredations of the fruit fly, cockies and cassowaries any fruit is a bonus.

Television pictures seen in Brisbane of Henrietta Creek brought home to me what I could expect to find on my return. This spot has always been a treasure trove, a favourite place to stop on our way home from Tablelands excursions.

All of our northern members suffered to some extent from Cyclone Larry. Mary was heard to declare. "I'll never plant another tree". So where's she going to put her orchids in future? From others who are also members of The Atherton Tablelands Orchid Society: Mark had many trees pruned, but no damage to his home or bush-house or orchids. Chris says they had massive tree damage that will take months to clean it up, but the many orchids they have on trees around the garden survived intact. Garry and Nada had numerous trees broken off and a few up-rooted, bush-house roofs torn but no plants in them damaged. Looked a bit like the Tolga Scrub before the tree-loppers moved in. Barbara had no damage to bush-house or plants. Actually she said the orchids suffered no extra damage above what she has already inflicted on them. (Thanks for that Noel)

Nada wrote to us during the event: "With Cyclone Larry raging outside, the power off, and the garden being trashed, I thought this would be an opportune time to respond to the latest newsletter. I am writing by four candle power. Hopefully this activity will take my mind off what is happening to the garden.

"The newsletter is always eagerly opened on receipt and perused with interest. I like to go right through it if time permits, or scan it quickly and make a mental note of a particular item of interest if other needs are pressing. This mental asterisk triggers later and I then pick up the newsletter again and read it thoroughly.

"Your appreciation of the efforts of the liaison officers was noted and it stimulates me to say a sincere thank you to both of you for the enjoyable newsletters you present. I particularly enjoy the humorous style of your articles. Pauline's Spangled Drongo episode was great – and her comment that an orchid is never dead until it has returned to dust is so true. They are particularly tenacious of life. The above adage reminds me of Doreen who always says – in relation to plants in general – 'they surprise you sometimes' – when advising people not to despair about a plant which appears to be undertaker material.

"Your various snippets in the current newsletter, Don, gave me some delightful belly chuckles.

"My *Spathoglottis* – original was a gift from you both many years ago at a Christmas break-up at our place – have formed a magnificent clump in full sun at the end of my pergola where they get the edge of the watering. In the summer of 2005 they flowered profusely and for an extended period, but this season they have produced only scattered inflorescences. I have noticed the Black and White Tit butterflies visiting and have found the larvae from time to time. However, I feel that they deserve their chance at proliferation every other year. If I never saw any flowers, I would have to give them a bit of a hurry-up.

"With regard to the *Dendrob. beetle*, my attitude is much more philistine. Purely, I think, because the *Dendrob.*s that it attacks do not flower so profusely. When a hardly little *Dendrobium johannis* sends up its effort for the year, I find it difficult to be sympathetic to the biological needs of those gaudily dressed ravenous vandals. So they are consigned to perdition between a rock and a hard place, literally.

"You mentioned sowing *Cymbidium madidum* seeds and this triggered another bit of information from my garden. Originally, there were none of these orchids on our block. Over the years, however, we have found small plants (just a couple) germinated in dead areas of some trees in our garden. This was before we had any flowering specimen here. Since our other plants have matured, we have found sporelings in mulch in a garden bed, and this year there are several starting life in a stump which I have at the edge of a bed.

"All this talk of germination brings me to another topic – liquid humus. Some time over a year ago, Garry began putting this elixir through our spray lines and the response it generated throughout the garden was nothing short of amazing. One of the many interesting results was the noticeable increase in fungi and the resultant increase in the germination of terrestrial orchids. The first, and most obvious, of

these germinations was *Epipogium roseum*. They appeared in masses wherever there were piles of mulch. We had had appearances of this dainty orchid for a number of years, but never in such multitudes.

"Other terrestrials that have made increased appearances are *Malaxis latifolia*, *Geodorum densiflorum*, *Zeuxine oblonga*, and *Cheirostylis obvata*. This last species first came to our notice a couple of years ago when we visited Barney Springs (east of us). Garry took Len Lawler to see it and try to get a name for it. Some months later while doing some planting, Garry found two of these orchids near where he had dug a hole. A few days ago he found numerous plants of *C. ovata* under the trees in the same area.

"As well as creating a beneficial environment for terrestrial orchids, this magic brew has produced favourable responses from the epiphytic orchids as well. These have become more enthusiastic about life by sending up healthy canes, or bulbs, and flowering has also increased. These activities have been unavoidably obvious in respect of *Dendrobium bigibbum*. At the present our Cooktowns are flowering more profusely than we have ever seen them do here.

