

# Oak Notes

Volume 36  
Number 4  
December 2017

NEWSLETTER OF THE RANCHO SANTA ANA BOTANIC GARDEN VOLUNTEERS

**President:**

Cindy Walkenbach

**Vice President:**

Linda Clement

**Treasurer:** Ingrid Spiteri

**Secretary:** Patricia Brooks

**Goals and Evaluations:**

Linda Prendergast

**Volunteer Personnel:**

Win Aldrich

**Field Trips:** Krista

Von Stetten

**Volunteer Library:**

Gene Baumann

**Enrichment:** Sherry Hogue

**Hospitality:** Betty Butler

**Horticulture & Research:**

Richard Davis (co-Chair)

Hugh Menton (co-Chair)

**Visitor Education:**

Yvonne Wilson

**Public Relations:**

Dorcia Bradley (co-Chair)

Beverly Jack (co-Chair)

**OAK NOTES**

**Editor:** Louise Gish

**Contributing Editor:**

David Gish

**Publisher:** Carole Aldrich

**Web Publisher:**

David Bryant



## 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

Wow! I just attended another fabulous RSABG event to kick off the new Game of Thorns exhibit in the container garden. If you were not able to join us, please stop by at your earliest convenience. Our amazing staff who created this very clever exhibit and volunteers who helped in so many ways to pull it off can all be extremely proud. We were blessed with a lovely fall afternoon, tasty medieval fare (use your imagination) and appropriate libations that set the tone for a wonderfully thorny experience. It is definitely worth a visit, so invite your friends and family to enter the "Hall of Pain" to read, laugh, and learn. Just don't touch anything!

Your Volunteer Board, in support of the Garden's mission, has developed goals for the year that focus on spreading the word about RSABG in the community; recruitment (especially of new Nature Interpreters), retention, training and support for volunteers; and implementation of an electronic volunteer sign-up system. We value your ideas and input, so please let us know your thoughts on how we can best achieve these goals.

Sadly, we recently lost three long-time volunteers, Marge Hammond, Ray Roeschlein, and Joan Rosenbrock. They will certainly be missed by our volunteer family and we send our condolences to their loved ones.

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



## FROM THE DIRECTOR

**Lucinda McDade, RSABG**  
**Executive Director**

### Greetings volunteers:

As hard as it is to believe, December is soon upon us. By the time you get this, Acorn Festival will be in the rearview mirror. Thanks to everyone who (will have) volunteered to help with this wonderful event—another of our content-rich and fun-filled educational events. And Luminaria will be upon us next! Although Luminaria does not have the educational content of most of our events, it is our chance to share our very special Garden—at night and in the winter—with our guests. As you know, this is also an event that relies very heavily on volunteer effort, although improvements made last year have taken quite a bit of the drudgery out of the effort. Substituting the one-stop wooden blocks for the zip-locks filled with sand has made the set-up task a lot easier (and faster) while also reducing refuse: a definite win-win. Thanks to all of you—in advance—for your help with this very special event. This year will bring a few changes, especially on the first night when we will be offering a slightly different route because the Cultivar Garden will be occupied by the special Gold/Acorn member party launching the Grove of Thorns. We are planning a very special evening for all of our guests!

And speaking of Game of Thorns, I know that many of you were able to join us at the opening reception on Saturday, November 11 and I hope that the rest of you are able to visit the exhibit soon. Take in the “major houses:” Houses Cactaceae, Rosa, Legume and Agave (“all bite and no bark” is the motto of the last one!), but please don’t neglect the “minor houses” in the southwestern-most “room” nor the “Hall of Pain” in the entryway.

*Look deep into  
nature, and then  
you will understand  
everything better.*

—Albert Einstein

You should be aware that this—like other exhibits at RSABG—is an “all garden” effort, in this case ably led by David Bryant who conceived of and designed the exhibit. The hard work of Peter Evans, Ashlee Armstrong and the rest of the Horticulture staff was of course essential as they assembled much of the exhibit. From the gabions (i.e., fortress-like wire mesh modules filled with Claremont potatoes) that support—literally—a lot of the exhibit, to the color-coded pots, to all of the wonderful plants in those color-coded pots, the hard work of the Horticulture staff—seriously augmented and amplified by volunteers including the Wednesday work crew—is apparent. Loraine Washburn (Conservation Botanist/Lab Manager) also put a great deal of effort into the exhibit. She provided the interpretation, keeping it not just fun but true. The interpretive text also benefited from examination by several other content editors. Of course, maintenance is essential in the mounting of all new exhibits.

