



The

Arizona Orchidist

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NEXT OSA MEETING

The next regular society meeting
will be **Monday, December 1, 2008**
at 7:00 P.M.

Meetings are held at the
Encanto Park Clubhouse
2605 N. 15th Ave., Phoenix, Arizona
North of Encanto Blvd on 15th Ave

OSA meetings are open to all
plant enthusiasts

Refreshments will be provided.

Snacks and Beverages
thoughtfully provided by

EVERYONE

Refreshment Coordinators:

Barbara Parnell (480) 948-0714

Mary Gannon (623) 878-4173

Carol Erwin (602) 996-1696

OSA JOINT BOARD MEETING

The December board meeting is a joint meeting of retiring and newly elected board members. The meeting will be held on December 14th at 1 PM at the Golden Corral restaurant, 5679 W. Northern Ave., Glendale.

GROWER ON CALL

Wilella Stimmell

wilellas@worldnet.att.net

December Program



Annual December Fund-raising Auction

Our 14th annual holiday buffet and live auction fund-raiser will begin promptly at 7 PM on Monday, December 1st, at the Encanto Park Clubhouse.

You are cordially invited to join in the fun of our auction. There will be both a live and silent auction of orchid plants and orchid-related items. As you know, OSA is a 501 (c)(3) non-profit organization dedicated to community service, and we do NOT accept grant money. Our December auction is one of our major fund-raisers in the year.

We need your donations of plants and orchid-related items. If you don't have anything to donate for the live and/or silent auction, join in the bidding, and perhaps you'll take home one or more plants from your "wish list" or orchid-related items to give as holiday gifts. This is your one-stop shopping adventure!

An expanded refreshment table will be provided by OSA members.

Note to guests and new members who are attending their first OSA December auction: NO credit cards are accepted.

Please review the instructions for donating plants or items for the auction on page 4.

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From the President's Desk

Julie Rathbun

Our annual show on November 8th and 9th was another successful event! This year's show theme was ORCHIDS FOR ALL SEASONS. (Two months ago, we already chose the theme for next year's November show! We have several very creative and artistic members!) This year, the most spectacular plants on display were the specimen Cattleya Porcia Cannizaro plants loaned to us by the **Northern Arizona VA Health Care System Greenhouse!** And thanks to **Debbie Easley Murphy, co-owner of Easley's Fun Shop** for continuing to support OSA by loaning us headdresses to display during our show. We were also delighted and very thankful that **members of the Yuma Orchid Society** helped us set up our displays and worked during the first day of our show. Thanks, ladies!! We realize that it was an expensive proposition (gas and lodging) for you to help us.

Barbara Parnell, our November Show Chair for the THIRD year in a row, deserves high praise from all OSA members. Thanks, Barbara, for your team spirit and willingness to work with yet another show committee.

This year our November monthly meeting occurred BEFORE our show. The timing of the meeting gave us another chance to twist arms of members and encourage them to volunteer to help work during the show. Our longtime dependable workers signed on, and our new members also volunteered to help!

Our election of officers for OSA's 2009 Board of Directors took place during our November 3rd meeting. Bob MacLeod moved and Lou Ann Remeikis seconded the motion that the slate of candidates prepared by Nominating Committee Chair, Mary Gannon, with the assistance of two other committee members, Jim Johnson and Lou Ann Remeikis, be accepted by acclamation. The motion passed. Thanks to the Nominating Committee members for their time and efforts! (Elsewhere in this issue, you will find the list of newly elected officers whose terms begin on January 1, 2009.)

Our November meeting program was presented by **Aaron Hicks**. His multimedia program titled "Where Do Baby Orchids Come From" was both educational and entertaining, as are all of the programs that Aaron presents. Many OSA members, including me, consider Aaron as an EXCELLENT teacher!

Our December 1st meeting will be our annual fund-raising auction and the last event in this year for us to raise money for our community service agenda. Both a live and silent auction will be held during our meeting. Doug Baldwin has graciously agreed to serve as our auctioneer, and he will be ably assisted by Aaron Hicks. If you haven't seen these two in action during an auction, you should know that they have fun and make the entire evening an enjoyable event. The smorgasbord of food on our expanded refreshment tables is an added attraction!

