

Oak Notes

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NEWSLETTER OF THE CALIFORNIA BOTANIC GARDEN VOLUNTEERS

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FROM THE PRESIDENT Lynn Miller, Volunteer President

We made it! It's June, and while Covid slowed us down and Mother Nature's fury closed the Garden's gate, we did quite a bit this year. Not unlike the story, "Tortoise and the Hare," slow and steady was our course. Volunteers helped with the Fall Plant Sale, Native Designers created and sold fifty wreaths, we helped with Luminaria Nights and raised funds by selling hot cider and cookies, and in December we celebrated our first Quarterly meeting in over a year. Susan Starr was our clever event planner and life saver. In the spring, harvesters collected grapevines for the wreathmakers, and then enjoyed a St. Paddy's Day lunch highlighted by Irish music. Garden Guides resumed adult tours, and with considerable revamping, started giving school tours. Our dedicated Horticulture volunteers met on Wednesdays and Saturdays to help the Garden staff. Thank you, Richard Davis, the man who wears many hats, for your knowledgeable leadership. On the quiet side and under the radar, the Library Committee continued to meet and review the plant-focused "good reads" you see monthly in *Oak Notes*. With Amy Baumann and Barbara Nakoaka in the lead, this committee keeps the Volunteer Library organized and current. Added to this, new Volunteer logo wear is on its way.

I want to thank your Volunteer Board for their steadfast support of the Garden and the Volunteer Organization. They are the behind-the-scenes folks who keep our organization going, and me straight. There aren't enough kudos and thanks that we can give them: Yvonne Wilson, Vice-President; Wanda Ewing, retiring Secretary; Betsy MacLaren, Treasurer; and Marla White, Past-President. Thank you to the following chairs: Katy

A MESSAGE FROM OAK NOTES

Oak Notes would like to thank all contributors. Your messages, articles, and photos have helped keep Volunteers informed, enlightened, and entertained.

Thank you, Volunteers for your readership and your devotion to CalBG.

Have a good and safe summer.
See you in September.

The deadline for articles to be submitted for the September 2022 issue of OAK NOTES is **Monday, August 15**. Thank you for your prompt submission!

Volgistics reminder:
Please submit your monthly volunteer hours to Volgistics. Every volunteer minute counts.

Douglass and Ann Morgan, Visitor Education; Amy Baumann and Barbara Nakaoka, Library; Linda Prendergast, Native Designs; Hospitality, Susan Starr; retiring Richard Davis, Horticulture; retiring Dorcia Bradley, Public Relations; Patricia and Fred Brooks, *Oak Notes* editors; and Julie Scheuermann for her calm expertise with Volgistics.

In addition, I end this year with great appreciation for all of you, the Volunteers, and for your support of CalBG.

You've made it a good year!

Reminder:

Be sure to mark your calendars for Wednesday, June 1st at 11:30. Join us in the Outdoor Classroom for our Annual Meeting and Luncheon. See the flyer in this *Oak Notes*.



FROM THE DIRECTOR

**Lucinda McDade,
CalBG Executive Director**

What is likely to happen at California Botanic Garden while *Oak Notes* is on summer vacation?

I can't imagine that I am even brave enough to write a title such as that! Given all that we've been through in the past two+ years *and* the fact that we are in yet another upswing in the incidence of Covid, one makes predictions with great caution. Nonetheless, here goes!

We will host three great *Magical Mondays* for members and I hope to see a lot of you at these terrific events.

We will have two — maybe three — master thesis defenses and the corresponding number of new alumni of our graduate program to be proud of! (Watch for announcements of the students' talks — you are always invited.)

We will have an official planting plan in hand for the North Garden. This is the area north of Maintenance and east of the Majestic Oak. It was already a bit 'open' (mostly thanks to pine bark beetles) and the January windstorm tossed down some more trees (I am sad thinking about that beautiful pinyon pine....) leaving it in need of fairly serious rethinking. The choice of plants will take advantage of what we now know about that area's special microclimate. We will be ready to plant when the season is right (i.e., October or November).

We will be close to breaking ground on the redesign of the entryway. I wish it were already underway! If you would like to join Herb Boss in making a contribution for that worthy project — step right up!

