

Oak Notes

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NEWSLETTER OF THE CALIFORNIA BOTANIC GARDEN VOLUNTEERS

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FROM THE PRESIDENT

Betsy MacLaren, Volunteer President



Happy New Year to everyone. I was fortunate to start the New Year with a visit to the Garden with my cousin Mark, who was visiting from the Boston area. We followed the green stripe on the ground in the Communities, flushing a squirrel or two and the occasional lizard. We both admired the twisting Joshua trees, but what really caught our attention was one of the two boojum (*Fouquieria columnaris*) trees. The tree, visible from quite a distance due to its height, makes quite a statement as it reaches into the sky.

Intrigued by the boojum name, I researched it on the Internet when I got home. I was surprised to learn it is related to the succulent ocotillo, one of my favorite plants with its spiny arms covered in lovely red flowers. Even more interesting was learning how the tree got its common name of boojum. According to the Internet, the name was given to it by the plant explorer Godfrey Sykes who exclaimed when he first saw it, "It must be a boojum!" He was familiar with the Lewis

Carroll nonsense poem *The Hunting of the Snark*, in which the boojum was a main character. Maybe the boojum is related to the jaberwock, another fanciful and odd character in Lewis Carroll's sequel to *Alice in Wonderland*, *Through the Looking Glass*.

We had a very successful fundraiser: selling hot cider, cookies, and brownies during the five nights of Luminaria. Along with the Native Designs wreath sales, Luminaria sales provide the bulk of our annual fundraising revenue. This year we raised \$3,270.39. Thank you to everyone who helped make the Nights a success in so many ways.

—Betsy

The deadline for articles to be submitted for the OAK NOTES is the **15th** the month **prior** to publication. Thank you for your prompt submission!

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



FROM THE DIRECTOR

**Lucinda McDade,
CalBG Executive Director**

The new year still feels new (I wrote 2023 just the other day) but it is already late January as I write. So far, there is little to show for the much vaunted El Niño but it is still early so we shall keep our fingers crossed and see!

I hope that you are as enthusiastic as I am about the New Volunteer Orientation sessions that are coming up. It has been SO long since we have really done such an event and we have quite a few working volunteers who have never participated. We feel strongly that our most effective volunteers have a pretty broad understanding of the diversity of resources and programs that we have here—many rather behind the scenes and not on public display. Even if the volunteer joins the Wednesday (or Saturday) grounds work crew OR mounts plants in the herbarium, who can help but be impressed by the California Seed Bank? ...by our exquisite library? ...and by the fact that we routinely gather DNA sequence data for rare plants (and common ones too!) in our molecular lab? I am looking forward to interacting with the group on the first Saturday (27th). Thanks to those of you who will be present, whether helping with the orientation or just to make them realize that there is a wonderful group of people that they will be joining. Special thanks to Patty Nueva España who is organizing these important days.

It has been very exciting to see the school field trips program really come back—joyous to hear children's voices on the air again. Special thanks to all of you who are Garden Guides: as you know, you make it possible for us to offer these field trips—events that children (and the adults they become) will remember their entire lives. I routinely speak with (adult) members of our So Cal community who well remember coming to the Garden on a school field trip as a child.

We have a number of important infrastructure projects that will get underway in the next few

months. Most of you have heard about the elevator plus ADA restrooms annex that is to go on the north face of the Administration Building. This is Phase I of the Herbarium Expansion Project. We must achieve some degree of ADA compliance in order to be able to launch the ultimate phase which is to close in the currently empty second floor space about the lobby (a similar project was undertaken some 40 years ago to achieve the molecular labs that are over my office and the rest of the west wing—quick 'tours' are available upon request!).

Construction should be underway fairly soon for the annex, although I am told that elevators require about six months post-ordering to be delivered. One thing to know is that we will have to 'lose' the palm tree that is right out the back door of the lobby to the right. Please know that it should never have been planted that close to the building. Palms are highly flammable and it is extremely close to the herbarium (plants mounted on paper: YIKES) and the library (books! archives! YIKES!). Happily, when Hort staffer Laura Cunningham redid the plantings at the base of the tree a couple of months ago, she found no evidence of resident wildlife (perhaps it is too close to the building for them too!).



