

Oak Notes

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November 2018

NEWSLETTER OF THE RANCHO SANTA ANA BOTANIC GARDEN VOLUNTEERS

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OAK NOTES

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FROM THE PRESIDENT

Cindy Walkenbach, Volunteer President

"Volunteering is the ultimate exercise in democracy. You vote in elections once a year, but when you volunteer, you vote every day about the kind of community you want to live in."

—Author Unknown



Early in October on a lovely evening, your Volunteer Organization sponsored the Sunset Social, its first-ever meet-and-greet event for new volunteers. Lucinda provided an engaging welcome to our newest team members, and they had a chance to meet us in a relaxed, casual setting before the hustle and bustle of the month's activities began. If you were

not able to join us, we'll certainly do it again when a new class of volunteers comes on board.

By the time you receive this November edition of Oak Notes, it is possible that some of you may have volunteered more hours during the month of October than any single month previously. We have school tours; Things That Go Bump in the Night and all the preparation that goes into making that annual event a success; Origami in the Garden², that fabulous exhibit that has required lots of preparation, training, know how on folding paper, and being able to conduct specialized tours; the Fall Plant and Bake Sale. Wow! I have probably forgotten something. All of these activities require countless hours from staff and volunteers, and I have really appreciated and admired the "can do" spirit with which you have stepped up to assist staff and make all of these things happen so beautifully.

The deadline for articles to be submitted for the December 2018 issue of OAK NOTES is Thursday, November 15. Thank you for your prompt submission!!

Please don't forget the first field trip of the year to the Whitewater Preserve near Palm Springs on Saturday, November 10. "Leave the driving to us" and take the van(s) for \$10 per person roundtrip. Sign up at the Kiosk if you plan to go. Family and friends are welcome. This is a wonderful opportunity to enjoy a beautiful area and the camaraderie of your fellow volunteers.



**FROM THE
DIRECTOR**
Lucinda McDade, RSABG
Executive Director

Greetings RSABG Volunteers!

As I write, we are celebrating a super successful "Things that Go Bump." We had about 1300 guests (including an estimate for those 3 and under who are admitted free of charge) plus, of course, lots of terrific volunteers and staff. It was not *at all* without exciting and unexpected events as a thunderstorm arrived to celebrate the last hour of the event on Friday and then it drizzled most of the day on Saturday. Ever agile and creative, staff and volunteers stepped right up to manage the unexpected events.

Of course, we are celebrating the rain which, at more than 0.9 inches, was considerably more than anticipated. In their own quiet ways, our plants are relishing the moist soil conditions and also no doubt are glad—looking better in any event—to have had a wash off! Our long summer dry seasons are tough.

Let me back-up before continuing forward: it was nice to see so many of you—including so many of our newest volunteers—at the Sunset Social a couple of weeks ago! What an elegant way to welcome this year's class and begin the important process of fully integrating them into the RSABG corps of volunteers. Many of you know that this event was supported by our Halo grant—the grant that was awarded to the Garden and your president, Cindy Walkenbach, by the Deutsch Foundation. The specific purpose of

the award is to support and strengthen our volunteer program. The grant is also supporting the process of going digital: converting from our paper time-keeping system for volunteers to the Volgistics software on iPads (and special thanks to all of you for embracing that shift).

*Origami in the Garden*² came to town at the end of the first week in October in the form of a mostly white trailer that simply sat enigmatically on the gravel lot until the week of October 15, when exhibit staff arrived to begin the unpacking and installation process. It has been great fun to see the sculptures emerge from the trailer and take their places around the Garden. Volunteers responded marvelously and a number of you worked right alongside staff (both RSABG and Origami) on the installation. The install outdoors was completed ahead of schedule, and the

staff here from Box Studio credit you volunteers with that, saying that you are the best they have worked with! Of course, I and the rest of the staff here at RSABG already knew that!

If you are curious, ask David or me about how we had to wade through water to get the waders that are stored in a room below the Volunteer Library.

The waders were used by the member of the Box Studio team who got the job of going into Benjamin Pond to install "Paper Navigator."

Remember that there is also an indoor portion to this exhibit where some of the back story will be told and smaller origami items will be displayed. Here, too, volunteers stepped right up to help get the space newly painted (red!) and ready for the exhibit. Most of the painting happened on Sunday—Yes, Sunday after the BUMP event had earned everyone a day off and then some. But no: one can always rest later whereas you may never again get the chance to paint the gallery red!