Our joint board meeting of retiring and newly-elected officers will be held on December 14th at the Golden Corral restaurant, 5679 W. Northern, Glendale. We will meet at 1 PM. Food will again be involved. (We can't conduct any business unless food is involved!)

See you on December 1st!

Julie

2009 OSA Board of Directors

President – Julie Rathbun

1st Vice President – Aaron Hicks

2nd Vice President – Joe Bacik

Secretary – Barbara Parnell

Treasurer – Wilella Stimmell

Trustee – Carol Erwin (term expiring 12/10)

Trustee – Kimberly Levingston (term expiring 12/10)

Our two trustees who will complete their term of office in 12/09 are Frank Bopp and Seelye Smith.

MEMBERSHIP RENEWAL TIME

Enclosed with this issue is a membership renewal form. OSA's calendar year ends on December 31st.

At your earliest convenience, please complete all areas of the form and return it with your 2009 membership dues to the Treasurer's address that is listed on the form, or bring your completed form with cash or check to our December or January meeting. Please do not pay your dues without completing your renewal form!

For those who receive their newsletters via e-mail, a separate attachment is (or should be!) included with this month's newsletter. If you didn't receive a renewal form, contact our newsletter Editor, Keith Mead, at kjkm@comcast.net

NOVEMBER RAFFLE TABLE DONORS

Joe Bacik, Bob MacLeod, Julie Rathbun,
Northern Arizona VA Health Care System, OSA,
and Wilella Stimmell

Thanks to all for your support !

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www.orchidsocietyaz.org

Or to any of the Board Officers or Trustees:

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The Orchid Society of Arizona, Inc. is a non-profit 501 (C) (3) organization dedicated to community service and the study of orchids. It is affiliated with the American Orchid Society, The Orchid Digest Corporation, the Arizona Federation of Garden Clubs, Inc. , and The Nature Conservancy.

Instructions for those donating plants or orchid-related items for the December auction

Although our December 1st auction will begin promptly at 7 PM, **members bringing donations need to arrive by 6:30** at the clubhouse and do two things:

1. **A minimum bid should be CLEARLY written on the item** so that if it's an item for the **LIVE** auction, our auctioneer, **Doug Baldwin** and his assistant, **Aaron Hicks**, will be able to **READ** the minimum bid. Items that don't fetch minimum bid will be returned to the donors **ONLY** if they write **ON** the item – “return to (name) if the item does not receive a minimum bid”. The items so marked will be left on the live auction tables. It will be a donor's responsibility to retrieve unsold items at the end of the meeting.

2. **Members arriving later than 6:30 and who have items for the SILENT auction, need to physically take the items to the silent auction tables.** (See #1 regarding items that do not receive a minimum bid.) An OSA member will be stationed at the silent auction tables.

Mayan Delicacy

In the same Guatemalan forests where Mayans grew cacao for chocolate more than 500 years ago, they also grew the orchids that produce vanilla. Now genetic research led by the University of California at Riverside suggests it was the Mayans who hybridized two species to make Tahitian vanilla, a variety prized by modern gourmets.

Smithsonian Magazine November 2008

Southwest Flower & Garden Show

In the tradition of such highly successful events as the annual Philadelphia Flower Show, a new event has been launched in the Phoenix Metro area, and OSA has been invited to participate. The **first Southwest Flower & Garden Show** will be held **March 6, 7, and 8, 2009** at the **University of Phoenix Stadium**. The URL is: www.swflowershow.com/ To find mention of OSA (and other non-profit groups), from the SWFS home page, click on the Attend the Show tab and then click on The Club Forum. Scroll down to find mention of OSA. Hours for the show are: Friday, March 6 and Saturday, March 7 – 10 AM-7 PM. Sunday, March 8, hours are 10 AM-5PM. Also under the Attend the Show tab, you will find directions to the University of Phoenix Stadium (formerly Cardinals' Stadium). **We need volunteers** to work in our booth. The Arizona Federation of Garden Clubs will have a booth next to OSA's booth, and the placement of our booths will enable us to cover the other club's booth should a brief emergency arise.

Your 2008 OSA Board of Directors discussed the fact that the population in the west valley is expanding at a fast pace. Participation in the SWFS is an opportunity for us to introduce OSA to residents.