We will have announced — or be ready to announce — one more new endowed fund for Graduate Education at California Botanic Garden.

We will be working on a design for a new butterfly garden. The Marilee Scaff Butterfly Garden will be east of the Outdoor classroom in the space opened up by what the windstorm did to those giant sprawling hybrid *Fremontodendron* trees. For many reasons, that is a great area for a garden devoted to plants that butterflies love and need and, by extension, to butterflies. We are hoping to 'partner' it with an area devoted to bird pollinated plants. It will be a pollination complex, all supported by the infrastructure at the Outdoor Classroom!

We will have deployed an additional 'wave' of interpretive signage across the So Cal and Mesa Gardens (perhaps extending into the communities?) and we will have moved the welcome pavilions for those garden areas to their new locations (explanation available on request!).

We will have had at least one volunteer orientation session and will be planning another for the fall. We have a lot of volunteers who have signed on since we went into the pandemic and they have had no orientation whatsoever. We intend to correct that!

—Lynn

The women's room at the Forest Pavilion will have two hand wash stations.

We will be preparing for a fall of closer to 'normal' levels of activity and that means volunteers! I am personally very much looking forward to involving all of you at our Garden and in its diverse programming.

See you in September faithful *Oak Notes* readers!



HELLO CALBG VOLUNTEERS!

by Lauren Stoebel

My name is Lauren Weintraub Stoebel and I started in mid-April as the Garden's new Assistant Director of Visitor Engagement for Public Relations and Events. I couldn't be more excited to start working with all of you in the coming year! In my new position, I'll be responsible for Garden communications (social media, e-mails, and more) and public relations. I'll also help Jennifer Scerra and other Garden staff to plan and run various events for the public. I would love to hear from you about ideas you might have for increasing the visibility and reach of the Garden's programming and am looking forward to featuring all of the work you do via our online communications. You can reach me any time at lstoebel@calbg.org or 909-625-8767 x251.

On a personal note, my work background is in arts administration and ethnomusicology, but I've been a member of the Garden since shortly after my husband and I moved to Claremont twelve years ago. My kids have grown up exploring the twisting paths and looking for turtles in the ponds, and the Garden has been a respite for me over the years when I need to escape to nature but couldn't make it up into the mountains. The Garden's workshops and the Grow Native Nursery helped my husband and I transform our 100% Bermuda grass yard into a native plant oasis right outside our house. I can't wait to be a part of helping others discover and make use of this invaluable resource and spread the word about all the amazing things that happen at California Botanic Garden.

A LOOK INTO THE MOLECULAR LAB AT CALBG

by Carrie Kiel Ph.D., Conservation
Geneticist and Lab Manager

The molecular laboratory at CalBG is located on the second floor in the Administration Building. This lab is shared by the Research (including Graduate Education) and Conservation Departments. Here, researchers routinely extract DNA—the genetic template from which living organisms and built and function—from leaves of plants collected in the field or from herbarium specimens. Herbarium specimens are a valuable source of DNA for many of our research projects especially if fresh field material cannot be obtained. Remarkably, quality DNA can often be successfully extracted from specimens as old as 100 years of age!



Carrie Kiel's masters student Courtney Matzke extracting DNA from various species of buckwheats (*Eriogonum*).

Once DNA is extracted from the plant tissue, we then prepare "libraries" for Next Generation Sequencing (NGS). The library metaphor is apt because, like dividing all human knowledge into the many books in a library, the researcher is dividing the huge amount of DNA into manageable packets or pools that are labeled with unique tags or barcodes. NGS technology is relatively new and lets us generate DNA sequence data for millions of fragments simultaneously, making our data more informative and our research more efficient and cost-effective.

After sequencing, the data are assembled and analyzed to provide a phylogeny—a family tree—for understanding relationships among different lineages or species. Once you have a phylogeny you can integrate that information with other lines of evidence, including anatomical and/or morphological data to guide taxonomic classifications for a particular group or to describe a species new to

science. Phylogenies can help researchers investigate intriguing questions on the evolution of functional traits in a group. For instance, Dr. Lucinda McDade and I are examining the evolution of floral microtraits in *Justicia* (*Acanthaceae*). In addition to floral form, size, and color, species of *Justicia* have an incredible diversity of pollen, anthers, and stigmas. All of these structures are critical for successful pollination and thus reproduction. Sequence data gathered for this project not only allows us to understand relationships among species, it provides insight on how these microscopic and macroscopic traits of flowers vary with different pollinators and how they have evolved over time.