A Very Happy February Birthday to:

| | |
|---------------------|-------------------|
| Antonio Camaraza | Donna Nicholson |
| Talula Clark | Donald Page |
| Richard Davis | Julie Scheuermann |
| Sofia Flores | Barbara Shelley |
| Phoebe Frankeberger | Amanda Vlietstra |
| Carol Hopping | Emy Lu Weller |
| Khan Nimrah | Sandy Wilson |
| An LeVangie | Betsey Zimmerman |

This project will be a bit disruptive and we ask that you bear with us: once it is complete, it will be a vast improvement for essentially everyone, inclusive of our herbarium staff who currently must carry stacks and stacks of herbarium specimens up and down our rather steep stairs. NOT to mention books, etc., etc.

I am going to write about developments on the new Entryway Plaza plus Restrooms in my next *Oak Notes* column. By then, we will have heard from the city building department, should be close to hiring a contractor, and will be in fund-raising mode with a clear goal (right now it is a little fuzzy because we don't have a firm estimate of what it will cost to build).

We will be working soon on the pathway system that leads north from the Forest Pavilion area through the North Garden (north of maintenance) and out to the communities. This is something that Peter Evans and I had been talking about as we were able to glimpse the completion of the Forest Pavilion project on the horizon—the next significant improvement to the So Cal Gardens area up to and around the maintenance area. Rather independently, volunteer and Garden trustee Rick Davis also became intrigued by this area. It is complicated by what I call a 'tongue' of the mesa that extends to the east there—it almost forms a 'divider' between the North Garden and the rest of the So Cal Gardens area. Rick has recruited Peter Evans to lead the team working on the reformulation of the foot traffic flow plan and the subsequent path design. I am very excited to see this project take form as the area has been a challenge for a while (well, forever). Part of this will be 'formalization' of a single, ample pathway north from the Tongva Village area to join the North Garden trail access system. Again, if you want to hear more about this project, ask Rick or me to give you a mini-tour.

Some of you volunteers know that I wear multiple hats here at the Garden. Notably, I am still Director of Research and leader of our graduate program. In that role, I participate in graduate education and my substantial teaching commitment is happening this spring semester. I teach a class—lecture plus lab—that surveys seed plant diversity from a phylogenetic (i.e., 'family tree') perspective. If you see me dashing here and there, and if I seem a bit thinly spread, that

is what is going on. Bear with me and thanks for your patience!

I hope to see all of you soon, whether at volunteer events, while you are mounting plants or working with the Wednesday work crew or simply walking our lovely paths—lovelier by the week as we are able to achieve each phase of improvements that have occupied us for half a dozen years now! Thanks for all that you do!

—Lucinda

JANUARY ENRICHMENT

by Steve Bryant



Milkweeds are a diverse group of plants, with 13 species in CA, with at least one species growing nearly everywhere in the State. There are five local-ish species, with two hyper-local (*A. fascicularis* and *A. eriocarpa*), which seem the easiest to grow. Milkweeds have an intricate pollination system, with pests including large and small milkweed bugs and yellow oleander aphids. There are two local species of milkweed butterflies, the Monarch and the less-common Queen. There are four life stages, culminating in the adult; only the larval stage actually grows. Monarchs are now protected in CA; no life stage can legally be disturbed. There are two sides to the tropical milkweed argument, with the University of Georgia people tending to want it eradicated, while UC Davis people think it is harmless or even beneficial to CA monarch populations. Monarchs, and the narrow-leaved milkweed, are active/green all year long in many SoCal locations. It is probably best to plant locally native milkweeds in dispersed patches.



HONORING MEMORIES: TRIBUTE & MEMORIAL BENCHES AT CALBG

by Jen Pizzolo, Advancement Office

When an individual or family wishes to make a donation to honor a loved one with a tribute or memorial bench at California Botanic Garden, they contact the Advancement Office to schedule a meeting and take a tour. This has been one of my favorite roles in the Advancement Office because it is such a special way to connect with our community. I am always moved by the heartwarming stories I hear and the realization that our Garden has touched the lives of so many.