One of the sources of inspiration for the exhibit is the new scanning electron microscope (SEM) that the staff scientists and students at RSABG have been putting to very good use since last February. The wonderfully detailed images that emerge from the SEM suite contributed a great deal to the design of the exhibit, including the Grove of Thorns. Also inspirational for David was a 3D print of a seed that sits on my desk; the seed was made for me by a colleague at Pomona who studies “fast plants” (the seeds of the plants that I study fly from the fruits with amazing speed—I am not kidding!). The 3D seed is giant compared to the actual seed. Thus, the SEM images and 3D seed came together to yield the idea for the giant 3D “prints” of thorns. Made possible by the successful Kickstarter campaign, the Grove of Thorns will debut officially on Saturday, December 9 in the Cultivar Garden, with a special sneak preview the evening before at the Gold/Acorn member event on the first night of Luminaria.

Our Garden—your Garden—has the breadth of science, horticulture and design that was essential to pulling off an exhibit of this creativity, beauty and content. I do hope that you will visit Game of Thorns soon, and bring your friends and guests back often! It will be spectacular in the spring when many of the plants will flower (remember: “every rose has its thorns”—the motto of House Rosa).

With winter upon us, we are all wondering what this season will bring in terms of weather. Only time will tell, but at least we are getting respite from this past summer’s heat: the hot and humid “patches” that we experienced were more uncomfortable for humans than the hot dry period that we endured over Labor Day weekend, but I think the latter was harder on our plants as the arid air just pulls the moisture right out of them. Enjoy the short cool days of winter to visit the Garden often to watch for seasonal changes. Hope to see you soon!



**VOLUNTEER  
PROGRAMS**  
**Kathleen Noll, Manager  
of Volunteer Programs**

Hoping every one of you had a happy Thanksgiving holiday with family and friends. I’m thankful to all for your extraordinary help with the Garden’s fall events. Your service at Bump in the Night, Fall Planting Festival and Acorn Festival was exemplary—so many positions filled are a thrill for the volunteer manager! For those of you signed up to help with Luminaria Nights and in preparation for a wonderful Garden tradition, continued thanks.

This year’s winter season event will be held on Friday and Saturday, December 8 & 9, and Friday and Saturday, December 15 and 16 from 6–9 p.m. Listed below are some volunteer opportunities to place on your calendar for December.

### **Bagging Crew:**

Prior to Luminaria Nights we must prepare the magical lumi’s. At our “bagging parties”, we unfold bags, place a wood stabilizer inside the bag, and drop a plastic cup and candle in each “lantern”. Bagging Parties will take place on Thursday, December 7, from 1–3 p.m., and again on Thursday, December 14 from 1–3 p.m.

### **Set-up Crew:**

The set-up crew is responsible for distributing the 1300 luminaria around the 1/2 mile loop, Fay’s Meadow and the driveway using flatbed carts. Teams include one volunteer to drive the cart, and two others following alongside and placing the bags on either side of the trail. Set-up is scheduled for Friday, December 8, from 3:30–6 p.m. and Friday, December 15 from 3:30–6 p.m.



### **A Very Happy December Birthday to:**

Xenia Amashukeli	Alexandra Linter
Barbara Booth	Lisa McCarter
Grace Clark	Lonnie Munson
Nadja Cole	Alice Oglesby
Hal Croulet	Mary Lee Otto
Linda Battram Dorosh	Michael Speck
Pam Gardner	Jerry Taylor
Rich Giffin	Maggie Vinnedge
Ruth Henzie	Michelle Wang
Genevieve Herzog	Yvonne Wilson
Rhoda Huffman	Debbie Woo
Carol Lerew	

## Path Guides:

Path Guides help light the luminaria beginning at 5:30 p.m., using handheld lighters. Path Guides then monitor an assigned area and roam during the event from 6–9:30 p.m., monitoring for fire safety and ensuring guests are having a pleasant experience. The final duty of the Path Guide is to extinguish the luminaria at the end of the evening. Sam is making five additional “extinguishers” for twice the snuffing power! Path Guides are needed on each evening of the event from 5:30–9 p.m. on Friday, December 8, Saturday, December 9, Friday, December 15, and on the final evening, Saturday, December 16.

