Growing orchids in your garden

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Growing orchids in your garden tips for beginners

When thinking about possible topics that could be presented to visitors to the 19th AOC orchid show, I did some planning for a presentation on growing orchids in your garden. Many orchid growers do not have the luxury of space or resources to erect a glasshouse and/or shadehouse. This shouldn't be a barrier to enabling them to grow a few orchids. Conversely, experienced orchid growers are often keen to push out the boundaries of their hobby and growing orchids in a garden can be a rewarding experience. With the popularity of flowering orchids and their ready availability in hardware and department stores, florists, general nurseries etc., many more people are now buying these plants instead of cut flowers or other pot plants, or giving them as gifts. While it is reasonable to assume that many of these orchids only ever get to flower once (ie, they die), there are some simple ways of growing these plants for those who do not want to go to the expense of a purpose-built shadehouse.

For example, hybrid *Phalaenopsis* orchids can quite be grown quite successfully inside the house, perhaps in a bathroom or similar room where there is enough light and humidity/warmth. However, it should be said at the outset that most inexperienced growers will overwater their orchid plants, believing that as they come from tropical climates, they need to be wet all the time. As a more experienced orchid grower, and having observed many species orchids in the wild, I now know that this is not so.

Epiphytic orchids (the majority of those we grow), whether from the hot tropical rainforests or from cooler, temperate rainforests need to dry out between watering. If you take a close look at epiphytic orchid roots in a natural setting, that is exposed to the air, you will see a white coating on the roots called velamen, and when the plant is actively growing, a green (or occasionally brown/red) root tip. What the velamen coating does apart from protecting the orchid's critical food supply system and anchoring it to its host, is they act a food reservoir by absorbing and storing nutrient from the water washing down the tree when it rains. Next time you are repotting an orchid, look at the roots that have been covered by the media - they may be white or brown, but are substantially modified for life in an environment where they are not exposed to air and light.

The host provides many things to an epiphytic orchid in its natural habitat - a suitable place to live that provides the required amount of light (in the tropics, many of the host trees loose some of their canopy during the less light intense, cooler and drier season, thereby increasing the light available to the orchid). Further, the host tree modifies the immediate local climate by humidifying the air in its canopy, it attracts pollinators and birds and animals, attending to the plants reproductive destiny and assisting with its nutrition. Observing epiphytic orchids in their natural habitat, it soon becomes obvious that not all trees are desirable hosts. Those that are literally covered in orchids will also be festooned by a wide range of ferns, mosses and lichens, and tend to be rough-barked primary forest species such as Asian dipterocarps (egg Luan and Meranti) and tropical hardwoods and softwoods (Mahogany, Teak and Cypress). These are the trees that we look for while hiking through the forest. While some epiphytic orchids have adapted to introduced species such as oil palms, the majority continue to inhabit the primary forest species and disappear once these trees are cleared, although this disappearance can also be due to pollinator loss.

Understanding of these requirements of epiphytic orchids is fundamental to the successful cultivation of epiphytic orchids in your garden. Clearly, the same constraints do not necessarily apply to growing terrestrials (orchids that grow in soil) and this will be covered as will growing epiphytes in pots or lithophytes on rocks and walls in future parts of this article.

So, assuming that we want to try growing a few epiphytic orchids on trees in our garden, what do we need to do?

Firstly, we need to find a suitable host tree, to provide an acceptable environment for our orchid. Epiphytic orchids need a rough, permanent barked tree - if the tree sheds its bark like most Eucalypts, it is not suitable. I have found that native trees including *Grevillia*, *Alllocasuarina* (Sheoak), *Casuarina* (River Oak), *Melaleuca* (Paperbarks and Myrtle Trees), *Callistemon* (Bottlebrush), *Callitris* (Cypress) and *Acacia* (Wattle). There are also many exotic tree species that are suitable including *Plumeria* (Frangipani), *Jacaranda*, *Poinciana* and *Crescentia*

(Calabash) as well as Australian tropical trees including Red Cedar, Hoop Pine, Lilli Pilly, and though not strictly a tree, *Cyatheales* (Tree Fern).