If you want to volunteer for OSA's booth (#1915), contact me! I will gladly give you directions to the stadium.
Julie

Mealybugs on Orchids

Paul J. Johnson
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Box 2207A, South Dakota State University,
Brookings, SD 57007

Mealybugs are serious pests of orchids and are probably the most difficult to control pest of orchids in homes and greenhouses. Most definitely, they need to be dealt with immediately upon discovery. The damage done to plants by mealybugs is considerable, causing a loss of vigor and a weakening and loss of leaves, buds, and flowers through their feeding. In addition, mealybugs create copious amounts of honeydew which make plant parts sticky, attracts ants, and provides a substrate for sooty mold. Though some mealybugs vector plant viruses apparently no orchid viruses are known to be transmitted by these insects. Mealybugs are not particular about their host and probably all species of orchids are susceptible to mealybugs, especially when cultivated.



Identification

Nearly 300 species of mealybugs are known from Canada and the United States. Fortunately, only a few species are common or serious pests of orchids. Mealybugs are classified in the family Pseudococcidae, and are closely related to the scale insects. In fact, mealybugs are best thought of as a kind of soft scale that does not form the protective cover that most scales produce for protection. The pest species are in the genera *Pseudococcus*, *Planococcus*, *Phenacoccus*, and *Dysmicoccus*.

Immature to adult mealybugs may measure 0.5-8.0 mm in body length. All of the orchid feeding species are coated with a waxy secretion that hides the body of these insects. The more common species of these odd insects that infest orchids are immediately recognized in the adult stage by the white, yellowish-white, whitish-grey, or pale pink to pale blue in color coating. The body is oval and the sides of the body have short waxy filaments and there may be 2-4 short to long filaments on the posterior end of the body. These filaments sometimes give the impression of numerous legs.



Mealybugs can be found on all plant parts, but especially roots, rhizomes, pseudobulbs, and the underside of leaves. They are adept at hiding on roots and rhizomes deep in the potting media, in crevices and under sheaths, and in cracks and under lips of pots, trays, and benches. Unlike scales, mealybugs will often wander in search of feeding sites. The immatures are small, and white to yellowish or pale pink. Hatchling nymphs are not easily seen without a magnifier and hide under cover, but older nymphs appear like diminutive adults.

Orchids become infested with mealybugs in some combination of three methods: purchase of an infested plant, movement from infested to un-infested plants that are in contact with each other, and windblown colonization. Mealybugs are active and will crawl from one plant to another, pot to pot, and across benches. Mealybugs will leave plants and hide under rims of pots and trays, in bench crevices, and even drop from overhead plants. Spread of crawlers can occur both indoors and outdoors by floating on breezes or air currents produced by circulating and heater fans. The occurrence of infestation hotspots may be due to crawlers settling on plants where the air currents are the weakest. Similar effects are found with aphids, scales, and spider mites.

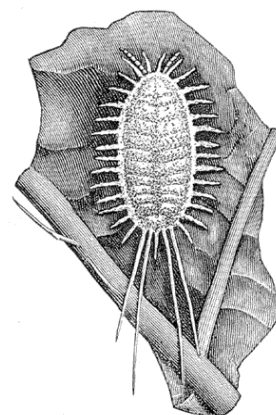
The identification of mealybugs is difficult and often requires the services of a taxonomic entomologist specializing on these insects. Because of this difficulty, accurate information on the identification and biology of species that may infest orchids is much poorer than one would hope. Undoubtedly, all the orchid infesting species were tropical in origin, but the most problematic species have adapted to indoor life and may feed on hundreds of species of ornamental plants other than orchids.

According to identification records kept by the Systematic Entomology Laboratory, U.S. Dept. of Agriculture, 39 species of mealybug are reported from orchids. Fortunately, only a few species are problematic in Canada and the United States. However, it is very easy for any of these species to be transported unseen. Consequently, extreme caution and due care is urged to anyone transporting orchids between states or countries.

In most of Canada and the United States, the longtailed mealybug (*Pseudococcus longispinus*) is probably the most common and problematic species on orchids, particularly in homes and greenhouses. This is also the most easily recognized species because of a pair of very long filaments on the posterior of the body.