Volunteers may also help as parking helpers and entry helpers at the Kiosk.

As a special “Thank You” for your help, volunteers will receive two free tickets for Luminaria Nights each time you help! Keep them to use on another night or share them with friends.

If you are available to help with any of these volunteer opportunities please email me at [knoll@rsabg.org](mailto:knoll@rsabg.org), call 909-625-8767 ext 256, or check the sign-up board in the main hallway of the administration

building. Thank you for your continued support of the Garden and have a wonderful Holiday Season.

## VOLUNTEER ENRICHMENT

### Donna Bedell, Enrichment Committee

Mare Nazaire, Herbarium Collections Manager at RSABG, will present a program for Volunteer Enrichment on Monday, December 18: “Engaging our Future to Preserve our Past.” She received her Ph.D. in botany from Washington State University in 2013 and has worked as a botanist for nearly 20 years in various areas of the U.S.

Collections of historic significance offer a lens into the past and a means to envision the future. As herbaria serve expanding needs for research, education, and conservation management, it is critical that collections of historic, taxonomic, and geographic significance are curated and digitized, thus ensuring their availability for research and their long-term collection security. Through various sources, the Herbarium at RSABG acquired 30,000 vascular plant specimens of historic, taxonomic, and geographic importance representing the collections of



## MEET PATRICIA BROOKS,

### Volunteer Board Secretary

My childhood was spent in Michigan, where I started a 50-year career in nursing as a nurse aide at a local hospital. Seeking warmer climates and adventure, I moved to Southern California. I met my husband at Pomona Valley Hospital Medical Center where I worked for 20 years in the ICU, CCU, and NICU. We spent several years working, going to university, and having adventurous trips in Europe and South America. While earning a BS degree at Cal Poly Pomona and a BSN/MSN at Azusa Pacific University, I discovered RSABG and reestablished my childhood love of nature. I spent my early volunteer years in the Herbarium.

My degrees opened doors to a variety of experiences from the US Peace Corps in Malta and WHO in the Cook Islands, to teaching nursing in American Samoa and Hawaii.

Recently retired, we returned to California, bringing me closer to my family. My time now is filled with new adventures with my sister, niece, and her child as well as walking groups, yoga, and workouts at the gym.

With a desire to give back, I returned to RSABG last year as a volunteer. Though I consider the Herbarium home, I enjoy the diversity of volunteering with Native Designs and joining in the other activities throughout the year. I am looking forward to meeting and working with everyone and as secretary of the Volunteer Organization Board, I hope to keep you well informed.



ten noteworthy botanists of the 20th century. Almost entirely through student participation, a three-year project funded by a recent NSF grant, aims to curate and digitize these specimens to make them available to researchers, students, and the public.

Please join us in the East Classroom at noon on December 18 to learn about this exciting project in our herbarium. Coffee, tea, and cookies will be provided. Bring your lunch if you wish.



## **TOURING PROGRAMS**

**Judy Hayami,  
Touring Programs Manager**

As the newest Nature Interpreters step into the Garden with their first tour groups, we rejuvenate efforts to recruit potential NIs for the next class. Whether you are a Nature Interpreter or not, you can help us bring volunteers into this vital area of service to the Garden. Please tell your friends, to tell their friends, to tell THEIR friends. Distribute the attractive new Nature Interpreter Program brochure and ask others to “Read all about it!” Previous experience or expertise in botany is NOT required. Curiosity, flexibility, dependability, a love of nature and the ability to walk (or drive a tram) and talk to Garden guests about who we are and what we do are the basic qualities of a great Nature Interpreter. Join the next class or be part of the outreach effort that will connect us to those special people with the desire and dedication to take an active role in our educational tours, programs and events. How to begin? Well, Kathleen Noll and I eagerly await your call or email!

New Nature Interpreters complete their last class session on December 16. Congratulations, NI Class of 2017! Veteran Nature Interpreters, please welcome them to the corps and sign up to observe their January practice tours. Meet potential new teammates and, after the tour is over, offer up your field-tested tour tips and tricks.

