

Culture Class at
6:30
"Growing Orchids
in Semi-
Hydroponics"

The Orchid Keiki



Volume XXIV, Issue XXIV

February 2011

Special Points of

Interest

- Mini Clinic—Semi-Hydroponic
- Carnivorous Orchids
- Silent Auction
- VOS 5th Annual Orchid Show
- Member's Show Table
- President's Corner
- Orchid Health/Mistakes
- Blue Orchids

Photo and Article

Credits:

- Garland Hanson
- Allen Black
- David Sombach
- Daune Polkis

Please Note!!

**Due to the Speaker
selling plants
February is not a
Member's Sales
Month**

"Marvelous Miniatures—Gems of the World" by Harry Phillips of Andy's Orchids

Tuesday, February 15th at 7:00 pm in the Robin's Room

Harry Phillips was born in San Diego, California on July 9, 1953. His father taught him to appreciate plants at an early age. In January of 1963, Harry's brother Andy Phillips (of Andy's Orchids fame) was born, and six years later is when it all started. They were both exposed to exotic plants and flowers at an early age, but when Andy became interested and later obsessed with orchids, Harry somehow resisted becoming involved with them for as long as he could. He assisted Andy in his passion by building his first two green houses, and Andy would reward him with a hybrid that was in bloom, tell him to bring it back when it goes out of bloom, and exchange it for one in bloom. Well this would only last about a year until he decided that he wanted to keep one and get it to re-bloom, the beginning of the end.

In 1986 Harry, with his soon to be wife Leslie, moved with Andy and his orchid collection to Encinitas, California. Being constantly exposed to all of Andy's orchids was beginning to have an effect on Harry. Shortly after, Andy left for four months in Costa Rica, and placed Harry in charge of the collection. When Andy returned he found that Harry had not killed too many plants and managed to become even more addicted. Andy, now feeling more confident about leaving his orchid collection under Harry's care, began to plan a cycling trip through South America, which ended up lasting two years. After that it was all over



for Harry -- he was completely addicted to orchids. Harry assisted Andy part time for 10 years, going full time around 1996. His interest in miniature orchids began several years ago while constantly being exposed to Andy's minis. He decided he would try some for himself, and that was the way the story starts. Harry would like to share some of his thoughts on growing and choosing the right mini for your conditions, or creating a growing area with miniatures in mind. Once you get to know and appreciate them, miniatures will be a larger part of your collection.

A Lustrous Vietnamese Orchid

From one of the world's biodiversity hotspots, Vietnam, comes a strikingly beautiful orchid, *Dendrobium daklakense*, with glossy white-and-bright-orange flowers. The orchid was first collected in 2009 by a local plant hunter, who said he found it in a remote area in the Dak Lak province of southern Vietnam. It was brought to the attention of Vietnamese orchid expert Nguyen Thien Tich, who being unable to identify it, passed photographs and drawings on to Kew orchid specialist André Schuiteman and his colleague Jaap Vermeulen from the NCB Naturalis in The Netherlands.

As soon as they saw these images they suspected that it was an unknown species of *Dendrobium* (1), which was confirmed after further research. Work-

ing in partnership, the three botanists teamed up to produce



a formal publication. André Schuiteman comments, "Although undescribed orchids are still discovered regularly in the tropics, it is remarkable that such a distinct and showy species could have escaped detection until recently. The next step is to determine its exact location so that we can assess its conservation status, though I suspect that it is endangered."

**2009-2010
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Orchid Species

Scientists have discovered why orchids are one of the most successful groups of flowering plants - it is all down to their relationships with the bees that pollinate them and the fungi that nourish them. The study, published tomorrow in *The American Naturalist*, is the culmination of a ten-year research project in South Africa involving researchers from Imperial College London, the Royal Botanic Gardens, Kew, and other international institutions.

The orchid family is one of the largest groups of flowering plants, with over 22,000 species worldwide. Today's research suggests that there is such a huge range of species because orchids are highly adaptable and individual species can interact with bees, and other pollinators, in different ways.

For example, when orchids *Pterygodium pentherianum* and *Pterygodium schelpei* live side by side, *Pterygodium pentherianum* puts its pollen on the bee's front legs, whereas *Pterygodium schelpei* puts it on the bee's abdomen, as in the photo above. This means that one bee can carry pollen from two distinct species without mixing it.

