

The Orchid Trail Collector

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Female Boisduval scale on Cattleya leaf can deposit 150 eggs under the armored shell. (Approximately life size.) (See Orchid Culture, page 2)



“Growing Dendrobiums”
Dendrobium Green Lantern
grown by Paul Feaver (photo
Erda Estremera) (See Page 3)

When Good Orchids Go Bad John Stanton

It is a great pleasure to see the delight in people's faces when they find that special orchid, whether it is a new acquisition for their collections or a favorite phaleanopsis. However, too often those treasured plants come back to the greenhouse suffering from severe stress and neglect. We can save some, but orchids returned to the greenhouse with severe stress don't always revive.

When you suspect your plant is undergoing stress, please point it out to us before returning it to your bench. That is especially true when you suspect pests are causing the stress. Returning plants with spider mites, scale, or mealy bugs endangers the other plants in your collection and other collections in the greenhouse. To help you understand and recognize when your plants are stressed, I have put together a few pointers to help you enjoy your plants at home and return healthy plants to the greenhouse to be re-bloomed.

Orchids are perishable, and stress is the leading cause of demise in orchids. Orchids are prone to stress when the conditions they need for healthy growth aren't met. Orchids are slow growers, so stress can cause your plant to deteriorate to such an extent that it would take years to bring it back to full health. Truly sick orchids are seldom cured.

It is sometimes obvious that you have a sick orchid, but serious culture problems or disease can bring about a slow death that isn't noticed until it is too late. The most common causes of stress for your plants are insects, bacteria rot, fungus disease, heat stress, cold temperatures, low humidity, and low light. The problems I see most often when plants are returned to the greenhouse are damage from mealy bugs, spider mites, scale, root rots, and crown rot. Here are a few tips for recognizing these common cultural problems:

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In Bloom at The Orchid Trail John Stanton

I have been working for the last five years developing my own line of orchids. They are now getting to blooming size and are starting to bloom in 4-inch pots. Cattleyas are the main genus that I have been working with. One line of breeding is producing large flowered Cattleyas that bloom many times a year. I have been breeding Cattleyas with longer lasting flowers that are easier to grow. My hybrid seedlings are virus free and show much hybrid vigor. Since seedlings are produced at lower cost, they are not as expensive as mericlones. Seedlings grow rapidly and one seedpod can produce many different flower colors, shapes, and sizes. You may get one that is awardable by the AOS judges (one of my Phaius was recently awarded with an AM/AOS). Seedlings are fun, because the flowers are not always what you expect them to look like. There is always something new and different.



IN BLOOM, Orchid Trail
Seedling C. Mrs. Mahler
'Mem. Fred Tomkins' x
Slc. Tiny Titan

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(When Good Orchids Go Bad continued from page 1)

- **Mealy bugs** are fuzzy white insects that live under and on top of leaves. They are easily removed by spraying the plants with isopropyl alcohol and rubbing them off with a soft toothbrush.
- **Spider mite** infestations are associated with low humidity. The mites are almost too small to see with the naked eye and usually aren't noticed until there is an infestation that causes the underside of the leaves to appear discolored and white. Several miticides will work on orchids. The best approach is prevention. Keep the humidity high around your plants, occasionally rinse and wipe the leaves.



Orchid mealy bug on a Phaleanopsis flower stem magnified approximately 30x. Mealybugs are 2-4 mm long and are easily seen under leaves.

- **Scale** are capsule-like insects that attach to the plants and can live in the root system. Once established, they multiply rapidly and suck the vital juices from the plant. They will respond to the same treatment used to get rid of mealy bugs. Several treatments may be needed before all the scale is dead.

- **Root rots** are caused by fungus or bacteria that destroy the root system when roots are kept too wet or plants are inconsistently watered. The leaves wilt, because the orchid can no longer take up the water it needs. Healthy leaves are

firm, not soft and droopy. Plants with unhealthy roots will be loose in the pot. To recover, the plant will need to be re-potted. Remove affected roots, and treat the remaining roots with a fungicide before adding the new potting media.

- **Crown rot** is caused by bacteria that turn the leaves soft and mushy black. Crown rot can rapidly kill the plant. It occurs when the leaves stay wet too long after watering due to lack of air circulation and/or watering late in the day. Hydrogen peroxide can help slow the spread of this disease if caught early enough. Plants with advanced crown rot are rarely cured.



Spider mites on the flower bud stem of a Dendrobium (magnification approx. 30x).

