“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

Lucinda recently gave a warm welcome and wonderful introduction to the Garden to another group to which I belong at Fairplex. Her remarks provided an overview of how we are all helping to carry out its mission. Among other things, she touched on our conservation efforts and noted the herculean task in which we are engaged in fighting Phytophthora, the water mold that is infecting so many California plants. (I trust you have read her outline of the problem in the current issue of Garden Variety.) The topic really got everyone’s attention and members of the Fairplex group were stunned, as well they should be.

What can we as volunteers do to help mitigate this problem? Science will hopefully provide a remedy at some point in the future. In the meantime, I began to think not about how helpless we feel in facing this problem but about our individual roles as stewards of this magnificent garden and all that surrounds it.

Of course, stewardship is a broad concept and can take myriad forms; but for many of us, the definition simply rests with taking personal responsibility to protect and preserve this Garden and our local community. Understanding and carefully following Garden-developed protocols put in place to curb the spread of the disease and alerting/teaching our community neighbors about it and how it spreads are immediate goals in facing the challenge and ones that each of us can easily accomplish.

At the end of the day, volunteers can and must take small steps to help.
From the Director
Lucinda McDade, RSABG
Executive Director

Change! Change! Change! Why can’t we do things the old way?

Thanks to all of you for rolling forward with us as we make very important improvements in management practices in several key areas here at RSABG. I know that change can be annoying; I also know that it is not always obvious why change is understood to be essential. With equal certainty, I know that change is essential, including in the ways that we manage these vital functions at RSABG.

The herbarium, nursery, and school tours programs—three mission central Garden “units”—are in the process of implementing changes that impact the work of volunteers. Let’s take these in reverse order. The vitally important work that Nature Interpreters do in leading school groups through their “open air” lessons is, of course, absolutely critical to our ability to conduct this wonderful program. The change that we are all facing here is that, for our school tours to remain consistent with current curricular requirements and ideas regarding best teaching methods, we must be sure to offer lots of opportunity for the children to contribute actively to the lesson. They should have the chance to answer questions and to ask their own questions. They should be invited to make observations and to connect those observations by logic with what they’ve learned. They should be given time to think through questions and to come up with answers. I like to introduce them to the idea that possible explanations are hypotheses that can be tested…. And then to challenge them to think about ways to test their hypotheses. As they take these first steps to adopt the scientific method, they transition from being purely students—consumers of knowledge—to being budding scientists who produce knowledge!

Adopt the pace of nature: her secret is patience.
– Ralph Waldo Emerson

At the level at which I have the most teaching experience (college, graduate students), this is often referred to as the “flipped classroom”—the students are teaching (or at least helping to discover knowledge). Frankly, it is really challenging to teach in this way, in part because we know that we know more about the subject than the students do. It is tricky to give students the time to formulate questions and answers, which can mean allowing silence to endure. In fact, it is just plain hard. BUT evidence from pedagogical research indicates that active learning has marked advantages over traditional models in terms of student mastery and retention of the material, which is, after all, our goal.

I know that this is asking a lot of our NIs who are already doing so very much for RSABG and for our young visitors. On the other hand, you, like me, are life-long learners, and we must consider this a set of new tricks to be mastered. Let us all accept the challenge, learn these new approaches, and then incorporate them very intentionally into our teaching!

The nursery at RSABG has had a total overhaul over the last two years as we have struggled to meet the challenge of growing clean plants for restoration into native landscapes…. and also for our own grounds here at RSABG, and for sale to home landscapers via the GNN. If you have been steadfast in avoiding all news from RSABG for the last year or so, you will not be in the loop—otherwise, you will know that the water mold, Phytophthora, has become a major concern for native plant nurseries: infected plants take the pathogen out into nature when nursery grown plants are used for restoration of native habitats. Of course, the last thing that we want to do is make things worse by taking a nasty pathogen out into nature—and that is exactly what has happened in a few instances, mostly in the Bay Area.

In practice, the battle against Phytophthora is all about hygiene: clean shoes, clean floors, clean benches, clean soil, clean pots, clean EVERYTHING. Billy Sale and Bryce Kunzel have worked closely together with single-minded determination to clean up our nursery and to make changes as needed to ensure that we produce clean plants. Among other
things: no plants on the ground: EVER; no watering nozzle touches the ground: EVER. Some practices are well implemented and have already become routine; others will take a bit more time and money. For example, we need to move all plants from wood to metal or plastic resin lath shelves. Wood gets wet and provides very happy places for water mold spores: it must go!

