

Orchid Society of Santa Barbara

An Affiliate of the American Orchid Society



Next Meeting:

Wednesday, October 10, 2007

Location: Louise Lowry Davis
Recreation Center
1232 De La Vina (at Victoria)

Meeting: 7:30 PM
Amy Jacobsen
will speak about
Rupicolous Laelias

When hobbyist Amy Jacobsen married Ken Jacobsen ten years ago, she was faced with a quandary: get more involved with orchids or become an orchid widow. Since there was a mostly empty greenhouse available, Amy decided to get involved. Now that greenhouse is full, as are two others. In addition to laelias and cattleyas, Amy grows lycastes, anguloas, masdevallias, pleurothallids, disas and other genera. She also raises laelia and cattleya species and hybrids from seed, doing her own lab work. Her enthusiasm has paid off; her *C. amethystoglossa v. coerulea* won best orchid in show at this year's spring show.

In September 2006, Amy and Ken visited rupicolous laelias in the Minas Gerais province of Brazil. Many of the slides she will show are from this trip and should help with understanding how to grow these diminutive laelias.

Calendar of Events

October 19-21, 2007

Southland Orchid Show

10:30 AM-4:30 PM, Huntington Library and Botanical Garden, 1151 Oxford Rd., San Marino, CA. Show free with garden admission. \$15 adults, \$12 seniors, \$10 ages 12-18, \$6 ages 5-11.

October 19-21, 2007

Orchids on the Beach—Fall Membership Meeting of the American Orchid Society.

Delray Beach, Florida. For information, go to:
www.aosfall2007.com

November 3-4, 2007

South Barbara Orchid Estate Fall Open House

Everyone loves the SBOE open house. www.sborchid.com

December 8-9, 2007

Orchid Society of Santa Barbara Fall Show

Santa Barbara Museum of Natural History, 2599 Puesta del Sol Rd., show free with museum admission. More info to come in November with that final, urgent call for volunteers!

Looking ahead...

February 29-March 2, 2008

63rd Annual Santa Barbara International Orchid Show

Note the early date of next year's show! SBIOS is held three weeks before Easter, and Easter comes early in 2008.

OSSB Officers for 2007:

President - Don Brown

Treasurer - Angela Watt

Vice President - Carole Thompson

Secretary - Heidi Kirkpatrick

Visit the OSSB Web Site!

www.orchidsb.net

Summary of the September 2007 Meeting

❁ President Don Brown welcomed visitors and new members. The OSSB refreshment sign-up sheet is full through November. Thanks to those who have signed up!

October Bryce and Nancy Augustine
November Laura Dewey

Thanks to Shirlee and Ed Carter for fattening us all up with incredible treats in September. Rumor is everything was good, but your editor never made it past the brownies.

❁ The nominating committee (Sandy Svoboda, Frank Methmann, Art Denk) has begun its search for new officers for next year. Volunteer! Are you good with numbers? Treasurer Angela Watt is looking to train her replacement. Contact president Don Brown or any current officer if you are interested.

❁ Thanks to Santa Barbara Orchid Estate and to Bryce Augustine for the delightful plants on our recent raffle tables.

Program

Vice President Carole Thompson introduced our September speaker, Dr. Ron McHatton, Director of Education and Regional Operations for the American Orchid Society. McHatton spoke about one of my favorite topics, namely "Food, Sex & Alcohol: The Fascinating World of Orchid Pollination."

He began by reminding us all that orchids look like they do and smell like they do for one reason only: to attract a pollinator. One of the things that sets orchids apart from other plant families is the combination of the column and non-wind dispersed pollen. Because the pollen is relatively heavy, orchids need active intervention to get pollinated. As a result, they have to attract a pollinator to do the work. Does the pollinator get rewarded? Maybe. Maybe not. Ron reminded us that, "There's a lot of empty promises in orchids."

Over 60% of orchid pollinators are bees and wasps. Bees in particular are known for orchid pollination, and the flowers they visit have characteristics intended to attract particular bee species. In general, bee flower characteristics are:

- gullet-shaped; cattleya lips attract bees and hornets
- sweet, daytime fragrance; since bees don't fly on cold wet days, however, flowers are only fragrant when it is warm
- diverse colors including ultraviolet, but no true red, since bees do not see red well
- landing platform
- nectar or food, either real or perceived
- nectar guides, such as stripes in cattleya lips

With other flowers, a bee will land on the flower and buzz about, shaking the whole flower and getting coated by loose pollen that falls onto the bee. With orchids, the bee has to be guided to a particular position to brush against the pollen. Nectar guides perform the function of landing patterns for the bee. We see these guides as ridges or as stripes leading toward the pollen; nectar guides that are ultraviolet are invisible to us, but very striking to a bee.