In choosing a suitable host for your epiphytic orchids, you need to look for the following attributes:

- i. rough, permanent bark (that does not contain large amounts of volatile phenolics, for example Ficus [rubber tree]) as this type of surface retains more water than does a smooth bark;
- ii. an open crown of leaves that provides the required level of shade to the orchids (approximately 50-70% shade in Perth), and that allow free circulation of air;
- iii. a suitable aspect where the orchids are protected from the hot midday sun, but directly exposed to early morning and late afternoon sun. North-facing is the preferred aspect. If the situation is too sheltered, intermittent or absence of flowering may be the outcome (usually indicated by excessive leaf production and dark green leaves); and
- iv. reliable access to water either from reticulation or hand watering.

Once you have identified a suitable host tree, you need to think about what epiphytic orchids to attach. I recommend that you experiment with orchids known to be robust and accommodating of less-than-optimal conditions. Generally they will be hybrids that are vigorous growers, for example reed-stem *Epidendrum*, *Cattleya*, Australian native *Dendrobium* and *Oncidium*, and that have some degree of drought-tolerance.



Because I am passionate about species, I started out with *Dendrobium speciosum* and *Dendrobium kingianum*. Both these Australian epiphytic species are virtually indestructible and are tolerant of less than perfect growing conditions, and you will often have odd bits left over when repotting. They were attached to a *Grevillea* several years ago and have grown well and flowered regularly since.

More recently, I attached a hybrid Oncidium to the same tree which has also flourished.

I attached them to the host in early spring (although autumn is also suitable once the extreme heat of summer has passed) by using the ubiquitous telephone wire tight around mature pseudobulbs to prevent the plant moving. If the wind is able to move the plant around, the roots will not attach to the host and the active green tips will seal over. I do not use any material such as sphagnum moss between the orchid and the tree, although may, if the weather is likely to be hot and dry, wire



paperbark or similar material over the root mass to help retain some moisture. This protects new roots from the effect of sun and hot, dry wind, while allowing air movement and moisture penetration. The wire can be removed once the roots have a firm hold on the host.

For your first venture, choose orchids that are inexpensive and surplus to your requirements. Don't choose sickly plants as the orchids that you attach to trees are going to be growing in a much more hostile environment than those living in your shadehouse. Over the years I have attached several genera, often as a result of dividing and repotting plants and being left with an 'odd shaped' division that would not fit in a pot.. These have

included *Biffrenaria harrisoniae*, *Oncidium sphacelatum* and hybrids, *Laelia anceps*, *Cattleya* species and hybrids.

Choosing your host is a vital part of this exercise, and as noted earlier, its location is also important. Shade and protection from hot, dry summer winds and protection from cold, wet weather and frosts in winter are equally critical. Further, in winter, it is important to make the most of whatever sunlight is available, and to this end, it is desirable that the host tree canopy is less dense over the winter period but still provides enough cover to protect your plants from frosts. In the southern hemisphere, a northerly aspect is optimum as the sun tends to shift to the north in winter. Because the amount of light diminishes during winter, it is important to mount your orchid so that it receives the benefit of winter sunlight (note that as the sun moves to be more overhead in mid-summer, the canopy should provide more shade).

When choosing a tree, ensure that it is rough-barked, does not shed its bark, and if you intend the orchid to become self-sufficient, in a place that receives water on a regular basis. In the beginning, it is worth mounting your orchid in a situation where it gets more than enough shade as this can be corrected later by pruning the tree. You might also consider attaching companion plants such as *Tillandsia ssp* or *Bromeliad ssp* or other exotic ornamentals close to your orchid as they will help maintain humidity during the drier months.

Orchids can be attached in several ways. The simplest are the use of telephone wire, plant tie string, old stocking or plant grafting tape. The latter three will breakdown over time and the wire can easily be removed once the orchid has firmly attached to the host tree. Another option with large plants is to nail them on, although I do not recommend this method that as it can allow unwanted pathogens to infect the tree. I suspect that a glue such as that used to attach *Tillandsia* to small bits of pottery could also be used. I do not use sphagnum moss pads under or over the plant roots as I find that it can hold too much moisture and becomes moisture repellent when it dries out. I have also found that if you're attaching orchids during the hot summer months, an antitranspirant spray is helpful as it reduces leaf desiccation.

