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

I’m just back from an incredible trip to the Middle East that featured visits to Egypt, Jordan and Israel. Of course, I was primarily interested in the history and cultural aspects of the trip, but also wanted to discover what could possibly grow in such arid landscapes. I was on the lookout for grasses, small plants and trees, especially palms, that are known to grow in parts of the Sahara. However, as we entered the Suez Canal and headed to the port of Hurghada, the stark brown, seemingly plant-less landscape beyond the canal’s edge stretched as far as the eye could see. When we reached The Valley of the Kings, again no plants to see and we couldn’t imagine how anything would grow there. Had the pharaohs picked this particular spot by design? Probably so, for it had provided generations of pharaohs with the perfect hidden burial spots they sought to take them and their worldly possessions to the afterlife and protect their eternal peace. A forsaken place to the living, it was certainly no Forest Lawn with expanses of greenery and shade trees that would invite visitations.

Traveling on to Wadi Rum in Jordan, we finally saw a bit of greenery among the colorful sands of its gorgeous landscape. Small, low-growing plants and occasional shrubs that I couldn’t identify dotted the landscape, especially below the tall sandstone rock formations. For the Bedouins, these plants provide firewood and serve as essential food sources for their camels and goats. And once we arrived in Petra, we discovered an acacia here and there and hillsides covered with desert tulips just a few weeks from blooming.

It was a memorable trip, but it’s nice to be home and to see a beautiful green RSABG washed clean and sparkling in the sun, providing a peaceful, green place for all of us to enjoy. I hope to see you at our next Volunteer Quarterly lunch meeting on March 8.
From the Director
Lucinda McDade, RSABG
Executive Director

Will this be another Super Bloom year?
It is looking good thus far but, first, let me backtrack to reiterate a point that I’ve made earlier on the pages of Oak Notes (and to some of you in person). Please remember—and tell others—that the lush green hillsides above Claremont are looking that way largely because invasive, non-native grasses have thus far had a very good year. I can imagine that you are thinking: I like the green—what could be the harm? (If you are not having that thought, then certainly people with whom you may be interacting are thinking along those lines.) First, these invasive grasses germinate early and grow quickly. Those traits tend to give them a jump on native plants, and they have a tendency to crowd out—by overtopping and shading—the natives that would otherwise dominate those plant communities. This includes native wildflowers and herbaceous perennials, but it may also include early stages of the woody plants that dominate the mature Coastal Sage Scrub that characterizes our region in the absence of these non-native grasses. Second, once they dry down and turn brown, they are straw-like and very flammable. I observed that when the Bernard Field Station caught fire several years back (September of 2013, I believe). The fire burned slowly while it was in the native chaparral vegetation. However, once it hit the non-native grassland in the southeastern ‘corner’ of the field station, its spread accelerated rather dramatically and, frankly, alarmingly. What can be done? Contemplate the challenge of clearing even a small area of these invasives; then realize that you will have to do it again next year… Actually, you might even have to do it more than once in the same year as germination can happen in waves. This is a tough problem to solve.

Now, on to the question of whether all of this rain is going to bring another super bloom—just two years after the bloom of 2017 which, I hope you know, was visible from space! Basically, if the pattern of rainfall and of weather between rainfall events is conducive to seed germination, and then to survival and growth of small plants, then conditions are right for a magnificent display. There is no particular reason to think that the super bloom of two years ago depleted the seed bank. On the contrary, assuming that many of those super blooms turned into super fruits (with seeds), the seed bank will have been considerably replenished.

I have visited the area around the southern entrance to Joshua Tree National Park a couple of times in the first two months of 2019 and can tell you that it is already looking very good. In early February, there were already fields of annual lupines two feet tall—the purple haze of lupines stretched off into the distance from the short nature loop trail near the Cottonwood Entrance not far north of the 10. Even back in earliest January when I was in this area, there were quite a few things already in flower.

