



## This Year in the Garden *by Rosie Andrews*

Bart O'Brien

Bart O'Brien



Jeanne Panek

In August, the new crevice garden begins to take shape. Mojave milkweed (*Asclepias nyctaginifolia*), a new collection. John Helms introducing soap plant during the Garden's Indian Uses of Native Plants Tour.

In previous years, we've raised funds for the *Friends* through a single "tis the season" Annual Donation Letter appeal to our members, but this year we've chosen instead to devote this entire issue of *Manzanita* to articles about some of the many projects and activities receiving our support. We hope you

are inspired by reading about this year in the garden! Please consider using the envelope inserted to make a donation to the *Friends*, so we can continue to support the work of this beautiful place, and provide educational programs to the public, in the year ahead.

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## MEMBERSHIP

Your membership in the *Friends* of the Regional Parks Botanic Garden supports the important work of the garden in educational programs, conservation, and horticultural experimentation. Funds raised by the *Friends* help provide long-term financial security for the garden as well as new facilities and programs.

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Members receive *Manzanita*, a quarterly publication of the *Friends*, as well as discounts on classes and field trips offered by the *Friends* and early admission to the garden's plant sales. *Friends* members gain free admission to participating gardens through the American Horticultural Society's Reciprocal Admissions Program. Contact the individual garden to verify this benefit.

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Donations to the *Friends* are welcome and may be designated for special projects or given in honor or in memory of someone. Contributions to the Regional Parks Botanic Garden Endowment Fund assist in providing financial security for the garden. Please make all checks payable to the Regional Parks Foundation; note whether for *Friends* membership, gift, or Endowment Fund; and send to: *Friends* of the Regional Parks Botanic Garden, P.O. Box 7551, Berkeley, CA 94707

*Friends* volunteers develop and oversee many of the garden's educational offerings and its website, produce the *Manzanita* and much more! New volunteers are always welcome.

For information about the *Friends*, membership, and becoming a garden volunteer or docent, contact [info@nativeplants.org](mailto:info@nativeplants.org), visit [www.nativeplants.org](http://www.nativeplants.org), or call 510-544-3169

**DOCENTS**

**173** Docent-led tours  
**1286** Tour attendees  
**53** Docent training and enrichment sessions  
**3648** Docent volunteer hours

Every year is a busy year in the Regional Parks Botanic Garden, and over the past twelve months the pace only seemed to accelerate! It's easy, even for someone who knows the garden well, to be so taken in by its beauty as not to recognize the complex juggling act required to meet the myriad demands of this living showcase of California native plants. Yet wedding parties and visiting groups of exuberant schoolchildren, acres to weed and water, new collections to nurture and plant out, and participation in important East Bay Regional Park District's initiatives are but a small part of the *planned* daily rhythm of life in the garden.

Behind the scenes, the primacy of the unexpected competes for time and resources: Trees fall or weaken, creating hazards for visitors or other plants. Threats from pathogens emerge, potentially endangering the garden's living collection. Narrow paths and rock walls require constant upkeep. Old pipes spring leaks as they meander beneath the surface, making a gardener with a shovel, knee-deep in a hole filled with water, a common sight within the garden's ten acres. Every day, these and many

other demands require time and attention.

An endless "to do" list is a testament to the dynamic nature of the garden's ecosystems. Writing about the exciting new crevice garden project, on page 12, Garden Director Bart O'Brien says, "Its planting will never be completed as all botanic gardens grow, change, and evolve." Simply put, change is *the* constant, embraced by generations of directors and gardeners who have nurtured and enhanced the garden's unique stature.

Since its founding in 1940 until today, the Botanic Garden has inspired a level of devotion that belies its size. Something about this "small, delicate, naturalistic, historic place" (as former director Steve Edwards wrote in an early Manzanita) inspires people to return again and again, give of their time and energy, and contribute financially to its support. PEOPLE LOVE THE GARDEN! And it's a good thing they do, because since the founding of the *Friends of the Regional Parks Botanic Garden* in 1997, the generosity of our donors has enabled us to play a crucial role, and partner with the Park District to allow ALL of the work of the garden to go forward—from mundane, yet vital maintenance, to bold initiatives like the new crevice garden. Thank you for your support. 🌱

*Rosie Andrews is the President of the Friends of the Regional Parks Botanic Garden. A love of wild places and late introduction to gardening led her to an appreciation of California's native flora.*

## A Banner Year for Field Work—2019 *by Bart O'Brien*

**A** Botanic Garden such as ours cannot rest exclusively on its laurels of past collections, it must continually strive to share and exhibit the depth and breadth of California's extraordinary flora. With the Park District's and additional *Friends* support and financial assistance, the Botanic Garden Staff was able to take good advantage of this especially bountiful field year. As a consequence of the heavy rainfall throughout California this past winter, and since the Botanic Garden is now fully staffed, we took the opportunity to make a number of collecting trips, with two longer excursions focused on Bureau of Land Management (BLM) lands in California's deserts.

### March—Low Desert

The March trip was focused on collecting cuttings of plants from the low desert, and due to continuing intermittent rains that made desert camping less than wise, Theo Fitanides and I ended up covering a wide swath of desert territory from Corn Springs and near the Desert Lily Preserve in the northeast



Unusual puffed-up seed heads of *Cymopterus gilmanii*, eastern Mojave

to Coyote Number 2 Road at Highway 98 in San Diego County just north of the Mexican border in the southwest. Theo's account of our collecting excursion is on page seven.



*Acmispon grandiflorus*



Kiamara Ludwig examining *Lepechinia rossii*

## May—High Desert

The second desert trip in May focused on the eastern Mojave Desert, via Rancho Santa Ana Botanic Garden (RSABG), where garden volunteers Joe Dahl and Kiamara Ludwig, and I collected a total of 106 different accessions for the Botanic Garden. On our way south, to break up the drive, we tried to make a quick detour to the Liebre Mountains, but unfortunately there was a locked gate barring our way to that higher elevation area that, in some aspects, appears to be a piece of the North

Coast Ranges transported to the Transverse Ranges of Southern California. We were however, able to make a couple of interesting collections from nearby low elevation BLM lands: *Acmispon grandiflorus*, a trefoil, and *Penstemon grinnellii* var. *scrophularioides*. The *Acmispon* was spreading through decomposed granite in a steep road cut, and appeared as scattered tufts—with no other plants. We've had good luck this year rooting cuttings of different herbaceous pea-family plants.

At RSABG we collected

cuttings of a number of interesting plants, both for the Botanic Garden's collection and for our future plant sales, including: *Lepechinia rossii* (a spectacular rhizomatous pitcher sage with enormous leafy bracts and white flowers), *Eriodictyon sessilifolium* (a California Floristic Province (CFP) Baja endemic yerba santa with showy purple flowers that are favorites of butterflies. Surprisingly pipevine swallowtail butterflies find these irresistible), *Ptelea aptera* (a rare CFP Baja endemic with citrus-scented white flowers), and a white-flowered form of *Ribes speciosum* that was discovered by Rick Fisher in the Santa Ana Mountains. We also collected *Rosa* 'Schoener's Nutkana' (created by Father George M. A. Schoener of Santa Clara in the 1920s and introduced by the well-known rose nursery Conard-Pyle in 1930). This is a hybrid between *Rosa nutkana* and *Rosa* 'Paul Neyron' (a hybrid polyantha) with three- to four-inch, single, fragrant, deep rose-colored flowers that develop showy orange rose hips in fall and winter—a large sprawling shrub to eight feet or more in

height with very few thorns.