Researchers at the Garden also use sequence data to help inform important conservation decisions as these data provide information about population structure and genetic diversity. Conservation Technician Dr. Mercedes Schroeder and I are currently working on several projects involving rare or threatened plants including a cactus (*Corypantha robustispina*), a ragweed (*Ambrosia dumosa*), and a milkvetch (*Astragalus magdalenae* var. *peirsonii*). The genetic data generated from these projects will help devise in situ and ex situ conservation strategies to ensure their preservation. Overall, the breadth of applications for DNA sequence data is quite remarkable, and as sequencing technology continues to evolve, it will no doubt continue to propel botanical research and conservation efforts in the future.

TOM WHITE: NEW CHAIR OF THE HORTICULTURE AND RESEARCH COMMITTEE



I look forward to serving as the new Chair of the Horticulture and Research Committee. I started volunteering at the Garden in 1987 and currently volunteer at the Grow Native Nursery and on the Grounds Crew. In past years I also volunteered in the Garden Shop and as a Nature Interpreter. My favorite volunteer activity at the garden is volunteering at the fall plant sale.

I have many connections with the local area. I was born in Pomona Valley Hospital, went to Cal Poly Pomona, and worked at my first professional job at General Dynamics in Pomona. I grew up in Chino where my grandparents, on both my mother's and father's side, moved to a little over 100 years ago. My first visit to the Garden was on a grade-school field trip in the early 1970's. My wife and I moved to Claremont in 1993.

I worked as a software developer for four different companies in southern California over a period of 36 years and retired one year ago. I've always enjoyed hiking and backpacking and have been doing a lot more of each since I retired. I've camped in many areas of the state over the years but my favorite place to go to has always been the desert regions.

Over the years we have converted most of the plants in our yard to natives. I have a particular affinity for buckwheat's which surprisingly account for a significant percentage of the biomass in our yard. My favorite individual plant in the yard is our white sage plant.

MEGAFIRES by Fred Brooks

The evening news tells us that fire season is again upon us. Intrepid reporters defy the elements, list destruction and loss of life, and highlight heroism. But we have always had annual fires in the southwest, so what has changed?

Now we have the megafire: larger, hotter, and becoming more common. The reasons for these fires are usually linked to longer drier summers, no-burn fire policies, and an increasing human population and activity. But our plant communities always grow back, don't they?

Scientists are now looking more closely at plant-community regeneration. Using molecular genetics, researchers can evaluate the number and species of microorganisms in the soil before and after a fire. Recently, they discovered two groups of gram-positive bacteria in recently burned soil, Actinobacteria and Firmicutes. Actinobacteria have a high G + C content, are heat resistant, and are an important decomposer

of organic material in agricultural and forest soils. Firmicutes have a low G + C content, are heat- and drought-resistant, and important to plant growth. Also of importance to plant regrowth are mycorrhizae, fungi that live in or on root tips and help plants gather water and nutrients from the soil.

Most soil microbes don't survive a megafire. Researchers were recently able to compare the number of different species in a redwood-tanoak forest before and after a megafire: over 70% of the microbes were killed. However, a small number of heat-resistant species not only survived, their populations increased. It appears these microbes have similar, conserved, adaptive traits in common. They may be partly responsible for post-fire regeneration time, or even the continued existence of a plant community. The role of these fire-adapted bacteria and fungi are certain to be a part of ongoing fire ecology studies.

PLANTS BEARING ARMS

by Steve Bryant

The following plants are armed with thorns, spines, prickles, or stinging hairs.



Agave/Hesperoyucca/Yucca. *Agave* and *Hesperoyucca* are usually monocarpic, but live for many years before blooming. *Agave deserti*, *A. shawii*, *A. utahensis*, *H. whipplei*, *Y. baccata*, *Y. brevifolia* and *Y. schottii* are found in Southern California. They range from 1 m × 1 m rosettes to trees. All have spine-tipped leaves; *Agave* also have marginal teeth on the leaves.



