St. Augustine Orchid Society NEWSLETTER
August 2018
Volume 13 Issue #8

Club News

August 7, 2018 SAOS Meeting

by Linda Stewart

Welcome and Thanks. President Bob Schimmel opened the meeting at 7:00 pm with approximately 68 attendees. Bob thanked Doriana Borrero for the wonderful flan, Loretta Griffith for the cookies, and Jeanette Smith for organizing the refreshments. Bob then reminded all to drop a dollar when you enjoy the refreshments. Carolyn Smith introduced our guests, and new members: Karen Ford, Bill and Aideen Campeau, and Donald Ramer along with returning members Lisa and Cob Barrett and John and Megan Porter.

Club Business. The spring show season is over, and the first of the fall shows begin in September**.** The next Ace Repotting Clinic will be on September 1 from 9am to 1pm. Keiki Club is still on summer vacation, so please come to Ace with any questions if you need help.

Hats and T-shirts are available at the side table, along with limited quantities of timed-release fertilizer and potting mixes. You can preorder your supplies by e-mail at info@staugorchidsociety.org, for delivery at the next meeting. There is also a sign-up sheet to preorder Purely Organic Fertilizer for February 2019 delivery. You can prepay any time between now and the end of the year.

If you want to borrow a book, simply e-mail our librarian, Penny (info@staugorchidsociety.org), with your book or DVD request and she will bring the item(s) to the next meeting.

Linda Stewart recognized the August birthdays who were entitled to a free raffle ticket. Bob encouraged all to vote for their favorite orchid on the show table.

Show Table Review. Courtney Hackney commented on the varied summer bloomers displayed on the show table this month, starting with the hanging section and Vanda David Foster, which used to be classified as an Ascocenda, a wonderful small growing plant with vivid blooms. Courtney then moved to Blc. Mark Eddleman, a coerulea type with four to five flowers per inflorescence. Sue brought in a beautifully grown Paraphalaenopsis Vanda intergeneric hybrid. Next was the Rattlesnake Orchid, Pholidota imbricata, which gets its common name from the dried flowers remaining on the inflorescences. The Vanda insignis x V. Mimi Palmer has unusual color and tends to be very fragrant early in the day. There was a very well grown Dendrochilum filiforme, which is well on its way to becoming a magnificent specimen, and a Rhynchostylis coelestis with its coerulea coloration and wonderful fragrance. A question was asked from the audience regarding the use of R/O water when fertilizing. Courtney suggested that because R/O water contains nothing, that it could be preferable to use regular water when fertilizing to maintain better pH control.

Moving on to the show table, the colorful Jamaica Fire is a cross between Broughtonia and Schomburgkia that maintains a manageable size. It can be prone to marks on the leaves, so avoid too much light. Phal. Samera was next, a fragrant violacea hybrid. The Paph. concolor makes a beautiful house plant even when not in bloom due to its variegated foliage. Courtney suggests either repotting every six to seven months, or a monthly dose of dolomite lime to help guarantee success. The Catasetums are wonderful, but can be difficult to grow if you do not strictly follow the required dormant period. There was an unusual dendrobium variety from Suzanne, Den. bracteosum, that blooms on the stem. Next came Epi. viviparum, in the cattleya alliance, which is similar to ciliare in appearance and has night fragrant white to ivory flowers, indicating it is moth pollinated. Courtney then moved on to the Lc. Nalani Spots 'Raspberry Spots' a bifoliate that was recently cut from the mother plant and arrived in bud, thanks to Keith Davis' incredible talents and packing skills! C. Penny Kuroda x Jungle Gem is a smaller growing bifoliate form with wonderful spots. Orange and red colors tend to be more vibrant in the winter months, as the coolness has an impact on pigment development. The Lc. Higher Ground, a Laelia anceps hybrid is grown outdoors in winter in California. This hybrid has pristine white petals and sepals in winter and more pastel pink in summer. Courtney then talked about one of his favorite, C. Leoloddiglossa, a

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Club News

Upcoming Orchid Events

August

11 Florida North-Central AOS Judging, 1 pm
Clermont Judging Ctr, 849 West Ave.
14 JOS Meeting, Orchids from Brazil, 7 pm
Francisco Miranda, Miranda Orchids

September

1 SAOS at Ace Hardware, 9 am til 1 pm
3050 US 1 S in St. Augustine
Repotting and Plant Clinic
4 SAOS Meeting, Fall Preparations,7 pm
SAOS Members and Sue Bottom
8 Florida North-Central AOS Judging, 1 pm
Clermont Judging Ctr, 849 West Ave.
11 JOS Meeting, Topic TBA, 7 pm
Phillip Hamilton, Bredren Orchids
22-23 Ridge Orchid Society Show
Lake Mirror Center, Lakeland
29-30? Breezy Hill Orchid Festival
Steve Arthur Orchids, Graniteville, SC
29-30 South Florida Orchid Society Show
University of Miami Watsco Center

October

2 SAOS Meeting, 6:30 pm
Unusual Species for the Cattleya Grower
Alan Koch, Gold Country Orchids
5-7 East Everglades Orchid Society Show
RF Orchids, Homestead
6 SAOS at Ace Hardware, 9 am til 1 pm
3050 US 1 S in St. Augustine
Repotting and Plant Clinic
9 JOS Meeting, ABCs of Orchid Nutrition, 7
Alan Koch, Gold Country Orchids
13 Florida North-Central AOS Judging, 1 pm
Clermont Judging Ctr, 849 West Ave.
13-14 Gainesville Orchid Society Show
Kanapaha Botanical Garden
14 Keiki Club for Orchid Beginners, 1 pm
Get the 'chids Ready for Winter
Bob and Yvonne Schimmel's Home
702 Wilkes Court, St. Aug 32086
19-21? Orchtoberbest at EFG Orchids
4265 Marsh Road, Deland 32724
26-28 Delray Beach Orchid Society Show
Old School Square Gymnasium
27-28 Florida West Coast Orchid Society Show
Pinellas Park Performing Arts Center

November

6 SAOS Meeting, 6:30 pm
Becoming an 80 Percentile Grower
Fred Clarke, Sunset Valley Orchids

St. Augustine Orchid Society Organization

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coerulea bifoliate, indigo in color with indigo spots. Last, but not least is Blc. Everything Nice 'Showtime', a large specimen plant of Sue's covered with flower spikes and bright yellow flowers. Make sure to see the pictures of our Show Table orchids displayed at the end of this newsletter, and on our SAOS website.