Interestingly, this year’s bloom looks quite different from two years ago and, as I think about it, two factors come to mind as candidates for partial responsibility. First, many of you will remember that “spring” started very early in this, the 2018-2019 rainy season. Remember the rain that impacted “Things that go Bump in the Night” back in the first weeks of October? From the size of many of the flowering plants that I saw in the desert in earliest February and even back in January, I infer that they germinated in response to that very early rain event and have simply had a long time with favorable conditions for growing and coming into flower. Second, my observations suggest that species composition is quite different this year compared to two years ago, at least at places that I have visited. Yes, there were lupines near the Cottonwood entrance to Joshua Tree National Park in the spring of 2017, but there were not nearly as many as this year—there was no purple haze stretching off into the distance in 2017. This season seems to have been just perfect for the germination, growth and flowering of Lupinus arizonicus. Our California Seed Bank and Nursery

Every flower is a soul blossoming in nature.
—Gerard De Nerval
staff can tell you that seeds of different species require quite different treatments and conditions in order to germinate at high frequencies. That fact, coupled with the truism that no two years are the same in terms of weather patterns, means that we have every reason to expect that there will be considerable inter-annual variation in super blooms, at least in areas that are home to diverse species of wildflowers. Lucky us! We are fortunate enough to get to witness the occasional super bloom, and it comes as an added bonus that it is highly unlikely that any two blooms will be very similar. No chance of ever getting bored with super blooms!

As news develops regarding the bloom and which locations are best for viewing, I hope you will be able to get out to see it in person (consider joining one or more of the outings that will take place in conjunction with Wildflower Festival). Life is too short to miss a super bloom!

Touring Programs

Judy Hayami, Touring Programs Manager

The Family Bird Festival in February was cancelled due to rain for only the second time since its debut about 18 years ago. Thanks to everyone who signed up to help and to those who pitched in at work parties to prepare craft and station materials. We are ahead of the game when it comes to supplies for Bird Festival 2020! The next work party is set for Monday, February 25 at 9 a.m. in the Horticulture Classroom.

All interested volunteers are invited to join Maria Jesus and Nature Interpreters for a N.I.C.E. Walk on Monday, March 11 at 10:30 a.m. The topic is Wildflowers, but may include other plants coming into bloom. Meet at the entrance. Please do not impede visitor access by gathering too close to the Kiosk.

The NI review session for Origami in the Garden² school tours is scheduled for Wednesday, March 13 at 10 a.m. All interested volunteers are invited. We offer one-hour guided school tours featuring 4-5 of the art installations and include a paper-folding or coloring activity. Origami tours are also offered as Sign Up tours for youth groups.

Nature Interpreter spring teams: Please check and recheck the tour calendar frequently for updates. This time of year, it’s a dynamic schedule subject to changes. Please do not opt out of a team tour without checking with the Captain first. Substitutes, please keep yourselves available. Wednesdays are usually not school tour or program days, but I may need to reschedule a few reservations due to rain cancellations. There are several opportunities posted for Tram tours, Sign Up tours and Origami tours.

Sign yourself up on the tour board the next time you are at the Garden or contact the March Monthly Organizer, or me, for assistance. Sign Up tours are now posted on Volgistics.

Hang on to your hat (or purchase a new one from the gift shop). Spring is ready to burst on the scene!

Volunteer Programs

Kathleen Noll, Manager of Volunteer Programs

Wonderful volunteers! We rely on support from our wonderful volunteers to make the Garden a one-of-a-kind experience for nature, education and volunteerism. This spring will offer some truly special volunteering opportunities. Please be sure to mark your calendars and stay tuned for the details. With every event and every weed pulled on every work day, volunteering together and sharing the Garden with our visitors makes a huge impact on this beautiful place!

Coming up:

Poetry Day: Saturday, April 6
Origami in the Garden² Tours: Saturdays and Sundays through April 14
Wildflower Week: Saturday through Sunday, April 13–21
Bird LA Day: Saturday, May 4
Forever California: Sunday, May 5
National Public Gardens Day: Friday, May 10
Butterfly Pavilion Opening Day (Mother’s Day): Sunday, May 12

Butterfly Pavilion 2019
The Butterfly Pavilion will attract all kinds of visitors eager to explore and learn more about beautiful pollinators and their habitat May–July. As volunteers, you have the opportunity to help with the Garden’s commitment to community enrichment and environmental education by volunteering in the Butterfly Pavilion. Are you available to help this season? Butterfly Pavilion volunteer schedules are available on Volgistics. This year we are offering volunteer opportunities for regular weekly volunteers to join our “flight crew.” Butterfly Pavilion operations offer morning shifts and afternoon shifts Tuesday—Sunday. If you wish to sign up for the Butterfly Keeper schedule on a weekly basis, or think you may enjoy a weekly shift and wish to reserve your day in advance, please log in to Volgistics on the Garden’s volunteer page of the website, or email me knoll@rsabg.org with your schedule request. Butterfly Pavilion orientation will take place in late April. Please feel free to stop by the volunteer office to say hello. I look forward to seeing you in the beautiful spring Garden!