Euglossine bees bear particular mention. Because of their frequent association with orchids, they are often called "orchid bees." Only males of the various species visit orchids, and they do so in search of fragrance, which they mine. Flowers associated with the Euglossine bees have:

- powerful fragrances, often in the morning
- diverse colors and forms
- no nectar or nectar guides
- landing platform not necessarily present

Euglossine bees are electric metallic green and about the size of a thumbnail. The fragrance they collect from orchids goes into sacks on their back legs. Ron showed the members a remarkable video of a Euglossine bee hovering in midair while it transferred fragrance crystals from its front legs to these sacks, before returning to a flower for more. Because every species collects a different fragrance, the fragrances of the orchids pollinated by them are unique from each other. And because these bees are not attracted by colors, the orchids they visit tend to have a good deal of color variation, as in the example of *Laelia purpurata*.

While many orchids depend on Euglossine bees, the reverse is not true. A species of these bees has naturalized in Florida, far from its native flowers. Interestingly, these bees have found and pollinated the *Cyrtopodium punctatum* at the Fairchild Botanic Garden; the natural pollinator has been gone for some 15 years.

In the wild, Euglossine bees pollinate a number of orchids from varied genera including stanhopeas, cycnoches and zygopetalums. Stanhopeas are interesting examples of how individual species avoid cross pollination. The flowers of these very fragrant and very peculiarly shaped plants are constructed so that pollen will only attach itself to a bee species of the right size; the others are too small or too big for the spot where the pollen is located.

Butterflies pollinate flowers that tend to have different characteristics from those pollinated by bees. These flowers tend to have:

- pleasant fragrances during the daytime
- tubular shapes
- vividly colored flowers, often red or yellow
- landing platforms not necessary, but sometimes present
- concealed nectar in a spur or tube
- nectar guides may or may not be present

Since butterflies are cold-blooded they live at low elevations and pollinate low elevation, warm-loving species. At higher elevations, birds often pollinate similar flowers, while orchids in middle elevations may be pollinated by a mix of birds and butterflies.

Moth-pollinated flowers are similar in some ways to those visited by butterflies. But moths are active at night, which encourages some flower differences, too. Flowers that have moth pollinators tend to have the following characteristics:

- sweet night time fragrance
- white or pale green colors
- tubular nectary
- concealed nectar in nectary

- landing platform optional
- guides not normally present

Some insects, both bees and flies, collect and eat oil from orchids. Orchids pollinated by oil collecting bees have the following characteristics:

- green or white flowers
- fringes
- shallow, cupped shape
- sweet fragrance
- possibly a landing platform
- nectar present and visible

In contrast, oil collecting flies visit a completely different sort of flower:

- disagreeable daytime odor (e.g., feces or urine)
- red, brown, brown-purple colors
- shallow, cupped, open flowers
- nectar sticky and visible, as in wet, sticky lips
- possible fringes

Some orchids are bird-pollinated. In the new world, these birds are hummingbird species, while sun birds pollinate old world orchids. Bird visit flowers with these characteristics:

- no fragrance
- vivid colors, red, yellow, cerise, white
- no landing platform
- pollen masses are not yellow but rather slate greys or blues to blend in with the bird's beak; if the pollinating bird saw bright yellow pollen on its beak, it would wipe it off!

A few examples of bird pollinated flowers include *Dendrobium obtusisepalum* and the white *Angraecum bracteosum*. Hummingbirds pollinate *Epidendrum pseudoepidendrum* and *Comparettia speciosa*.

Perhaps the most gruesome pollination story Ron told was about an orchid native to the eastern US (*Tipularia discolor*). These are pollinated by miller moths. Millers are very dusty, which is not advantageous for getting pollen to stick successfully. So the flower forces the moth to push its head to the rostellum in search of nectar and the pollen sticks to the moth's eye. Of course, orchid pollen is often very sticky, so the eye comes off with the pollen when the moth pollinates the next orchid...

Ron did not show slides of that gruesome encounter, but he did discuss a number of individual orchid species and the methods by which they deceive pollinators into visiting. A number of orchids provide edible pseudopollen and waxes, such as members of the genus *Maxillaria*. *Dendrobium unicum* has tiny hairs on its lip, the upper half of which is a starch eaten by pollinators. *Erias* and *Polystachias* provide waxes that may be used as food or building material.

Many orchids have moveable parts, such as lips or fringes. Almost all of these flowers are visited by fly pollinators. *Bulbophyllum echinolabium* is perceived as maggots by the fly pollinator. *Pleurothallis scheidii* has a dangling fringe that resembles maggots eaten by fungus gnats. (And I thought this was such a charming, elegant little flower!)

A tremendous number of orchids lure pollinators with empty promises. *Calopogon tuberosus* presents fake edible pollen on the

uppermost hinged lip. A bee coming to sample one of the "pollen" hairs will cause the hinged lip to swing down, flopping the bee onto the column. Ron noted that insects do not learn very fast, and there are always lots of stupid juveniles.