SAOS Program. Steve Hawkins, fellow SAOS member and retired orchid grower, has been growing orchids for about 50 years, beginning in a windowsill on a farm in NW Kansas. After graduating from college with a degree in horticulture, he worked for Rod McLellan until he moved to Apopka and opened his own business, the Orchid Specialist, where he grew mainly cattleyas (which are also his favorite). Steve recently retired and moved to the St. Augustine area, where he maintains a hobby greenhouse and a flasking lab in a closet in his home.

Cattleyas are referred to as the Queen of the Orchids. One of the reasons you do not find blooming specimens in the big box stores is they tend to have a short shelf life. This made the cattleya more of a collector's type item with their large and ruffled flowers. Most cattleyas came from Central and South America where the temperatures tend to be in the 80's during the day and 60-65 at night. They will take temperatures in the 90's for a high and down to around 50 at night. Some growers go down to 45 to defray heating costs, but then have more fungal problems at the lower night temperature. Some species, particularly those with red flowers from Sophronitis will take even cooler temperatures. You can increase the amount of light they receive if the temperatures are managed and if you have good air circulation. Cattleyas can take up to 3000-foot candles if the leaf temperature is not too hot. If you have a great plant, with dark green leaves and no flowers, then you need to increase the amount of light. With a leaf color tending more to a lime green, you will generally get more flowers, assuming of course that the plant is healthy and mature enough to flower.

If you wish to grow cattleyas in a windowsill, you will probably need a light supplement with fluorescent lighting, which will add light, but not heat. With fluorescents, you can go within one foot of the foliage without harm. Many of the growers in the northern parts of the US grow entirely under lights in a room or even a basement with great success. Steve's current greenhouse is roofed in smoked polycarb, which is about 65% shade, or equal to 3500 ft. candles, which can sometimes be a challenge for Vandas and other light-loving species.

Watering: Steve suggests that you check about one inch below the surface, and the medium should be almost completely dry before you water again. Then water thoroughly, wait about 20 minutes, and then water again. The double watering has benefits in that it will help to flush the pots as well as make more moisture available to the roots. Steve fertilizes 1/4 strength every watering, following the saying of "weakly/weekly" and he currently uses a 20-10-20 with micronutrients. He does not use a bloom booster, but does apply kelp, which he mixes with his insecticides. Superthrive is used only after repotting. If you are using Epsom salts, make sure that you are not mixing it with a calcium fertilizer, as the two types of magnesium will cancel each other out.

Preventatives: Steve uses a soap and Neem Oil mixture along with imidacloprid, Orthene, etc., but only as needed. He does, however, use a preventative fungicide every three months, which a mixture of Subdue and Cleary's. Subdue is quite expensive but Banrot is a similar product and much more affordable. If you grow outdoors and/or have problems with insects or slugs eating your plants, then you might want to try using Bugetta Plus, a granular Ortho product that works on slugs, ants, cockroaches, etc. If your problem is lubbers (those big nasty grasshoppers), then you might want to try some NoLo next spring when the little black striped babies hatch out. It causes a disease that not only impacts the current generation, but will carry over to future ones. NoLo is available in the springtime from Hagan Ace. A similar product, Semaspore is available from Planet Natural. They also have a bran mixture containing Sevin as well.

Repotting: Spring repotting is best, except for the bifoliates, which must be repotted whenever there are signs of new roots. Steve then took questions from the floor to conclude his presentation.

Meeting Conclusion: Bob announced the Members Choice Award as Suzanne Susko's Dendrobium bracteosum. Congratulations Suzanne! Dianne Batchhelder closed out the silent auction table, followed by the raffle, which was hosted by Dianne and Susan Smith to conclude the meeting. Our thanks to those who stayed to move the tables and chairs and clean up the room. We do appreciate it when members go the extra mile to help return the Watson conference room to the way we found it before the meeting.

Thanks to Watson Realty and Jeanette Smith for the use of their meeting space at 3505 US 1 South

Club News

The Keiki Club is on summer vacation. Keep watering and fertilizing your plants and watch for pest and disease issues. SAOS members will be available at the repotting clinics at Ace Hardware on the first Saturday of the month all summer long if you have any questions or problems. For those of you in the mentoring program, your mentor is just a phone call or email away. For those of you that would like to join the mentoring program, send an email to Mentoring Coordinator Susan Smith at info@staugorchidsociety.org. It's a great resource for our newer grower that would like to get one-on-one assistance and answers to their orchid questions.

https://www.youtube.com/watch?v=x8zAyVbfyZA&feature=youtu.be

American Orchid Society Corner

Upcoming Webinars:
August 8, 8:30-9:30 pm, Members Only
The Pleurothallidinae and their Pollinators
August 14, 8:30-9:30 pm, Everyone Invited
Greenhouse Chat Orchid, Q&A - Ron McHatton

Photos of Latest AOS Awards

Orchids Magazine: request free issue!
Genus of the Month: *Chinese Cypripediums*
A Few Habenaria Hybrids by Leon
Bad Bulbophyllums and Their Enablers
Novice: *Hydrogen Peroxide*

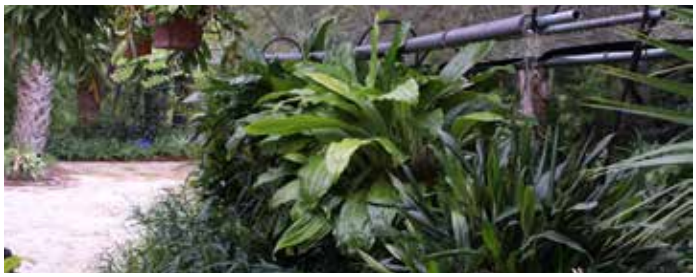
August 7 Monthly SAOS Meeting

Show 'Em Where You Grow 'Em

In summertime, the growing is easy and orchids can be grown outdoors, under trees, on porches, in pergolas, etc. St. Augustine Orchid Society members sent in pictures of their summer and winter growing areas which have been pulled into a presentation that will be used as a forum for discussion.

