YERBA BUENA NEWS

THE YERBA BUENA CHAPTER OF THE CALIFORNIA NATIVE PLANT SOCIETY FOR SAN FRANCISCO AND NORTHERN SAN MATEO COUNTY

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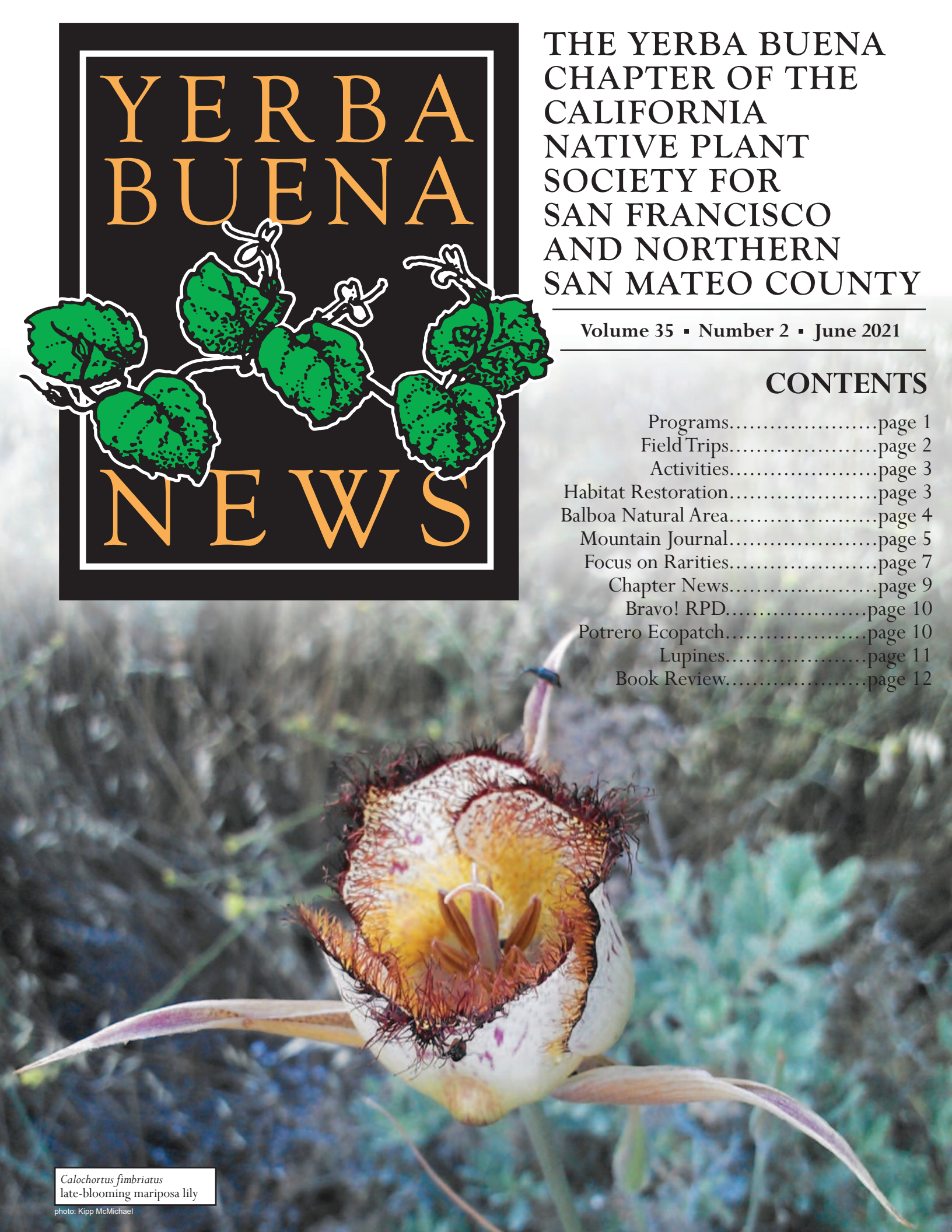


Calochortus fimbriatus
late-blooming mariposa lily

photo: Kipp McMichael

PROGRAMS

All programs will be online Zoom presentations. Registration information will be on our website, in our alerts, and on Eventbrite and Meetup.
Please note that beginning in July our programs will move to the second Thursday of the month.

