



Conservation Through Knowledge

# Nutmeg State Orchid Society Inc.

Issue 20 Volume 2

September 2010

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## The President's Message:



A very hot and dry Summer is coming to a close. Like each of you, I am looking forward to getting back into interesting orchid activities! Over the Summer NSOS members engaged in several interesting activities. On May 22, we visited People's Forest in Barkhamsted to see the blooming *Cypripedium* Pink Ladyslippers. The flowers were about a week earlier than usual due to our early, warm Spring but we caught them at full bloom. We also saw *Goodyera tessalata* in very early bud. Following the People's Forest visit we visited our home to see our blooming *Cypripedium* ladyslippers. We were able to see more than 20 species and hybrids in full bloom.

On June 27, many Society members remarkable and famous small Several vendors also had plants and Picnic was July 24<sup>th</sup> at Sandy Farmington. The food was great with many new ideas for our



visited J&L Orchids in Easton to see this species specialist nursery and enjoy a picnic. there were lectures. Our NSOS Family Myhalik and Steven Calderon's home in and the gardens glorious. We came away woodland garden!

We will be back to our meetings on about how to pollenate your orchids species. I will flask any pods that which to practice. If you have any orchids in flower that you wish to cross, bring them in! Even if your favorite plant is blooming but you do not have a partner for it, we will show you how to collect the pollen to store it. Pollen keeps for at least a year so you will have time to look for the perfect partner.

September 13. We will hold a workshop to make new hybrids or line breed your develop. We will bring several orchids on

On October 2, we will hold our annual Dinner and Auction! This will be a great time to enjoy an evening with fellow members and to perhaps collect some special plants and other items. This is NSOS' major fundraiser for 2010.

During the latter part of October, we plan to organize a trip of our local AOS judging centers to see great plants being This promises to be a fascinating day among some of the accomplished regional experts.

On November 1, Bill Cullina, of native plant cultivation and propagation fame, will present a lecture about orchid



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cultivation.

December 6 will wrap up our activities during 2010 with our annual Holiday Party.

We will be soliciting your thoughts and ideas for the program for 2011. Of course a major date for 2011 will be our AOS sanctioned Show on March 19 and 20! There will be a **meeting of the Show Committee** at 7 PM on October 18 at Jeanne and Tom's home in Farmington. Please let Jeanne know if you plan to attend. There are lots of things to be done so don't be shy!

During our last few meetings we have not gotten to the review of orchids brought in by members. We will rectify this beginning with our September meeting so ***please bring your orchids to the meeting***; according to members, this is one of the most important aspects of our meetings!





## **In Memory of Robert Hirnyk**



**Nutmeg State Orchid Society is saddened by the passing of our member Robert Hirnyk, on Monday August 23, 2010. The board extends our condolences to his wife Diana and his family. Robert will be greatly missed.**





## NUTMEG STATE ORCHID SOCIETY MENTOR LIST 2010

Ron Burch	Cypripediums Native orchids	860-567-0431	<a href="mailto:ronjonb@aol.com">ronjonb@aol.com</a>	Call/e-mail anytime
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Joe Hertz	Under lights and Windowsill growing  All species	860-233-5505	<a href="mailto:jhertz1015@aol.com">jhertz1015@aol.com</a>	Call/e-mail anytime
Julia Massolin-Walas	All species, Hydroponics  Pests & diseases, Mounting/Repotting  Dividing	860-673-3578	<a href="mailto:orchidjulia@hotmail.com">orchidjulia@hotmail.com</a>	Call/e-mail anytime
Jeanne McDermott	Windowsill growing:  Phals, Paphs, Brassia, Oncidiums, Cymbidiums, Miltoniopsis & mixed genera	860-677-5381	<a href="mailto:jtmcdermott@comcast.net">jtmcdermott@comcast.net</a>	Call/e-mail anytime
Sandy Myhalik	Phalaenopsis	860-677-0504	<a href="mailto:myhalik@comcast.net">myhalik@comcast.net</a>	
Jay Presbie	Growing under lights  All species	860-651-3155	<a href="mailto:jpresbie@sprintmail.com">jpresbie@sprintmail.com</a>	Call/e-mail anytime
John Sziklas	Paphiopedilums Phragmepediums  Cattleyas	860-658-2908		Call anytime

NSOS now has a mentor list and would like to add more folks going forward. We are looking for people that are willing to answer questions on something that you are familiar with pertaining to orchids. You do not have to be an expert, just able to help someone who has a question in your area of knowledge. We all have areas that we feel comfortable in that would be of great assistance to someone just starting out. If you wish to be added to our NSOS Mentor List, please send me a note: [johndeered@att.net](mailto:johndeered@att.net)

## **BUSINESS MEETING**

**No Meeting over the summer**

## **SEPTEMBER SPEAKER**

### **So You Want to be an Orchid Breeder: Creating Your Own Ideal Orchid through Hybridization by Ron Burch**

"All of us have marveled at the myriad beautiful orchids that have been created through hybridization.



