

## **NEWSLETTER** Volume 1 Number 2 February 20, 2011

## 2011 Calendar of Events

http://www.palomar.edu/arboretum/calendarEvents.htm

### Free Workshops & Lectures are Open to the Public!

Saturday, February 26

THE SEX LIFE OF FIGS: THE COEVOLUTION OF A TREE AND A TINY WASP

with Botanist Wayne Armstrong

9:00 am - 11:30 am

**Room:** NS-259 (Natural Sciences Building -San Marcos Campus)

The Sex Life Of Figs: The coevolution of the fig tree and its remarkable pollinator wasp. There are approximately 850 species of figs (Ficus) and they all have their own species of "in-house" pollinator wasp. In chapter 10 of *Climbing Mount Improbable* (1996), Richard Dawkins refers to this subject as "the most difficult and complicated of all my stories."

## RSVP Tony Rangel by Feb. 24th if you plan to attend this lecture.

Please email: arangel@palomar.edu • (760) 744-1150 x2133

Saturday, March 26

#### A BEGINNER'S APPROACH TO GROWING PALMS IN SOUTHERN CALIFORNIA

with Joe Dombrowski - Discovery Island Palms 10:00 am - Noon

**Room:** NS-259 (Natural Sciences Building -San Marcos Campus)

This workshop will cover basic care and propagation techniques for Palms ideal for the Southern Californian landscape. We will cover soil types (ideal and not so ideal). Proper fertilizers and their uses. Light and temperature requirements as well as proper container culture and landscape uses. A tour of the some of the campuses landscape specimens will follow the 1hr long lecture.

RSVP Tony Rangel by March 24th if you plan to attend this lecture.

Please email: arangel@palomar.edu (760) 744-1150 x2133

Saturday, April 2 A BEGINNER'S APPROACH TO GROWING CYCADS IN SOUTHERN CALIFORNIA with David Minks 10:00 am - Noon Room: NS-259 (Natural Sciences Building -San Marcos Campus) This workshop will cover basic care and propagation techniques for Cycads ideal for the Southern Californian landscape. We will cover soil types (ideal and not so ideal). Proper fertilizers and their uses. Light and temperature requirements as well as proper container culture and landscape uses. A tour of the some of the campuses landscape specimens will follow the 1hr long lecture. **RSVP Tony Rangel by March 31st if you plan to attend this lecture**.

Please email: arangel@palomar.edu (760) 744-1150 x2133

### Saturday, April 23 🥣

ARBORETUM BEAUTIFICATION DAY

9:00 am - 3:00 pm

Meeting at the Patron's Pavilion in the Arboretum

RSVP Tony Rangel by April 21st if you plan to attend the Beautification Event.

Please email: arangel@palomar.edu (760) 744-1150 x2133

### Tuesday, April 26 🤜

INTERNATIONAL CACTUS & SUCCULENT SOCIETY TOURS

with Dick Henderson, Garden Manager Cactus Garden (Gate near the Comet Circle Entrance)

Due to the size of the tour group, the event will not be open to the general public. However the garden will be open by appointment after the tour.

http://www.sdcss.net

San Diego Cactus & Succulent Society For more information call: Mr. Henderson at (760) 480-4181

## Saturday, May 7 🤫

COASTAL SAGE SCRUB WALK

with Botanist Wayne Armstrong 9:00 am to 11:30 am

#### Meeting in front of the Arboretum Entrance

The coastal sage scrub is a unique wildlife habitat in southern California composed of many species of plants and animals. Although it once covered vast areas of coastal San Diego County, it has been greatly reduced to small, isolated areas, primarily due to extensive urbanization during the past three decades. It is quite distinct from chaparral and is considered an endangered plant community. See coastal sage scrub link on Wayne's Word:

http://waynesword.palomar.edu/arbimg8.htm RSVP Tony Rangel by May 5th if you plan to attend this walking tour. Please email: arangel@palomar.edu

(760) 744-1150 x2133

### Saturday, May 21 🥣

THE INS AND OUTS OF GROWING TOMATOES (AND OTHER VEGGIES) with Richard Borevitz.