Native Bees are Picky, What you Plant Matters

Speaker: Sam Droege

June 3
THURSDAY 7:30 pm

Zoom reservation required: https://cnps-org.zoom.us/meeting/register/tJYpfuirpjstH9y7a-rbUBV98nEDOX-IJs3B

The conservation of native bees is the management and conservation of native plants. Many native bee species gather pollen from only one family of plants, often restricting themselves to a single genus, and at times, a single species. Rare bees, those most in need of conservation, are often these specialist bees. The good news is that bees are small and readily colonize newly planted landscapes. That landscape could be your quarter acre lot; they aren't picky about the neighborhood, just their food plants. Sam will discuss plants, patterns, what to plant, the bees that benefit, and where to find lists of plants that host bees.

Sam Droege grew up in Hyattsville, Maryland, received an undergraduate degree at the University of Maryland and a master's at the State University of New York, Syracuse. Most of his career has been spent at the USGS Patuxent Wildlife Research Center, Reston, VA. He has coordinated the North American Breeding Bird Survey Program, developed the North American Amphibian Monitoring Program, the Bioblitz, Cricket Crawl, and Frogwatch USA programs, and works on the design and evaluation of monitoring programs. Currently his team is running an inventory and monitoring program for native bees, developing tool and technique manuals, along with online identification guides for North American bees at www.discoverlife.org, reviving the North American Bird Phenology Program, and producing public domain hi-resolution photographs of bees, insects, and flowers @USGSBIML

You can learn more by following the USGS Native Bee Lab @USGSBIML on Instagram, Tumblr, and Facebook.