Encouraging healthy growth presents some challenges compared with glasshouse/shadehouse culture where conditions can be carefully controlled. I fertilise regularly to ensure that these plants get the best start possible, remembering however that orchids are gross feeders and the maxim, "little and often" is the rule. It is also important to maintain a pest patrol as new shoots are very attractive to snails and slugs, and sap-suckers such as scale and mealy bug (that is, considerably more attractive than the host plant). I also use a slow release fertiliser/tonic (eg Strikeback, Sea Mungus, Osmocote for Orchids etc) that is contained in a small net pot on a spike (while I have not seen these for sale in Australia, they can be purchased in Thailand and I feel sure that someone will be selling them here). This ensures that every time it rains, your orchid receives a small dose of fertiliser.

The frequency of watering one's orchids is a topic that always stimulates debate. There is no 'one right way'; it all depends on your situation and conditions. However, as a general rule of thumb, when orchids are first attached to a tree or other mount in your garden, it is prudent to water them at least every day until new roots start to attach themselves to the mount. Once vigorous new root growth is evident, the watering frequency can be reduced, remembering however that during very hot/dry weather conditions, your orchids will need to be watered at least once every day, and perhaps in the evening on those days where the night time temperature and/or easterly wind combine to desiccate your orchid. After the first year, the roots should have made their way to a part of the tree trunk or branch that is less exposed and your plants will no longer need the daily attention. When watering, it is important to remember the wet/dry cycle that is part of the natural environment for the majority of epiphytic orchids. This cycle is based upon the orchid plant being drenched, allowed to dry out before being drenched again. If the roots are still white after watering, you have not applied enough water - the velamen coating on the roots should turn greenish-brown after watering indicating that they have absorbed some of the water that can be made available to the plant.

Other epiphytic options include the use of dead, rather than living trees, hollow logs, wooden posts, tree stumps and similar mounts. The problem with these mounts is that they can be subject to termite attack, along with a host of other insects and fungus pathogens that act to break down the wood, in time requiring the orchid(s) to be remounted. The consequent root damage that occurs while doing so will adversely affect the orchid and can lead

to its demise. However, if you have a suitable location in your garden and can access a well-weathered hardwood mount, placing a large *Dendrobium speciosum* or *Cymbidium maddidum* on an old stump, or a large piece of tree trunk can make a spectacular display when the plant is in flower. Hollow logs or stumps can be an excellent place to grow epiphytic orchids as the hollowed out section can be filled with compost or humus into which the roots will quickly grow providing a readily available source of nutrient.

Growing orchids lithophytically can be very rewarding, and as many of the commonly grown epiphytes are equally adaptable to being grown as lithophytes, many options are possible. As most of us in the Perth metro area live in an environment that is primarily sandy, the options are more limited than in settings where there is exposed rock. However, retaining walls constructed from moss rock or limestone can provide a suitable location for an orchid, proving sufficient protection is available. The common name for *Dendrobium speciosum* is the Sydney Rock Orchid and it will readily attach to a suitable rock substrate. Similarly, the common name for *Dendrobium kingianum* is the Pink Rock Lilly. Both these species are relatively tolerant of high light, although the leaves will be damaged by the overexposure that can occur in Western Australia's hot, dry summer. However, in my experience, this does not prevent flowering.

There are many other orchids that while principally epiphytic, are readily adaptable to lithophytic or terrestrial growth. These include species in the genera *Angraecum*, *Bulbophyllum*, *Cattleya*, *Coelogyne*, *Dendrobium*, *Encyclia*, *Epidendrum*, *Laelia*, *Pleione*, *Schomburgkia*, *Thunia*, and *Vanda*. Although their light and temperature requirement s can vary widely (some will need 70-80% shade while others will be quite happy with 50%). When planting in a rockery, it is also important to research whether the particular species prefers its roots exposed to the air and light like *Vanda*, or like *Pleione*, prefer its roots to be covered by moss, lichens or ferns. Other genera such as *Arundina*, *Bletilla*, *Calanthe*, the rupicolous *Laelia*, *Lycaste*, *Neobenthamia*, *Paphiopedilum*, *Phaius*, *Sobralia*, *Spathoglottis* and *Stenoglottis* are true terrestrials or lithophytes and will flourish in the right environment.

