

Our Favourite Orchid

By K. Yin and Sau-wan Chan

It all started with the arrival of an email from Sau-wan's sister who lives in Hong Kong with an article about the Flying Duck Orchid. The article contained lovely pictures of this orchid taken from different angles. It stated that this orchid from Down Under was as unique to the Australian flora as the kangaroo and platypus were to the Australian fauna. The orchid even had a stamp from Australian Post released in its honour! The email ended with the question asking us if we had seen the orchid. This really presented a serious challenge to us and we were both embarrassed and curious by this - embarrassed because of the fact that we had neither seen nor even heard of this orchid after having lived in Australia for nearly 40 years. We love the Australian bush and regard ourselves as having at least above average knowledge of Australian flora and fauna amongst our friends. By then we had started growing orchids as a hobby (Sau-wan's sister knew about this and regarded us as experts on orchids) and we were members of two orchid societies including The Australasian Native Orchid Society which we had just recently joined. "If the Flying Duck Orchid is so unique and has such a reputation overseas, how come it has evaded us for so long?", we found ourselves asking the question. We decided that we had to do something about this orchid ourselves. This started our two-year quest for finding out more about this orchid!

We started by making enquiries about the Flying Duck Orchid amongst our orchid friends. To our surprise, many had neither seen nor heard of this orchid, and for the few who had actually seen it, we were told it was an impossible orchid to cultivate because of its dependence on some special fungi. That at least explained why we had never seen this orchid in shows and nurseries. To see this orchid for ourselves, we realized we had to find it in the bush, in its natural habitat. According to the orchid books, it is regarded as a rather common orchid with wide distribution in eastern Australia, Queensland, New South Wales, Victoria, South Australia and Tasmania. In the first year, we visited reserves and nature parks in our neighborhood on a regular basis, looking for orchids. We also joined the orchid excursions organized by our orchid societies to different parts of Sydney and country side NSW. A whole world of terrestrial orchids was open up to us. Even in the local reserve not far from where we live, we discovered large colonies of different species of *Pterostylis*, *Acianthus*, *Corybas*, *Cyrtostylis*, *Thelymitra* and others. This was amazing as these orchids were found growing in places we often frequented but failed to notice until then. In the various excursions, we saw more terrestrials and epiphytes, like *Dockrillia linguiforme* growing on the rocks, different species of *Caladenia* often found just by the roadside and *Diuris* spp. with yellow- coloured flowers in close association with many *Acacia* plants and the various *Chiloglottis* species with parts of the flowers resembling female wasps. By the end of that year, we still failed to locate the Flying Duck Orchid. However, we had a very rewarding year as our knowledge of terrestrial orchids increased. This orchid has led us into the real world of native orchids, enabling us to see them in their natural habitats and to marvel at their amazing abilities of adaptation for survival.

Next year, we had better luck and saw the Flying Duck Orchid in three separate locations. Firstly, we were shown a small colony of the orchid in a regional forest reserve by the park ranger, Alf. He was introduced to us by a friend of ours who knew Alf very well as both of them were members of a "Friends of the Reserve" group that were spending weekends building a better track through the reserve for visitors. Alf, according to our friend, was "married to" the reserve, spending a lot of his spare time on different projects improving the reserve. It seemed to us that he knew all the plants in the reserve, where exactly they could be found and why they were special. Alf first eyed us suspiciously and then told us quite bluntly that he didn't like people from orchid societies because of his previous bad experience with them. Apparently he had previously given tours of

the reserve to members of orchid clubs and soon after every tour, various orchids were dug up and he had sworn not to entertain such request anymore in future. We suspected it was out of the friendship with our friend that Alf made an exception and took us to see the Flying Duck Orchid, a small colony fairly close to the roadside of the reserve. It was early in the season and so we only saw a few emerging leaves of the orchid



plants. The leaves were not green but had this rather unusual pale brownish colour and lay fairly prostrate to the ground amongst the litter. They blended so well with the surrounding that it was nearly impossible to be spotted unless you knew what you were looking for. We were excited by this promising lead and planned to return to see them at flowering time. We went back to the same site a few times during the year and ran into Alf on nearly every occasion: - (Now we were convinced that Alf actually lived in the Reserve!). Alf soon warmed up to us and started showing us different orchids (and other plants) in the Reserve: Leek Orchid, Gnat Orchid, Tangle Orchid, Beard Orchid. Alf knew the orchids all by their common names, which very often makes more sense to the layman.