The volunteers who help out tremendously every single day in the nursery, as well as the absolutely wonderful Native Designs group, have all risen to the occasion and worked closely with staff as we have implemented these changes: Thanks to you all!

Last but far from least is the herbarium. In the case of plant specimens, the main enemy is a nasty insect called the cigarette beetle. A plague of tobacco warehouses, if it can tolerate tobacco, it can and does tolerate most all dried plant materials. The damage that these small beetles do to herbarium specimens can be very severe—catastrophic even. Here again, the safety of the herbarium is all about hygiene and best practices. Herbarium specimens must never be left sitting out; cabinets should always be left tightly closed; all surfaces—from floors to cabinet tops—should be kept clean (dust piles are an excellent habitat for cigarette beetles). Further, in an ideal world, our vital collection of plant specimens would be stored and curated in isolation from food, drink and the trash that goes with these things. Guess what? Food and drink are biological materials too and can provide excellent habitats for the pesky beetle.

Those of you who volunteer in the herbarium will know that food had been commonplace in the herbarium workroom until some months ago. More recently, after our wonderful work tables were resurfaced with a formica-like product that can be cleaned (versus the old surface that soaked up anything spilled on it), the complete ban on food in the workroom was lifted to enable a lunchtime period. Compromise! We have the wonderfully collegial common space that is the herbarium workroom restored to serve in that capacity at lunchtime. At other times, it is fulfilling its vital core mission as a safe space for working on plant specimens—plant specimens that, if all goes well, will be with us for hundreds of years to come.

No one likes to rock the boat by adding challenges to the vital work of our volunteers. At the same time, our staff’s primary responsibility is to achieve excellence in the program that they manage, and this will necessitate changes from time to time. I know that volunteers care as much about RSABG as we staff do, and I hope that you will do all that you can to support staff in implementing changes that need to be made from time to time.

Thanks for all that you do including for your flexibility and willingness to change and grow with us!

Volunteer Programs
Kathleen Noll, Manager of Volunteer Programs

The Butterfly Pavilion opens on Saturday, April 28. The exhibit runs from April 28–July 29, earlier than usual this season, keeping in mind the comfort of visitors and volunteers. Volunteers, we need your help as Butterfly Keepers. We are always recruiting volunteers who are available to take weekly shifts in the Butterfly Pavilion throughout spring and

A Very Happy May Birthday to:

Chuck Burt        Ruth Pitt
Linda Clement     Sally Prusia
Vicky Geary      Paul Royalty
Ed James         Stephen Simon
Sharron Neyer    Robert Swank
Jackie Pace      Dawn Thielo
There are always shifts available each week if you would like to participate in this fun volunteer opportunity.

There are two shifts daily: 9:30 a.m–12:30 p.m. and 12:30–3:30 p.m. If you would like to reserve a specific morning or afternoon each week please let us know. Diana and I are ready to sign you up!

**The role of Butterfly Keeper includes:**
- Greeting and welcoming guests.
- Collecting prepaid tickets and selling tickets to non-ticket holders.
- Ensuring a pleasing flow of foot traffic through the exhibit.
- Monitoring the number of visitors inside the exhibit.
- Helping to keep the curtains of the door closed and assisting Butterfly Pavilion manager, Diana Nightingale.

The Butterfly Pavilion is a family favorite offering an interesting experience for new visitors who may otherwise miss all of the wonder that our Garden has to offer.

