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This issue's cover, *Dendrobium glomeratum*

The cover photo and the text below are from our very hardworking contributor, Russell Hutton.

“Help I need counselling!!!!!!!!!!!!!!” The *Dendrobium* with an identity crisis. First described a long, long time ago, many years before you or I can remember wearing frilly skirts or short pants, this species for reasons unknown became lost in cultivation. It was discovered again in the mid to late 1990s when it was reintroduced as ‘a large and spectacular *lawesii* type’. A little later it was being offered as *Den. celebense* (from whence it came) and then as *Den. sulawesienne* (again from whence it came) and stayed that way for a while until it was changed again to *Den. crepidiferum*. Not being satisfied to leave this plant in peace the taxonomists then decided that the name should really be *Den. glomeratum* which remarkably has stayed in place for the past five or so years. I wonder, do these poor plants go to sleep at night bothered by the thought of who they will be tomorrow????”

Editorial

Here is another rather large issue of the NZIOR for you to enjoy. As we suggested in our June issue, take the time to digest the contents at leisure. However, don't forget that Spring is now upon us, although the temperatures at the time of writing this editorial don't support this statement. And Spring means repotting....

What a varied winter we have been through. The first half was relatively mild, the second half was not. The Editors had snow falling non-stop for over an hour around their home at Rotoiti. Our previous snowfalls over 29 years had only lasted for a minute or two. All three snowfalls have been in the last three winters. Warmer living through global warming!

We have a major article on growing Masdevallias and Draculas, which we hope many readers will find of value. Perhaps it may encourage some to try these wonderful plants for the first time. Our popular Orchid Doctor column, a.k.a monthly growing calendar, has returned in force. We have an article on hybridising Clivias (not orchids, but many orchid enthusiasts grow this genus, and the comments on hybridising can be applied quite generally). And there are a number of other delights. So enjoy!

Nick and Elizabeth Miller

Notes and comments

Dr Roy Harris

Dr Roy Harris, a much-respected Foundation member of the Bay of Plenty Orchid Society and a long-term member of the Tauranga Orchid Society, died on Saturday 10th September 2011. Roy, and his late wife Nancy, were excellent growers of a wide range of orchid genera, with Nancy tending to specialise in Masdevallias and Draculas, and Roy tending to specialise in everything else. Roy started growing orchids in 1960, when he moved to Te Puke. Roy will be much missed by his many friends. Our deepest sympathy goes to their children Elizabeth and Frank, and their other family members.

Re conservatory to cool house

I just saw an excellent way of venting a greenhouse, by simply removing (raising) the whole roof and allowing a space of about 6" – in colder weather simply lower it back. I would look at how the fastenings could be altered and/or whether hinges of a sort could be built in to ease the process. I could arrange to send pictures if you feel it might work for you.

John MacDonald (white@eastlink.ca)

Paphiopedilum Orchid lovers to meet at The 20th WOC

Orchid lovers are aware that the home of Paphiopedilums is in Southeast Asia, and Cypripediums grow in cooler parts of Asia. A happy coincidence is that the next World Orchid Conference is going to take place in Singapore, November 13-20, 2011. The prospect of seeing a multitude of what are commonly called slipper orchids – those with a pouch for a lip - in the show that will be part of the WOC should hold great appeal for slipper enthusiasts, and the Slipper Orchid Alliance plans to make this WOC even more memorable by organizing a Forum open to all Paphiopedilum and other slipper orchid lovers.

This will be an unprecedented opportunity for slipper lovers from around the world to meet and discuss our favourite orchids and to help each other in furthering mutual goals of education and conservation. Representatives of slipper groups, well-known commercial growers and other slipper specialists are being invited to participate. At this Forum slipper lovers will be able to learn about activities of the various slipper organizations and to meet experts and commercial growers from many countries. Commercial growers will be able to talk about their nurseries and breeding programs. The Forum is scheduled for Tuesday, November 15 (the third day of the conference) in a room adjacent to the show, after that day's lectures are completed. For more information, please contact Barbara Tisherman at btisherman@aol.com

For those not already aware of the Slipper Orchid Alliance, the organization was started in 1999 to promote broader understanding and conservation of all slipper orchids, to promote exchange of information about them and to advance scientific and horticultural studies of them. Since then we have participated in American Orchid Society meetings, where we sponsor a speaker and donate our trophy. We also were a sponsor at the WOCs in Dijon and Miami. We have a quarterly publication, the Slipper Orchid Alliance Newsletter, with a very wide variety of articles, many of which would not be seen in other publications. Our authors include Olaf Gruss, Holger Perner and Stig Dalstrom, all of whom expect to be at this WOC and to attend our meeting. In recent years we had comprehensive articles on *Paphiopedilum hangianum*, *Phragmipedium kovachii*, *Phragmipedium* species and Multifloral *Paphiopedilums*. Information on culture is emphasized. Our website is www.slipperorchid.org It includes, in a members-only section, an index and all previous newsletter issues. We support conservation through the Orchid Conservation Alliance, the Orchid Conservation Coalition and direct contributions such as to the Orchid and Botanical Garden in Puyo, Ecuador.

We are very excited about participating in the 20th WOC and meeting slipper lovers from around the globe. If you are interested, I would love to hear from you.

Barbara Tisherman, President
Slipper Orchid Alliance
btisherman@aol.com

My recent excursion to Australia.

Bill Liddy (wflid@xtra.co.nz)

I recently went to Australia to visit friends and go to Ray Clements Open Day at Tinonee Orchid Nursery, to fulfil a long-standing invitation. This is not a one-day event; we arrived on Friday afternoon and after settling into our rooms, the evening started out with a few wines and a barbeque to feed the 60 or so people who had turned up for it. I was roped in to be one of the cooks running the barbeque, cooking the fish. After dessert and the place was cleaned up, a few hardy souls talked the night away as you do, talking "Orchids"

Saturday started fine and cold, with a frost. Then we got organised for the obligatory Native Orchid Walk. This was to an area west of Taree to a Reserve called Dingo Tops about an hour's drive from the nursery. I had two of the best guides, by the names of David Banks and Mike Harrison, who showed me every orchid that they could find. The track we took ended up at a lookout called Rolly's Rock. This is at 972 metres above the bush line - great views

but cold (where we left the vehicles it was 8° C). On the walk up we found about 11 species, the most common being *Sarcochilus falcatus*, *Dockrillia (Den.) pugioniforme* and *Cymbidium suave*.

Dock. pugioniforme was everywhere on trees and rocks. One tree that we found had 4 species on it: *Den. speciosum* var. *hillii*, *Den. gracilicaule*, *Dock. pugioniforme* and *Sarco. falcatus*. There was only one downside - none were in flower but all were in bud. One unusual find was a couple of plants of *Schistostylus purpuratus*; then it was down the hill to the picnic area for a barbeque lunch and coffee. On the way back to the nursery we stopped off at various points to look at plants of interest.

Later in the afternoon David Banks took me out to look at some *Dendrobium aemulum* (Iron Bark Orchid), which he said were the biggest examples that he had seen. (*see photo*)



That evening about 60 of the faithful went to the Taree RSL for dinner. On Sunday (the Open Day) it again was fine with another frost, (the heaviest that Ray said he had experienced there in over 25 years) and by 8.30am the cars and buses started to arrive with people from all over Australia, some travelling for over six hours to get there. There were also a couple of out-of-towners from across the Tasman – Lee & Roy Neale and Anita & Hans van de Ven from Taranaki Bark Supplies. The open day also has a small judged show, with ANOS judges judging the Native Orchids, and yours truly, Lee & Roy and Scott Baritta with David Banks as our leader judging the rest, which was a great experience. The day passed with big crowds buying lots of plants and well fed with steak, bacon & egg sandwiches and the obligatory coffee. As the crowds disappeared it was time to clean up and pull down the tents etc. The evening was spent celebrating a successful day. Monday morning saw all those who stopped at

the nursery say their goodbyes and head for home after a memorable weekend.

Questions and answers

Here are some answers to these questions, but if other readers have any experiences that might help, please send your views to us.

Question re setting seed pods

A question for the Orchid Doc.

Why won't my *Laelia gouldiana* set a seed pod? I see that it has a number of registered F1 hybrids and I have even tried to remake some of these without success. Ron Maunder tells me he has the same problem.

Glenn (gpoffley@clear.net.nz)

Answer 1

Memories of selfed seed pods from *Laelia* and *Cattleya* species for L&R Orchids way back are that any were hard to get seed from. There were big fat pods full of chaff. But if I flaked heaps of the chaff I'd often turn up a few protocorms. Successful ones were probably out-crosses or sib-crosses. Some Epi pods were the same, and hybrids also. I've just tried my huge *Laelia anceps* with *Laelia albida* both ways. All fell off. Neither did selfings of each species take.

Last year I tried *L. anceps* with *L. anceps* var. *schroederiana*, *L. gouldiana* and *L. anceps* f. *alba* - probably both ways, and no pods. I think we discussed it at the time. Sounds like you've been unsuccessful again also? It's rather frustrating!

Ron Maunder (ronmaunder@paradise.net.nz)

Question on water and fertiliser

At a recent talk by a prominent speaker water quality and fertilizer was touched on. I try to use rain water for my plants (wide genera in different growing temperatures and light conditions). My question is what fertilizer is most appropriate to use with rain water to achieve a suitable general nutrient source?

Barry Baxter (barry@bakeryservices.co.nz)

Answer 1

Yes water quality is an important factor in the culture of orchid plants, however in general I do believe that town supply in NZ should not give you problems - be aware of the added chlorine as it is if too high it can burn and kill the new root tips. I had a problem like this many years ago - when a 'long' weekend came up those concerned decided that the appropriate amount of chlorine for the three days should be added to the water prior to the long weekend, thus raising the chlorine level. This caused damage/death to the root tips and, by-the-by killed many goldfish. Checks with a pool chlorine test kit showed that the water was unsuitable to swim in let alone drink!!! But as I said this was quite some years ago and I am sure standards are more rigorously controlled these days. You say that you collect and use rain water when possible, which is probably a good idea. I do the same here BUT my water is collected from plastic roof coverings and may well be different from water collected from galvanised iron roofing, especially if the paint covering is in serious need of a repaint, thus exposing the galvanising(zinc) coating, so that it may contain high and possibly toxic (to plants) levels of zinc. Another point to remember is that rain water is generally slightly acid and if too low may inhibit the plants' ability to utilise some of the chemicals in the fertilizer. A pH of around 6.5 to 7 is OK. As to an appropriate fertilizer to use with rain water - hmm my thoughts are that it does not matter provided you can keep the pH at an acceptable level - if you really want to get serious about this you can purchase a reliable pH Meter from Bill

Liddy/Napier Orchid Supplies. For orchids in general I would recommend a fertilizer that is more-or-less balanced, that is the N, P and K are close to equal. I have found in the past that Nitrosol is good but it was alternated with Peter's Special which is no longer available but a similar product is GroMore -growing.

Avoid using fertilizers that are high in N (nitrogen) as excess of this chemical will give much but weak (non-flowering) growth. With the alternation of different fertilizers you should end up giving you plants a nice balanced diet. I am probably in the realms of anthropomorphism now but, would you like scrambled eggs on toast for every meal??? Barry, I do hope this has been of some help . To any other readers out there I am open to criticism; please feel free to have your say. Dr O.

Answer 2

One thing to beware of with rain water is the possibility of metal contamination. In areas with unusually acidic rainwater (Rotorua is one such area because of geothermal activity, but high concentrations of industrial activity can cause similar problems), the rainwater may become contaminated with zinc from galvanised steel roofing (even if painted). In our experience, odontoglossums and masdevallias are particularly susceptible to damage from this source. Symptoms include foliage discolouration and loss. Other causes may produce similar symptoms, so if in doubt have your water analysed for zinc and other common metals. We now use lake water on our garden and orchids. (Nick Miller)

Growing *Masdevallia* and *Dracula* in Dunedin

Otto Hyink (otto.hyink@xtra.co.nz) and Torsten Kleffmann (taddeus@xtra.co.nz)

We think Dunedin provides an excellent climate for growing *Masdevallia* and *Dracula* orchids. The only requirements to keep them happy are a greenhouse and some minimal temperature controls. In this article we discuss some of the history of these exciting genera and the growing conditions we have in our Dunedin greenhouses that help us grow these plants successfully.

Introduction

The genera *Masdevallia* and *Dracula* belong to the subtribe Pleurothallidinae within the tribe Epidendreae of the plant family Orchidaceae. They comprise at least 350 species in *Masdevallia* and roughly 110 in *Dracula*, which are endemic to Central and South America. Most of the *Masdevallia* and all *Dracula* species colonise cloud forest habitats very often at high altitude regions of the Andes where they grow as epiphytes, lithophytes or terrestrials. The genus *Masdevallia* was described in 1794 by Hippolito Ruiz and José Pavon and named in honour of the Spanish botanist José Masdeval with the type species being *Masdevallia uniflora* (Ruiz & Pavon), a small terrestrial species from high altitude regions of the Peruvian Andes.

Due to a similar morphology and flower shape members of other genera such as species of

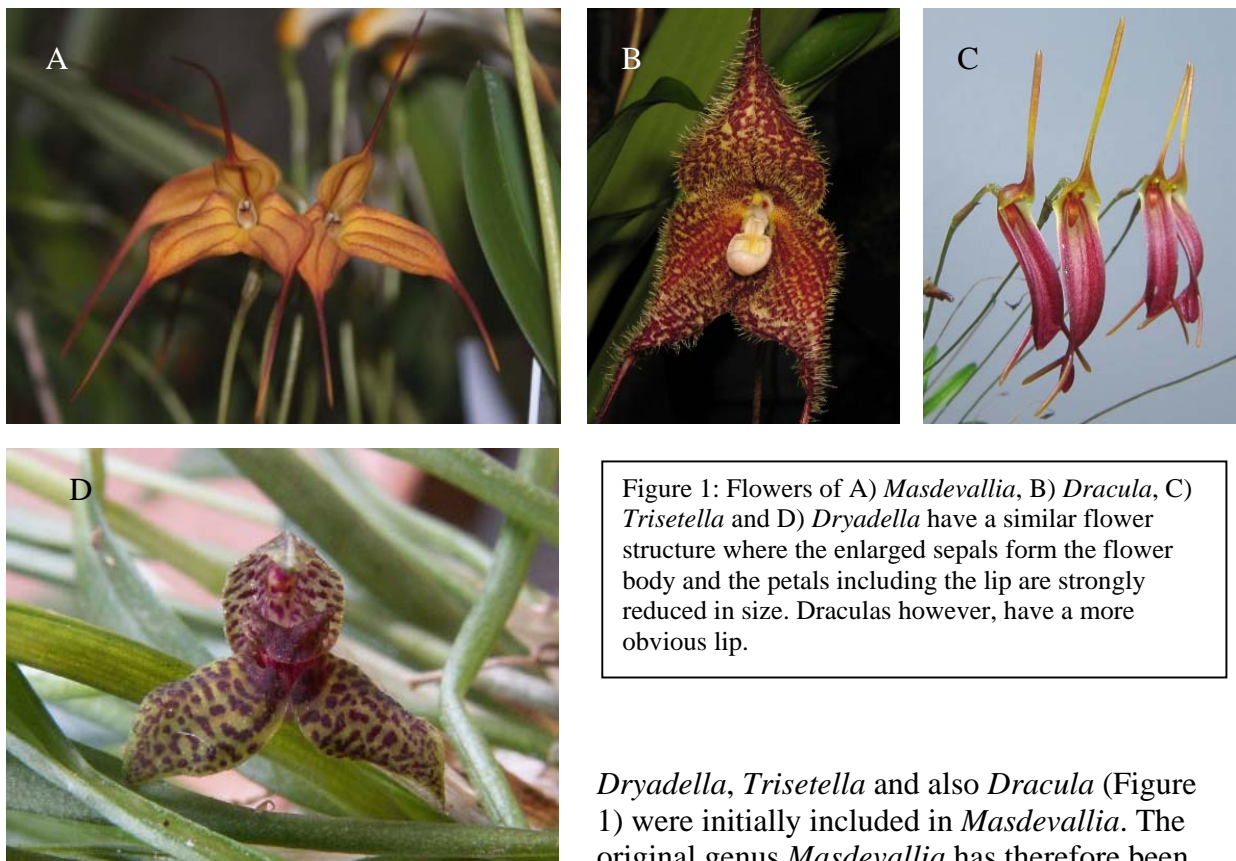


Figure 1: Flowers of A) *Masdevallia*, B) *Dracula*, C) *Trisetella* and D) *Dryadella* have a similar flower structure where the enlarged sepals form the flower body and the petals including the lip are strongly reduced in size. *Draculas* however, have a more obvious lip.