And more: *Fremontodendron californicum* 'Butano Ridge' (a UC Santa Cruz Arboretum selection from San Mateo County with bright yellow flowers and red new growth), *Fremontodendron* 'Dara's Gold' (a hybrid between *F. decumbens* and *F. mexicanum* created by Dara Emery of Santa Barbara Botanic Garden that is an ideal size for smaller gardens AND is easy to grow), several desert willow (*Chilopsis linearis*) selections, such as, 'Bubba' (dark green broad leaves and deep purple flowers), 'Dark Storm' (the first bicolor cultivar), 'Desert Way' (with spectacular large darkest-purple drooping flowers), 'Lucretia Hamilton' (deep purple flowers with yellow markings in the throat), 'Mesquite Valley Pink' (pink flowers with darker pink lines and dots), 'Regal' (bicolored flowers), a dwarf form of 'Regal' (bicolored flowers), 'Tejas' (the largest individual flowers are mostly white), and 'Warren Jones' (large light pink ruffled flowers and nearly evergreen foliage), and cuttings of some second generation X *Chiranthofremontia lenzii* plants. In particular, the *Chilopsis* (desert willow) cultivars should be of great interest to gardeners in hotter interior parts of the greater Bay Area, as these outstanding small trees will bloom repeatedly during the warm season shortly after they receive deep irrigation.

*Agave utahensis* var. *nevadensis* in the Clark Mountains





Desert marigold (*Baileya multiradiata*)

When we reached the Clark Mountains area, we unexpectedly encountered rain (it has been an extraordinarily wet year in Southern California), but we were able to make excellent collections for the Botanic Garden during the ample hours of sunlight: *Agave utahensis* var. *nevadensis* (one of the smaller species of *Agave*, with chalky-white brittle spines and a clumping growth habit), *Baileya multiradiata* (we collected seeds from especially large-flowered plants), *Cryptantha tumulosa* (a perennial popcorn flower with narrow dome-like inflorescences of showy white flowers with bright yellow-orange eyes), a dark pink flowered form of *Eriogonum fasciculatum* subsp. *polifolium*, and some of the eastern Mojave's notable limestone endemics. These include *Buddleja utahensis* (yes—we do have a native relative of the common butterfly bush, but ours has very small pale yellow flowers and is most notable for its beautiful grey foliage and stems), *Menodora spinescens* (an unusual member of the olive family with a low mounding growth habit), *Mortonia utahensis* (a unique desert shrub with stacked bright green leaves on stiffly

erect stems with white bark), and *Penstemon thompsoniae* (a choice desert rock garden shrublet with gray foliage and rich purple flowers that, as I write this in late August, is again in full bloom in the large ceramic pot at the beginning of our Desert section).

As we explored the area in the eastern Mojave between Bear Poppy Saddle and the Umberci Mine, we were able to collect seeds of both the glabrous and the hairy forms of bluestar (*Amsonia tomentosa*), *Cymopterus gilmanii* (with leathery coarsely divided leaves that lie flat on the ground and very unusual white to lavender puffed-up seed heads), *Enceliopsis nudicaulis* (a relative of the much better known CNPS logo, the Panamint daisy), and *Mammillaria tetrancistra* (a tiny fish-hook cactus with bright pink flowers). Joe was especially gratified to finally see plants of bear poppy (*Arctomecon merriamii*) in an area where he had repeatedly searched for the plant, while Kiamara was over the moon to find Cochise scaly cloak fern (*Astrolepis cochisensis*) in several different limestone crevices.

The backdrop of the northeastern portions of the Clark Mountains vicinity is futuristically dystopian: the Ivanpah Solar Array—one of the largest such energy installations in the state—and literally blinding (temporarily) if viewed incorrectly during a sunny day, and right there, just over the state line, are the bizarre gigantic excesses of the casinos of Primm, Nevada. Additional solar installations are scattered about in the further distance. These opposite markers of human excess are a vivid contrast to the outwardly severe, but richly diverse, beauty of these seemingly stark desert mountains and washes.

Ivanpah Solar Array



*Penstemon thompsoniae*

## PLANTS

378 New accessions to the garden:  
156 From seeds and spores  
114 From cuttings  
108 Plants



Bunchberry (*Cornus canadensis*)



Dark-pink-flowered form of oceanspray (*Holodiscus discolor* var. *discolor*)

## July—Humboldt County

In July, Joe Dahl, Ben Anderson, and I journeyed north to private land in the Snow Camp Lake area of Humboldt County, specifically to collect bunchberry (*Cornus canadensis*), a plant that Joe and Dr. Glenn Keator had been searching for over the course of many years. The plants were in full bloom creating carpets of bright green foliage topped by snow-white bracts and tiny greenish-white flowers. They spread by a loose randomly spaced rhizomatous network through the remains of rotted fallen logs and copious amounts of coniferous (though no pine) detritus and within a short distance of a small cascading cold-water stream. While we were collecting some rhizomes, we noticed that there was a somewhat different-looking *Oxalis* with bright green leaves growing in and immediately adjacent to the stream, so we collected a few pieces. Now that it has bloomed in the glasshouse, we were able to identify it as a completely new species for the Botanic Garden: *Oxalis trilliifolia* (with umbel-like clusters of small nodding white flowers—but otherwise looking similar to *Oxalis oregana*). A small plant is now on display in one of the shaded pots by the entrance to our Visitor Center. We also collected cuttings of *Ribes bracteosum* (amongst the tallest of our native currants and with the common name of “Stink Currant”—what botanic garden should be without it?) at the same location. In the sunny wet meadow southeast of the lake, Ben collected a few divisions and seeds from an extra-tall blue-gray foliated small population of *Festuca californica*. We were surprised to find a handful of these glorious grasses in such a wet area. Later, we explored Onion Mountain for a future (October) seed collecting expedition for *Lilium* seeds (among others), and saw hundreds of plants of at least six *Lilium* taxa. We also saw two dark-pink-flowered forms of oceanspray, *Holodiscus discolor* var. *discolor*, and another that had chartreuse foliage. We hope to be able to add these and many other collections to our Botanic Garden when Joe, Don Fuller, and I return to collect seeds in October. 🍀

Photos by Bart O’Brien except as indicated.

*Bart O’Brien is the Director of the Regional Parks Botanic Garden, a CNPS Fellow, the co-author of several books on California native plants, and a frequent contributor to Manzanita.*

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“I wish there were a word one could use instead of the acquisitive-sounding ‘collecting’ which has such a vampirish and predatory ring. Intelligent collecting is a conservation measure; indeed the work is legitimate only when done with knowledge and forethought, and when the motive is the preservation of the plants themselves.” Lester Rowntree, *Hardy Californians*. 1936. MacMillan.