Then, to our utter dismay, when we returned to the site after a couple of months, we found that the area where the orchid colony was located was covered by road construction materials as a result of some recent road work and the small colony of Flying Duck Orchid was completely buried underneath. We started searching the surrounding areas in the hope of finding other colonies. We kept telling ourselves if the Flying Duck Orchid was as common as some of the reference books were telling us, there might be other colonies not too far away. However, after repeated searches, we failed to locate any. Next time when we met Alf, we mentioned to him the incident and asked him if there was another colony of Flying Duck Orchid around the place. He just smiled knowingly but kept silent. We didn't persist with our questioning, knowing that if there were others and if they were far from the roads, they were in good hands and should be safe.

We had better luck after getting detailed instruction from a friend, a keen photographer of terrestrial orchids who saw the orchid in bloom in Myall Lake National Park, north of Sydney only a week before. It was quite a large colony with up to a hundred inflorescences. We felt a bit disappointed at first as we approached and got close to have a



clear sight of the plants, because of the small size of the flowers. However, this anticlimax was soon replaced by amazement, especially when we sat down and admired the amazing sight in front of us. How closely each individual flower resembled a duck in flight! What a sight it was seeing hundreds of these ducks flying up towards the sky right in front of us against the rising morning sun. We sat there for a long time pondering whether there was an evolutionary basis for the flowers of this orchid to take on the shape of a duck. The orchid reminded us of the spontaneous utterance nearly 200 years ago of John Lindley, the distinguished orchidologist: "What can they all be for?", when he first encountered the spirals (labella and columns of the flowers) dangling from *Cycnoches maculatum*. For years, scientists have been intrigued by the floral modifications and functions of orchid flowers. Based on the length (30 cm) of the nectary of *Angraecum sesquipedale*, a native orchid of Madagascar, Charles Darwin predicted the existence of its pollinator, *Xanthopan morganii praedicta*, with a proboscis capable of extension to a length of nearly 30 cm, 45 years before its actual discovery. We were aware of the pollination mechanism of the Flying Duck Orchid and knew that the labellum (duck's head) acted as a trap for any unsuspecting sawflies which were looking for mating partners. So we had to convince ourselves reluctantly that the "flying duck" resemblance might just be all in people's imagination. However, we still couldn't help marveling at such coincidence in nature.

Later in the same year, we saw the orchid for the third time in a friend's backyard. Knowing that we were keen to see the orchid, Mike invited us to his place when the orchid was in bloom. Being a native orchid enthusiast, he has kept his acreage "backyard" largely as undisturbed bush land and he knows exactly where the different colonies of orchids are. He told us, from his experience, conditions of the Flying Duck Orchid could vary tremendously in different seasons and it was a particular bad one the year before. We had a very leisurely afternoon enjoying the sight of the flying duck orchids as well as other terrestrial orchids. We knew that it was towards the end of their growing season and very soon they would vanish from sight throughout the whole of summer before the re-emergence of their inconspicuous leaves next spring/summer, like they have been doing for thousands of years.