"Several rainforest epiphytes which I have in my pergola have recently produced seed pods for the first time. These include *Oberonia complinata*, *Bulbophyllum lilianae* (?) and *Thrixspermum congestum*. The seed pod of this latter species is about 5-6 cm long, very thin and longitudinally ribbed and grooved."

"My *Sarcochilus falcatus* has also produced a seed pod. It is similar to *T. congestum* but much more robust (thicker and somewhat long), has ribs and the whole pod has a twist to the ribs and grooves."

Nada continued her letter after the cyclone with a description of their tree damage, summarised above by Garry.

We would like to thank the very many people who contacted us to see how we fared in the big blow. As you can see we all seem to have been very fortunate, with no real personal damage but a massive on-going clean-up job. Don has recovered the lawn around the house and is gradually extending his efforts with about one-third of the remainder looking a bit like lawn again. The tree damage is another story.

Margaret Bradhurst has had difficulties of a different kind but took the trouble to write:

"Orchids had to take second place for most of the year, but I am getting out a bit more now and enjoying my 'therapy' – i.e., getting out into the bush searching for native orchids!

"I have been introduced to a young man who has become very interested in orchids through his interest in photographing snakes. While photographing the snakes he noticed these small strange flowers at his feet, but didn't know what they were. National Parks put him in contact with me and I am enjoying showing him the ropes and sharing orchid information and locations with him. He is 'hooked'. Our latest find was a quite large scattered colony of an albino form of *Chiloglottis diphylla*. I needed David Jones in Canberra to positively identify it for me – it is amazing the range of colour forms in the one species. It goes from a total dark reddish brown to reddish/brown with green and to the albino light translucent green, and various combinations in between. We have photographed all the different colour forms. We are now starting to find colonies of *Pterostylis* rosettes coming up everywhere, also *Acianthus* and *Corybas* leaves. I never fail to feel the thrill of discovering a new colony of orchids."

We all know how you feel, Margaret, and we are delighted to hear that you can now concentrate on the orchids and let someone look out for the snakes at your feet.

MYCORRHIZAL FUNGI AND GERMINATION OF ORCHID SEED

Don Lawie

A NSW member has asked us whether fungi are essential for orchid seed germination and, if so, does each orchid require a specific fungus. We have mentioned in previous Newsletters (No 46, April 2004) the vital part mycorrhizal fungi play in orchid nutrition, particularly with regard to saprophytic orchids. Germination of orchid seed is certainly facilitated by, but can occur independently of, the presence of fungus. Plants germinated in the absence of fungus are reported to be poor growers and subject to early death. Some orchids require fungal assistance not only at germination but also throughout their life.

Sexual propagation of plants always involves a male and female plant and the subsequent production of seed. Nature has devised a myriad of ways to ensure that the next step - germination - is successful in the continuation of each species. Seed is frequently enclosed in a container (fruit) that has other ingredients attractive to the seed disperser. Humans are very efficient dispersers of, e.g., tomato seeds which pass through their systems and emerge ready to germinate. Various birds and animals play the same part, often being able to eat fruits which are poisonous to humans or other animals. Some are so large that they can only be ingested by a large bird or animal. In our area the favourite food of the cassowary is *Acmena graveolens* (Cassowary Satinash), a very large rainforest tree with fruit often over 110 mm in diameter - no difficulty for a cassowary to swallow. The fruit is mostly a large seed with a thin testa and the cassowary deposits this, along with some fertiliser to aid germination, as he moves about his favoured territory (often, our backyard.) Some fruits float, e.g., coconuts which can traverse an ocean and still germinate.

In contrast, some plant seeds are tiny enough to need no dispersal agent other than the wind, and orchids are a prime example of this class. The orchidaceae have refined their fruit production to a dry capsule, of no interest to birds or animals. The capsule contains some millions of tiny seeds, each of which consists of little but a spark of life. To conserve weight and size the orchid seed contains no nutritional endosperm. The wandering, wind-dispersed orchid seed has a number of requirements when it alights: it must find a site that will be suitable for the growth of a mature plant since, once begun, the life of an orchid will be played out in the same position. The site must have access to light, air, moisture and nutrition. Most importantly, it must also harbour a fungal body that is appropriate to the germination of the orchid seed. Fortunately, if the previous parameters are fulfilled it is likely that a suitable fungus will have also found the site suitable and germination will go ahead.