## Low Desert Collecting *by Theo Fitandis*

**M**arch 3rd, and the weather was still chilly in the Bay Area. I met Bart O'Brien out at the car rental place to grab a vehicle that I thought was "too big." We loaded up and away we went. We talked about sharing the driving (I drove only two of 20 legs). We make a pit stop at the Tumey Hills about an hour south on I 5 to gauge the timing of this year's bloom and Bart finds some nice pale *Amsinckia furcata* fiddlenecks. And then we both spot double poppies, *Eschscholzia hypocoides*! Back on the road, driving till late, we hole up in Claremont.



Forked fiddleneck (*Amsinckia furcata*) and lacy phacelia (*Phacelia tanacetifolia*) carpeting the Tumey Hills

The next morning, I rise early and break my fast on what may or may not have been food, from the motel's hot breakfast. We drive down to the first stop of the day: the mouth of Whitewater Canyon along the 10, at the alarmingly blue hillside. Bart has to finish up some *Manzanita* editing



Desert bluebells (*Phacelia campanularia* var. *campanularia*), mouth of Whitewater Canyon

on his pocket computer's voice speaker, and I am released to bound around in the wildflowers. I scabble up the shale to investigate a particularly nice pink *Mirabilis laevis* var. *retrorsa* among the white population of wishbone bushes. The blue is unbelievable and likely not even real since I cannot seem to capture it with the pinhole lens of my pocket computer. But the desert bluebells (*Phacelia campanularia* var. *campanularia*) steadfastly reflect their azure light, jittering in the wicked and almost constant wind of this narrow portal between the dry coastal plains and the much drier Colorado desert, created by the meeting of the Transverse and Peninsular Ranges.

On the road again and we come down to the South Entrance to Joshua Tree National Park (JTNP). This is incredible. The annuals are all at least three times their normal size: desert stars (*Monoptilon bellioides*) two-hands wide and full of flowers, and the whole scene framed by an entirely ridiculous amount of



Bart O'Brien collecting Orocopia sage (*Salvia greatae*)

Arizona lupine. Goggling and photos abound, including a nice sighting of a desert tortoise. We pry ourselves away from the currently uncollectible (we don't have a current permit from JTNP) and move on toward BLM land (where we do have a current collection permit). Going into the Chuckwalla Mountains, we drive through the steeply incised desert gravels as the sandy wash from the mountains opens out onto the desert floor. Gravel ghosts (*Atrichoseris platyphylla*) and some blooming ocotillos (*Fouquieria splendens* var. *splendens*) usher us into the Corn Springs Wash where we survey the riches called forth from the mineral sand by this season's spectacular rains.

Set up camp, sleep, no scorpions in the morning. We spend all morning collecting in the wash—several wayward species have kindly deposited pockets of thriving seedlings which we carefully excise (no more than three of a species). (Burro brush, brittle brush, and apricot mallow are all currently growing in our Botanic Garden, from these seedling collections.) We also collect three-stem sections from the local cholla (*Cylindropuntia chuckwallensis*) with a delightfully compact stature and silvery spines, a new accession for the garden. Vegetative cuttings and dug seedlings go into Ziploc® bags moistened with a few drops of water, or breath, and then into the cooler, while seeds and succulent sections go into manila envelopes or paper bags and into a plastic storage bin.

Later this same day we headed out up and around to the south side of Box Canyon which had been flooded and washed out the previous year in October. Bart took us straight to the Mecca aster (*Xylorhiza cognata*), a woody aster with a nice inch-wide pale pink daisy flower, growing off the side of the compacted sand and clay canyon wall. Up a side canyon that Bart suggested, we stumbled upon an uncommon find of a prolific seed-set

of indigo bush (*Psorothamnus schottii*). (Later in August, with the help of our Summer Student Laborers, we cleaned off the aromatic oil-gland-dotted legume shells from these individually packaged seeds, alongside the cleaning of 37 other seed collections skillfully treated by Kiamara Ludwig.)

Then we were off to the start of the Bradshaw Trail. As we came around the Orocopia Mountains, clouds and a slight chance of rain were brewing in the distance. Bart knew a great location for Orocopia sage (*Salvia greatae*), which had put on very nice new growth from the season's rains. (Sadly, the cuttings did not survive, a not surprising outcome for this difficult to propagate species.) As the sun was getting low we came upon a perfectly ripe white-stemmed milkweed (*Asclepias albicans*) pod which was just beginning to dehisce and expose its cottony-tipped seeds to the wind. We then made a detour up a wash which Joe Dahl had recommended for having a nice red-flowered *Brickellia* sp. The only problem was that I may not have remembered the location very well, and the dusk was now actual dark. Nighttime roadside botany is relatively new to me, but Bart is highly-skilled and one of our flashlights was actually quite strong. After going up the microphyll-tree-dominated wash community further than I thought was described, we turned back in defeat. The rain was now intermittently upon us and we headed for the old raised railroad track along Summit Road. STOP! REVERSE! Holy Toledo!—blooms of the giant yellow desert evening-

The night-blooming yellow desert evening-primrose (*Oenothera primiveris* subsp. *bufonis*) illuminated by flashlight





primrose (*Oenothera primiveris* subsp. *bufonis*). Some even had fertilized flowers already developing fruits. We dug up one of these ruderal monsters (which later set good-looking seed in our glasshouse, and awaits the proper germination cues in its seed tray) and hopped along our way to a motel for the night, giving up on camping along the Bradshaw Trail, with the risk of flash flooding looming.

March 6th saw us on Palms to Pines Highway—a fantastical transect from low Sonoran Desert scrub up through boulder-strewn cactus and succulent scrub—and into Pinyon-Juniper woodland. Along the way Bart, of course, had several excellent collection locations selected, including for the scalloped sage (*Salvia vaseyi*), similar to *S. apiana* but with smaller leaves and a shorter stature, growing in the hot desert canyon, and *Sphaeralcea ambigua* var. *rosacea*, a lovely rose-colored variety of apricot mallow, as well as *Salvia eremostachya*, a warty- and narrow-leaved sage growing among boulder fields, little monardella (*Monardella nana*), a delightfully tiny plant with large white flowers, (which you can see in a large pot at the front of the Southern California/Desert section), and Cleveland's beardtongue (*Penstemon clelandii*) blooming now in the garden's newer Phil Johnson Mounds.

Day 5 took us down south near the US-Mexico border and the stark flats of the Crucifixion Thorn Monument sporting its namesake *Castela emoryi*, and veritable carpets of the only storksbill native to California (*Erodium texanum*), both in good fruiting condition. The fruits of crucifixion thorn can remain on the hefty shrubs for 3–7 years. It is hypothesized by some researchers that a dispersal mechanism involved the larger ground mammals of ages past. Next up was a field-trip through Anza Borrego State Park to visit elephant trees (*Bursera microphylla*) in Torote Canyon, and a variety of low elevation desert communities.