Owner of Agricultural Irrigation Systems, Inc for 33 years. 9:00 am to 10:30 am Room: TBA

The Gardening Guru will answer your deepest veggie questions. Mr. Borevitz will be concentrating on tomatoes for this lecture. (varieties, disease resistance, pruning, staking, watering, fertilizing and tomato pests) With a little help, you can be on your way to a beginning in growing many of your own vegetable crops. Mr. Borevitz is the owner/operator of Gourmet Gardens for over 16+ years and a seed distributor for over 30 years.

## RSVP Tony Rangel by May 19th if you plan to attend this lecture.

Please email: arangel@palomar.edu (760) 744-1150 x2133

## Thursday, May 12 🤝

MEMBERS APPRECIATION DINNER

#### 5:00 pm to 7:00 pm

Location: Patron's Pavilion in the Arboretum RSVP Tony Rangel by May 10th if you plan to attend this dinner.

Please email: arangel@palomar.edu (760) 744-1150 x2133

Saturday, June 4 🛛 🏹

CACTUS AND SUCCULENT CARE WORKSHOP with Dick Henderson, Garden Manager

10:30 am - 12:30 pm

#### Meeting in front of the Cactus Garden Gate (Comet Circle Entrance)

The cactus and succulent garden, located at Comet Circle Drive and Mission Road, offers about 3,000 varieties of plants from around the world. The workshop will include a tour of the garden, a discussion of the use and history of the plants and the basics of succulent plant care. We will then take cuttings of "easy to grow" succulents, pot them, and you can take the plant home.

#### The Amazing Fig & Its Wasp

the late 1960s, many of the old brick buildings on campus were covered with creeping fig (Ficus pumila), giving the campus a beautiful "ivy-league" appearance resembling the Engish ivy (Hedera helix). I began studying figs at that time, and after 40 years of teaching botany classes, I have concluded that the figs (Ficus) are the most remarkable trees on earth. The On-Line Plant List of Kew & Missouri Botanical Garden gives 830 accepted species for Ficus, and they all have their own in-house pollinator wasp. Most species are evergreen and occur in rain forests throughout the tropics. They are a major factor in tropical ecosystems, providing sweet fruits for numerous animals, including parrots, hornbills, toucans and monkeys. Fruit-eating bats commonly disperse the seeds in their excrement, and seedlings often start out as epiphytes on branches high in the rain-soaked canopy. The common edible fig (F. carica) is deciduous and extends north into temperate regions of Europe and the Middle East. The many uses of figs by people is legendary, and there is good evidence that the common fig was one of the earliest cultivated trees. Depending on the reference, there are an estimated 400+ cultivated varieties of the common fig.

All figs rely on tiny symbiotic wasps for their pollination. Minute male and female fig wasps are borne inside hollow, fleshy, flower-

bearing structures called syconia. The syconium is what most people associate with the tasty fruit of a fig, but technically it is not a true fruit. The syconium is lined on the inside with hundreds of tiny male and female flowers. The flowers are greatly reduced and do not have petals. Male flowers consist of pollenbearing anthers. Female flowers are of two types: Long-style, seed-bearing flowers and short-style flowers that bear fig wasps instead of seeds. Wasp eggs are not laid in the ovaries of long-style flowers because the wasp's ovipositor cannot reach the ovary.



All fig species have one or more pollinator wasps that enter their syconia through a small opening called an ostiole to pollinate the female flowers inside. Without the symbiotic wasps transferring pollen from one syconium to another, the female flowers inside would not get pollinated and no seeds would be produced (a catastrophe for the fig tree). There are also nonpollinator (bogus) fig wasps who oviposit directly through the syconium wall. In the common edible fig, the female wasp gets covered with pollen as she exits the male caprifig. In many tropical fig species, the wasp packs her pollen baskets (corbiculae) on the underside of her thorax before leaving the syconium. When she enters another receptive syconium, she transfers her load of pollen to the female flowers inside. I have observed this latter scenario many times on rustyleaf figs on campus. Hopefully some of these wasps have made their way to the Arboretum.