Please accept my belated, but no less sincere, thanks for the tremendous success of Things That Go Bump in the Night. There is no way to describe

the excitement and activity of those two October evenings. You just had to be there to witness families invading the Garden, with smiles beaming as brightly as their flashlights. If you missed it, enter the event dates of October 12 and 13 in your 2018 calendar and plan to join in the fun. Thank you, too, for volunteering to help with November’s Acorn Festival and making families and Tongva friends feel welcome in the Garden.

Enjoy your holidays!



## **VOLUNTEER FIELD TRIP BOLSA CHICA ECOLOGICAL PRESERVE**

**Saturday, December 30, 2017**  
**Birding and More at Bolsa Chica**  
**Krista Von Stetten, Field Trip Coordinator**

Join us for a **free** bird talk and nature walk at the Bolsa Chica Ecological Reserve!

Our guided walk will be led by one of the dedicated volunteers of Amigos de Bolsa Chica. The ecological reserve provides feeding and nesting habitat for thousands of birds and is considered a prime birding site in Southern California. You’ll spot migrating species as well as year-round residents.

Wetlands are where land and water habitats cross over, so BCER supports a wealth of other wildlife, too. Wetlands serve as nurseries for newly-hatched sea life, and act as a filter for nutrients **and** pollutants. Even so, California’s wetlands have been decimated by development. The remaining three percent are a true treasure. Bolsa Chica has a fascinating history, and inspires hope for habitat restoration against the odds. What a battle was waged to save it!

Lunch afterward at the famous Char-O Chicken in nearby Seal Beach, or forage on your own. You can’t miss—everything tastes better at the beach.

Carpooling is encouraged, as parking at the Bolsa Chica Ecological Reserve is limited.

Bring a hat and sunscreen, and remember your binoculars if you have them.

Friends, family, staff and students always welcome to come along, with RSVP!

**Date:** Saturday, December 30, 2017

**Meet:** at RSABG 7:45 a.m. to carpool, or join us at BCER's south parking lot 8:45 a.m.

**Tour begins:** 9 a.m.

**Destination:** 17851 Pacific Coast Hwy, Huntington Beach, CA 92649. Park at the South Parking Lot across from the entrance to Bolsa Chica State Beach.

**Driving time:** Approx. 50 minutes from RSABG

**Depart:** 1 p.m. (or as desired by drivers)

**Distance:** 45 miles one-way

**Transportation:** Casual carpools

**For sneak peeks:** [www.bolsachica.org](http://www.bolsachica.org) and [www.amigosdebolsachica.org](http://www.amigosdebolsachica.org)

**RSVP:** Don't get left hanging! Please RSVP ahead of trip day. Include: your email, "day-of-trip" contact phone, and carpool preference ("ride" or "driver"). Do call ASAP if your plans change. These courtesies help keep all participants informed.

*Our seasonal field trip mix aims to expand your botanic, sustainable, and cultural knowledge through guided adventures at some of our local and regional resources. Get to know the places, plants, and people that make the SoCal region such an amazing, diverse place!*



**NOTES FROM  
ADVANCEMENT**  
**Anne Scott-Putney,**  
**Director of Advancement**

**Dear RSABG Volunteers,**

December will be a month of inspiration and giving here at the Garden, so here is a round-up of how you can get involved and enjoy RSABG as a serene place amongst the hustle and bustle and by the light of the December moon.

1. The Day after Thanksgiving is a Free Day at the Garden that we have dubbed Green Friday! What a wonderful way to treat family and other houseguests than by enjoying a serene—or vigorous—walk at the Garden to work off some of that yummy Thanksgiving dinner. Admission is free to all on November 24!
2. Giving Tuesday is November 28, a national day of Giving Back after Black Friday and Cyber Monday. The Village Marketing Group of Claremont has



## VOLUNTEER LUNCHEON

### & QUARTERLY MEETING

**Betty Butler, Hospitality Committee**

Join us on **Wednesday, December 6, at 11:30 a.m.** in the East Classroom and Corral for our Garden Wonderland luncheon and business meeting. This will be another "good luck/potluck" event, so there will be no sign-up sheets, just bring your favorite appetizer, main dish or dessert. You will be able to enjoy the recorder music of the Claremont Early Music Ensemble; reconnect with old friends; meet some new volunteers, and maybe even win See's Candy or a wreath. The Native Design Team is making lovely centerpieces, which will be available for purchase. After lunch President Cindy Walkenbach will conduct a short business meeting where you'll learn about important upcoming events. The tram will begin at 11 a.m. We look forward to seeing you all. opportunity to reconnect with old friends and to meet new volunteers. Hope to see you there!

paired up local businesses with nonprofits, and we are lucky enough to be paired with Some Crust. So, on November 28, a percentage of all Some Crust sales will be donated to the Garden. If you are shopping in the village that day, stop by for a coffee or slider, and know that you are joining millions of other people across the country in giving back to your favorite nonprofits.