Day 6 we started off in the Mojave Desert, or high desert, after having arrived in Twentynine Palms late the night before. Feeling refreshed after our cheap yet surprisingly interesting suite stay (the room had a 1970s electric organ), Bart yet again drove and allowed me to perform car botany. Even so, Bart almost always



Rosie Andrews

Little monardella (*Monardella nana*) thriving in the Botanic Garden's Southern California/Desert Section



Crucifixion thorn (*Castela emoryi*) near the U.S.–Mexico border



The author eyes an elephant tree (*Bursera microphylla*), Torote Canyon, Anza Borrego State Park.

recognized interesting or new plants first, and instead of being hard on myself I choose to bask in the presence of a California Plant Legend. We ascend the alluvial fan, gawking at the continuation of massive annual displays, and settle into Sheep Hole Pass for collecting among its granodiorite hills. Growing at approximately 2,200 feet elevation, perhaps the plants will be slightly more adaptable to our cooler, wetter Berkeley conditions. Collections that have already been planted into the garden from this location include desert tobacco (*Nicotiana obtusifolia*), desert alyssum (*Lepidium fremontii*), Mojave wood-aster, (*Xylorhiza tortifolia* var. *tortifolia*), and brittlebush (*Encelia farinosa*) the iconic later-blooming daisy of desert hillsides. With all these goodies safely packed into the Suburban, we continue the long drive back up our majestic state, with an “after-work”



The endemic striped adobe-lily (*Fritillaria striata*)



The importance of taking good field notes

stop to visit an unfairly abundant population of striped adobe-lily (*Fritillaria striata*) outside Bakersfield above the Kern River.

Finally, back at the garden for “day 7” of the collecting trip, it was time to process cuttings. As most of the cuttings were exceedingly soft, Bart insisted, against my better judgment, in using a very light concentration of rooting hormone for softer stems (2%–4%). It turns out that Bart’s better judgment is better than my better judgment, as the carefully moistened cuttings ended up rooting quite well for soft cuttings weathering the summer. Those that have been making roots, however fragile, have been readily planted into the garden beds during the summer—a counter-intuitive but successful approach. Plants haven’t evolved specifically for growing in plastic pots (really!) and tender,

warm, moist, roots can be cooked or become more susceptible to root rotting in a small container, than in the deeper, larger thermal reservoir, and better draining garden beds.

This collecting trip was a wonderful experience for me, and the subsequent horticultural challenges have further enriched my horticultural knowledge as well as the garden’s collection. One last item to clarify—the rental vehicle was just the right size, maybe even too small! 🌱

Photos by Bart O’Brien except as indicated.

*Theo Fitanides is the Botanic Garden’s Southern California/Desert and Santa Lucia sections gardener. He holds a B.S. in Biology from California Polytechnic State University, San Luis Obispo. He also likes to bird by ear, take long walks on the beach, and advocate for local native-plant gardening.*



Theo communing with sages and wildflowers in the Orocopia Mountains.

# The Regional Parks Botanic Garden's New Crevice Garden *by Bart O'Brien*

Michael Uhler



Sometimes I think of the Regional Parks Botanic Garden as a single large rock garden. Rocks and rockwork have been key components since the beginning of the garden. And, when considering the pre-existing large volcanic boulders in the Channel Islands section, predate all the plants in the garden by millennia. The garden is a veritable jewel-box of our flora, where every specimen is carefully selected and placed to display its best attributes—often in rocky settings.

Shortly after I arrived in 2013, it became clear that a crevice garden would be a perfect fit for the Botanic Garden:

- The Sierran section is the largest part of the Botanic Garden, and the north lawn transition area to the Redwood section could be productively renovated.
- High elevation plants of the Sierra are extremely desirable but are challenging or nearly impossible to grow in average garden conditions.
- Vertical crevices and seams are common features in the high Sierra.
- Tilted-to-upright slabs of slate are a distinctive landscape presence in low- to mid-elevations in the foothills of the Sierra.

Left: Vertical crevice garden conditions in the Ruby Mountains, Nevada and a miniature crevice garden demonstration created by Michael Uhler in 2017



- Crevice gardens enable the gardener to grow a wide diversity of plants in a small area, as soil-mixes and drainage can be modified to specifically meet the needs of each plant or group of plants sharing the same crevice.

- The artful placement of the rock slabs varies dramatically as one moves through a crevice garden, encouraging the discovery and careful scrutiny of plants as well as changing vignettes.

However, the project could not move ahead without the most critical component for success—a staff member who was up for the physical, artistic, and mental challenges of creating the first public large-scale crevice garden in California. Fortunately, the Botanic Garden has the ideal person for this demanding task: Michael Uhler, gardener/curator of the Sierran and Sea Bluff sections.

Michael has worked on large-scale rock gardens before, most notably creating the final third of the Botanic Garden’s granite bed (built from granite boulders and grit from Graniterock’s quarry near Aromas), and working with Joe Dahl, Rodney Smith, and others to build the granite steps beds (constructed according to a sketch by Steve Edwards, with moss rock from the Chico area). Both projects

were built under the watchful eye and council of then garden director, Steve Edwards.

In January 2017, I arranged for Michael to visit with Panayoti Kelaidis, Senior Curator and Director of Outreach at the Denver Botanic Gardens, where he could meet with a variety of skilled and knowledgeable crevice garden devotees. Michael returned to Colorado in the summer of 2018, gaining additional valuable insights into crevice gardens and the botany and horticulture of alpine flora.

In the summer of 2017, Michael built and planted a miniature crevice garden in one of the garden’s hypertufa troughs that was placed to the south of the granite bed in the Sierran section. Our crevice garden project became much more serious in 2018, and in early 2019, after considerable research by Michael, he and I visited the Mariposa Yosemite Slate Quarry in January to see the rock proposed for the project, and to discuss the project and costs, with the quarry’s owner, David Butler. Although we could not visit or view the quarry itself (no visitors are allowed due to safety concerns), we were able to see the full range of rock that they produce. It was, and is, impressive. We left the quarry knowing that we had found the supplier of all of

Below: Blocks of schist and thin black slabs of Mariposa slate in the new crevice garden





A drone's eye view of the Denver Botanic Gardens' crevice garden

Photo courtesy of the Denver Botanic Gardens

the rock that we would need. As we left the quarry and returned to Highway 140, I wanted to stop and take a closer look at a plant I had seen, a dried-up jewelflower (*Streptanthus* sp.). This was a most fortuitous stop—but not for plants. We knew that this was the exposed back of the Mariposa Yosemite Slate Quarry, but what we had not realized was how instructive this massive rock outcrop would be in conceptualizing and realizing our project.

July was targeted for the start of phase one construction for two critical reasons: The soil in the area would be dry enough to work, with the lowest danger of compaction.

Park District skilled heavy equipment operators from our Roads and Trails group, Rodney Smith (Supervisor of Roads and Trails) and Bill Surges (Park Craft Specialist) would be available to work on the project only during the month of July.

This meant that all the materials needed for the project had to be obtained quickly: Utelite (expanded shale) shipped from Coalville, Utah, to be mixed with 10% organic material at Wheeler-Zamaroni Stone Fabrication and Landscape Supply in Santa Rosa and then delivered to the garden; landscape fabric acquired to prevent adjacent tree roots from immediately taking over this freshly unoccupied area; sand to insulate the fabric from tearing or separating as the large slabs of rock were placed; bins for the excess soil removed from the site; temporary storage areas for removed rocks and cement; and, of course, rock—lots and lots of rock—of two primary types: thick brownish slab-like blocks of schist, and thin blackish slabs of Mariposa slate, as well as smaller pieces of both types.