We will start by reviewing why people want to hybridize and how they set goals. We will then look at how to pollinate orchids artificially (only a toothpick is necessary - and a magnifying glass if you like the really tiny flowers!). We will then all try our hands at pollination. Several orchids will be brought to practice on and you are invited to bring your own orchids that may be in bloom and that you want to cross with one another (please bring in any blooming



orchid that you may want to cross - we will discuss how to store pollen until your chosen mate is in bloom - pollen can easily be stored for a year, and often longer). If successful pollination occurs, you will "soon" have a nice green pod filled with seed. At that time, Ron will flask your pod (you may participate if you like) and you will be able to watch at home as your baby orchids grow in their sterile media. When the seedlings are ready, we will remove them from their flasks and plant them



into their first pots."

## **UPCOMING EVENTS**

**September 13..... “So You Want to be an Orchid Breeder”: Creating Your Own Ideal Orchid through Hybridization by Ron Burch**

***. NOTE: MEETING IS ONE WEEK LATE DUE TO THE LABOR DAY HOLIDAY***

**October 2..... Auction & Dinner/Silent Auction**

Tunxis Plantation Country Club, Farmington. Open to the public..

**November 1.....** Bill Cullina, of native plant cultivation and propagation fame, will present a lecture about orchid cultivation.

**November 5 - 7....** Massachusetts Orchid Society show & sale “Tridents Treasure” 1pm to 5pm Friday & 10am to 5pm Saturday & Sunday – Tower Botanical - 11 French Dr., Boylston, MA

**December 6.....** Annual Holiday Party.

**Meetings are held at the Farmington Senior Center, Room C @ 7 pm – 9 pm the first Monday of each month unless otherwise posted above or on our website.**

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## **TREASURER’S REPORT**

**NSOS financial data is available to members upon request. Send your inquiries to our Treasurer, Tom Mierzejewski: [tommajeski@comcast.net](mailto:tommajeski@comcast.net) .**

### **Advertising in our NSOS Newsletter**

**Advertising is now open to members and businesses. The following rates apply: \$10/month business card size ad. ¼ page \$25, ½ page \$50. Members would get \$5 & \$10 off these rates respectively. A four line word ad for members would be \$2. Contact Walter Doehr if interested and send your check to Tom Mierzejewski, our Treasurer.**

**Refreshments** : It is requested that for the Sept. meeting, those members with last names beginning with N thru Z bring in a snack or finger food to share with members. Thanks in advance for your contributions!

## Annual Picnic

July 25<sup>th</sup>, NSOS had our third annual picnic, the date was moved from the 24<sup>th</sup> due to the extremely hot weather. The outing was held at the home of Sandy Myhalik & Steve Calderone and was attended by 26 members and friends. A good time was had by all. Thank you Sandy & Steve for hosting our picnic.

**The photos were taken by Christine Ciarcia**





## Monthly Checklist for September and October

### **Cattleya**

Despite the shortening days and lowering angle of the sun, September can still be one of the hottest months. Water and fertilizer need to be in balance with heat and light. The alert grower will notice, however, that his or her plants are beginning to slow down a bit. Growths are maturing, and the sheaths are giving the promise of the next six-months' bloom.

Check plants for potting needs for the last time this season. Any in dire need should be potted, even some that may be on the cusp, as there is just enough of the growing season left to allow the plants to establish before the days start to get really short and cold.

This is the month for purples derived from *Cattleya labiata* breeding to flower. If you are short on flowers, look into this group. There is nothing that can quite match this type for beauty and fragrance. They are easy to grow, too.

Plants summered outdoors should begin to be prepared to be brought back into the winter growing area. Clean the plants up and be on the lookout for any pests they may have picked up during the summer. Treat as necessary.