Iwígara: American Indian Ethnobotanical Traditions and Science

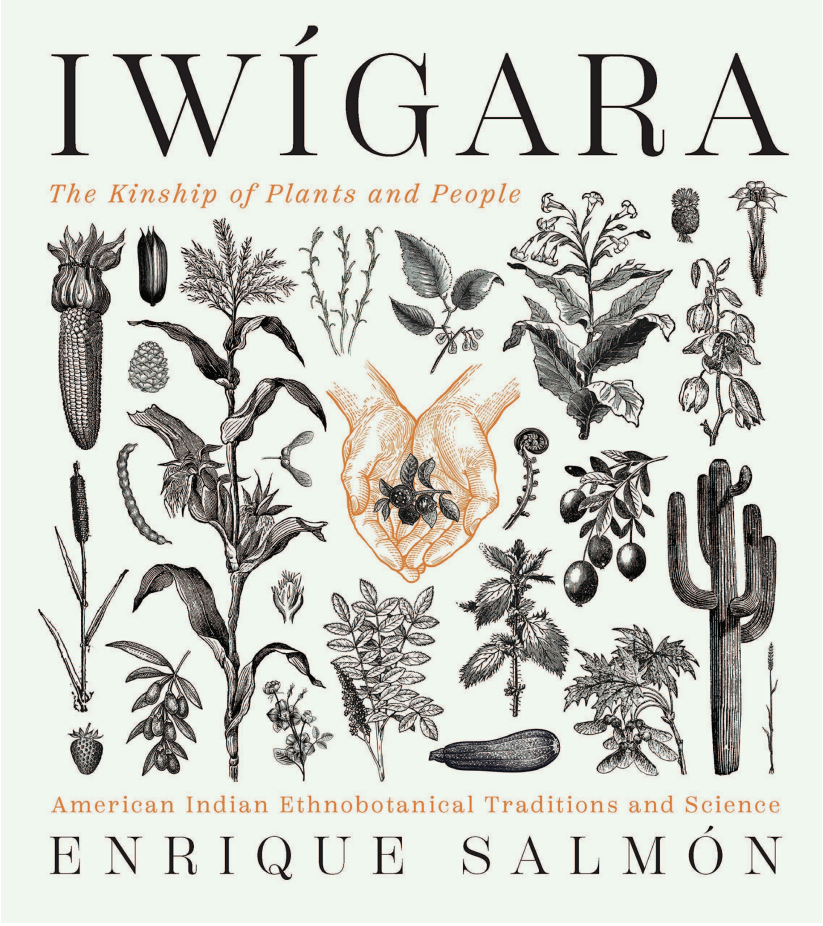
Speaker: Enrique Salmón

July 8
THURSDAY 7:30

Zoom reservation required

Join indigenous scholar and Rarámuri ethnobotanist, Enrique Salmón, as he discusses his new book, *Iwígara: American Indian Ethnobotanical Traditions and Science*, winner of the 2021 Award of Excellence in Botany from the Council on Botanical and Horticultural Libraries. Iwígara is the Rarámuri belief that all life-forms are interconnected and share the same breath. The book, *Iwígara*, is a treasury of knowledge of 80 plants revered by North America's indigenous peoples. Dr. Salmón teaches us the ways plants are used as food and medicine, the details of their identification and harvest, their important health benefits, plus their role in traditional stories and myths.

Dr. Enrique Salmón is head of the American Indian Studies Program at California State University–East Bay, in Hayward, California. His own Rarámuri family has always gathered, grown, and used plants for many medicinal and cultural purposes. He feels indigenous cultural concepts of the natural world are only part of a complex and sophisticated understanding of landscapes and biocultural diversity, and he has dedicated his studies to Ethnobiology, Agroecology, and Ancestral Ecological Knowledge in order to better understand his own and other cultural perceptions of culture, landscapes, and place.



FUTURE PROGRAMS
August 12—Climate Change Impacts on California Biodiversity
Speaker: David Ackerly

September 9—The Behr Essential Botany of Early Historic San Francisco
Speaker: Peter Baye

FIELD TRIPS

At the time of writing this announcement, we are unclear of the public health guidelines for these dates in June and July. YB-CNPS adheres to the state and county public health guidelines (ex: group size, whether food can be consumed, masks and social distancing). Currently the situation is looking good and we hope that conditions continue to improve. Thanks to our dedicated field trip leaders, the following field trips are planned:

June 5, SATURDAY, 10am-Noon
The Daly City Dunes, San Bruno Mountain
Leader: Doug Allshouse

Imagine a 300-foot deep sand dune system that dates back about 125,000 years when San Bruno Mountain was almost an island, and it is 2 miles from the ocean! Located at the mouth of lower Colma Canyon, the dunes are a remnant of the Colma Dune Formation that once stretched from Colma to the Presidio, but now is fragmented by development in western San Francisco and Daly City. A piece of this site is relatively intact and supports a specific ecosystem not usually found at such a distance from the coast. Of great interest is the presence of San Francisco lessingia **(***Lessingia germanorum*) an endangered dune plant now found only in the Presidio and the Dunes, its only known population in San Mateo County. Also present at the dunes is San Francisco spineflower (*Chorizanthe cuspidata*), dune suncup (*Camissonia strigulosa*), contorted suncup (*Camissonia contorta*), miniature suncup (*Camissoniopsis micrantha*), California suncup (*Camissoniopsis bistorta)*, and blue beach lupine (*Lupinus chamissonis*). There may be a great bloom of farewell-to-spring (*Clarkia rubicunda*) on the backside and a population of California pipe vine nearby (*Aristolochia californica*), which means the sighting of beautiful Pipe Vine Swallowtails (*Batus philenor*) and their larvae is a distinct possibility. Wear sturdy shoes suitable for sand.

This field trip will be restricted to 15 persons—vaccinated persons encouraged. Contact Doug at dougsr228@comcast.net, or text or call 415-269-9967 to reserve a spot and get directions.

June 13 AND July 11, 2021
SUNDAYS, 10am- 1pm
The Natural Wonders of Glen Canyon
Leader: Paul Bouscal, CNPS member and California Naturalist

Join us on a summer hike to explore this canyon in the midst of residential neighborhoods. Glen Canyon is one of San Francisco's significant natural resource areas containing a variety of vegetation including forbs, grasslands, shrubs, willows and other trees. At this time of year we hope to see summer wildflowers in bloom. The park features rock formations and it is the source of Islais Creek. We will walk and view parts of this 70-acre park to enjoy the flora, fauna and natural history. In San Francisco layers of clothing are recommended.