Even in Perth's hot, dry Mediterranean climate, it is possible to create rockery gardens which provide damp crevices and pockets of humus and leaf mould in which orchids will grow, although generally some shade is necessary during the summer months to stop the hot sun and clear skies from burning your plants. However, as few orchids tolerate 'wet feet', the garden should to be designed and arranged so that it does not become waterlogged in winter.

While as orchid growers we generally make do with whatever we have available to us, if you decide that you really want to grow some of your orchids in a more natural setting such as a rockery, they will benefit from some planning and construction designed to provide the most supportive environment. If there is no natural slope available, if would be well worth considering excavating or filling to create a slope. In this regard, it will be beneficial to locate the rock garden so that it gets the maximum winter sun and warmth (this can be assisted by placing near a north facing wall that absorbs heat during the day and releases it at night), but has protection from the harsh sun in mid-summer. Unless the rock garden is under cover, you will also need to give some thought to protection from frost if your location is susceptible – a temporary shade cloth, plastic or similar cover can help. It is also possible to include pyrotechnic (electric heating) cable which could be used to boost soil temperature during the winter months – this is an efficient and reasonably economical method of heating and applies heat where it is needed.

After ensuring that all weeds are removed from the subsoil, add a thick layer of coarse road base, broken bricks 20-30cm deep topped with 10cm of finer material such as coarse river sand, fine blue metal road base, washed fine gravel or any other finely crushed rock. This allows the water to drain away preventing waterlogging, but stops the finer soil and humus from being washed away. The soil layer itself should be a mix of compost or leaf humus, coarse sand and fine gravel which will provide encouragement and nutrition for your orchids once planted. The larger rocks are them placed on top of this bed, and the rockery allowed to settle for a few weeks before planting. Remember that the majority of lithophytic orchids grow on limestone, so if you are using granite, it will be necessary to occasionally add dolomite lime to maintain a pH that is acceptable to your orchids.



roots.



The normal rules apply when planting/attaching orchids to rocks or in a rockery. Those are that the newly planted/attached orchid must be held firmly so that the new roots can attach to the media without being damaged by the plant moving about in the wind or by watering. This can be done by gluing (using a glue such as that used to attach Tillandsias to wood or clay mounts). For larger plants, masonry nails, strategically placed smaller rocks, ties made of old stocking etc can be utilised. Similarly, the terrestrial species need to be held firmly in place by compacting the soil mix around their

Photo: www.bellevueterrasse.com

Companion planting is a critical part of the development of a rock garden. Clearly, it would not be appropriate to include plants that require (or at least benefit from) intense sunlight during summer as this will damage your orchids. Similarly, unless you are able to incorporate different zones, bog plants which want to be growing in waterlogged conditions may be unsuitable. Including a small water feature can be an attractive part of your rock garden, although some though needs to be given to stocking it as you may need to use fungicides and pesticides from time-to-time of your orchids. These products (other than some of the organics) are generally

toxic to fish and amphibians. Photo source: http://www.orchidboard.com/community/outdoor-gardening/68128-orchids-garden.htmll

Suitable companion plants includes ferns (preferably not those that spread rapidly such as fishbone ferns and similar, or those that grow tall and take over), bromeliads, tillandsias, judiciously placed tree ferns and mosses.

However, as your orchid garden is likely to be outside (or at least in a less controllable environment than a glasshouse), regular attention to ensure that pests such as slugs, snails, slaters and other insects likely to feast on new root and leaf growth are eliminated or kept at bay and ants likely to bring in scale controlled will assist in achieving success.

Retaining walls are also a suitable habitat for many of the orchids that will grow well in rock gardens. While concrete is not a suitable host, other material such as granite, similar hard rock, sandstone and even limestone (although it is soft and can be rapidly invaded by algae, mosses and lichens which further break down the material). Once again, the ideal aspect in the southern hemisphere is north facing where it will get the maximum light and warmth in winter, with, for optimum results, some summer overhead protection (this could be a temporary shadecloth cover). As can be seen from the photos of orchids in rock gardens, the plants are very adaptable and will attach to a suitable host in a short space of time. The roots will seek out crevices and faults in the rock searching for moisture. Accordingly, random stone walls rather than flat, regular blocks cemented



together are preferred.