This time of year, tropical storms can cause problems, so we will talk about storm preparedness and response. We will focus on fall preparations for winter and how members grow their orchids during the cold weather. This should be an interactive discussion with SAOS members providing their insights to the group.

Members are invited to bring plants for sale at the meeting. Bring your flowering orchids to exhibit on the Show Table. We will have our normal raffle at the end of the meeting. Friends and guests are always welcome!



Want to Hire Some Professional Help?

Steve Hawkins, The Orchid Specialist

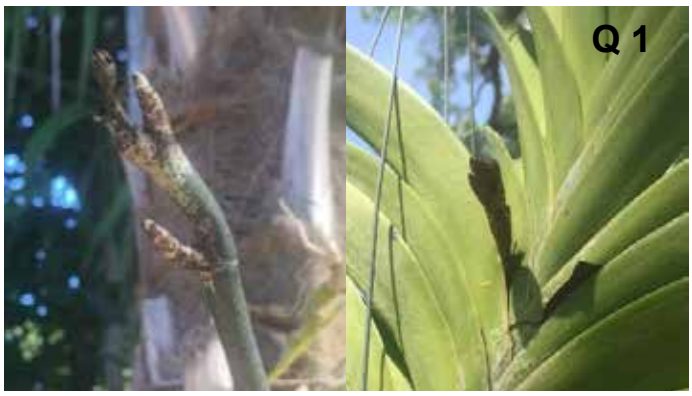
Steve Hawkins, the Orchid Specialist, is offering a fee based service for orchid repotting and consultations in your home. Steve operated a commercial nursery in Apopka for many years and recently relocated to our area and joined the St. Aug Orchid Society. For details, visit orchid-specialist.com or call Steve Hawkins at 321-279-3003 (afternoons).

INSPIRATION

Orchid Questions & Answers

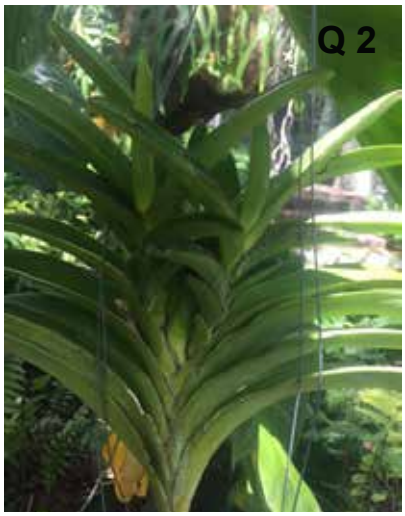
by Sue Bottom, sbottom15@gmail.com

Q1. My vandas recently put out a shoot and it browned, shriveled and never flowered.



A1. I think the thrips got to your buds and sucked the life out of them. Thrips are really insidious, they fly so they can escape your attempts to control them, they burrow into flowers so they're beyond your reach, they have various life forms and might be pupating in your soil, and they are attracted to many plants that might be in your landscape like citrus and gardenias. There are different things you can do. One of the most effective is a weekly or twice a week spraying of all buds and flowers using a pump up sprayer with chemicals like Orthene or Avid. You can also try periodic drenches with Orthene. Scroll down to the discussion of thrips for some more ideas.

Q2. This vanda has two keikis. What should I do next?



A2. I wouldn't do anything except let it grow and flower. You'll have more flowers per square foot of growing area if you let the keikis rock and roll on the mother plant.

Q3. This newly purchased Bc. Fladosa has 2 brown shoots, two new shoots and two good shoots. In the four days since this photo was taken, the green shoot has fallen over. Any ideas?

A3. That looks like black rot, it looks like it might have infected all the growths except possibly the two new leads, and it looks like it moved up from the rhizome into the pseudobulb and then the leaf. It's very fast moving, so if there's a chance to save the plant, you have to act now. Pull the plant out of the pot and start by cutting off the back three bulbs. Then look and feel what is left. If the growth behind the new lead is browning and feels soft, you might as well discard the plant because you won't be able to save it. If it's still hard and green, first pour hydrogen peroxide over everything and then set it in an empty clay pot. Keep it dry, but you can mist daily until you see new root growth. One of the heavy duty fungicides like Subdue, Aliette or Banrot would also help. Our hot humid summers are a boon to the water molds that cause black rot.

Collecting Orchids

Courtney's Orchid Growing Tips

Few orchid hobbyists are able to contain themselves when it comes to purchasing new orchids. The fever gets even worse for us "old timers" who really get into one group of orchids or another. Typically, the windowsill fills, then a light table is purchased, which quickly fills, then an outdoor growing area of some kind is built, but ultimately there is a limit for all of us.

While new hobbyists ask about diseases, growers who have followed the progression above ask how one limits the obsession. Remember there are an unlimited number of orchids out there to be purchased. Some years ago, I developed a list of classic cattleyas clones that I would like to have and save for posterity. For the most part, I have found those clones and enjoy them for what they represent when they bloom because many are not as nice as their modern counterparts. It is fun to examine their immediate progeny, especially those that produced awards, and to understand exactly how the clone in question was able to produce such memorable offspring.