Volunteer Enrichment
Carol Lerew, Enrichment Committee
This month we are pleased to present Enrichment speaker Richard W. Halsey, Founder and Executive Director of The California Chaparral Institute located in Escondido, California.

Richard is a writer, photographer, and guide to help others reconnect with and learn an appreciation for nature. He has given numerous presentations and authored many publications over the past 15 years, sharing his concern about chaparral ecology and the importance of our relationship with this threatened ecosystem. He also works with the San Diego Museum of Natural History and teaches natural history throughout the state.

Five years ago, Richard founded and has been leading the Chaparral Naturalist Certification Program. The second edition of his book, “Fire, Chaparral, and Survival in Southern California,” was awarded the 2008 Best Nonfiction Local Interest Book by the San Diego Book Awards Association.

Richard holds degrees from the University of Southern California in environmental studies and anthropology. While doing graduate work he received teaching credentials in life, physical and social science and a master’s in education. Richard taught biology for over thirty years in private and public schools, was honored as teacher of the year for San Diego City Schools and was awarded the Christa McAuliffe Fellowship.

Please join us on Monday, March 25, at noon, in the East Classroom for what promises to be a fascinating educational journey through the world of the California chaparral. You are welcome to bring your lunch. Coffee, tea, and cookies will be provided.

A Very Happy March Birthday to:
Mark Kay
Lee boss
Michelle Small
Sharon Thompson
Kathy Roth
Lee Waggener
Barbara Hughbanks
Gloria Slosberg
Joan Sweeney
Lisa Broderick
Lynn Miller
Pauline Assarian
Arlene Noreen
Ken Horner
Hartmut Wisch
Sid Tice
Paul Mann
Charles Gale
Skip Prussia

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For more information you can go to CaliforniaChaparralInstitute.org.

(Information for this article was taken from the California Chaparral Institute website at the request of and with full approval of Richard W. Halsey.)

NOTES FROM VISITOR EXPERIENCE

David Bryant, Director of Visitor Experience

I’m excited to announce that we have officially embarked on an Interpretive Master Plan project funded by the Institute of Museum and Library Services. “What exactly is interpretation?” one might ask. Far more than just signage, interpretation spans the breadth of methods and techniques for connecting the public to our collections and overall mission. Indeed, interpretation can take the form of a sign, but it can also manifest as brochures, digital platforms such as a website, social media content, Garden communications, docent scripts and many other materials. Essentially, interpretation can be defined as the interface, the connective thread, between our visitors and the Garden.

The Interpretive Master Plan project will span two years and will ultimately provide us with a high-level framework for developing, executing and testing interpretation at the Garden. We are in wonderful hands for this project. Judy Rand of Rand & Associates is stewarding the development of our Interpretive Master Plan while Jeff Hayward and Christine Larouche of People, Places & Design Research will oversee the audience research phases of the project. Judy has been awarded the American Alliance of Museums Curators Committee Citation for Excellence seven times. She has provided interpretative planning for dozens of museums, including the History Colorado Center, Desert Botanical Garden and the USS Constitution Museum. People, Places & Design Research have conducted audience and market research for over 190 museums and cultural-interpretive sites that emphasize art, history, science, and nature.

How does interpretation and audience research converge? Effective interpretation has been defined as a “two-way street,” addressing visitor expectations and interests to effectively communicate the messaging one hopes to convey. In this sense, we need to understand who our visitors are before we can successfully connect them to our incredible Garden and the larger world of California native plants.

Volunteers from the PR Committee will be assisting with the audience research phase of the project by conducting interviews in the Garden through early June. With a goal of nearly 600 interviews, we aim to develop a better understanding of our visitors and their perceptions of our Garden and its mission.