When handling plants, use good hygiene. Always sterilize cutting tools between uses, and isolate affected plants to prevent spread to other plants. Healthy orchids will live for many years and give you beautiful specimen plants with many flowers.



Orchid Culture at Home: The Basics

The most perilous place to grow, from an orchid's perspective, is in the home. Fortunately, the orchids we commonly grow are quite tolerant of less than optimum conditions. We can never truly duplicate the conditions of their original environment. Insects and other pests do very well in the home environment, because they don't have any natural predators there. It is important to be observant of growing conditions and plant health in order to catch the effects of plant stressors early and make the necessary cultural corrections.

To keep your orchids in top condition while at home, first, learn the needs of your plant. If you don't have the references at home, ask us at *The Orchid Trail*.

Observe your orchids for changes that indicate the plant is starting to lose vigor. If the orchid doesn't look healthy, and you aren't confident of turning it around, bring it back to the greenhouse, so we can examine it. Many times, we see plants kept at home too long. What happens while the orchid is in the home or on display, affects the plant's performance when it is returned to the greenhouse.

Watering: Once we put an orchid in a pot, we change the watering schedule. In the home, most orchids only need watering every five to seven days. Rainwater is ideal for orchids, but tap water is adequate. Do not use water from a water softening system, it causes sodium toxicity.

Water when the orchid needs it; the trick is knowing when the orchid needs water. One system that works well is to get a feel for the weight of the plant before and after watering. Even though most orchids are potted in an open, free draining media, enough water is retained to make the pot heavy.



Spider mites on underside of a Dendrobium leaf (approximately life size). The silvery area is damage to the leaf from removal of chlorophyll. Inset photo of same leaf magnified approximately 30x.

(Orchid Culture continued from p. 2)

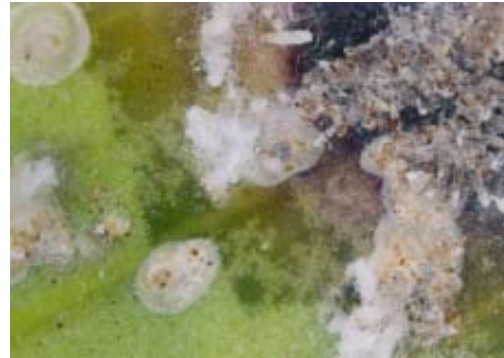
Water the plant thoroughly from all sides until water runs through the pot for 30 seconds or more. Flushing the pot like this reduces salt build up. Do not let orchids sit in water (called "wet feet") or put them on the shelf in decorative containers with no airflow around the base of the plant. Let the water drain and dry off the pot before putting the plant back on display.

Climate: Knowing the climactic cycle of the different genera of orchids helps to understand watering. Most of the tropical orchids we grow come from two climates. Phalaenopsis, for instance, grow in a climate that is warm and rainy year round. They are not drought tolerant and like to be watered on a regular schedule. If your phals are in bark mixes or tree fern, they need watering more often than if in sphagnum moss or coconut fiber. Sphagnum moss and coconut fiber hold moisture for as long as two weeks.

Dendrobiums and Cattleyas grow where it is warm year round, but it rains heavily in the summer monsoon season, and it is much dryer in the winter months. They need to dry slightly between waterings. Some orchids go dormant in the winter. In the tropics, day length is nearly 12 hours year around. In North Carolina, we have long days in summer and short days in winter as well as more cloudy days in winter. This affects our watering patterns. Plants take up less water when there is less sunlight, so we water less often.

(Orchid Culture continued on p. 4)

"To keep your orchids in top condition while at home, first, learn the needs of your plant. If you don't have the references at home, ask us at The Orchid Trail."



Boisduval scale magnified approximately 30x. Females are circular, males are the snow white masses.

Growing Dendrobiums Paul Feaver

Fall is the peak blooming season of two groups of orchids, the stiff-cane dendrobiums and the oncidiums. Dendrobiums occur naturally from India to Japan in the north and from eastern Australia to the Solomon Islands in the south. They grow from seashore to the foothills of the Himalayas (where freezing temperatures occur). They live in the tropics with constant conditions year around and in seasonal environments with pronounced wet and dry seasons. Dendrobiums as a group are quite varied and require various growing conditions, but the ones discussed here are very similar and can all be grown the same.