The difficulty of finding these special clones has made keeping them more important to me than a modern clone that can quickly be found on the internet. I avoid repotting these clones because there is always a risk of infection and disease during repotting. Instead, I wait until there is a 3 or 4 bulb division growing outside the pot that I can take without disturbing the mother plant. Once I get a division, I wait a year or so to be sure the division is thriving before disturbing the mother plant. Often there were other divisions in the pot or there will be additional growths from back bulbs. In a few cases, there were three or four divisions in the original pot. Repotting now means that I have an already established division from the year before and several divisions to trade or sell. Repotting these special clones happens only once every 6-10 years and I try to always have at least two divisions just in case something bad happens. For years, I have traded with other like-minded experienced hobbyists just in case there is a disaster in my greenhouse. In my mind, I am not the owner of these great old orchids, just a caretaker who will eventually pass them on to another caretaker.

There are also many species in my collection and I am constantly buying seedlings of these species, searching for even better or newer forms. Rarely do I find one that is superior to what I have, but it is interesting just to see the kinds of variation that exist with any species. There are also seedlings from other growers that are bloomed out just to see what those parents pass along. Even when they are very beautiful, I rarely keep such seedlings because of space.

Lc. Allen Condo 'Hackneau'

My own crosses are treated differently. If it is a hybrid that I expect to be very uniform, there may be only 10-15 bloomed out. I keep a few that represent the best of the grex. Larger numbers of other hybrids that are expected to produce a variety of colors and shapes are flowered just to understand how the various genes are resorted. This can take considerable space, but giving a few seedlings to friends allows me to see more variation. I regularly get emails with photos from friends who have flowered one of my crosses, which is always a treat.

Note: Dr. Courtney Hackney wrote a monthly column of his orchid growing tips for about 20 years; we are reprinting some you might have missed, this one from August 2012.

Blc. Serengeti Sands

Growing the Catleya Alliance

by Jim Brydie, reprinted with permission

Once you see new rootlets on your overgrown cattleyas repot!

These orchids have a distinct upright pseudobulb, stiff leathery leaves, and relatively thick roots. You can tell just by looking that they have evolved to suit an alternately wet then dry environment. In our artificial growing conditions we need to respect that fundamental requirement. The medium in which we grow them needs to be free draining, retain moisture for a time after watering, but never stay too wet. Our watering also needs to follow this wet dry cycle. Preferably, wait until the media is almost dry before re-watering. Cattleya alliance orchids can be grown in almost any container. Most growers use either plastic pots (preferably the modern types like 'port pots' with much increased drain holes), clay pots, or slatted wooden baskets. Each has their own characteristics and advantages. Clay pots dry more quickly than plastic so watering frequency or size of medium may need to be adjusted to suit. Slatted baskets likewise.

Temperature. Some Cattleya alliance plants can be grown cold to the extent that winter temperatures down in the 30's are tolerable but others are warmer growers. To generalise, perhaps one could say that the ideal annual temperature range would around 45 minimum to 90 maximum. In the growing seasons, a reasonable drop between day and night temperatures is beneficial. However, in winter we often get wet weather at the same time it is cold, and many Cattleya alliance plants find this a lethal combination. It is recommended that they be grown under cover in winter so that they will only get water when you decide to give it. They are not actively growing in the winter months so take care to only water when they are relatively dry.

Light. All Cattleya alliance orchids require good light and humidity. 50% shade cloth provides about the right light levels provided the basic light in your particular growing area is not compromised by shade from tall trees or buildings. In general, lime green coloured foliage on the plant is an indication of proper light, whereas darker green foliage is indicative of the plant not getting enough light and may stop the plant reaching its full blooming potential. Yellow coloured foliage usually indicates too much light.

Water. Cattleya Alliance plants enjoys frequent watering during their growing period, but will not tolerate wet feet for extended periods. The frequency of watering is relative to the container, the temperature, air circulation, and the amount of water retained in the medium in the container. Watering should be done, so the roots are approaching dryness before re-watering. In the warmer periods, plants can be watered several times a week without worry if the roots can dry quickly.

Fertilizer. Cattleya Alliance plants should be fed consistently when in full growth, which is generally all year except winter. If you apply fertiliser with your water, fertilizing every second watering will provide nearly all orchids with adequate food. This could work out to be as often as once a week in the middle of the season, or as little as once a month at other times. There is no food value in the mediums we use. Your orchids only get the food you supply as fertiliser. Don't be stingy but make sure you don't apply it too concentrated. The best recommendation is to always apply fertiliser to all orchids at half the strength suggested on the pack. Make it weak and apply regularly.

Potting. The best time to repot is after all flowering has ceased. Hopefully, this is just before the orchid makes new roots for the coming season. If you repot just after it makes new roots, it is nearly impossible to do it without damaging the new roots and you will most likely set the plant back severely. However, repotting can be done anytime if it is really necessary. If you have a run down plant doing badly, you should repot it as soon as possible as it is probably sitting in wet decomposing media and will not begin to recover until it is fixed. In all cases, a warm water soak for 10 minutes will make most roots pliable and easier to remove from the container, minimising root damage.

Potting Mediums. Different growers use just about every type of medium it is possible to procure. The most common is probably 'orchid bark' which can be a number of different commercial forms of treated pine bark. Other commonly used materials are coconut husk chips, and peat moss/ perlite mixes. The choice is a personal one and depends greatly on how the characteristics of that medium fit with you own watering and growing practices. Coconut husk chips retain more water so might suit you if you water less. In regard to 'orchid bark' there are also many different grades

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The best time to repot cattleyas is right before new roots begin to emerge

in the size of the particles. For small plants a mix of chunks between about ¼ in and ½ in might suit, but perhaps using a majority of the smaller size. For a mature flowering size plant, larger chunks between about ½ in and 1 in would be better. If you only buy a bag of one size bark, I suggest you buy 'medium' grade. When you need smaller chunks, cut some of it up with secateurs. Many growers also add various amounts of polystyrene foam to aid drainage and increase air in the pot. This can either be in the form of bean bag balls or manually crumbled soft packing foam. I prefer the latter because it provides an irregular, multi size foam component. I add about 15% polystyrene.