Glen Canyon field trips will be restricted to 20 persons—vaccinated persons encouraged. Contact Paul at bouscalp@yahoo.com, or call 650-438-9109 regarding meeting location.

Platystemon californicus
creamcups

photo: Kipp McMichael

ACTIVITIES

GARDENING PRESENTATIONS BY SUSAN KARASOFF

June 26, 1 pm Children's Gardens with San Francisco Native Plants
San Francisco Public Library
https://sfpl.org/events Find the event and click on "Quick View" to register

Children learn by exploring and using all their senses. San Francisco native plants can provide soft, safe environments for young children and opportunities for exploring the natural world, including butterflies and birds, for older children. Susan Karasoff will discuss what to plant in San Francisco to provide opportunities for children to learn and explore nature.

Aug 1, 1 pm Gardening for Butterflies
San Mateo Arboretum
https://www.sanmateoarboretum.org/classes--events.html#aug

The Bay Area is home to many butterflies. Our native butterflies and their caterpillars evolved with, and depend on, local native plant leaves for food (host plants). Susan Karasoff will discuss growing a butterfly buffet for baby (caterpillars) and adult butterflies, including plants that thrive in containers.

Aug 28, 1 pm Drought Tolerant Gardening with San Francisco Native Plants
San Francisco Public Library
https://sfpl.org/events Find the event and click on "Quick View" to register

Water conservation is essential in the design and management of California drought tolerant landscapes. Matching water supply to plant needs leads to successful drought tolerant landscape choices. Local San Francisco native plants are beautiful, drought tolerant, adapted to our varied soils, and co-evolved with our local pollinators. Susan Karasoff will discuss the many native plants appropriate for urban gardening.

Calypso bulbosum
Calypso orchid
by Margaret Kemp

HABITAT RESTORATION

Join the CNPS Yerba Buena Meetup group to get the most up-to-date information about our restoration activities:

https://www.meetup.com/California-Native-Plant-Society-Bay-Area-Meetup-Group/

Sunset Boulevard between Santiago and Taraval (at 36th and 37th Avenues)
Weeding, mulching, watering our new native plant garden
Email yerba.buena.cnps.chapter@gmail.com for dates and for more information.

Various San Francisco parks, working with SFRPD Natural Resources team
Wednesdays, 12-3pm Email yerba.buena.cnps.chapter@gmail.com for more information.

San Francisco Recreation and Park Nursery in Golden Gate Park
First Saturday of each month from 9:30am-12:30pm
Space is limited to five. Please contact Licia De Meo via text or email at least 24 hours in advance to reserve a space: licia.demeo@sfgov.org

Mount Sutro with Sutro Stewards
Wednesdays 9:30-12:30pm for at risk populations (those over the age of 60 or with underlying health conditions)