Dryadella, *Trisetella* and also *Dracula* (Figure 1) were initially included in *Masdevallia*. The original genus *Masdevallia* has therefore been subjected to many revisions and reclassifications. The most recent and significant contribution to the reclassification of *Masdevallia* is based on the huge effort of Carlyle Luer. The final version of the genus *Masdevallia* seems still to be “under construction”. As one prominent example, a regrouping of

the giant of Masdevallias, *Masd. macrura* (Rchb.f., 1874), to the new genus *Megema* together with six other species was suggested by C. Luer in 2006. However, this reclassification has yet to be officially accepted and the “World Checklist of Selected Plant Families” of the Kew Royal Botanic Gardens (<http://apps.kew.org/wcsp/home.do>) lists *Megema macrura* as a synonym. To further confuse hobby orchid growers and “non-taxonomists” the official website of the Pleurothallid Alliance (<http://pleurothallids.com/>) has accepted *Megema* and lists *Masd macrura* (figure 2) as a synonym.



Figure 2: *Masd macrura* has the biggest of all *Masdevallia* flowers – and of all *Megema* flowers.

In contrast the separation of *Dracula* from *Masdevallia* is widely accepted. After receiving specimen plants discovered and

collected by Benedict Roezler in Columbia, Heinrich Gustav Reichenbach described the first of today’s *Draculas* as *Masd. chimera* (Rchb.f.) in 1872. Later H Reichenbach considered but did not implement a separation of the “hairy *Masdevallias*” which have a quite distinct appearance compared to typical *Masdevallias* due to their more obvious and characteristically shaped lip. Many other species with large, long-tailed flowers were grouped into the *Masd. chimera* complex including a very large one with distinct dark brown stripes. C Luer must have had something in mind when he first recognised the stripy chimera variety as a distinct species, which he described as *Masd. vampira* (Luer) in 1978. In the same year he went on to separate all those species with the typically enlarged lip from *Masdevallia* into a new genus named *Dracula* (which means little dragon). This new classification including the rather morbid species naming of *Drac. vampira* (Luer; Luer 1978)



Figure 3: Two *Draculas*. A) *Drac. vampira* ‘C & R’ and B) *Drac. vlad-tepes* ‘C & R’. The clone names indicate where we got these nice plants from. Note the distinct triangular spots on the upper sepal of this *Drac. vampira* clone. *Drac. vlad-tepes* is named after Prince of Wallachia Vlad III Draculea Tepes (the Impaler). Here Draculea simply means the son of Dracul (the dragon). Bram Stoker adapted this historical character for his novel “*Dracula*”.

was followed by a bizarre and to our knowledge unprecedented string of names for newly described species, such as *Drac. diabola*, *Drac. gorgona* (originally described as *Masd. chimera var gorgona* by Veitch in 1889), *Drac. nosphe ratu*, *Drac. psyche* and *Drac. vlad-tepes*. The *Draculas* and *Masdevallias* are fascinating groups of orchids and species and hybrids of both are prized by orchid growers worldwide.

Plant morphology

The sympodial growth of plants from both genera is characterised by a very short or sometimes creeping rhizome with single-leafed shoots free of pseudobulbs. The mostly fleshy or sometimes succulent leaves of *Masdevallia* and the thin mid-ribbed leaves of *Dracula* sit on a short stem (ramicaul) that is covered by a leaf-sheath. Flower stems emerge from the base of the ramicaul and are mostly upright in *Masdevallia* (figure 4A) such as in the most well-known



Figure 4: Different types of inflorescences. A) *Masd. falcata* has long upright flower spikes carrying a single large flower. B) *Masd. zahlbruckneri* has pendulous flower spikes that develop several flowers per spike which open successively. (Picture B is an archive picture of a plant that was grown by the author in his overseas collection). C Most *Draculas* send their inflorescences through the substrate. The flower always faces downwards.

species *Masd. coccinea* and *Masd. veitchiana* and often pendulous in *Dracula*. *Masdevallia* flower stems can also be very short carrying the flowers close to the base of the leaf (e.g. *Masd. picea*) or even pendulous (e.g. *Masd. zahlbruckneri*; figure 4B). *Masd. caesia* has a completely pendulous growth habit with hanging leaves and flowers. Inflorescences can be single-flowered or multi-flowered. In multi-flowered inflorescences flowers can open simultaneously (e.g. *Masd. caloptera*, *Drac. sodiroi*) or emerge and open successively. *Masd. Tovarensis*, for example, has multi-flowered inflorescences which can flower again from the same spike after a break period.

In both *Masdevallia* and *Dracula* the sepals are strongly enlarged compared to the tiny petals (including the lip in *Masdevallia*) and form the actual flower body. In most species the sepals are more or less triangular in shape, often extending into long sepaline tails. The bases of the sepals form a tubular structure hiding the column and tiny petals. Most of the *Draculas* however, have a more open or bell-shaped flower that always faces downwards (figure 4C). The ensemble of the hairy sepals, the tiny petals that look like eyes, the nose-shaped column together with the bizarre wobbly lip that appears like a jawbone carrying sharp teeth gives *Dracula* flowers a unique face-like appearance. Some of them may give the impression of monster faces, most of them, however, appear like monkey faces.

General cultivation notes

In general members of both genera are regarded as cool-growing orchids. This view is probably based on the natural habitat of these orchids, located in Central and South America's high altitude cloud forests. It is a generalisation, which however, meets the temperature requirements of most of them quite well. Another general rule says that *Draculas* require slightly higher night temperatures. As the exception proves the rule there are several *Masdevallias* and *Draculas* that require intermediate growth conditions such as *Masd. zahlbruckneri*, *Masd. towarensis*, *Drac. cordobae* etc.

The cloud forest habitat and the absence of pseudobulbs also suggest that these plants require constant moisture without dry periods. Indeed the substrate should never dry out completely and a high humidity is needed throughout the year. Under such conditions good air movement is necessary to avoid spreading of fungal and bacterial diseases.

Especially *Draculas* but also most of the *Masdevallias* require sufficient shading and direct sunlight should be avoided. *Draculas* prefer lower light intensities than *Masdevallias*. Indeed, several *Masdevallias* require good light conditions without direct sunlight in cultivation for good flower production e.g. *Masd. veitchiana* and *Masd. coccinea*.

Cultivation of *Masdevallia* and *Dracula* in Dunedin

The climate in Dunedin is temperate with annual rainfall of nearly 800 mm and average summer and winter temperatures of 15°C and 5°C respectively. Extreme temperatures rarely reach 35°C on a hot summer day and occasionally -5°C on a frosty winter night. Like many places in New Zealand, however, it is not accurate to sum up Dunedin's climate in this manner. Dunedin is situated on a large natural harbour with the Otago Peninsula lying on the eastern side. The Western side of the harbour rises quickly to an altitude of around 600 m above sea-level, with numerous ridges and valleys covered in a mixture of suburbia, pasture, native and exotic forests. The tops of the hills extending from Mt Cargill to Flagstaff are mostly covered in native cloud forest, the rainfall here being close to double the 800 mm that falls in the central city. We grow our *Masdevallias* and *Draculas* in two quite different microclimates.

Greenhouse 1 (Otto)

Greenhouse 1 (GH1) is situated on the outer edge of the hill suburbs close to the bush at about 170 m altitude. The climate here is wetter than the Dunedin averages indicated above. The orchids live in a 4.8 x 2.5 m plastic film greenhouse. Benching sits approximately 40 cm above bare ground and a fan operates constantly to provide air movement.



Figure 5: Growth areas for Masdevallias and Draculas in GH1 (left, above) and GH2 (right)



Greenhouse 2 (Torsten)

Greenhouse 2 (GH2) is located approximately 500 m linear distance from the sea shore at 60 m altitude. The microclimate in this region is strongly influenced by the sea breeze, which keeps the majority of winter nights frost free. However, the humidity and average rainfall is significantly lower than in the location of GH1. GH 2 is a 3.6 x 2.4 m glasshouse insulated with polystyrene to a height of 1.2 m along the inner side of the glass panels. Furthermore the inside of the whole glasshouse, including the roof panels, is lined with horticultural plastic film. The ground is covered with paver-stones. A roof vent along the length of the greenhouse and a strong fan that operates constantly enables good ventilation and air movement.

Temperature

The temperature conditions in GH1 were monitored for the months of December 2009 and May 2010 with measurements every 5 mins. The results of these measurements have been discussed in a previous article in the NZIOR (June 2010). The median temperatures recorded were 14.5°C and 10.5°C for December and May respectively. The maximum and minimum temperatures were about the same for both months and the greenhouse was above 30°C for less than 2% of the total time. According to the temperature ranges measured in GH1 there are few problems to meeting the temperature requirements of cool-growing *Masdevallia* plants.

Night temperatures in winter are managed by small column heaters in both greenhouses. In GH1 the heater is hooked up to an external thermostat that sits in the middle of the greenhouse. These heaters keep the temperature above 6°C and 8°C in GH1 and GH2 respectively with extreme lows on the coldest nights of about 4°C (GH1) and 6°C (GH2). This certainly seems to work for most of the *Masdevallia* plants in both greenhouses. The slightly higher night temperature in GH2 suits the *Dracula* species, whereas the *Masdevallias*, at least the cool-growing ones, seem to acknowledge the higher diurnal variation in GH1.

Very high summer temperatures over an extended period of several days is a well-known problem for *Masdevallia* and *Dracula* plants. In summer the roof vent, window and the door can all be opened as necessary to prevent overheating. Dunedin has only short periods of very hot or dry weather. Under such conditions extreme temperatures of roughly 35°C can be reached in the greenhouses. Then frequent



Masdevallia strobilii



Masdevallia yungasensis



Masdevallia veitchiana



Dracula gigas



Dracula bella



Dracula wallisii

misting and good ventilation are needed to keep the temperature as low as possible. None of the greenhouses has an automated misting system installed. However, extreme low and high temperatures persist only for short periods during the winter nights and summer days as determined by the temperature monitoring in GH1.

Water and nutrients

For watering the plants and misting the greenhouses we are mostly using water from Dunedin's water supply (tap water), which is generally of good quality and suitable also for very fussy plants. Dunedin's water supply uses different sources of water such as surface water or ground water. It is however, supplemented with chlorine, fluoride and lime or carbon dioxide to adjust the pH. Resting the water before watering the plants is therefore recommended. The conductivity of the tap water used at GH2 ranges between 90 and 140 μS (micro Siemens)/cm with a pH around 6. These values indicate a very low salt concentration and only minimal amounts of dissolved lime (CaCO_3). In comparison rainwater collected close to the coastline at GH2 ranges between 10 and 50 $\mu\text{S}/\text{cm}$ conductivity with a pH of 5.5. The relatively high conductivity of the rainwater is due to salt containing aerosol from the nearby sea shore (seawater ranges around 54000 $\mu\text{S}/\text{cm}$).

Masdevallias and especially Draculas can be fussy plants that are susceptible to the accumulation of salts in the substrate when watering with water containing high salt concentrations (high conductivity). The conductivity should range between 100 and 150 $\mu\text{S}/\text{cm}$ with a maximum of 200 $\mu\text{S}/\text{cm}$ when including fertiliser. If water with higher salt concentrations (or even lime) has to be used a more frequent re-potting is recommended. Rainwater is always a very good alternative to tap water.

Plants are watered as needed in the morning. Picking up a few plants and checking the weight of the pots is used to determine whether the plants need watering. The bare ground underneath the benches in GH1 holds the water quite well and

ensures a humid environment. In GH1 some Nitrosol Original fertiliser is fed to the orchids every few weeks. This is used at a weak concentration of about 5 ml fertiliser in 10 L of water and applied with a standard watering can. In GH2 the water is supplemented with a very low

concentration (additional 20-30 uS/cm conductivity) of fertiliser for every watering. In spring and summer plants are watered with higher concentrations (additional 50-80 uS/cm) once every few weeks. Occasional flushing of the substrate with rainwater can be used to remove excess salts but not lime which has a poor solubility at higher pH values. The fertiliser is a mixture of different commercially available fertilisers containing micro-elements. The NPK (Nitrogen / Phosphorus / Potassium) values are adjusted towards a higher K in autumn and winter and a more balanced N/K for spring and summer.

Light

The only element of their native climate that is really difficult to replicate is the day length. Most of the species (despite being cool-growers) grow close to the equator where there is little variation in day length throughout the year. The day length in Dunedin varies considerably from summer to winter but the plants do not seem to care all that much. Artificial light can be used as a supplement and to prolong light hours during the day. The most cost-effective solution is fluorescent lamps that emit light colour temperatures around 6400 Kelvin (cool white or day light). This colour temperature has a lower dark red portion for a healthy growth pattern. However, fluorescent lamps only emit a relatively low light intensity that is strongly reduced with increasing distance from the lamp so that only a very small area in the greenhouse can be efficiently covered with one lamp. In a conservatory-like environment some plants have been grown successfully under a 45 W fluorescent lamp with a colour temperature of 6400 Kelvin. The Lamp was placed 40 cm above the plants. Figure 6 shows a *Masd. x mystica* grown for more than three years with the aforementioned light supplement.

In summer high light intensities can be a problem for these cloud forest orchids. Some permanent shading (50% shade cloth) is used over the front and back quarters of GH1 where most of the Masdevallias and Draculas live. Some additional temporary shading is placed over the middle of the greenhouse while the days are longer – from about September to April. GH2 is completely covered with 50% shade cloth. The growth area for Masdevallias and Draculas is covered by additional shade cloth attached to the inside of the greenhouse. Both shadings are flexible for seasonal adjustments.



Figure 6: *Masd. x mystica*. *Masd. x mystica* is a natural hybrid between *Masd. filaria* and an unknown parent. The plant shown here was grown with artificial light supplement and has been in flower non-stop since autumn 2009.



Figure 7: *Dracula gigas*. This plant grows well mounted on redwood bark together with some substrate and living moss (and some ferns) to keep the roots moist.

Growth medium and substrate

Masdevallia plants are potted in medium grade bark mixed with a little bit (ca. 10%) of sphagnum moss. The bottom of the pots is lined with a thin layer of sphagnum moss to keep the substrate moist in summer. *Draculas* are grown in baskets (lily pots) with a substrate containing 50% medium grade bark and 50% sphagnum moss. We are currently testing different other substrates for growing *Masdevallias* and *Draculas*. Some plants are mounted on various substrates such as pine bark, redwood bark or ponga logs. They are mounted together with substrate mixture containing mostly sphagnum moss, some pieces of bark, ponga fibres and living moss (from the garden). The moss quickly overgrows the log and helps to keep the moisture around the roots. Figure 7 shows a *Drac. gigas* that grows very well mounted on redwood bark.