The fungal hyphae can enter the orchid's seedcoat and initiate germination; as the protocorm (orchid seedling) develops, the fungal hyphae supply nutrition in the form of dissolved complex carbohydrates and the protocorm's developing roots supply a haven for the fungus. Hence the reason for the poorness of afungally germinated orchid plants. It is a chancy business for an individual orchid seed to find a site that fulfils all its requirements, and so the parent plant covers its bets by producing a myriad of seed in the hope that at least a few will germinate and survive. An analogy occurs in the palm world: The Sago Palm, *Metroxylon sagu*, of SE Asia and New Guinea, grows for about 40 years. At maturity the palm expends its entire life force in a massive terminal inflorescence, producing many thousands of fruit, then dies. Orchids are more cautious and conserve their energy by producing "incomplete" seed and can produce several fruit year after year.

If we wish to replicate nature and grow orchid from seed it would follow that we need to supply the requirements listed above; air, light, moisture, nutrition present no problem but from where do we source the necessary fungus? To ensure that we get the correct fungus, the best method is to find a mature specimen of the targeted orchid. If part of a terrestrial colony, the surface or slightly subsurface soil should be productive. If an epiphyte, a scraping from the largest root area will suffice. I have found that the simplest method, with potted orchids, is to sprinkle the seed on the surface of the pot and await results. Sooner or later some seedlings will appear: patience is a pre-requisite for orchid growing. In our Wet Tropic climate, we have found a particularly close affinity between the epiphytic orchid *Cymbidium*

madidum and the (also epiphytic) fern *Platynerium hillii*. It is not uncommon to find these two plants growing as one on large rainforest trees. *C madidum* flowers and fruits profusely, the fruit being up to 6cm in length and taking almost a year to mature. The fruits picked at the point of dehiscence and the seed sprinkled on *Platynerium hillii* plants frequently result in young *Cymbidium* orchids. *P hillii* in turn have an affinity for citrus trees and appear, thanks to windblown spore travel, as young plants on our Melicope and orange and lemon trees. Truly this is the easiest method of orchid propagation from seed.

Les Nesbitt's article *Culture of Fungus Dependent Terrestrial Orchids* would be of interest to anyone wishing to grow them.

MT BECKWORTH GREEN-COMB SPIDER ORCHIDS:

Kate Vlcek

This drawing shows the flowers of three individual plants, all growing in a granitic grassy woodland at Mt Beckworth Reserve, near Clunes in Central Victoria. The Reserve is well known for its spring wildflower and orchid display. There is a raging debate between ANOS members as to the correct labelling of the flowers shown; some feel that it is *Arachmorchis parva*, while others feel that it is *A phaeoclavia*, and whether or not a difference exists has also been discussed (a molecular difference has been established). I am labelling them *A parva*; although the flowers are probably a little larger and more brightly coloured, this local variation at Mt Beckworth has been noted in the past by ANOS members.

Arachmorchis parva (formerly *Caladenia*) known commonly as the Small or Green-comb Spider Orchid is a fairly widespread, common and variable terrestrial species in South-east Australia. Here it begins flowering in the last week of September, peaking in mid-October. Prior to flowering, a single hairy leaf appears, followed by the very furry flowering stem. The plant grows to a rough height of about 15 cms with a comparatively large, upright flower. The lateral sepals are often held in the 'crossed' position. The petals lack osmophores and the height of the labellum fringe does not exceed the height of the column. There are four rows of calli. The overall colour is greenish with reddish or maroon markings. *Lophochelus anilitatus* is the pollinator wasp species.

On a more personal note now – these were the first orchid species I really saw and appreciated as an adult and was so impressed that I became instantly hooked. They are always a pleasure to find, being of such striking and spectacular form. These flowers can be surprisingly difficult to see at first, with their subtle colouring blending into the leaf litter, but usually after you spot one the rest reveal themselves. They are quite gregarious; although solitary specimens are not too unusual I generally find them growing in smallish groups of five or so. However last year (2005) was a particularly good year for them and I saw groups of up to 15 and maybe ten times as many overall plants flowering as usual. This was not necessarily the case with other orchid genera at the Reserve. I also find it interesting to note the overall similarity in form between these 'spider' orchid flowers and those of *Dendrobium tetragonum*, with the extended sepals. Having seen both northern and southern 'spiders' in the wild, I can safely say that they are of equal beauty.

Thank you Kate for your beautiful painting of this *Arachmorchis parva*

Subs are now due for the year 2006/2007



Arachnorchis pava



Kate Vlcek

