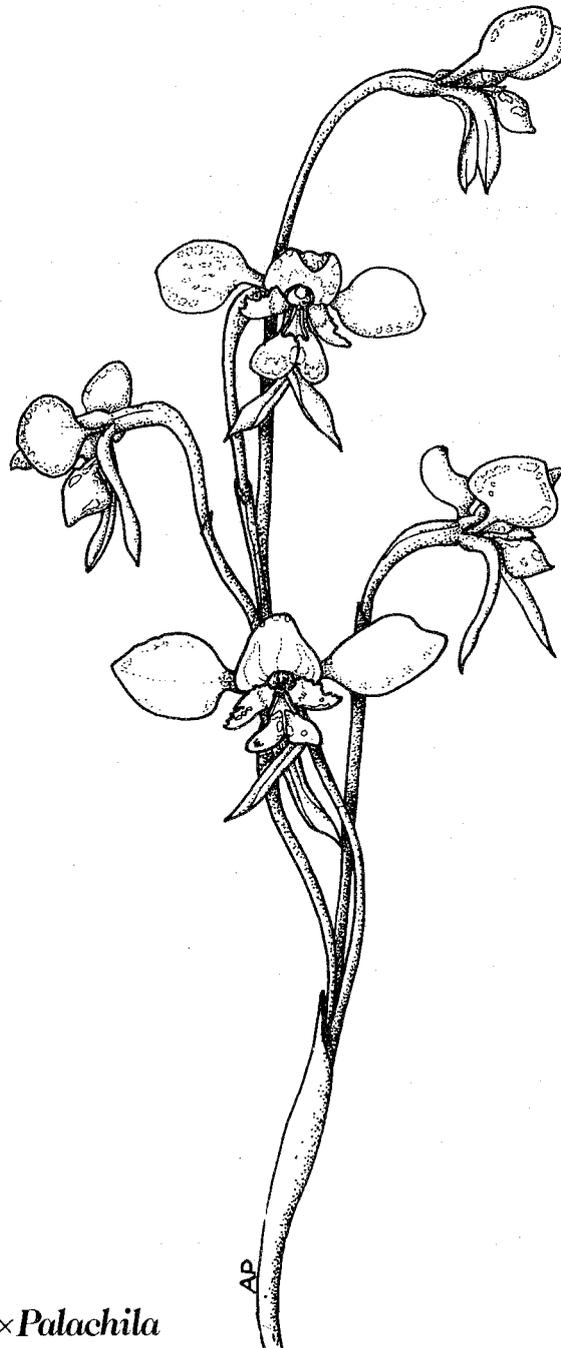
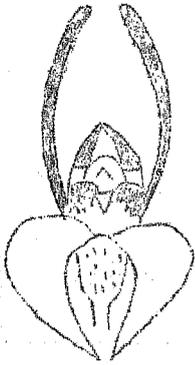


NATIVE ORCHID SOCIETY
of
SOUTH AUSTRALIA
JOURNAL



Diuris x Palachila



NATIVE ORCHID SOCIETY OF SOUTH AUSTRALIA

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NEXT MEETING

When: Tuesday, 26 April, 1983 at 8.00 p.m.

Where: St. Matthews Hall, Bridge Street, Kensington.

Subject: Photography and Cameras: renowned photographer Mr Alwyn Clements will explain the finer points of photographing native orchids or wildflowers for that matter. If you have had trouble getting those blooming plants in focus help is at hand — a pen and notepad may be useful items to bring along.

LAST MEETING

Last meeting Reg Shooter, our vice president, gave us an excellent illustrated talk on how he grows dendrobiums. His talk was full of down to earth information. I cannot do full justice to him in a few words: a feature article will appear in the near future. Many thanks Reg, I will certainly update my own cultural methods.

ALTERATIONS TO CONSTITUTION

Both proposed alterations were passed unanimously (see February Journal for details).

LIFE MEMBERSHIP

Our hard-working Secretary Roy Hargreaves has the honour of having the first Life Membership of this Society bestowed upon him by unanimous decision at the 1983 Annual General Meeting.

I cannot think of a more deserving person to receive this award. Congratulations Roy.

AUDITOR REQUIRED

The Society is in need of the services of an Auditor. If you, or someone you know, can be of assistance please contact the Treasurer, Ron Robjohns, telephone 271 7457.

