

Habitat - protection or destruction.

Alan W Stephenson
Conservation Officer
Australasian Native Orchid Society (ANOS)
astephenson@vtown.com.au

After writing the heading for this story I thought I had said it all, as there is no other cause more damaging to any species than the destruction of the habitat in which that species exists, regardless of whether the species is an orchid, an earthworm or a white Rhinoceros.

Most persons involved with orchids who are tinged with even the lightest shade of green will be aware of certain events, which have dramatically changed the environmental landscape. Many of these events were perpetrated upon this entity known as an Eco-System long before most of us were born. They are, to name a few, the introduction of rabbits, foxes, prickly pear, cane toads, bitou bush and hard hoofed animals. However, those who introduced these pests have done the greatest damage to this precious eco-system and there are no prizes if the casual reader thinks the perpetrators might be "us", so called modern man.

This analogy is not restricted to Australia, for most modern nations have experienced some form of pest, introduced for a variety of reasons. These might be as varied as something to hunt, as Australian possums introduced into New Zealand for that reason, have been recognised as a pest for many years. Our *Melaleuca* species somehow found their way into the Florida Everglades and have been partly responsible for the reduction of the total area of that magnificent natural wonderland.

The "us" part of the problem should be obvious, as it comes in the form of clearing the landscape to suit modern man and the comforts to which he has become accustomed. This clearing might be for the production of food, a new school, sporting field or a freeway for the motor vehicles we all find so necessary in our increasingly transient lives, as our growing affluence

has given us the ability to go far and see things. Ah yes, remember when the Gold Coast was just another area of wetland and Lake Pedder inaccessible to most. The general feeling was at the time as stated by the Chairman of the Tasmanian Hydro Electricity Authority was, "we can improve on that". I thought to myself at the time, he cannot improve on nature however; it can be changed and often is, usually in a way detrimental to the *in situ* species and the landscape in general. And now to the point of this exercise, as I have in recent years become personally involved with this type of exercise although not with the first species I will mention. That very statement was made very recently by a developer with regard to the habitat for *Prasophyllum affine*.

Prasophyllum uroglossum is a terrestrial species known only from a certain area of New South Wales, in particular the Southern Highlands, which by modern freeway is less than 90 minutes drive from the centre of Sydney. *Prasophyllum uroglossum* prefers a habitat on the periphery of peaty wetlands and silty loam, among low grasses and rushes with scattered *Leptospermum* sp. (Ti-Tree.) The story goes like this. The then owner of the farm, which abutted this wetland then known as the Wingecarribee Swamp, saw an opportunity to turn the peat into money and proceeded to mine and sell the peat. He started by just skimming the peat from the surface, letting it dry, and bagging it for sale. However, a neighbour whose property also adjoined the swamp took the mining to a different phase,

increasing operations to a much larger scale. All went well for the first year or two but then authorities realised the wet had been removed from the wetland and the orchid habitat was seen to be suffering as a result. A request was made by local and state bodies for the cessation of peat removal. This did not happen very quickly and the government of the day and a subsequent administration were lax in the application of the laws at the time. During this period of bureaucratic dithering, the peat mining became unprofitable and the farmer subsequently decamped leaving a financial minefield behind him, with unpaid employees and an environmental mess, unable to be repaired.

The peat mining activities drained water from the swamp, drying out the orchid habitat and now we are left with less than 24 individual plants and according to one government official "I cannot see how we can retrieve the situation after all this time has passed and the damage done". No matter how much we love our orchids, this species as many others, has no horticultural application (read, no financial return) and the reparation costs would be excessive for such a small number of plants. I would like to think the situation might be repaired by natural means (leaving it alone) but even I am not that naïve. Compare this situation with the recent auction of the first 100 seedlings of the much vaunted Wollemi Pine. These seedlings were auctioned by Sotheby's for the staggering sum of \$1,059, 000. I wonder if any orchid species could attain that level of notoriety. If that much money could be channelled to orchid conservation the number of species currently under threat would be drastically reduced.