I took the opportunity to take a walk after hours to see the installation and it is marvelous! It is going to be a great deal of fun having these origami sculptures among us for the next six months.

*Trees love to toss
and sway; they
make such happy
noises.*

—Emily Carr, 1871–1945,
Canadian artist

Also coming soon: new signs! Watch for a new sign near the Foothill and College Avenue intersection; watch for banners on the light posts in the village area. Also watch for a new sign “station” near the entrance. This sign “station” is designed for flexibility using the same magnet system that our new moveable signs use. For these great developments, accolades are due to David Bryant (who has also been working like a fiend on the Origami installation for several days).

The GNN opens very shortly under the management of Eli Feldman. Many of you know Eli from his work in the nursery. Eli knows our stock very well and is enthusiastic about taking on the job of steering the GNN to profitability. It is not yet completely set-up but, 10 days out, a lot of the plants are in place and they look spectacular! The nursery stock looks just terrific and I pretty much wanted one of everything.

Volunteers needed! We need volunteers in all of the usual areas of our Garden of course, but now that the GNN is opening, consider taking a shift there. You do not need to be an expert in native plants. You can readily learn the “filing” system for plants on the sales floor and serve as guide. Also, simply talking to customers as they await service by a staff member will help to keep them shopping. Already know Retail Pro? You can help with checkout. Speaking of Retail Pro, we are also seeking Gift Shop volunteers (and stay tuned for news about staffing there shortly). Gift Shop volunteers are very important at RSABG as they also serve a role in welcoming our guests and directing them to locations other than the gift shop. And friendly staff pass by frequently to keep things interesting.

By email a week or so ago, I sent a message thanking you in advance for all that you will be doing in this season of plenty when it comes to volunteer work opportunities. A reminder here to pace yourselves and avoid burn-out. Step back when you need to so that you may return refreshed and ready for more Garden fun!

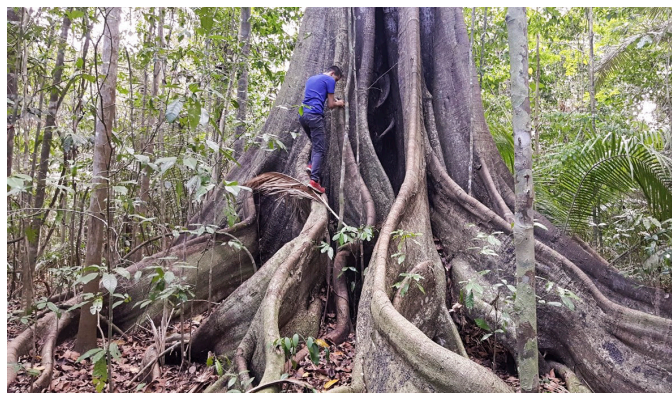
I hope to see you admiring your favorite origami sculpture along a Garden trail soon!

VOLUNTEER ENRICHMENT: WASPS THAT HAVE POCKETS & FIG TREES THAT STRANGLE

Linda Clement, Enrichment Committee

Please join us on Monday, November 26 at noon in the East Classroom to hear Nicolas Medina of Claremont Graduate University speak about wasps that have pockets and fig trees that strangle.

“Figs are a diverse group of trees, shrubs, climbers, and stranglers that have a fascinating pollination system. Tiny wasps are in charge of carrying pollen from one tree to another in a very tight relationship that began more than 60 million years ago. Wasps have to lay their eggs inside the flowers of figs for the offspring to develop. In my talk, I will explain the intricacies of this mutual interaction and the complex biology of figs. I will also talk about my doctoral project that is focused on fig-stranglers and involves fieldwork in seven countries and the sequencing of a genome. My research is a critic to the traditional view of the fig-wasp mutualism, in which each species of tree has its own species of pollinating wasp, and mistakes in this interaction result in penalties to the wasps or hybridization of the figs. I study whether pollination mismatches have caused hybrid speciation, acted as a bridge to transfer genes and adaptations between taxa, or only represent evolutionary dead ends.”



See you Monday, November 26 at noon in the East Classroom for this program. You are welcome to bring your lunch, and the usual coffee, tea, and cookies will be provided.