PLANTS ON DISPLAY 23.3.83Terrestrials

Prasophyllum archerii
Pr. nigricans
Eriochilus cucullatus

Pterostylis baptistii x ingens
Pt. revoluta (2 pots)
Pt. coccinea
Pt. decurva

Popular Vote: Pterostylis coccinea — G.J. Nieuwenhoven.

Epiphytes

Dendrobium rigidum
Den. bracteosum
Den. bigibbum var big. subv. compactum (3 plants)
Den. antennatum
Den. lawesii

Den. Hilda Poxon (2 yellow and red markings; 1 pale green and red markings).
Den. Gouldii var caudaeanal x dicuphum
Sarcochilus ceciliae
Luisia teretifolia
Liparis reflexa

Popular vote: Den. bigibbum var superbum subv. compactum — J. Simmons.

ELECTION OF OFFICERS

Since the correct number of applications for committee to fill the vacancies were received no ballots were necessary. Mr R. Bates and Mr W. Harris will serve for two years and Mrs M. Fuller for one year.

FORTHCOMING SERIES

This month we are starting a series of articles on growing epiphytes in South Australia by Ron Robjohns. I think you will find them interesting and helpful, particularly to newcomers.

PTEROSTYLIS COCCINEA

G. Nieuwenhoven

This is another one of our graceful mountain inhabiting autumn flowering species. Radical rosette is generally absent at flowering time. The flowering stem pushes its way through the soil from January onwards. It is, according to W.H. Nicholls, endemic to New South Wales tablelands. The flower stems are up to 22 cm tall with 3.5 to 4 cm flowers. Leaves approximately four, narrow and sharply pointed.

Flowers are supposedly green with bright red suffusion. While this is not disputed, my plants are whitish with brown-red longitudinal stripes and just a small amount of green where the lateral sepals are joined. The plant in question has a galea or hood erect for about one-third its length then curves slightly downwards with a long, almost needle-like point. The point, part of the dorsal sepal, is much longer than the petals. The lateral sepals are a conspicuous feature at first upright where they are joined they then form a prominent sinus and sweep back and upwards into long filiform or threadlike points well above the galea, arching down gracefully. The labellum is fairly long and protrudes horizontally just above the sinus.

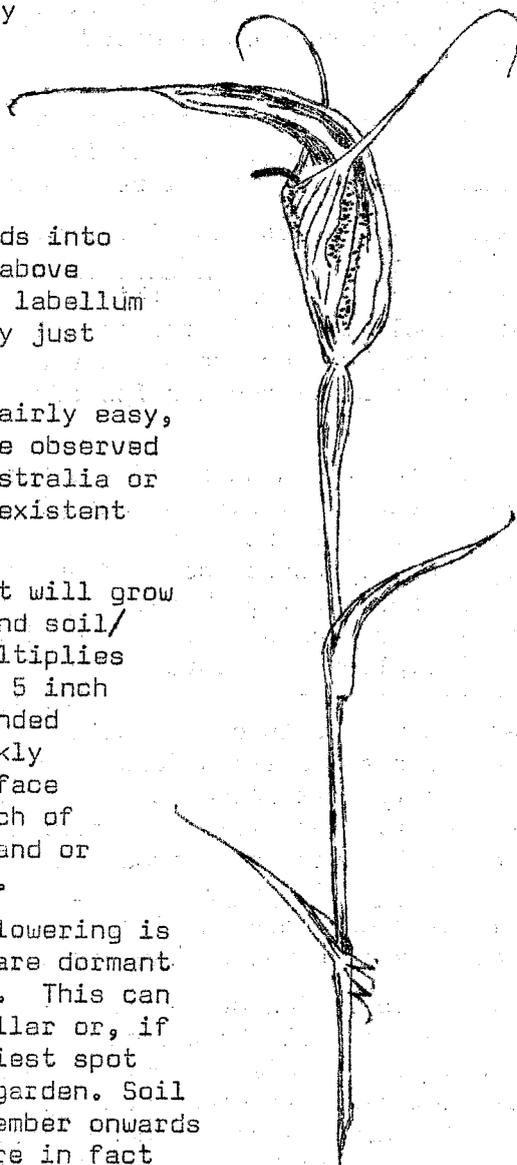
Cultivation of Pterostylis coccinea is fairly easy, however, a few important points should be observed if it is to flower regularly in South Australia or climates with hot summers and low or nonexistent summer rain.

