



*Central Vancouver Island
Orchid Society Newsletter
December 2010*

President: Bryan Emery 250-294-6478
Secretary: Laurie Forbes 250- 722-3836
Membership: Bev Morrison 250-758-5361
Treasurer: Shelley Rattink 250-245-1370
Editor: Mike Miller 250-248-3478
Mailing address: P.O. Box 1061,
Nanaimo, B.C.
V9R 5Z2
email: stelmike@telus.net
web site: www.cvios.com

Cattlianthe Red Viking 'Tania's Own'
HCC/AOS 78pts
Exhibitor: Svend Munkholm
Photo: Judith Higham

Meetings are held September through June on the Saturday before the 4th Wednesday of each month at the Harewood Activity Centre, 195 Fourth Street, Nanaimo, in the hall on the second floor, doors open at 11:30, with the business meeting starting at 12:00 noon.

Coming Meeting Dates:

2011

Jan 22, Feb 19, March 19, April 23, May 21, June 11, Sept 24, Oct 22, Nov 19, Dec 17

Program for December 18th

The Christmas Party
By All Of Us

Coming Events:

Vancouver Orchid Society, Floral Hall, VanDusen Gardens, February 11 – 13th 2011

Victoria Orchid Society, March 6-7th 2010, student Union Building U of Vic.

CVIOS 50/50 Auction March 20, 2010

Editorial:

Merry Christmas, Happy Hanukkah and a Happy New Year to you all. We start on a new year and a typical B.C. tangle in politics. The threatened colder than average winter is well on its way even

though it isn't really winter yet. I hope everyone's plants made through the first snow and deep cold. I know some of you had no snow, but some of us lucky ones were deep and crisp and even.

The Floralia order is away and expected after new year sometime. I will look into another order before summer. Got any ideas???

With the Christmas Party this month the meeting is at an earlier date than usual see number 6 in the minutes for details.

Cheers Mike

Central Vancouver Island Orchid Society

General Meeting - November 20, 2010

President Bryan Emery opened the meeting with 21 members present following a tour of our show tables guided by our guest Mario Ferrusi and Mario's informative presentation,

“Mario’s Orchids A to Z”.

1. Bev Morrison moved the minutes of October 30 be accepted as published and Sandra Lathrope seconded. Motion carried.
2. Correspondence included: October and November AOS Bulletins AOS supplement on Latouria Dendrobiums
3. Treasurer Shelley Rattink presented her report. She moved acceptance of her report and Rainer Hartmann seconded. Motion carried.
4. Memberships: Bev Morrison indicated that membership fees for this year are past due. Mike Miller added that if people do not renew their membership before the next meeting, they will no longer receive the newsletter.
5. Website: Don Miklic is still working on making the website more functional and has so far added information under the Orchid Doctor on dealing with scale and spider mites.

6. The Christmas Pot Luck will be held on our regular meeting date this year, December 18. It will include: -

A POT LUCK LUNCH (bring a dish to share, a plate and utensils); beverages will be provided.

A SILENT AUCTION (bring items for the auction and loads of funds to buy things).

INDIVIDUAL TABLE DISPLAYS Share your blooming orchids by doing a table display.

We will all pick our favourite display and the winner will receive a selection of orchids donated by Bryan.

ENTERTAINMENT ‘Music and More’

The meeting adjourned at 2:20 pm.

Orchid roots and mycorrhizae

Questions and some answers

This article has been adapted for print publication from an Internet-based discussion first presented at www.orchidsafari.org June 2003.

By Marilyn H.S. Light @ 2003

What are mycorrhizae?

Orchid mycorrhizae are filamentous fungi that assist with the germination of orchid seeds and the growth of orchid plants. They enter root cells and are thus termed endomycorrhizae.

The fungi that assist with germination can be very host-specific but the many fungi that inhabit the mature roots of both terrestrial and epiphytic orchids can include some which would not be expected to assist with germination.