At the heart of this program is the group of volunteers who ensure that the benches are well cared for and protected. Affectionately known as “The Bench Brigade,” these volunteers regularly visit each bench in our Garden to assure their good condition. With meticulous care, members of The Bench Brigade remove dirt, debris, and other traces of the passing seasons.

As you may have noticed on your walks in the Garden, extensive refurbishing is sometimes needed

when our benches start showing severe signs of wear and tear. One exciting bit of news is that in late 2023, the bench *refurbishing* project was restarted by two very dedicated volunteers, Win Aldrich and Ed Ewing. After surveying the benches most in need, Win and Ed began taking benches to their homes for extensive refurbishing, which can take as long as 18 hours per bench! With skillful hands and a love for preserving memories, Win and Ed meticulously sand the weathered surfaces and apply fresh coats of stain, breathing new life into our cherished benches.

The Advancement Office thanks all our volunteers for their dedication to preserving our tribute and memorial benches at CalBG. Your efforts not only maintain the beauty of our Garden, they comfort the families who have made a significant donation to ensure their loved ones are honored and remembered. In addition, you have ensured that *all* visitors to CalBG may enjoy welcoming and peaceful spaces when they seek a place to rest and reflect.

If you know anyone who is interested in being part of this special program, whether by donating or volunteering, please contact the Advancement Office or Patty Nueva Espana, Volunteer Program Coordinator.

VOLUNTEER ORIENTATION

by Patty Espana

We are in the midst of Orientation sessions for new volunteers at the Garden for the first time in quite a while. I can imagine for some of you who joined the Garden as a volunteer in the last few years, it might be hard to fully grasp the opportunities available. That is where participating in an orientation may come in handy. Our orientations are designed to open up the Garden to joining volunteers in a way nothing else can. You will go behind the scenes, meet staff you wouldn’t ordinarily meet, and possibly see the Garden in a new way. It really is a necessary part of your education and development as a volunteer. If you are a new volunteer and did not enroll in this presently running (and highly recommended) orientation, there will be more to follow. Reach out

to me and I will add you to the roster for the next orientation—you will be glad you did.

Family Bird Festival: Save the Date

On February 18, 2024, help California Botanic Garden celebrate the Great Backyard Bird Count and the wonder in amazement at the birds, by volunteering for the Family Bird Festival. This is always an engaging, hands-on event with many activities taking flight all over the mesa. Please consider being a part of the action by signing up to work at one of the activities or stations. Assignments are available on Volgistics and there are plenty to choose from: there is something for everyone.

Upcoming: Grapevine Harvest

Please set aside Friday, March 15, 2024, and take part in CalBG's great Grapevine Harvest and Potato Lunch. More information to follow.

FEBRUARY IN THE GARDEN OFFERS A LAWN ALTERNATIVE

by Laura Christianson

Gradually, the days are getting longer and with them, February often brings a sense of anticipation for what lies ahead in spring. The first buds break on a few of our deciduous trees and shrubs, and new, bright green growth can be spotted throughout the Garden.



Coast Silk Tasselbush

Pink brightens the winter season with blooms of *Cercis occidentalis* (western redbud), as well as *Salvia spathacea* (hummingbird sage). A walk to the Baja California section, tended by horticulturist Alex Reyes, will lead you to another February star, *Rhus lentii* (pink-flowering sumac), as well as various pink-blooming Dudleyas (liveforevers). The first of the Huecheras and Aquilegias (coral bells and columbine respectively) begin to appear in their delicate forms, and various *Ribes* (currants) still put

on a show throughout the month. If you find yourself with time to walk the SoCal Garden section, look for the densely blooming *Garrya elliptica* (coast silktassel, opposite) in Grafton Garden, just west of the palm oasis, managed by Senior Horticulturist Chip Grubbs.