Firstly, soil is not really critical. It will grow happily in straight crumbly hills soil and soil/sand mixes with or without humus. It multiplies freely and is quite happy in a 125 mm or 5 inch plastic pot. Terra cotta is not recommended in dry climates as they dry out too quickly during periods of low rainfall. The surface of the pot should be provided with a mulch of pine or casuarina needles, very coarse sand or fine gravel, mainly to avoid rain splash.

The most important part to obtain good flowering is low summer temperature while the plants are dormant and forming flowering spikes underground. This can be achieved by placing pots in a cool cellar or, if no cellar is available, the coolest shadiest spot in the shadehouse or under trees in the garden. Soil may be kept slightly moist from late December onwards but is not necessary for success. You are in fact trying to duplicate conditions in its natural habitat: cool mountain glades with light scrub. When buds have appeared above ground for about 10 mm, pots may be placed in the shadehouse and kept damp — growth is fairly rapid after this.

Pterostylis coccinea is a desirable and elegant addition to any collection. Hybrids are not known to occur in nature or man made so far.

Reference: Nicholls, W.H., "Orchids of Australia".



Pterostylis
coccinea

The following article is from an old journal but is of sufficient interest to reprint. If you come across any unusual forms of orchid plants, why not report them through our journal?

NOTES ON A REVERTED FORM OF GLOSSODIA MAJOR A.R.R. Higginson - Pt. Augusta
(The South Australian Naturalist, June 1960)

Whilst on our last visit to Western Victoria, we were taken by our good friend and ardent grower of native plants, Mr. Alby Lindner, to a spot on the Nattimuk-Edenhope road which is noted for the large variety of native plants that grow there.

We were delighted at the great number of different species that were to be found in this patch of very limited area, the Papilionaceus section of the Leguminosae being very well represented.

What particularly took our interest however, was the abundance of that beautiful little Orchid, Glossodia major. They were there literally in thousands and in some places were so thick that it was impossible to walk without treading on the plants and in one spot I counted fourteen plants in full bloom within an area of less than two square feet. The colour of the flowers was mostly the usual blue but a few odd flowers of the much rarer white form were seen.

Whilst looking for a patch of the best of the flowers to photograph my attention was drawn by my wife to one plant that carried a single flower which was markedly different from the rest. The plant itself was that of the normal Glossodia major insofar as leaf and stem was concerned and the colour of the flower was identical with that on surrounding plants but the flower was not that of a true orchid as it had neither column or labellum. Instead it had its full complement of three petals and three sepals, the sepals being similar in shape and size to those on the ordinary plant but the petals were much shorter and were obtusely deltate in shape and at the base of each of them there was a small white pubescent patch which was very similar in both colour and texture to that which occurs on the posterior of the labellum of the normal flower. The flower had four stamens each with a well-developed anther and a central style and stigma. Summing up, whilst I had no doubt that the plant was Glossodia major, the flower had no resemblance to the ones that this plant is bearing today and I could only conclude that it was a reversion to a form which existed before the specialised orchid form had come into existence.

From my understanding of Mendel's law, a reversion of this nature would be possible only if all the plants of this species carried a recessive gene for reversion. If this is the case, the reverted form should occur from time to time as isolated instances, but the chances of them being noticed amongst the overwhelming numbers of the normal form are so small that I consider myself fortunate indeed in being permitted to see the flower in a form which I am convinced, in which it existed very many thousands of years ago.

NATURE NOTES — "REVERSION" OF FORM IN GLOSSODIA MAJOR R.Br. W.K. Harris
(The South Australian Naturalist, December 1960)

Higginson's Notes on a "Reverted Form of Glossodia Major" is an accurate account of a little observed phenomenon but it is felt that the explanation

"Reversion" of Form in Glossodia major R.Br. (contd.)

given for this phenomenon is not correct. The explanation given to the observed "freak" is a misinterpretation of the fundamental biological laws.

Firstly to explain evolution (or "reversion") by a simple genetical change according to Mendel's laws (which refer to single and independent gene segregations) is quite incorrect. It is well known that evolution of a biological form proceeds by a very large series of continuous small gene changes (mutations) in local populations which are continually sifted by natural selection. Most genes, both "wild" types and mutant types are exceedingly stable under natural conditions. The natural mutation rate in these genes is very slow. Due to this many species have remained much the same for long geological periods. Any gross mutations such as occur under irradiation or other abnormal conditions usually have a harmful effect on the organism often resulting in death.

