

Australian Native Terrestrial Orchids

While orchids represent 10 percent of the earth's flowering plants, by contrast with some countries, Australia is not rich in orchids. There are about 660 species of native orchids presently named and these are distributed in some 107 genera. This represents about 4 per cent of our flora. Despite these numbers more than 70 per cent of Australian orchids are unique and are not found anywhere else in the world. Three quarters of the Australian orchids grow as terrestrials, the remainder is epiphytes.



Bulbophyllum
beccadi

There is an incredible variety of flower colour with some species opting for dull greens and browns and others advertising in brilliant hues, some in striking and flamboyant combinations. Perfumes (if present) may be deliciously fragrant, spicy, overpowering, or even blatantly obnoxious. (*Liparis reflexa*, *Bulbophyllum beccadi*, *Bulbophyllum fletcherianum*). Australian orchids are diverse and embrace some interesting variations. In the terrestrials the flowers range in size from about 2 millimetres across in *Microtis atrata* to about 10 centimeters across in *Caladenia patersonli*. Some of the flowers resemble gnats, mosquitoes, wasps, bees, spiders, birds and helmets. Some orchids are highly coloured and may mimic other plants.

Floral diversity is also exhibited in the Australian epiphytes. Flowers range in size from 1 millimetre across *Oberonia titania* to about 7 centimetres across in *Phalaenopsis amabilis* var. *papuana*. Pale or dull colours predominate with colourful exceptions being *Den. bigibbum* (mauve-purple) *Den. nindli* (blue) *Den. speciosum* var. *grandiflorum* (yellow) *Rhinerrhiza divitiflora* (orange). The flowers of some species may open for but a few hours (*Rhinerrhiza divitiflora*) where as others may lasts for many weeks (*Den. discolor*). Perfumes may be pleasant, spicy, overpowering, fruity, unusual or unpleasant. (*Den atrovioleaceum*)



Den. Discolor



Pterostylis nutans

Over 70 per cent of orchids in Australia are terrestrial growers. The largest flowered orchid in Australia is *Phaius tankervilleae* (a local) and is a member of the "Northern Element" of the migrant orchids from Asia. Other "immigrants" being *Calanthe triplcata*, and *Geodorum densiflorum*. The "Southern Element" or true indigenous orchids of Australia have "travelled" up from the southern states and includes 83 *Prasophyllum* species (the Leak Orchid), 73 *Caladenia* species (the Spider Orchid), 58 *Pterostylis* species (the Greenhoods), 35 *Thelymitra* species (the Sun Orchid), 25 *Diuris* species (the Donkey Orchid) 12 *Corybas* species (the Helmet Orchids), 10 *Microtis* species (the Midge Orchids), all of which have local representatives.

Phaius

Much admired, not only for their beautiful flowers carried on tall, upright spikes, but for the leaves themselves which are also very showy, *Phaius* may be grown quite well in *Cymbidium* mix. They definitely require a fair amount of heat. Two species are principally grown here.

Phaius tankervilleae

This is a native to Australia and South-East Asia, and is often known as the "nuns" orchid. There are usually 10 to 15 flowers to a spike and they are white on the back, and reddish brown inside. The labellum has a yellow throat and crimson sides.



Phaius australis

Phaius australis

A very popular and beautiful species. The flowers, which are borne on tall erect spikes, are white, marked with red. The rare *Phaius australis* var. *bernaysii* is a pure canary yellow.

CULTURE IN GENERAL

As there are three distinct groups, it is best to divide culture similarly.

GROUP 1

The northern "immigrant" type, such as *Phaius*, *Calanthe*, *Spathoglottis*, *Malaxis* species. Most are evergreen with pseudobulbs, fleshy leaves and typical orchid roots; they grow in bush house conditions.



Calanthe triplicata

GROUP 2

The main genera and the easiest to grow are: (A) *Pterostylis*, *Acianthus*, *Corybas* species that usually grow in moist, humid leaf litter. (B) *Diuris*, *Calandenia*, *Calochilus*, *Thelymitra* and *Prasophyllum* species which grow in drier, sandy type soils with higher light, best grown under cover with protection from winds and rain.