When constructing rock gardens, it is my opinion that one should not over-plan. One must see and



Schist boulders and pieces along Anza View Road



Mariposa slate on site

listen to the rocks and place each one accordingly, rather than sticking to a rigid set of plans. Therefore, the only “drawing” for the project is a rather crude sketch of three different-size ovals placed at an angle to the slope that I did in late 2018. Michael staked out the project area and each of the three large ovals early in 2019, and pretty much took it from there—with one notable change. In July, after the initial demolition and grading had been done, Michael and Liz Bittner, garden supervisor, were concerned that there wouldn’t be enough lawn left at the base of the crevice garden for future small gatherings, so the lawn was enlarged and the crevice garden shrunk a bit. I discussed the



Michael Uhler, Bill Surges, and Rodney Smith place the crevice garden anchor stone.

Allison Kröder



July 20, 2019

### NEW CREVICE GARDEN

**116.25** Tons of rock

- **95.43** tons of Schist boulders and pieces
- **20.82** tons of Mariposa slate

**30** Cubic yards of expanded shale (Utelite)

project with Luke Hass of the *Friends* board on several occasions before construction began, and he always provided insightful comments and conversation. Luke also discussed the project with Michael during the actual construction. We will all look forward to reading Michael's account of the crevice garden project and its plants in a future issue of *Manzanita*.

We estimate that the construction phase of our crevice garden project may take a total of three years to complete. Its planting will never be completed, as all botanic gardens grow, change, and evolve. The Park District is indeed fortunate to be able to undertake this latest addition to the Botanic Garden in partnership, and with significant financial assistance, from the *Friends*. 🌿

Photos by Bart O'Brien except as indicated.

### Three books on rock and crevice gardens:

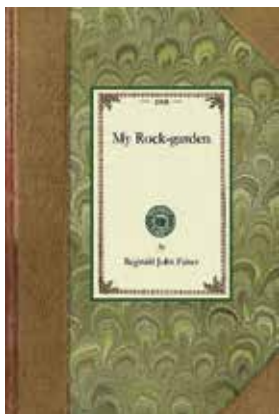
The Crevice Garden and its Plants, 2006, by Zdenek Zvolanek, 68 pages. (Note that there is an updated revised edition that was published in 2015.)

The Rock Garden and its Plants: from Grotto to Alpine House, 1988, by Graham Stuart Thomas, 272 pages.

A Rage for Rock Gardening: The Story of Reginald Farrer, Gardener, Writer and Plant Collector, 2002, by Nicola Shulman, 128 pages.

## A Brief History of Crevice Gardens *by Maggie Ingalls*

### ROCK GARDENS WITH A DIFFERENCE: WHERE ROCKS ARE ARRANGED VERTICALLY RATHER THAN HORIZONTALLY



Rock gardening itself can be traced back to China, where rocks have been an important part of gardens for more than two thousand years. By the time of the Tang Dynasty, (618–906 C.E.), there were three criteria for choosing rocks for gardens. First, the rocks should be thin, vertically placed, and top heavy. Second, the rocks should have holes and cavities. Third, they should have lots of surface texture: furrows, striations, pits.

More recently, we go to Britain. Dr. John Page, a historian with the Alpine Garden Society in Britain, calls “rock gardens and their offspring, the alpine garden...one of the great British contributions to horticulture.” Beginning with the gardens of the wealthy elite in the late 1700s, interest in these types of gardens grew throughout the 1800s and “herborising” (searching for alpine plants for the rock garden) became popular—and included women—becoming something of a craze.

The first good book on rock gardens, *Alpine Flowers for English Gardens*, was written by William Robinson and published in 1870. It included a section on “plants in crevices” written by James Backhouse of York, a nursery owner who specialized in alpine plants and regularly sent his staff to the Alps to study plants in their natural environment. Much of the information in Mr. Robinson's book came from Mr. Backhouse and his staff.

Rock garden mania truly arrived in Britain during the Edwardian Era (1901–1910). Many books on the subject were published, but the most successful author was Reginald Farrer (1880–1920). At age 14 he redesigned the rock garden in his parents' yard. As a young man, Mr. Farrer traveled to China, Korea, and Japan. His 1907 book *My Rock-garden* has been reprinted many times. He realized that successful rock gardens



needed to reproduce the naturally free draining conditions found in nature. My favorite story about Mr. Farrer is that he once loaded a shotgun with seeds of alpine plants collected on his travels and fired it at a rock garden he was creating on a cliff on his property.

During the 1920s and 1930s, other methods of cultivating alpine plants came into fashion, including troughs and tufa containers. But by the late 1970s, rock gardens had become passe, according to Ambra Edwards of *The Daily Telegraph* in a 2011 article: “The rock garden reached its happy conifer-studded heyday in the Seventies, then fell from grace—banished along with the avocado bathroom and the hostess trolley.” However, in the same year, Dr. Page wrote, “Undoubtedly, the most promising innovation in our own times has been the arrival of the crevice garden from the Czech Republic. There are numerous examples of the use of rockwork with vertical crevices over the past hundred years in our literature, so the Czechs have not invented the crevice garden. They do seem, however, to be responsible for the name, which is half the battle and no one can doubt that the Czechs have perfected the construction techniques.”

Inspired by the karst formations in the Czech Republic, Ota Vlasak, Zedenek Zvolanek, Josef Halda and Vojtech Holubec were the primary forces behind the development of the Czech crevice garden style beginning 50 years ago in Prague. In 2006 Zedenek Zvolanek wrote about this style of gardening in *The Crevice Garden and its Plants*. He has designed crevice gardens all over Europe and Canada and designed the influential crevice garden at the Mt. Goliath branch of the Denver Botanic Gardens twenty years ago. This style of crevice gardening uses very thin slabs of rock placed vertically quite close together, leaving narrow gaps of maybe an inch to be filled with sharp sand or grit. The slabs rise above the ground to varying heights, ranging from about one to four feet.

Narrow vertical crevices force the roots down into soil layers with more stable temperatures and moisture content. The improved drainage is also important, particularly in the winter. Another benefit comes from the varying height of the slabs which provides both sunny and shady sites, allowing for a greater variety of plants.