Secondly, little is known of the phylogeny within the family Orchidaceae, but what is known from comparative morphology a flower with a four partite androecium could never be a precursor of a modern three partite form such as Glossodia.

The author's observations may be explained best by anomalies in the plant's genetical makeup within somatic tissue in the early bud stage which would affect the physiological processes controlling flower development. This is probably due to a gross mutation in the somatic tissue which will not be transmitted to the next generation. Hence it can be seen that this phenomenon could not be explained as one of "reversion" on these grounds.

References: Snyder, L.H. and David, P.R. "The Principles of Heredity",
Higginson, A.R.R. "South Australian Naturalist" 34(4).

FIELD TRIP

April 30

Saturday afternoon

To Hindmarsh Falls; Spring Mount Conservation Park and Inman Valley.

Meet at 2.00 p.m. at the Hindmarsh Falls car park.

NEW MEMBERS

Mr R. Austin
Mr P. Dadswell
Mr K.G. Webb
Mr. Chambers

Mr and Mrs D. Harper
Mr and Mrs R. Rankine
New York Botanical Gardens

(Microtis orbicularis R. Rogers and Paracaleana minor (R.Br.) Blaxell)

Introduction

Apomixis is the asexual production of viable seed. It has previously been reported in the Australian Orchidaceae by Jones (1976).

In the present study observation of Microtis orbicularis at three locations in South Australia since 1978 has shown that most pollinia are "robbed" by small flies, beetles, etc., and deposited on various parts of the plant other than the stigma, which, in most cases, receives no pollen at all, yet all seed capsules produce copious amounts of viable seed. Observations of Paracaleana minor at Peter Creek in the Adelaide Hills showed that in c. 90% of flowers the pollinia were not removed and pollen did not appear on the stigmatic surface, yet in every case seed of normal appearance was produced. (The form of P. minor with non-functional anthers (P. sullivanii) which Jones (1976) has shown to be apomictic has not been found at Peter Creek.)

Apomixis was suspected in both M. orbicularis and P. minor and experiments carried out to verify this.

Methods.

In October and November 1982, thirty plants of each species were marked in situ, the M. orbicularis in a waterhole near Lake Alexandrina, the P. minor at Peter Creek in light sand under bracken. Ten plants of each were left untouched as a control, ten had the pollinia of all open flowers removed to ensure that the autogamy did not occur and ten had anthers and stigmas excised at anthesis or while still in bud. One clump of each species was removed and grown under glass in Adelaide and the stigma of each flower excised at anthesis.

Results

Seed capsules of all M. orbicularis plants developed normally except for one plant where damaged flowers were infected by fungus. Examination of seed under the microscope indicated 92-98% viability irrespective of

whether flowers had been untouched or had pollinia or stigmas removed.

With P. minor many marked plants "collapsed" due to the effects of drought and 40°C+ temperatures but three control plants, three with pollinia removed and five plants with excised stigmas in the field and all those in cultivation survived. The plants were able to survive on resources stored in the tubers as soil was powder dry to a depth of 50 cm. The higher survival rate of plants which had stigmas excised was probably due to the choice of stronger plants to undergo this rather drastic surgery. Most importantly all surviving flowers produced normal seed in similar amounts.

Conclusions

Paracaleana minor (typical form) and Microtis orbicularis are both capable of producing seed asexually. Bates (1978) discussed the occurrence of self-pollination in both species and both are also structured for insect pollination. Jones (1976) noted that "normal" populations of P. minor in the Grampians, Victoria, did not set seed asexually so it appears that different populations may rely on different methods of fertilisation. Whatever the case may be it seems that M. orbicularis and P. minor do not "place all their eggs in one basket" as far as fertilisation is concerned.

Seed of Microtis orbicularis
x 100



Apomixis in South Australian Orchids (contd.)References

- Bates, R. (1978) "South Australia's Rarest Orchids (4)" N.O.S.S.A. Journal 2(1):3.
- Bates (1978) "Pollination of Orchids (8)" N.O.S.S.A. Journal 2(7):8.
- Jones, D.L. (1976) "Miscellaneous Notes on Australian Orchids", Orchadian 5:83-87.

SEASONAL NOTES

Terrestrial orchids are now rapidly appearing in their pots and one or two things to watch for are the usual slugs and snails; the latter are fairly visible but slugs hide in the soil and come out at night to feed on that flower-spike you have waited for for years, so beat them (the slugs) at their own game and go out with a torch to pick them off your plants. It is very satisfying, although the neighbours will probably think you are a little weird.