TOURING PROGRAMS

Judy Hayami,
Touring Programs Manager

Looking like giant fireflies invading the Garden, flashlights galore flitted around for the two nights of *Things That Go Bump in the Night*. Things were buzzing along smoothly on Friday, until thunder, lightning and rain triggered a mass exodus just after 8 p.m. The owls from Wild Wings of California didn't give a hoot. Damu, the wolf ambassador from Project Wildsong, didn't raise a hair. We humans, however, were quite excited by the sudden change in the weather. Saturday afternoon, under still-gray skies, we relocated many stations and rebooted for the second night. Approximately 1200 guests, total, attended the event. From the smiles I saw and comments I heard, it was a great success. Thank you, Volunteers, for all aspects of event support that began the week after Bump 2017 and continues now with preparations for 2019.

The next educational family event is the Acorn Festival, November 18 from 11 a.m. to 3 p.m. This special day celebrates the season of the acorn harvest and focuses on traditional uses of native plants by Native Peoples. Tongva friends contribute to the day with dance, song, culture displays, jewelry and crafts for sale, and a wealth of knowledge to share. There are many opportunities for volunteer assistance. We need help with setup, short tours from the entrance to the Tongva village (great practice for new Nature Interpreters), simple basket weaving and small pump drill operation. Training is provided, so you can teach families at the Festival. If you can play Cat's Cradle with a piece of string or make a simple paint brush from a piece of yucca, we need you! Event orientation is scheduled for Friday, Nov. 16 at 1 p.m.

The new Nature Interpreter class is underway. Current Nature Interpreters are welcome to drop in on any class for review. Remaining class dates: Wednesdays, November 14 and 28, December 5 and 12, 8:30 a.m. to 12:30 p.m.

Please continue to review the online NI tour calendar or check the tour boards frequently. PLOPPERS, Team members and Team Captains, thank you for your team spirit and reliability. If you are a Sign-Up

IN MEMORIAM: BOB LONCAR, CLASS OF 2002

Kathleen Noll



RSABG lost long-time volunteer, Bob Loncar on September 23. Bob began volunteer service at the Garden as a member of the class of 2002 and is remembered as a Trail

Steward — a volunteer group tasked with plant identification for visitor interest and education, as well as serving as Nature Interpreter, tram driver, setting up quarterly luncheons and the annual fall plant sale. Bob was awarded Associate Alumni volunteer status in December 2016. Bob was always at the Garden with his life partner and volunteer partner, Marga Loncar. We will miss Bob very much.



A Very Happy November Birthday to:

Amy Baumann	Karen Lent
Janice Bishop	Daryl Mixon
Fred Brooks	Patty Nueva Espana
Betty Butler	Joan Presecan
Donna Chadwick	Jean Rosewall
Barbara Coates	Marilee Scaff
Susan Copeland	Dean Shimek
Louise Gish	Anthony Sutrisno
Virginia Herd	Jenny Uyboco
Chris Ilgen	Tom White

NI, please do not hesitate to sign up as soon as you see an opportunity that fits your schedule.

Thank you for all you do!

–Judy



REMEMBER...

Sign up for the **Annual Bake Sale** at the Fall Plant Sale by emailing Melissa Smith at melissasmith51@gmail.com.



VOLUNTEER PROGRAMS

Kathleen Noll, Manager of Volunteer Programs

Thank you, everyone for volunteering for Things that Go Bump in the Night, Origami in the Garden² and the Fall Plant Sale. It has been a whirlwind of activity in the Garden this fall and we count ourselves lucky to have a superbly dedicated corps of volunteers!

Many of you are already settled into your niche here, but there are more volunteers awaiting the chance to find their ideal spot in the Garden. Please keep your eye on Oak Notes and emails that come your way about areas of the Garden that intrigue you. We want to make sure you find your way to volunteer experiences that are not only helpful to the Garden, but also fun for you! Please stop by the volunteer office to chat or send an email if you are looking for regular ongoing volunteer opportunities. Presently, the Garden is in need of tram drivers and gift shop assistants. We will be holding trainings in both of these areas very soon! Stay tuned for details.

Save the Date:

Acorn Festival: Sunday, November 18, 11 a.m.–3 p.m., free with admission. Event orientation is

on Friday, November 16, 1 p.m. at the Tongva Village site.