The study also shows how orchids are able to live harmoniously together, with different species working in partnership with different microscopic fungi in the soil, ensuring they do not compete with each other. Prior to today's study, it was known that orchids have strong interactions with bees, which pollinate the flowers in return for food such as nectar or oils, and also with fungi, which supply minerals to the roots in return for sugars. These relationships are amongst the best examples of nature's system of 'mutual benefit' and are believed to have been important for enabling orchids to evolve into so many different species. However, the mechanisms by which these relationships affect the number of plant species, and these species' ability to coexist, had remained obscure.

Professor Tim Barraclough, from the Division of Biology at Imperial College London, co-lead an international team of plant scientists to investigate how these interactions affect orchid diversity. 'Orchids are hyper-diverse globally, particularly in South Africa, where they have diversified to a large extent, so we wanted to find out how lots of species are able to exist without competition,' he said.

The group studied 52 orchid species in a small region of South Africa, which all secrete oil inside their flowers that female bees collect to feed to their larvae. In order to investigate which pollinating bees were visiting the different species, they collected orchid pollen from the bees for DNA sequencing and analysis. They found strong evidence that when an orchid moved to a new geographical area it adapted to a different pollinating bee species, and interestingly, some competing orchid species were able to adapt by placing pollen on different body parts of the same bee.

'What is remarkable in these orchids is that diversity is generated not only through switches between bees, but also by switches between different body parts of the same bee, so two closely related orchids might place pollen on different segments of one bee's front leg,' added Professor Barraclough. 'It's given us a fun-

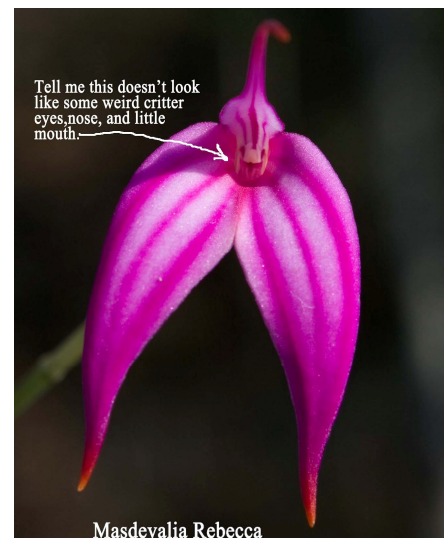
damental insight into how so many new species can originate, and once they originate how they are able to coexist without exchanging genes.'

The researchers also studied the microscopic fungi living on the roots of the orchid, to see how this relationship was affecting plant diversity. Most flowering plants host microscopic fungi in their roots that help the plant take up nutrients from the soil. Until now it has been difficult to investigate this interaction, as most of the fungi belong to species that are difficult to culture. The researchers overcame this challenge by combining a molecular technique known as DNA barcoding with field experiments. In contrast to the bees, where co-occurring orchid species normally share the same insect pollinator, the plants needed to use different fungal partners in order to coexist in the same region.

'By tapping into different kinds of fungi, different plant species access different pools of nutrients and so the problem of living together without competing for the same resources is solved,' said Professor Barraclough. However, the same fungal partners are found in different geographical areas and so orchid species that originate in different areas, by adapting to different pollinators, tend still to use the same fungi.

The team's fieldwork shows that shifts in pollination traits were important for bringing about new species and allowing coexistence in a diverse group of orchids, whereas shifts in fungal partner were important for coexistence but not for speciation. Many other groups of flowering plants enter into similar relationships with pollinators and fungi, and both the origins and the future survival of that diversity could depend critically on understanding these relationships.

Dr Richard Waterman, now at the University of Sheffield, who conducted the research as part of his PhD at Imperial College London and the Royal Botanic Gardens, Kew, commented on the next steps for the scientists: 'We need a better understanding of these relationships if we are to predict and counter the effects of the worldwide decline in pollinators and soil quality.'



President's Message

Happy New Year! I hope everyone survived the holidays in good shape!

Winter is one of my favorite seasons for a number of reasons. There are lots of outdoor opportunities, it's the holiday season and it is a peak blooming time for a number of my favorite plants! Cattleyas including Blc. Pamela Hetherington, Lc. Drumbeat and C. Horace, are in full bloom during Christmas and New Year's Day! Winter is also a peak blooming period for the complex Paphiopedilum hybrids and species. Our guests are always amazed at the fragrance, beauty and diversity of orchids.

