St. Augustine Orchid Society

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Cold Hardiness

November 2008

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Orchid Growing Tips

Most orchids grown by hobbyists are tropical in nature. That term was once thought to mean “hot and steamy” and tens of thousands of orchids imported to Europe in the 19th Century perished as a result. Many tropical orchids prefer cool nights because they or their ancestors evolved in higher tropical elevations or were subjected to cool breezes during the day. There are some species that do come from hot and steamy places and the challenge for orchid hobbyists is to grow them all in one place, whether it is a windowsill or greenhouse.

Commercial orchid nurseries and large private collections often have individual growing areas devoted to orchids that derive from different tropical habitats. Cymbidiums prefer and even require cool temperatures to flower well. Many claim that they flower best when nighttime temperatures reach near freezing. *Laelia anceps* also prefers these cool night temperatures and it is common to find them with cymbidiums in California. While *L anceps* and members of the *Cymbidium* genus are not related, they come from similar habitats and so require similar growing conditions.

At the other end of the spectrum are species that come from tropical lowlands. Many phalaenopsis species come from parts of the world where temperatures are always warm to hot and these species not only tolerate, but grow best when both day and night temperatures are warm. There are, however, other members of the phalaenopsis genus that come from the foothills of the Himalayas and do not tolerate hot steamy conditions. Some would grow best with cymbidiums in a cool house. Thus, simply knowing the name of a group of orchids does not always inform one of the best temperature in which to grow an individual orchid.

This time of year most hobbyists are temperature conscious, especially those who grow outdoors for part of the year. How much cold will my orchids tolerate is a common question? Of course, there is no simple answer to that question given the previous discussion. No tropical orchid though should be allowed to freeze or be exposed to freezing conditions. Even those few species that come from climates where freezes are common suffer. In Nature, these species often have protected tubers or bulbs under the soil or dead leaves. A hobbyist in North Carolina once reported finding an equitant oncidium flowering in spring among leaves where it had fallen the previous summer during a hurricane; surviving a winter with temperatures below 20 F protected by dead leaves that had accumulated.

Cymbidiums are often seen with frost on their leaves, but frost can occur at temperatures much warmer than the freezing point. When the temperature within an orchid leaf drops below the freezing point, water in leaves forms crystals that tear plant cells, killing them. The next day when the temperature warms, leaves turn to mush as bacteria and fungi invade the broken cells. Obviously, other types of plants can survive freezing

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temperatures and do so by adding substances to their cells that either prevent crystal formation or lower the freezing temperature.

The only exception to orchids dying when frozen seems to arise when orchids are dehydrated. Under these conditions sugars and other dissolved materials within the cells are concentrated and prevent crystals from forming. There are numerous accounts of hobbyists returning home, after a sudden emergency to find their orchids still alive, despite no heat in subfreezing conditions. A number of Chinese wholesale nurseries even intentionally dehydrate blooming sized phalaenopsis to the point where they can be rolled up and placed in small tubes for shipping to Europe and the U.S. This not only greatly reduces shipping costs, but almost eliminates the danger of freezing in the unheated cargo areas of jets. Once they arrive, they are potted in sphagnum and rehydrated without damage to tissues.