Growing Tips. Examine your plants on a regular basis. Pick it up off the bench and look at it all over properly. Remove the dried sheathing from pseudobulbs to prevent build-up of moisture, and as a hiding place for scale insects (don't try to remove the sheaths when still green, you may damage the plant). Insects, particularly mealy bugs and scale insects, find Cattleya alliance plants attractive and can do serious damage, especially to new growth eyes. If you see them on your orchids, spray with ultrafine summer oil. If you only have a few plants you might also use an old toothbrush to scrub off the scale properly. You will need to spray several times a couple of weeks apart as scale insects lay their eggs under the females protective shield and the spray won't kill them. The second and third sprays are to get the new generations as they hatch and roam the plant. Slugs and snails are also a problem and will especially attack new growths. Keep an eye out and use snail bait selectively and frugally. Old baits go mouldy and can become a problem if you use too much.

Note: Jim Brydie is our Aussie pen pal and the newsletter editor for the Ku-Ring-Ai Orchid Society. This article is available on their website.

Adaptations to Epiphytic Lifestyle

by Sue Bottom, sbottom15@gmail.com

Catasetums grow rapidly during the wet season, storing lots of carbs and water in their pseudobulbs

There are some terrestrial and semi-terrestrial orchids that grow in soil and leaf litter, but many orchids moved up the tree canopy during their evolutionary history, searching for light and leaving the moisture and nutrient rich soil behind. Many are epiphytes, so called because epi- means "on top" and -phyte means "plant", so these orchids grow on top of other plants. Some grow on tree trunks or branches; others grow on twigs.

True epiphytes spend their entire lives without contacting the forest floor. In locations where moisture and nutrients are supplied more or less continuously, such as in ever-wet forests, epiphytes differ little in form and physiology from the ground rooted vegetation. Epiphytes are particularly abundant in cloud forests, where the air is constantly saturated and leaves are dripping from cloud condensation.

In dry forest environments, water and nutrients are supplied in pulses and there can be extended periods of droughty conditions between storms. Specialized canopy dwellers have adapted to the dry, xeric conditions obtaining their water and mineral ions through their unusual plant forms and physiology. There are two general types of xerophytes, those equipped to avoid and those adapted to endure prolonged drought.

- Drought avoiders are seasonal growers that restrict most of their vegetative growth to humid periods of the year. During the droughty season that does not support their normal heavy water use, foliage is shed and the plants lapse into dormancy. Carbohydrates and moisture are held in reserve in fat pseudobulbs or tubers. When favorable weather returns, new growths emerge to repeat the cycle. Commonly grown drought avoiders are most of the Catasetinae and certain dendrobiums, habenarias and lycastes.

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B. Crazyarachno has terete leaves adapted for growing in high light.

- Drought endurers, like many in the cattleya alliance, require quick adjustments to abrupt environmental challenges to maintain a favorable water balance. Each time an epiphyte's moisture source dries out, a process that sometimes takes only an hour or two; there is the potential for an extended drought to follow. Adaptations to the epiphytic lifestyle revolve around water relations; acquiring moisture and preventing the loss of acquired moisture are critical to a xerophyte's success. The pulse supplied epiphytes survive as a result of their high water storage capacity and high water use efficiency. These drought enduring epiphytes have high water storage capacity in succulent leaves and bulbs, velamentous roots for quick water and nutrient absorbtion as well as the ability to photosynthesize while moisture is scarce.

Roots. Epiphytic orchids have roots also adapted to life in the canopy. The roots anchor the orchid to its host plant, holding tight even when buffeted by winds. The unique root structure consists of a nonliving, thick air filled layer called velamen that surrounds the living cortex of the central conductive filament. This adaptive velamen structure acts like a sponge, becoming engorged almost instantaneously after contact with liquids so moisture and nutrients can move through the cortex and into the vascular system. This velamen becomes almost impermeable during dry periods to prevent water from being exuded through the roots. The velamen has special cells for gas exchange absorbing oxygen for respiration, and where chloroplasts are present, carbon dioxide for photosynthesis. High porosity potting mixes are recommended for orchids to help ensure that the roots can be bathed with air. When the organic matter in a potting mix starts to break down, the mix begins to compact and effectively smothers the roots. It is not too much water that kills your orchids, it is the lack of air around the roots that orchids cannot tolerate.

Pseudobulbs. Many epiphytic orchids have short, thick bulb shaped stems called pseudobulbs. These structures store water and carbohydrates, similar to the humps on a camel. The pseudobulbs swell or shrink as moisture is stored or withdrawn, allowing orchids to sustain themselves in areas with seasonal rainfall where the plants experience months without rainfall. You can use the plant morphology as a general guide to basic orchid culture. The fat pseudobulbs with thick leaves typical of cattleyas suggest the plant is more drought tolerant than thin leaved plants like many oncidiums. Phalaenopsis rely on fat roots and leaves for energy and water reserves.

Leaves. The leaves of xerophytes are often thick and succulent, covered by an evaporation retarding waxy cuticle. The more succulent the leaf, the more the leaf interior assumes a water storage role. Additional less conspicuous features promoting water retention include recessed stomata (pores used for gas exchange), usually on the leaf undersides, and reflective surfaces.

Photosynthetic Pathway. Many epiphytic orchids have a specialized adaptation to minimize water losses in their arid living environment. More conventional plants open their stomata during the day to absorb carbon dioxide for photosynthesis. The open stomata allow water to escape and evaporate in a process called transpiration. In these so-called C3 plants, more than 90% of the water they absorb through the roots is lost through transpiration, a process that would result in the death of the epiphytic orchid living in xeric environment. Because carbon gain and transpiration water loss both occur through the same stomatal pathway, some epiphytic orchids use a specialized adaptation called CAM photosynthesis (Crassulacean Acid Metabolism) to minimize water losses. The more succulent the leaf, the more likely the plant absorbs carbon dioxide during the nighttime hours while the stomata are open, storing the carbon for subsequent photosynthesis during the daytime hours after the stomata close. Keeping the

Catasetums are drought avoiders. They drop their leaves and go into a deep sleep when the dry season deprives them of the moisture they need

