St. Augustine Orchid Society
www.staugorchidsociety.org

Propagating Orchids Vegetatively

by Sue Bottom, sbottom15@hotmail.com

There are many ways to propagate orchids:

- In **hybridizing**, two orchids are selected to interbreed with the hope of creating a completely new plant having the best qualities of both parents. Seedlings of a cross (otherwise known as a grex) may vary widely, just as your children are all different.

- In **mericloning**, a sample of apical meristem tissue (similar to stem cells in humans) is removed from the plant and processed in the laboratory in order to produce clones, hopefully genetically identical to the original plant. There are mutations and genetic shifts that can occur in the mericloning process so the resultant clone may or may not be an exact copy.

- In **vegetative reproduction**, an orchid is divided or a plantlet (keiki, the Hawaiian word for baby) is produced that is an exact genetic duplicate of the original plant.

Hybridizing and mericloning orchids are beyond the reach of most orchid hobbyists, but there are many ways of vegetatively reproducing your plants for you to have extras to share with friends.

Sympodial orchids grow horizontally along a rhizome

Orchids with a **sympodial** growth habit grow horizontally along a rhizome and new growths emerge to grow vertically from the apex of the growing rhizome. Cattleyas, dendrobiums and oncidiums are all sympodial. The easiest way to propagate these orchids is by division, separating sections of the horizontal rhizome although some also readily produce keikis.

Orchids with a **monopodial** growth habit grow upward from the top or heart of the plant. New leaves, blooms and roots emerge from the vertical stem. Vandas and phalaenopsis are both monopodial. These orchids often produce keikis and occasionally can be propagated by division. Some orchids can be propagated from cuttings, where either the bulbs/canes or flower stems are cut and lain atop a potting mix so plantlets can sprout from the nodes.

Here are some vegetative propagation techniques for common genera you may grow.

Divisions. Sympodial orchids with pseudobulbs (including cattleyas, dendrobiums, oncidiinae, catasetinae, cymbidiums, etc.) are easily propagated by division. Cattleyas are usually propagated by division of the mother plant and there are many tricks to facilitate this process. If you look at the base of the youngest cattleya pseudobulb, you will notice that there are at least two eyes or growth points. Typically the next growth will occur when the eye starts to form a new pseudobulb leaving the second blind eye that is currently dormant. If that new emerging pseudobulb becomes damaged, the plant will channel its

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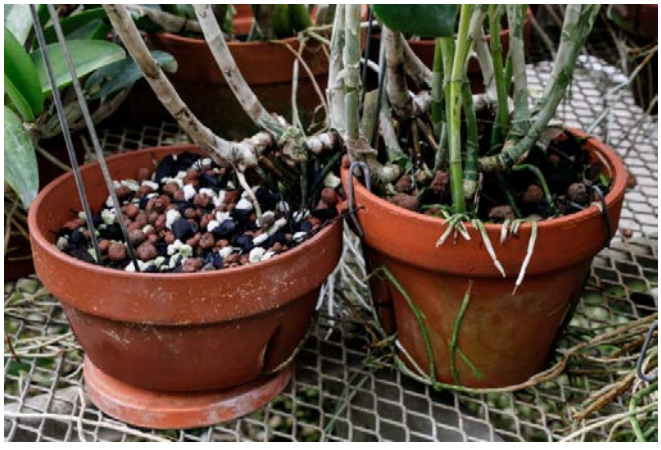
energy into the blind eye and that eye will start to grow into a new pseudobulb. If you look at the base of all the pseudobulbs on a cattleya plant, you will note that on many of the backbulbs the dormant eye is intact but not actively growing. You can use this knowledge to induce growth on the backbulbs to form new plants.

Simple Division. Simply cutting a plant into two pieces during the repotting process is the simplest way to propagate cattleyas. The front lead is usually considered to be the more valuable piece, but the backbulbs can also be potted up and new growths usually will emerge from the dormant eyes.

Divide sympodial orchid by cutting the rhizome, leaving at least 3 and preferably 5 pseudobulbs in the desirable front part of the plant. The back bulbs may also sprout new growths from dormant eyes.

Pseudobulbs Growing Out of the Pot. If your cattleya is growing out of the pot, you can either cut off the new growth (as long as you have at least 3 bulbs) or you can attach a medium filled pot to the mother pot and let the new overgrowing pseudobulbs establish in the adjacent pot. Once there are at least 3 growths established, you sever the rhizome and have two established plants. This is particularly useful for bifoliate orchids that are fussy about the repotting process (typically they must be repotted only as new roots are emerging).



Secure new pot next to mother plant to allow new growth to grow and establish itself in the new pot.

Sever Rhizome in the Pot. A simple way of dividing your plant involves severing the rhizome while the plant is still in the pot so you don't disturb the roots. The front growth will continue to grow while the back bulbs begin to sprout new pseudobulbs from the dormant eyes. The two plants can be separated once the new growths are established.

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Keikis. Many dendrobiums, vandas, and phalaenopsis will spontaneously produce keikis. Catasetinae, oncidiinae and some other orchids with pseudobulbs will also occasionally produce keikis.