Berberis (Barberry). Over a dozen spp. in CA. Often a deciduous shrub to several meters tall and wide. Leaves spine-toothed. Blue-black fruit

said to be edible.

Cactaceae. About 35 spp. in CA, ranging from 15 cm balls to 15 m trees; many are in cultivation. There are about 17 *Opuntia* and 11 *Cylindropuntia* spp., of which *O. basilaris* (Beavertail) has perhaps the



prettiest flower (bright magenta), and *C. bigelovii* (Teddy-Bear Cholla) the nastiest spines. Fruits generally edible.

Eucnide urens (Rock Nettle). Desert plant to 1 m tall and wide, covered in stinging hairs. Cream-colored flowers to 6 cm diam. Can be confused with *Mentzelia involucrata*.



Fouquieria splendens (Ocotillo). Cluster of stems 4–6 cm in diameter rising to 10 m and armed with 3-cm-petiole spines. Clusters of red flowers at stem tips. Other spp. in Baja California.

Lycium parishii (Desert Thorn). To 2 m tall and wide. Small narrow leaves on spine-tipped branches.

Small purplish flowers and small red fruits.

Rosa californica (Wild Rose). Shrub or thicket-forming, to 3 m tall and covering a large area. Stems covered in prickles. White to red flowers with red or orange fruits. Other *Rosa* spp. in CA.

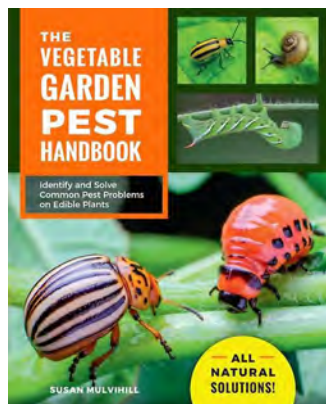
Rubus ursinus (California Blackberry). Stems rambling, to several meters long, covered in prickles. Clusters of white flowers at stem tips with fruit turning from green to red to black when ripe. May cover large areas. Other *Rubus* spp. in CA.

Cultivation and acquisition: *Fouquieria* need some summer water, as do several of the cacti. *Rosa* and

Rubus may die in dry soil. Most of the other species may survive with winter rain, with a little summer water to help them look better. Most species are available from specialists.

BOOK OF THE MONTH

Amy Baumann, Volunteer
Library Committee



The Vegetable Garden Pest Handbook: Identify and Solve Common Pest Problems on Edible Plants by Susan Mulvihill. Cool Springs Press, 2021. 208 pp.

I had the good fortune to receive a copy of this book as a gift from a friend who

is related to Susan Mulvihill. The handbook is filled with natural solutions for dealing with pest problems on edible plants. The book opens with sharing the importance of attracting pollinators and other garden beneficials, including birds, to gardens. The book is divided into very practical sections: Introduction to Organic Pest Management, Meeting (Identifying) the Bugs, and Organic Pest Management. Mulvihill provides an easily understandable definition of what organic gardening means to her and why it is important. The book includes more than 20 easy-to-read charts by edible-plant name, along with problems/damage and possible culprits. The Pest Profile section includes signs of pest activity, natural predators, and suggestions for control. The author stresses the importance of encouraging beneficial insects in the garden and provides an excellent description of these helpers, along with how to attract them to the landscape. The last section of the book shares organic controls and numerous DIY pest control projects. Many of these projects would be suitable for children and include fun hands-on activities to do alongside the young gardener in your life.

The exceptional photographs and clearly written directions make this a practical reference guide to use in tackling pest problems in the vegetable garden.

Mulvihill is a Master Gardener and a seasoned garden writer. Her knowledge of vegetable crops and pest problems as well as her passion for growing her own food shines through on each page of this book. Amazon identifies her book as a “#1 Best Seller in Agricultural Insecticides and Pesticides.”