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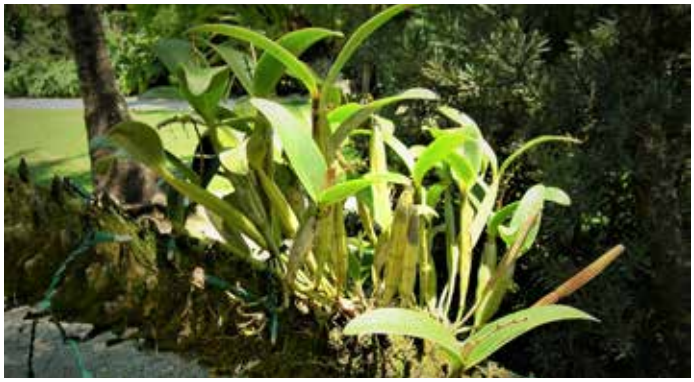


Cattleyas are drought endurers. They sustain themselves during droughty periods by consuming energy and moisture stored in their pseudobulbs.

stomata closed until the humidity levels are higher and temperatures cooler at night minimizes transpiration losses so CAM plants have a very high water use efficiency. Of course, the intermediate storage of carbon has an energy cost, so CAM plants grow more slowly than do their C3 counterparts. The more succulent the plant, the more likely the plant uses CAM metabolism. Thick leaved cattleyas and phalaenopsis often use CAM metabolism, while the thin leaved oncidiums often use the more conventional photosynthetic pathway. The slower growth rate of CAM plants suggests less fertilizer is needed to support growth than is required for C3 plants.

Nutrition. Orchids living in the tree canopy have modest nutritional demands in keeping with their stress adapted nature. Poole and Sheehan wrote:

> Rainfall is a valuable source of nutrients for epiphytic plants since it washes dust particles out of the air and onto them. The atmosphere is also an excellent source of nitrates, especially during electrical storms. Water flowing over leaf surfaces leaches mineral and organic nutrients from the leaves. Thus the leaf canopy of the host tree becomes a nutrient source that enriches the water before it reaches the orchid plant. The major source of nutrients, however, is probably the slow decomposition of organic matter (both flora and fauna) that accumulates in tree crotches and among the bark, roots, rhizomes and leaves of orchid plants.

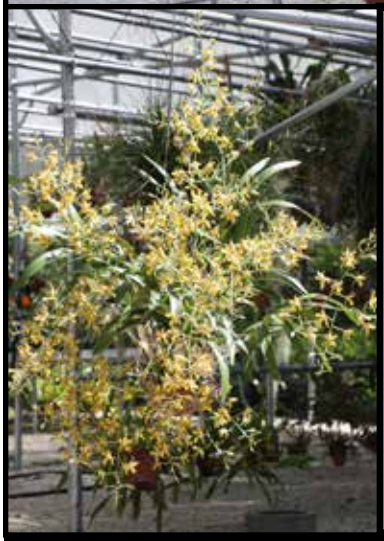
The availability of nutrients in the wild is inconsistent, depending on what has accumulated since the last storm. The velamen of orchids which is so efficient at absorbing water also helps absorb mineral nutrition, especially given that the nutritive fluids arrive sporadically and the first solutions to arrive during a storm are the most heavily charged with nutrients.

Courtney is a firm believer in mimicking nature in his orchid cultural practices. During the spring when humidity levels are low, he advocates nighttime watering to allow orchids to become properly hydrated and he encourages the use of dilute fertilizers:

> If you ever visit the tropics where many cultivated orchids originated, it is surprising to read the prohibition to never water at night. In their natural habitat, orchids are soaked at night by rain or dew. Rarely, will you ever find an orchid with rot in nature. In the wild, orchids grow very slowly and are very limited by nutrients. Their leaves are thick and hard; even immature plants.
>
> Bacteria require nutrients to grow and the presence of water laden with nutrients in and on leaves is an invitation for bacterial and fungal invasions that cause rots. Orchids can grow quickly if pushed with lots of fertilizer. However, cell walls are thin and soft on these orchids making it easy for fungi and bacteria invasion. Cells also are loaded with excess nutrients providing fuel to any invader.
>
> Growing under lower nutrient conditions does cause slightly slower growth and causes orchids to put more energy into root growth. This produces a better rooted orchid, less susceptible to disease, even if you water at night.

Our epiphytic orchids have adapted to ecological constraints with unique mechanisms to tap limited resource pools, prolong contact with passing canopy fluids and promote water and mineral nutrient use efficiency. Commercial orchid growers have to keep a roof over their heads and feed their children, so they often try to maximize growth rates, and this may result in softer growths that require chemicals to control pest and disease outbreaks. As hobbyists, it is better to use buoyant air movement and proper cultural conditions rather than relying on a chemical arsenal to produce healthy plants with lots of blooms. A slow growing oak with a strong trunk and branches can better weather a storm than than a weak weeping willow.

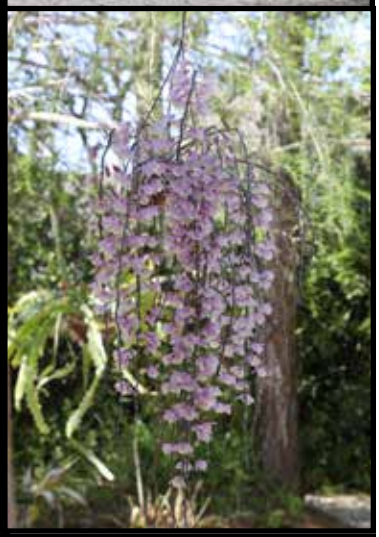
The outer spongy nonliving velamen layer surrounds the living filament that moves water & minerals into the plant