Soil moisture level should be monitored regularly — spray the pots occasionally if it does not rain.

This is also the time to check for drip lines above the pots. Regular drops of water can make large holes in the soil surface during steady rain and do a lot of damage to emerging plants or seedlings.

Early in May is a good time to sow seed. Make sure a mulch of chopped sheoak or pine needles is present as a seedbed. Finally, keep your fingers out of the soil. That plant you are so keen to make it through the soil will do so by itself — some are just slow starters.

For the proud owners of a glasshouse things are becoming a little dull at this time of the year. Shadecloth can be removed or the whitewash scraped off, whatever is easier. I know what I prefer. Watering of plants under glass should be eased off as against terrestrials which need more.

Some plants may need to be shifted to a lighter or shadier spot; fertilising in line with watering can now be cut down, for a plant not in growth has no need for fertiliser. And if you have done everything right during the last growing season, or are just plain lucky, you should get some flowers during spring. Of course, as we all know, some people get flowers on their plants without fail and some don't get flowers, no matter what we do. Oh well, there is always next year.

Professor Ralph Tate

Ralph Tate was born in Northumberland, England, in 1840. He was a brilliant student and at 21 was elected a fellow of the Royal Geographical Society in London. Before migrating to Australia he travelled widely in many parts of the world, particularly Central America, where he studied the fauna and geology as well as the flora.

Tate came to South Australia in 1875 as Professor of Natural History at Adelaide University. In those days men of science were not the specialists they are today and Professor Tate travelled throughout South Australia and the Northern Territory observing, collecting and writing papers on geology, botany and zoology. Tate wrote the first comprehensive flora of our state (The Flora of Extra-tropical South Australia) in 1890.

One of his main accomplishments was the foundation of the Royal Society of South Australia and also the Field Naturalists Society. He was the first president of the Royal Society and a major contributor to the journals of both societies.

Ralph Tate collected numerous orchids from the Adelaide area in the early 1880s and he often sent these, together with collections made by Otto Tepper (see N.O.S.S.A. Journal, Jan. 1981), to the famous botanist Ferdinand von Mueller.

Although Tate's interest in orchids was not as great as that of Tepper's he was, nevertheless, rather keen on Caladenia, the spider orchids, if we are to judge by a reference made in a letter written by him to Tepper in 1883 asking that gentleman to . . .

"send me any of those quaint and curious
spider orchids".

Tate named several South Australian Caladenias including C. cardiochila in 1887 described from plants collected by his fellow members of the Field Naturalists in the Barabba Scrub of the Barossa Valley (where they no longer occur due to destruction of their habitat in the 1970s). He also named the "desert spider" Caladenia toxochila from plants collected by that equally famous South Australian botanist John Cleland (later professor) at Caroona Hill north of Iron Knob in 1889. Also collected by Cleland at Caroona was the dryland form of Caladenia filamentosa which Tate named C. tentaculata (an invalid name since Schlechtendahl had already used the name for one of the many forms of C. patersonii which once grew in the Barossa Valley).

From 1879-1890 Tate listed the South Australian orchids in his "Census of Indigenous Flowering Plants . . ." (of South Australia) in the Transactions of the Royal Society. He was not always correct in his determination and the orchids he listed from the Adelaide Hills include Diuris sulphurea, Pterostylis concinna, Pt. reflexa, Caladenia caerulea, Glossodia minor and Prasophyllum despectans, none of which are likely to have occurred there.

Professor Tate died in Adelaide in 1901 and his name is commemorated by the Tate medal for Geology and in names of plants such as Xanthorrhoea tateana.

References:

- Maiden J.O.H. (1907) "A Century of Botanical Endeavour in South Australia" Rept. 11th Meet. of Aus. Assoc. for Advancement of Science 158-199.
 Rogers, R.S. (1911), "An Introduction to the South Australian Orchids" (Education Department: Adelaide).
 Tate, R. (1879-1895), Various papers and articles in the Transactions of the Royal Society of South Australia.

GROWING EPIPHYTIC ORCHIDS IN SOUTH AUSTRALIA

R.T.R.

Epiphytes usually grow where there is plenty of air movement, ample light but also shade and to achieve this they are frequently found well above the ground storey in the forest from where, should they be dislodged from their host and fall to the forest floor, they wither and die. With most plants the roots grow downwards, however, with epiphytes in their natural habitat, the roots may grow up, down or around their host, that is, in any direction in search of suitable conditions.