3. Luminaria Nights—open on Friday, December 8! If you are a Gold or Acorn Garden Member, you should have received your invitation to the Gold and Acorn reception on December 8 at the Large Gazebo in the Cultivar Garden. Campfire. Marshmallows. Spiked Drinks and Live Music. Need I say more? If you would like to attend and are not a Gold/Acorn member, it is easy to upgrade your membership by calling the Advancement Office at 909-625-8767, ext 258.
4. The Grove of Thorns! Is Part II of the Game of Thorns Exhibit, and will be opening to the public in the Cultivar Garden on Saturday Night December 9. These 8-larger-than-life sized giant thorns have been cast from SEM images and blown up into glass-like sculptures, then lit from the inside and up-lit for a fascinating effect. Science meets art in the Cultivar Garden! Don't miss it!
5. Speaking of Thorns, the Game of Thorns is now open in the Container Garden and provides a fascinating—and educational—look at this epic battle of the botanic battlefield. Spend some time in the exhibit, and you'll be coming back for more each time you visit the Garden!

Finally, some exciting news about year-end giving at the Garden. We know that the year end is a favorite time for supporting the Garden, and many of you give generously over the next month through December 31. Now, your gift will be doubled! We've just received news that all gifts totaling up to \$20,000 will be matched 1:1. Thus, a gift of \$250 magically becomes a gift of \$500!—all to support the

Garden's conservation, education and horticulture mission. Think about all the wonderful things about RSABG that you love, and how they need our support to be sustained and grown. And then double that support! That's what will happen with your year-end gift. Watch your mailbox in December to learn more. And thank you for all that you do to enrich and support the Garden, and make it such a friendly and welcoming place.

## **BAKE SALE UPDATE**

### **Melissa Smith, Bake Sale Chair**

It was a great day for our Fall Plant Sale on October 21, 2017. The weather was perfect, the plants were beautiful and the Bake Sale items were wonderful and tasty. Thank you again to all the wonderful bakers. Our grand total for the Bake Sale this year was \$529.00. The money raised will enable the Volunteer Organization to support special Garden programs.

### **Our talented bakers included:**

Donna Bedell, Brenda Bolinger, Lee Boss, Betty Butler, Wanda Ewing, Louise Gish, Shannon Gygli, Judy Hayami, Virginia Herd, Bev Jack, Marga Loncar, Judy Maciariello, Betsy Maclaren, Linda Munsey, Fran Neu, Carol Petty, Linda Prendergast, Julie Scheuerman, Linda Troyer, Emy Lu Weller, Sandra Wilson, Robin Winderman, Mia Winderman, and Hope Winderman.

We also had an enthusiast group of volunteers helping to price and stage the assorted treats the day before. Thanks also to the volunteers who worked shifts the day of the Sale: Betty Butler, Enid Edker, Louise Gish, Sherry Hogue, Betsy Maclaren, Kathleen Noll, Cindy Pearson, Kimberly Richards, Mike Smith and Melissa Smith.

Thanks also to the volunteers who worked during the Fall Plant Sale selling the goodies: Betty Butler, Sherry Hogue, Enid Eckert, Kathleen Noll, Mike Smith, Melissa Smith and Louise Gish.



## LOOKING BACK: THE MESA



Photo  
courtesy of  
Research  
Library  
Archives

In June of 1950 the Architectural firm of C.J. Hahn, Sierra Madre, was contracted to design landscape plans for the new location at Claremont. The Hahn firm had little experience in designing California Native Plant landscaping as nearly no one used native plants at the time. Prior to that Dr. Munz and Dr. Lenz had already drawn some tentative plans based on observations at the new site. Ultimately, both plans were merged using what was considered the best features of each design.