### **Cycnoches**

This little-known and under-appreciated genus, which can have male or female flowers, is at its best in the autumn. Two of the spectacular varieties are *Cycnoches loddigesii*, with its large brown flowers resembling a prehistoric bird, and *Cycnoches ventricosum*, the swan orchid. This last one has large, fragrant green flowers. The biggest problem, culturally, will be red spider mite infestations that require immediate attention. Plants are quite seasonal, requiring heavy watering in the growing season and then a drier dormant winter season.

### **Cymbidium**

Through diligent modern breeding programs, the cymbidium season gets stretched longer and longer. Now we can expect to have flowers open as early as September and October. Stake inflorescences and move the plants to a shadier location to help the flowers develop successfully. Because the plants will have warmth tolerance "built in" genetically, keeping the plants as cool as possible will help prevent bud curl. For the midseason varieties, inflorescences should be initiated by now. Feed plants on a regular schedule with a balanced fertilizer (20-20-20) and shade the plants lightly.

## **Dendrobium**

This is a good season for hybrids of the *Dendrobium phalaenopsis* and *Dendrobium canaliculatum* types. Both are capable of putting on tremendous shows of long-lasting flowers. Fertilize with a low-nitrogen formula to promote the best flowers. *Dendrobium phalaenopsis* can get tall and top heavy, suggesting an attractive and heavy container would be appropriate for this type.

## **Lemboglossum bictoniense**

Both *Lemboglossum* (syn. *Odontoglossum*) *bictoniense* and its hybrids bloom in this season. *Lemboglossum bictoniense* is a showy species from Mexico that has three different color forms: *sulphureum* (green with white lip), *album* (brown with white lip) and *roseum* (brown with a pink lip). It is a vigorous grower with tall inflorescences of many flowers, and imparts to its progeny (as seen in *Odcdm. Bittersweet* and *Odm. bicross*) ease of culture, warmth tolerance and eye-catching patterns. They make a prime candidate for *odontoglossum* beginners and advanced alike.

## **Paphiopedilum**

Standard, green-leaved *paphiopedilums* begin to show their bloom sheaths this month. Late-season heat waves can blast these early sheaths, so be observant about proper cooling and air circulation. As with the rest of your plants that may have been summered outdoors, it is time to prepare for their move inside. Clean each plant and implement pest-control practices. Repotting, if necessary, is appropriate.

## **Phalaenopsis**

The bulk of this season's growth is being ripened this month, with growers in cooler climates seeing the first emerging inflorescences. Some night heating may be necessary in the cooler areas. Begin to watch watering more carefully, and reduce feeding proportionately with reduced watering needs. An extra dose of phosphorus and potassium, such as a bloom-booster or high-acid-type fertilizer, is beneficial.

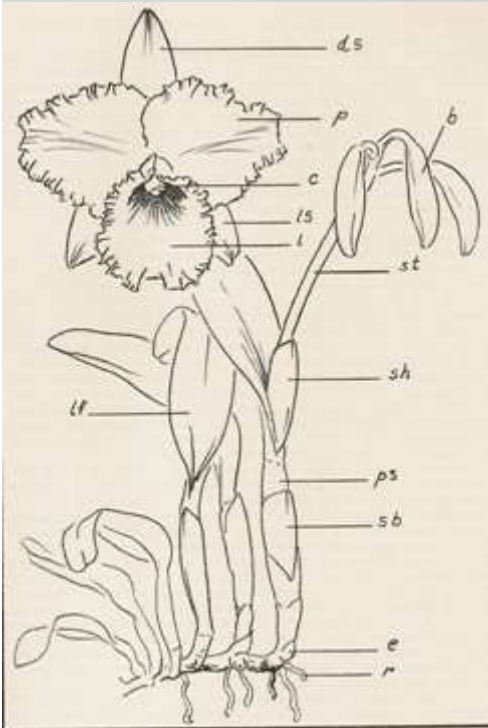
## **Rossioglossum grande**

Once known as *Odontoglossum grande*, this is a spectacular orchid with six to eight flowers up to 8 inches across. Often known as the tiger orchid, it has bright golden yellow flowers heavily marked with chestnut brown barring. The plants are beautiful with a grey-green cast to the foliage, which is borne on succulent pseudobulbs. It prefers hot and wet summers with cooler, even down to 40 F, dry winters. Grow under filtered light. Watch for snails and slugs that eat the flowers, pseudobulbs and leaves.