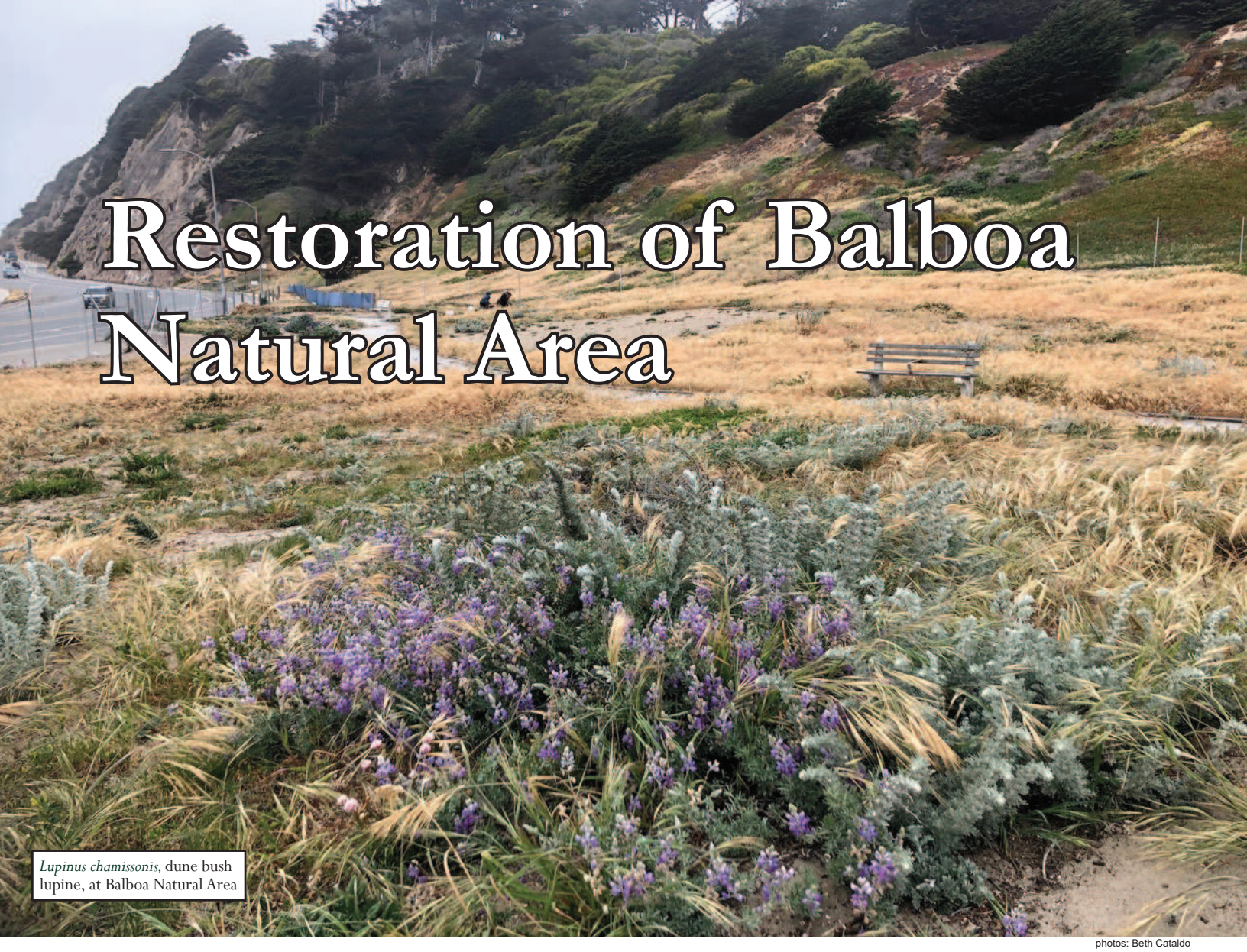
Thursdays 9:30-11:30am open to anyone
1st and 3rd Saturdays, 9-11am, trail stewardship, open to anyone

Sutro Stewards is requiring everyone to RSVP through their website at sutrostewards.org/events so they can keep group size limited. Participants can find more info at sutrostewards.org/voluteer. Mask required and please bring your own gardening gloves. Questions? Contact Kelly Dodge: kelly@sutrostewards.org

For trail stewardship questions, contact Dan Bernards: danb@sutrostewards.org

Golden Gate Audubon Society
First Saturdays, 10am-12:30pm at Pier 94
Requires an RSVP to jcarpinelli@goldengateaudubon.org
For more information see https://goldengateaudubon.org/volunteer/

Restoration of Balboa Natural Area



Lupinus chamissonis, dune bush lupine, at Balboa Natural Area

photos: Beth Cataldo

Our chapter has a new restoration project at the Balboa Natural Area. Located near the corner of the Great Highway and Balboa Street, the area was once part of Playland at the Beach. It appears at first glance to be just a small corner lot, but look again and you will see a vibrant vegetated area with dune tansy, lupine, yellow sand verbena, coast Indian paintbrush, seaside daisies and other natives. Most of these plants have been here for 20 years, the result of a restoration project by the San Francisco Recreation and Park Department (SFRPD). This past year, however, the area was used as an encampment, which disturbed the soil, dislodged many of the native plants, and opened space for ice plant, radish and invasive grasses to colonize and threaten to overtake the natives.