As a novice grower I urge you to learn all you can about the natural habitat of the plant and its principal host, bearing in mind that in accounts of plants that grow on rock faces, often they are growing with their roots in crevices into which any moisture drains and maybe in an accumulation of leaf litter. Frequently the rocks on which the lithophytic orchids grow are sandstone - a rock which can absorb moisture and consequently keeps cool longer than most other rocks. "In an exposed situation" should not be construed as being in full sun all of the time: usually they receive some shade.

With the possible exception of Cymbidium canaliculatum few epiphytes grow at their best in full sun in nature. Full sun in the hot dry South Australian summer will usually burn off the plants or at the best cause severe yellowing and loss of leaves. It is to be noted that this State has no native epiphytic orchids.

Most Australian epiphytic orchids grow in the coastal belt of northern New South Wales and Queensland where the average rainfall in their DRY season is much the same as the Adelaide winter or WET season with which it coincides, consequently advice that plants require to dry out during the winter should not be taken to the extreme and the plants left without water.

The three principal requirements of epiphytes are a free air circulation, a semi-shaded position and free drainage.

In South Australia epiphytes are grown in two ways, the most popular being pot culture and the other slab culture.

For pot culture the medium must be a free draining one and a mixture of "aged" pinebark, scoria and charcoal is quite effective.

In choosing material for slab culture consider the conditions under which you intend to grow the plants. For humid conditions cork is ideal while tree fern, which holds moisture longer, is good for dry conditions, although any of our native trees with papery or corky bark is suitable. Perhaps you would wish to attach the plants directly to trees in your garden, for this purpose try Jacaranda, Melaleuca or trees with a similar bark.

Watering is important, slab culture requires more watering than pot culture and in summer water orchids on slabs at least every second day and every day during a hot spell. Water according to the weather and watch for signs of stress - in wintertime the rain is usually sufficient.

Fertilising is best done using half of the recommended strength of commercial proprietary fertilisers.

As a last general recommendation - beware of frosts. Last year (1982) the frosts in some areas of Adelaide caused severe losses amongst plants of epiphytic native orchids. Large tubs of D. speciosum, whose thick leathery leaves I mistakenly thought frost resistant, were reduced to a mass of leafless canes; even baskets of D. kingianum hanging three feet below the 50% shade cloth had all of the leaves burnt off. These were but two of the varieties which suffered, so be warned and ensure that your plants are protected from frosts.

Dendrobium kingianum (Pink Rock Lily)

This is possibly the best known and most variable of our native epiphytic orchids. Its range is along the coastal strip from the Hunter River in New South Wales to Rockhampton in Queensland. While it is principally a lithophyte and found growing in large mats on exposed rock faces, it is also found in shady gullies and on trees.

It has three to six lanceolate leaves up to 13 cm long on stems varying from slender stems, pseudobulbous only at the base, to short stout pseudobulbous stems. The pseudobulbs are usually 8 to 10 cm long with some up to 30 cm in length; the colour varying from pale green to dark reddish green. One to three racemes of up to twelve flowers, often fragrant, are borne from the top of the pseudobulbs, the colour, while commonly pink, varies from white to purple. They are up to 25 mm in diameter having the labellum usually spotted and blotched with mauve. The flowering season is August to November.

It can be grown on slabs or trees (e.g. Jacaranda or Melaleuca) but locally, best results are obtained from pot culture - rafts or hanging baskets, using an open mix. Some growers use a commercial cymbidium mixture.

I have had good results by lining wire baskets with a thick layer of live spagnum moss and filling them with small pieces of seasoned pine bark and charcoal. I find that the plant not only grows up but also out of the sides of the basket.

Some shade is required in our summer - I have had success using 50% shade cloth. Protection from our winter frosts is also necessary. Fertilise lightly in the growing season using commercial fertilisers at half strength.

Being hardy it is well suited to cultivation and hybridisation. D. x delicatum is a natural hybrid of D. speciosum and D. kingianum, also D. x suffusum is a natural hybrid of D. gracilicaule and D. kingianum.

A number of man-made hybrids are available. Some of the best known are D. Bardo Rose (D. kingianum x D. falcorostrum). D. Ella Victoria Leaney (D. kingianum x D. tetragonum), all of which respond well to pot culture and flower freely.

Propagation is either by division or cultivation of "keikies".