For those of you that bring plants inside the home during the Winter, you may already know that wintertime can also be PEST time!!! Our warm and dry house provides a wonderful breeding ground for two pests; spider mites and mealy bugs! Carefully inspect your plants for pests during this time of the year.

Mites suck the juices out of your plant's leaves and can take a plant down fast! Look for the telltale stippling on top of the leaves and the small webs and eggs underneath. Grab a leaf and pull it through your fingers. A reddish, dusty residue on your forefinger may indicate an active spider mite infestation! I use neem or sun spray oils to help control mites. Spray the tops and bottoms of each leaf. Dedicated miticides do the best job but can be costly.

Mealy bugs sometimes show up in the house during the blooming periods. Look for these

cotton-like buggers in the crowns of plants and especially on new bloom spikes and flowers. I treat mealy bugs with alcohol on Q-tips or on a soft rag.

Carefully inspect your plants each time you water! They will thank you for it!

Already, 2011 is shaping up to be a busy year for the Virginia Orchid Society! Our signature event, the annual orchid show, is shaping up to be bigger and better than ever before! We're starting to get quite a following and people/organizations are beginning to contact us for show details. We will have more vendors than ever before!

We've been invited by the Lewis Ginter Botanical Garden to support their upcoming "Orchid Elegance" event! This event will go for several weeks in the Spring.

We will be exhibiting at four or five other orchid shows in 2011 and repotting plants at Strange's Bloomin' days Celebration.

As you can see, we have a lot going on in 2011 and there will be plenty opportunity for everyone to get involved! See you at the February meeting!

VOS Silent Auction

We are currently preparing for the VOS Silent Auction to be held on Friday, Feb 25 from 6-9 pm during the opening Gala of the VOS Show and Sale to be held at Strange's Greenhouse.

Please consider making a donation to the silent auction. **Here are some ways you can help:**

Do you have any Frequent Flyer miles that you could donate?

Do you have Members Reward Points that you could donate?

Did you receive a Christmas present that you would like to donate (re-gifting!).

Do you have symphony, theatre or sports tickets that you will not be able to use this year?

Do you have any orchid jewelry or art (both great auction items) you could donate?

We are also putting together a "Shop to you Drop" package for Short Pump Mall. Consider donating a gift card from a store, lunch from your favorite Short Pump restaurant, or a cash donation that we can use to purchase a gift card for this shopper's dream basket. We are also looking for cash donations to help purchase at least one major auction item like a Barnes and Nobles Nook or Apple I-pod.

Please contact:

Linda Lawrence at llawrence@reynolds.edu and let me know how you would be willing to help. Donors will be listed in the event brochure.

Your participation in the silent auction would be greatly appreciated. **Linda**

Schedule of Virginia Orchid Society Events

Tuesday, March 15th

"Terrestrial Orchids for Your Home and Garden"

Dr. William Mathias
Wild Company Orchids

Tuesday, April 19th

"Vandas"

Dr. Martin Motes
Motes Orchids

Tuesday, May 17th

"Cattleyas"

Fred Clarke
Sunset Valley Orchids

Tuesday, September 20th

"Miniature Cymbidiums"

Kevin Hill
NCOS

Tuesday, October 18th

"TBA"

Sam Tsui
Orchid Inn

***Aracammunia liesneri*, collected by R. Liesner and F. Delascia in 1987, is the sole species in the orchid genus *Aracamunia*.**



It is the only orchid strongly suspected of being carnivorous.

A. *Liesneri* bears peculiar, rigid, tongue-like structures with apparently sticky tips emanating from the bases of its leaves.

It was found on Cerro Aracamuni in Venezuela, an area with nutrition-poor soil that apparently favors the emergence of assimilative (carnivorous) species.

Get Ready for Blue Orchids!!!

The latest orchid craze is the availability of a new manipulated *Phalaenopsis* that is true blue in color! They are already available at Strange's Garden Center and I plan to stop by and see them in the next few days.



I don't know if they rebloom true but it is always interesting to see new innovations in plant "design" and the marketing that sells them!

Exclusive patented technology makes this new introduction truly distinctive.