In California the longtailed is very common. However, five additional orchid feeding species are known: orchid mealybug (*Pseudococcus microcirculus*), imported mealybug (*Pseudococcus importatus*), obscure mealybug (*Pseudococcus obscurus*), pineapple mealybug (*Dysmicoccus brevipes*), and the solanum mealybug (*Phenacoccus solani*). Apparently, the orchid mealybug is the most problematic species in California, particularly in greenhouses.

In Hawaii the longtailed and pineapple mealybugs are common on orchids. In addition there is the dendrobium mealybug (*Pseudococcus dendrobiorum*), Jack Beardsley's mealybug (*Pseudococcus jackbeardsleyi*), and the grape mealybug (*Pseudococcus maritimus*).



Life Cycle

Mealybugs have a three-stage life history: egg, larva (nymph or crawler), and adult. Eggs are laid within a waxy coated egg sac produced by the female. The eggs hatch after about a 10 days into the mobile nymphs, the crawlers, that appear as diminutive adults. The crawlers are the most active stage that can move between plants and will develop through several growth periods before becoming adults. Adults of most species are also active. Thus, unlike scales where the crawler finds a suitable site for feeding and remains fixed, mealybugs will move about to find feeding sites. However, the most common pest species is the longtailed mealybug and it is parthenogenetic; no males are know of this species.

Male mealybugs do little feeding and only in their youngest crawler stages. Mature males are small (1.5-2.5 mm) winged creatures whose only function is to mate and die. Females and immatures do not fly, but they will crawl off of the plant and immatures can float in air currents.

In temperate regions, mealybugs usually have only one or two generations per season. In a warm greenhouse or indoors there may be upwards of 8 overlapping generations per year. Out-of-doors in cold climates, cold-tolerant species of mealybugs hide in protected places, such as under tree bark, among roots, and in compost.

Rubbing Alcohol

Probably the most popular home remedy against mealybugs is to swab and daub plants with a Q-tip or ball of cotton dipped in isopropyl (rubbing) alcohol. Do not use other alcohols, such as ethanol or methanol, that will penetrate the plant tissues and cause considerable damage! The common 70% isopropyl available in stores is satisfactory. On hard-leaved plants, gentle rubbing with the fingers, a cotton ball, or a soft infants toothbrush is effective. Remove all mealybugs, large and small. Afterwards, you will still need to repeat the alcohol treatment to remove the tiny yellowish spots which are the recently hatched crawlers. Pay particular attention to the folds, crotches, branch bases, midrib areas, and roots. Spraying the alcohol with a misting bottle or small pump sprayer is effective, but dribbling alcohol into tight areas is necessary.

Many home growers will also mix-in a small amount of mild liquid dish detergent, and sometimes mineral oil, neem oil, or horticultural oil. One recipe for a 1.5 liter spray bottle is to mix a 50:50 solution of isopropyl and water, with a few drops to about a teaspoon of liquid soap to act as a spreader, and a teaspoon of one of the oils. But, it seems that every grower has their own proportions of these ingredients, none of which seem to work significantly better than another. Caution is urged, however, as excessive amounts or too strong of a detergent, or use of an ammonia-based chemical cleaner may damage your plants, particularly buds and flowers. This is particularly true of dish-soaps and household detergents that could remove natural protective waxes from plant tissues. Also, spraying of alcohol is not always effective against eggs which are often well hidden, hence the need for thoroughness and repetition.

A potential problem with alcohol treatment that is occasionally reported may be chilling of the plant. The rapid evaporation of alcohol cools the plant tissues. Especially with air movement that increases evaporative cooling, this chilling is suspected of over-cooling tissues and creating zones of dead cells that can become necrotic with bacterial or fungal infestation. On warm days with a fan blowing consider wiping any residual alcohol with a tissue instead of permitting it to evaporate off the plant.

Repotting

Even a light to moderate infestation of mealybugs should be of concern. These insects like to move into the potting media and feed on roots, or move off of the plant to find hiding places to lay eggs. Unless the roots are checked and the media changed, removal of mealybugs from only the upper plant portions is not a guarantee of success. The potting medium can harbor eggs and crawlers, so dispose of it in a compost pile or in the garbage. When repotting, a close inspection, and if necessary a very gentle cleaning and spraying of the roots before repotting is essential.