Potted plants should be re-potted at least every 2 years to change the substrate that may have become too dense and could contain accumulated salts. While we try to stick to this guideline it does not always match our schedule.

Acknowledgements:

If not stated otherwise, the plants we have presented pictures of were obtained from various NZ orchid growers in a commercial or semi-commercial way. We would like to acknowledge every grower (hobby or commercial) who was willing to share these precious plants with us.

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- Hermans J and Hermans C. (1997) An Annotated Checklist on the Genus *Dracula*. Orchid Digest Special Publication Reprint of Vol 61(4).

Web sites:

- Web site of the Pleurothallid Alliance: <http://www.pleurothallids.com/>
- *Dracula* species database: <http://www.draculaspecies.com/>
- *Dracula* culture sheet: <http://culturesheet.org/orchidaceae:dracula>

Pest Control with Neem

Tony Connelly (aredc@xtra.co.nz)

This revised article on the use of neem was originally published in Orchids 2008 Ed.

The Christchurch Press, reported Monday, 4 February 2008,

“Massey University Health Research Unit...

Jobs Linked to Higher Cancer Risk

For Hairdressers the issue is hair dye, for Horticultural workers it is chemicals.

Occupation cancers, account for between 300 and 400 deaths yearly.

Research by Massey University’s Centre for Public Health Research Unit, into bladder cancer and non-Hodgkin’s lymphoma, confirms this.

The non-Hodgkin’s findings conclude that workers in Plant Nurseries are four times more likely to develop the disease and Apple and Pear growers a five-fold risk.

Non-Hodgkin’s lymphoma is understood to account for about 90% of all cancer cases in N.Z.”

Chemical Warfare and Cancer

“We should endeavour to work together in harmony with nature, rather than try to wage a ceaseless chemical war against her.”

Some years ago after spraying orchids with Malathion and oil, a red itchy rash appeared on the back of my hands and lower arms, and the skin later peeled away. This was a serious warning, and I thought about the many toxic insecticides, fungicides and sprays I had used for many years.

In a Garden Centre I found information about Neem as a safe alternative to control plant pests. I read an article in the *American Orchid Society Magazine* which reported very good results with Neem and, on the internet, found sites posted by the Neem Foundation of India and by the Neem Association in the U.S.A. The weight of positive evidence concerning the health of people, animals, soils and plants convinced me that the answer to all my pest problems could well lie with the Neem Tree (*Azadirachta indica*), a native of East Asia.

Various compounds found in all parts of the tree have antiseptic, antiviral, antipyretic, anti-inflammatory, anti-ulcer and antifungal properties. According to information from the Neem Association in India, **Azadirachtin** is the most active insecticidal compound found in Neem. In its several forms it has the ability to disrupt and block the growth development of any insect that sucks, chews, or comes in contact with this compound on the leaves, or in the sap of plants. It may not kill immediately, and affected insects may still be visible for a period, but it will repel them and stop all further development.

Two other compounds, Salannin and Meliantriol act as powerful antifeedants, (insects will either be repelled or cease to feed and fail to develop) and other compounds found, have antiviral and fungicidal properties. The properties of Neem are absorbed **systemically** into the sap of treated plants, and are effective as a control on all insects that chew or feed on the sap.

It took about six months of regular spraying every two weeks, for the plants to become thoroughly saturated, and for me to observe a decrease in the number of Aphids, Scale, Slaters, Millipedes, Mites and also the absence of Botrytis. I have now been using Neem products on a regular basis for over three years, in place of all the toxic chemicals I once used to control insects.

Neem Oil, or Neem 900 EC is a natural product extracted from the kernels of the Neem tree nut, and is safe for humans to use, although it is prudent to cover up when spraying. It is important to use warm water in the spray mix, and discard any unused mix after 24 hours. Neem Oil becomes solid in the bottle, but can be made liquid again by simply placing the container in a jug of hot water for a short while. The spray solution should be kept warm while using in cold conditions, to avoid the sprayer nozzle from clogging.

Initially, Neem should be used every two weeks, at a rate of 10mls per litre with 1ml of Raingard, to aid penetration. Once control has been achieved, a routine spraying every four months should keep plants clean, and in good growing condition. To be effective it is important to have a spraying routine every four months, and aim for total coverage, under and over the foliage and around the top of the pot, avoiding any open flowers.

Developing flower spikes are safe while they are in tight bud, but spray should never be applied during hot weather, above 29 C, or in direct sunlight, as the oil may separate and cause blistering. The foliage of *Phalaenopsis* orchids is particularly sensitive to spray in hot weather, and it should only be used on overcast days, or late afternoon.

My recommended control programme is:-

January Sprinkle Neem granules around all plants, yearly.
 Spray Neem oil + Raingard on all plants and surfaces.
 (Dilution rate; Oil 10mls + Raingard 1ml. per litre)

May Repeat spraying.

September Repeat spraying.

An additional means of applying neem is to include it in the watering system, every second week during the growing season.

A mix of 100mls of Neem Oil to 20 litres of water makes a colloidal solution ready to be sucked up by my siphon proportioner.

Neem Granules are the crushed husks and kernels of the neem nut after the oil has been extracted, and are used to control many insects when applied to soil, lawns or container plants. It is also useful as a fertiliser as it contains all the major elements, including nitrogen. For container plants, sprinkle a dusting of granules on the surface yearly, or when repotting. Granules scattered amongst the pseudo-bulbs of mature *Cymbidiums* will cause no harm, and often it is the only way to get coverage. The granules will commence to break down immediately they come in contact with moisture. This is evident by a most unusual smell and a furry growth on the surface of the containers for a short period.

Neem seems to be harmless to all insects that do not feed directly on the sap of plants, including Worms, Ants, Centipedes, and most insect eaters such as Spiders, Praying Mantis and Ladybirds.

Thailand Revisited

Glenn Poffley *Photos by author*

It is five years since we were last in Thailand and as usual there were many changes with new buildings, roads and transport. One thing that hasn't changed is the abundance of flowers and the Thai's love of them as house plants, decoration and their use in many other aspects of their daily lives and culture.

Arriving on a Wednesday we were able to schedule a visit to the popular Chatuchuk market on Thursday morning. This is a huge market and is very popular with tourists on the weekend where the local expression translates to 'you can buy anything from a submarine to a toothpick here'.

On Wednesday and Thursday however it is a lot quieter as many don't know it becomes a plant market for these two days. Here you can find a mind-boggling array of potted plants, trees and other horticultural products. Orchids are of course one of their (and our) favourites. It is an easy market to reach by either underground rail or over-ground monorail. Depending on distance it usually costs around \$1.50 from the city. Trains are frequent and the system is very easy to use.

August was very warm and humid so keeping hydrated is necessary. Luckily there are plenty of street hawkers with their refrigerated carts selling various drinks scattered throughout the market.



I have been struggling to grow Adeniums here but in the market there were a lot of these in various colours all sold in large pots (*photo to left*).

Warm variety Dendrobiums are in great abundance, grown in small pots with long canes and inflorescences making an eye-catching splash of colour. Further into the market they come in bundles bare-rooted and sold by the kilogram (about \$5 a kg). As you would expect, Vandaceous orchids are popular, just sitting in baskets or rafts with their long roots dangling in the air.

Bare-rooted Paphiopedilums are sold by the kilogram (\$10) at one stall but the rarer varieties are potted and in flower. Flasks of species and hybrids were stacked along one shelf. The prices of these varied depending on the flower or rarity but all were cheap for us. My favourite, Cattleyas, were also numerous and good size flowering plants were \$2 - \$5.

Our next day out was to Nong Nooch near Pattaya, south east of Bangkok. We were a little disappointed in some aspects as this was more of a theme than horticultural park but nonetheless was beautifully presented with large manicured gardens to stroll around in. Orchids are not their strong point but the cultural and elephant shows were very entertaining. I have never been to the wholesale flower market before in Bangkok and as it transpired our impromptu visit one night happened to coincide with the Queen's birthday celebration. There were some long delays in the heavy traffic of sightseers out looking at the lighting and decorations along the route. The market is along both sides of a street for about 500m and is just crammed full of cut flowers of every description all in bundles of 100 stems ready for sale. Trucks, vans and utes come in and out with their produce and a constant watch has to be kept for men rushing around with trolleys laden with flowers. Many meticulously made arrangements and posies are for sale as well; these are used for gifts or religious offerings.

Later in the trip we arranged a day to visit an orchid nursery an hour out of Bangkok. This was another feast for orchid lovers as we were greeted with a sea of colour. There were mostly Dendrobiums of every shape and colour (*photos to right*). I was nearly going to say 'and size' but they were mostly very big by our standards. Plants with 3 canes (over 500mm long) and 2 – 3 flower spikes even longer were selling at 5 for \$4! All had dozens of flowers at various stages from buds to fully open. There were many Vandas (\$4 in flower) (*see photos on next page*), a number of Cattleyas (\$2 - \$4) and some Oncidinae. But what really surprised us were the Dendrobiums that had nearly finished flowering being sold for 10Baht each (45cents at current





exchange rates). Free coffee and iced water were available and the whole ‘supermarket’ was constantly misted with overhead misters and fans making it a welcome relief from the intense heat we were to experience later at a local floating market.

I was the only European to be seen here and the selection of tasty food was just mouth-watering. This market was well off the tourist route and not to be confused with the well known one at Damnoen Saduak.



It’s good to go somewhere warm for winter and we will think seriously about going away for a little longer next time especially if snow is forecast in Auckland again.

An unsuspected culprit - *Opogona*

Article prepared by Russell Hutton *et al.*

The following two stories will possibly prompt you to say “ah so that’s what it is” and may be of help to you. I have been talking with both authors regarding this problem for a little over a year now and with a bit of prodding and cajoling, more one way than t’other I might add, succeeded in getting them to commit their findings to print.

Despite the fact that the culprit has been rather common in NZ for well over 50 years it’s depredation on our orchid collections seems to be relatively recent. I have been growing orchids – many different types – for over 40 years now and this grub/caterpillar problem has only really caused alarm in the past eight years or so... continued below

Following is what Roger Calderwood has to say -

THE GOOD,
yes a centipede!!



THE BAD

the moth-er of the problem



& THE UGLY
the destruction



Late July last year I was looking over my baby cymbidiums (young plants potted on from community pots) and noticed a good number were beginning to look slightly yellow. I should say here that these plants along with 500 or so small *Sarcochilus* seedlings are kept in a 12 m x 4 m plastic twin skin greenhouse. There are 50 or so community pots on a heat pad and about 150 nursery trays filled with 5 cm, 7 cm and 10 cm pots. Generally the plants have just one growth. Now, back to those yellow

looking leaves; this had me puzzled as the plants get regular water and fertilizer so a feeding deficiency did not seem right. However my initial thought was that they might be suffering a nitrogen deficiency as I had changed my bark supply, with the new batch not being as aged. This did not seem to ring true so the next step was, I removed a few plants from their pots and on doing this it was immediately apparent that the problem was animal and not mineral. Many of the plants had had the velamen (the spongy root covering) almost stripped off and some roots had been chopped/bitten in half. The bark looked very second-hand and full of tiny pellets looking very like 'grub poo' or 'frass' as the more knowledgeable are want to call it. On closer examination I found the culprits, translucent greyish looking grubs, some tiny (1 mm long), to the largest 8 to 10 mm and also some pupae shells. In one 5 cm square pot I found 13 grubs.



Many moth grubs



pupa case

Generally, though, most pots had only one or two of these critters in residence and how they spread out so evenly is beyond belief. Close to 50% of the 4000 or so plants were eaten to some degree. The worst effected were completely stripped of roots and died. I lost several hundred cymbidium plants and about 50% of the *Sarcochilus*, which can now be called *Opogona's* pavlova.

The surprising thing was that in the community pots of 25 plants, planted in very fine aged bark, I could not find a single grub. Was this medium too wet for the grubs' survival? Something had to be done with such a large infestation so I resorted to dunking the nursery trays in Nuvos (organophosphate). The result was a 100% grub kill but within 2 months I had a reinfestation, though not as extensive. It was not going to be practicable to keep using insecticide in this way.

In a quest to identify this beast I collected and housed several samples in jars, together with a supply of their food source with the intention of growing them to maturity. Was it a beetle?, butterfly? moth? but Murphy lives with me and they all died within 2 to 3 days.

At about this stage I thought I would contact that chap Hutton [Russel] to see if he knew what they were. My thoughts were maybe 'wireworm' but after sending photos to Hutton he felt that the grubs did not look like beetle grubs and further research put them in the Lepidoptera – moths and butterflies. So now it was time for option B. The Manawatu Orchid Society meeting was coming up and fortunately that meeting was a quiz night.

Question 6 was – “Which of our members is an entomologist?”

This was just the guy I was looking for. Thanks Ian.

With a few photos of the grubs and a little help from his friends we now have a name -

Opogona omoscopa



Larva



adult moth

A **Moth** – probably originating in Western Australia.

The larvae reputedly feed on various types of decaying vegetation including rotting wood, cork, rhubarb, gladioli corms and pineapple roots.

We can now add baby orchids to the list – their tastes are getting into the more pricey bracket!

So we have had a look at ‘The Ugly’ and ‘The Bad’, but what about ‘The Good’ you ask?

One thing I noticed when I first emptied out the pots was the odd centipede running around in the bark. I didn’t give them too much thought and, of course, when I dunked the plants in insecticide I also eradicated these. So what is so bad about that?

Well a couple of months later inspection showed that along with a new batch of moth grubs I also had a recovering population of centipedes. Now here is the ‘good’ part - the interesting thing was that more often than not if a pot had a centipede in it there were no grubs. The more recently potted plants had bark that showed signs of being digested but with a centipede – no moth larvae.

One would have to presume that the centipedes were the predator and the grubs were the prey.

Now when I repot, if I find a centipede in the old bark I’ll catch him and put him (or her) back in the new pot.

Where did these moths come from in such large numbers?

I don’t know.

I doubt that they came in the bark. I’ve had the problem in two different supply sources. Besides, two weeks submerged in water and then 15 minutes being tumbled around in a concrete mixer should give any sort of egg a severe headache.

Maybe they come from the trees that border our two-acre section. These are mainly old *Chamaecyparis lawsoniana* that have a lot of dead and rotting limbs.

The only practical form of chemical control seems to be to kill the adult moth before it lays any eggs.

I have now installed a couple of automatic aerosol insect eliminator dispensers.

I have found a few live moths and some grubs this year but no extensive plant damage so far.

Now for Colin’s observations -

I had come to the personal conclusion that the bug was probably a fairly new import to the warmer areas of New Zealand due to the “Global Warming”.

Much to my surprise, my search revealed a great deal of information about the *Opogona* family of wood worms (of which *O. omoscopa* is only one of many) probably all with the

same preference for living on soft wood tissue. They are noted pests for the banana and sugar cane industries and for European glass-house growers. One variety is native to Australia.

Once again, much to my surprise, it is not a recent introduction to this country and it has been well-researched by many better informed people than me for many years. In fact a light trapping exercise carried out in Auckland in 1952 discovered that the moth was by far the most prevalent nocturnal moth around that particular area, at that particular time, and it possibly still is throughout the warmer parts of this country at least.

I do not know how far south it can be found, but, if I can obtain suitable funding, I am quite prepared to research the facts.

They have a three-month life cycle from egg to moth, and the moth has dark front wings and light rear wings which are very feathery on the trailing edge, and yes, I have actually seen one in my back yard, but squashed it before I thought of getting a photograph.

I also discovered that educated and informed naturalists locate the pest by the presence of their “frass*” which is the same stuff that I have been referring to, in my ignorance, as “prills” or “poo”. Sorry about that if I have caused offence.