After "discovering" the Flying Duck Orchid for ourselves, we started to worry about its long-term well being and the long term well being of the other terrestrial orchids. In our long search for the Flying Duck Orchid, we had first-hand experience of the various threats affecting its survival and the survival of many other terrestrial orchids. Many of the reserves and nature parks we visited were heavily infested with weeds. On many occasions we found terrestrials like *Pterostylis*, *Calochilus*, *Acianthus* growing amongst and in competition with exotic weeds. We witnessed instances of vandalism: colonies of *Pterostylis nutans* being dug out by animals or "orchid lovers". In many instances, their intricate skills of camouflage became their downfall as we witnessed whole colony of Flying Duck Orchids being buried alive. The irony of this incident is that the culprit was actually unaware of what he/she had done! Outside the reserves and national parks, their situations are even direr. They have been and are still under constant threat of habitat destruction due to various human activities, namely land clearing, mining, agricultural and grazing activities. These have led to the decimation of many terrestrial orchids in Australia. What are left are still being adversely affected by modification of their habitats, like changes in the conditions of the soils due to activities such as compaction, soil acidification/alkalization and changes in nutrient balance as a result of fertilizer application. Unlike the epiphytes, terrestrial orchids live in the soil and are therefore highly influenced by soil conditions. These changes in soil conditions due to human activities can affect the orchid directly or equally importantly, indirectly via their effects on mycorrhizal fungi which are so much part of their survival. We are concerned that many current attempts of re-introduction of terrestrial orchids to their former locations might not be successful because of the permanent changes in the soil conditions like pH or compaction status. Some of us may be familiar with the fate of *Diuris fragrantissima*, the Sunshine Orchid, claimed to be Victoria's most beautiful orchid and was once a very common terrestrial orchid gracing the vast grassy plains to the west of Melbourne. However it suffered a catastrophic decline in abundance since European settlement and at one stage the natural population dropped to 30 plants, found only in one location. This is only one example that has been documented, but there might be many others that have also suffered the same fate and even worse, to the point of no return: extinction. In NSW, 66 terrestrial orchids are currently listed as "threatened".

It would be nice if we could cultivate the Flying Duck Orchid. We see part of the solution to conserve many of the terrestrial orchids and hence to secure their future is to be able to grow them successfully under cultivation.

It is now recognized that conservation by cultivation has a number of benefits for conserving threatened plant species. Successful cultivation of these orchids will make education of and promotion to the public easier. The increased availability of the orchids via cultivation will reduce illegal collection and production of sufficient tubers/plant for future re-introduction projects. Unfortunately, cultivation of some terrestrial orchids, including the Flying Duck Orchid is handicapped by their strong dependence on mycorrhizal fungi. So far, to the best of our knowledge, attempts of cultivating the Flying Duck Orchid have been unsuccessful. Lack of persistence is the reported problem as the orchid might grow for a couple of seasons but became weaker with time and finally die off. We are aware of recent research in the development of better inoculation techniques so that orchids can be grown in culture with the necessary mycorrhizal fungi. Some early indication is that the successful cultivation of mycorrhizal fungi dependent orchid is not as simple as merely putting the orchid and the right fungi together. Suitable cultural methods for the orchid as well as the mycorrhizal fungi are both required to grow the orchid successfully. Therefore, more research is needed but this has been handicapped by insufficient funding support. As far as we know, the mycorrhizal fungi associated with Flying Duck Orchids have not even been identified. Therefore in the foreseeable future, the Flying Duck Orchids can only be admired in their natural habitats. We just quietly hope that meanwhile the “Alf” and “Mike” of this world will be able to preserve this very unique orchid for future generations.

The Flying Duck Orchid will always be our favourite orchid. In our two-year journey of searching for it, the orchid has brought us closer to nature. On a personal level, all those bush walks we undertook looking for orchids have brought back fond memories of the time when we were undergraduates and first met each other. As part of Plant Ecology course that we were both enrolled in, we spent a lot of time wandering into the countryside of Hong Kong trying to identify the different plants. What started as the excuse to see more of each other developed into a lifelong common interest in plants and plant ecology. In the last two years, we have enjoyed all those orchid field trips when we saw a whole range of terrestrial and epiphytic orchids in their natural habitats. We have to count ourselves lucky as we still have so many native orchids growing in our bush land. To us, bush walking has taken on another dimension, depending on the time of the year; there are always different orchids in bloom just round the corner waiting to greet us like old friends. In the course of knowing more about this orchid, it has changed our perspective of orchid growing as a hobby. We now do not just merely admire the exquisite beauty of the orchids but also their intricate mechanisms of survival and delicate balance with nature. We are concerned about their survival and sustainability in their natural habitat and hoping for better ways of conservation coming soon.

Acknowledgement: In our quest for seeing the Flying Duck Orchid, we are grateful for the assistance given by Mike Harrison, the late Tony Rogers and the dedicated ranger Alf. Last but not least, we thank Sau Shan (Sau-wan’s sister) whose email started this memorable orchid journey for us.

Epilogue

We took many photographs of the Flying Duck Orchid and sent them to Sau Shan. She replied promptly, “They are really cute. Have you grown them in your garden yet?” We can only wish!!!