How do the fungi enter the seeds or roots?

Orchid proto corms and orchid roots produce tiny hair-like surface structures called rhizoids or root hairs.

Typically, a fungal thread (hypha) enters a rhizoid or root hair near its tip and moves along the structure toward the protocorm or the root where it enters and forms a coiled mass within a cell.

All orchid roots produce root hairs but these are more easily seen with terrestrial orchids and on the roots of seedlings in a flask.

In Figure 1, we see the fungal hyphae within a root hair of North American temperate wetland species, *Pogonia ophioglossoides*. The roots of this orchid ramify throughout a substrate composed of sedge roots, mosses and decaying vegetation.

Close examination would reveal an extensive network of fungal links between the orchid roots and the substrate.

What function do mycorrhizal fungi serve?

Tiny orchid seeds contain few resources to support seedling growth and development so a relationship between orchids and fungi has evolved such that protocorms are dependent on a mycorrhizal fungus for early nutrition.

Many terrestrial orchids exist for years below ground and so during this time are completely dependent upon their fungal partner for essential! nutrients.

Once the fungi enter protocorms or roots, they form coils (pelotons) in cells such as the cortex cells of the root. Newly formed coils are easy to distinguish microscopically but as the orchid begins to digest the pelotons, the coils become amorphous brownish blobs. As more and more pelotons form and are absorbed by the host orchid as food, the orchid grows.

Once seedling orchids become photosynthetic and have sufficient reserves to support their life, the fungi may become less important although much investigation is still needed to clarify this.

Roots may become infected with fungi only when conditions such as soil temperature are appropriate or when a root is in a particular growth state.

In Figure 2, we see a cross section of the root of the Pink Lady's-slipper, *Cypripedium acaule*, prepared in summer.

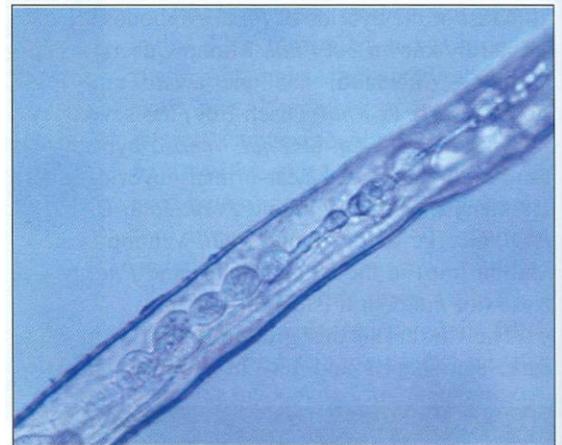


Figure 1: Root hairs of *Pogonia ophioglossoides* showing endomycorrhizal fungi within them.

There are many brown pelotons in the process of digestion. The pelotons first formed perhaps six months earlier in late autumn when the soil was cool.

Do non-green orchids have fungal partners?

Non-green orchids such as the Coralroots (*Corallorhiza sp.*) have evolved associations with the fungi living around the roots of green plants. This association permits them to also obtain nutrients as adults.

What function, if any, does the orchid serve the mycorrhizal fungus?

This is good question for which we do not yet have a good answer. Some sayan orchid is a parasite on the fungus and in the case of non-green orchids they may very well be as no carbon is ever transferred from the adult orchid to the fungus.

In nature, many orchid seedlings are parasitised and killed by their fungal partner before they reach maturity. Why? The best guess is that in most cases, the relationship is one of delicate balance that can easily be disturbed.



Figure 2: Cross section of a root of *Cypripedium acaule* showing irregularly shaped and partly digested fungal pelotons within cortex cells. Photo: Marilyn Light.

Do artificially propagated orchid roots ever become infected with mycorrhizal fungi?

If we examine the roots of epiphytic orchids that have been growing in potting medium for several months, we can often find fresh and partly digested fungal pelotons in the root tissue and also hyphae in the root hairs.