Welcome New Volunteers! RSABG Welcomes 22 volunteers to the Class of 2019:

Chase Bledsoe	Mark Kay
Jordyn Brase	Daryl Mixon
Alec Bryson	Wendy Olvera
Drusilla Burt	Rita Ruminski
Nicholas Costello	Jessica Santavanond
Veronica Crow	Mason Song
Sofia Flores	Susan Starr
Lorraine Francis	Diego Tamayo
Martin Francis	Katina Vlastos
Laura Holbrook	Holly Yokoyama
Tom Irvin	Christine Zukowski

Coming up:

Volunteer Quarterly Business Meeting and Luncheon: Wednesday, December 5, 11:30 a.m.–1:30 p.m.

Luminaria Nights: Fridays and Saturdays, December 7, 8, 14 and 15, 6 p.m.–9 p.m.



NOTES FROM ADVANCEMENT

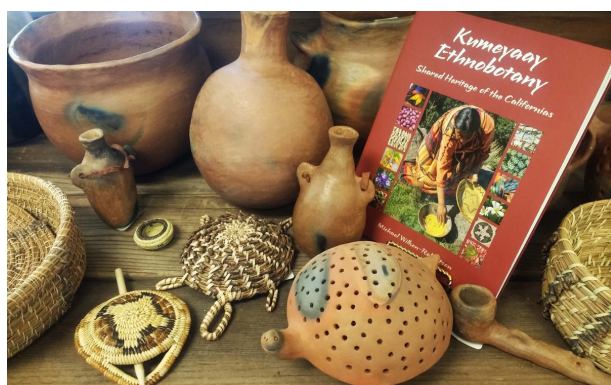
**Anne Scott-Putney,
Director of Advancement
Mastering the Garden's
Interpretive Master Plan**

Greetings, wonderful volunteers! What an exciting fall it is with all of you powerfully “making it happen” here at the Garden. I join my colleagues in thanking you for your enormous collective effort in planning for, training for, setting up, taking down, teaching and leading the exciting parade of family-friendly events at the Garden this fall.

When I asked Louise Gish what to write about for this issue, she asked me to write a bit about my recent mini-sabbatical in Slovenia. So, I will, but will use my travel tales to segue into news about an important new interpretation project that we are launching at RSABG this fall that will lay the groundwork to further enrich our visitor experience.

Perhaps you know that I took a leave of absence from the Garden from mid-August to the end of September (thank you again, Lucinda!) to join my partner for a mini working sabbatical in Lake Bled, Slovenia. Before you go any further, please consider adding Slovenia and Lake Bled to your bucket list if you enjoy travelling to slightly off the beaten path places (Slovenia is part of the former Yugoslavia) with stunning natural beauty, a strong conservation and local farming ethic, and outdoor adventures abounding. While there, I worked for an association of business schools, gaining fascinating insight into how central and eastern European countries have adapted to a free market economy by building MBA and Executive MBA programs at business schools across the region.

Yet there was still time to pursue my travel “hobby.” That hobby is to visit outdoor and cultural sites—botanic gardens, cultural institutions, parks, castles and trails—and check out the signs! That’s right, I collect photos of creative and pragmatic examples of signs, otherwise known as wayfinding signs, educational interpretation, and other creative means by which the visitor is educated and informed. My goal is to bring back creative examples that might inspire our work at RSABG.



HELP WANTED! GIFT SHOP ASSISTANT

Volunteers are needed to greet guests, perform telephone reception duties, cashier duties, interact with visitors to the administration building – be the “Face of the Garden!”

Email knoll@rsabg.org or call 909-625-8767, Ext 256.

But thank goodness the Garden has other means, too, of informing our plans for building and expanding our interpretive messages for visitors. While I was away, we received the exciting news that RSABG has won a two-year Museums for America grant from IMLS (Institute for Museum and Library Services) to embark on a process of developing our Master Plan for Interpretation. As part of the grant planning process, we were extremely fortunate to have secured two professional consultants to lead us through the interpretive master planning process. Judy Rand will serve as Interpretive Planner. Judy is a leader in the field of interpretive exhibit planning, specifically for excellence in exhibit writing. Museums use her “Visitors Bill of Rights” to help them think about visitors’ needs. She has worked with over 100 museums nationwide to guide the interpretive process. Judy is joined by consultant Jeff Hayward, an expert in audience research and evaluation for cultural and interpretive organizations, and principal of the firm People Places and Design Research. They will work with a RSABG Core Team of staff, and we will also be reaching out to volunteers for your input and assistance along the way. The first year is focused on collecting data about our audiences and developing the “Big Idea” interpretively for RSABG; the second year will be focused on developing interpretation for two exhibits where we can test and refine our ideas.