"We're pleased to give a first look at the hottest new variety the orchid world has seen in years," said Silver Vase CEO Andrew Bartha. "Blue Mystique is truly the most unique orchid on the market."

Exceptional in any setting, Blue Mystique adds flair to home and office alike. Its long-lasting, lovely blooms shine electric blue on a dramatic single or double spike.

Blue Mystique is not painted or hybridized, but gets its color through a patented process that induces the blue color in flowers.

"The future flowers that are on the stem are going

to be blue," says Silver Vase CEO Andrew Bartha. "It's not painted or sprayed. It's the rave in Europe and it's pretty much the trend of the future for certain tones in orchids." The process takes between 48 and 90 hours to induce the blue color. Blue Mystique thrives in low to medium light and comes in a 5-inch pot.

"We're pleased to give a first look at the hottest new variety the orchid world has seen in years," Bartha says. "Blue Mystique is truly the most unique orchid on the market."

Silver Vase debuted Blue Mystique at the Tropical Plant Industry Exhibition (TPIE) in Ft. Lauderdale, Florida, January 19-21. Orders are being taken now. Silver Vase, Inc. brought year-round availability of *Phalaenopsis* orchids to the United States. Founded in 1988, the company is known as one of the most innovative potted plant growers in North America, revolutionizing the industry through many distribution and packaging changes. Today their fully robotized and environmentally friendly greenhouse operation produces more than 2 million units from nearly 1 million square feet of climate-controlled facilities. Silver Vase operates its own distribution network, serving a broad range of customers, and is the largest U.S. partner to Dutch breeder Floricultura.



VOS 5th Annual Orchid Show—VOS Booth Information

The 2011 show will again feature a VOS table where membership information, upcoming event schedules and cultures sheets will be distributed. The VOS booth will also feature member plants for sale.

A club booth is often provided at orchid shows provide an outlet for members who have extra plants, plant divisions and other orchid-related items they would like to donate or sell. Sales at the club table are not intended to compete with commercial vendors. However, the VOS booth has evolved to the point where a number of VOS members are buying plants in preparation for the show and selling them in quantity at a profit.

For the 2011 show:

All participants selling plants in the VOS booth must be current members in good standing.

15% of all plant sales, regardless of volume, will be donated to the VOS.

Members may place up to 10 plants (total for the show) for sale at the VOS booth

Members placing more than 10 plants (total for the show) for sale at the VOS booth must agree to exhibit at least 10 blooming plants in their own or another exhibit.

Table space in the VOS Booth is limited and will be divided up by show officials as needed to accommodate everyone. Plant storage space will be provided under the tables and in an adjacent space.

Members are responsible for their own plants, plant sales, plant security and sales reporting. Plan on attending the booth accordingly.

VOS ANNUAL SHOW

Strange's Greenhouse

2/25, 2/26, 2/27

Assistance Needed in these Areas:

On Friday, 2/25

Clerking

Silent Auction

Gala Event—
Bartending & Ticket Counter

Thursday, 2/24 and
Sunday, 2/27

VOS & Friends
Display Setup and
Take Down

All Weekend—2/25,
2/26 & 2/27

Tour Guides

Membership and
Welcome Table

Hospitality Setup and
Cleanup

Sunday, 2/27

Vendor Assistance—
Setup & Take Down

Top Growing Orchid Mistakes

Practically anyone can become a good orchid grower, so long as they learn from their mistakes (and the mistakes of others). People who say they can't grow anything simply don't learn from their mistakes. Growing is like cooking: anyone can learn to do it reasonably well if they put the time and energy into learning how to do it. People who can't cook after years of trying never really tried properly in the first place.

I've learned (and continue to learn) an immense amount in my orchid growing experience. I've made many mistakes, and watched others struggle. I've included a few mistakes here – some obvious, some more subtle – that I hope will save you some frustration and get you to growing better plants more quickly.

Overwatering

All plants need water. Everyone knows that. What many new growers overlook is that plants also need air, especially around the roots. Most orchid species are epiphytic, meaning they grow attached to trees. While some *Paphiopedilum* species do grow on trees, many others grow on rock surfaces, or leaf detritus on the jungle floor. When we confine these plant roots to pots, the roots don't receive as much air as they normally would in the wild, and eventually, they die off.