The Horticulture team has been working together on numerous large projects this fall and winter throughout the Garden, one of which was recently completed in January. We are excited to introduce a lawn-alternative demonstration space, found just



Phyla nodiflora Demo Area

north of the California Courtyard next to the Silent Sentinel statue. Months ago, a team removed plant material from the area, and horticulturists then worked to level the space and outline the area with rockwork. In late December it was planted with over 40 *Phyla nodiflora* plants (common lippia), grown by the CalBG production team. This beautiful, fast-growing ground cover is a wildlife-friendly, drought-tolerant alternative to turf grass, and should hold up well in high-traffic areas. We are excited to watch it grow, and to present the public with another sustainable alternative to turf grass. We hope you will check out its progress over the coming months as it fills in the space.

In your own gardens, February continues to be a good time for tidying up any dead material left on shrubs and getting those new plants in the ground while we still (hopefully!) get some winter rains.

CALBG HORTICULTURISTS



Rio Fernandez

When you plant a plant and watch it grow you are connected with dirt, with cycles of seasons, with ancestors who tilled and cultivated. When you plant a plant and watch it grow

you become a generous warm sun, the dawn, the dusk, the soft rain, a vast expanse that allows you to remain; and the spreading of those plants' roots mirror a reconnection to yourself, to the past, to a profound existence you thought you never had.

My name is Rio Fernandez and I am a Horticulturist here at the California Botanic Garden. My relationship with native plants is a rekindling of a past self that has always involved a connection to nature and living things.

I grew up on a farm in Herald, California, where I learned techniques and skills from my Portuguese grandparents who grew up as farmers themselves. We raised cattle, made our own wine, and grew fruits

and vegetables from our garden. My parents were always proud to announce, "everything that you are eating is from the garden," to guests during dinner, and loved showing how easy it was to grow your own food.

For a time, I diverted from this path, studied visual effects at DePaul University, and pursued a career in filmmaking. Though I was successful and had many clients, I had accidentally removed myself from the natural world and had become disconnected from it and with myself. I needed a change and sought a way to develop my own personal relationship with the land.

I learned that LADWP has a turf replacement program in L.A. County that gives grants to replace grass lawns with native plants. After being accepted for the program, I got to work and replaced 2,000 sq. ft. of lawn with over 200 native plants. This grew my love for native plants, landscape design, and horticulture and drew me to a different path in my career.

CALIFORNIA BOTANIC GARDEN VOLUNTEER ORGANIZATION ENRICHMENT PROGRAM



Geology of the California Botanic Garden



Geology of the Eastern San Gabriel Mountains

February 14, 2024, Noon, Lenz Classroom
Bring Your Own Lunch

Guest Speaker: Ted Reeves, University of the Pacific Geology Instructor, Chaffey High School Geology and Natural Environment of Southern California Teacher

I have been working as a landscaper, gardener, and horticulturist at various companies for two years now and am so glad I get to spend my days taking care of nature.



Karen Castaneda

Hello Volunteers! My name is Karen Castaneda and I am one of the California Botanic Garden's new Horticulturists. I work in the North Garden and east side of the Communities. Although I have met many of you already at our Wednesday Workdays, I wanted to take this opportunity to tell you all a bit more about myself.

I was raised in Pomona, our Garden's neighboring city, and grew up going on annual camping trips with my family where I spent days on end immersed in nature. From a very young age, I became fascinated with plants: flowers, trees, fungi and just about anything natural.

From climbing trees and picking flowers in the playground as a kid to more recently maintaining my own at-home vegetable garden, my journey of admiring nature eventually led me to pursue an education in the environmental field. I went to school for Environmental Studies at Cal State Dominguez Hills where I focused largely on urban gardening and agriculture. I graduated in May, 2023 and began an internship with the San Bernardino National Forest shortly afterwards.

Here, I spent the summer in Big Bear making native seed collections, mapping rare plants, and helping with various restoration projects on the mountain. I observed flowers and leaves through a loop for hours and studied the unique features that differentiate plants from one another. My appreciation for the beauty of hundreds of California native plants grew as I watched them transform from buds, to flowers, and eventually to the point of seed dispersal throughout the season. When the internship ended, I knew I wanted to continue learning about California flora.