In about half of the fig species (referred to as monoecious), male flowers and the long and short-style female flowers occur in the same bisexual syconium; but in all other fig species (referred to as dioecious), the seedproducing, long-style female flowers only occur in unisexual syconia on female trees, while pollen-bearing male flowers and wasp-bearing, short-style female flowers occur in the same syconia on male trees. This latter arrangement is typical of the common fig. In fact, early fig growers in California's San Joaquin Valley were puzzled why their imported Smyrna figs would not set fruit. The trees didn't have their symbiotic wasp from Asia Minor and dropped their crops of unpollinated syconia.



A. Male & winged female fig wasps next to sewing needle. B. Bogus fig wasp.

There are many cultivated "parthenocarpic" varieties of the common fig in which the syconia develop on female trees without wasp pollination. The ripe syconia are fleshy and edible; however, the numerous ovaries (drupelets) inside are hollow and seedless. Examples of these varieties include 'Brown Turkey,' 'Mission' and 'Kadota.' The remains of parthenocarpic fig syconia in ancient settlements of the Jordon Valley indicate the people recognized natural parthenocarpic trees and propagated them by cuttings more than 11,000 years ago. According to fig connoisseurs, pollination produces a more delicious fig with a superior nutty flavor due

to the seeds. In fact, the best fig newtons come from wasp pollinated 'Calimyrna' fig orchards in Fresno and Madera Counties. Most of the trees are female, but growers also maintain small groves of wasp and pollen-bearing male trees called caprifigs. The prefix capri refers to goat, and these inedible figs were fed to goats in the Old Word.



The Palomar College Arboretum has over 20 species of figs (Ficus), including the Palmer fig (F. palmeri) native to Baja California, the sacred Bo tree (F. religiosa) native to India, the sycamore fig (F. sycomorus) cited in the Bible, the large-leaved Roxburgh fig (F. auriculata) native to the Himalayas, and the remarkable F. dammaropsis from New Guinea with syconia the size of a baseball. We have several large specimen trees, including the Moreton Bay fig (F. macrophylla) native to Australia and the Mysore fig (F. mysorensis) native to southern India. Some of the figs in our collection are "stranglers" in their native habitat. They completely wrap around a host tree like a giant botanical boa constrictor, eventually shading out and replacing the original tree. Other trees are banyans in their native habitats, with numerous prop roots hanging down from the spreading limbs.

The fig story is very complex and literally thousands of peer-reviewed articles have been published. For more information on the fig and fig wasp, please refer to the Wayne's Word Fig Index at http://waynesword.palomar.edu/ figlinks.htm.





### A Letter From the VP of Membership: Why become a member of the Friends of the Palomar College Arboretum?

The success of a campus Arboretum depends on funding and volunteers. During the past 40 years, many people have contributed their time and money to this endeavor. As of January 2011, our Arboretum is finally looking like a real botanical garden. It still needs a lot of work, including wheelchair accessible trails and an irrigation system. With the addition of the Cactus and Succulent Garden, a campus landmark dating back to the early days of Palomar College, the Arboretum has become an impressive botanical collection. But all of this would have never occurred without dedicated people who really cared about the future of Palomar College.

There are numerous advantages to a campus Arboretum: It is a beautiful botanical garden with walking trails and benches, a place for outdoor lectures within walking distance of campus classrooms, a quiet and relaxing study and picnicking area for students and staff. The sciences, photography, physical education, anthropology, art, performing arts, and communication classes have used the Arboretum as a place for field trips and research. The valuable coastal sage scrub preserve and archeological sites, exchange programs with other botanical gardens have enriched student learning.

Today, more than ever, we need members to insure that the Arboretum develops into a first class botanical garden. Please join the Friends of the Palomar College Arboretum! In addition to your tax deductible membership, here are a few additional benefits:

Free annual campus parking permit for community members (Note: You can only be enrolled in no more than 1 class a semester to qualify for the free parking permit.)