I look forward to keeping everyone updated on our Interpretive Master Planning project!

MARCH VOLUNTEER QUARTERLY LUNCHEON

Join us on Friday, March 8, at 11:30 a.m. in the California Courtyard for our “Spring is on the Way” 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. (Remember that food from Costco, Trader Joe’s, etc. is considered homemade.) This event gives you the opportunity to reconnect with old friends and meet some new volunteers and staff personnel. The Native Design Team will provide lovely centerpieces, as always, and after lunch President Cindy Walkenbach will conduct a short business meeting. Tram service will begin at 11 a.m. Please remember to wear your name badge. We look forward to seeing you all!

—Hospitality Committee
The bountiful precipitation this year has certainly been a blessing. We've had excellent survival of 1,500 plantings this season. There's been robust rebound of new growth in stressed trees and shrubs, complimented by considerable and ongoing removal of dangerous and unsightly dead wood.

However, we are having to deal with what is becoming “The Year of the Weed.” There’s been a great turnout of volunteers aiding in grounds work -- the most that I can recall, but we’re still going to need all the help that we can get. Expect an announcement of “Peplus Pull” day this month. We have our regular Wednesday workdays 8 - 11 a.m., meeting in the horticulture building, and 2nd and 4th Saturdays, same place and hours. Volunteers can contact Ashlee Armstrong, grounds head, at aarmstrong@rsabg.org to set up work with our grounds staff at other times.

There are also shifts available at Grow Native Nursery with a variety of jobs to do and a lot of educational opportunity from their great staff. GNN head Eli Feldman can be reached at efieldman@rsabg.org.

Grafton Garden (“Veteran’s Garden”), north of Percy Everett, is progressing very well. Irrigation and pathways with edging and decomposed granite are in place.

Plant Production is very busy supplying our extensive garden plantings, Grow Native Nursery, and our conservation/restoration plantings.

In Memoriam
Robert “Bob” Davis

The RSABG Volunteers acknowledge the passing of a dear friend of the Garden, Bob Davis. He passed away on December 10, 2018. A member of the Class of 2001, Bob was a legend as Garden Ambassador and Nature Interpreter. Bob was all for getting the word out about RSABG: Earth Day celebrations from Glendora to Claremont, giving talks to civic groups and inviting those groups for tours of the Garden. Bob gave tram tours where he would share the mission of the Garden with hundreds of guests in appreciation of California native flora. Bob shuttled volunteers to and from quarterly luncheons and assisted the Advancement Office with telephone campaigns, membership renewals and donations. Bob loved sharing appreciation and praise of the Garden whether it was for a fellow volunteer, staff, experience or event—he wanted everyone to know. We are lucky that Bob spent his later years in Southern California in the Garden. He will be missed very much.

A celebration of Bob’s life was held on December 26, 2018.

Out on the Grounds
Richard Davis, Horticulture and Research Committee

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Looking Back—
The Graduate Program
Part II
Carol Lerew, Library Volunteer

In 2006, the newly endowed Judith Bryant Friend Director of Research was established to enhance research and graduate education at Rancho Santa Ana Botanic Garden. Judith B. Friend is a Trustee Emeritus of the Garden and granddaughter of Susanna Bixby Bryant. With a goal of three million dollars, the endowment allowed the hiring of a Director of Research for the first time. Up until then, executive directors, from Philip Munz, Ph.D. to Patrick Larkin, oversaw the research department (including the graduate program) as part of their overall responsibilities.

October 2, 2006 saw the arrival of Lucinda McDade, Ph.D. to fill the position. Lucinda had visited the Garden prior to that time, was acquainted with the senior scientists, and was intrigued with what the Garden had to offer. Her long pedigree included a doctorate in botany from Duke University; immediately before joining RSABG, she was Associate Curator and Chair of Botany at The

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Academy of Natural Sciences in Philadelphia. She also had held positions at the University of Pennsylvania, University of Arizona and Duke University. Her tenure has brought increased focus to the training of botanists of the future at RSABG.