Such evidence demonstrates that secondary infections do occur but what benefit these relationships may have is as yet unclear.

What are the functions of roots?

Orchid roots do more than anchor a plant to a tree or keep it snug within a pot. Roots are the primary structures used by a plant to absorb water and mineral nutrients.

In leafless orchids like *Chiloschista sp.*, roots serve the dual function of anchor and photosynthetic organ.

Roots are used as storage organs, especially in monopodial orchids such as phalaenopsis and vanda, and also in deciduous orchids such as cypripedium.

The roots, rhizomes or tubers of terrestrial orchids may be primary storage organs. Often, the balance of nutrient store to photosynthetic capacity is tenuous, especially in shaded situations.

If vital storage capacity is lost through less than ideal artificial propagation measures, or during illegal collection, plants may not have sufficient reserves to survive transplanting.

We can only speculate that wild-collected plants lose their vital mycorrhizal network because the new environment is unsuitable for fungal life outside the plant but certainly, such plants are less likely to survive than artificially propagated, seed-raised stock.

When orchids are raised in flask, they are provided all the nutrients necessary to grow. In cypripedium, seedlings properly raised have strong, starch-packed roots. It is little wonder the strongest seedlings make a smooth transition to the out-of-flask existence.

Roots have a central conductive core where water, minerals and nutrients can flow. This core is surrounded by a layer of cortex cells. This is where pelotons form and are digested. On the outer

surface, there is a layer called the velamen. We can see this most easily on the aerial roots of epiphytic orchids where the velamen is typically a white to silvery reflective coating behind the growing root tip.

The velamen protects the internal cells from desiccation and also reflects light, which possibly keeps roots cooler. Gases can move through the velamen.

Large thick aerial roots have pores in the form of elliptical slits. It is sometimes easier to see them if we first wet the root surface. These pores mechanically shrink and expand as the roots are alternately wetted and dried.

What is the difference culture-wise between fine-rooted and thick-rooted orchids?

Orchids with fine roots such as many of the oncidiums and tolumnias require finer more porous potting mix or are perhaps best mounted to permit the fine roots to ramble over the bark.

Plants with thick roots, especially those whose roots hang out of their container, require special care. While it may seem that a phalaenopsis or vanda has more than enough roots and could do with a "trim", excessive root pruning can seriously weaken a plant.

We are not attempting to "bonsai" an orchid. Our goal is to get blooms and bloom production is dependent on an adequate nutrient store to support the blooms.

How does one deal with orchids exhibiting seasonal root growth?

Some orchids grow year round, others seasonally. Where growth is more or less continuous as in masdevallia and phalaenopsis, repotting can be safely done year round.

With orchids whose growth is seasonal as it is with many terrestrials, care must be taken to divide or repot when root initials become visible or shortly before growth resumes otherwise we risk damaging or interfering with root development.

Why should we conserve roots when reporting an orchid?

Roots are important organs of absorption. Loss of some of the absorptive surface area might critically affect the ability of the orchid to recover after potting. This is especially true for weak-rooted specimens and for those who form new roots only when a new growth is developing.

Consider how you will deal with orchid roots before the time comes for repotting. Roots that have ramified over a plaque or have become firmly attached to a clay pot will be damaged.

One technique that limits root loss is the potting-on technique where the mounted plant is attached to a new plaque and allowed to grow onto it.

The same can be done with a potted orchid where the new growth and roots are allowed to grow into a new pot fastened to the old one.

Bibliography

Rasmussen, H. N. (1995) *Terrestrial orchids I from seed to mycotrophic plant*. Cambridge University Press, Cambridge, UK.

To view the temporary archives of the more recent presentations visit:

<http://www.geocities.com/brassia.geo/OSTA.html>

Text and photos: Marilyn H. S. Light Montreal, Canada

Orchids Australia, October 2003

Small growing or flowering *Oncidium* species

By Rod Rice, Photos. Rod Rice

The genus *Oncidium* Sw. is one of the largest and most popular of the orchid family. With as many as 400-800 species (depending on which author you follow or which taxonomic preference you may have) distributed throughout the Americas and the West Indies, there is bound to be one suited to everyone's taste.