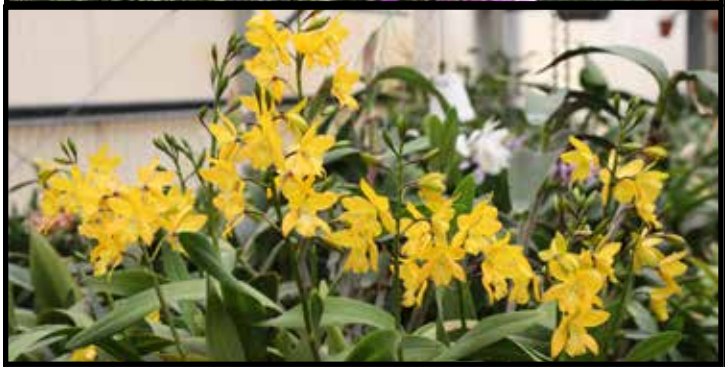


Sue's Backyard

St. Augustine

The spring blooming Dendrobiums and Phalaenopsis were beautiful this year Courtney suggested top dressing phals with Purely Organic fertilizer this past fall and the phals really put on a show this year. During the winter, the shade structure is empty and the hoop houses are full. Come spring, the shade structure quickly fills up with Catasetums, Schomburgkias, Stanhopeas and Angraecums along with lots of tillandsias. They are all potted to enjoy the daily summer rains without becoming waterlogged. Most of the other Cattleyas summer in the greenhouse where I can control watering, which helps prevent rots. The gorgeous blooms make all that work worthwhile.





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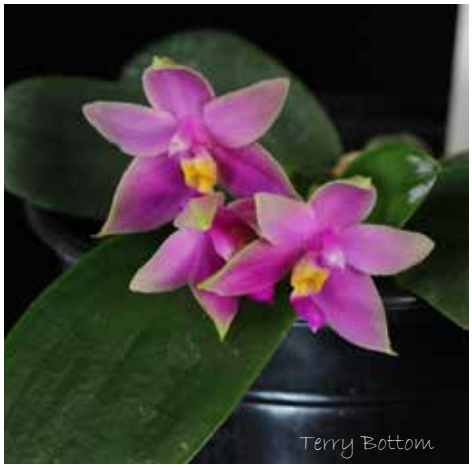
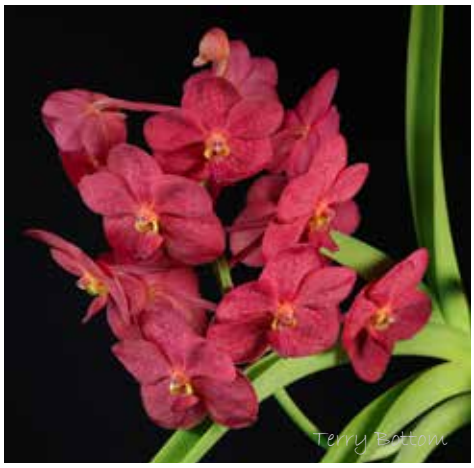
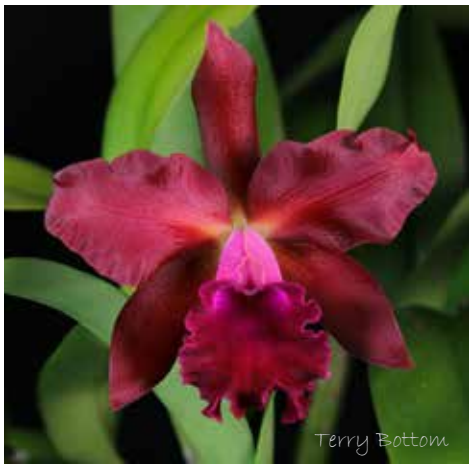


Grower Harry & Celia McElroy
Phal. Samera

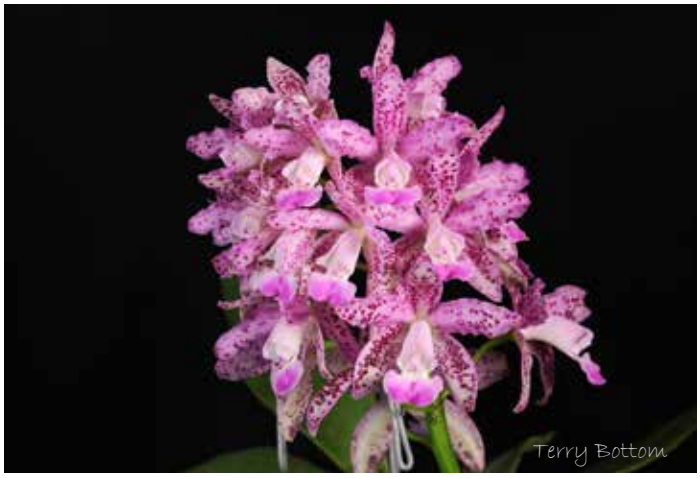


Grower Susan Smith
Ascda. David Foster

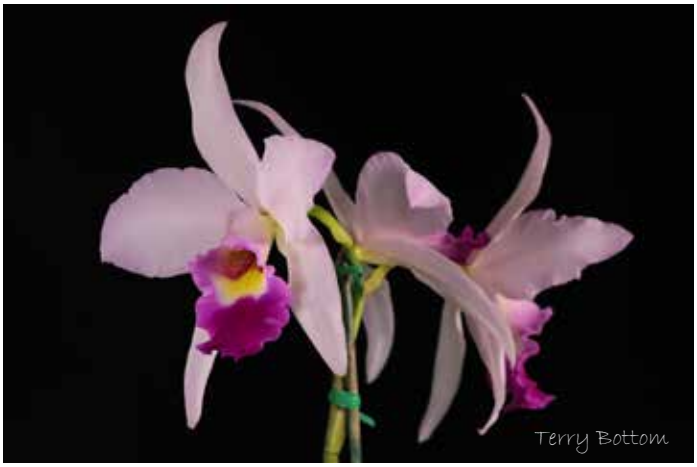


Grower Linda Stewart
Pot. Love Triangle

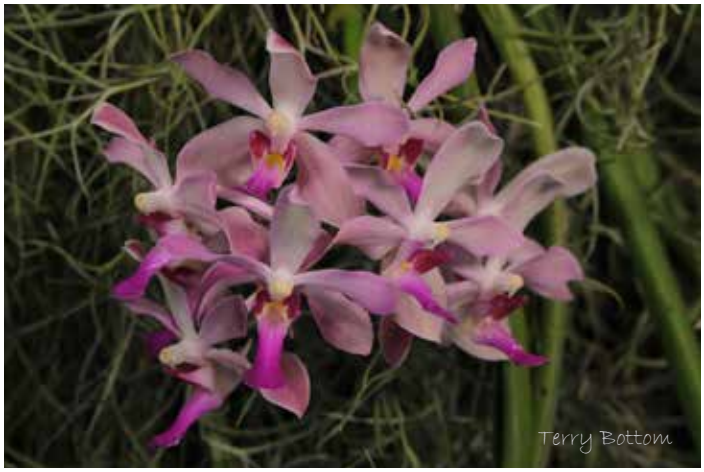
Grower Steve Hawkins
Catasetum Jamie Lawson XOXO