Ken Blackburn's excellent articles and photos at http://theorchidfiles.com/?page_id=379 show the development over time of an orchid garden atop and along a rock retaining wall. Ken also provides excellent advice about what to plant and when, although this needs to be adapted for our rather more severe summer temperatures in the West than in coastal Queensland. However, what his series of article and pictures show that it is possible to maintain an orchid collection on a smaller property without needing the space and income to erect and operate a glasshouse. Source: http://theorchidfiles.com/?p=3384

The next photo shows the growth of orchids (including companion plants such as ferns) over several years. While growing orchids this way does prevent you taking them to shows and displays, they are growing in a more natural habitat and make a striking display for visitors to your home. This photo clearly demonstrates the advantage of using irregular shaped stone as it creates crevices and locations into which orchids can be planted. In this photo, you can also see orchids that are growing on the bare rock face, similar to those that we have seen in northern Thailand. Source: http://theorchidfiles.com/wp-content/uploads/2012/04/5-Lower-left-of-Centre.jpg



I strongly recommend that those of you interested in venturing into growing orchids this way read Ken Blackburn's articles and look at the extensive range of photos of his orchid garden over several years. As noted earlier, living in hot, dry WA will mean that some adjustments will need to be made. These are likely to include the provision of shade during the hot, dry summer months. While ferns are the most natural companion plants, they too are likely to be damaged by hot, dry conditions and some thought might therefore be given to planting winter deciduous plants and shrubs, keeping in mind the space available, ie, don't plant something that is going to grow into a huge tree if you only have a small space available. Humidity in summer can be provided by low pressure misting off the mains water supply, or by drip system, although you might need approval if you do not have your own rainwater tank but wish to water more frequently that allowed under the sprinkler restrictions that apply in WA. Watering can be managed by directional sprinklers or capillary tubes/individual drippers that direct water to where it is needed.



In this context, members who attended the home visit at Charly and Gerda's home earlier this year were treated to a brilliant display of orchids and companion plants, in a small area where the plants were growing in a more natural setting. As the photo clearly illustrates, they have creatively used dry branches attaching to them ferns, tillandsia and bromeliads, alocasias and orchids (at this time, generally in pots). These plants are growing well in their covered patio area that has a polycarbonate roof, and shadecloth sides to allow free air movement. Bromeliads make excellent companion plants for orchids as the water they hold helps increase local humidity

Charly and Gerda are experimenting with the orchids that will grow well and flower in their idyllic setting and have found that those which will ordinarily grow in a shadehouse are very well suited. The majority of their plants are still in pots although as they gain more experience, they are attaching plants to the dry wooden branches. However, to maximise the overall effect, they have generally hidden pots using Spanish moss as shown in the following photo.



Last, but by no means least, both exotic and native terrestrial orchids can be grown in the garden. Exotic species like *Bletilla striata* (commonly known as the Chinese ground orchid) and *Spathoglottis* species and hybrids are very happy growing in the garden, provided they are protected from the hot sun in summer, and are growing in reasonably coarse, well-drained soil. If you can provide more warmth in winter, some of the tropical species such as *Sobralia*, *Phaius*, and *Thunia* can be grown and flowered successfully. We grow both *Spathoglottis* and *Sobralia* in a garden in our covered patio and they are doing well and flower each year. Another Species Society member, Gordon has a large garden bed full of *Bletilla striata* that flower profusely in spring each year.

Many orchid enthusiasts have grown reed-stem Epidendrum species and hybrids in their garden, often as a hedge. These plants are very vigorous and will quickly grow into large clumps. I suspect that some of the terete and quarter terete Vanda species and hybrids would also do well planted in the garden as I have seen them in Asia and New Guinea in the full sun attached to wooden posts set in the ground with extensive air and soil-based roots. This massed planting can be very effective in a large garden. Using large containers or hollow logs is also an effective way to grow orchids in the garden. Subject to being able to provide some protection from the intense sun in summer and from frosts in winter, epiphytic genera including *Biffrenaria*, *Cymbidium*, *Cattleya*, Australian native *Dendrobium*, *Grammatophyllum*, *Laelia*, *Oncidium* and *Schomburgkia* should do well on suitable mounts in WA gardens.