Some of the species I will briefly cover in this article, have been moved into other genera. Some of these moves have been seen as controversial by some botanists, and here for the sake of simplicity, I refer to them as *Oncidium* as most growers know them.

Most of us will be familiar with some of the larger flowered species such as *O. crispum* Lodd., *O. forbesii* Hook., *O. marshallianum* Rchb.f., *O. tigrinum* La Llave & Lex. and *O. lanceanum* Lindl.

However, there are also many small flowered species, which are just as showy in their own way. Some species are small growers too, making them very economical for space in the green house. An example is *O. crista-galli* Rchb.f. which is a small grower, ie flowering in 5 cm pots, but bears quite large, single flowers in succession for months.

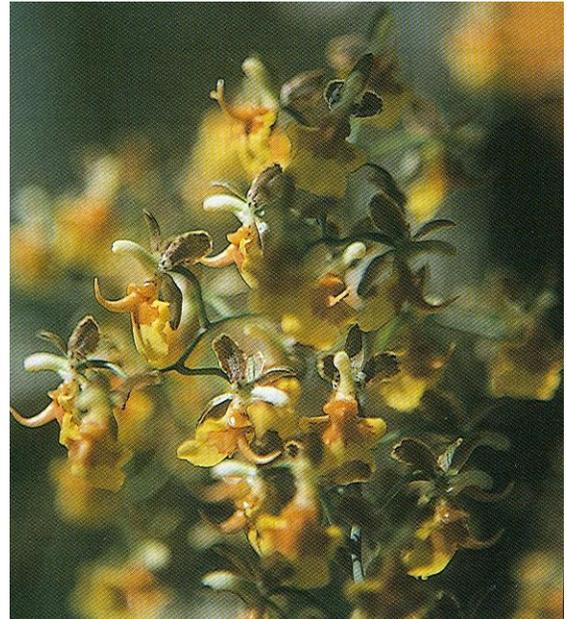
Other species such as *O. examinans* Lindl., although a larger grower, can produce an inflorescence up 3m long with many branches. Each main branch bears many smaller branches, in all bearing dozens of small flowers, each reaching 15-18mm in diameter. A whole inflorescence reaching its full potential, can have literally hundreds of flowers and is indeed a spectacular sight.

The variation of *Oncidium* is endless and I am sure many growers appreciate plants that either take up little space and have large flowers or larger plants which put on displays of masses of small, colourful flowers.

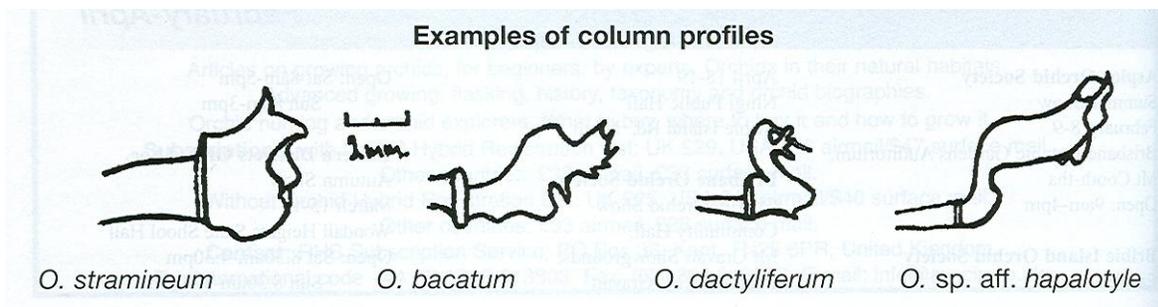
Many *Oncidium* species are being artificially propagated and becoming more readily available.