(* ‘Frass’ – *the fine powdery material phytophagous (plant-eating) insects pass as waste after digesting plant parts.* Ed.)

The grub is semi-transparent with darker brown head and tail and can grow to around 25 mm in length. They are very sensitive to light and when exposed can show surprising agility for a creature usually living in very confined space. I believe their preference is for soft or dead plant tissue rather than fresh growing plants, but they will make use of root fibres if they happen to get in the way.

I have come to the conclusion they prefer the more open structure of soft wood as it allows them to construct the living space required to accommodate both themselves and their frass. “What goes in must come out” as they say and denser, harder wood just means more consumed and less room to put the leftovers. The other problem is that as they grow, so does the amount of frass.

When young, at or near the surface of the timber, the prill size is a very small pin head or less size.

They are all cemented together with some adhesive and waterproof excretion to form a mat or blockade which the creature uses to fill the entrance to its burrow and back fill the tunnel as it proceeds. Thus keeping out predators and nasty sprays etc. from hopeful gardeners. As the insect grows so does the size of the frass and it gets to about small rice grain size at fully grown.

Once hatched to a moth it also exhibits a degree of cunning in the placing of the eggs in locations that are away from the light (even though they are active at night) and in places less easily seen.

Which means that when checking for signs of their presence you need to look at the back or bottom of the mounts more than the front.

The good Doctor and I are of the opinion that the fact that they seem to be getting increasingly prevalent is not just due to our own increased awareness. We believe they are well on the road to becoming a “Pest” for gardeners and orchid growers and that they appear to be active year round, in the north at least.

My recent winter pruning clean up on our section revealed that they are well-established in numerous garden plants. Wisteria, kowhai, palm and plums are all infested in dead areas. Any orchids in drier wintering-over condition are likely targets.

The accompanying pictures show the haul located in an outdoor *Dendrobium* Virginia Jupp plant recently. There were probably others I did not find. The other is of an insect as located in a split log.

What to do about them – obviously systemic sprays will not work to kill the insect as the plant material is frequently dead. Drenching will only be effective if it can penetrate the material. Moth traps may be effective in reducing the numbers.

To date the only answer I have been able to come up with is to remount plants on hard wood mounts, which are not as attractive to them. I am also experimenting with sealing driftwood mounts with a timber sealer, but as yet it is too early to say if it is effective or acceptable to the plants.

If anyone can contribute some knowledge or ideas it would be appreciated.

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Russell Hutton continues: My first veritable encounter was when preparing plants for Japan, the Tokyo Dome Show, and I noticed that plants growing in sphagnum moss in small pots had a webbing like covering in places and further delving produced translucent greyish caterpillar-like grubs with the associated frass. I was surprised but not too concerned as all plants were dipped in an insecticidal concoction for 30 seconds after de-potting.

Over the past years when cleaning up and dividing old overgrown plants I found that these grubs were quite common in the 'curtain' of roots overhanging and clinging to the pot and in hanging baskets and on mounted plants whether on tree fern, cork, or casurina etc. This got me to thinking that these pestiferous grubs prefer a dry/damp living space as anything more constantly wet/damp revealed none or very few grubs. Remember Roger had no grubs in a finer and therefore wetter bark in his community pots. A quick note here about those first grubs I found in plant growing in sphagnum moss: they were quite large plants with well-developed root systems growing in rather small pots – not ever wet but damp/dry so please don't condemn sphagnum moss as I am certain that if the plants were in larger pots the increased moisture level would have made it unattractive. Checks have verified this.

A possible reason for the increased occurrence of these grubs in my nursery could be that as with Roger I now have a large population of aging Lawson Cypress or *Chamaecyparis lawsoniana** trees as a shelterbelt, as do my neighbours – has this created an environment attractive to these moths? A difficult scenario to monitor.

* also a good number of mature pohutukawa – I have found them on this;

Casurina torulosa – ditto;

Pittosporum spp – ditto;

Vitex lucens (puriri) – ditto.

Lastly any comments as to control/eradication from others would be greatly appreciated.

Other Worlds: Hybridisation Strategies for the Clivia Hobbyist

By Alick Mcleman (clivia@xtra.co.nz)

(Based on a slide presentation at a meeting of the New Zealand Clivia Club on 29th July 2009)

Perhaps a more appropriate title for this article would have been “**Foolin’ around with Clivia**”. I have no horticultural or scientific background. A banker in my other life, I have been ‘playing’ with clivia for the past 18 years, ever since I first saw a lone *C. miniata* in flower under a tree in a newly acquired garden in Johannesburg. At the time I didn’t even know what a clivia was, but it was love at first sight and I snaffled the clivia away from my green-fingered wife, Frances, who had excitedly discovered how easy it was to grow them from seed.

Apologies therefore to the scientists in our ranks for my somewhat unscientific perspective.



(Variety is the spice of life and the incentive of Clivia hobbyists)

My hybridising of clivia has been influenced by two fundamental concepts:

1. The first is Mendel’s theory, which I have come to interpret as “**What you put in, is what you get out**”. As I understand Mendel’s model, if you breed for any genetic trait, that trait could re-emerge in the 2nd and later generations. It follows that one can set goals based on genetic characteristics in a first generation cross. To illustrate, if you set a goal of producing a yellow pendulous plant you could cross a yellow *C. miniata* with an orange *C. gardenii* as depicted in the table. In the first generation (F1) this would produce 100% orange, very similar, semi-pendulous, slightly-flared flowers. If the siblings are then crossed (F2) 25% of the progeny will be yellow (depicted by the yellow block of squares) and 25% of these yellow clivia will tend toward the *C. gardenii* form, 25% toward *C. miniata*, and 50% would be somewhere in between. You’ve now reached your objective of yellow, pendulous clivia. But your goal could have been for other traits like plant form, leaf width, floret count, colour distribution, etc., etc. And the progeny will, of course, have inherited genetic traits other than your prime objectives as well.



	Open Orange	Pendulous Orange	Open Yellow	Pendulous Yellow
Open Orange	Open Miniata Type	Open Semi Pendulous	Open Split yellow	Semi Pendulous Split yellow
Pendulous Orange	Open Semi Pendulous	Pendulous	Semi Pendulous Split yellow	Pendulous Split yellow
Open yellow	Open Split yellow	Semi Pendulous Split yellow	Open Yellow	Semi Pendulous Yellow
Pendulous Yellow	Semi Pendulous Split yellow	Pendulous Split yellow	Semi Pendulous Yellow	Pendulous Gardenii Type Yellow

WHAT YOU PUT IN -
IS WHAT YOU GET OUT

Mendel's Model

2. The second concept has to do with the pigments in the clivia flower. In 2004/5 the New Zealand Clivia Club through Dr Keith Hammett sponsored an experimental pigment analysis of a range of clivia flowers. This was first published in the club Newsletter Vol.3.1. of March 2005 and is reproduced in this issue. This helped me to appreciate the artists' palette that we have to work with.

As illustrated in the table above we have two pigments to work with, red anthocyanins and yellow carotenoids, the red pigments in the surface cells and the yellow in the fleshy cells behind. In effect we are looking through a red filter into a yellow background, hence the dominant orange colouring of clivia.

But it is not like applying paint with a paint brush. The pigments are rather of the nature of the dot-matrix used in newsprint. The variation in colour is thus due to a change in intensity of pigment 'dots' and not a colour change, and this variation in intensity can occur in either the red or yellow pigments, or both. So red, orange and peach flowers all have the same red anthocyanin and yellow carotenoids, but the intensity varies. Flowers are yellow in the absence of red anthocyanins and white in a flower is due to the complete absence of any pigment in that part of the floret, the air in the empty cells appearing white in the same way as a waterfall appears white, because of the air bubbles.

CLIVIA FLOWER PIGMENTATION ANALYSIS			
FLOWER COLOUR	CAROTENOID	ANTHOCYANIN	RATIO
Dark red	8.2	1.6	5.1
Orange	3.2	0.35	9.1
Pastel (dilute orange)	4.2	0.21	20
Chubb's Peach	4.8	0.07	68
Dark Yellow	9.6		
Near White	1.4		



Pastel Queen

So you can draw logical conclusions to use in creating your masterpieces. The darkest reds have the highest intensity of anthocyanins, the dot matrix being so intense as to be opaque (and the analysis also detected blue pigments in the darkest reds, which adds another dimension); the peaches and pastels have low levels of red anthocyanins and a relatively high level of carotenoid, so you're seeing a lot of yellow through a relatively transparent red filter; and the 'near' whites have a very low carotenoid level because you are looking mostly at empty air-cells; and if you then superimpose a low red anthocyanin filter over the latter the colour will tend to be pink.

And so the clivia hybridist wields his artist's brush in the combination of these two concepts.

Breeding for colour: Colours of similar pigment intensity will tend to breed true. Crossing your deepest reds will tend to produce more reds but with some variation in the intensity, and in some the red may be even more intense than in the parents. This is how one would breed for more intense reds.

Similarly, crossing your deepest compatible yellows will tend to produce a few deeper yellows, and crossing your palest compatible yellows will produce a few that are paler, leading to near whites and ultimately, perhaps, the white clivia. (*Note on compatibility: The genetic defect which resulted in the failure to produce red anthocyanin pigment in yellow clivia can occur in different genes or at different levels in the chemical process, hence we refer to group 1 & group 2 yellows, and there are perhaps other yellow groups as well. All group 1 yellows will have the same genetic defect and if crossed with another group 1 yellow will produce 100% yellow progeny. The two plants are then said to be compatible. If crossed with a yellow of another group the progeny revert to orange. Most yellows in New Zealand will be compatible group 1 yellows*)

There are however exceptions. Some peaches have arisen as natural mutations in habitat and in cultivation. Chubb's Peach and some other peach strains are said to be 'group 1' and compatible with group 1 yellows, that is if crossed with group 1 yellows they will reproduce 100% peach or yellow progeny in the first generation. Most peach plants of this strain have already been crossed into yellow to improve the flower form and, in my opinion, tend therefore to behave as though 'split for' yellow. (*See the next subheading*).



Another group of peaches, which include Cameron's or Tipperary Peach, the Californian Victorian Peach, etc, will also in my experience breed true, but if crossed with group 1 yellow or the Chubb's Peach strain will revert to orange in the progeny. Similarly, pastels, which have similar pigmentation intensity to the peaches but have been produced by diluting red pigments through repeated crossing with yellows, and are therefore split for yellow should reproduce pastel and yellow if crossed.

Recessive Genes/Recovery of colour & other traits: Helen Marriot of Melbourne in an article on interspecific breeding stated:

"In much of his breeding Nakamura (a leading Japanese breeder) has commonly used orange and yellow forms of C. miniata, his notion being that use of different species and colours in combination could give rise to new mutations, including colour mutations".

As already pointed out in the discussion of Mendel's model, crossing a yellow with an orange will result in 100% orange progeny. However, the gene(s) responsible for the failure to produce red anthocyanin pigments in the yellow is recessive, and the orange clivia is said to be 'split for' yellow. (The correct term is 'heterozygous', but I can't even pronounce the word) The point is that plants can be split for traits/colours other than yellow and these traits/colours can then be recovered in later generations as per Mendel's model.

A particular interest of mine has been to recover rare colour forms using this principle. So for instance I have been able to recover the 'non-group 1 or 2' Thurston Alpha and Thurston Beta

yellows through sibling crossing seedlings where the Alpha or Beta were either an ovary or pollen parent.



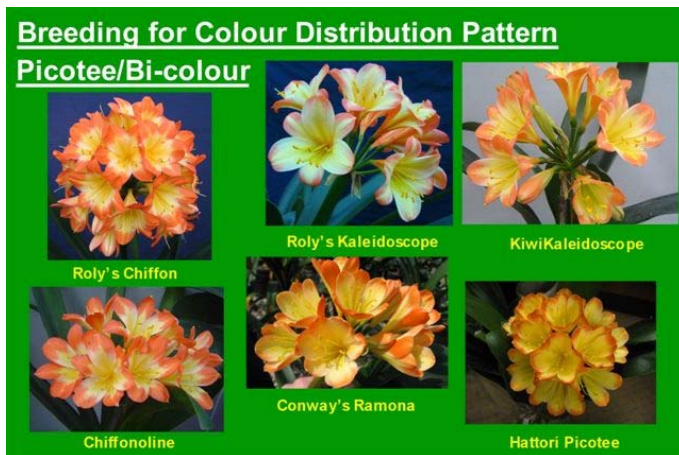
The rare Wittig Pink is by all accounts sterile to its own pollen, but I've been able to recover the colour by sibling crossing Wittig Pink X Chubb's Peach hybrids. Similarly I have been able to reproduce in a plant I registered as 'Golden Dusk®' an extremely rare habitat plant colour, Thurston Ngidi Pink Champagne, again by sibling crossing a hybrid with the Ngidi Pink as one of the parents.

At present I am aiming to recover the lovely Conway plant, Sunrise-Sunset, by sibling crossing Sunrise-Sunset/Twins Yellow hybrids, all of which flowered orange.

But recovery possibilities are by no means limited to colour. The same can be said for colour patterns, umbel, floret and foliage forms, variegations, multipetals, etc.

Breeding for Colour Distribution Patterns: Another area of interest to me is the variation in colour distribution through the florets, resulting in bicolours and picotees (where the red pigments display as a trim at the edges of floret), splashes (where the red pigments display as irregular blotches of colour), white lips (a sort of reverse picotee with a white trim displaying at the edges of orange to red florets), ghosting (a fading of the red pigments in the petals), watercolours/party-colours (a washed effect in pastels, similar to ghosting), and green throats (where chloroplasts occur in the florets).





In most instances the inheritance of colour distribution patterns will also be genetic and, for instance, in repeated crossings of bicolor forms some progeny will tend towards the picotee form. A plant which some have found to be particularly effective in this form of hybridisation is Roly's Chiffon, a plant selected for its deep white throat out of the large plantation of Roly Strachan in KwaZulu Natal. This is illustrated in a plant I've named 'Chiffonoline' produced from a cross between Roly's Chiffon and Crinoline, another Strachan selection. Similarly, I produced KiwiKaleidoscope[®] through another Strachan plant, Roly's Kaleidoscope. But I still have a way to go towards some of the lovely picotees that have been produced internationally, such as Conway's Ramona and the Japanese Kazumi Hattori picotee in photo, but I'm working on it.

Breeding for Form of Florets and Umbel: It may be desirable to cross plants with a view to improving the umbel or floret form through the selection of parent plants which have a high floret count (30 plus) or larger than normal florets, recurved petals, etc. Worthy of mention is Vico yellow, a plant which has been used all over the world to improve floret form. David Brundell in Auckland has done a lot of work with an original Vico clone gifted him by Sir Peter Smithers, improving not only yellows but other colours as well, producing plants with huge umbels and giant florets.



(John Meyer's head in photo illustrates the size of the umbels).

Vico was later extensively used by Yoshi Nakamura in Japan and I have used some of his genetic material in breeding for recurved petal florets, a form I find most attractive because of the 'eyelash' appearance of the protruding anthers.



Similarly, plants are being bred for petal forms like multi-petals, keeled petals, and even plants with no petals at all. Some find very wide petals attractive while others strive for a spider form with narrow petals. It's a matter of personal preference.

Breeding for Foliage Form and Appearance:

For years the Chinese and Japanese have been concentrating on foliage, striving to produce ever smaller plants with leaves as wide as they are long, and using the Japanese Daruma as base.