Another species with which I have been more closely involved is the Eastern Underground Orchid, *Rhizanthella slateri*. Readers of Australian orchid magazines should be familiar with this species but despite it receiving Threatened Species

status on December 6th 2002, one site is now a vineyard and another is still under threat from four lanes of a freeway. Various articles by a range of people have been written about this species since its re-discovery in Vincentia in 2001 and Bulahdelah in 2002. (See O/A August 2002, December 2002, February 2003).

Despite the intended release of the Environmental Impact Statement for the proposed by-pass of Bulahdelah in June 2002, nothing has been produced to this date. It was thought the change in portfolios and ministerial responsibilities following the New South Wales state election in March 2003 might be reason for the delay but those matters are well in hand and one can only hope the delay is for all the right reasons.

On the local scene, *R. slateri* is almost certainly in trouble as the Vincentia site is now a vineyard with its own dam. Currently a caravan is on site as a precursor for a more formal residence. I wrote about its plight in a local peace and environment Newsletter (The New Bush Telegraph) and was immediately contacted by the Threatened Species Officer for the local Council who informed me of his dislike for my story. I then asked him how the orchid was to be protected from the changed hydrology of the site due to the ploughing required for and the setting up of the vineyard and whether he thought it might be profitable. He stated the profitability was not a requirement when assessing the Development Application. I also mentioned the probability of contamination from spray drift and leaching of herbicides, pesticides and fertilisers used for the production of grapes. He again indicated those matters were also not a consideration of Council. As far as he and Council were concerned, the fact that a fence was to be erected at a distance of 20 metres from the tree under which *R. slateri* was found, was sufficient protection and all that was required of them. As a point of interest, when clearing

of the area for the vineyard began I went to take some photos, just for the record. I stood across the road and fired off a few shots and suddenly the driver of the bulldozer came charging at me screaming and shaking his fist. Of course, I departed, as I had the photos I wanted and did not need to be involved in any aggravation. However, a thought occurred to me as I was driving away. If the land clearing was legal as permitted under the DA, why did the driver get so agitated? Perhaps he was a little sensitive to the possibility of destroying a unique and rare orchid.

Since the initial development of the vineyard, no work or maintenance of any type has been undertaken on this site. Weeds are growing where grapes were intended and one must wonder just what was in the mind of the owner when he initially applied for the right to develop such a sensitive site. As I write this story I have been contacted by the Department of Environment and Heritage to comment on the submission to consider *R. slateri* for listing as a Commonwealth Vulnerable species.

Another *Prasophyllum* species has been a source of irritation for five years. It is *Prasophyllum affine*, once thought to occur at one location in the Jervis Bay region. As luck would have it, I stumbled across this species a few years ago but the luck turned sour when the site became the focus of a now existing \$12M Leisure Centre and a proposed large regional shopping complex (\$60m) with an adjacent 900 lot residential sub-division. It was suggested to dig up the orchids and replant them in another location but when the biological requirements of the species were explained to the unknowing, those thoughts quickly evaporated. *P. affine* is a normal deciduous terrestrial species but problems arise due to a significant reliance on *mycorrhiza* and the fact it does not self-pollinate or reproduce in the normal vegetative style with the proliferation of tubers. Added to this, little was known of its

pollination requirements until entomologist Dr. Colin Bower conducted a study in the 2001 flowering season with funding provided by the then landowner.