**Spread the Word:**
The RSABG volunteer outreach team has been venturing out all spring! Volunteers are sharing all things RSABG at Sustainable Claremont events, Chino Basin Water District Garden Day, Spring in the Farm at Fairplex, Claremont Earth Day, as well as Free Days at the Garden just to name a few. A giant round of applause to these volunteers for sharing

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**Volunteer Biography**

**Win Aldrich, Chair-Volunteer Personnel Committee**

I grew up in a rural farming community in Connecticut and after living and teaching at Boston University and MIT and subsequently working in industrial research at American Optical and Polaroid Corporation and living in coastal Massachusetts, one is surprised at how much the natural outdoors becomes a part of one’s soul. The last place I expected to find the beauty of nature was in Southern California when we moved here in 1991 when I accepted a position as engineering professor at Cal Poly, Pomona. Claremont certainly reminds one of a small New England town, but the surprise was finding RSABG with its incredible biodiversity just two blocks away. Although we enjoyed walking through the Garden and its seasonal beauty, it was not until I retired in 2004 and formally became a volunteer that I appreciated all that the Garden has to offer in terms of not only the beauty, solitude, science, and learning, but the people, both staff and fellow volunteers, and their dedication.

Over the years, I have become involved in a number of projects as a volunteer: database entry in the Herbarium, the Research Library, and the Robert F. Thorne collection of over 27,000 slides, and the design, and maintenance of the first Volunteer Hours database—but these tend to be lonely isolated tasks. I also worked to establish the early experiment in vernal pools and painted/stained the entire fence around the California Cultivar Garden, but again these were lonely isolated tasks.

The best experiences have been the group work parties like the grapevine trimming in January, Plant Sale preparation in November, clearing the Communities, preparation for the wonderful Luminarias Nights in December, helping with the preparation for the Wildflower Show in April, rebuilding the fencing around the transformers outside the East Classroom, and serving on the Volunteer Board as Treasurer for several years and more recently as Co-Chair and now Chair of the Volunteer Personnel Committee—always with a fun, interesting and outgoing group of people with such a wide range of life experiences.

From what we have learned at RSABG, we have been able to explore the regions represented in the Garden with a deeper awareness and appreciation. Rancho Santa Ana Botanic Garden plays an important role in the many levels of the study, conservation, preservation, and education of the richness of California, and I am eternally grateful.
the Garden’s mission with our community—our volunteers really make a difference!

**Volunteers Online:**
Please check out the fantastic volunteer area of the brand new RSABG website!

It is filled with lovely images of volunteers doing what they do best and is the place to go for all of the information current volunteers and new volunteers need. In the very near future volunteers will log in on this page to access upcoming volunteer opportunities and report service hours, all from the convenience of your home computer and mobile device and, most importantly, in your area of service in our wonderful Garden.

**Touring Programs**

**Judy Hayami,**
*Touring Programs Manager*

Nature Interpreters, I know the going gets a little tough this time of year. The Garden bursts into spring events and activities. The tour schedule is a little more hectic, and students become a little more challenging as they approach the end of the school year. Yet, you come, time and again, happy to help and ready to go with the flow. Thank you very much for your dedication and for doing what you do so well!

Were you in the Garden for any part of Wildflower Weekend and Senior Monday? Whether the statewide bloom is considered a “boom” or a “bust” by those who keep track, the display of diversity here is always impressive. Thanks to all who helped me with the weekend’s set-up and clean-up duties. Thanks to Monthly Organizer Betty Butler for keeping both eyes on April and May tours.

One sign-up sheet comes off the Volunteer Opportunities Board, and another one magically appears! We need two or three volunteers and four or more NIs for a fun and informative Bird LA Day event, Saturday, May 12. Chris Verma of Claremont’s Wild Birds Unlimited will meet interested guests at the Admission Kiosk at 8 a.m. to start things off with a bird walk. From 9 a.m. to Noon, we will host stations from the *Adaptation and Survival* school program in the Courtyard. We will offer a simple craft, if we have enough help. If you can lend a hand, please sign up on the Volunteer Opportunities Board or send an email to jhayami@rsabg.org.

Happy Mother’s Day to all of you known as “Mom” to loved ones. To those who are not mothers, I thank *your* mothers for delivering you, so to speak, to the Garden. I appreciate that you are here.

–Judy

**Notes from Advancement**

**Anne Scott-Putney,**
*Director of Advancement*

Join us for Forever California! We’ve extended the RSVP deadline to Wednesday, April 25, so there is still time to get a table of friends together and register, or just register yourself! We look forward to seeing you on Sunday, May 6 for a festive evening of celebrating the native flora that makes California great!