Some have lovely variegated leaves with vertical stripes of white and pale green contrasting with the darker green of the leaf. There are even plants with attractive horizontal variegations of different types, referred to as Akebono in Japan or LOB (Light of Buddha) in China. Very little hybridising has been done with these plants in New Zealand and even in China and Japan not much has been done to improve the flowers and colour range.

It would seem that variegation is passed on through the ovary parent, the vertical variegation being caused by a genetic defect in the meristem of the plant failing to produce chloroplasts. This defect then reflects itself as a stripe as the leaf grows out of the meristem, the width and number of stripes being dependent on the number of defective cells in the meristem. This defect/stripe can carry through to the peduncle & pedicels and on into the berries and seeds, producing another generation of variegates. It is generally accepted that ovary parents with pin-stripe variegations make the best mother plants.

Inter-specific Breeding:

This is the area of clivia hybridisation which is stimulating so many around the world. All *Clivia* species will cross with one another. Although flowering at different times, pollen can be stored indefinitely in the freezer to facilitate hybridisation between the species with

spectacular results. The Australasian *C. x cyrtanthiflora*, which is fairly common in various parts of New Zealand & Australia, was an early cross between *C. miniata* and *C. nobilis* dating back to the late 1800s.



Again Mendel's theory applies and 'what you put in is what you get out'. Crossing different colour *C. miniata* with one of the pendulous species will produce attractive F1 progeny, all very similar, semi-pendulous, midway between the two species in form and in similar shades of pastel, orange or red, sometimes retaining the green tips of the pendulous species. These F1 plants are then split for the *C. miniata* colour which may be recovered in the F2 and later generations.

It has been found that *C. caulescens*, *C. robusta* and *C. gardenii* lend themselves to quick-growing, robust progeny when crossed with *C. miniata*, with the former two species perhaps contributing to a higher floret count in the progeny.

Many are tempted to cross the F1 back to *C. miniata*, but in doing so are diluting the genetic contribution of the two original parents, and I suggest that better results could be obtained by sibling crossing the F1 seedlings so as to exploit their genetic base to the full.

Sourcing Breeding Material:

So how do you acquire suitable breeding material?


While some quality plants can be obtained at reasonable prices here in New Zealand, some of the really special stuff costs a fortune. For instance at an auction at the 2006 clivia conference in South Africa a top price of R30000 (NZ\$6000) was paid for green-throat yellow. The asking price for a very desirable Bronze green-throat, Bertie's Bronze, is \$2000. And these prices are far from unusual. Add to that the importation and quarantine costs and you'll soon run out of money unless a millionaire.

The point is that this genetic material can be acquired by way of seed. My experience is that imported plants take a fair while to recover from the trauma of importation and, in some instances, the change from one hemisphere to another, so that flowering is sometimes delayed for a number of years. This makes seed grown plants a viable alternative.


Here in New Zealand seed is made available from time to time though the New Zealand Clivia Club. The writer produces an annual international seed catalogue in February/March each year and anyone wishing to be placed on the emailing list can email me at clivia@xtra.co.nz. Otherwise there are numerous international growers of note who make seed available, but in particular both the KwaZulu-Natal Clivia Club (Brenda Nuss nuss@futurenet.co.za) and the Cape Clivia Club (Mick Dower jdower@iafrica.com) produce comprehensive annual seed catalogues. This is a great way to build up your collection. And reading international clivia publications will help you to identify desirable genetic material.

And you will also find that established growers are very generous when it comes to making pollen available from their best plants.

Acquiring Genetic Material



Prize Green Throat - \$6000 Nakayama Hanyae - \$?



Bertie's Bronze - \$2000
Vermaak Red - \$?

SOLUTION:
Grow them from seed

KZN Seed Bank: [Brenda Nuss nuss@futurenet.co.za](mailto:Brenda.Nuss@futurenet.co.za)
Cape Seed Bank: [Mick Dower jdower@iafrica.com](mailto:Mick.Dower@iafrica.com)

Many Generous Pollen Donors

The Future: New genetic material is constantly becoming available. For instance a group of *C. miniata* plants discovered in a Transkei habitat in the 1990s and appropriately named the Appleblossom complex (Q1; Q2; Q3; etc) because of the colouring are now becoming more widely available. These have already been used to produce lovely pink colours. The new species *C. mirabilis* was only discovered a few years back. Then we have the blue pigments found in clivia like Conway's Jean Delphine. All have the potential to add a new dimension to clivia hybridising. The future has to do with what YOU are able to create with the resources at YOUR disposal.

THE FUTURE



Appleblossom Complex Q5 X Q4 Dower Pink

Hot Lips Super Spider Jean Delphine

THE FUTURE
YOUR CREATIONS

HAVE FUN FOOLIN' AROUND WITH YOUR CLIVIA

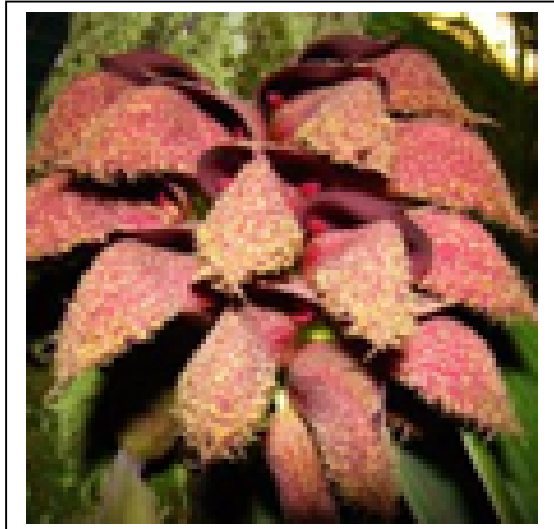
Bulbophyllum phalaenopsis

Tony Beck (tonybeck@bigpond.net.au)



This is one of the species from the *Macrobulbum* group of orchids from New Guinea and this is the largest of the group with leaves growing up to a length of 2 metres long with heads of flowers the size of footballs. The yellow hairs on the flowers identify the species which unfortunately has the odour of rotting meat.

I bought this plant about six years ago. It consisted of three smallish bulbs and one leaf. I potted it up in an open mix and watched it struggle for two years, I then put it onto a piece of tree fern and it has not looked back, producing bigger bulbs and bigger leaves each year. It is hung high under two layers of 50% shade cloth and it has loved the last six months with all the rain we have had. I normally water this plant every day and fertilise once a week.



This is its first flowering and I could not be happier with the result. Apart from the foul odour this has to be a worthy addition to any collection. These plants are rarely offered for sale, if you do see one I would suggest you grab it with both hands. Happy growing.

Tony Beck, Thornlands, Queensland, Australia

Enquiries indicate that this species has certainly been grown in NZ in the past – is it still here today? Ed.

A Definitive Name at Last!!!

To all you orchid growers out there who receive this publication from Nick please take note. A great piece of work it is too, a credit to him.

If you have a plant which is like this photograph and is not named *Pleurothallis restrepioides* please, please change your label. I have been masquerading variously around this lovely country as *Pleurothallis* sp #1, *Pleurothallis circumflexa*, *Pleurothallis atropurpurea* and *Pleurothallis roezlii*, none of which are correct.



What brought this to my now very good friend Noel Townsley's attention was a note with plants displayed by K&R Orchids at a recent show in the Auckland region.

Pleurothallis sp #1 here. I do have a little problem with my name and it just may be that I am *Pleurothallis restrepioides*. Hmm, *restrepioides* = looks like *Restrepia*, no, I look nothing like a cockroach.,,... *Restrepia*, 'Cochroach Orchid'. I came to NZ many years ago, late 70's I believe. I kind of cheated there as I arrived attached to a large *Cattleya* plant which Russell had imported along with others from Jones & Scully in Florida.

Gosh does that mean I am an illegal alien???????
Before that my family goes back to the mid to
higher slopes of the Andean forests of Peru and
Ecuador. Give me an intermediate to coolish
area with moderate light and I am happy, hey
illegals can't be too choosy can they.



Pleurothallis restrepioides

Having read this and taken note of my flowers Noel found my owner and showed him photos he had recently taken of what looked unmistakably like one of my kin, at a show in Australia which had this name on the label. A little more delving seemed very much to verify this. So once again **please** re-label and name me correctly.

(Despite appearances to the contrary, Russell Hutton is the author of this piece. Ed.)

Change and New Trends - Waitakere Orchid Club Spring Show

Dennis Chuah (dennis_cs_chuah@hotmail.com)

This year, the Waitakere Orchid Club decided to trial a new format for our spring show. Set-up and staging was reduced from a full day to half a day and the show was only opened for two instead of the usual two and a half days. This was done in response to the increasing cost of hall hire, despite the fact that we use a community centre, and the club being a non-profit organisation. We pay by far, the most for hall hire - \$1000 a day! Changing the show format means we were able to save one day's rent!

So how has this experiment gone? Thanks to the generous support of clubs and commercial growers, this year, we had the most number of plants entered for judging since the system was computerised seven years ago. Over 400 plants were entered and there were quite a number of plants that were not entered. Most of the set-up was done within an hour and a concentrated effort meant that staging was complete in time for judging.

Preliminary figures show that the number of people visiting the show has remained the same, with the added advantage that the usual mad Friday evening rush is more evenly distributed out as we opened for a full day on Friday. Trading table, flower power and EFTPOS are in line with last year's figures.

This experiment has shown that it is possible to set up and stage a big show in half a day, and it made no difference whether the show was open for two and a half or two days. It figures that if people are wanting to go to an orchid show, they will make the effort to do so.

Clubs need to adapt to changes, and instead of seeing them as challenges, view them as opportunity. There are many side benefits of this new format: those travelling from out of town do not need to rush to arrive to set up on Thursday; they can arrive one day earlier, and leave one day earlier (because we close one day earlier); exhibitors can set up their displays and then stay on to judge the show or help as runners; judging the show from 2-6 pm means avoiding the notorious Auckland traffic; workers at the show have Sunday to rest and recover before going back to work on Monday.

Plant trends



Cymbidium Hypno Beauty

The grand champion, *Cymbidium* Hypno Beauty, had a very large flower, some 5 inches across! It received an AM.



Cymbidium Memoria Ray Dix
Another AM recipient.

As in previous years, the number of Cymbidiums in the show has trended downwards. In the past, Cymbidiums used to dominate the show, but this year standard Cymbidiums account for less than 10% of the plants entered, with intermediate and miniatures making up another 10%. The reduction in Cymbidiums has been more than replaced by the increase in other plants. It is great to see these other orchids gaining in popularity.

Dendrobium, *Paphiopedilum*, *Oncidium* alliance and *Masdevallia* numbers have remained steady, and there has been gradual increases in Cattleyas and *Phalaenopsis*. Cattleyas make up the biggest portion of non-Cymbidiums and show the biggest increase.



Rhyncattlianthe Roy's Magic, Best compact *Cattleya*

The other trend seems to be towards growing *Phalaenopsis* as pot plants. The champion *Phalaenopsis* was a clone and there were plants available for sale in the trading area. How many times have members of the public come up to you in shows to ask if they could buy something like the champion plant? Well, at this show, they could!



Phal. Chian Xen Queen, Best *Phalaenopsis*

The other trend is a surge in numbers of “Any other genera” plants. Perhaps orchid growers now prefer to grow a wider variety of plants.



Calanthe cardioglossa



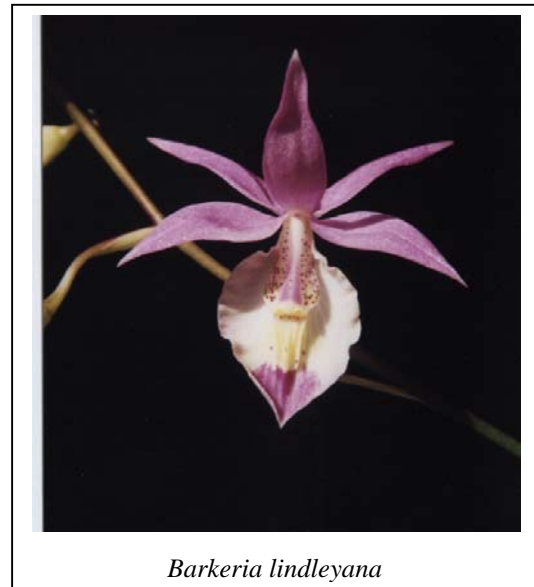
Calanthe cardioglossa, older flower

Barkeria (Knowles & Westcott): A genus not often talked about

Franz Zumbuhl (franzanda@xtra.co.nz)

This genus occurs from Southern Mexico through to Panama and contains about 15 species. I bought my first *Barkeria* in 1989 and have grown about six different species since then. All members have been quite easy to grow and flower, though some have fallen by the wayside over the years, mainly through mismanagement by yours truly !!!

I grow my *Barkerias* mounted on slabs of ponga or in pots of very coarse bark, very close to



Barkeria lindleyana

the roof for maximum light. Whichever the method, it depends on the size of the plant. *B. melanocaulon*, being rather a small specimen, can be accommodated in a pot with its 9 cm stem and 13 cm flower spike. But try that with *B. lindleyana* with her 80 cm many flowered inflorescence! So, the typical growth habit has to be considered.

Barkerias develop cane-like stems, sprouting from halfway up last year's stem, looking just like a keikei. This new plantlet grows very fast and is now well out of, and above, your potting mix level, producing about a dozen thick, spongy roots, aiming for the potting mix or the mount (hence the problem with trying to contain these plants in a pot). Frequent misting (I do that almost daily) is

now called for, as growth is very rapid.

Flowering for most species is during Autumn/Winter in NZ. The blooms are shades of red/purple/pink throughout the genus, though there is the odd albino amongst them. The flowers are showy, rather long-lasting, looking at you! *Barkerias* are deciduous and resemble a handful of dry sticks after leaf fall. They want to be almost totally dry now and in the brightest spot in the glasshouse, until the new growth appears.

These days there are only a few of us "species only" growers left. With CITES, plus other restrictions on imports by our very keen NZ authorities of what can and cannot come into the country, the selection of species available has shrunk/shrivalled! I have not seen a *Barkeria* for sale at any outlet or show for a long time.

Photos by author.



Barkeria cyclotella

Month by Month Cultural Check-list

To help you get the best from your orchids, here is a 'what to do' calendar which a number of readers and others I have spoken with at various places over the past few years have asked for – I surely hope it works for you.

However, please remember that this is a guide only as season change and temperatures vary considerably down the length and across the breadth of the country. **Plus, as I realise that many of you are these days are 'cost conscious', please keep in mind minimum temperatures are not for some types at the optimum, but rather somewhat above survival level.**

Any suggestions and or contributions will be most gratefully received.

Plant Names – I have used the 'old' names for all genera listed but have made notes as to recent changes. I have done this as I am sure your labels will have these old names written on them either in full or as an abbreviation.

If you are unsure/don't know what the parentage of your plant is then send the name to the **Question Box** and **Dr Orchid** will let you know. BUT please remember to tell him the genus name or abbreviation (Cattleya = C; Cymbidium = Cym; Laeliocattleya = Lc; Dendrobium = Den; etc, etc) as without this the required information can not be found. Just write what is on the label.

Why?? Why do I need to know this?? do I hear you ask? Well here is a brief answer – because different orchid species can be crossed together with the resulting progeny fertile and then these plants hybridised with other species or hybrids, often from quite different climates. The result is often plants that are adaptable to a wider range of temperatures with regard to maximum day and minimum night temperatures, light and water frequency. So it stands to reason that knowing what kind of plant you have will make culture decisions far easier. If you have a plant/plants which do/does not have a label then maybe you could email a photo showing leaves and pseudobulbs/canes and or a photo of the flowers. Just maybe we can give you a name or at least the type of orchid. This of course will again make culture decisions much easier for you.