*The AOS thanks Ned Nash and James Rose for this essay .*

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# Cattleyas for the Beginner - 1



THE STRUCTURE OF A CATTLEYA  
The drawing shows a plant in bud and a single detached flower. b, bud; c, column; ds, dorsal sepal; e, eye; l, lip; lf, leaf; ls, lateral sepal; p, petal; ps, pseudobulb; r, root; sb, sheathing bract; sh, sheath; st, stem.

b=bud; c=column; ds=dorsal sepal;  
e=growth eye; l=lip; lf=leaf;  
ls=lateral sepal; p=petal; ps=pseudobulb;  
r=root; sb=sheathing bract; sh=sheath;  
r=root

To many people the term *Cattleya* is synonymous with orchids. For a long period, a *Cattleya* corsage was a prerequisite for any special occasion and as a result the *Cattleya* has often been called the Queen of Orchids. While no longer the reigning queen of the orchid floral industry it is difficult not to be impressed by a well-flowered *Cattleya*. No longer limited to white and various shades of lavender and purple, high quality flowers are available in the entire color spectrum (except true blue) and in a wide range of plant sizes. Most *Cattleyas* and their relatives are easy to grow. With reasonable care, they can be grown anywhere in the world. Their requirements are few and are summarized below. For the meanings of terms which refer to parts of the plant and flowers, see the accompanying plate.

## Cultural Requirements for Blooming-Size Cattleyas

An adult plant is one mature enough to flower. It will be about four to seven years from seed, if it has never flowered before, or older if it has flowered in the past. With proper care, a *Cattleya* plant can be grown on indefinitely and can be flowered year after year. Proper care depends on a few basic factors, each of them influenced by the others. They are: 1) light and shade; 2) temperature; 3) air movement; 4) humidity; 5) watering; 6) potting and potting medium; 7) feeding. These environmental factors vary from place to place, and each plant will differ in its requirements according to its kind and, to a lesser degree, its individual condition. The essence of good growing is in achieving a happy balance of all factors in relationship to each plant. This is not too difficult, but it demands knowledge, understanding and careful observation on the part of the grower.

**Light and shading** - To grow well and to flower consistently, cattleyas require a good amount of light, preferably in the range from 2,000 to 3,000 foot-candles (about 65-70% shade), although they will tolerate a great deal more light if it is accompanied by sufficient humidity and air movement to keep the leaf-temperature down. Natural light varies according to the weather, the season, the time of day and geographical location. Therefore, for more northern parts of the country, a



“good amount of light” will mean as much light as possible in the late fall and winter, light shade in late winter and early spring, increasing to a maximum in late spring and summer and decreasing in the fall. For the more southern areas of the United States, such as South Florida, Southern California and Hawaii, shading will be necessary all year round. Shading can be an opaque coating painted or sprayed on the outside of a glass greenhouse, a solid material such as lath, commercially available shade cloth, translucent to semi-translucent material such as plastic sheeting or fiberglass panels and, for windowsill culture, a light sheer curtain.



Note dark green leaf color of plant grown under too little light to flower

Light varies according to the time of day. Early morning sun, accompanied by high humidity and low temperature, is especially important. Shading should be heaviest from midday through the late afternoon, especially if plants are grown in windowsills. Afternoon sunlight coming through west-facing windows can be extremely hot and, without adequate air movement and

humidity, damaging to your plants.

Cattleyas receiving too little light can be recognized by the dark rich green color of their foliage and failure to flower. Cattleyas receiving a proper balance of light, humidity and temperature will have rather light yellow-green leaves. Too much light will turn the leaves more yellow than green, give them a dull appearance, or will burn black areas on the upper surfaces of the leaves facing toward the sun.

**Temperature** - Although Cattleyas come from the tropics where the sunlight is hot and intense, most species are found at fairly high altitudes where the air is cool and moist, particularly in the morning and at night. Thus in home or greenhouse culture, the goal is to provide maximum sunlight without excessive temperature. In winter, the daytime temperature should range from about 60F to 70F, the night temperature being set for a minimum of about 55F. In the summer, a night temperature of 60F to 65F is desirable, while the day temperature ideally should range from 65F to 75F, but an upper limit of 85F is more realistic. Cattleyas will withstand higher temperatures, even over 100F but prolonged exposure will prove harmful. At temperatures above the low 90'sF the plants cannot transport calcium within their tissues. Under these conditions, the plants are susceptible to dieback of the leaf tips on the young developing growths. Mature leaves are not affected making the problem easy to diagnose. High humidity and good air movement will help to compensate for excessive day temperature.