To register online, click the following link: [https://11213.blackbaudhosting.com/11213/Forever-California-at-our-Garden-with-a-View-2018](https://11213.blackbaudhosting.com/11213/Forever-California-at-our-Garden-with-a-View-2018)

And, if you are not able to attend, but would like to participate and support the Garden, enjoy perusing the exciting trips, treks and tantalizing California-
inspired items in the Online Auction. Click below to shop and bid today!


–Anne

Looking Back...
The Reflecting Pool
Carol Lerew, Library Volunteer
Photos courtesy of RSABG Archives

It wasn’t part of the original Claremont Garden plan, but a solution to fit the times. The reflecting pool was built out of need. Later, it was demolished out of need. And this is how it happened.

By the late 1960s laboratory space in the administration building had become tight. The Board of Trustees decided to construct a one-story annex to serve as biochemical systematic and anatomical laboratories. A matching-funds proposal was submitted to the National Science Foundation through the Claremont Colleges. It was approved. Criley, McDowell and Associates, of Claremont designed the structure to be located to the north of the administration building. Construction on the one-story annex began in 1969 and was completed in 1970.

Meantime, concern over adequate water with which to suppress fires came to a head. Water challenges were a frequent event at RSABG from the beginning. Sub-standard pipes often sprung leaks making water pressure unreliable. The Claremont Colleges had given the Garden permission to use the reservoir tank located at what is now the Bernard Field Station’s northwest boundary. However, it could be nearly empty during dry times of the year.

When the laboratory annex was built the L.A. County Fire Department required the pool to be installed as a source of water in case of fire. Dr. Lenz, Executive Director, in his introduction to the Annual Report of 1970 stated, “Enclosed by the administration building on the south and annex on the west is a large free-form reflecting pool whose long axis is directed to Mt. Baldy in the distance.” The attractive 48,000-gallon pool was kidney shaped with a fountain as an additional attraction. (See accompanying photo taken after the second story library addition was built in 1980.)

Research Associate Gary Wallace, who arrived at the Garden as a graduate student in 1968, recalls the pool was about four feet deep. From time to time a heron or two were observed looking for food. They moved on to better locations when they discovered there was nothing to eat. Feathered creatures weren’t the only visitors, for a few graduate students letting off steam after hours took a dip or two, thinking they were unobserved.

Occasionally, the pool was drained and cleaned. Water in the reservoir improved over the years, particularly after a high pressure four-inch water line was installed. In 1987 additional water lines and fire hydrants were added around the grounds.

An article in the spring, 1991, edition of the Rancho Santa Ana Botanic Garden Newsletter indicates changes were afoot. The practical need for the pool had been eliminated, and water conservation had become the upmost consideration. Amy King, garden administrator, stated, “For some time we have been concerned about the appropriateness of a garden devoted to drought tolerant plants, in an area so thirsty for water, using water this way.”
The reflecting pool was demolished (see photo) and replaced with a large pad of decomposed granite intended to be used for special events. “The Courtyard,” as it became known, quickly developed into a well-used venue. It continues to be enjoyed for dinners, weddings, concerts, fund-raising, and many other activities to this day.

Next time: A visit to the herbarium.

Credits: Aliso 9/1 1977; Semi-annual Report, 1970, Volume 7, No.’s 2 and 3; Annual Report 1977; Rancho Santa Ana Botanic Garden Newsletter, Spring, 1991; Interview with Gary Wallace, RSABG Research Associate. Thank you to Gary Wallace, RSABG Research Associate, and Irene Holiman, Library Specialist, for their valuable information and guidance.

Coulter Pine
(*Pinus coulteri*)
Rudi Volti, Nature Interpreter

Note: due to a conversion error, the weight of a sequoia seed given in last month’s newsletter was incorrect. The weight of a seed is around 5 mg. (.00018 oz.).

While leading school tours, I like stop in the vicinity of some Coulter pines. After carefully picking up a cone, which has sharp spikes and can reach a weight of 4 kg. (8.8 lbs.) or more, I note that in times past these cones were known as “widowmakers.” I then ask the kids if they know what a “widow” is. Inevitably, they know about arachnid black widows, but most are not familiar with the term for a woman who has lost her husband. I then explain that if one of these cones fell on a lumberjack or other forest worker, the results could be fatal, leaving the man’s wife a widow. Today, forest workers wear helmets, but lumbering still stands as the most dangerous occupation in the U.S. according to the U.S. Bureau of Labor statistics with 91 deaths in 2016, a rate that comes to 13.6 fatalities per 10,000 workers.

