Orchid Society of Santa Barbara

Next Meeting:

Wednesday,
May 19, 2010

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

Meeting: 7:30 PM

Eric and Christina Holenda
will speak about
Native Orchids in Florida

Members who have heard the Holendas before know we are in for an entertaining, vicarious visit to orchids in the wild. In 2008, they told us about their trip to Borneo. This year, the orchids are a little closer to home, with a view of Florida's orchids. The Holendas met in 1996 on an orchid tour and married in 1999. They have visited numerous orchid habitats. Christina photographs and Eric grows, and they are both officers of the Five Cities Orchid Society.

If you would like to join them and Frank Methmann for dinner at Harry's at 5:30 before the meeting, call Frank (566-0839) ahead of time so he can make reservations.

AOS Judging:

The American Orchid Society's Central Coast Judging Center meets concurrently with OSSB in the small room at Louise Lowry Davis. To enter a plant in AOS judging, bring it by 6:30PM for registration. Note that AOS judging is separate from our society's monthly show table.

OSSB Officers for 2010:
President - Frank Methmann
Vice President - Todd Wenderski
Treasurer - PJ Sanderson
Secretary - Heidi Kirkpatrick
Membership & mailing - Robin Hamlin
Show Chair - Tom Ball
Directors: Khosrow Sadeghian, Angela Watt, Randall Umland
Visit the OSSB Web Site! **www.orchidsb.net**

Above: Flowers from Bill Robson's (top) and Phil and Angela Watt's (above) displays at the 2010 SBIOS.

Greenhouse Tours!

Saturday, May 22, 2010

12 noon to 2 pm: Come visit organizer Bill Robson's greenhouse at 1210 Cacique Street, #12. From the Milpas roundabout (by Trader Joe's), take Carpinteria. Turn right on S. Canada and right on Cacique. There are four guest parking spots inside the Flamingo Mobile Home Park, or park on Cacique. From the entrance, walk clockwise inside the mobile home park until you see orchids peeping through the lattice on your left at #12. Call Bill for more information at 805-452-4300.

2 pm to 4 pm: Visit Phil and Angela Watt at 513 Barling Terrace in Goleta. Head north on Fairview from the freeway. Turn left on Stow Canyon Road and left on Barling Terrace (between the two yellow school crosswalks). Look for shadecloth on your right. Call Phil and Angela for more information at 967-7565.

Summary of the March 2010 Meeting

✿ Program Report

Paul Gripp introduced our April speaker, his long time friend Dr. Joseph Arditti. Paul noted that Dr. Arditti has been widely published in the orchid world, including in the proceedings of the 6th World Orchid Conference in Long Beach (Dr. Arditti wrote about pigments in orchids) and such scholarly publications as *Lindleyana*. Dr. Arditti spoke to the membership about how orchids survive in nature.

Dr. Arditti observed that orchid survival is a fascinating topic. Some orchids live in utter poverty in the midst of enormous riches, and they have evolved specialized mechanisms to survive. He likened it to living under the bridge in Beverly Hills.

Orchid seed is a prime example of interesting evolution. Orchid seed was first seen by Conrad Gessner in 1765, though his manuscript was not published until 1840. In this era before microscopes, Gessner put orchid seed in a drop of water, which magnified it enough for him to see the seed. The Austrian horticulturist Beer published orchid seed illustrations in his 1863 book.

By the time of Darwin, it had been estimated that a cycnoches seed pod contained some four million seed. Darwin calculated the number of plants an acre could hold, then determined that orchid seed from one pod could cover the earth in three generations. The question is, of course, why so much seed?

Orchid seed is about a millimeter in length with a smaller embryo inside the seed coat, leaving a little air space. In shape, this seed coat is roughly a "prolate spheroid" (like a football) that is some 90% empty space. In modern times, German scientists dropped seeds inside cylinders to determine how fast they fell. Orchid seed is so light that it floats very well, allowing the seed to travel long distances, even across oceans. Today, we see suggestions of this, with common species in Australia and New Zealand, in Java and Krakatoa. Orchids, in fact, were among the first to recolonize Krakatoa after its massive volcanic explosion.

Seeds dispersed over a large area give the species more survival security. Plants that exist only in a single small area are more vulnerable to natural disaster.

Since it takes so much energy to make those four million seeds, orchids compromise by not putting food in their seed. Compare this to coconuts, for example,. that make few, huge seeds with a good deal of food. To germinate, this "foodless" seed must land in an area with a beneficial fungus.

Many orchid growers have heard of micorrhizal fungus. This is a fungus that penetrates the orchid seed. The fungus breaks down forest detritus into simple energy molecules, which the orchid embryo can use. This role of fungus in the germination of orchid seed was discovered in 1892 by Noel Bernard. Knudson famously discovered asymbiotic (without fungus in sterile flasks) orchid seed germination in 1921.

Interestingly, when the fungus invades the embryo, it only does so part way. The embryo blocks further incursion by producing chemicals called phytoalexins that inhibit fungus growth. Some recent research has suggested that similar chemicals might block blood vessels to cancer cells. But sometimes the fungus completely overtakes the embryo, which rots; this failure of phytoalexins is not well understood.

Adult orchids also cultivate relationships with other organisms. Schomburgkias are an interesting example. Many species have some roots that grow up in a dense thicket, collecting debris that performs as fertilizer. These root thickets and the sharp remains of broken leaves make these plants unattractive to foragers. If this spikiness isn't enough to deter a potential grazer, many schomburgkias also host ant colonies in their hollow pseudobulbs. The ants discourage browsing and their corpses fertilize the orchid, a symbiotic relationship which was in fact confirmed by a professor at Tulane.