Garden senior scientists who participate in graduate education include long-time, dedicated instructors Drs. J. Mark Porter and J. Travis Columbus. Mark joined the Garden in 1993; in addition to his own research on Polemoniaceae and Cactaceae, he teaches key courses in the botany curriculum and advises the graduate students under his guidance. Travis came on board in 1994, and he, too, teaches several botany courses and enjoys working closely with the graduate students in addition to doing his own research on grasses (Poaceae) and buckwheats (Polygonaceae). Lucinda McDade teaches core courses, mentors students, and pursues ongoing research work in addition to her more recently assumed responsibilities as Executive Director. More recently, Naomi Fraga, Ph.D., Director of Conservation Programs at RSABG, has taken an active role in graduate education, teaching a class on conservation and mentoring three master’s students. There is a positive team feeling among the staff that seems to cement the satisfaction they feel at being a part of RSABG.

There are no more than 12–14 graduate students at any one time. Although their degrees will say “Claremont Graduate University,” they are very much trained here at RSABG and by RSABG senior scientists. CGU provides the accreditation and a number of other student services: it is a good partnership. The small size of the program allows each student to work closely with the instructors, to use laboratory and other facilities as needed, and to establish a close bond with their fellow students. There is no opportunity to hide, no danger of getting lost in a large gaggle of students vying for instructor attention or laboratory time, and no competition for various funding sources as can be the norm in large universities. The nurturing they receive helps them develop to their full potential. Many would say it is education as it should be.

Most students pursuing masters and doctoral degrees in botany come from within the United States. But Ph.D. students can also be international, coming recently from countries including Nepal, Mexico, Colombia, Iran, China, Costa Rica, Venezuela and

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**What are you doing Tuesday mornings?**

Linda Prendergast,
Native Designs Group

There is a casual group of volunteers that futs around in the Native Designs Garden up on the mesa every Tuesday morning—unless it’s too cold, or too hot, or too wet, or too “I would rather drink coffee” out. We would love to have you join us! Right now we have five fairly regular volunteer gardeners, but with Spring coming, we sure could use a couple more, at least.

The Native Designs Garden was conceived, designed, built and financed by volunteers, starting in 2006 or so. Since then we have added a large raised bed and lovely bench area. This little patch furnishes many of the cut flowers and greens that are used in fresh arrangements for Garden (and off-site) events. Like the rest of the Garden, it looks pretty sad right now, but it will burst out in color in a few weeks. (If we can get the WEEDS out of the way!)

If you have free time on Tuesday mornings, come join us. We usually gather about 8:30–9 a.m. and work until we are tired. You set your own pace and your own quitting time and we have a shed full of tools you are free to use. Bring your own water bottle and a snack if you like.

The work includes general gardening -- weeding, trimming, planting, dead-heading, path maintenance, and chasing away rabbits and squirrels. No experience, plant knowledge nor expertise is required, and your fellow volunteers are friendly and helpful.

If you are interested in volunteering in the Native Designs Garden, send an email to NativeDesigns@rsabg.org. The pay is terrible, but the camaraderie is terrific!
Thailand. All will be trained in the theories and methods used to explore plant diversity.

Graduate students at RSABG rapidly acquire skills in preparing proposals for funding for their research, a very important professional “tool.” RSABG offers some support for student research from a number of endowed funds for graduate education (the most recently established one of these will honor Jessica Orozco, alum of the master’s program whose life ended far too soon). External grants are available from diverse sources including professional societies, hobbyist clubs (e.g., the California Native Plant Society), and organizations such as the American Philosophical Society. Some students secure funds from private individuals who are enthusiastic about their work. A diligent graduate student soon learns how to prepare carefully crafted proposals that increase their chances of accessing these sources; funds received range from a few hundred dollars into several thousands. Following the model for graduate education that prevails all across the U.S. in the life sciences, Rancho Santa Ana Botanic Garden provides assistantships for living expenses to graduate students in good standing. These bring a work requirement; each semester, students work in the herbarium, the laboratories, with Judy and Lisa in community education, in the conservation program, with a senior staff scientist on a research project or as a teaching assistant for one of the core graduate classes. This mechanism provides students with living expenses and also with diverse and useful experiences over the course of their tenure at the Garden.