NOTE – a balanced fertilizer is one where the N:P:K proportions are roughly equal.

Eg. Miracle Grow, which has an NPK rating of 15:13:12 – roughly balanced.

N = Nitrogen for general growth of leaves and stems

P = Phosphorus which promotes root development

K = Potassium (the 'K' comes from the Latin name Kalium for the element) which promotes flower/fruit production

Shade – to give you a rough idea of shade percentage, and you must try this on a bright sunny day.

30% shade - if you hold your hand about 25cm above the plant and spread your fingers, that should give you a rather distinct shadow slightly fuzzy around the edge.

50% shade - doing the same thing will give you a very indistinct shadow.

Just a tip – windbreak cloth (usually cheaper than shade cloth) gives around 40% to 50% shade.

Compiled by RFH with the assistance of several others who wish to remain nameless - hmmm and blameless?? Russell Hutton (lrorchids@xtra.co.nz)

<i>Cymbidium</i>	OCTOBER	NOVEMBER	DECEMBER
WATER	As the weather warms up plants will need watering more often. Remember when you water it must go right through the pot to remove excess salts.	Plants in warm airy situation will probably require water twice a week	Same as November. If the bark becomes dry (due to neglect) dunk plant in a bucket of water for, say 3 hours. Growing area should always smell like the bush – slightly humid
FERTILIZER	½ strength balanced fertilizer every 2 nd watering Read instructions carefully!!!	½ strength balanced fertilizer every 2 nd watering	½ strength balanced fertilizer every 2 nd watering
LIGHT-	For Flowering Plants Shade to 50% Greens 70%	Shade where necessary for flowers but as the month rolls on remove shading to 30% as this is the time for initiation of next year's flowers.	Good light is now is important for next year's flowers. Plants need to be spaced if possible, leaf tip to leaf tip to maximise light to plant
TEMPERATURE - Day - Night	Ambient Ambient	Ambient Ambient	Allow night temps to go as low as possible to assist initiation of next year's flowers
FLOWERING	October and November will see the finish of flowering. DO take note of light/shading for November and December with regard to next year's flower production – this is the time when new flower stems (spikes) are initiated.		
OTHER	Check for bugs (aphids, scale, mites and mealy bug) and spray if necessary; here are a couple of suggestions: Confidor, Yates Insect Spray (Read the instructions carefully). Keep flower spikes staked and trained to give a pleasing natural arrangement – DON'T leave it until the flowers have opened and then stake/train as the result does not look natural and pleasing to the eye - despite the proclivity of florists, Cymbidium flowers are not naturally presented upside-down, that is lip to the top. However please don't try to stake and train strongly arching or pendulous stems to an upright position, let them arch or fall gracefully and naturally. Watch for snails/slugs and keep baits out for them		

<i>Paphiopedilum</i> - Slipper Orchids	OCTOBER	NOVEMBER	DECEMBER
WATER A good rule of thumb for watering is during the COLD months IF IN DOUBT DON'T and for the WARMER months IF IN DOUBT DO	Increase watering as required, keeping the mix more moist (not wet). When in doubt, <u>do</u> water.	Increase watering as required, keeping the mix more moist (not wet). When in doubt, <u>do</u> water.	Increase watering as required, keeping the mix more moist (not wet). When in doubt, <u>do</u> water.
FERTILIZER	½ strength balanced NPK	½ strength balanced NPK	½ strength balanced NPK
LIGHT	Increase shade up to about 60%	Increase shade up to about 60%	Shade can be increased further to control day temperatures (up to 80%)
TEMPERATURE - Day - Night	25 degrees 12 degrees	25 degrees 13 degrees	25 degrees 15 degrees
FLOWERING	When a bud is showing in the centre of the plant try not to have water sitting there as this can cause the bud to rot off. When staking the flowers let the flower open and 'set' before bringing the stem to a fully erect position – this way the flowers will look up at you and stay that way.		
OTHER	Watch for snails and slugs and in warmer areas possibly aphids on the flower buds. Watch for Mealy Bug also.		

<i>Cattleya</i> – species and hybrids with the <u>exception</u> of <i>C. dowiana</i> which is happier with a minimum of 10 to 12 degrees C.			
WATER for these WARMER months IF IN DOUBT DO	OCTOBER	NOVEMBER	DECEMBER
	With the rise in temperatures and active growth you will need to increase water frequency but still let the mix become dryish between waterings.	Depending on temperature you may need to increase water frequency but allow to dry off a little before next watering	Increase water frequency but still let the mix become a little dryish between waterings.
FERTILIZER	½ strength fertilizer every 2 nd watering.	½ strength fertilizer every 2 nd watering.	½ strength fertilizer every 2 nd watering.
LIGHT	30% shade	30% to 50% shade	30% to 50% shade
TEMPERATURE - Day - Night	Ambient Ambient	Ambient Ambient	Ambient Ambient
FLOWERING	Depending on the variety these plants can bloom at various times of the year but the flowers in all cases develop in the same way – the spike/buds form within a 'sheath' on top of the most recent growth. It can be a good idea to split this sheath at the top to allow the flower stem to emerge easily especially if it has turned brown.		
OTHER	Watch for snails / slugs. Also aphids on the flower buds and scale and or Mealy Bug on the leaves and pseudobulbs especially near the base of the leaves. Suggestions - Confidor, Yates Insect Spray		

LC (*Laeliocattleya*) – this name means hybrids which have *Cattleya* and *Laelia* in their parentage, especially *Laelia purpurata*. However recent re-classification has put *Laelia purpurata* to the genus *Cattleya* so now these hybrids are *Cattleya* (C).

	OCTOBER	NOVEMBER	DECEMBER
WATER for these WARMER months IF IN DOUBT DO	Temperatures are rising now so increase water but still let the mix become dryish between waterings.	Depending on temperature you may need to increase water frequency but allow to dry off a little before next watering	Increase water frequency but still let the mix become a little dryish between waterings.
FERTILIZER	½ strength fertilizer every 2 nd watering.	½ strength fertilizer every 2 nd watering.	½ strength fertilizer every 2 nd watering.
LIGHT	30% shade	30% to 50% shade	30% to 50% shade
TEMPERATURE - Day - Night	Ambient Ambient	Ambient Ambient	Ambient Ambient
FLOWERING	Depending on the variety these plants can bloom at various times of the year but the flowers in all cases develop in the same way – the spike/buds form within a ‘sheath’ on top of the most recent growth. It can be a good idea to split this sheath at the top to allow the flower stem to emerge easily		
OTHER	Watch for snails / slugs. Also aphids on the flower buds and scale and or Mealy Bug on the leaves and pseudobulbs especially near the base of the leaves. Suggestions - Confidor, Yates Insect Spray		

SLC (*Sophrolaeliocattleya*) – these are hybrids which have been bred using the genera *Sophrionitis*, *Laelia* and *Cattleya*. However recent re-classification has placed *Sophrionitis coccinea* – the most often used *Soph.* species – into the genus *Cattleya*. See above if you want an update on your plant name. This is for plants with larger growth habit having only a small amount of *Sophrionitis* (*Cattleya*) *coccinea* in their background.

	OCTOBER	NOVEMBER	DECEMBER
WATER for these WARMER months IF IN DOUBT DO	Temperatures are rising now so increase water but still let the mix become dryish between waterings.	Depending on temperature you may need to increase water frequency but allow to dry off a little before next watering	Increase water frequency but still let the mix become a little dryish between waterings.
FERTILIZER	½ strength fertilizer every 2 nd watering.	½ strength fertilizer every 2 nd watering.	½ strength fertilizer every 2 nd watering.
LIGHT	30% shade	30% to 50% shade	30% to 50% shade
TEMPERATURE - Day - Night	Ambient Ambient	Ambient Ambient	Ambient Ambient
FLOWERING	Depending on the breeding these plants can bloom at various times of the year but the flowers in all cases develop in the same way – the spike/buds form within a ‘sheath’ on top of the most recent growth. It can be a good idea to split this sheath at the top to allow the flower stem to emerge easily		
OTHER	Watch for snails / slugs. Also aphids on the flower buds and scale and or Mealy Bug on the leaves and pseudobulbs especially near the base of the leaves. Suggestions - Confidor, Yates Insect Spray		

SLC (*Sophrolaeliocattleya*) –This is for plants with a high proportion of *Sophronitis (Cattleya) coccinea* in their background. These plants are very much smaller in stature being from 12cm to 20cm tall.

	OCTOBER	NOVEMBER	DECEMBER
WATER for these WARMER months IF IN DOUBT DO	Water moderately and allow the mix to become dryish before next water.	With the warm summer temperatures you may need to increase water frequency but still let the mix become dryish between waterings.	
FERTILIZER	½ strength fertilizer every 2 nd watering.	½ strength fertilizer every 2 nd watering.	½ strength fertilizer every 2 nd watering.
LIGHT	30% shade	30% to 50% shade	30% to 50% shade
TEMPERATURE - Day - Night	Ambient Ambient	Ambient Ambient	Ambient Ambient
FLOWERING	Depending on the breeding these plants can bloom at various times of the year and some times more than once but the flowers in all cases develop in the same way – the spike/buds form within a ‘sheath’ on top of the most recent growth. It can be a good idea to split this sheath at the top to allow the flower stem to emerge easily.		
OTHER	Watch for snails / slugs. Also aphids on the flower buds and scale and or Mealy Bug on the leaves and pseudobulbs especially near the base of the leaves. Suggestions - Confidor, Yates Insect Spray		

BLC

(*Brassolaeliocattleya*) hybrids using the genera, *Brassavola (Rhyncolaelia)*, *Laelia* and *Cattleya*.

	OCTOBER	NOVEMBER	DECEMBER
WATER for these WARMER months IF IN DOUBT DO	Temperatures are rising now so increase water but still let the mix become dryish between waterings.	Depending on temperature you may need to increase water frequency but allow to dry off a little before next watering	Increase water frequency but still let the mix become a little dryish between waterings.
FERTILIZER	½ strength fertilizer every 2 nd watering.	½ strength fertilizer every 2 nd watering.	½ strength fertilizer every 2 nd watering.
LIGHT	30% shade	30% to 50% shade	30% to 50% shade
TEMPERATURE - Day - Night	Ambient Ambient	Ambient Ambient	Ambient Ambient
FLOWERING	Depending on the breeding these plants can bloom at various times of the year but the flowers in all cases develop in the same way – the spike/buds form within a ‘sheath’ on top of the most recent growth. It can be a good idea to split this sheath at the top to allow the flower stem/buds to emerge easily.		
OTHER	Watch for snails / slugs. Also aphids on the flower buds and scale and or Mealy Bug on the leaves and pseudobulbs especially near the base of the leaves. Suggestions - Confidor, Yates Insect Spray		

Laelia

eg. *anceps*, *albida*, *autumnalis*, *furfurea*, *gouldiana*, *grandis*, *lundii*, *purpurata*, *sincorana*, *speciosa* and rupicolous types such as *briegeri*, *cinnabarina*, *flava*, *lucasiana*. Again there are many name changes so for an update see above.

	OCTOBER	NOVEMBER	DECEMBER
WATER for these WARMER months IF IN DOUBT DO	Temperatures are rising now so increase water but still let the mix become dryish between waterings.	Depending on temperature you may need to increase water frequency but allow to dry off a little before next watering	Increase water frequency but still let the mix become a little dryish between waterings.
FERTILIZER	½ strength fertilizer every 2 nd watering.	½ strength fertilizer every 2 nd watering.	½ strength fertilizer every 2 nd watering.
LIGHT	30% shade or less	30% shade or less	30% shade
TEMPERATURE - Day - Night	Ambient Ambient	Ambient Ambient	Ambient Ambient
FLOWERING	<i>L. speciosa</i> and <i>L. lundii</i> produce their flowers from within the new growth but be careful with watering – just a splash or you may loose those flower buds. <i>L. purpurata</i> types produce their flowers from within a sheath and bloom sometime after the new growth has reached maturity usually in the summer months. <i>L. sincorana</i> flowers in the summer months and the flowers emerge from the expanding new growths.		
OTHER	Watch for snails / slugs. Also aphids on the flower buds and scale and or Mealy Bug on the leaves and pseudobulbs especially near the base of the leaves. Suggestions - Confidor, Yates Insect Spray		

Laelia

Others eg. *dayana*, *harpophylla*, *jongheana*, *kautskyi*, *pumila*

	OCTOBER	NOVEMBER	DECEMBER
WATER for these WARMER months IF IN DOUBT DO	Temperatures are rising now so increase water but still let the mix become dryish between waterings.	Depending on temperature you may need to increase water frequency but allow to dry off a little before next watering	Increase water frequency but still let the mix become a little dryish between waterings.
FERTILIZER	½ strength fertilizer every 2 nd watering.	½ strength fertilizer every 2 nd watering.	½ strength fertilizer every 2 nd watering.
LIGHT	30% shade or less	30% shade or less	30% shade
TEMPERATURE - Day - Night	Ambient Ambient	Ambient Ambient	Ambient Ambient
FLOWERING	Not a lot in the way of flowers from this group although you could have late flowering from <i>L. jongheana</i> , <i>L. harpophylla</i> and <i>L. kautskyi</i>		
OTHER	Watch for snails / slugs. Also aphids on the flower buds and scale and or Mealy Bug on the leaves and pseudobulbs especially near the base of the leaves. Suggestions - Confidor, Yates Insect Spray		

<i>Phalaenopsis</i> 'Moth Orchid'	OCTOBER	NOVEMBER	DECEMBER
WATER	Water often enough to keep the potting mix moist (not wet!!) but allow the top layer to become dry looking before watering again. It is a good idea to use tepid water, especially during the colder months.		
FERTILIZER	Feed regularly, maybe every second watering, with ½ to ¾ strength liquid fertilizer. I have used Nitrosol with very good results.	Feed regularly, maybe every second watering, with ½ to ¾ strength liquid fertilizer. I have used Nitrosol with very good results.	Feed regularly, maybe every second watering, with ½ to ¾ strength liquid fertilizer. I have used Nitrosol with very good results.
LIGHT	30% to 50% shade	50% shade	50% shade
TEMPERATURE - Day - Night	20 to 25 degrees Around 15 degrees	20 to 25 degrees Around 15 degrees	20 to 25 degrees 15 degrees
FLOWERING	Keep developing spikes staked and trained.		
OTHER	Check your plants regularly for Mealy Bug, on the underside of the leaves and the base of the buds/flowers. These pesky little critters seem to appear from nowhere. Also watch for snails and slugs, they just love those developing flower spikes.		

<i>Dendrobium</i> 'Aussie' types – <i>kingianum</i> , <i>falcorostrum</i> , <i>gracilicaule</i> , <i>jonesii</i> , <i>speciosum</i> , <i>tetragonum</i> etc and hybrids from these			
	OCTOBER	NOVEMBER	DECEMBER
WATER	Once a week and do not let plants totally dry out.	Keep moist. Do not let dry out.	Keep moist. Do not let dry out.
FERTILIZER	Withhold fertilizer to encourage new growths	Apply weak fertilizer with every watering.	Apply fertilizer as recommended.
LIGHT	Maintain the shading at 30%	Reduce shading	Plants may be positioned outside with good light and air movement.
TEMPERATURE - Day - Night	Ambient Ambient	Ambient Ambient	Ambient Ambient
FLOWERING	Many plants are blooming now.	If not flowering now is the time to re-pot.	Flowering will be mostly finished.
OTHER - Backcut to increase the number of new growths and develop a specimen size plant with multiple flowering. Withholding fertilizer at this time may increase new growths. Watch for snails and slugs, also aphids, spider mites and scale. Of course treat as necessary with your poison of choice. Suggestions - Confidor, Yates Insect Spray.			