Fortunately, orchids produce roots specifically for the type of media in which they're grown, and on many occasions, I've seen some of my plants put out long root systems through fir bark that decomposed into mud, while other paphs I've left sitting in two centimeters of water have put multiple roots directly and extensively into the water. Of course, some portion of those roots ran through the pot above water, so they were exposed to air in the mix. (Some paphs may adapt just fine to growing only in water, but I haven't tried that yet.)

The problem with overwatering is not that you water too often, but that your mix stays too wet. You could water every day if your mix dried out sufficiently throughout the day, and in fact, that kind of watering schedule can work wonders for certain plants. Proper watering comes with experience and careful observation. I've found that using **clear pots** helped my growing enormously, since I could see if the media needed water, and if the roots appeared healthy.

Not knowing what's in the water

Some growers don't bother to find out what's in their water, then wonder what happened when expensive plants just limp along, get stressed, or simply die. *Paphiopedilums* and *Phragmipediums* need high quality water for best results. You may live in an area where tap water comes as pure as rainwater, but many people live in places where the water quality simply won't let their plants grow optimally, yet they fail to find out what's in their water. If your local water contains too many minerals, changing mixes or fertilizers won't solve your problem.

In nature, plants receive water from rain. That water may fall through the forest canopy or run through some dirt before running down the side of a cliff, picking up nutrients along the way. But it certainly doesn't contain as many salts as bad tap water does.

I learned this lesson the **hard way**. Unbeknownst to me, my water kept stressing my plants, so I just kept replacing them. I eventually got a reverse osmosis system, and everything turned around. Fast. Now you may not need an RO system, but if your plants have been struggling, find out what's in your water. You can have your water tested, or better yet, tap into local knowledge by talking to other growers in your area.

Not enough air movement

To go along with bad water, many growers make the mistake of not providing enough air movement. Next time you take a walk, consider the enormous volume of air moving past you in even the gentlest of breezes. Most of us grow in small greenhouses, which may have, say, 250 cubic feet of air. That volume of air is minuscule, and moved in mere moments when a light breeze sweeps past you. Plants in nature, of course, receive this kind of air movement 24/7.

Plants take in carbon dioxide from the air, and produce oxygen in the photosynthetic process. Moving air enables carbon dioxide to pass over leaf surfaces, and get absorbed into the plant for growth. Air that doesn't circulate leads to favorable conditions for fungal and bacterial rots to occur. If you grow indoors, whether in your home or a greenhouse, a high-quality fan that causes gentle swaying of flowers or leaves will provide sufficient air movement for good gas exchange over leaf surfaces, and better growth.

Believing conventional wisdom

For every rule, adage, or axiom of orchid growing, I have seen an undeniable exception.

"You shouldn't water every day."

"You need oyster shell in your mix."

"Your water has to be pH 5.3" exactly.

"You can't bloom those in Florida/California/Montana/ on your windowsill."

Conventional wisdom serves as an excellent starting point. But unless your conditions reproduce exactly the source of said wisdom, you will have to make your own adjustments. Therein lies the work – but also the satisfaction – of growing.

Experimenting with your growing conditions, testing the conventional wisdom, and finding what works for your plants is what makes orchid growing so much fun. If you think you can't grow some plant under your conditions, there's probably someone out there that has figured out a way to make that plant happy by changing those same conditions.

So buck the conventional wisdom and give your own ideas a try. And if you really want to up the stakes, be

sure to experiment first on your most expensive plants.



Cattleya Scintillation "Virginia" am/aos

Lazy with Labels

When you have a handful of plants, remembering their species/hybrid names and clonal varieties doesn't pose too much of a challenge. But after 50 or so plants, you may start having a harder time remembering. If you get into growing from flask, your problem will multiply even more. Fortunately, solving this problem is simple, cheap, and easy: get plenty of blank labels, and have plenty of permanent markers around. Anytime you need to make a label, you'll have something within reach.

A good practice I've seen for larger collections is to make two labels for each plant, and to bury one of them right in the mix. That way, if the usual label in the pot falls out, or you confuse it with another label during re-potting, you'll still have the buried label as your definitive guide. This kind of insurance can prove very valuable when you deal with lots of clonal varieties of a species or hybrid.

Penny-wise, size-foolish

When I first started growing, I got hooked on the more rare paph species. Stuff like *P. sanderianum*, *supardii*, *volonteatum*, even some *sangii*. I found some of these plants at great prices from growers who were downsizing their collections. Little did I know in those days how down the size was – these small plants would take many years before they bloomed! Of course I knew in my head that some of these species would take five to ten years to bloom. But I was willing to wait...