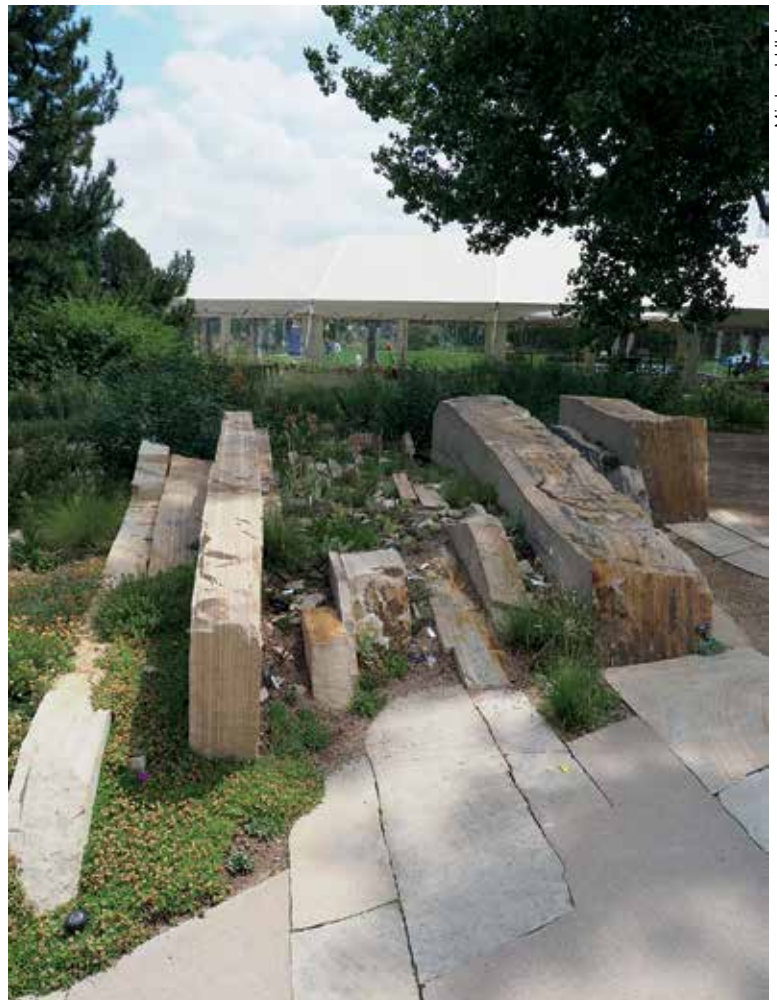
We are very excited to be getting our own crevice garden, thanks in large part to the contributions of the *Friends of the Regional Parks Botanic Garden*! Come watch it grow! 🌱

*Maggie Ingalls has been a passionate gardener for more than 35 years. Her interest in native plants began with the prairie plants of the Midwest, but she switched to California natives when she moved to Benicia in 2007. She has been a docent at the Regional Parks Botanic Garden since 2009.*



Denver Botanic Gardens

Michael Uhler



Michael Uhler

Denver Botanic Gardens: crevice gardens enable the gardener to grow a wide diversity of plants in a small area.

# Catching Up With Botanic Garden Supervisor Liz Bittner *by Maggie Ingalls*



Peter Thomas

Running a world class botanic garden is a lot of work, much of it unseen by the casual visitor. To get a glimpse behind the scenes, we spoke with Liz Bittner, Botanic Garden Supervisor. Liz took on this job last year, when Joe Dahl, who had been Park Supervisor and Horticulture Specialist for many years, retired. Before her promotion, Liz had been a staff Gardener since 2008. She has looked after five different sections in the garden, beginning with the Desert and Santa Lucia sections, followed by the Channel Islands, Franciscan, and Pacific Rainforest sections—and she continues to personally provide direct day-to-day care and management for the Channel Islands section.

As you might expect, the job of the Botanic Garden Supervisor entails a lot of mundane organization, interspersed with coordinating big projects. Some of these projects are expected and can be planned for, but some of them are surprises.

Let us begin with some of the planned projects for 2019. Liz's most difficult challenge is to continue implementing strategies to prevent the spread of *Phytophthora* taxa through our nursery operation and gardening practices. These harmful plant pathogens are water molds, not fungi. (The Irish potato famine was caused by a *Phytophthora* species.) Nonnative species of these water molds (generally from Asia) can devastate native ecosystems, causing diseases like Sudden Oak Death and root and crown rot in many Californian plants. In the wild, Sudden Oak Death inoculum is spread aerially by the wind, particularly in wet weather, from infected plants to other susceptible hosts, though in nursery conditions Sudden Oak Death appears to be spread by direct contact or by exposure to either contaminated water or soil. Most of the other *Phytophthora* species are spread by contaminated soil. Management of *Phytophthora* and other pathogens in our Garden and nursery has been of great concern for the past several years, and this year the Garden continued to make substantial progress on both fronts. Funds from both the *Friends* and the Park District were used to purchase additional new nursery benches needed to keep potted plants off the ground. Liz is in charge of this phase of this complicated and crucial project. Here is Liz's description of choosing the benches:

“For the new nursery benches, I deliberated over a few options and spoke with both garden staff and others working in nurseries to figure out what would work best for us here. The new benches that we



Rosie Andrews

Plants for the Fall 2019 Plant Sale on new nursery benches

## **PLANT SALES**

**132** Plant sale volunteers  
**1001** Volunteer hours  
**5136** Plants sold  
**\$32,587.77** Net income

**10,008 Total volunteer hours!**

chose will work well for us because they drain very well, thereby greatly reducing the possibility that pathogens will spread from one pot to another in the event that there is a pathogen present. We also chose the benches because they come in a variety of dimensions, are very stable, and are fairly easy to clean. Once I decided on the product, I measured and re-measured, decided which dimensions would work, then ordered up 20 of them!”

In addition, with garden aesthetics in mind, Liz has stipulated the benches be painted a dark brown so that they will better blend into the surrounding garden. By the end of this year, the Potting Shed area, the Shade House, the Nursery Annex and the Gardener’s Nursery will have new nursery benches.

Additional improvements to nursery and propagation practices included establishing a manageable system for use of the soil pasteurizer, rearranging the Potting Shed, and training the propagation volunteers in new protocols to optimize plant health. There were worries that the soil pasteurization process would be “horribly stinky;” but it proved not to be. Liz says, “We’re still fine-tuning our process. The soil needs to be moist, but not too moist, and if we get it right, it only takes a few hours to pasteurize 1.5–2 cubic yards of potting mix.”

Another planned project designed to ensure the future of the garden was the installation of 7,500 gallons of additional water storage last December. The new tanks were funded through the Park District’s Deputy General Manager’s Climate Contingency Fund. This will decrease our reliance on municipal water (reducing operating costs), increase resiliency during drought, and provide the garden with a water supply that has a slightly lower pH and is free of chloramines. The lower pH will allow better nutrient uptake by the plants, and removing chloramine is better for sensitive taxa such as mosses, liverworts, and lichens. Installing the water tanks required realigning a section of fence along Anza View Drive, which involved coordinating the work of the tank installer, the Park District’s Roads and Trails crew, the fencing contractor, and garden staff. The next phase will entail installation of an irrigation system and a booster pump to provide additional water pressure. Liz will coordinate this work as well, using Park District staff if possible.

Liz is also charged with managing contracts for tree pruning and removal work in the garden. Although such tree work can usually be foreseen, some surprise projects arise when a tree has sudden issues. This past year, Liz coordinated the removal of a number of trees in the garden and parking area, hiring contractors, drawing up contracts, and providing supervision of



Fallen black oak (*Quercus kelloggii*) with hazardous double-trunked incense cedar (*Calocedrus decurrens*) in the background to the right. Both were removed this year. Bart O'Brien photo

the work. Removal becomes essential when a tree is dead, hazardous, or growing in an inappropriate area. (“We get a lot of bay and oak seedlings that can become quite large in what often feels like a short span of time!”) Garden staff is also “considering the issue of bays as a vector for Sudden Oak Death and attempting to be strategic about their removal as well.”