Grower Sue Bottom
Lc. Nalani Spots 'Raspberry Spots'



Grower Courtney Hackney
Lc. Higher Ground 'Hackneau' AM/AOS



Grower Sue Bottom
Pps. laycockii x Vasco. Pine River

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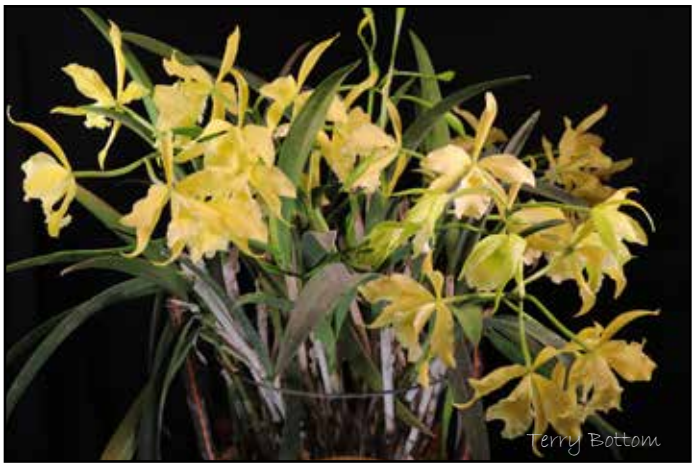
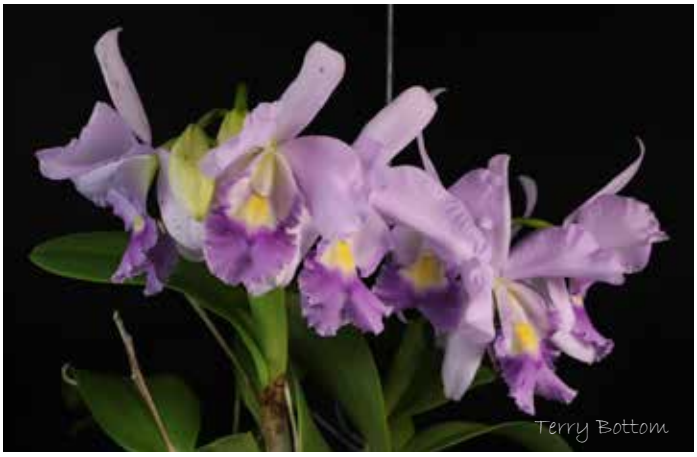


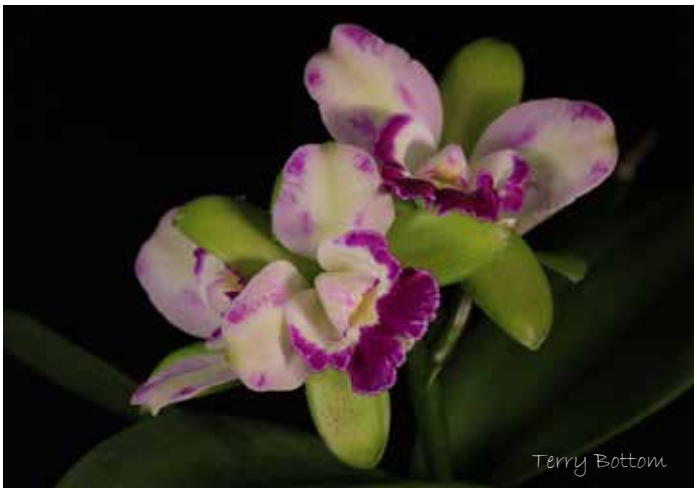
Grower Sue Bottom
Blc. Everything Nice 'Showtime' HCC/AOS

Grower Suzanne Susko
Den. bracteosum

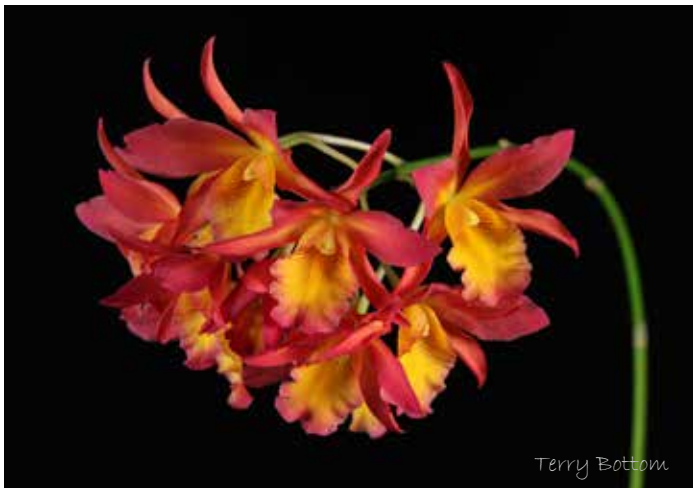


Grower Bill Gourley
Blc. Mark Eddleman

Grower Steve Hawkins
Rhy. coelestis var. coerulea



Grower Sharon Hahn
Blc. Yen Corona 'Green Genie' AM/AOS



Grower Harry & Celia McElroy
Smbcna. Jamaica Fire

Link to all Pictures. https://flic.kr/s/aHsmpPd1oQ