As the boundary fence and irrigation system were completed, gardeners were already transporting plants from the Santa Ana site, and shortly thereafter from the new nursery, to plots on the mesa. Even with revised landscape plans in hand, expectations were tentative. Factors such as the annual rain cycle, prevailing winds, seasonal temperatures, parasites and pests, and how well the irrigation system would function were to some extent unknown.

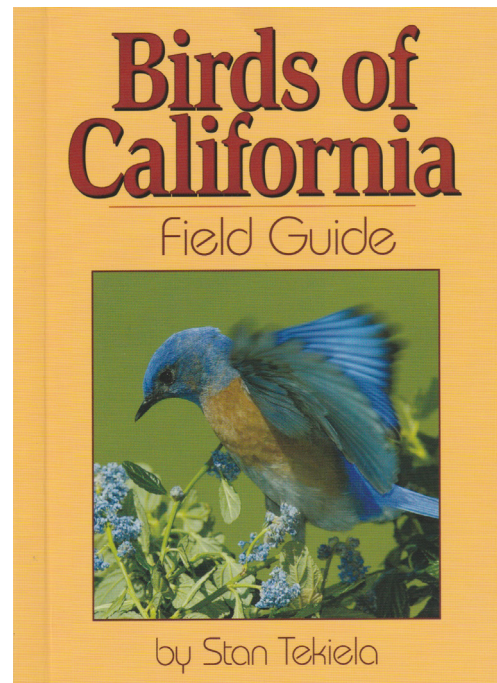
The Hahn plan called for a marsh to occupy the western central part of the mesa. The botanists discovered that summer heat on the mesa could often be intense and trying to keep the marshland going

would require a great deal of water putting a burden on the irrigation system. It could also be expensive. Instead, that area was incorporated into the test plots that dotted the cleared land to the north of the administration building. Shrubs and small trees were planted along the perimeters of the hill. The Live Oaks at the north end of the Mesa were trimmed and the poison oak removed.

With careful planning and a lot of hard work the Garden began to take hold. And in April of 1953, just a little over a year after the official move from Santa Ana Canyon, the Garden was opened to the public.

Meanwhile, at the administration building...

**Credits: Aliso 9:1 (1977). Executive Director's Yearly Report to Trustees, 1950, 1951, 1952, 1953.**



## BOOK OF THE MONTH

Christine Ilgen, Volunteer Library Committee

*"Birds of California Field Guide" by Stan Tekiela. Adventure Publications, Inc. 2003. 412pp.*

This recent acquisition of the Volunteer Library is an excellent addition to the bird section and will be found there after a month on display among new acquisitions. Written by Stan Tekiela, who has written similar field guides for birds of most states, it



This young owl paid a surprise visit to Shaunna Gygli recently through an open window. After a tour of her home, it left the way it had come, with a little encouragement from Shaunna.



features an unusual format that recommends it to all volunteers, regardless of experience.

Bird identification can be a daunting challenge, considering that of the 800 birds in the U.S., 500 have been sighted in California. Tekiela has chosen 170 of the most common for this guide. The book is small (approximately 4 x 6 inches) and hence, easy to carry.

A unique feature is that it organizes the featured birds according to primary color. That is, mostly black, mostly black and white, mostly blue, orange, red, green, etc. Colored tabs in the upper corner of each page correspond to the color of the bird. Those birds with a similar color are easy to find by choosing the appropriate color from the tab in the upper corner of the page. Tabs of the same color are clustered together and visible by looking at the edge of the book. Turning to that section, one will find all birds of similar color. Where male and female differ in color, or if there are seasonal differences (e.g. the Black-bellied Plover, recently sighted in Dana Point in its white-bellied winter plumage), both are represented.

Another unusual feature of this book is that, in contrast to many field guides which group birds according to species and display a diagram of them together, "Birds of California" devotes each page to an excellent photograph of a single bird, a photo that clearly illustrates distinctive identifying features such as leg or beak color, rings, patches, etc.

Following an introduction to birds and bird watching, the introductory section also covers bird anatomy, types of bird nests and bird migration and the text begins with a sample page. On each subsequent page are a bird's scientific and common name, its size, the color of male, female and juvenile. The bird's nest, the number and color of eggs, incubation and fledging times are listed, as are its food, migration patterns and birds with common features. There's a map of California that illustrates where the bird is found and seasonal differences.

Although the book lacks a sonogram found in other familiar guides, the song may be mentioned in final section titled "Stan's Notes," a grab-bag of behavioral features and other details.