The other pleasing aspect of *Oncidium*, is that most are very easy to grow. However, some of the Equitant or Mule Ear types can be difficult in the winter months. These plants are best grown on slabs or in shallow pots with very coarse free draining media such as river pebbles or volcanic rock.

They like it dry and quite humid in winter. Give them a quick drink maybe once or twice a week (if grown on slabs) in winter depending upon your growing conditions and even less often if grown in pots which retain moisture much longer.



Oncidium longiconu Mutel



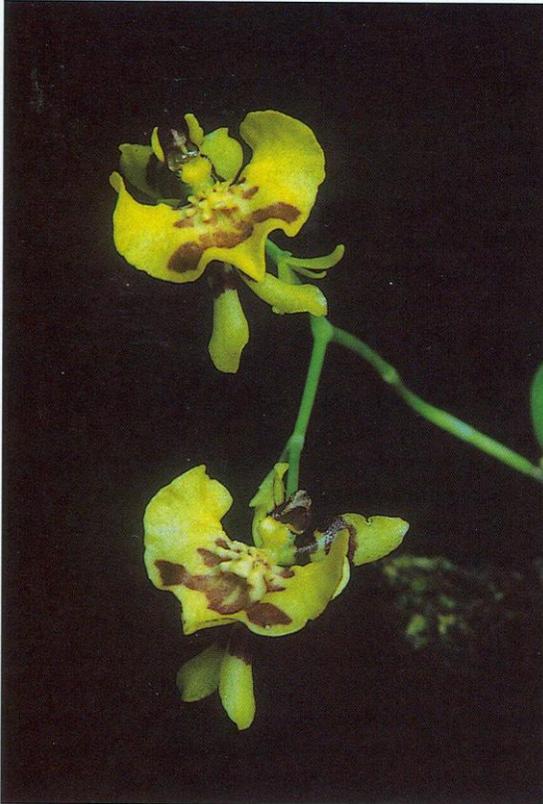
They thrive in fresh air and need it all year round. So it is important to maintain good air movement during the cooler months even though you may have your green house locked up to keep in warmth.

Either way, the roots must be bone dry by the evening in winter. In summer of course, they love the cooler night air with ample water at the roots, as this is when they do most of their growing.

With the flowers in many cases being superficially similar, one should pay close attention to the structure of the column and its wings if present (see figure below for column examples) and the callus after determining the plant habit, while also taking into account, geographic variation.

These sometimes complicated and apparently minor differences of the flower will help determine the identity of the plant at hand.

Some of the best, detailed illustrations of *Oncidium* species can be found in the Garay & Dunsterville six volume series *Venezuelan Orchids Illustrated* and Pabst & Dung's *Orchidaceae Brasiliensis*. Unfortunately, both of these are now out of print but I am sure copies would be available in some libraries. They are essential literature along with the *Icanes Trapicarum* series, among others, for anyone wanting to research the identity of *Oncidium* species.



***Oncidium abortivum* Rchb.f.**

A smaller growing species with laterally compressed pseudobulbs reaching 2-4cm tall. The erect to drooping inflorescence bears one to two, showy flowers at the apex on each branch with one to five aborted flowers below.

The yellow flowers, each about 11-18mm wide by 14-20mm tall, are yellow with some brown to bright purple or reddish spots and barring at the base of the labellum and petals and sepals.

The column is S shaped with a minutely pubescent surface.

It is rare in Ecuador, Venezuela and possibly Colombia.

***Oncidium abortivum* Rchb.f.**

***Oncidium bacatum* Gary & Dunstv..**

This is a very interesting plant, the flowers of which broadly reminds me of the Australian terrestrial genus *Diuris* J. E. Sm.

This species produces an erect inflorescence up to 5cm tall with two perfect bright yellow flowers at the apex with two to three aborted flowers below.

This species is unmistakable due to its unique labellum. The margin of the rounded mid lobe has many small, clustered, round skin like air bubbles which are apparently puncture proof. They actually look like dried drops of plastic resin.