One complicating but necessary aspect of any tree work done between the months of February and August is the requirement that a bird survey be conducted by the Park District’s Stewardship Department, which must be completed within two weeks of the proposed work. Once a contract is drawn up and sent through channels for contractor license and insurance reviews, a date for the nesting survey is scheduled. If a nest is found, a waiting period of a few weeks to a couple of months is required before scheduling a second survey. Once the “all clear” is given the contractor can be scheduled again. This year a hummingbird nest discovered by Park District Biologist Tammy Lim in February required the rescheduling of work on some coast live oaks.

In addition to large projects, both the planned and the unexpected, Liz fits other important tasks into her busy schedule. These include keeping the garden’s accessions records database up to date, coordinating major updates to improve the garden’s map, and developing a covered, off-the-ground bulk storage area for items such as potting soil, gravel, and mulch. The Garden is grateful to have Liz on board! 🌿

# Urban Kids in the Botanic Garden—The California Native People and Plants Program

Jeanne Panek, Renee Cohen, Rosalie Gonzales, John Helms, Ingrid Madsen, and Rosalinde Westil

It's a simple concept. Everyone should have access to nature. And that breathtaking moment when the human heart is touched by something greater than itself is so universal, so inspiring. It should be there for all people—gigantic redwood trees, hillslopes carpeted in brilliant orange California poppies, the vast darkness of the night sky. These can make our

most popular offering, as it supports the 3rd and 4th grade curriculum content of Science (environmental dependencies) and Social Studies (California Indian heritage). Any afternoon during the week you might see a 10-year-old's eyes widen in surprise as she lathers her hands with soap plant. Or a boy reaching eagerly for the stone pestle to grind acorns. Or hear the squeal of excitement when the sticks from the staves game fall in a young team's favor.

While classrooms from the more affluent school districts in the East Bay have been frequent visitors for many years, the cost of bus travel has long kept many low-income schools from participating. A group of Botanic Garden docents recognized the imbalance and in 2016, we began to brainstorm ways to address the problem.

## The California Native People and Plants Program

Six docents, including an elementary school teacher, a UC Berkeley professor, a research ecologist, and the lead docents of the Indian Uses tour, designed the California Native People and Plants (CNPP) program, in order to bring low-income elementary schools to the garden for the popular Indian Uses tour entirely for free (including bus fare), to gain the educational benefits of the tour, as well as the health benefits of spending time in nature.

### Program content

In addition to funding bus transportation, we developed and teach a 50-minute interactive classroom unit to prepare students for their garden visit. Students learn how California's diverse climate and landscape have created a variety of plant life that California Indians used, and continue to use, for everyday living. When students arrive at the garden, they already understand that, in a single tour, they will traverse all the California climates. They've already played a game using sun, heat, snow, rain, fog, and drought stickers to build climates on a California map. They already know that California native people in the past had the same needs as they do—food, water, clothing, tools, shelter, time together—and had to meet those needs with the plants growing around them. They recognize manzanita, acorns, and agave from a classroom activity that matched picture cards of native

Jeanne Panek



Student presents tools made with native plants.

hearts sing no matter who we are. It may be a basic concept, but in practice it can be difficult to achieve. Access to nature for kids in an urban landscape is particularly challenging. But when we see that aha! moment lighting up a young face, no one can doubt the challenge has been worth it.

The Regional Parks Botanic Garden is a gem nestled in a quiet valley amid the Bay Area's urban concrete, in the country's fifth largest megalopolis. The challenge of keeping the Botanic Garden available to everyone is taken very seriously. Garden entry is free. Docent-led tours are free. The Garden's Indian Uses of Native Plants Tour is its

### **CNPP IMPACT 2016–2019**

- 9 Schools**
- 15 Classrooms**
- 412 Students**
- 92 Chaperones**

plants with their everyday uses. Together, the classroom unit and the subsequent tour create an important synergy.

The CNPP docents continue to fine-tune the program. We attend local presentations about native California peoples, participate in similar tours at neighboring botanic gardens and parks, and actively invite local experts to visit, offer feedback, and provide guidance to our program.

### Health benefits from time in nature

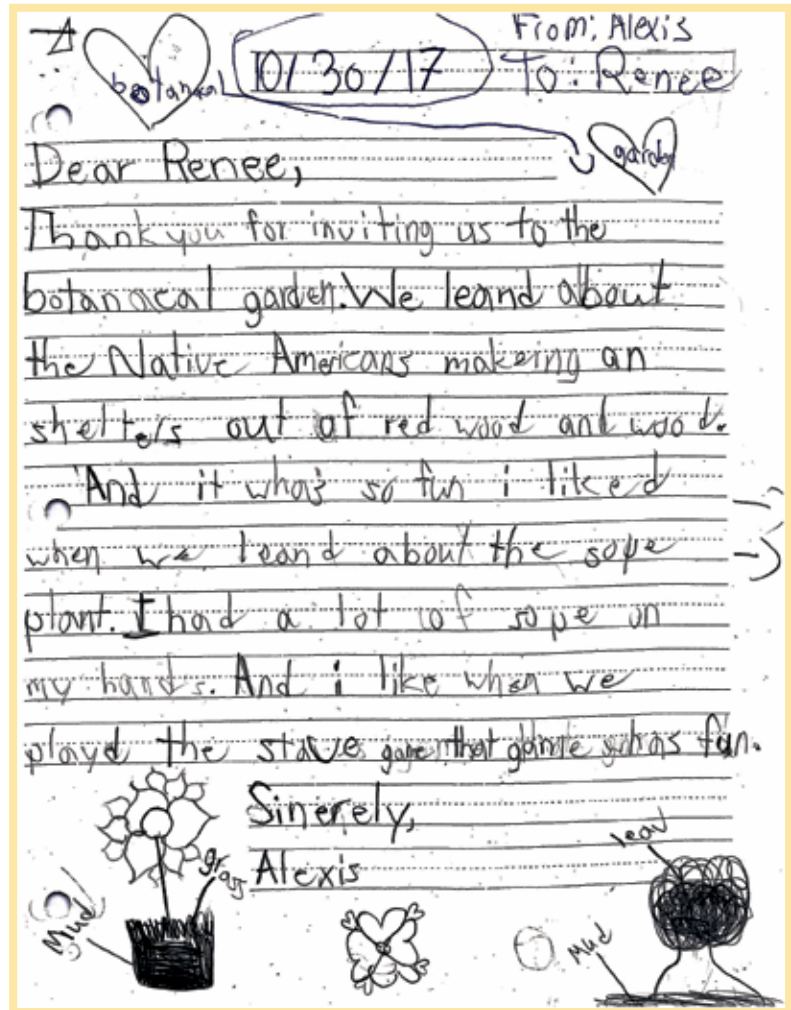
A primary CNPP program goal is to expose kids to nature, particularly children that are cut off from the natural outdoors because of urban housing conditions, traffic congestion, and lack of neighborhood parks. When kids lose contact with nature they lose out on important, healthy development. Given various names: *Vitamin N* by Richard Louv, *The Nature Fix* by Florence Williams, and forest bathing, it is clear that time in the natural outdoors enhances awareness and attention span, invigorates physical activity, improves brain function, increases immunity, and decreases stress. “Nature-deficit disorder” steals these benefits from today’s youth, as well as undermining ecological literacy and stewardship. Our CNPP program recognizes the lack of access to nature as a social justice and health issue.