Now, I'm excited to be starting my journey here at the Garden where I'm surrounded by native plants from all across the state and can share my

appreciation for native plants with others. When I'm not working with plants, I like to do ceramics, paint, rock climb, ride my bike, and go camping.

FAMILY BIRD FESTIVAL 2024

by Sally Hy, Community Education Coordinator

The Family Bird Festival, otherwise called "Bird Fest," is quickly approaching. Its return this year is on February 18, 2024 from 11 a.m. to 3 p.m. Visitors flock to the Garden to celebrate our special native wild birds as a part of National Bird Month. In partnership with Pomona Valley Audubon Society (PVAS), our Mesa is brought to life with exhibitors, shows, food, games, and crafts! This year, we will have some returning faces including: PVAS, California Condor Wild & Free, International Bird Rescue, and some new faces such as Janel Ortiz with the Cal Poly Pomona Urban Wildlife Lab.



This family friendly educational event is a time when our Garden gets to work with the community and educate people of all ages about the wonders of wild birds and the relationship between birds and our native California plants. Volunteers, especially our trained Garden Guides, interact with visitors and educate them on bird adaptations and habitats, similar to what they do with their school programs.

But you definitely don't need to be a Garden Guide to volunteer for this event. There are so many opportunities to help out. Whether you feel like assisting people with wayfinding, welcoming people with their passports, or want to volunteer at the

crafts table, there are plenty of ways you can help tremendously. Keep an eye on Volgistics for Bird Fest postings, and don't forget to sign up if it's not too much of a *bird-en* (*burden*)!

DEFORESTATION

by Fred Brooks

Deforestation is a concern worldwide. Cataclysmic natural events, diseases, and pests are a continuous threat. Humans, throughout their evolution, have lived in and off of forests, using them for shelter and fuel, and clearing them for agriculture, grazing, and habitation.

The number and variety of tree species in a forest can provide a buffer against its decline. Current surveys indicate that the further north from the equator you travel the fewer tree species exist in a forest. Aside from humans, is this *species gradient* due to decreasing temperatures, day length, or other factors?

Pathogenic fungi in the soil are one factor. They can attack tree roots and damage or kill susceptible species. Scientists are currently surveying forest soils for beneficial plant-associated fungi, especially ectomycorrhizae (EM) and arbuscular endomycorrhizae (AM). Mycorrhizae are soilborne fungi that invade plant roots in a mutualistic relationship: they assist trees with water and nutrient absorption while trees provide the fungi with carbohydrates from photosynthesis.

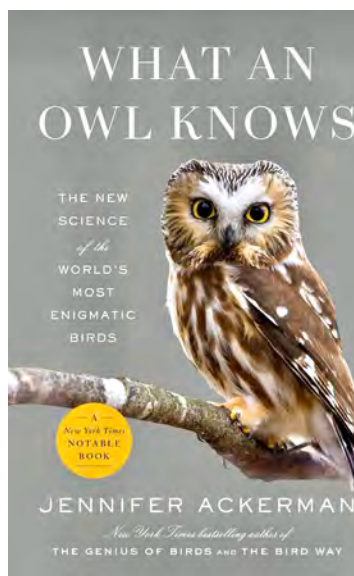
One hypothesis is that a few trees of the same species are more apt to survive disease than a large number of the same species. This condition often occurs when AM are dominant. AM penetrate tree roots, providing an entry and subsequent buildup of pathogenic fungi. The higher the load of pathogenic fungi, the fewer susceptible trees will survive, making room for new tree species with some resistance to the pathogen. Conversely, EM form a mantle around a tree's feeder roots, inhibiting pathogen entry and leading to an increased density of the same tree species. This high density of a single tree species inhibits new species, reducing species diversity.

In support of this hypothesis, several studies determined that AM dominate soils nearer the

equator, creating a greater variety of tree species, but fewer trees of each species. Moving northward, however, the number of soils dominated by EM increases and forests have fewer tree species, but more trees per species. The relationship between the rate of pathogenic fungi accumulated by a tree species and its decline was strongly correlated with the mycorrhizal species inhabiting its roots. Research continues on the relationship between mycorrhizae and forest health.