Sound like fun? Would you like to help? Feel free to send David Bryant (dbryant@rsabg.org) or me (ascottputney@rsabg.org) photos that YOU have taken at other botanic gardens or parks that feature interesting and creative signage that you found effective. Or, the next time you go to another botanic garden, observe the interpretive environment, observe how you are greeted and guided to and through the entrance, observe how important educational information is conveyed. Take some photos or take notes and let us know what you think! What works? What doesn’t work? Our Interpretive Master Planning Process will help us shape our messaging about our mission, and we will continue to let you know how you can be involved.

Thank you, and see you at the Garden,

— Anne



Whitewater Preserve Field Trip

SATURDAY, NOVEMBER 10

Meet at 8:45 a.m. in the RSABG parking lot

SIGN UP AT THE RSABG KIOSK BY FRIDAY, NOVEMBER 2

Join biologist Dr. Steve Bryant and geologist Dr. Dave Douglass in exploring the Whitewater Preserve northwest of Palm Springs. Parking at the Preserve is very limited, so **vans will be provided at a cost of \$10 per person roundtrip. Van riders must sign up and pay at the Kiosk no later than Friday, November 2.** If you wish to drive yourself, please sign up at the Kiosk so we have a count of attendees and cars. Carpooling is highly encouraged. Dress for hiking, bring a sack lunch and water. This will be a FUN trip!!

R a n c h o S a n t a A n a B o t a n i c G a r d e n
V O L U N T E E R O R G A N I Z A T I O N

LOOKING AHEAD ...

Next month Carol Lerew will begin a special series on the graduate program as part of her study on RSABG history.

NATURALIST NOTES ON BIRD MIGRATION

**Maureen Adler, Staff Naturalist
El Dorado Nature Center, Long Beach**

I love fall.

This was not always the case. Looming autumn meant returning to school, just when the comfortable groove of summer was most enjoyable. This attitude carried over into adulthood. Being at the Nature Center can adjust unfavorable attitudes, however. Anticipation and observation of migratory birds tickles the brain. Migration involves miracles!

Birds usually leave home to escape unfavorable seasonal conditions. The following are tiny fragments of the subject.

In choosing a migration route, birds use combinations of genetic knowledge, learned behaviors, sensual clues including sight, (star patterns, observing landforms and landmarks), smell (yep!) and reading the Earth's magnetic forces. Though tragedies are common and losses in the billions, the species survive and thrive despite migration hardships. The immense distances covered are shocking to human understanding.

Random facts from various sources (U.S. Fish and Wildlife Service printed works, Audubon's internet pages) yield the following:

The golden plover (a shore bird) travels over a 2400-mile oceanic route from Nova Scotia to South America in about 48 hours of continuous flight. It uses only about two ounces of fat as fuel to accomplish this.

Bar-headed geese migrate over the Himalayas at an elevation over five miles above sea level.

The emu, a large Australian bird, migrates by walking since it is flightless.

Flightless penguins migrate by swimming.

The bar-tailed godwit (shore bird) flies nearly 7000 miles non-stop in 8 days.

Fall activity suggestions: hop to your bookcase, grab your field guide, migrate to the Nature Center and fly the trails. The birds you see might have traveled unimaginable distances to land in a tree ten feet from you.

(This article was contributed by former Nature Interpreter Hugh Menton and is reprinted by permission of the El Dorado Nature Center).

ORIGAMI IN THE VOLUNTEER LIBRARY

Gene Baumann, Library Committee



A special section dedicated to Origami in the Garden² has been created in the Volunteer Library. Our hope is to provide volunteers with resource material which will edify and delight all who visit. In turn we are confident that our volunteer efforts during this exhibit will be enhanced. The special section holds pdf files related to each Origami in the Garden² display. These

files explain the artists intent for each work as well as give thoughtful reflections that invite us to deepen our response to each sculpture. Also, you may wish to view the Origami in the Garden² website at: origamiinthegarden.com.

