

## ORCHIDS OF THE KIMBERLEY

At the November 2001 meeting of the Society, Kingsley Dixon from Kings Park (now formally known as Botanic Gardens and Parks Authority) spoke about his many years of work on Kimberley orchids. He started by acknowledging Joe Smith who brought these orchids into prominence when he worked on the Mitchell Plateau and mentioned that Pat Dundas and Maurice O'Connor had also helped in this regard. Many of these tropical orchids have been grown at Kings Park in Perth.

Using a sequence of maps of the earth during geological time Kingsley showed the separation of Australia from Gondwana (and still moving north at 5 cm a year) and went on to indicate that the Kimberley flora is a borrowed flora. It has ancient elements through *Cycas lanepolei* and the even earlier life of the Devonian reef. There are links with Madagascar and Africa through the boabs and with Asia through *Amorphophallis glabra* and *Proiphys sp* on the Mitchell Plateau and with SW Australia through the yam *Dioscorea* and also the resurrection plant, *Borya sp*.

Eighteen species of orchids, in several genera, have been found so far in the Kimberley but not all of them have been named. Most of the genera are also found in other tropical parts of northern Australia and in SE Asia but with few exceptions (e.g. *Calochilus*) not in the South West of the State. In general terms the 'tree' orchids, *Dendrobium* and *Cymbidium*, occur in the rainforest patches and flower in the dry season while the ground orchids flower at various times during the wet in a variety of habitats and are not so easy to locate.

Kingsley spoke first about the terrestrial orchids, many of which have underground tubers and are associated with special fungi which act as a major nutrient transfer site; pilot roots go up to the surface of the soil to collect the fungus.

On the higher and wetter habitat of the Mitchell Plateau the most common and widespread orchid is an unnamed species of *Harbenaria*. This genus is butterfly or moth pollinated with the lip extended into a modified spur and sac to form a nectary. Flowering occurs from late December to February and there is 100% seed set. The Daddy Long Legs Orchid, *H. triplonema*, has the lip modified into long elegant tails. All the *Harbenaria spp* have a basal rosette of leaves and underground there is a parent tuber and a replacement tuber ready for the next season.

The Beard Orchid, *Calochilus holtzei*, and the undescribed Lady Beard Orchid belonging to the genus *Calochilus* occur on Mitchell Plateau and have also been found at Beverley Springs and Prince Regent River in the seepage areas off sandstone. Kingsley has also hunted on the Plateau in November for *Nervillia* with

its pink flowers that appear before its mass of pleated leaves. The orchid has been grown but won't flower at Kings Park.

The 'grass orchid', *Eulophia bicallosa*, with its 60 cm inflorescence is widespread in the Kimberley but does not flower well although Robin Marr found it did flower better after a burn. This species has large bulbous 'corms' to survive over the dry season. Another widespread species is the 'bent orchid' a species of *Geodorum* which flowers upside down; this species has been grown from seed at Kings Park and does flower reliably.

Hyacinth orchids, 80 cm tall, are found at Theda Station and also at the Prince Regent River growing on the sandstone scree slopes. These so far undescribed *Dipodium sp* lure small beetles as pollinators and underground there is a fungus, not yet cultured freely, associated with the fattened roots which act as nutrient reserves.

A species of *Liparis* was found near Bachsten Creek three years ago and the most recent find, in January 2000, was the 'spinifex orchid' a species of *Arthrochilus* with its hinged hairy labellum. It was found in spinifex clumps at the eastern end of the Prince Regent River. This orchid grows well at Kings Park and is known to be pollinated by wasps; it produces mimic pheromones, which attract the wasps.

The tiniest orchid is *Didymoplexus pallens* found at Edkins Range and at Mitchell Plateau. It has a small white flower but the flowering stalk extends up into the air after pollination and it survives the dry by means of a string of tubers.

Finally there are the 'tree' orchids that are widespread, epiphytic and flower mid-year in the dry season. *Cymbidium canaliculatum* with as many as 100 flowers in its inflorescence has red to chocolate brown flowers and grows in the clefts of trees. It is very widespread extending to north of the Wolfe Creek crater. It is not a true 'epiphytic' orchid as it needs composted materials for growth; it has a special absorbing layer on the outside and is the most xerophytic of any orchid on earth with thick leaves that resist desiccation. There is also an apple green color morph. *Dendrobium affine* with only 10 flowers in the inflorescence, the first two of which may self-pollinate, is a 'true' tree orchid. It stores water in the stems and has long roots that are very absorbent and can rehydrate instantly. Fungi are not readily associated with the nutrition of the tree orchids. They are imperilled only by fire.

There are many missing species such as the Spotted Hyacinth and the Nun Orchid that might be expected to occur in the Kimberley providing further evidence that the Kimberley has a borrowed flora. All the orchids are protected but sadly all the tree orchids have been pilfered from the major tourist roads.

Kingsley handed round some specimens including a *Dendrobium* growing on a log and in the discussion that followed mentioned that the *Cymbidium* was growing in regular Kangaroo Paw potting mix! The fungi associated with the terrestrial orchids are cryptic i.e. they don't produce fruiting bodies.

Kingsley has worked on these Kimberley orchids, now numbering 18 species, for about 20 years and apparently he is not deterred by the need to hunt for his specimens during the torrid wet season. Judging by the audience response, some of Kingsley's enthusiasm for the subject was caught by members and guests.

*Daphne Choules Edinger and Dorothy Perret*