<i>Dendrobium</i> Soft Cane and <i>nobile</i> types – <i>nobile</i> hybrids, <i>primulinum</i> , <i>pierardii</i> (aka <i>aphyllum</i>), <i>signatum</i> , <i>crystallinum</i> , <i>heterocarpum</i> , <i>findlayanum</i> , <i>devonianum</i> , <i>crepidatum</i> , etc			
	OCTOBER	NOVEMBER	DECEMBER
WATER for the WARMER months IF IN DOUBT DO	New growth roots will be developing strongly so water frequently but don't keep continually wet.		

FERTILIZER	Feed every 2 nd watering with ½ strength balanced fertilizer.		
LIGHT	30% shade	30% to 50% shade	30% to 50% shade
TEMPERATURE - Day - Night	Ambient Ambient	Ambient Ambient	Ambient Ambient
FLOWERING	The last flowers will be fading now that summer is nigh but there will be more next year.		
OTHER	Watch for snails and slugs, also aphids, spider mites and scale on the flower buds. Of course treat as necessary with your poison of choice. Suggestions - Confidor, Yates Insect Spray.		

Dendrobium Cool to intermediate types which are not fully deciduous and need a dryish winter rest. E.g. *Den chrysotoxum*, *densiflorum*, *farmeri*, *fimbriatum*, *moschatum*, *sulcatum*, *thyrsoflorum*

WATER for these WARMER months IF IN DOUBT DO	OCTOBER	NOVEMBER	DECEMBER
	Increase the water frequency as new growths and roots will be developing well but do allow to dry a little between waterings.		
FERTILIZER	Feed every 2 nd watering with ½ strength balanced fertilizer.		
LIGHT	Good light (30% to 50% shade) over this period gives a stronger more hardy plant and should increase flower production.		
TEMPERATURE - Day - Night	Ambient Ambient	Ambient Ambient	Ambient Ambient
FLOWERING	Flower stems are well developed and some may already be in bloom. You can have blooms through to early December.		
OTHER	Watch for snails and slugs, also aphids, spider mites and scale. Of course treat as necessary with your poison of choice. Suggestions - Confidor, Yates Insect Spray.		

Dendrobium Other cool to intermediate types which do not require a decided dryish winter rest. eg *Den lawesii*, *subclausum*, *latoureas (some)*, *cuthbertsonii*.

WATER for these WARMER months IF IN DOUBT DO	OCTOBER	NOVEMBER	DECEMBER
	Now the days and nights have warmed up you can increase the water especially on plants with developing growths and roots.		
FERTILIZER	With warmer weather growths will be developing strongly so ½ strength balanced fertilizer every 2 nd water will be appreciated.		
LIGHT	Good light, not too shady. (30% to 50% shade) On a sunny day your hand should cast a fuzzy-edged but definite shadow.		
TEMPERATURE - Day - Night	Ambient Ambient	Ambient Ambient	Ambient Ambient
FLOWERING	Flowering for this group is not strictly seasonal and blooms can be produced throughout the year from older matured canes/stems. However often more flowers are produced over this warmer period.		
OTHER	Watch for snails and slugs, also aphids, spider mites and scale on the flower buds. Of course treat as necessary with your poison of choice. Suggestions - Confidor, Yates Insect Spray.		

<i>Dendrobium 'Dockrillia'</i> types – e.g. <i>linguiformis</i> , <i>striolata</i> , <i>teretifolium</i> , <i>fuliginosa</i> , <i>wassellii</i> , <i>rigida</i> , <i>pugioniformis</i> and hybrids thereof. Some authorities have removed this group from the genus <i>Dendrobium</i> and placed them in a separate genus <i>Dockerillia</i> .			
WATER – a note here, due to their strongly pendulous or scrambling growth habit these plants are typically grown as mounted plants so will need more frequent water.	OCTOBER	NOVEMBER	DECEMBER
	With the onset of summer and especially in dry areas your watering should be stepped up to every 2 nd or 3 rd day and in very hot and dry conditions, every day.		
FERTILIZER	Every 2 nd watering with ½ strength balanced fertilizer		
LIGHT	Bright light but 30% shade in strong ‘middle-of-the-day’ summer sun. Bright light short of burning the plant enhances flowering.		
TEMPERATURE - Day - Night	Ambient Ambient	Ambient Ambient	Ambient Ambient
FLOWERING	Typically Spring to Summer flowering – flower stems arise from a little below the base of the leaf.		
OTHER COMMENTS	Once established they do not need any special conditions, they do not seem to be susceptible to the usual mealy bug and scale, give them a spray when spraying your other orchids. Just watch for slugs and snails.		

<i>Masdevallia</i>			
WATER for these WARMER months IF IN DOUBT DO	OCTOBER	NOVEMBER	DECEMBER
	With rising temperatures keep the plants well watered and mist over the leaves several times a day (if you have the time) as this will keep the plants cooler and happier.		
FERTILIZER	Feed every 2 nd or 3 rd watering with ¼ to ½ strength balanced fert.		
LIGHT	As the sun gets stronger increase shading to 50% or more to help keep day temperatures down.		
TEMPERATURE - Day - Night	Ambient but do try to keep around 25°C or below. Ambient		
FLOWERING	This is a good time for flowers from many varieties. Flower stems arise from the base of the leaf and with good culture quite a number of flowers can be produced either together or over a period of time.		
OTHER	Watch for snails and slugs, also aphids. Of course treat as necessary with your poison of choice. Suggestions - Confidor, Yates Insect Spray.		

<i>Sarcochilus</i>			
WATER for these WARMER months IF IN DOUBT DO	OCTOBER	NOVEMBER	DECEMBER
	Growth will be quite active now so water frequently but do allow a little dry-off between waterings.		
FERTILIZER	Feed every 2 nd watering with ½ strength balanced fertilizer.		
LIGHT	Try to give the plants give as much light as the plants were getting over the spring/summer period. This again will improve flowering.		
TEMPERATURE - Day - Night	Ambient Ambient	Ambient Ambient	Ambient Ambient
FLOWERING	Mid October through November is the peak flowering time for this group.		
OTHER	Watch for snails and slugs, also aphids, spider mites and scale on the		

	flower buds. Of course treat as necessary with your poison of choice. Suggestions - Confidor, Yates Insect Spray.
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Oncidium			
'Dancing Lady' types – eg. <i>varicosum</i> , <i>flexuosum</i> , <i>leucochilum</i> , <i>eurycline</i> , <i>longipes</i> , <i>forbesii</i> , <i>crispum</i> , and hybrids from these.			
	OCTOBER	NOVEMBER	DECEMBER
WATER for these WARMER months IF IN DOUBT DO	Water sparingly and allow the mix to become rather dryish before next water.	With summer temperatures and well developed new growths increase water but still let the mix become a little dryish between waterings.	
FERTILIZER	New growths will be developing well so give ½ strength balanced fertilizer every 2 nd watering.		
LIGHT	30% shade	30% to 50% shade	30% to 50% shade
TEMPERATURE - Day - Night	Ambient Ambient	Ambient Ambient	Ambient Ambient
FLOWERING	These plants typically produce a flower stem(s) from the base of the newest mature growth. However there is an exception (isn't there always??) <i>O. eurycline</i> , <i>O. croesus</i> and <i>O. longipes</i> produce their flower stems from within the developing new growth.		
OTHER	Watch for snails and slugs, also aphids, spider mites and scale on the flower buds. Of course treat as necessary with your poison of choice. Suggestions - Confidor, Yates Insect Spray.		

Odontoglossum			
Crispum types etc			
	OCTOBER	NOVEMBER	DECEMBER
WATER A good rule of thumb for the warmer months IF IN DOUBT DO	Increase watering as the temperatures rise but ensure that the mix stays damp but not wet. If in doubt, don't water	Increase watering as the temperatures rise but ensure that the mix stays damp but not wet. If in doubt, don't water	Temperatures will be rising now so increase water but don't allow the mix to become overly wet
FERTILIZER	½ strength balanced NPK every 2 nd or 3 rd watering	½ strength balanced NPK every 2 nd or 3 rd watering	½ strength balanced NPK every 2 nd or 3 rd watering
LIGHT	50% shade	50% shade	50% shade
TEMPERATURE - Day - Night	Ambient 10 degrees or higher	Ambient 10 degrees or higher	Ambient 10 degrees or higher
FLOWERING	These plants do not have a strictly seasonal blooming time as where they originate (near the equator) they have no summer, autumn, winter spring. However late winter to early summer is a good time to expect flowers. The flower stems arise from the base of the newly matured pseudobulbs; from between the leaf-like bract at the base of the bulb and the bulb itself.		
OTHER	Watch for snails/slugs and keep baits out for them -hey they can eat in one night what you have been waiting to see for the past year!. Slugs seem to be harder to control with bait, so a night patrol will often reveal where they		

	are hiding. Repotting should now be underway. Repot from when the new growth is 5 cm tall but before the new bulb forms. Plants not in the right stage of growth by December should be repotted in the autumn unless under stress. Try to repot annually.
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Odontioda

– these are hybrids from *Odontoglossum* crossed with *Cochlioda*.

	OCTOBER	NOVEMBER	DECEMBER
WATER A good rule of thumb for the warmer months IF IN DOUBT DO	Increase watering as the temperatures rise but ensure that the mix stays damp but not wet. If in doubt, don't water	Increase watering as the temperatures rise but ensure that the mix stays damp but not wet. If in doubt, don't water	Temperatures will be rising now so increase water but don't allow the mix to become overly wet
FERTILIZER	½ strength balanced NPK every 2 nd or 3 rd watering	½ strength balanced NPK every 2 nd or 3 rd watering	½ strength balanced NPK every 2 nd or 3 rd watering
LIGHT	50% shade	50% shade	50% shade
TEMPERATURE - Day - Night	Ambient 10 degrees or higher	Ambient 10 degrees or higher	Ambient 10 degrees or higher
FLOWERING	These plants do not have a strictly seasonal blooming time as where they originate (near the equator) they have no summer, autumn, winter spring. However late winter to early summer is a good time to expect flowers. The flower stems arise from the base of the newly matured pseudobulbs; from between the leaf-like bract at the base of the bulb and the bulb itself.		
OTHER	Watch for snails/slugs and keep baits out for them -hey they can eat in one night what you have been waiting to see for the past year!!. Slugs seem to be harder to control with bait, so a night patrol will often reveal where they are hiding. Repotting should now be underway. Repot from when the new growth is 5 cm tall but before the new bulb forms. Plants not in the right stage of growth by December should be repotted in the autumn unless under stress. Try to repot annually.		

Miltonia – NB, NOT Miltoniopsis (pansy orchid) these are next

(Brazilian types) species and Hybrids, *Miltassia*, *Miltonidium*, *Odontocidium*, *Wilsonara*, *Maclellanara* and *Alexanderara*.

	OCTOBER	NOVEMBER	DECEMBER
WATER A good rule of thumb for the warmer months IF IN DOUBT DO	Increase watering as the temperatures rise but ensure that the mix stays damp but not wet. If in doubt, don't water	Increase watering as the temperatures rise but ensure that the mix stays damp but not wet. If in doubt, don't water	Temperatures will be rising now so increase water but don't allow the mix to become overly wet
FERTILIZER	½ strength balanced NPK every 2 nd or 3 rd watering	½ strength balanced NPK every 2 nd or 3 rd watering	½ strength balanced NPK every 2 nd or 3 rd watering
LIGHT	30% shade or less	30% shade or less	30% shade or less
TEMPERATURE - Day	Ambient	Ambient	Ambient

- Night	10 degrees or higher	10 degrees or higher	10 degrees or higher
FLOWERING	This group is rather variable in its blooming but flower stems are produced either from the base of matured growths or from partially developed new growths. Stake and tie the stems as necessary.		
OTHER	Watch for snails and slugs, they just love those developing flower spikes. <i>Miltonia</i> and its hybrids will benefit from a higher night temperature. Repotting should now be underway. Repot from when the new growth is 5 cm tall but before the new bulb forms. Plants not in the right stage of growth by December should be repotted in the autumn unless under stress. Try to repot annually.		

Miltoniopsis

– These gorgeous orchids are now more available so have included them

	OCTOBER	NOVEMBER	DECEMBER
WATER A good rule of thumb for the warmer months IF IN DOUBT DO	Water often enough to ensure that the mix stays damp but not wet.	Increase watering as the temperatures rise but still ensure that the mix stays damp but not wet.	You may need to increase water with higher temperatures but don't keep the pot continually wet.
FERTILIZER	½ strength balanced NPK every 2 nd or 3 rd watering	½ strength balanced NPK every 2 nd or 3 rd watering	½ strength balanced NPK every 2 nd or 3 rd watering
LIGHT	50% shade	50% shade	50% shade
TEMPERATURE - Day - Night	Ambient 10 degrees or higher	Ambient 10 degrees or higher	Ambient 10 degrees or higher
FLOWERING	Typically flowering is over this period but mostly late September to late November. Usually no staking is necessary.		
OTHER	Watch for snails/slugs and keep baits out for them -hey they can eat in one night what you have been waiting to see for the past year!!. Slugs seem to be harder to control with bait, so a night patrol will often reveal where they are hiding. Repot when the plant has finished flowering and new growth(s) is 5 cm or so tall, and when the new roots are just developing. Try to repot annually.		

AOC Conference & Show update.

The 19th AOC Conference & Show to be held in Perth, Western Australia from 11-16 September 2012 continues to build momentum with a confirmed speaker list, headed by Keynote Speaker Terry Root and detailed conference registration information and forms now available, either in hard copy or from the web site.

The Conference Committee has completed its work in developing the show schedule and now awaits AOC endorsement. A show room floor plan of the Burswood Convention Centre is complete and vendor spaces (some have already been sold) have been determined along with a potential café inside the conference show area and a public potting demonstration and cultural presentation area.

Most activities (exhibition, vendors, and lecture program) of the 19th AOC Conference & Show will be held inside the Burswood Convention facility under the one roof with very easy access from one floor to the next. The lectures are being held directly below the show room. The orchid exhibition and vendors will be in the Burswood Grand Ballroom which covers over 1800 square metres and which is in addition to the foyer area which consists of another 1500 square metres, where the opening reception will be held. There is also a dedicated reception and information desk.

The Conference location is only 12kms (25 minutes) from the International Airport and Perth CBD is only 15 minutes away easily accessible by taxi, bus or train. The Burswood Entertainment Complex houses two superb hotels besides the Burswood Convention Centre, casino, restaurant, bars, golf course and numerous other facilities and, should you wish to stay at either Intercontinental Perth Burswood or Holiday Inn Burswood we have been allocated a special booking code that registrants can use when booking to enable them to get the special rate available for conference registrants. Reservations can be made direct individually by guests. Telephone 61 8 9362 888 (choose option '3' after selecting your choice of hotel) or Fax 61 8 9362 8866 or via email reserve@burswood.com.au and the booking code to quote is 'NDO'. There is also more accommodation available in the CBD area of Perth and nearby East Perth and South Perth.

The Conference Dinner will be held on Saturday 15th September at the Western Australian Golf Club, which is located amongst the rolling hills of Yokine, eight kilometres from the city centre, providing views to Perth city. Buses will take guests to and from the venue from the Burswood.

It is also proposed to have a system in place for registrants to pre-order orchids and flasks from our guest speakers and vendors before the 19th AOC Conference so that these items can be picked up during the event.

The conference organising committee continues to be pleasantly surprised by the level of international and interstate interest being shown by potential visitors. There is a particular interest in the 5 day south west tour to see in situ the wonderful range and unique native terrestrial orchids of Western Australia. Visitors to Perth keen to participate in this tour should register their interest as soon as possible as places are limited.