Dendrobiums often develop keikis along their canes and once the roots are several iinches long can be detached from the mother plant and potted up

Dendrobiums. Dendrobiums tend to keiki at one of the nodes along the cane. The keiki can be allowed to grow on the plant until the roots are about 2 inches long and then it can be removed and potted up. Alternatively, you can air layer the plantlet by placing sphagnum moss around the plant and tying it off with a piece of nylon stocking so the roots will grow into the sphagnum moss and it will be quasi established before you sever it from the mother plant.

Phalaenopsis. Phalaenopsis sometimes produce a keiki on the flower spike instead of a bloom. These keikis can be removed and potted up once the roots are 2 inches or so long. You may be able to bend the flower spike and keiki downward and set the keiki into a small pot while still attached to the mother plant. The keiki will grow and establish itself while still being nurtured by the mother plant so it can be fully self sufficient when they are separated.

Sometimes you can bend the keikis down so they establish in the same pot as the mother plant so you'll have a great floral display the next time it blooms.

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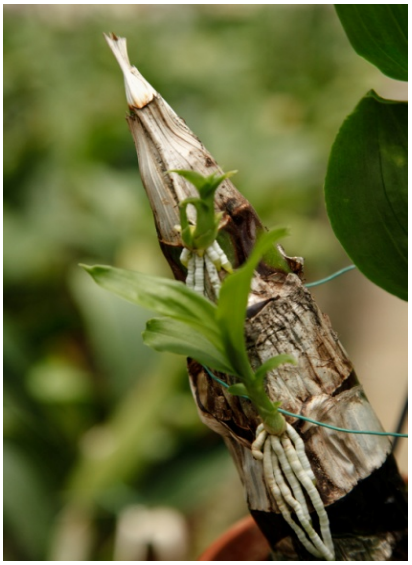
Vandas. Vandas often keiki at the base of the mother plant, particularly when the mother plant has lost its lower leaves and begins to look like a palm tree. If there are no roots at the top part of the vanda, the stem can be wrapped in some sphagnum moss tied off with nylon hose to encourage root formation. Once the top part of the vanda has developed at least 3 new roots, it can be severed from the rest of the plant and rebasketed. The bottom part of the plant can be left in its basket to allow the existing keikis to grow into full size plants or in the hopes that keikis will emerge from the base of the plant if keikis are not yet present. I confess to sometimes discarding the top part of a vanda in favor of the new keikis growing at the base of the plant.

When topping a vanda, you often find that keikis in the bottom half of the plant are more vigorously growing than the top half of the plant.

Oncidiums will occasionally form a keiki from the top of a pseudobulb

Oncidiinae. Oncidium alliance plants sometimes grow keikis at the top of the pseudobulb. These keikis can be potted up once there are enough roots to support the new plantlet.

Catasetinae. Catasetinae alliance plants sometimes sprout keikis from one of the nodes along the pseudobulb. Once the roots are a couple inches long, the keikis can be potted up and allowed to grow to blooming size.



Catasetum keikis can sprout from the nodes, sometimes as a last act of defiance.

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Dendrobium canes and catasetum pseudobulbs lain on top of sphagnum moss may sprout new plantlets.

Cuttings. Some canes and flower stems can be cut from the mother plant and placed on a bed of sphagnum moss or other potting medium to sprout new plantlets from the dormant nodes. Dendrobium canes and catasetinae bulbs can both be propagated this way. The flower spikes from a Phaius can be treated similarly to produce new plantlets.

Growth and Root Enhancing Products. There are several products that can be used to facilitate plant propagation by encouraging keiki formation or root growth from synthetic or naturally occurring cytokinins and auxins. Err on the side of caution because too much of these plant hormones can result in unintended consequences, like mutated or crippled flowers.

Sometimes flowers are deformed for no apparent reason, though excessive use of plant hormones can cause mutations.

- *Rooting Hormones.* Keiki Pro, Keiki Paste and similar products contain phytohormones such as cytokinins that can be used to activate the dormant nodes of orchid plants by promoting cell division. Keiki products and rooting hormones may also contain synthetic auxins that are used to stimulate root growth.

- *Seaweed.* Seaweed extract is an organic product derived from harvested brown seaweed that contains major and minor nutrients, amino acids and growth promoting substances like auxins, cytokinins and gibberellins (advanced growers may be interested in KelPak). Seaweed extract is often used to start the growth cycle in spring, enhance root growth on seedlings and divisions, and initiate new growths from back bulbs.

- *SuperThrive.* SuperThrive contains the synthetic rooting hormone 1-naphthyl acetic acid and vitamin B1 (thiamine, also known to stimulate root growth), plus a variety of trade-secret ingredients. Many growers soak newly deflasked plantlets in a SuperThrive solution or use SuperThrive when repotting to help stimulate root growth.

I don't divide my plants unless absolutely necessary because my goal is to have the most flowers per square inch of pot space. Sometimes you have no choice but to divide a plant when it becomes so large that it is unruly, or because there are keikis that need to leave

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the nest. One of the joys of orchid growing and gardening in general is exchanging plants. When a friend or fellow orchid grower admires a plant, I put an extra tag in the pot with their name so when I do have a division or plantlet to share, I know it will be going to a good home. Any extra plants you might have will be welcome additions to your club's raffle table.

Additional Reading:

Vegetative Propagation, Charles Marden Fitch, Orchids, May 2006
Propagating Orchids, by Gina DeYoung, Brad Rowe and Erik Runkle, *Orchids* August 2011