After conveying that unpleasant bit of information, I ask the kids if they can name the tallest tree. Many of them know that the redwood, *Sequoia sempervirens*, has this distinction. I then note that the coulter pine is a medium-size tree, so how much larger must the cones of a redwood be? Gestures indicating something the size of a pony keg ensue. We then head over to the conifer display where they discover that a redwood cone is not much bigger than a walnut. Just as “great oaks from tiny acorns grow,” majestic redwoods spring from tiny cones.

Coulter pines are named after Thomas Coulter, who collected them in the Santa Lucia Mountains in 1831. These pines grow slowly, taking twenty years to reach a height of 6 m. (19.7 ft.). Under the best conditions they eventually can grow as tall as 25 m. (82 ft.) with a trunk diameter of .3–.9m. (1–3 ft.). Stretching from Contra Costa County in Northern California, south through the Coastal and Transverse ranges, and into Baja California, Coulter pines prefer south-facing slopes between elevations of 150–2,133 m. (500–7,000 ft.) and deep, well-drained, acidic soils. They do best in environments that supply 90–150 cm. (35–60 in.) of rain annually, which explains why our Coulter pines, along with many other conifers in the garden, have such bedraggled appearance resulting from the current drought.

Like some other conifers, Coulter pines generally need the heat of a fire to prompt the dispersal of their seeds, a characteristic known as serotiny. If, however, fires occur too frequently, the trees will not have enough time for seed development. On the other hand, the seeds will lose their viability if too much time passes before fires occur. Should either happen, the trees, which have a lifespan of about a century, will gradually disappear. Maintaining this delicate balance requires foresters to align controlled burns with the process of seed development. More broadly, the lesson I try to convey to the students is that not all fires are bad; when carefully regulated they are an essential part of forest management.
HAZARD TREES
Fred Brooks, Nature Interpreter

“Hazard trees” have a structural defect that could cause them to fail completely or partially and harm humans or their property. Some people fear falling limbs or trees, others are unaware of the possible danger. Recognizing some common causes of tree failure can help evaluate potential risks.

Stems or branches of a similar size growing from the same point are inherently weak, especially if their union forms a narrow “V.” If there is live bark wedged between the two stems or branches (included bark), the union is more apt to split. Weak crotches in general are a major cause of branch and stem failure. Remember: dead, broken or hanging branches can fall anytime, especially during strong winds.

Wood decay caused by fungi is present in many trees. Fungi enter through broken branches and natural wounds, or through damage caused by human activities. Look for hollow cavities where branches were attached or at the base of damaged trees. Branches or stems hollowed out by wood-rot fungi can remain sound for decades or break in strong winds. Fungi that attack tree roots or the base of the tree are the most dangerous. Bracket fungi (conks) or mushrooms growing from tree stems or at their base usually indicate the presence of wood rot.

Dieback of branch tips or thinning of the tree canopy may indicate root problems. Construction, deep planting or an increase in soil grade, disease, or poor drainage can damage roots. Rotted, damaged, shallow or asymmetrical roots can affect tree health and stability. Trees without healthy roots to anchor them are apt to topple during storms or fall spontaneously during calm weather.

How we manage the risk of hazard trees on our property or in the community depends on their value to us. Most people value them highly, and the risk of being killed or seriously injured by a falling tree or branch is very low. If you notice defects in a tree and are concerned, consider contacting a certified tree specialist for help (http://www.isa-arbor.com/).

Photo. A hollow cavity and rotted heartwood (arrow), plus human property, classify this as a hazard tree.

BOOK OF THE MONTH
Julie Scheuermann, Volunteer Library Committee

“National Geographic Kids: Great Migrations, Butterflies” by Laura Marsh.

“Great Migrations, Butterflies” is part of a special program called National Geographic Kids Super Readers. It is part of a series and links to a website that encourages children to read and provides book related activities.