**Air Movement** - In climates where natural humidity is high, simple ventilation is practical, but in many areas, where natural humidity is low and temperature is high, ventilation can be destructive by draining away humidity in the growing area, drying out the plants and retarding growth. In these climates ultrasonic humidifiers (also called cool-mist humidifiers) and fans set a low speeds are a better solution and in greenhouses evaporative coolers. Fans should run continuously since air movement at night is just as important, providing a light buoyant atmosphere. The small greenhouse, especially, profits from the installation of good fans or blowers, strategically placed to circulate the air throughout the house. Humidity is maintained; the moving air keeps leaf temperature down and helps to avoid the stratification of cool moist air below the benches and warm dry air above, where the plants are. “Dead spots” are minimized and, equally important, damp stagnant areas - breeding place for disease - are eliminated. One to several fans, the number and size depending on the size and structure of the greenhouse, will more than repay their cost. If plants are grown in the home, overhead paddle fans set on the lowest possible speed or a small oscillating fan set facing

away from the plants will accomplish the same goal.

When ventilators are opened, care should be taken to avoid drafts, for most cattleyas can be damaged by sudden changes in temperature. This is especially important in the winter or on cold windy days.

**Humidity** - Cattleyas do best when humidity ranges from 40% to 70%. Humidity as a rule is highest at night and lowest during the afternoon peak of sunlight and warmth. Therefore, except in areas where natural humidity is quite high, or during cold, cloudy or rainy weather, it is important to add moisture to the growing environment, especially during the day. This can be accomplished in a number of ways. For small collections grown under lights, humidity trays may be sufficient. These trays are nothing more than a water-holding tray filled with small gravel (aquarium gravel works well). The gravel-filled trays are filled with water to a level just below the surface. To prevent plants sitting on constantly wet gravel the plants are placed on small saucers or pieces of plastic or metal grid placed on top of the trays. Greenhouses should be damped down in the morning, and again during the day if necessary and possible. A mist spray of the foliage is useful in bright hot weather. In a small greenhouse this may be needed several times a day. A good humidifier, properly connected to both a humidistat and a thermostat, is an almost indispensable automatic device for the greenhouse, particularly if the greenhouse must be left unattended during daylight hours.

In cold dark weather, the greenhouse should be drier. Reduce or dispense with damping down, spraying and humidification, unless artificial heat has already dried out the greenhouse.

Where natural humidity is high or where humidification maintains a high degree of humidity, increased air movement is essential to prevent stagnant air and the development of diseases. Good ventilation or the use of fans is recommended (see "Air Movement" above.)



Too little water has dehydrated this plant

Watering - Improper watering, both under- and over-, leads to the death of more orchids, including Cattleyas, than any other single cause. There are two aspects of proper watering to consider: when and how. Simply summarized, cattleyas should be watered only after the potting medium has become "dry." Frequency of watering will vary. Once a week is a good base

to begin, remembering that some factors will speed up drying of the potting medium, others will slow it down. A lot of sunshine, heat, good air movement, active growth, a large plant in a small pot, low humidity, the type of potting medium (such as bark, gravel, tree fern chunks, etc.), windy weather and the like all contribute to faster drying and, consequently, increased frequency of water. Conversely, high humidity, dark, cold, cloudy or rainy weather, large pots, inactive plants (that is, not in active growth), tightly packed potting medium, little air movement and similar circumstances will slow the process of drying and hence decrease the frequency of watering. Note that some of these factors affect the entire collection of plants, other affect only certain individual plants. Watch each plant carefully, consider each by itself. Each beginner must learn for themselves, but remember that plants will recover much more rapidly from under-watering and it is best to err on the dry side, following the rule, when in doubt, don't water.

Many beginning growers soak their plants in a bucket of water. While this may at first seem to be a good way of making sure the potting medium gets thoroughly wet, it is actually not a good practice. Should one of the plants have a disease

or insect infestation, all those soaked in the same water after it may well become infected. For small collections it is much better to place the plants in the sink and carefully flood with water until the medium is thoroughly wet, being careful not to wash the medium out of the pot. Take time to let the water run copiously from the bottom of the pot, leaching away accumulated fertilizers or minerals from the water.

**Potting media** - There are a bewildering array of potting media available in which *Cattleyas* can, and are, grown to perfection; chopped bark, tree fern fiber, coconut husk chips, gravel or lava rock and even sphagnum moss. The most common potting media are still based more or less on chopped fir bark although more open media like tree fern fiber or inorganic media like expanded clay pellets and lava rock may be a better choices in very humid hot areas of the country. The choice is predominantly a personal one and based on whatever gives good results for the grower.