BOOK OF THE MONTH

Barbra Nakaoka, Volunteer
Library Committee



What An Owl Knows
by Jennifer Ackerman,
Penguin Press, 2023,
299 pp.

This book is a compelling case for doing more research on protecting owls. There are some 260 species of owls, on every continent except Antarctica. Scientists are continually finding new species.

By looking at research studies, analyzing the culture and environment where the birds are located, and joining scientists in the field conducting their studies, Jennifer Ackerman unfolds new facts through stories that support the “save the owl” agenda. Apparently, we don't know much about them, due in part to their appearance and behavior. They are camouflaged, and some move during the night while others live underground. Due to the latest technology, such as satellite imagery, scientist have made important discoveries that may benefit not only the owls, but humankind.

Research on the owl's brain has stimulated more inquiries and questions. *Mystery*, *magical*, and *surprises*, are words used throughout the book to describe experiences with these owls and their species complexity. Aside from our basic information, scientists are asking questions about: how they communicate, their personalities, how they detect prey at night with such precision, their intelligence, new information on the Snowy Owl, and what can be used to help humans in their quest for good health.

Here are a few “aha moments” revealed in Ackerman's work on process and discovery: Researchers use a dog's sense of smell to locate hard to find owl species; Owls can regenerate hair cells and thus retain their hearing; DNA may determine if the Burrowing Owl is actually two or more species; and The Great Horned Owl baby starts vocalizing in the egg.

There is still much that we don't know about these discoveries: their migration strategies, communication, sleeping, the brain, and the connection between owls and humans. It is possible owls have been adapting to climate change—what have they learned that we could benefit from?

MY FAVORITE LOCAL COASTAL SAGE SCRUB PLANTS

by Steve Bryant

The Coastal Sage Scrub community, found up to ~600 m, has plants that are generally soft-leaved, aromatic, and drought dormant (so may disappear or look brown in the dry season). Evolved for local conditions, many of these make reliable local garden plants. Some of my favorites include *Salvia apiana* (White Sage) and *S. mellifera* (Black Sage), both dependable in local gardens. *Salvia apiana* may grow to 3 m across and over 2 m tall; *S. mellifera* about 2 m tall and 3 m wide, and will look good with a little year-round water, or go brown and lose leaves without any hot, dry-season water. *S. mellifera* seems to be a good host for the hemiparasitic *Castilleja foliolosa* (Wooly Paintbrush). *Eriogonum fasciculatum* (Buckwheat), to 2 m tall and 4 m wide, is easy and often volunteers; it is also host for the parasitic *Cuscuta californica* (Dodder), with

its orange filamentous stems wrapping through the *Eriogonum* in the Spring. *Artemisia californica* (California Sagebrush), to 2 m tall and 4 m wide, is also a common aromatic shrub and is drought-dormant without supplemental water. For flowers, I like *Penstemon spectabilis* (Showy Penstemon), to 2 m tall and wide, with blue-pink, freely seeding flowers, and *Delphinium cardinale* with its scarlet flowers on 2 m tall stems, dormant in the hot dry season (as I write this on 4 December, my plants are just starting to emerge from dormancy). *Lilium humboldtii* (Humboldt Lily) is an orange-flowered tiger lily, which needs some shade, and goes dormant during the hot dry season. *Silene laciniata* (California Pink) is a small plant <1 m tall and wide) with scarlet, deeply incised (“pinked”) petals. *Lupinus latifolius* (Broadleaf Lupine) is a perennial (dies to ground towards the end of the hot dry season) up to 2 m tall and wide, with large (to 1 m long and 15 cm wide) inflorescences of light purple flowers; shade tolerant and seeds freely. *Paeonia californica* (California Peony) is also perennial, about 50 cm tall and wide, with purple-brownish flowers in the spring and seeds resembling rat droppings; best in shade with some irrigation until dormant.



Humboldt Lily



California Pink, (C) Juergen Schrenk Calphoto



Wooly Paintbrush



Buckwheat & Dodder

AROUND THE GARDEN

Photos by Marla White.