This book with its \$17 price (less through Amazon) may be something to include among your field guides.

## CALIFORNIA LAUREL (*UMBELLULARIA* *CALIFORNICA*) AND BAY LAUREL (*LAURUS NOBILIS*) Rudi Volti, Nature Interpreter

On 10 May 1869, the rails of the Central Pacific and Union Pacific railroads joined at Promontory, Utah. To mark the opening of the first transcontinental railroad in the United States a collection of dignitaries ventured to this remote spot where they could view the ceremonial driving of a golden spike. The destination of the spike was a crosstie made from California laurel (*Umbellularia californica*), finely polished for the occasion. Wielding a silver sledge were Leland Stanford, the governor of California and T.C. Durant, vice-president of the Central Pacific. Both failed to hit the spike head on their first attempts.



Laurels have not been widely used as sources of lumber, but in addition to its service as a ceremonial railroad tie,

the California laurel's dense and finely grained wood is used to construct the backs and sides of acoustic guitars, as well as for making bowls, spoons, and other small items.

The Cahuilla, Chumash, Pomo and other indigenous people put the leaves of the California laurel in their acorn granaries to ward off insects. They also appreciated its medicinal qualities. The analgesic effects of the pungent leaves were valued for treating headaches, tooth aches, and ear aches. Salves made from the leaves were used to treat arthritis and

neuralgia. Finally, a tea made from its leaves was used to treat stomach aches, colds, sore throats, and to dispel mucus in the lungs. Today, oil extracted from laurel leaves may be used in massage therapy, where it is reputed to alleviate arthritis pain. For aromatherapy, another healing practice, it is used to treat ear aches and high blood pressure.

In researching for this article, I came to the realization that as a Nature Interpreter I was misleading my students by confusing the Garden's California laurel with the bay laurel, *Laurus nobilis*. The latter is not native to California, but is indigenous to Greece, Italy, and other Mediterranean countries. The two are quite similar although they belong to different genera (both, however, are members of the Lauraceae family). The aroma of the bay laurel's leaves is less powerful than those of the California bay, and whole leaves are often used for seasoning, most notably in Italian cuisine.

A more glamorous use of the bay laurel goes back to ancient times, when its leaves were fashioned in the familiar garland that decorated the heads of Roman emperors, winning athletes, and surviving gladiators. Even though I was wrong about the California laurel being the source of distinctive headgear, I was able to note several terms that derive from the word "laurel." A college or university degree may be referred to as a baccalaureate, while an Italian university graduate bears the title laureato for men or laureata for women. The word also appears in the honors accorded to Nobel laureates and poet laureates. Finally, there is the admonition to students and others who have achieved success: "Don't rest on your laurels." And so, it is time for me to move on to my next tree.

## MYCORRHIZAE: AN ANCIENT EXAMPLE OF MUTUALISM

**Fred Brooks, Nature Interpreter**

The symbiotic relationship between mycorrhizae (myco=fungi + rhiza=root) and plants is probably the oldest and most common. Fossil records from Antarctica indicate that mycorrhizal fungi were well established 215 million years ago. These findings led

to the hypothesis that mycorrhizae may have been present about 200 million years earlier and assisted the movement of plants from an aquatic to a terrestrial environment. Today, this mutualistic association occurs among most plant taxa, including angiosperms, gymnosperms, and even ferns and mosses.

The hyphae of mycorrhizal fungi spread from plant roots out through the soil, mainly absorbing phosphorous, nitrogen, and water. These are transferred to the plant in exchange for carbohydrates. This exchange defines the two main types of mycorrhizal fungi. Ectomycorrhizae form a net of absorptive hyphae within the root but outside (ecto-) of the cortical cells. The transfer of nutrients and water occurs around the root cells, not within them. Ectomycorrhizal hyphae also form a mantle around the outside of roots and are present in about 5 percent of plant species. Endomycorrhizae form absorptive structures called arbuscules within (endo-) the root cells. These balloon-like arbuscules function like the haustoria of rust fungi (see Oak Notes, September 2017). Endomycorrhizae are associated with 80–90 percent of plants.