So, what do they study? Classes and training are offered in plant systematics, plant morphology and anatomy, use of a scanning electron microscope, botanical Latin, nomenclature, phylogenetics, methods of biogeography, etc. As importantly, graduate students engage in a research project that forms their master’s thesis or Ph.D. dissertation. Most master’s students undertake a focused study to document the plants in a defined area of California—a floristics study. Areas selected usually have had little collecting such that students are contributing absolutely new knowledge about California native plants. Ph.D. dissertations almost always specialize on a particular group of plants. Recent graduates have studied _Cyrtandra_ (Gesneriaceae), _Justicia_ (Acanthaceae), _Pyrola_ (Ericaceae), _Claytonia_ (Portulacaceae) and monkeyflowers (Phrymaceae). Their work advances our knowledge of these plant groups tremendously.

Following graduation, many newly minted alumni set off to take up postdoctoral positions (e.g., Manuel Luñán is now at the California Academy of Sciences as a postdoc) or for positions in academia (e.g., Dr. Diana Jolles is on the faculty at the Plymouth State University [New Hampshire]), others work for agencies that manage public lands (e.g., Dr. Tasha LaDoux works for UC Natural Reserve System), and others find employment here at RSABG. Alumni of our program who are now staff include Drs. Naomi Fraga and Sarah DeGroot, and M.S. Joy England.

Lucinda’s office reports that, since 1952 to date, 70 students have earned their master’s degrees, and 77 have been awarded their doctorates. A total of 147 RSABG graduates have entered the world of botany to help make a difference in what we know about the biodiversity on our amazing planet and how we live on this third vibrantly alive rock from the sun.

**Credits:** RSABG Friends’ Newsletters, 1992-2010. Thank you to Lucinda McDade, Ph.D., Executive Director; J. Mark Porter, Ph.D., Research Scientist, Faculty Instructor; and J. Travis Columbus, Ph.D., Research Scientist, Faculty Instructor, for their October 2018, interviews. Thank you to Irene Holiman, Library Specialist for her advice and support.

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**Firs (genus _Abies_) and Spruces (genus _Picea_)**

Rudi Volti, Nature Interpreter

I’m about two months tardy with this entry. It should have appeared around Christmas, as some firs and spruces are frequently employed as Christmas trees. One example, the Fraser fir (_Abies fraseri_), is perhaps the most popular variety of Christmas tree due to its superior ability to withstand the stresses of long-distance transportation. Other firs and spruces frequently serving as Christmas trees are balsam firs, (_Abies balsamea_) and white spruce (_Picea glauca_). In total, depending on who is doing the classification, there are 48–56 species of the genus _Abies_ and 35–39 species of the _Picea_ genus worldwide. As was noted in
an earlier article, the Douglas-fir is not true fir, but a member of a separate genus, *Pseudotsuga*.

Mention should also be made here of artificial trees, which have made substantial inroads into the Christmas tree market. According to one survey conducted in 2013, these “trees” accounted for nearly 80 percent of Christmas trees sold in the U.S. Although the trees are usually green in color, they are not necessarily a green choice as far as the environment is concerned. Natural trees do require land, and various agricultural chemicals for cultivation, but they have the advantage of absorbing carbon dioxide. In contrast, artificial trees are usually made from PVC (polyvinyl chloride), posing a pollution threat to the land and oceans if they are not properly recycled.

Firs and spruces are members of the *Pinaceae* or pine family, a varied group that includes eleven genera and more than 250 species. Most firs and spruces share a conical silhouette, and typically grow to a height of somewhere between 20 and 80 m. (66-262 ft.). Although members of the genera are superficially similar in appearance, an easy way to distinguish them is to examine their needles; those of a fir are flat, while needles from a spruce are almost square. You can thus spin a spruce needle between your fingers, while a fir’s needle resists circular motion.

When used for constructing buildings and furniture, wood from firs and spruces is labeled as softwood, while lumber from trees like maples and oaks are categorized as hardwoods. This distinction does not always refer to the quality of the wood, but to its source. Hardwood lumber usually comes from broadleaf trees, while softwood lumber is the product of conifers. Like most softwoods, fir and spruce generally are not good sources of high-quality lumber. As with other softwood trees they grow rapidly, but as a result they lack the density of broadleaf trees. In most cases they are weaker than hardwoods and do not stand up well to weather. Firs and spruces are therefore primarily used for framing, plywood, and as a source of pulp. Wood from some spruces, however, can be used for making good quality musical instruments.