A Very Happy Birthday to:

June Birthdays

Paul Donatelli
Wanda Ewing
Terry Givens
Neal Heacox
Judy Moffet – Whale
Barbara Nakaoka
Ernie Pianalto
Jack Rosenbrock
Catherine Rowlee
Ashley Soto
Marion Swick
Bill Waggener

July Birthdays

Chris Caenepeel
Marla White
Barbara Gentry
Jean Beckner
Nan Davidson (Kaeser)
Eugene Baumann
Emilie Ballard
Kahtleen Noll
Vivian Li
William Gendron
John Biddle
Anne Moreau
Mary Perera

August Birthdays

Sara Simon
Linda Munsey
Carol Petty
Christine Zukowski
Lorraine Francis
Elene Kallimanis
Kelly Swift
Rudi Volti
Stephen Zetterberg
Ray Owens
Susan Starr
Mary Chamberlain
Linda Troyer
Lisa Layne
Michael Sampley
Ariany Chavez
Michael Sampley
Shaunna Gygli
Cindy Walkenbach
Sharon Kaatmann
Rita Ruminski
Stephen Bryant
Susan Winderman
Joanna Wren

ROBERT PAYNE MUNS

(October 23, 1925–April 16, 2022)

by Linda Lee Worlow



With fond memories for those of us who have been around for a while, we honor the memory of **Bob Muns, Volunteer Emeritus**, who passed away in April at the hearty age of 96.

Bob joined the Garden Volunteers in 1983 and is well-remembered for his generosity of spirit.

His beautiful pen and ink drawings—some made into cards, as well as plant list booklets that identified the flora of Southern California—were all donated for the benefit of the Garden. These lists were also used when he led many a field trip.

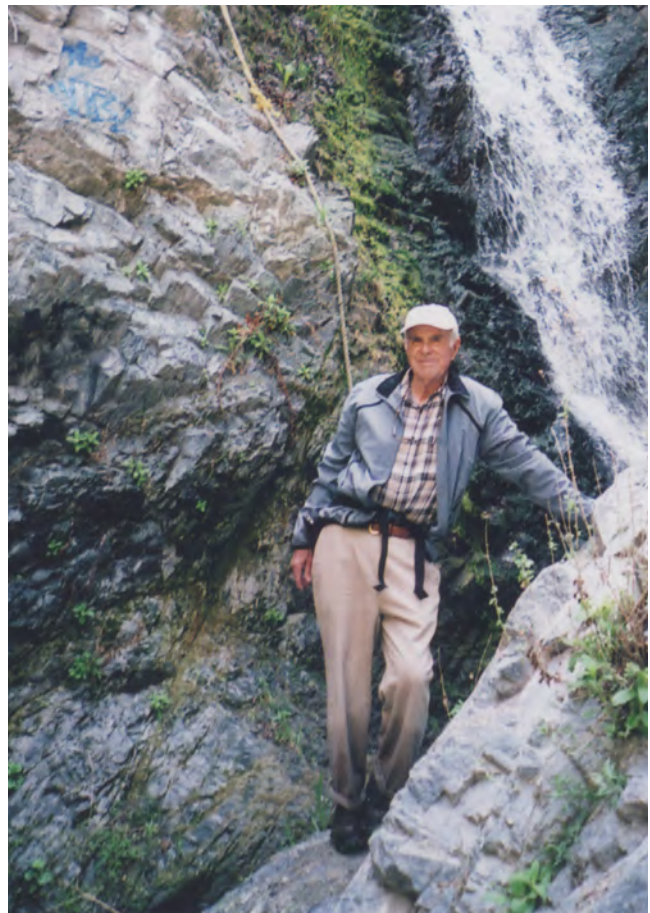
A graduate of the University of California, Berkeley, Bob's career as a chemist led him to approach his avocation as a naturalist and amateur botanist with organization and precision. Do not forget that *amateur* derives from Latin *amāre*, which means to love. Indeed Bob loved the flora of California. An ardent hiker in our San Gabriel Mountains and elsewhere, it was not uncommon for him to be out three days a week with good friends from the Volunteer cadre, including Cricket Florance (Nature Interpreter, Class of 1997) and others.

Former RSABG Director of Education Bonnie Busenberg, who led the department from 1977–1988, remembers Bob as generous, unassuming, and always ready to lend a hand. Bonnie frequently asked Bob to provide plant illustrations for the Education Department. She noted he was a gifted artist who produced beautiful and meticulous drawings. Above all, she remembers Bob as a kind and bright man who radiated integrity, honor, and humility.