Some orchids are trap flowers, such as *Porroglossum driessii* or *Cypripedium formosanum*. Flies that get into the pouch (lip) of the latter find that the only way out is past the stigmatic surface. Ron noted that trap flowers are known for their windows, or semi-translucent regions, as in *Phragmipedium besseae*. As an aside, *Cypripedium maculi* is pollinated by an insect uninterested in color, and some 17% of the species is white. In contrast, ants are attracted to the black warts/hairs of *Paphiopedilum callosum*, thinking they are black aphids. This paph has no windows in its pouch because ants function well in the dark.

The epitome of the trap flower is found among species of the genus *Coryanthes*. These peculiarly shaped orchids are commonly known as the "bucket orchid." Glands secrete alcohol and water into the bucket. Euglossine bee species fall off the waxy hypochile into the bucket, and must (drunkenly?) crawl past the pollen to get out.

Mimicry is effective in the orchid world for several reasons. Some orchids mimic other local flowers popular with pollinators. Other orchids mimic an insect competitor that must be "run off." And then there are the orchids that mimic a sexual partner.

Epidendrum radicans mimics lantana and pollinators can't tell them apart from the distance. As a bonus, lantana is toxic and therefore not eaten by herbivores.

Tolumnia species mimic various territorial male bees. The species *henekenii*, for example, induces bumblebees to "fight" with the flower. Males will slam repeatedly into the flower in an attempt to drive off what they think is a rival male. Some oncidiums are similarly pollinated, such as the species *andreesii*.

Only orchids are pollinated by pseudo copulation, and a number of them around the world use this method to lure pollinators, such as *Trichoceros*, *Lepanthes* and *Telepogon* species. Interestingly, some 75% of *Dactylorhiza* seems to be natural hybrids because the pollinators are indiscriminate. Australian terrestrials, in contrast, are so species specific that there are no natural hybrids.

Chiloglottis formicifera is pollinated by a male wasp. The females cannot fly and will crawl up a blade of grass to find a mate. Unfortunately, they emerge three weeks later than the males...and two weeks later than the orchid flowers. Two weeks is an awfully long time for a passionate male wasp!

Ron completely hid his presentation with a film he called, "Close Encounters of the Floral Kind." *Drakaea* species are also pollinated by pseudocopulation. In this case, as vividly illustrated by the short movie, the male grabs the hinged lip and attempts to fly away with it. Instead, it gets driven into the column. Sometimes repeatedly.

During the questions and answer session, several interesting facts emerged. Fragrance triggers are usually light or thermal triggered. Some orchids have different fragrances at different times of day, suggesting two different pollinators. *Bulbophyllum echinolabium*, for example, smells like carrion in the morning and cat urine in the afternoon. Delightful!

Announcements

❁ The Fall Show is coming up in December. OSSB is delighted to have James Merriman and PJ Sanderson return for publicity. If you have not volunteered for your society, give it a try!

There will be opportunities to volunteer for the following tasks: Pre-show publicity; Set-up (Friday afternoon) and Tear-down (Sunday after 3 PM); OSSB exhibit installation; Ribbon judging (Saturday morning); Hospitality; Sales. Remember that this show is a fund-raiser for the society, and we need volunteer help from the members to make it successful!

Consider installing a table-top display of your own or share

one with a friend. OSSB will also need plants for the society exhibit. Don't forget to bring your *Laelia anceps* for judging.

There will also be member plant sales, with OSSB receiving 25% of the sales price. Blooming plants or plants with photos sell best. Make sure your plants are healthy, bug-free and disease-free.

❁ Want your plant featured on the cover of this newsletter? Email me a digital photo! Higher resolution is better: 300 dpi. Send your photo to orchidtrain@cox.net. Announcements can be sent to this address, too; be sure to nag me a week and a half before the next meeting.

Cover Photo

This month's cover photo features one of Bryce Augustine's phragmipediums I photographed at the Santa Barbara International Orchid Show this year. I included this photo to encourage readers to think about what sort of insect would get trapped in that pouch and what path it would have to take to get out again—past the pollen, of course! As a bonus, try to guess what this phrag is. (I misplaced my notes on the photograph!) Bryce is not allowed to guess, but perhaps he will tell us and I can include that information in the November newsletter!

September Show Table Results

A very elegant *Neofinetia falcata* belonging to Don Brown took first place on the September Show Table. Second place went to Jeff Thompson's very tall *Phrag. Sorcerer's Apprentice*, bearing three branches and five flowers. In a definite size contrast, Jeff Thompson's *Trisetella boerjii* won third. Thanks also to James Merriman and Gene Hagerty for bringing plants to show.

In discussion of the show table, Paul Gripp commented on several restrepias, and noted that it is not known how they attract their pollinator. *Dendrochillum magnum* seems to be fragrant both day and night, which would suggest two different pollinators. Bryce Augustine pointed out a *Paph. rothschildianum* 'Althea' x 'Val' that showed the historical development of the species in cultivation.