The stiff-cane Dendrobiums comprise three groups within the genus; the phalaenopsis group, the spatulata or antelope group, and the formosana or nigrohisute group. All of these have sturdy, upright canes with alternating leaves on the upper halves of the canes. The leaves are persistent for several years before dropping. In the phalaenopsis and the antelope groups, the flowers are borne on long, arching spikes originating from the upper third of the canes and have flowers that last one to three months. In the formosana group, the two to five flowers are carried on very short inflorescences and lie close to the stem with flowers lasting one to two months.

Most of the plants available in the pot-plant trade are hybrids between the first two groups. These plants range in

size from six inches to about three feet tall. The flowers come in a variety of colors and forms. Hybrids within the formosana group are becoming more available. These plants range in height from 8 inches to three feet with most in the 18"-24" range. The flowers are usually white to light green and usually have yellow, orange, or red markings on the lip.

Culture of these groups and their hybrids are very similar. All are high-light plants and require 50% to 70% full sun to grow strong canes and to induce flowering. They are intermediate to warm growing and prefer day temperatures of 80°-90° F and night temperatures of 60° to 70° F. When growing, usually mid-spring to fall, they like to be watered, so that they never go completely dry, but they don't want to be soggy. In the winter, they need to dry out between waterings but not to the point at which the canes start to shrivel. During the growing season, they need to be fertilized weekly with a balanced fertilizer. All like to be grown in small pots in a rapidly draining potting mixture and prefer to be grown outdoors in the summer months. Find a spot with morning sun and dappled afternoon shade; water and fertilize regularly, and they will thrive and reward you with flowers for several months.



(Orchid Culture continued from p. 3)

Remember that most orchids are tolerant of small changes in environment, but the successful grower of orchids learns to observe the plant and understand its needs.

Light: Bright, filtered light is best for orchids, but not direct sunlight. When leaves are a darker shade of green, elongated, and the plant isn't blooming well, the light is not bright enough. Cattleyas, Dendrobiums, and Oncidiums need bright light much like a geranium. Vandas like very bright to full sun. Phaleanopsis and Paphiopedilums thrive in lower light levels much like a fern. Note, orchids kept in very low light for a long time at home can sunburn when brought back to the light levels of the greenhouse. Prepare the plant for its return to the greenhouse by gradually raising the light levels and hardening off the plant.

Temperature: Most orchids we grow have temperature range requirements from 60° - 68° at night and 75° - 85° during the day. Orchids grow well with a change between day and night temperatures of about 10°-15°. Most orchids will tolerate temperatures beyond these ideal ranges, but remember to adjust watering accordingly, less if cooler than the ideal, more if hotter.

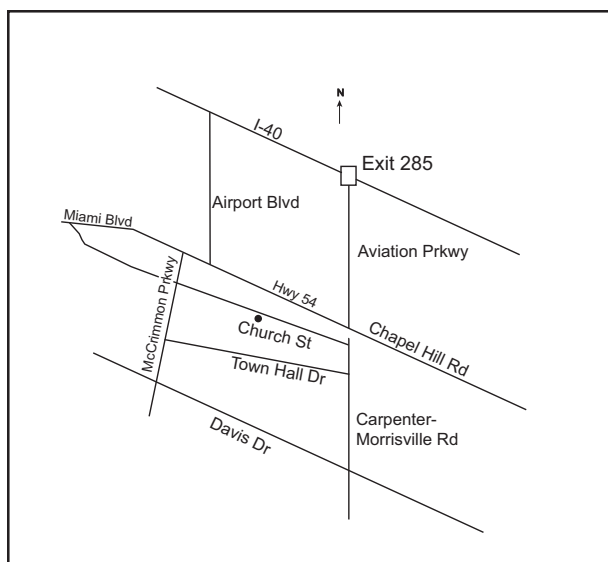
Air: Circulating air should be strong enough so you can see movement in the leaves simulating the natural environment where orchids get air movement most of the day and night. Air movement is necessary for plant respiration. It also discourages bacteria and fungus from growing on leaves and in the crown of the plant. That is why we say that you should water early in the day so the leaves dry in two hours.



Dendrobium Big Alex, grown by Paul Feaver (Photo by Erda Estremera)
(See *Dendrobiums*, page 3)



Orchid Trail seedling
Slc. Jungle Gem x self
(Photo, Phil Warner) (See *In Bloom*, p.1)



The Orchid Trail

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Directions to *The Orchid Trail*:
Morrisville, NC

From I-40, take Exit 285 (Aviation Pkwy.)
Turn south on Aviation Pkwy. (away from the airport) and go 2.4 miles.
Cross Hwy. 54 over railroad tracks.
Turn right on Church Street.
The Orchid Trail is located on the right-hand side at 402 Church Street.