The column has long, almost falcate wings, which are strongly serrulate-dentate on one side.

The callus itself is a broad, three-pronged structure with irregular margins and three rows of warty, tooth-like structures on top.

Each flower reaches about 15-16mm tall.

This very rare species is a native of Venezuela at altitudes of about 1850m.

***Oncidium chrysomorphum* Lindl.**

The inflorescence of this species is stiffly erect bearing many, tightly clustered flowers arising from bulbs about 4 cm tall, which are laterally compressed with sharp edges.

The petals and sepals are reflexed with obtuse tips on flowers reaching 18mm in diameter. The labellum has an obliquely oblong, fleshy, nonpubescent callus with two distinct tooth-like projections on each side of the callus and two at the front. The slender, non-S shaped column completely lacks any form of apical wings.

This winter flowering species is native to Colombia and Venezuela.

***Oncidium cruciatum* Rchb.f.**



***Oncidium crista-galii* Rchb.f.**

A smaller grower bearing large (for the size of the plant) showy flowers in succession, each reaching up to 18-20mm across.

The sepals are greenish-yellow, the petals yellow with some orange spotting, the labellum yellow with some orange spots near the white callus.

A plant of good culture may have up to four inflorescences emerging and or in different stages of bud progression simultaneously from each bulb. A plant with several bulbs, obviously, may put on quite a nice display. The plants are easy to grow and are also strong growers in flask.

This quite rare species is apparently meant to occur very sporadically throughout Central America and down into Colombia and Peru. It seems odd that a plant that is apparently so widely yet sporadically spread, is so rare in culture.

***Oncidium cruciatum* Rchb.f.**

This species from Eastern Brazil has clustered pseudobulbs producing inflorescences of smallish flowers, about 18-20mm across with the labellum about 10mm long. The mid lobe has a distinctly broadened base.

The petals are distinctly clawed from a broadly obtuse apex. The flowers are yellow heavily blotched and barred red to dark brown, sometimes completely brown.

This species is sometimes confused with another Brazilian species *O. widgrenii* Lindl., which is also known from Paraguay. However, the latter has larger flowers about 25mm in diameter with a *Oncidium cruciatum* Rchb.f longer labellum to 14mm with a different callus and a smaller, rounded mid lobe sometimes forming two small lobes, an obovate-truncate dorsal sepal and shorter and slimmer tapered petals with a truncate apex with the lateral sepals fused only in the basal half.

***Oncidium dactyliferum* Garay & Dunsterv.** A plant up to about 18-20cm tall with an erect inflorescence, reaching 18-40cm long with short basal branches, each with two to five interesting and showy flowers.

The flowers are only small - up to about 15mm tall - but they have a large, dominant labellum with a membrane like cushioned callus with numerous, radiating long slender teeth or spines. The sepals and petals vary from dark brown with a thin yellow margin to bright yellow spotted red-brown.

It is a native of Ecuador and Venezuela.

***Oncidium dastyle* Rchb.f.**

This is one of the most beautiful flowers of the genus. The small plants with bulbs about 2-5cm tall, bear an arching inflorescence with few but large, very colourful flowers.

The sepals and petals are whitish to greenish-yellow with some red-brown markings. The broad white to greenish labellum has a rich chocolate brown, fleshy callus at the base of its mid lobe. The flowers reach about 25-40mm in diameter.

This species is sensitive to extreme heat.

***Oncidium sp. aff. hapalotyle* Schltr.**

On flowering the Colombian plant pictured, there were certain noticeable differences to typical *O. hapalotyle*, including the constricted base of the column, the slightly different shape of the labellum and side lobes and a slightly different callus.

However, the bulbs up to 10 cm tall with a laxly flowered non-turgid inflorescence, with flowers 18-25mm in diameter, the sepals and petals spreading (the petals sometimes curving inward) keeled on the back with sub-acute tips and the identical column wings and the sub-similar labellum with a similar crustose-pubescent callus, suggests strongly it is indeed very close to *O. hapalotyle* and possibly just a geographic form of it.