Oils and Soaps

Horticultural oil, neem oil, mineral oil, and insecticidal soaps are effective for mealybug suppression. The oils and soaps are often regarded as "organic" or non-chemical methods, but this is a misconception or an extremely broad and nearly meaningless concept of "organic." Indeed, neem oil is extracted from the neem tree, but horticultural oils and mineral oil are petroleum distillates. Likewise, insecticidal soaps are a solution of synthetic pyrethroids mixed with a mild detergent that is made from petroleum products. However, all of these solutions are generally considered safer for humans, pets, and plants than usual insecticides. None provide absolute control over mealybugs, but frequent use during the presence of crawlers can serve to reduce their populations dramatically.

Horticultural, mineral, or neem oil solutions smother the insects, so complete coverage of all sprayed plants is essential. These oils are mixed with water and usually a plant-safe detergent for enhancing the spreading and sticking of the oil. The main caution with these oil solutions is that they should never be applied to plants on hot days (>85deg.F) or in direct sunlight, as to prevent burning of tissues. Leave the plant in shade until the application has dried. Unpublished anecdotes suggest that the flowers of some orchids are sensitive to neem oil, such as species of *Miltonia* and *Masdevallia*.

Insecticidal soaps are usually solutions of a synthetic pyrethrin and a plant-safe detergent. As with oils the detergent acts as a surfactant and spreader for dispersing the pyrethrin evenly, and as a mild caustic against the insects. Also, to prevent sunburning apply the chemical and allow it to dry in shade. Pyrethrins are synthetic analogs of pyrethrum, the natural extract from certain Asteraceae. Caution should be urged with so-called "safe" insecticidal soaps as some plants are sensitive, particularly tender new tissues. Some non-orchid ornamentals will drop leaves and abort flowers when sprayed with insecticidal soaps, so caution is urged with prized orchids.

Insecticides

Persistent populations of mealybugs or infestation in many plants may demand the need for use of synthetic insecticides. There are several common, inexpensive, home-and-garden use pesticides labeled for ornamental plants. Insecticide formulations not labeled for ornamental plants are often mixed with solvents that aide in the application of the active ingredient for specific purposes. These solvents, not necessarily the insecticide itself, often produce phytotoxicity and may seriously damage or kill plants. Thus, never use any insecticide that is not specifically labeled for ornamental plants. Some of the more available and effective insecticides that come in various brand names are acephate (e.g., orthene), malathion, carbaryl, and diazinon. Pyrethrins and rotenone have limited effectiveness. Of course, always follow label directions and never exceed the minimum recommended concentration given in mixing directions! Recommended solutions are based on extensive testing for selected pests and plants. Orchids are tough plants, but are sensitive to many chemicals, particularly under direct sunlight or high heat, and while certain species may not react to a given formulation others may, so testing is justifiable.

Some insecticides are occasionally discontinued for use because of some discovered hazard. For example, Cygon used to be available, but it no longer recommended and labeled for orchids because it will damage many plants, especially the buds and flowers, and is extremely hazardous to use. Although most insecticides with discontinued labels are legally allowed to be "used up", it may be best to dispose of such chemicals rather than continue their use and risk damage or loss of plants, or increase your own health hazard.

Most home orchid keepers and growers in northern states that need to apply insecticides during inclement weather need special care for applications. If you cannot spray out of doors, place your plant(s) inside a large plastic bag (remove the bag after the spray has settled!) and let the plant ventilate where the fumes will not be wafted around the house or work area. Again, you may have to consider removing the potting medium, spraying the plant, and repotting it with new media in a clean pot when the spray has dried.

Growth Regulators and Chitin Inhibitors

These classes of insecticides have great potential for use in orchid pest management. Growth regulators are relatively expensive, but the cost per application is less than botanical oils.

Kinoprene (tradenname = Enstar) is a synthetic form of juvenile hormone which is highly important in insects at critical stages of their metamorphosis. The use of kinoprene interrupts the normal development of the insects, including mealybugs, scales, aphids, and whiteflies. This insect hormone appears safe for humans and pets under usual use precautions. Reports of its use in greenhouses and home collections suggest that this may be the best new generation pesticide for controlling many orchid pests, including mealybugs.