One colorful invocation of “spruce” was the Hughes H-4 Hercules, nicknamed the “Spruce Goose.” Inspired by Howard Hughes and Henry Kaiser, the 8-engine wooden flying boat was for many years the world’s largest airplane, having a wingspan of 97.54 m. (320 ft. 11 in.) and an empty weight of 113,400 kg. (250,000 lbs.). It may be a stretch to call it an airplane, as it made only one short hop of 26 seconds in 1947 with Hughes at the controls. It was not made from spruce, however. Although spruce has been used for aircraft plywood, the H-4 was built from birch plywood. It might more accurately have been dubbed the “Birch Buzzard,” but it has to be admitted that this appellation lacks the alliterative quality of “Spruce Goose.”

**Mantises**

Fred Brooks, Nature Interpreter

There is something intriguing about mantises. In Greek, *mantis* means prophet, or seeker, and refers to the way these insects fold their long forelegs as if in prayer. With about 2,400 species in 430 genera and 15 families, mantises inhabit most tropical and temperate regions. Here is a brief look at two compelling aspects of their lifecycle, ambush predation and sexual cannibalism.

Mantises are generalist predators, feeding on smaller mantises, bees, spiders, lizards, fishes, and even small birds. Their triangular head has two large compound eyes and three small simple eyes supported on a flexible neck. The head can swivel 180 degrees to keep their prey in focus. Mantises sometimes stalk their target but usually ambush them by remaining completely still and blending with their surroundings (photo). They strike quickly with spiked forelegs that catch and grip their prey tightly as they devour them.

Mating among mantises poses the ultimate in sexual conflict. Does the male approach a female knowing he may be eaten, or not mate and lose an opportunity to reproduce? According to recent studies, there are two important components to his dilemma: how hungry the female is, and how much previous access to females the male has had. A hungry female will seize and devour a male before, during, or after copulation, but she is less likely to do so if she is well-
fed. A male with previous sexual encounters, however, approaches hungry females more slowly and stays farther away than males with no previous access to females.

Why the female mantis cannibalizes her sexual partner is still debated. One premise is that decapitating the male during the sexual act increases the length and intensity of his copulation, improving the chance of successful fertilization. However, females most often cannibalize the male when he dismounts after copulation. Therefore, male survival seems to depend on patience gained by prior sexual encounters, the ability to recognize “risky” females, and exercising avoidance or caution when around them.

Book of the Month
Joan Sweeney, Volunteer Library

“Introduction to California Spring Wildflowers of the Foothills, Valleys and Coast”

Philip A. Munz (1892–1974) was a pioneering professor of botany at Pomona College. His name may sound familiar because several native California plants, like salvia munzii, were named for him. He became the executive director of Rancho Santa Ana Botanic Garden in 1946 shortly before Susan Bixby Bryant died, and he played an important role in moving the Garden to Claremont.

In the late 1950s Munz wrote a series of wildflower books “intended for the layman” that were published by the University of California Press. His book featuring California’s spring wildflowers covered the broadest geographic area. The paperback edition (1961) was illustrated with line drawings and 96 “color plates” of plants in bloom. Munz grouped the plants by the color of their flowers—a practical solution for identifying an unknown plant. They were labeled with their common names and included flowering plants not native to California.

The volunteer library has several copies of Philip A. Munz’s original wildflower guides.

As part of their California Natural History Guides series, The University of California Press published revised editions of Munz’s books in 2004. The general editor, Phyllis A. Faber, wrote that their “goal was to retain Munz’s intent but to add more descriptive material …” With masterful understatement, she also wrote “a great deal of new information has been gathered in the last 50 years.”

The title of the book was changed slightly to Introduction to California Spring Flowers of the Foothills, Valleys and Coast. This change reflects the larger number of wildflowers included in the revised edition and better understanding of their geographic distribution. Dianne Lake of the California Native Plant Society was the editor who selected the plants and wrote or revised the plant descriptions. Like Philip A. Munz, she organized them by the color of their flowers. The number of plants increased from 173 to more than 400 as the new edition doubled in size. The original line drawings were retained, but there are now 244 color photos that make plant identification easier.