The Volunteer Library Committee extends special thanks to David Bryant and Barbara Nakaoka for their work on this Volunteer Library project.

JOSHUA TREE (*YUCCA BREVIFOLIA* AND *Y. JAEGERIANA*)

Rudi Volti, Nature Interpreter

After entering the garden, walk through the desert region with its cacti, ocotillos, and palo verde trees. Pass Fay's Wildflower Garden on the right and you will come upon a cluster of smallish plants next to a chain-link fence. They are Joshua trees, magnificent in their native environment, but rather scraggly here. Joshua trees are California native plants to be sure, but our state has many different environments, and the setting of our garden is not an optimal one for them. The lackluster appearance of the specimens in our garden underscores the importance of a variety of environmental factors in determining whether an organism flourishes or not.

As with palms, the "tree" component of their name is a misnomer. Lacking the taxonomic features of true trees, Joshua trees are members of the agave family, the best known of which is the Agave tequilana, the primary appeal of which is contained in its species name. The common name for *Yucca brevifolia* was bestowed by Mormon settlers who arrived in this region in the middle of the 19th century. According to popular etymology, its name was derived from the tree's imagined resemblance to the Old Testament patriarch raising his arms in supplication.



Joshua trees typically stand 3–9 m. (10–30 ft.), but the tallest specimens have a height of 15 m. (49 ft.). They usually live about 150 years, although some are reputed to have lived a thousand years.

The native habitat of Joshua trees is the southern boundary of the Mojave Desert,

encompassing parts of California, Nevada, and

Arizona. It does best at elevations of between 400 and 1,800 m. (1,300 and 5,900 ft.), where temperatures are cooler and rainfall more abundant than other desert regions. It also benefits from an occasional winter freeze, which promote the growth of new branches by stimulating the flowering that follows damage to the growing end of a branch.

The key ecological relationship of the Joshua tree is its symbiotic connection with the yucca moth. No less a personage than Charles Darwin called the relationship between this moth and the Joshua tree "The most remarkable fertilization system ever described." The moth collects pollen as she lays her eggs inside the flower. She then distributes the pollen while making her rounds from tree to tree. This of course benefits the trees, but it also is essential to the moths; after the eggs hatch the larvae devour some of the seeds.

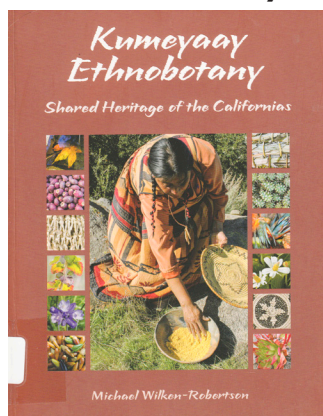
So important is this symbiotic relationship that some researchers have split Joshua trees into two separate species (*Yucca brevifolia* and *Yucca jaegeriana*) and have found that they are pollinated by two distinct species of moth, *Tegeticula synthetic* and *T. antithetica*, whose bodily shapes have co-evolved with the trees in order to fit the different dimensions of each species' flower.

In addition to being essential to the yucca moth, the Joshua tree provides food and shelter for a large variety of birds, insects, lizards, and small mammals. Humans too have benefited from the Joshua tree. Indigenous people used its tough leaves for baskets and sandals, while flower buds and raw or roasted seeds were a useful addition to their diet. Today, their appeal is aesthetic; stands of Joshua trees generate a strong visual impact wherever they punctuate the desert landscape.

As with all organisms, the Joshua tree faces major threats from climate change. Some ecological research points to a high probability that Joshua tree populations will be reduced by 90 percent of their current range by the end of the 21st century. Should this come to pass, it will have the sad consequence of eliminating Joshua trees from Joshua Tree National Park.

BOOKS OF THE MONTH

**Gene Baumann,
Volunteer Library Committee**



*Michael Wilken-Robertson,
"Kumeyaay Ethnobotany –
Shared Heritage of the
Californias" (2018, 281pp).
Sunbelt Publication, Inc.
San Diego, California*

Michael Wilken-Robertson is an experienced anthropologist who has engaged in research and advocacy

work with native Baja Californians for many years. As such, he has developed lifelong collaborative relationships with native artists and traditional authorities to foster cultural revitalization and sustainable community development. He currently teaches at California State University, San Marcos.