Acianthus fornicatus

GROUP 3

The semi or Holo saprophytic (saprophytic means an organism using non-living organic matter for nutriment). This group contains some of the most unusual orchids in the world. In general saprophytic plants lack the green chlorophyll cells that manufacture the plants sugars and starches. To overcome this, the group depends wholly on a symbiotic relationship with a soil fungus. At least two types of fungus have been recorded. The Hymenomycete type with clamp like connections to the root, and Rhizoctonia type, in which the fungal hyphae (the underground body of the fungus) intrude into the cells through a break in the outside of the root, or through passage cells in the roots outside layer of cells. On entering the root the fungus coils itself into a tight spiral of hyphae within the root cells. (hyphae = thread like parts making up the fungus)

Within the root structure are three different types of cells. One is called the fungal host cell, where the fungus invades the plant; cell two is the digesting cell and the third a storage cell layer, stores the starches acquired from the digestion of the fungal hyphae. When the fungus enters the root of the plant, it infects the first cell layer and grows rapidly. The plant then intervenes and digests the fungus within the second series of cells, storing the resultant products in the third layer of cells for the plants later use.

Plants which grow in most states of Australia are *Gastrodia sesamoides* - Potato orchid, *Dipodium punctatum* - Hyacinth orchid, *Cryptanthemis slateri* - Eastern underground orchid, *Rhizanthella gardneri* - Western underground orchid. The Great Climbing Orchid, *Galeola foliata* grows up to 12m high, and the *Gaeola cassythoides* is a smaller plant growing up to 6m high.



Gastrodia sesamoides

PESTS

As with other orchid species pests can be a real problem in growing native orchids. In fact some pests are attracted to native plants before attacking any other species of orchid. Snails, slugs, mealy bug, scale, fungi, aphid, grub, grasshopper, rot, and man are the most common problems to name a few. Control as for any other orchid species.

The Aboriginal tribes used native orchids such as, *Spiranthes*, *Caladenia*, *Glossodia*, *Diuris*, *Microtis*, *Prasophyllum*, *Thelymita*, *Edochilus*, *Acianthus*, *Dipodium*, *Lyperanthus*, *Geodorum*, and epiphytes such as *Cym. madidum*, *Cym. canaliculatum*, and *Speciosum* as a source of food. They also chewed various orchids as medicines for coughs, colds, and dysentery.

FERTILIZERS

Epiphytic orchids respond to the regular application of fertilizers by producing strong healthy growth. Fertilizers are best applied during spring and early summer while the plants have a long growing period ahead of them. Late applications of fertilizers may delay dormancy and interfere with flowering. Organic fertilizers are excellent for orchids because they release their nutrients in a slow, gentle manner over a period of time. Blood and bone and hoof and horn are fairly commonly used to promote orchid growth. Liquid fertilizers are an excellent means of promoting healthy growth. Applied at less than the recommended strength means you can apply more frequently, which helps in producing much better growth.

SLAB CULTURE

Many epiphytic orchids grow well on a slab or a section of a tree branch, and relish the extra air movement and rapid drying which occurs after watering. Plants grown on slabs are easily moved and can be moved about until a suitable position is found. Orchids grown on slabs require fairly high humidity and bright light. Orchids with a creeping habit or pendulous stems grow best on a slab, (not paper bark) where as those with crowded, erect pseudobulbs are much better accommodated in a pot.

FERTILIZERS FOR GROUND ORCHIDS

We have seen that most terrestrial orchids rely heavily on a mycorrhizal fungus for their survival. This relationship can be readily upset by the excessive use of fertilizers and hence any fertilizing of terrestrial orchids must be carried out with care. A small quantity of blood and bone (10 grams per 9 litres of mix) added to the mix would be beneficial. One or two applications of quarter strength fertilizers can also be of benefit to some species.

MULCHING

Mulching the soil surface with a thin layer of fine leaves has the advantage of reducing moisture fluctuations in the upper layer of soil and inhibiting the germination of weed. It also reduces soil splash when watering, resulting in less leaf rot. The best mulching material is chopped she-oak needles, but the fine sieved leaves from under tea trees can also be satisfactory. The mulch should be applied when repotting so that the new shoots grow up through it.

POLLINATION NATIVE ORCHIDS

Dendrobium smilliae is the only Australian orchid that is known to be bird pollinated. The flowers lack fragrance are often pendant and contain nectar. The bird is Bush Canary or Yellow Honeyeater.

Beetles are frequent visitors to the flowers of large species of *Prasophyllum*, *Microtis parviflora*, *Microtis unifolia*, and *Peristeranthus hillii*.

Calanthe triplicata are sort after by moths, *Habenaria triplonema* like to be pollinated by Hawk moths, *Bulbophyllum weinthalii* attracts blowflies, *Microtis parviflora* are also visited by small black ants, *Rhizanthella gardneri* are pollinated by termites.

Phaius, *Catochilus*, *Caladenia*, *Thelymitra*, *Geodorum*, *Spiranthes Acianthus eria*, *Chiloglottis* are self pollinated.

These notes have been used at our Cultural and New Grower's Meetings. They are from various sources and we thank the authors. All articles are supplied in good faith and the Bribie Island Orchid Society and its members will not be held responsible for any loss or damage.