Well, about six months and a fistful of dead seedlings later, I decided I needed to change my strategy. Much of the money I had sunk into those small seedlings had gone to pay for some expensive lessons! Small plants run a much higher risk than large plants. The risk of plant death is inversely proportional to the experience of the grower, and as an inexperienced grower, I ate a lot of risk. And many times, I lost my bet.

That's when I learned that it was *cheaper* to buy a bigger, *proven* plant: by reaching a bigger size, it has proven its ability to survive. Small seedlings have not proven that yet, and unbeknownst to the buyer, their genetic configuration may very well stack the survival deck against them. While you may save money on the front end in buying a smaller plant, you pay on the back end in the form of genetic risk, cultural risk, and potential frustration.

Buying four seedlings instead of one near-blooming size or mature plant will cost you more in terms of time, effort, and risk. I encounter many new people, especially online, who continue to make this mistake. They may very well possess the patience to grow these plants, but they'd rather roll the dice with more small plants rather than going with the safer bet of a bigger plant.

The way to save money is to buy the largest plant you can. Sure, you may *spend* more, but you will *pay* less.

That being said, you simply need to match your experience with the funds you have, and find out what works for you. But for new growers, save money by buying a bigger plant!

No sudden movements

The worst feeling in orchid growing is probably finding one of your prized plants with a terminal case of crown rot. The runner-up for worst feeling

has to be breaking the flower spike of a plant you've waited ages to bloom. In one particularly bitter incident, I was moving a small plant near a very valuable *Phrag. besseae flavum*. As I lifted the pot, I felt a little resistance, and thought the edge of the pot had caught something. I pulled a little harder, and before I knew it, a large *besseae flavum* flower bud popped off.

Every grower has dismal stories to tell of plants that met with horrible accidents. Almost all of them are preventable, if you take care to slow down around your plants, and avoid sudden movements! Here's a handy tip: put up a yellow "SLOW" traffic sign on the door of your greenhouse (or someplace in your growing area). You might save a few of your plants that way.

Hanging on to weak plants

In every litter of puppies, every gaggle of geese, every herd of sheep, some individuals will show more vigor, and some will show less. The random processes governing the distribution of genes ensures that some individuals end up with better gene combinations than others, and it's as true for orchids as it is for kittens. The problem, though, is that plants don't always announce their vigor (or their lack thereof) at the time you buy them. All plants look great at the orchid show, but then some end up limping along when you get them home. And sometimes, the ones that looked weak early on turn into real winners.

Unfortunately, I know of no sure way of telling the difference up front. (But size and number of growths does serve as a good indicator. If those plants cost more, it's usually worth it)

The thing to keep in mind when buying plants is that every plant you buy is a lottery ticket. You may end up winning, or losing. The better your cultural skill, the better your odds. In general, the odds favor you (or else orchid growing would not be as popular as it is).

When plants do end up being slow growers, or more prone to stress, how should we deal with it? I've recovered my fair share of struggling plants, and I've also lost my fair share. I know how painful it is to see a favorite plant take a turn for the worse. I like to give my plant recovery efforts a fair try, but at some point, it's simply best to say good-bye to a struggling plant, and to move on to another.

Even the best growers experience problem plants. In my talking to top growers, they all seem to do the same thing when faced with weak plants: they throw 'em out. I once heard an old adage: "The bigger the compost heap, the better the grower." That old nurseryman's saying contains a lot of wisdom... Focus your time and efforts on your best plants!

"Reprinted with permission of Dean Hung of Paphiness Orchids"



If you have any questions about the VOS Annual Orchid Show or would like to help in any of the areas listed on page 5, please contact Valerie Thacker or David Sombach.

Also, if you would like to put in an exhibit such as a table top display (1 to 3 plants), please contact Garland Hanson.

Any member who would like to assist with the VOS & Friends exhibit or who would has plants they would like to display in the VOS exhibit, please contact Patti St. Clair.

Any member who has items they would like to donate to the Silent Auction (such as that Christmas Gift that just "wasn't you"), please contact Linda Lawrence.