To pot a *Cattleya* plant, it should first be cleaned of old roots, decayed medium and debris. The new potting medium should be moistened before use if possible. This is again more or less a personal choice but soaking the potting medium before use helps to reduce the amount of dust (bark and tree-fern based) and it's easier for beginners to determine when to water when they start with moist media. Select a pot of sufficient size to allow for two years of growth (avoid over potting!). For added drainage broken pots (crocking), gravel or even Styrofoam peanuts can be used to fill up to one-

third of the pot (if using slotted clay "orchid pots" this added drainage is unnecessary) . Place plant so the bottom of the rhizome is about ½ inch below the pot rim with the oldest part of the plant against the pot rim. Pack potting medium evenly and firmly around roots up to side of rhizome, being sure there are no loose spots or holes are in the medium. Stake and tie plant as needed.

Potting as a rule should be done when the plant begins to throw out roots at the base of the new growth, or just after the new growth begins. For most *cattleyas*, the time of repotting is not as important if media easily removed from the roots is used, and some growers repot throughout the year as time is available. There are exceptions however. Many of the bifoliate (two-leaves per pseudobulb) *cattleyas* resent repotting unless new roots are being formed and, if at all possible, these should not be disturbed unless new growth and new roots are beginning.

**Feeding** - *Cattleyas*, like other orchids, are capable of growing (and even flowering) for several years without fertilizer however they will do better with an adequate nutrient regimen. Historically, for *cattleyas* in a bark medium, a high nitrogen formula like 30-10-10, has been recommended but current research indicates that this high nitrogen is unnecessary and may well hasten the decomposition of the potting medium especially in hot humid areas of the country. A better choice would be a urea-free lower nitrogen formulation such as 10-10-10 or 13-13-13 used in dilute solution (1/4 to ½ of the recommended strength) during active growth and in bright weather. To avoid the accumulation of salt buildup in the potting medium, the pots should be flushed with plain water between fertilizer applications.

Overfeeding, in *cattleyas*, can lead to loss of roots and consequent death of the plant. To a lesser degree, when feeding a well-rooted plant, overfeeding can result in the production of vegetative growth instead of flowers, sometimes resulting in blind sheaths. In feeding, it is better to err on the side of too little than on the side of too much.

# Killing Orchids: Dealing with the Inevitable

**Larry Litwin**

The following article first appeared in the June 1991 *American Orchid Society BULLETIN*, Volume 60

I have grown orchids for what seems like a long time, 17 years. My collection started as meagerly as you could imagine; a standard-size, lavender *Cattleya* hybrid that was simply labeled "blue." I got it at a farmer's market in Syracuse, New York for \$10.00. I grew that plant for about a year before it flowered. Once it did, all hope was lost. I began to purchase orchids with vengeance. After all, "I now could grow and flower them." My collection swelled dramatically from that lone orchid. That last just over two years. An unexpected freeze dropped it back to one plant in a single night. Since then, the number of plants in my collection has varied between a low just under 20 and a high of several hundred. The collection now stands at around 75. I have been fortunate to have had the opportunity to grow orchids in climate-controlled growth chambers, greenhouses, outdoors with grow lights and on windowsills. Throughout, I have managed to kill a lot of orchids. I feel qualified to offer reassurance to the beginner who has some apprehension. I would advise you not to worry. It might take some practice to get really good at it, but you can grow orchids!

At first you will probably kill them mostly by accident. You will repot something at exactly the wrong time. You will both overwater and underwater. You will heavily fertilize a plant that is salt-intolerant. You will give shade lovers too much sun and sun lovers too much shade. This is unavoidable. Some mistakes will be made because you just didn't know any better. Others will occur because you followed well-intentioned advice which was inappropriate for your conditions.

Much of orchid growing depends on your experience. Experience takes time. You can't get everything you will need to know from reading. That is not to say that reading is not important. It most certainly is! However, while it is possible to illustrate clearly what a sunburn looks like and to list most of the conditions which cause it, there will always be some peculiarity of your environment that was not discussed. This is the one that will get you. Until you happen to run into that one unusual, and perhaps rare, condition you will have no way of knowing you are putting a plant into danger. Then all of a sudden a sunburn will strike. You will probably be able to identify the cause, but it is doubtful that you could have anticipated it. This is experience. As the saying goes, "it can only be seen to be appreciated." The more experience you have, the more mistakes you will have made, the more problems you will be able to anticipate and avoid.