That study has now been complemented by a further study of the habitat requirements of the pollinators, the main pollinator being *Thynninae* wasps. Original studies of pollinator movements indicated they had the ability to travel only a distance of approximately 70 metres, however, recent data now shows they can occasionally travel up to 200 metres. This study has focussed on the breeding and feeding preferences for the wasps and likely refuge areas in times of stress, eg drought, fires etc. These are important factors as in the 2001 flowering season I assisted officers of the National Parks and Wildlife Service (now Department of Environment and Conservation), with extensive surveys of *P. affine* at several sites and a total of 1146 individuals were counted, with almost 300 on the Vincentia site. These are sprinkled over the 26 hectares, which would make the construction of a large shopping centre very difficult. This brings to notice one of the main features of any environmental assessment, "if we look after the habitat, the species will take care of themselves". This is true regardless of whether the species is flora or fauna.

At this juncture one fact regarding terrestrial orchids and surveys for them must be noted. To conduct a proper, honest and realistic survey, the site in question must be surveyed over a period of at least three and preferably five years. As no level of government, or a commercial entity is willing to wait five years to grant permission to develop any site, particularly with the developers applying pressure chanting their constant mantra of "it's costing us money and what about the jobs this will create", even three years is considered an excessive time frame. This time frame is required so as to accommodate at least one year of drought, bushfire or perhaps a

flood. In the Shoalhaven area in which I live two of these factors have been realities in the last two years. Over the last two years the value of the time frame has been made very obvious due to the previously mentioned factors of drought and fire. Fires devastated large areas of the Shoalhaven Shire in the summer of 2001 and returned again to repeat the damage in 2002, culminating in the worst drought in this district and much of NSW in 100 years. The end result was that in the good survey year of 2001 orchids proliferated but the opposite occurred in 2002 as on the Vincentia site, not one individual plant of *P. affine* could be found in flower and the other sites fared no better.

How careful can one be with a threatened species? Some even ask why it is a threatened species. To this I say, *P. affine* was originally discovered by Robert Brown in 1803, between South Head and Botany Bay in New South Wales, tell me what is now found in that location. After thinking most will say houses, roads, schools, hospitals, a prison, several good golf courses and then the realisation hits home. The habitat of the orchid is now heavily urbanised and all individuals in that original habitat locality are extinct.

The Vincentia site was the subject of an extensive Environmental Impact Statement but somehow *P. affine* was not noted. At this point please use your imagination as to why it was not recorded. But to stimulate the imagination I will give a brief explanation. Historical knowledge indicated the presence of two threatened species of orchid *in situ*, *Arachnorchis* (syn *Caladenia*) *tessellata* and *Cryptostylis hunteriana*. The former is found in flower in late September to early November and the latter from late November to early January, with *P. affine* in flower between these times. All species are deciduous with *Cryp. hunteriana* being a saprophyte. The survey was conducted in March six weeks after a wildfire had decimated the area and no more needs

to be said. *Arachnorchis tessellata* was not located and is now probably extinct in that immediate area, as the site of its original local discovery has been a (now defunct) *Pinus radiata* plantation since 1969. *Cryptostylis hunteriana* is still evident with an adjacent site supporting an excellent colony of over 60 plants and as of 22-11-03 at least 23 individual plants of *P. affine*. This site is earmarked as the site for a Church, school and sporting field. To those who know me, these facts explain the often-raised voice and surly attitude.

Fortunately, in October 2004 a scientist from the Australian National University discovered *A. tessellata* at a site to the west of Nowra. Following his phone call to me I visited this site and located 20 species with more to be identified. These are *Thelymitra* sp. and require more sunlight than has been available on the days of my visits. One redeeming factor of this site is its security from commercial development, industrial development or roadwork, so we can be assured this population will survive.

However, many of the situations mentioned are not unique to my district, state or Australia in particular. They are common to all countries where the gems of nature are found, again irrespective of *flora* or *fauna*.

I should not need to add the footnote that every person involved with orchids should be aware of what is around them. Go for a walk, have a look and at the very least you will keep the heart condition at a manageable level but never be surprised at what you will find or where it will be seen. Orchid species will make a home in the strangest of places and some will be found in unrecorded locations, if for no other reason that the person who wrote the book probably has not been to your favourite site.

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