This plant is a member of section Rostrata, distinguished by the smooth S shaped column.

An ill-informed suggestion that *O. hapalotyle* is either related to or indeed *O. chrysomorphum* Lindl. of section Oblongata, is definitely incorrect.

***Oncidium hookeri* Rolfe**

This small flowered and growing species has a similar habit to its close relative *O. loefgrenii* Cogn. and like the latter, it is one of the smallest flowered species in the genus.

The branched, ascending to erect to arched inflorescence, can potentially bear hundreds of tiny yellow flowers with a conspicuous, fleshy, orange-brown callus.

The petals and sepals are palish yellow with varying degrees of red-brown, the lip large for the flower's size (8-12mm tall) is bright yellow. It is a very easy grower from Southeastern Brazil.

O. hookeri is easily separated from *O. loefgrenii* by the shorter dorsal sepal, the shorter and slimmer petals, the lateral sepals which are not fused basally and the different structured callus.



***Oncidium hookeri* Rolfe**

***Oncidium longicornu* Mutel**

A slender plant endemic to Eastern Brazil, it bears arching stems of many, small, colourful flowers.

The petals and sepals are pale green to greenish-yellow heavily marked and blotched brown, the large labellum (for the flower size) is bright yellow, with a large pale orange blotch around the callus area as is the long, protruding horn like callus.

Each flower of this easy grower reaches about 12-15mm tall.

***Oncidium nanum* Lindl.**

One of the Mule Ear types, this species has virtually no pseudobulbs with thick, leathery leaves to 25cm long.

The semi pendulous inflorescence with one to two short branches, bears numerous fleshy brown-yellow flowers, each to about 2 cm across.

It grows in the tops of trees and has also adapted to citrus orchards and other plantations at elevations of 150-1000m in warm tropical wet forests of Bolivia, Brazil, Colombia, Ecuador, the Guianas, Peru and Venezuela.



***Oncidium ornithorhynchum* H.BK**

***Oncidium ornithorhynchum* H.B.K.**

This is an old favourite for most growers due to its smaller plant size, the very easy culture (in temperate climates) and the potentially long sprays of many pale to dark pink blooms (less commonly white) which are beautifully scented.

This plant once it has formed a bit of a clump, can rapidly (in just a few years) under good cultural conditions, form huge spreading specimens, which when flowering are just fantastic and always worth admiring.

Each flower reaches about 15-25mm in diameter. It is known from Mexico, Guatemala, El Salvador and Costa Rica at altitudes of 800-1500m.

***Oncidium stramineum* Batem. Ex Lindl.**

Although the flowers of this species are not as small as some, it is still quite an interesting member of the Mule Ear group due to its perfume and non-typical, coloured flowers compared with the rest of the genus.

The thick, fleshy leaves reach 6-30cm long, the sometimes slightly branching inflorescence to 40cm long bears three to 50, flowers each 15-22mm in diameter producing a faint, sweet perfume.

The petals and sepals are white to pale creamy yellow, the labellum similar with the side lobes flushed stronger yellow with some crimson markings.

It is endemic to Central Mexico.

***Oncidium trulliferum* Lindl.**

A plant with clustered pseudobulbs 6-20cm tall, bearing an arched, branching inflorescence 30-60cm long with dozens of smallish colourful flowers.

The flowers are whitish-yellow to creamy yellow with varying amounts of red-brown to dark brown barring on the petals and sepals and spots on the labellum. The small rectangular side lobes of the lip with an obliquely truncate apex curve downward slightly with the margin irregularly lacerate. Each flower, which has no noticeable perfume, reaches 15-20mm in diameter.

It is native to Brazil from lower warm to cooler higher elevations.



***Oncidium trulliferum* Lindl.**

Orchids Australia, February 2003