Many mushrooms that grow from the soil are the sexual, spore-producing bodies of ectomycorrhizae, like this *Boletus luridus*. (Photo by George Chernilevsky)

The thin hyphae of mycorrhizae are about 5 micrometers in diameter and can double the uptake of nutrients and water by the plant's roots. This is especially important in dry soils and where essential inorganic phosphorous is either scarce or the plant is unable to absorb it. In arid or nutrient-poor soils, mycorrhizae can improve plant growth and decrease water loss. Current molecular methods indicate that endomycorrhizae induce a secondary metabolic response in plants that increases their defense against predators and harsh environments. Conversely, the mantle formed around roots by ectomycorrhizae mechanically inhibit some soilborne pathogens and nematodes.

# DECEMBER CALENDAR

## Events

**December 8, 9, 15 and 16:** Luminaria Nights. Friday and Saturday, 6–9 p.m.

## Classes, Meetings & Workshops

**November 30:** Volunteer Organization Board Meeting. NEW DATE (change from December 7) Thursday, Noon–1:30 p.m., East Classroom

**December 2:** Garden Walking Club. Saturday, 8 a.m., Admission Kiosk,

**December 2 GNN Workshop–Soil 101:** Understanding Your Soil. Saturday, 10 a.m.–noon. FREE, pre-registration is required.

**December 2:** Holiday Wreath Work Shop SOLD OUT. Saturday, 1–4 p.m., Grow Native Nursery, pre-registration is required.

**December 3:** Pomona Valley Audubon Society Beginner's Bird Walk: Sunday, 8–9:30 a.m., Admission Kiosk, FREE!

**December 3:** Medicinal Plants of California Herb Walk. Sunday, 10 a.m.–1 p.m. Pre-registration required; \$20 members.

**December 4:** Volunteer Library Committee Meeting. Monday, 10:15–11:45 a.m., Volunteer Library

**December 6:** Nature Interpreter Training–Session V. Wednesday, 8:30–11:30 a.m., East Classroom.

**December 6:** Volunteer Organization Quarterly Luncheon and Meeting. Wednesday, 11:30 a.m.–1:30 p.m., East Classroom and Corral

**December 7:** Luminaria Bag Party: Thursday, 1–3 p.m., Anatomy Lab Patio–everyone is welcome!

**December 8:** Luminaria Nights \*Gold Card Special Reception. Friday, 6–9 p.m.

**December 9:** Garden Walking Club. Saturday, 8 a.m., Admission Kiosk

**December 9:** Luminaria Nights. Saturday, 6–9 p.m.

**December 13:** Nature Interpreter Training Session VI: Wednesday, 8:30 a.m.–12:30 p.m., East Classroom.

**December 14:** Luminaria Bag Party. Thursday, 1–3 p.m., Anatomy Lab Patio

**December 15 :** Luminaria Nights. Friday, 6–9 p.m.

**December 16:** Garden Walking Club. Saturday, 8 a.m., Admission Kiosk,

**December 16:** Family Bird Walk–Wild Birds Unlimited. Saturday, 8 a.m., Admission Kiosk, FREE!

**December 16 :** GNN Workshop: Creating Seed Bombs. Saturday, 10 a.m.–Noon. Pre-registration is required; FREE!

**December 16 Luminaria Nights. Saturday, 6–9 p.m.**

**December 18 Volunteer Enrichment:** Mare Nazaire, Ph.D., Collections Manager, Herbarium, [RSA-POM]; Monday, Noon–1 p.m., East Classroom.

**December 18:** Visitor Education Committee Meeting. Monday, 1–2:15 p.m., Volunteer Library.

**December 20:** Volunteer Personnel Committee Meeting. Wednesday, 9:30–11 a.m., Volunteer Library.

**December 23:** Garden Walking Club. Saturday, 8 a.m., Admission Kiosk

**December 25:** Christmas Day–Garden closed.

**December 29:** Volunteer Time Cards Due. Friday, 8 a.m.–5 p.m.

**December 30:** Garden Walking Club. Saturday, 8 a.m. Admission Kiosk,

**December 30 Volunteer Field Trip, Bolsa Chica Ecological Preserve. Saturday, 7:45 a.m.,** Admission Kiosk for carpooling.





NEWSLETTER OF THE RANCHO SANTA ANA BOTANIC GARDEN VOLUNTEERS

1500 North College Avenue, Claremont, CA 91711-3157 • 909-625-8767

FIRST CLASS MAIL

Place  
Stamp  
Here