Bob was a Volunteer at the Garden during my tenure as Director of Volunteers (1988–1999). I enjoyed his unassuming nature and sense of humor. I remember asking him one day what he did. With a twinkle in his eye he replied, "I'm a Botany Bum!"

Among his endeavors, most notable were Bob's plant ID booklets, which he produced for our edification. The masters for many of these have been donated to the Garden's archives. CNPS/Sierra Club hiking pal Tom Chester created a webpage titled *Plant Lists by Bob Muns*. To enjoy Bob's work, please see this link: <http://tchester.org/plants/muns/index.html>.

Expressions of sympathy may be sent care of Cricket Florance, who will share these with Bob's family. Her address is: 9580 Meadow Street, Rancho Cucamonga, CA 91730.



GARDEN GUIDES BACK AT WORK

by Ann Morgan

April and May saw an increase in requests for tours, putting Garden Guides back to work. Tram tours were offered on weekends in April as part of the Garden's Wildflower Month program. Adult walking tours also took place in April and are scheduled throughout May. We also had several school tours—the first in many months. A TK group (transitional kindergarten) enjoyed an Eye Spy tour in April. The recently revised 1.5-hour Adaptation and Survival tour was offered to approximately 100 fifth graders from Ontario on May 5 and May 12. While many of us feel a bit rusty as a result of the few tour opportunities since the beginning of the pandemic, it has been enjoyable and gratifying to be back sharing our love of the Garden with visitors and school groups.

The Visitor Education Committee continues to work with Jennifer Scerra to provide opportunities for current Garden Guides to get reacquainted with the Garden. Watch for information about future Garden walks (NICE walks) and tour refresher sessions.

Lucinda McDade's recent Oak Notes column mentioned the expectation of a more normal school year, which will likely result in more school tours. She also mentioned plans for new Volunteer trainings that we hope will result in recruiting new Garden Guides. We look forward to seeing more experienced Garden Guides as well as new recruits as the tour schedule ramps up.

Ann Morgan & Katy Douglass are Co-Chairs Visitor Education Committee.



L. A. TIMES BOOK FESTIVAL

by Linda Prendergast

CalBG participated in the L.A. Times Book Festival at USC April 23–24. We were promoting *California in a Vase*, the beautiful coffee-table book devoted largely to the work of our volunteer group, Native Designs. The book was sponsored by Susan Gottlieb, who also produced *The Gottlieb Garden, a California Love Story* celebrating California native plants in the landscape. Susan has underwritten several other books, including *Hummingbirds of the Gottlieb Native Garden* and a book on wildlife in her garden. All of these books were featured in the large booth at the festival.

The festival itself is a very large endeavor with live music on several stages, readings, and authors signing their creations. Lucinda and I spoke to many visitors from the West Side, most of whom did not know about our beautiful Garden. We didn't sell many books, but we made new friends for CalBG.

Native Designs provided five gorgeous arrangements illustrating the year-round premise of *California in a Vase*, including a large fresh Christmas wreath created by Carol Petty. Wanda Ewing made a beautiful vase arrangement of Fremontia, Cleveland sage, and redbud foliage. Susan Spradley contributed a sweet little pitcher of penstemon and wooly blue curls and a large all-yellow basket arrangement with sunflowers, lupine, Shasta sulphur buckwheat, and California buttercups. I made an all-white arrangement of Carpenteria, pearly everlasting, white penstemon and artemisia, plus a mixed arrangement in a wooden burl. The large vase of pink penstemon I assembled at the festival also drew a lot of attention. There were many people who never thought about native flowers as cut flowers, so we accomplished at least a little education!

If you have not seen *California in a Vase*, please stop by the Poppy Shop at the Kiosk and take a look. The book is a lovely gift and would be a welcome library addition.



**You are invited to join us for our end-of-the-year
CALBG VOLUNTEER
LUNCHEON AND QUARTERLY MEETING**

**11:30 AM Wednesday, June 1, 2022
Lantz Outdoor Classroom
Tram begins at 11:00 AM**



JUNE BLOOM

**Drawing for Prizes! Meet some of our new staff!
Please bring your own sandwich.
Fruit, chips, dessert, and drinks will be provided.**

**Our meeting will include the election of
Volunteer Board officers and honor volunteers for their
anniversary years of service.
Please wear your name badge.
Staff are welcome!**