A number of Conference Committee members will be attending the WOC in Singapore in November and the WA team will stage an AOC display (plot C:10) with the assistance of

members from across Australia who are supplying cut flowers. We will also have a promotional booth (B30 in the marketplace) to promote the 19th AOC Conference & Show, Perth 2012. We have been generously supported by the State Government of Western Australia. Please come and say hello and there will be promotional material available and a unique give away to encourage visitors to Perth for the 19th AOC Conference & Show.

For further information please see our web site,
http://www.waorchids.iinet.net.au/19th_AOC_Conference.htm or write to us at P O Box 576
MORLEY WA 6062.

We look forward to meeting you in Singapore and in Perth.

Bruce Larson

Chair Conference Committee.

Publication Details and Charges

The *New Zealand Internet Orchid Review* is published on a quarterly basis, with publication in March, June, September and December.

The email subscription rate is **zero**. We would like to eventually publish a printed version (which would attract a charge), but there would need to be sufficient demand to make it practical. To date that demand has not been sufficient for us to follow it up.

Deadlines for copy

All written copy for articles must be emailed to the Editors no later than one week before publication date. A reminder will be emailed to all regular contributors two weeks before each deadline. Society notices and classified advertising must be emailed to the Editors no later than one week before publication date. If you are running late, please email the editors (ncmiller@orcon.net.nz). We expect the next issue to go out on Friday 16 December 2011 (*This may be subject to change*).

A reminder notice will go to all subscribers and Society contacts shortly before each publication deadline.

Advertising

If you are interested in advertising in this publication, please email the editors. Our advertising rates are negligible. Graphics and photos incur no charge, provided that you supply them.

Classified advertisements, Society notices

These are published free of charge, maximum of 30 words for a classified ad please.

Letters

Feel free to write letters to the editor. As long as they are not anonymous, obscene, time-wasting or libellous we will publish them!

Question and answer section

If you have any questions relating to any aspect of the growing of orchids or companion plants, we will solicit replies from our panel of experts. Any responses received will be emailed to the questioner, and the question and answers will be published in the next issue. This way you can receive a prompt response to your question but other readers can subsequently benefit as well.

Spread the word

If you have any friends who grow orchids or 'companion plants', let them know of this publication. All they have to do to subscribe is to send an email. If they haven't joined the computer age and/or would be interested in subscribing to a print version, ask them to contact the editors by mail or telephone or else send an email on their behalf. So far only a handful of requests for a printed version have been received.

Please write for us

All submissions are welcome – long or short. If you're not too fluent with the written word, we are happy to edit your copy. Without writers there will be no magazine.

File formats

We prefer to receive copy as a Word document. If you have a very recent version of Word, please ensure that you save your document and send it to us as a .doc file (preferred), or a .docx file. We also prefer not to receive Acrobat (.pdf) files – we actually assemble the magazine in Word and don't convert it to Acrobat until we're ready to send it out. So .pdf files have to be converted to Word – a tiresome business. We are also happy to receive shorter documents as a simple email message.

If you are sending us a Word document with photos in it, please shrink the photo file size (to, say, 100 to 300 KB) **before** you insert the photo in the document. We can't shrink the photos from inside your document, without going through a complex procedure. If we fill the magazine with 2 or 3 MB photos then, even after we have converted it all to an Acrobat file, those readers still with dial-up access will get very grumpy!

That address again

ncmiller@orcon.net.nz

Please note: If you change your email address and you don't advise us, you won't receive your magazine! Typically, every time we send out an issue, 8 to 12 bounce due to invalid email addresses.

Society Notices

Please note – some larger show notices are in the advertising section, further on in this issue

The Bay of Islands Orchid Society (in conjunction with the **Northland Bromeliad Club**) is to hold its Annual Show at:

The Turner Centre, 43 Cobham Road, Kerikeri on:

Friday 14th October 9.30am to 4.30pm, Saturday 15th October 9.30am to 3.30pm

Enquiries please phone : Lorna 09) 4073424

WAIKATO ORCHID SOCIETY SPRING SHOW

You are invited to our
Spring
Show



**Hamilton Gardens, Cobham Drive,
Hamilton on Sunday 25th Sept.**

Opening hours 11am to 3-30pm.

Displays, Plant Sales, Potting demonstrations

ADMISSION \$4 Adults, accompanied Primary Children Free

Hibiscus Coast Orchid Society (East Coast just north of Auckland)

We meet the 2nd Sunday every month (except January and our show month, which is September) Masonic Lodge, 103 Centreway Road, Orewa Meeting starts at 1.30pm - orchid sales from 1pm We have speakers at most meetings

Love to see new members Contact: Judy Murray (after hours) 09-424 1968
(decorhomes@xtra.co.nz)

Tauranga Orchid Society - (3 hours south of Auckland in the Bay of Plenty)
Meetings held 3rd Tuesday each month, Feb to Nov inclusive, 7.30pm at The Wesley Church Hall, 13th Avenue, Tauranga. Visitors welcome, Enquires Phone Natalie 07 5430847 or email bc.na.simmonds@kinect.co.nz
Also looking ahead - our Annual Orchid Show will be held 23/24/25 September at The Tauranga Racecourse, Cameron Road, Greerton. Open 10.00am to 4.00pm daily.

National South Island Judging Seminar.

The South Canterbury Orchid, Begonia & Fern Society is celebrating its 30th Anniversary with a National South Island Judging Seminar and Orchid Display to be held in the Caroline Bay Hall, Timaru at Labour Weekend 22 & 23rd October 2011. For updates and registration forms and all enquires please contact Murray Lister, Email gwendabear@paradise.net.nz

The Orchid Council of NZ has a web site that lists all the shows around the country. The URL is:

http://www.orchidcouncil.co.nz/show_dates.html

Bay of Islands Orchid Society meets 2nd Wednesday of the month at 7.30pm except for May, June, July and August when we meet 3rd Sunday of the month at 1.30pm. February starts the year with a "moveable feast."

*Meetings are held at St James Church Hall, Stone Store Hill, Kerikeri. Visitors welcome.
Enquiries to - Lorna (09 4073424).*

(3 hours north of Auckland, N.I.)

Waitakere Orchid Club Ribbon Show (Fun show)

17 February 2011

Whenuapai Hall, 43 Waimarie Rd, Whenuapai, Auckland. (At the back of Whenuapai Air Base). Note changed venue. \$6 for BBQ lunch (including entry), please bring a salad OR desert. Contact Glenys MacRae (09-8351216) for bookings. Show is judged by members, all are welcomed to participate. Open to public 1-3pm Come and see the show and then visit nurseries in the area, eg. Totara Waters. web: <http://aoc.inetgardens.com>

North Shore Orchid Society

The Society meets on the LAST Sunday of each month (except January, October & December) in the Milford Senior Citizens Hall, 141A Kitchener Road, Milford (behind New World, adjacent to Milford Shopping Centre carpark) at 12.30 pm. (Auckland) We would love to see you at our meetings which are relaxed and informative. Any queries regarding meetings to Rodney Draper at draperfam@xtra.co.nz

Howick Orchid Society Inc. (Howick is a suburb of Auckland, N.I.)

Meets 2nd Sunday each month except Jan. (no meeting) and Oct. which is 2 weeks after show date.

Venue: Fencible Lounge, Uxbridge Rd, Howick, adjacent to library.

Our one day Show this year is Sat. 1st Oct at the above venue. Set up Friday 30th Sept. Show opens at 9 a.m. We have approx 100 members (usually 50+ at each meeting) and a large variety of orchids displayed each month.

Check out our Website where you can see some photos of plants displayed and read our newsletters: <http://hos.inetgardens.com>

For further information phone Glenn 09 534 8689 or Len 09 576 6303.

Classified advertisements

Wanted; surplus laminar flow unit in working condition.

Email: dphutchins@xtra.co.nz

Dear Orchid friends

The publication "The Stanhopea Book" is now printed and available. On 2.7 kg of paper and 496 pages you will find more than 850 illustrations. If you are interested please contact

RJOrchids@gmx.ch

Rudolf Jenny

I would like to know if there are any growers who may have any Diuris tubers for sale.

David Hutchins - dphutchins@xtra.co.nz

Advertising Section

North Shore Orchid Society Orchid Show 2011



Milford Senior Citizens'
Rooms

141A Kitchener Road

(Behind New World, adjacent to Milford Shopping
Centre carpark)

Magnificent Orchid Displays
Exquisite Plants for Sale

September

Sat 17th 10am - 4pm Sun 18th 10am -
3.30pm

North Shore Orchid Society

Sarcochilus & other Genera Orchid Show



**St Anne's Hall
cnr Beach & Glencoe
Rds, Browns Bay,
Auckland**

**Magnificent Orchid Displays
Exquisite Plants for Sale**

NOVEMBER

**Sat 5th 10am - 4pm Sun 6th 10am -
3.30pm**

7th New Zealand National Orchid Expo

30th Oct to 3rd Nov 2013



Guest
Speakers

Wide range
of orchid
products

Competitive
Orchid
Displays



Photography

Prizes Commercial Sales



TSB Stadium

New Plymouth



7nznoe@hotmail.co.nz

7th NZNOE
PO Box 635
New Plymouth

Copies of this poster are available electronically on application to the email address shown above – Ed.

Tuckers Online Orchid Club

Culture

News

Specials

Tuckers Online Orchid Club, a monthly newsletter which includes specials and new releases, a culture corner, and a little news.

Send us an email to join



Tuckers Orchid Nursery Ltd

Address
Ph/Fax
Website
Email

1370 East Coast Road, Redvale, Auckland
(09) 473 8629 Mobile 027 497 1820
www.tuckersorchidnursery.co.nz
orchids@clear.net.nz

The New Zealand Orchid Society Inc
Annual SPRING Orchid Show

Mt Albert War Memorial Hall
New North Rd, Mt Albert



September 23rd, 24th & 25th 2011

Friday 10am-5pm

Saturday 10am-5pm, Sunday 10am-4pm

◆ Fabulous Blooms ◆ Plant Sales ◆ Floral
Art

Learn more about growing orchids from the experts
Admission: Adults \$5 Senior Citizens \$4 Children
(under 12) Free

CLIVIA SHOW & SALE



AUCKLAND

Auckland Botanic Gardens
Hill Road, Manurewa
Saturday 1st October 2011
9.00am to 4.00pm

TAURANGA

Plantstruck Nursery
139 Te Puna Road, Te Puna
Sunday 25th September 2011
1.00pm to 4.00pm

2011 **CLIVIA**
CARNIVAL

Orchid Fair

orchids for every preference

Labour Weekend

Saturday/Sunday/Monday

Held at -
K&R Orchids
178 Dominion Rd
Tuakau

09 236 8392
lrorchids@xtra.co.nz





POTTERING ABOUT GARDEN CENTRE

254 Military Road, R D 2,

Whakatane 3192

Ph: (07) 3228201

Email: potteringabout@xtra.co.nz

Webpage: potteringabout.com

We have a great range of palms, bromeliads, orchids, ceropegias, hoyas and subtropical plants.

At present we have in bud Cattleya quinquicolor as pictured above, Oncidium flexuosums, assorted dendrobiums, Brassias etc.

If there is anything you are looking for remember we are only an email away and are more than happy to help out with any enquiry. We also do mail order around New Zealand so are happy to send your plant/plants out by parcel post. Buyers do pay the p&p for each order but we do combine multiply purchasers so only one courier fee is paid.

Open Wednesday to Sunday 9am to 4pm or by appointment.

Jim and Sharon Gilchrist

The following publications and books are offered for sale:

<u>Title:</u>	<u>Author:</u>	<u>Pub:</u>
An appreciation of NEW ZEALAND NATIVE ORCHIDS on the Central Volcanic Plateau	Max Gibbs	Apr 1990
WILD ORCHIDS in the Far South of NEW ZEALAND	Ian St George	Nov 1992
The NZ Native Orchid Group Journal, No 50, Jun'94		
COLENZO ON ORCHIDS	Ian St George	1989 (No.1)
THE ORCHID PAPERS OF E. D. HATCH Volume I	compiled Ian St George	1989 (No.2)
THE ORCHID PAPERS OF E. D. HATCH Volume II and Index	compiled Ian St George	1989(No.3)
CHEESEMAN ON ORCHIDS	compiled Ian St George	1989(No.4)
THE NEW ZEALAND ORCHIDS: References and Illustrations	compiled Ian St George	1989(No.5)
ORCHID EXTRACTS from the MATTHEWS CORRESPONDENCE	E.D. Hatch	1989(No.6)
THE HOOKERS on the NEW ZEALAND ORCHIDS	compiled Ian St George	1989(No.7)
Miscellaneous early writing on the New Zealand orchids: Part 1: 1769-1832	comp I StG/trans E.D.H	1994 (No 11)
Miscellaneous early writing on the New Zealand orchids: Part 2: 1834-1933	comp I StG/trans E.D.H	1994 (No 12)
V Exposicion Ecuatoriana de Orquideas	- Nov/85 Asociacion Ecuatoriana de Orquideologia (28 page booklet, in Spanish)	
Edicion Conmemorativa al X Aniversario	Asociacion Ecuatoriana de Orquideologia (24 page booklet, in Spanish)	
Orquideas del Ecuador Vol No.1 – Nov 1979	Asociacion Ecuatoriana de Orquideologia (64 page booklet, in Spanish, many pics)	
THE NEW ZEALAND ORCHID GROWER	I. D. James	1985 Book
PROCEEDINGS of the 13 th WORLD ORCHID CONFERENCE 1990 Book No 152 of 750, limited edition	1990 WOC Trust, Auckland	Book

Anyone interested, please contact: Jean Mowbray Coe
Ph: 07-829 9022, with permanent answerphone
Or email: coe.jrm@xtra.co.nz



Sunvale Orchids
31 Sunvale Crescent
Gisborne
New Zealand



D S & P R Hutchins

Phone 06 867 2567

027 640 4109

Email dphutchins@xtra.co.nz

Free NZ's ONLINE Orchid Magazine contact Nick Miller ncmiller@orcom.net.nz

Breeders and growers of Sarcochilus orchids

Advice available

Email for our latest plant list

Sarc flasks available

See you at Tauranga Orchid Show, THE Orchid Fair at Labour Day weekend at Russell Huttons,

or at the sarc show held at Taradale

The Orchid Tray Company is an internet based company primarily set up to offer orchid accessories to orchid enthusiasts. We have several exclusive products designed especially for orchid lovers and will be expanding our range regularly.

250mm Port Pot-\$4.00 incl. GST



50mm tray-\$5.50 incl. GST



Products

- Trays
- General Pots
- Squat Pots
- Clear Pots
- Port Pots
- Basket Pots
- Specialty Pots
- Fertilizers/Sprays
- Accessories
- Wire Hanging Baskets
- Wooden Hanging Baskets
- Meters
- Media



pH meter-\$35.00 incl. GST



Products



Wooden hanging baskets for hanging vandaceous orchids, beautifying or for anything that likes lots of drainage.



Nutriflow slow release fertilizing system.



Auxinone root hormone stimulants for use on orchids and other plants, great for transplant shock when re-potting.

Please visit www.orchidtrays.com.au

Contact Robert Bisetto 0431037372 or George Birss 0413581777 for further product information.

19th Australian Orchid Council Conference & Show

11th – 16th Sept 2012



Dendrobium speciosum, Copyright N & J Martin

WILD ABOUT

Orchids

Burswood Entertainment Complex
Perth, Western Australia

For more information Email: aocconference@dodo.com.au
Postal: The Secretary, P O Box 576, MORLEY, WA 6062 Australia
Website: www.waorchids.iinet.net.au/19th_AOC_Conference.htm

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