For more than 10,000 years the Kumeyaay traditional area stretched roughly from Escondido to Ensenada and east to the Salton Sea. Today these native populations of the northernmost part of the State of Baja California and parts of San Diego County in southern California are also known as Lipay-Tiipay, Ipai-Tipai, Diegueno, Mission Indians or Kumiai in Mexico. They are related to the Yuman family of languages and cultures. Their territory was bisected in 1848 when the border was created between Mexico and the United States.

Wilken-Robertson's excellent study of the Kumeyaay includes the following foci: Prehistoric Archaeology and Cultural Chronology; Ethnohistory; and Native Plant Usage. This is a detailed yet very readable field study which also includes field notes and appendices linked to audio and video field recordings. Of particular interest is the author's detailed description of 47 native plants and their uses. This book succeeds admirably in blending a fascinating account of Kumeyaay plant usage from the records of

early European explorers to the first-hand accounts of contemporary Kumeyaay specialists. Colorful illustrations and excellent photographs depicting plant harvesting and preparation compliment this engaging study.

Kumeyaay Ethnobotany was donated by Shaunna Gygli and can be found for check-out in the Volunteer Library.

**Amy Baumann,
Volunteer Library Committee**



"Tongva Women Inspiring the Future" by Julia Bogany, in collaboration with Gina Lamb and Media Arts for Social Justice, Pitzer College. 2017.

Julia Bogany is an Elder in Residence at Pitzer College, a Native American Consultant for Gabrieleno/Tongva, and a

Cultural Affairs Officer for the Gabrieleno/Tongva Band of Mission Indians in San Gabriel. Julia has been a tremendous resource to RSABG and has served as a presenter for Enrichment and Poetry in the Garden. Each fall she offers her expertise in support of the yearly Acorn Festival.

This book shares the stories of significant women in a style that both engages and informs the reader. The Water Women reminds us of the importance of the precious gift of water. The La Brea Tar Pit Woman serves as a "witness to the longevity of the Tongva Tribe." Julia writes that the life of Toypurina inspired her on how to help her people in today's world.

We are very grateful to Julia for donating this book to our Volunteer Library. The stories of seven strong and significant women will be an inspiration to all who read the book. You can find the book in the children's section of the Volunteer Library.

BEE VISION

Fred Brooks, Nature Interpreter

Photo by Debbie Woo



When a tour group approaches an area of bee activity, its members sometimes look at their clothing and anxiously ask, “What color are bees attracted to?” Like humans, bees see the portion of light

reflected from an object. We see light from the longer (750 nanometer) red wavelengths to the shorter (390 nm) blue-violet wavelengths. Bees see wavelengths from 650 to 300 nm, or yellow-orange to ultraviolet light. We don’t see ultraviolet light, bees don’t see red. Tell your group bees are most attracted to blue, purple and violet clothing.

Colors probably evolved in flowering plants to lure pollinators. Though the flower colors we see may visibly attract bees, many flowers also have ultraviolet markings to indicate the location of nectar and pollen. Further, the petals of some flowers appear

iridescent to bees, like the surface of a soap bubble, suggesting a food source.

Another interesting bee-related factor is the flicker-fusion threshold. This is defined as the frequency at which increasingly rapid flashes of light appear continuous, or vice versa. It also applies to individual images (frame rate), like flowers in a field. If we drive by a field of California poppies at an increasing rate of speed, individual flowers soon become an orange blur. This point of blurring, the flicker-fusion threshold, happens much faster in humans than in bees. Bees have a higher threshold and will still see individual flowers at much higher rates of speed. Bees actually see moving objects more clearly than stationary ones. This partly explains their ability to pollinate moving flowers on a windy day. It also explains why swatting at them or trying to run away is usually futile.

There are about 4,000 species of bees in the United States, of which 1,600 are native to California. Most people, however, are familiar only with the social, hive-forming, western or European honey bee (*Apis mellifera*). A majority of our native bees are solitary (nonsocial) foragers, nest in the soil or existing crevices, and are inconspicuous. Next time you are in the Garden, look for these important members of California plant communities.