Bifenthrin and other growth regulators are also available for use on ornamentals, but little information is available for orchids.

Azadirachtin (tradenames = Azatin and Neemazad) is a plant derived chemical that is a chitin inhibitor. Chitin is a primary compound used by insects when developing their integument, or exoskeleton. Azadirachtin reduces the insects' ability to properly develop its integument and causes mortality through incomplete development. There is little information available on this chemical for use on orchids, but it is available on a wide variety of ornamentals, is labeled for greenhouse applications, but may be too expensive for most home greenhouse uses.

Biological Control

There are many parasitic wasps and various predatory insects that feed on mealybugs outdoors, but these species are rarely of value in a greenhouse, or in the home. Usually for the small collection orchid keeper the use of biological control agents is not effective. However, the keeper of many plants in a greenhouse or a grower may wish to consider the use of one or more parasitic or predatory insects to help keep mealybugs under control. As in all biological control efforts eradication is not possible. Also, anyone wishing to use biological control agents needs to balance their use with proper timing or avoid the use of insecticides so as not to kill the beneficial insects.

Biological control agents that are available commercially include a variety of tiny parasitic wasps, brown lacewings, green lacewings, and lady beetles. Montrouzier's lady beetle, or mealybug destroyer, *Cryptolaemus montrouzieri*, is highly effective for control of mealybugs in greenhouses.

Final Considerations

Heavy infestations of mealybugs, especially on many plants may require severe control methods using insecticides. On the extreme side if you have a plant showing signs of decline from scale you may have to seriously consider destroying that plant, as the low likelihood of rejuvenating that plant may not justify the expense and effort of continued treatments. Too, destruction of a sick plant can be used to justify the purchase of a new and healthier plant!

If you are battling mealybugs for long periods of time (e.g., >9 months) and have been using the same insecticidal control method then you probably developed a resistant population. The best resolution to this is to change methods and chemicals occasionally; that is, do not use the same chemical mix more than 3-4 times sequentially. After isolating infested plants give them a thorough application of something different from what you have been using. For example, if you used insecticide then switch to an oil, soap, or different insecticide. Resistance is not a problem with growth regulators, such as kinoprene.

Generally, never use an insecticide not labeled for ornamental plants. Whenever using oils, soaps, and insecticides, be thorough, change formulations frequently, and do not use less than the minimum concentration of mixture. Too little of a chemical enhances resistance, while too high of a concentration may damage the plant. Never use chemicals prophylactically, that is do not routinely use chemicals as a preventative as it is a waste of chemical (and money!) and such use allows resistant mealybugs to develop. Finally, keep up the manual removal of all mealybugs, if possible.

Mealybugs are an excellent example of pests that are easily transported and create tremendous problems. Although most orchid keepers in North America obtain their plants from conscientious growers in either Canada or the U.S., many persons do purchase plants while traveling or from questionable sources. Everyone needs to be aware of the great potential of inadvertently dispersing species to new areas, particularly from international originations. There cannot be enough stress placed on the recommendation that all plants come from a reputable and quality grower, and are clean of pests.

Editors Note: This article has been reprinted with the permission of the author, Dr. Paul J. Johnson, PhD, Professor of Entomology, Curator of Severin-McDaniel Insect Research Collection, Coordinator of the South Dakota Natural History Collections and Biological Survey, South Dakota State University.

OSA December 2008 Calendar

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 <i>OSA Holiday Auction 7:00 PM</i>	2	3  <i>Connie Skinner</i>	4  <i>Janet Jurn</i>	5	6
7	8  <i>Bev Tall</i>	9  <i>Shirley Engberg</i>	10	11	12	13
14 <i>Joint Board Meeting 1PM</i>	15  <i>Alex Arce</i>	16	17	18	19	20
21  <i>Doug Baldwin</i>	22	23  <i>Pam Albright</i>	24		26	27  <i>Janella Bacik</i>
28	29	30  <i>Jennifer Schmitt</i>	31			



Orchid Society of Arizona

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December 2008 Newsletter