When I began looking at books about spring wildflowers in the volunteer library, I was excited to discover that the classic series of guidebooks by Philip A. Munz had been updated. We were able to add the revised edition to our collection, and it is available for checkout.
Forest Bathing Resources
Gene Baumann, Library Committee

What is forest bathing? Are you curious about the class on forest bathing that was included in the spring RSABG Garden Guide? There are two books on the topic in our Volunteer Library. “Forest Bathing” by Dr. Qing Li and “Forest Bathing Retreat” by Hannah Fries are both available for check out. These books explain the theory and address the benefits of slowing down and reconnecting with nature.

March Calendar

Events
March 10: Family Fun Day at Origami in the Garden.

Ongoing—Classes—Workshops
March 2: Garden Walking Club, Saturday, 8 a.m., Admission Kiosk.
March 2: Edible Natives: Foraging, Growing and Preparing—Workshop, Saturday, 10–11 a.m., Grow Native Nursery; members free, public $5.
March 2: Mono Prints: Aleta Jacobson—Class, Saturday, East Classroom, 10 a.m.—1 p.m., $40 members +$10 supplies. Print making course using materials found in nature.
March 2: Yoga in the Garden, Saturday, 12–1 p.m., yoga outdoors in the Garden! Claremont Yoga will be offering all levels on the first Saturdays of the month beginning February 2–June 2019, members $20.
March 3: Pomona Valley Audubon Society Beginner’s Bird Walk, Sunday, 8–9:30 a.m., Admission Kiosk, FREE with Garden admission.
March 3: Behind the Scenes: Tour through the Herbarium with RSABG Director Lucinda McDade. Sunday, Garden Shop, 1–2 p.m., $12 members.
March 4: Volunteer Library Committee Meeting, Monday, 10:15–11:45 a.m., Volunteer Library.
March 5: Volunteer Public Relations Committee Meeting, Tuesday, 9–10:15 a.m., Volunteer Library.
March 7: Volunteer Organization Board Meeting Thursday, Noon–1:30 p.m., East Classroom.
March 8: Volunteer Organization Quarterly Business Meeting & Potluck, Friday, 11:30 a.m–1:30 p.m., California Courtyard—volunteers, staff and students welcome!
March 9: Garden Walking Club, Saturday, 8 a.m., Admission Kiosk.
March 9: Meet the Artists: Origami in the Garden. Exclusive reception and tours with the artists, Jennifer and Kevin Box. Saturday, 4–7 p.m., Sculpture Tour, Reception, and film screening of “Between the Folds.” $35.
March 10: Family Fun Day at Origami in the Garden + Second Sundays. Sunday, FREE for Claremont residents and JANM members, origami folding with Pacific Ocean paper folders, shibori workshop with Art Trek, film screening, “Between the Folds.” For an additional fee, private tour with artists, Jennifer and Kevin Box $10 adults, $6 Seniors/Students, Free for Children 12 and under.
March 11: NICE Walk: Rare and Endangered Plants in the Garden Part II with Maria Jesus, Monday, 10:30–11:30 a.m., meets at the Admission Kiosk, everyone is invited!
March 16: Garden Walking Club, Saturday, 8 a.m., Admission Kiosk.
March 16: Family Bird Walk—Wild Birds Unlimited, Saturday, 8 a.m., Admission Kiosk, FREE with Garden admission.
March Calendar continued

**March 17:** Medicinal Plants of California Herb Walk, Sunday, 10 a.m.–1 p.m., $25 members/volunteers (pre-registration required).

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

**March 21:** Visitor Education Committee Meeting, Thursday, Noon–1:15 p.m., Volunteer Library.

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

**March 24:** Volunteer Field Trip: Santa Rosa Plateau Ecological Reserve, Sunday, 9 a.m. meet at Admission Kiosk, $5.00 guided easy 1.5 mile walk to the vernal pools, no charge for private vehicle, or vanpool $10.

**March 25:** Education Materials Work Party, Monday, 9–11 a.m., Lenz Horticulture Classroom.

**March 25:** Volunteer Enrichment. Richard Halsey of the California Chaparral Institute, Monday, Noon–1 p.m., East Classroom—everyone is invited!

**March 29:** Volunteer Time Reporting Due: RSABG Volunteers Volgistics, Friday, 8 a.m.–5 p.m.

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