NOVEMBER CALENDAR

Upcoming Volunteer Opportunities

November 10: Volunteer Field Trip: Whitewater Preserve, Saturday, 8:45 a.m., RSABG parking lot. Pre-registration required. Carpool or \$10 vanpool.

November 18: Acorn Festival: Celebrate our connections to California native people and plants, Sunday, 11 a.m.–3 p.m.

November 23: Green Friday Grow Native Nursery + Free Admission Day. Friday, 9 a.m.–4:30 p.m., GNN.

Ongoing—Meetings, Training, Classes

November 1: Volgistics Help Session, Thursday, 11 a.m.–Noon, East Classroom

November 1: Volunteer Organization Board Meeting, Thursday, Noon–1:30 p.m., East Classroom

November 3: Garden Walking Club, Saturday, 8 a.m., Admission Kiosk

November 3: Saturday Grounds Crew (**New Date, November Only**), Saturday, 8–11 a.m. Horticulture Complex

November 3: Medicinal Plants of California Herb Walk, Saturday, 10 a.m.–1 p.m. \$20 members/ volunteers (pre-registration required).

November 4: Pomona Valley Audubon Beginner’s Bird Walk, Sunday, 8–9:30 a.m., Kiosk, FREE.

November 5: Volunteer Library Committee Meeting, Monday, 10:15–11:45 a.m., Volunteer Library.

November 6: Volunteer PR Committee Meeting, Tuesday, 9:30–10:30 a.m., Volunteer Library.

November 10: Garden Walking Club, Saturday, 8 a.m., Admission Kiosk

November 10: Volunteer Field Trip: Whitewater Preserve, Saturday, 8:45 a.m., RSABG parking lot. Pre-registration required. Carpool or \$10 vanpool.

November 11: SOLD OUT: Engineering Origami by Dr. Robert J. Lang, Sunday, 12 p.m. and 3 p.m.

November 14: Education Materials Work Party (Acorn Festival), Wednesday, 9–11 a.m., Lenz Horticulture Classroom.

November 14: NI Training Session III, Wednesday, 8:30 a.m.–12:30 p.m., East Classroom

November 15: Visitor Education Committee Meeting, Thursday, Noon–1:30 p.m., Volunteer Library.

November 16: Acorn Festival Orientation, Friday, 1 p.m., Tongva Village site.

November 17: Family Bird Walk—Wild Birds Unlimited, Saturday, 8 a.m., Admission Kiosk, **Free**

November 17: Garden Walking Club, Saturday, 8 a.m., Admission Kiosk

November 17: Saturday Grounds Crew (**New Date—November Only**), Saturday, Horticulture Complex, 8–11 a.m.

November 17: Class: Ikebana Floral Arranging with Yumiko Kikkawa, Saturday, 1–4 p.m., Pre-registration required. \$40 members.

November 17: Book Signing: Cooking the Native Way—Chia Café Collective. Experience Native

American Cultures of Southern California through their foods. Pre-registration required. Details coming.

November 18: Acorn Festival: Celebrate connections to California native plants, Sunday, 11 a.m.–3 p.m.

November 19: NICE Walk (Nature Interpreter Continuing Education) Maria Jesus, Claremont Graduate University, What's Happening When it Looks Like Nothing is Happening? Monday, 10:30 a.m., Admission Kiosk—everyone is welcome!

November 21: Volunteer Personnel Committee Meeting, Wednesday, 9:30–11a.m., Volunteer Library

November 22: Thanksgiving Day—Garden Closed.

November 23: Green Friday, Grow Native Nursery + Free Admission Day

November 24: Garden Walking Club, Saturday, 8 a.m., Admission Kiosk

November 26: Education Materials Work Party, Monday, 9–11a.m., Lenz Hort Classroom

November 26: Volunteer Enrichment: F. Nicolas Medina, Claremont Graduate University, *New World Strangler Figs*. Monday, Noon–1 p.m., East Classroom.

November 28: Nature Interpreter Training Session IV, Wednesday, 8:30 a.m.–12:30 p.m., East Classroom

November 29: December Volunteer Board Meeting, Thursday, Noon–1:30 p.m., East Classroom

November 30: Volunteer Service Hours Due, Friday, 8 a.m.–5 p.m.



NEWSLETTER OF THE RANCHO SANTA ANA BOTANIC GARDEN VOLUNTEERS
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