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**Visit Our Website:
www.vaorchidsociety.org**

Orchids' Health Speaks Volumes

Imperiled Species Hint at Troubled Ecosystem

1:10 A.M. — Deep in the silent and ancient spookiness of a cypress swamp in the Florida Panther National Wildlife Refuge - complete with an 8-foot alligator - was a sight to make an orchid hunter's mouth water.

A half-dozen clamshell orchids and a dingy-flower star orchid grew on a pop ash; a few yards away, beyond a 600- to 800-year-old cypress tree, was a night-scented orchid. All three species were delicate, beautiful and endangered.

Refuge wildlife biologist Larry Richardson had waded into the cold, thigh-deep water to see how the orchids had fared during the freezes of December and January.

The verdict: They did just fine. These orchids are epiphytic, which means they grow on trees, and their host trees were growing in standing water.

"It's a simple concept," Richardson said. "Water collects solar radiation during the day and gives heat off at night to keep the orchids warm. It can be 32 degrees at night outside the swamp and 38 degrees 100 yards away in the swamp. That's enough to keep them alive."

Florida Panther National Wildlife Refuge is home to 27 orchid species, 13 of which are endangered.

Keeping an eye on the health of the refuge's orchids is one task of the Florida Orchid Restoration Partnership, a cooperative effort between the U.S. Fish and Wildlife Service and the University of Florida. Relying on graduate students from UF and Illinois College, the partnership's goal is to study, manage and preserve orchids in South Florida.

Of water and shade

Among other things, researchers are looking at the refuge's orchid populations, orchid genetics and relationships between orchids and insects.

"Why should we worry about these little, dinky plants?" said Michael Kane, a professor in UF's Environmental Horticulture Department. "The issues are bigger than the plants. It's not just the plants. It's the pollinators and other insects that depend on specific orchid species.

"The plants are part of the overall fabric of their ecosystem. It can get pretty complicated."

The biggest reason for crashing orchid populations in the refuge, and, by projection, elsewhere in South Florida, is lack of water due to changes in hydrology.

After visiting the thigh-deep cypress swamp, Richardson drove to a dry swamp, called Unit 1, that historically held water at this time of year. But canals dug during the construction of Interstate 75 drained the land, and Unit 1 has no water during the dry season, which also is the cold season.

As a result, orchids have no water to keep them warm

- and alive - during a freeze. "There were orchids here when there was year-round water," Richardson said. "There are no orchids now because they're freezing because there's no water because of the canals because of people like you and me."

Lack of water also has allowed cabbage palms to move in huge numbers into formerly wet areas. These trees block sunlight, so terrestrial orchids - orchids that grown on the ground, such as pine pinks - don't flourish.

Orchids a good sign

"I've found pine pinks out along road edges because that's where the sun was," Richardson said. "When we cleared cabbage palms from one area, pine pinks moved right in.

"Water is central to everything. Orchids tell us what's right and wrong about the ecosystem. If you have healthy orchid populations, you have a healthy ecosystem."

To help bring back orchid populations, researchers in the restoration partnership have learned how to grow orchids from seeds of refuge orchids.

Since 2006, they've introduced about 500 night-scented, yellow-helmet, clamshell and cigar orchids into the refuge; 70 percent have survived.

"We want to effect orchid restoration on the refuge," Richardson said. "Then we'll go to places like Big Cypress National Preserve and Fakahatchee Strand and say, 'Hey, you want some orchids? It ain't gonna cost anything.'"

Big Cypress botanist Jim Burch likes the idea of restoring orchid populations.

A beautiful payoff

"It's a matter of re-establishing a more natural habitat, a habitat that's more like what it was here before it became perturbed by people," he said. "Orchids are something people like to see and associate with these areas."

Orchids are, indeed, something people like to see, sometimes to the point of obsession.

"There's definitely a fascination," Richardson said. "Part of it is because they're hard to grow, and when you do get a bloom, you have an incredibly beautiful payoff.

"There's a lot of gee-whiz stuff about orchids. It rubs off on you. It makes you fall in love with them and say, 'Hey, we can't let them disappear. They're just too cool.'"

"The plants are part of the overall fabric of their ecosystem. It can get pretty complicated."

CHECK OUT A GREAT VIDEO ON NATIVE FLORIDA ORCHIDS AT: <http://www.news-press.com/videoonnetwork/756457360001/Orchids-in-the-Everglades>