Nonetheless, reading and talking to other growers is very important. Learning what has worked for other people is only one of the benefits. This also exposes you to considerations which may not have occurred to you otherwise. There are hundreds, perhaps thousands of good articles on orchid culture. There are bound to be a fair number of these that apply directly to the orchid to which you are attracted. By all means, read all of them that you can get your hands on. Unfortunately, you may find that there may not be complete agreement among the experts, except concerning general cultural requirements. This is not to say that an expert won't offer very specific, and possibly emphatic advice. Moreover, usually that advice will be entirely accurate if your conditions are exactly the same as those of that particular expert. Believe me, they almost certainly aren't! Your only recourse is to balance all advice against your experience with your own conditions. Find out why the advice is given. Determine the cause-and-effect basis for the advice. Then analyze how that relates to your situation and conditions. Modify the advice as necessary and apply it. You won't go too far wrong. The important thing is to understand the "why" of it rather than the "how" or "what." Above all, be prepared to make mistakes.

It is difficult to predict the effect of every environmental condition that you will encounter. It is often possible to gain a feel for what is going on in retrospect. Often you won't be able to remember much about past conditions by the time you observe an effect. It is impossible to observe and remember every fact that might have an effect on growth. It is likewise unreasonable to expect to be able to take daily measurements of every environmental variable that might be important. Still, it's much better to do something rather than nothing. My advice is to keep some sort of journal. It should be just detailed enough to keep your interest but not so detailed that it becomes a chore. Don't get caught up in forcing yourself to make "standard entries" or to adhere rigidly to a specific set of observations. Your perception of what is meaningful will change over time. Use the journal as a scratch pad to record things that you notice about a particular plant, the general weather conditions, anything out of the ordinary or anything which you suspect might be important. Eventually, you will begin to recognize which factors are most important, how the individual conditions influence the plant and how these factors are related. You will probably find agreement with the general principles that you read about. The specifics will be unique to your conditions, your plants and your growing style. For the fine points, you're mostly on your own. Your success will depend on how closely you observe, on how much experience you have.

Experience has its downside, though. As you kill fewer plants by accident, your collection will grow in size and finally exceed carrying capacity. Everyone's does eventually. The carrying capacity for your collection is the number of plants that can be grown well, given your resources. Some resources are, more or less, infinite. For example, you can probably supply far more water than any collection of orchids will ever need. There are also resources that are finite. They are available in limited quantities. Examples of this type of resource are light (within a defined space), space and money. These types of resources can become limiting to growth as they are spread over an ever-increasing number of plants. For example, there might be space to squeeze one more orchid into a windowsill growing area that is already at capacity for light. The result will be that some plant(s) will get a little less light. Sometimes this small amount of change will be enough to push one or more plants into decline. At this point, light is limiting to growth. The collection is above carrying capacity. Of course it's never as simple as that. Changes in air circulation affect the rate of drying and the amount of COT available to the plant. Other factors may come into play. Even though the changes are nominal, a plant that is near the edge anyway might be pushed over.

At some point it will become impossible to squeeze any more plants into the available space and light. If money is not a limiting condition, you can expand the space that you have available. You could add some lights to a window area, build another growth chamber, add to the greenhouse or even build another greenhouse. Even with quite a lot of money, your collection will still exceed carrying capacity. One limiting resource that is often overlooked is the amount of time you have to devote to your collection. Though there are ways to become more efficient, sooner or later you will hit the wall. You won't be able to spend adequate time with your plants. If you ignore this limit, your orchids will suffer. You will experience an increase in the number of plants that you lose from disease or poor culture. It takes time to discover the outbreak of a pest in time to prevent damage. It takes vigilance to monitor the state of each plant. If you don't have enough time to do this kind of preventive maintenance, you will kill a lot more plants than necessary. The worst part of losing plants this way is that it is a random process. Your most favorite orchids go just as easily and as often as those you could live without. A good rule of thumb is that you should be able to give each plant a casual examination at least every third day and a detailed inspection twice a month.