Similarly, if you are able to control watering during summer, many of the local terrestrial orchids are able to be grown in the garden. They are natural companion plants in native gardens, but with a few exceptions, do resent being wet in the otherwise dry summer period when they would normally be at rest. I know that several members of the Society have found that terrestrial orchid seed has blown onto their lawn areas and germinated. In these instances the lawns are watered during summer and the plants appear to have adapted to this abnormal environment.

The last part of this article will cover growing orchids inside the house. While most orchids will tolerate short periods of time inside, it is not conducive to vigorous growth unless some attention is paid to meeting their needs for air movement, humidity and light. However, some genera including Phalaenopsis are suitable for longer-term indoor cultivation. If you want to be successful in growing such plants inside, ensure that they are receiving filtered sun, good air movement and humidity (in the southern hemisphere, rooms with north facing windows are preferred). While this can sometimes be found in the bathroom, orchids do not appreciate hairspray and similar aerosols that are often used in the bathroom, and the humidity and warmth created for the short time the shower is being used ceases when the bathroom is not occupied. The temperature drops and the humidity in the air condenses on the plant and its surrounds. We know that epiphytic orchids do not prosper if they are cold and wet; a situation that can occur in the domestic bathroom. Similarly, cooking oils and other aromatics in the kitchen mean that it is not a suitable environment for long term cultivation. Conservatories and similar sunroom/patios however can be very suitable for a wide range of genera.

For those wishing to grow a more exotic range of orchids in the house, the Wardian Case or some similar facility enables this to take place. A Wardian Case is a structure that enables your orchids to be housed in conditions that simulate their natural habitat. I am aware that people have used large aquaria for this purpose, although care must be taken to ensure constant air movement and address some of the less desirable features of these type of containers if you wish to use them for long-term cultivation. These facilities require controlled lighting, water and humidity control, heating and cooling (especially if you wish to grow cloud forest species) and a constant supply of fresh air. An interesting web site, http://www.orchidkarma.com provides a wealth of information about how to construct a vivarium to sustainably grow and flower tropical orchids indoors in Sweden. I really recommend you take the time to look at this website that has hundreds of photos, detailed analysis and recommendations based on experience of building and operating effective orchid growing environments inside



the home. The following is just one of the many photos on this website. I initially came across this website several years ago when much of it was still being developed. It is now a comprehensive reference to everything that one could wish to know about how to construct vivariums, and how to maintain the health and vitality or a wide range of tropical and sub-tropical orchids grown indoors. Karma's website has many photos of her exquisite plants in flower just to tempt you.

Photo: http://www.orchidkarma.com/about/my-growing-spaces/

To finalise this article, I will discuss some of the basics of growing terrestrial orchids in a garden. In WA, this can be quite a challenge as we want to water our gardens during the hot, dry summer months, even those with local hardy plants that once established, should need little water during summer. It should be remembered that even in their natural habitat, WA terrestrial orchids will receive some moisture from any rain that falls (some years we seem to get more frequent summer rain), so this can be managed by infrequent watering of about the amount that would fall in a heavy shower.

However, if you have the space, it is better to plant your terrestrials in any area that is not regularly watered (we grow them in an area near our gate and along the driveway in amongst Anigozanthes (Kangaroo Paws), Gevilleas, Proteas and other similar plants. These are deep hand watered once a week during the really hot months, and have individual drippers that come on three times a week - while this watering is not directly onto the terrestrials, they would receive some moisture as we regularly apply soil wetter in the area. I am aware that some other members have WA terrestrial orchids growing in their lawns, and I have plants of *Microtis* that have come up in hanging baskets in my shadehouse.

The other problem affecting terrestrial orchids in the garden is fertiliser and salt build up, although I have found that organic fertilisers such as blood and bone and fish emulsion do not appear to do any damage. In fact I understand that some growers do make use of weak applications of such fertilisers to improve vigour and flower size. An option is to keep your terrestrial orchid in a plastic pot, and to remove the pot once flowering has finished so that they can be stored in a cool dry location. These pots can be placed back in the garden at the onset of winter once the plant has commenced growing.