In fact, schomburgkias are not the only group to invite ants as potential protectors. Many orchids exude sticky droplets, especially around the flowers. Ants collect sugar from this and defend their "farm patch" from other insects that might eat it.

Of course, most growers are more interested in how orchids react with them. A botanist at Stanford University rubbed broken cypripedium leaves on the arms of student volunteers. The students experienced severe swelling, which revealed toxicity or allergenicity in the plants. (He didn't get any more volunteers!) Even the beloved vanilla can be an allergen to some people. Vanilla workers often will get red and inflamed skin. And people who seem to have perfume allergies often are reacting to the presence of vanillin in the perfume.

In nature, there are many adaptations that make orchids unusual. While most people think of orchids as water loving, many species have made xeric adaptations. The white spongy velamin surrounding the root is just such an adaptation; it acts like a sponge, absorbing passing moisture, which helps cool the roots on a hot day. Many orchids also have succulent

leaves, or even reduced leaf size, with leaves doing most of the photosynthesis. For that matter, almost any part of an orchid can photosynthesize: roots, stems, leaves, bulbs, and even pods!

Every plant has to fix carbon from the air, but orchids in a jungle are in competition with large trees. Many orchids instead fix carbon at night. This is also useful in hot and dry climates. Carbon fixing occurs via stomata on the leaves, but it is better for the stomata to be open at night, rather than losing water in the heat of the day.

How a plant controls its flowernig is also important. Flowers require a lot of energy, so a plant only wants to expend that energy when pollinators are more likely to be around. Day length and temperature are two common triggers for flowering. But *Dendrobium cruentum* is an interesting example. A sudden drop in temperature after rain induces gregarious flowering after exactly nine days. Buds are produced before the rain, but rains hydrate the flowers, which take nine days to rain. And when it opens, pollinators are more plentiful.

To aid their pollinators, many orchid flowers twist as they open so their lips are downward, like a nice landing platform for bees. These are resupinate orchids. Non-resupinate orchids have the lip uppermost in the flower. These orchids are pollinated by pollinators that do not land on the flower, such as birds. Resupination was observed early, in the 1500s and 1600s, by Gesner and Rumphius.

Getting that pollinator to perform is the challenge for the orchid. Flowers that last a long time usually are from areas where pollinators are rare. Many flowers go to some length to attract pollinators. Cattleyas are fragrant, for example, and have a nice landing platform (lip) with nectar guides (markings). Ophrys species go one further. They look and smell like female waps. Males hatch two weeks earlier than the females, emerging to find Ophrys in bloom. The males are deceived by the orchid into thinking they've found a female, and they attempt to mate with it, getting pollinia on their chests. The wasps actually ejaculate on the orchids (and your editor has a hard time imagining being those researchers telling folks they look for wasp seminal fluid on orchids).

After pollination, the flower immediately begins to change and die. It no longer needs to attract pollinators. Instead, the stigma closes and the column swells. Chemical changes occur. If the seed pod develops successfully, then the cycle begins again with millions of orchid seeds looking for a new home.

✿ AOS Awards for April

Larry Vierheilig kindly provided these wonderful images of the AOS award winning plants from the April 2010 meeting. Both plants belong to Jim Sloniker. Top is *Paphiopedilum wilhelminae* 'Jack', which received a Highly Commended Certificate of 78 points. It was recognized for its very dark petals held straight out with excellent bilateral symmetry.

Below is a photo of *Cymbidium wenshanense,* a species from China that is relatively new to cultivation in the US. It recieved a Certificate of Botanical Recognition. Congratulations to Jim for the awards. And thanks to everyone who brought plants for AOS judging; the membership certainly enjoys seeing all the plants brought in for judging.

Orchid Fair

Don't forget the upcoming Santa Barbara Orchid Estate International Orchid Fair. July 9-11, 2010. This year's special guest author will be the highly respected Rudolph Jenny of Switzerland, who is working on a new book on Stanhopeas.

New Editor

Your editor still would be delighted to have someone else help with the newsletter. I've been writing the newsletter for over ten years and I'm a bit burned out! orchidtrain@cox.net

Show Table Results

The show table had quite a participation turnout with plants from Richard Brown, Wendy Wenderski, Larry Vierheilig, Bill Robson, Don Brown, Frank Methmann, Colin Purcell and Jeff Thompson. It was, I believe, Wendy's first time exhibiting, and she received first place honors with her *Lockhartia* Golden Speck. Bill Robson's multiflowered *Paphiopedilum armeniacum* earned second place. Third place was a tie between Larry Vierheilig's floriferous *Dendrobium* (Princess × *unicum*) and Colin Purcell's *Schomburgkia undulata* × *Lc.* Rojoh.

Recall that anyone can vote in the monthly show table voting. Members are particularly encouraged to vote, but guests may also vote for their favorite.

Exhibitors who would like to participate must put a numbered sticky label on their plant. These are found in the binder on the show table. Please write your name and the number(s) of your plant(s) in the binder so you can receive credit for winning plants. But don't be discouraged if you don't win. The orchids on our monthly show table are always wonderful and educational.

Special mention goes to Fred Robson's massive *Cyrtopodium buctinii,* which members got to see at the end of the meeting. This massive plant did not find favor with the AOS judges, but the rest of us were delighted to see it in bloom.