To bring your collection back into balance once it has exceeded carrying capacity you will have to learn to kill (i.e., remove from your collection) orchids intentionally and reliably. While killing orchids by accident, inattention or carelessness is easy, it takes skill to do it deliberately. It requires a certain amount of dedication and discipline to develop a true executioner's spirit. Although a great deal has been written on growing orchids properly, there is little advice available on when and how to kill them appropriately. I will attempt to remedy that at least in part. Probably the most emotionally difficult way to eliminate an orchid is actually to kill it. Nonetheless, there are some plants that are so inferior that they must be destroyed. Others, suffering from poor

health, might take an unacceptable share of the available resources to recuperate. Some may never recover no matter what is done. A plant may become infected with virus. Cultivate the ability to put this type of plant in the garbage can.

Next there are those plants that just don't measure up to personal preferences. They aren't bad enough to simply discard. They aren't good enough to keep. Terminate these plants by giving them to someone who wants to try growing an orchid. They might as well have something that is less than exquisite on which to practice. More often than not, they will succeed in growing the plant, and you will have expanded that person's horizons. You will also have developed a valuable resource. Once hooked, this person will gladly take those plants which no longer interest you.

Another category covers those plants that are good enough to keep but for which there is no room. Sell these, usually at a high discount to ensure that they move. This partially covers the costs of new acquisitions. An alternative is to make them gifts to experienced orchid-growing friends. Unfortunately, most of their collections are probably at or above carrying capacity as well. An additional option is to use the plants in experiments designed to expand your skill in managing your collection. For example, when you think it is time to move the orchids outside for summering, set these out first as a test. When you decide to try a little more sun to see if you can boost growth even further, these are the plants to use. You can push these plants beyond any limit to determine more closely just where that limit is. Obviously some of these plants won't make it, but their loss provides enough value in information to make it worthwhile. The knowledge gained might help prevent the loss of the 1 % or so that are truly irreplaceable. In my opinion, only the smallest percentage of the orchids available will be so good that their loss is tragic. If you look honestly at any large group of plants, you will find that, though each plant may be unique, most are relatively interchangeable. You can obtain another, equally good or even better, very easily. It would be catastrophic to kill one of these precious finds. Sacrificing a few lesser plants in experimentation is a small price to pay if it keeps even one of these exceptionally superior orchids alive. Obviously, the extraordinary orchids are the ones of which you keep multiple divisions. You will want to grow enough copies of these plants to insure against their complete loss. As these plants grow larger and begin to take up more space, variety will become increasingly important. After all, no matter how good an orchid is, you wouldn't want a collection composed of 100 identical plants. Disposing of these plants is probably the most perplexing problem of all. They are so good that you really would like to hang on to them, but you absolutely have more than enough divisions for safety. Plants such as these can usually be sold at a fairly good price. If they are really very excellent you might consider donating a division or two to a breeder or the national collection in Washington, D.C.

How do you determine which plants fit into which group? The exact balance that you determine will be strictly personal. My experience has shown three things. First, strict adherence to rules based on objective measurements do not work. For example, one rule that I tried to follow was "If it fails to bloom two years in a row, it's gone." Another was "If the flower doesn't last more than four weeks, it's history." These were logical, but there were too many exceptions. Second, subjective guidelines are not much better. I developed a way to rank orchids based on plant size, growth habit, frequency of bloom, size, number and quality of flowers, all estimated subjectively. These types of schemes are every bit as difficult to adhere to as vigorous objective standards. Third, no matter what your tastes and conditions are today, they will change. The composition of your collection will evolve to reflect your tastes and environment as these change over time.

The only thing I have found that works is a very simple principle. I must accept that my time, abilities and resources are limited. I established a rigid restriction on the maximum size that my collection can attain. This limitation is not based on space occupied nor the number of plants in the collection. The sole criterion is the health of the plants taken as a whole. As long as I can grow all the plants well, there is no need to cull. The control comes into play whenever a resource becomes limiting to good growth. As soon as even one orchid suffers, the limit is reached and something has to go. I evaluate all the available plants in the collection and select those that can be removed. Exactly what I scrap depends on which factor is limiting and on the contribution of the

individual plant. If I am running out of space I may go for the larger plants. However, the largest plant that I have is one that refuse to include in the culling process. If it is time that is limited, I might target those plants that take the most time to care for properly. Again, there are plants that I would keep, no matter how much time they required. However, I force myself to reduce the collection to the extent necessary.

Eventually, with practice and dedication you will be able to kill enough orchids to maintain your collection at somewhat less than the absolute maximum possible. I try to keep about 10% of the available space free to "try out" new plants. Almost every orchidist has the never-ending craving for just one more. Resign yourself to the quest for the one that is just a little better. Keep looking, keep culling and don't fret too much over the ones you kill. It really can't be helped.

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