In April, SFRPD fenced off the area and invited CNPS volunteers to remove the invasives and help stabilize the area. Chapter volunteers are planning to propagate plants in the SFRPD nursery this summer to be ready to plant after the rains in late fall.

Please join us in restoring this distinctive beach native garden.
To get up to date information about meeting days and times, join our Meetup Group:
https://www.meetup.com/California-Native-Plant-Society-Bay-Area-Meetup-Group/
Or email us at: yerba.buena.cnps.chapter@gmail.com

Native flowers in the restoration area: beach evening primrose (*Camissonia cheiranthifolia, was Oenothera californica*), dune sagewort (*Artemisia pycnocephala*), seaside daisy (*Erigeron glaucus*), and coast strawberry (*Fragaria chiloensis*).

DOUG'S MOUNTAIN JOURNAL

A Chronicle of the Natural History on San Bruno Mountain
by Doug Allshouse

Anise Swallowtail caterpillar on cow parsnip

photos: Doug Allhouse

"Did someone forget to pay the water bill?"

I imagine this is a conversation that some of our annual plants are having in April. The last recorded precipitation was March 19 and to date we have recorded a measly 10.36 inches. That is the lowest total by April 15 of any of the seasons below 20 inches, which is the low side of average rainfall for San Bruno Mountain, 20-24 inches. Even if we have the best April, May and June since I have kept records, we would end the season with 16.74 inches of precipitation. As it stands right now we will not exceed the worst year (2013-14) of 13.85 inches. Those 10.36 inches include 1.40 inches of fog drip on 64 days. We have had only 9.96 inches of actual rain.

The perennial wildflowers have barely noticed the paltry rainfall. The poppy and lupine show on Juncus Ridge was out in full force in late March. If there is any positive situation of this cold and dry year it would be the fact that the European annual grasses are half as tall as usual. One April morning I noticed many splashes of yellow in the main picnic area. They turned out to be suncups (*Taraxia ovata*) which have always been there, but now the stunted grasses allowed them to shine.

Most morning walks are quiet and uneventful, but eventually something breaks the silence. On April 4th I was walking the upper Bog Trail under some cypress trees. Suddenly a sound and feeling reminiscent of raindrops broke the silence. I turned around to see two squirrels barreling headfirst down a trunk through the clinging English ivy. Across the trail they scampered and through the ferns and willows in the direction of Colma Creek. Suddenly I heard another sound up in the cypress and I spotted two more squirrels who seemed confused about what to do. Within a millisecond they bolted across a large branch, leaped a few times down to lower branches, and scurried down a small willow to the ground, heading in the same direction as the first two. Wow, I thought, they must be late for a Zoom meeting or else awfully thirsty. Frightened or motivated squirrels are, hands down, the most athletic creatures ever to grace the Earth. Why they were in such a hurry remains a mystery. Ten minutes later I heard my first Wilson's Warbler of the spring. If you throw in the California Quail I heard 30 minutes prior to the squirrel episode you can safely say, "Good things happen in threes."

COVID restrictions for the Park have put quite a damper on my springtime activities so I also squeezed in two checkups on rare plants. The first was a stop on Radio Road for a descent down a steep meadow through dwarf brodiaea, common owl's clover and a small sprinkling of goldfields. At the bottom is the only known population of Choris' popcorn flower, a definite water-lover. With the dearth of rainfall this season the plants were blooming in what would be the creek bed in a more normal year instead of blooming on the bank of the creek. I surmised that the April Brook did not run seasonally this year, but the popcorn flower is still there, doing as well as could be expected, and that's what is important. And yes, I found a few Small Black Ants (*Monomorium ergatogyna*) on some flowers.