This book focuses on the migration and habits of monarch butterflies. It defines migration and then gives specific details on the migration path of monarchs. There is an explanation of how monarchs are able to navigate a 2000–3000-mile route. Their feeding habits and life cycles are explained. It also addresses the perils that monarchs face and gives examples of what can be done to help them. There

The Volunteer Library Committee extends thanks to all volunteers who completed the Volunteer Library Use Survey. Your input is appreciated and will become part of our efforts to meet your needs as RSABG volunteers.
are lots of fun facts and beautiful illustrations. The glossary at the end of the book is nicely done.

I recommend this book. It is an interesting read for all ages. The quality of National Geographic publications can be seen in the book. It is available in the volunteer library in the children’s section.

**Barbara Nakaoka, Volunteer Library Committee**


The “Secret Lives of Hummingbirds” captures the high energy world of North America’s smallest bird. The text draws the reader into the secret lives of these “marvels of miniaturization.” Pugnacity, powering down, and seeing red are at once sections of the book and apt descriptors of these amazing birds.

This small book is done by the Arizona-Sonora Desert Museum, “a private nonprofit educational institution focusing on natural history and dedicated to fostering public appreciation, knowledge and wise stewardship of the Sonoran Desert region.” They practice what they preach through their aviary where you can learn about the behavior of hummers.

Each section of the book is informative for both novices and seasoned birders. Excellent photographs depict hummingbirds in flight, as nestlings, and feeding. You won’t be disappointed in this small treatise which can be found in the volunteer library. It may lead you to explore other hummingbird books.

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**May Calendar**

**May 1:** Public Relations Meeting, Tuesday, 10–11 a.m., Volunteer Library

**May 3:** Volunteer Organization Board Meeting, Thursday, Noon–1:30 p.m., East Classroom

**May 5:** Garden Walking Club, Saturday, 8 a.m., Admission Kiosk

**May 5:** GNN Workshops: Creating a Butterfly Garden, Saturday, 10–11 a.m., Lenz Horticulture Classroom, FREE.

**May 5:** Talk: Episodes in the History of Permafrost by environmental historian Pey-Yi Chu, Ph.D., Saturday, 3–5 p.m., pre-registration required; $5 member.

**May 6:** Forever California: Garden with a View 2018, Sunday, 4:30–8 p.m.

**May 6:** Pomona Valley Audubon Society Beginner’s Bird Walk, Sunday, 8–9:30 a.m., Admission Kiosk, FREE with Garden admission.

**May 7:** Volunteer Library Committee Meeting, Monday, 10:15–11:45 a.m., Volunteer Library

**May 7:** NICE Walk (Nature Interpreter Continuing Education), Monday, 10:30–11 a.m., Admission Kiosk, All volunteers welcome!

**May 9:** Education Materials Work Party, Wednesday, 9–11 a.m., Lenz Horticulture Classroom, everyone welcome!

**May 11:** National Public Gardens Day—FREE ADMISSION DAY! Friday, 9 a.m.–5 p.m.

**May 12:** Bird Day LA, Saturday, 8 a.m.–noon; FREE with Garden admission

**May 12:** Garden Walking Club, Saturday, 8 a.m., Admission Kiosk

**May 13:** Mother’s Day—Moms receive FREE Garden admission, Sunday, 8 a.m.–5 p.m.

**May 16:** Volunteer Personnel Committee Meeting, Wednesday, 9:30–11 a.m., Volunteer Library

**May 19:** Family Bird Walk—Wild Birds Unlimited, Saturday, 8 a.m., Admission Kiosk, FREE with Garden admission.
May 19: Garden Walking Club, Saturday, 8 a.m., Admission Kiosk

May 19: Medicinal Plants of California Herb Walk, Saturday, 10 a.m.–1 p.m., pre-registration required; $20 members

May 21: Education Materials Work Party, Monday, 9–11 a.m., Lenz Horticulture Classroom, everyone welcome!

May 21: Volunteer Enrichment, Monday, Noon–1 p.m., East Classroom

May 21: Visitor Education Committee Meeting, Monday, 1–2:15 p.m., Volunteer Library

May 26: Garden Walking Club, Saturday, 8 a.m., Admission Kiosk

May 26: Talk: The Rose and the Thorn by RSABG Education Assistant, Diana Nightingale. Saturday, 10 a.m.–12 p.m., pre-registration required; $10 members

May 31: Volunteer time cards due, Thursday, 8 a.m.–5 p.m.