Qualifying classrooms from Alameda and Contra Costa Counties are invited to apply for the garden’s California Native People and Plants program. For more information, contact the Regional Parks Botanic Garden: [bgarden@ebparks.org](mailto:bgarden@ebparks.org), (510) 544-3169.

### Thanks to our sponsors

The initial pilot program in 2016–17 was made possible with generous funding from the *Friends* of the Botanic Garden. A grant from The Barrios Trust allowed the CNPP program to double participation for the 2017–18 year. Both the *Friends* and The Barrios Trust continue to be important funders and the Program is steadily growing. The unwavering support of the Botanic Garden’s director has been invaluable in the success of the program. 🌱

*The authors are all Botanic Garden docents, enthusiastic about utilizing the Garden’s marvelous collection of California native plants in order to help young people at our local schools appreciate the connection of native plants to native cultures.*



Jeanne Panek

Students learn mortar and pestle technique for grinding acorns.

# Field Trip to Lake Winnemucca—with Bart O’Brien *by Maggie Ingalls*

Dick O’Donnell



Plant hunters along the path to Lake Winnemucca

Sixteen people gathered at the Carson Pass Information Station at 9:00 a.m. on August 2, 2019. We were there to go on a field trip with Bart O’Brien, director of the Regional Parks Botanic Garden. It was a beautiful sunny day and we were about to go on an easy mountain hike: 2.6 miles one way with only 600 feet of elevation gain. So why did it take us an hour and a half to go the first half mile? If you have been on a botanical field trip, you can guess. We were looking at almost every plant! For people who love to identify plants, this is bliss: walking down a trail in a beautiful area, with a lot of plant diversity and an expert at hand to tell you the names of any plant you aren’t sure of and point out plants you might miss. There is no better way to spend a summer day!

The path to Lake Winnemucca is world famous as a wildflower spot (at least to plant people). It begins in a forest with good plant diversity, and climbs up to mountain meadows, where the display of wildflowers is stunningly beautiful and varied. You climb out of the forest, through wet meadows, past a small lake, then into drier area, and more meadows before you reach Lake Winnemucca, at the foot of Round Top Peak. We saw wild gardens

of flowers in beautiful pastel colors, landscapes of blue, purple, and gold, and rock gardens with bright pink and magenta *Penstemon newberryi* var. *newberryi* blooming next to golden-flowered buckwheats (*Eriogonum umbellatum* or *incanum*). —Ooh! I learned that this *Penstemon* grows only on granite! And I learned that it is hard to tell *Eriogonum incanum* from *E. umbellatum* because it looks like a small *umbellatum*, but it has shorter flower stems, the flowers often turn red with age, and it grows in sandy areas.

Bart had given every person a plant list, with scientific names and brief descriptions.

This list did not include every

plant along that trail, but there were still 8 pages! The list was focused on the plants that were blooming, or about to bloom, when Bart scouted out the trail on the Tuesday before our hike. (He missed *Allium parvum*, because it wasn’t up on Tuesday, but there it was on Friday—in bloom.) We spread out along the trail, clutching our plant lists, exclaiming over the plants, trying to identify old plant friends and spot species new to us, while at the same time trying to make notes about the plants and write down Bart’s comments—while also watching our footing!

I have been on numerous RPBG field trips. It is such a great way to learn plant names, as well as other interesting tidbits of natural history. I always learn that something I thought I knew, is wrong! On this trip I confidently identified *Artemisia tridentata*, common sagebrush, only to learn that I was actually looking at *Artemisia arbuscula* subsp. *arbuscula*, low sagebrush. It turns out that there are three species of *Artemisia* in the Carson Pass area that have leaves that are tridentate. One is *Artemisia tridentata*, which is the one I know from the Eastern side of the Sierra Nevada. *A. arbuscula* is a smaller plant than *A. tridentata*, with many narrow branches, rather than a thick main trunk. The third one is *Artemisia rothrockii*, which we didn’t see. Bart

told us that it also has grey foliage (like the other tridentate species), and its identifying feature is the sticky resin.

Not knowing what you don't know is a common cause of misidentification. Natural variation is another phenomenon that causes confusion. If you haven't looked at many different plants of any one species, you can easily find yourself confused. For example, feathery false lily of the valley (*Maianthemum racemosum*) grows both in the Coast Ranges and in the high Sierra. I wouldn't have recognized it as the same species, because in the Coast Ranges (where I hike most often), it grows in dry shade and does not have reddish stems as it does along the trail to Lake Winnemucca, where it grows in wet areas. Just see what you can learn when you hike with an expert botanist!

The *Friends* of the RPBG have been providing field trips as part of their class offerings for 25 years. Glenn Keator's field trips, in the early years of the *Friends*, provided the inspiration for the start of the docent program, since so many participants wanted to share their knowledge and enthusiasm for California's native plants and special places. If you haven't gone on a field trip with the *Friends*, I encourage you to try one. It is a fun way to support the Garden, meet other native plant enthusiasts, and expand your knowledge of our diverse and wonderful flora. 🌿



Mountain pride (*Penstemon newberryi* var. *newberryi*)



Alpine laurel (*Kalmia polifolia*)



Western labrador tea (*Rhododendron columbianum*)



Red heather (*Phyllodoce breweri*)

All photos Bart O'Brien

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Dark-eyed Junco feasting on Nevin's barberry

## **BIRDS**

*Recorded since first volunteer bird survey in December 2014:*

### **85 Total species**

#### **11 Single species sightings**

Bald Eagle, Barn Swallow, Brewer's Blackbird, Cassin's Vireo, Double-crested Cormorant, Lazuli Bunting, Northern Harrier, Northern Saw-whet Owl, White Pelican, Yellow Warbler

#### **2 Most popular plant species for feeding birds**

##### **Nevin's Barberry (*Berberis nevinii*)**

Western Bluebird, American Robin, Swainson's Thrush, Spotted Towhee, California Towhee, Dark-eyed Junco

##### **American Dogwood (*Cornus sericea*)**

American Robin, Swainson's Thrush, Hermit Thrush, Warbling Vireo, Purple Finch, Golden-crowned Sparrow

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## **Thank You to these Nurseries for Providing a Discount to Friends Members**

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California Flora Nursery (707-528-8813), 2990 Somers Street at D Street, Fulton (north of Santa Rosa), [www.calfloranursery.com](http://www.calfloranursery.com)

Central Coast Wilds (831-459-0655), 336 Golf Club Drive, Santa Cruz, [www.centralcoastwilds.com](http://www.centralcoastwilds.com) (please call before visiting)

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Oaktown Native Plant Nursery (510-387-9744), 702 Channing Way, Berkeley, [www.oaktown@oaktownnursery.com](http://www.oaktown@oaktownnursery.com)

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