- Free workshops, tours, lectures, events and activities
- ≱ 10% discount at Arboretum plant sales
- Quarterly newsletter
- >> Members only annual dinner

100% of your donations and membership fees benefit the Palomar College Arboretum. Generous donations and membership fees are also used to employ student workers in the Arboretum. Visit our website to find out more about the Friends of the Palomar College Arboretum!

#### http://www.palomar.edu/arboretum/ Friends of the Palomar College ARBORETUM http://www.palomar.edu/arboretum/ Thank you for your future support, Mrs. Elaine Armstrong, VP of Membership earmstrong@palomar.edu (760) 744-1150 ext. 2644

Calendar continued from page 1

RSVP Tony Rangel by June 2nd if you plan to attend this workshop. Please email: arangel@palomar.edu (760) 744-1150 x2133

Saturday, June 11 DISCOVER THE PLANTS OF PALOMAR COLLEGE WALKING TOUR with Tony Rangel 10:00 am - Noon

# Meeting in front of the Theater entrance (Howard Brubeck)

This tour will start at the Theater, then walk throughout the campus and end in the Cactus and Succulent Garden, allowing attendees to discover the great Diversity of Plants here on campus. We will touch on some history of where the plants came from, how often they have been moved or trimmed and the reasons for having such a diverse collection of plants on a community college campus.

RSVP Tony Rangel by June 9th if you plan to attend this tour.

Please email: arangel@palomar.edu (760) 744-1150 x2133

### Saturday, July 16

PLANTING WITH CHILDREN (AGES 9 AND UP) with Dick Henderson, Garden Manager 10:00 am - Noon

Meeting in front of the Cactus Garden Gate (Comet Circle Entrance) For kids 9 and older and kids at heart (the parents/guardian) We would like a parent or responsible adult to attend with the child/children.

The workshop will include a tour of the garden, a discussion of the use and history of the plants and the basics of succulent plant care. We will then take cuttings of "easy to grow" succulents, pot them, and you can take the plant home.

RSVP Tony Rangel by July 14th if you plan to attend this workshop.

Please email: arangel@palomar.edu (760) 744-1150 x2133

#### Saturday, July 30 BASIC TREE TRIMMING WORKSHOP

with Tony Rangel and Todd McGurn

10:00 am to 1:00 pm

#### Meeting in front of the Arboretum entrance

This work shop is intended to educate home owners on the proper trimming techniques for small garden and lawn trees. We will begin with a quick tour of some of the large and unique specimens on campus. This will allow attendees to look at the diverse growth habits and growth rates of various trees species, including palms. Along the walk we will discuss proper trimming techniques with respect to growth rates and growth habits, as well as when and why to trim trees. The last hour attendees will get a chance to see exactly how to trim your trees at home. There is no good substitute for the hiring of a professional, such as a Certified Arborist or a Certified Tree Worker to trim your trees, particularly when you are dealing with a large specimen. However, when armed with some basic tree trimming knowledge you may be empowered to make the proper decisions on how to care for your trees.

## Free parking in Parking Lot 5. (during this workshop time and day only)

RSVP Tony Rangel by July 28th if you plan to attend this workshop.

Please email: arangel@palomar.edu (760) 744-1150 x2133

### Saturday, August 13

BASIC PLANT IDENTIFICATION LECTURE with Botanist Wayne Armstrong 10:00 am to Noon

Room: NS-259 (Natural Sciences Building -San Marcos Campus) and the Arboretum ...



The rest of the Calendar can be viewed on the Friends of the Palomar College Arboretum Website:

http://www.palomar.edu/arboretum/

Membership Application for the         Friends of the Palomar College Arboretum         Date:         Mr. and Mrs. / Ms. / Miss / Mr. / Mrs.         Name:         Student & Senior 60+: \$10         Individual: \$20         Family: \$40         Founding: \$125         Sustaining: \$500         Corporate Museum Associates: \$1,000         Donation         \$		
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