(MOUNTAIN JOURNAL *continued on page 6***)**

MOUNTAIN JOURNAL *(continued)*

I applied for a Site Activity Review from County Parks for a second year of removing two invasive species of clover on the Ridge Trail. This infestation is near the reintroduction site of the threatened Bay Checkerspot butterfly. Last year with help from Stu Weiss we removed six landscaping bags full of narrow-leaved clover (*Trifolium angustifolium*) and rose clover (*T. hirtum*). In mid-April I made my way out on the Ridge Trail to do some reconnaissance of the clovers. It was a horribly windy and slightly foggy afternoon when I threw my Explorer into high 4X4 drive and headed east. The first thing that surprised me was the thousands of lace parsnip (*Lomatium dasycarpum*) plants that lined the shoulders of both sides of the road for almost a mile. I have never seen such a display of this once-crucial larval plant for the Anise Swallowtail butterfly in all my years on San Bruno Mountain. I say "once-crucial" because this butterfly that exclusively used the native lomatiums and cow parsnip will frequently use the rather abundant non-native fennel. Likewise, the threatened Bay Checkerspot now uses the non-native English plantain (*Plantago lanceolata*) in lieu of the native plantain (*P. erecta*) and common owl's clover (*Castilleja densiflora*). The reason for using these non-natives is due to their availability and the evolution of these species in their struggle to survive. One possible reason for the sudden abundance of the lace parsnip is the County brushed back the scrub 6-8 feet on the shoulders of the major fire roads. They did not disturb the native butterfly habitat of the San Bruno Elfin on Radio Road or the Mission Blue habitat on Battery Road 59 (West Peak); ditto for the MB, BC and Callippe Silverspot habitat on the Ridge Trail. The clover was not to be found, which is encouraging, but with our cold dry winter my thought was that the clover is behind schedule. I plan another outing in a few weeks.

After locking the gate on the summit, I checked on the San Francisco campion growing on the rock wall by the upper parking lot. I found only two plants that were considering possibly flowering and the rest were basically basal leaves with no stalks. There are a few more populations in the area to check out, but the blistering wind and returning fog diminished any thoughts other than getting back in my SUV and heading home.

For the third consecutive year a pair of Western Bluebirds appeared on my hill. A conservation conversation with Dominik Mosur about bluebirds enlightened me that they are making their way back into San Francisco to breed. I checked with Eddie Bartley, Noreen Weeden, and Robert Hall and discovered that bluebirds are back! Back in the late 1990s the Friends of San Bruno Mountain erected six bluebird boxes in our Native Plant Botanical Garden hoping (in vain it turned out) for some action. They were constructed by a gentleman in the Woodside area who had also put boxes along the frontage roads by Interstate 280 in horse country. The problem with the empty boxes in the Bot Garden was the absence of the horse dung that draws the insects that the bluebirds eat; a noble try nonetheless. Consensus is that bluebirds returned to San Francisco because of supplemental nest boxes (bluebirds are cavity nesters) and awareness of cutting back or abolishing the use of insecticides.

On February 28, 2020 there was a fire that consumed six acres of gorse between the day camp and the Saddle Trail. I failed to mention it at the time for lack of knowledge about the County's plan for the area. I did mention the discovery of human bones in my autumn journal and the mastication of gorse in the area adjacent to the fire. Here is a link to a Special Edition of Doug's Mountain Journal written by Ariel Cherbowsky Corkidi and yours-truly explaining the menace of gorse and the San Mateo County Parks response and conservation: https://www.mountainwatch.org/mountain-journal/2021/4/9/appealing-and-appalling-plants-gorse-stories. Give it a read and maybe a donation.

See you on the Mountain…

Silver bush lupine (*Lupinus albifrons* var. *collinus*), larval host plant of the endangered Mission Blue butterfly, and poppies on Juncus Ridge, San Bruno Mountain

FOCUS ON RARITIES

by Michael Wood

The Saltbushes (*Atriplex* and *Extriplex*)

Known variously by such monikers as saltbush, silverscale, spearscale, heartscale, crownscale, brittlescale, silverwort, and orache, this diverse group of plants ranges in form from diminutive annual herbs to robust perennial shrubs growing up to 4 m (13 ft) tall. Long placed in the Goosefoot Family (Chenopodiaceae), these two closely related genera are now assigned to the Amaranth Family (Amaranthaceae), in the Subfamily Chenopodioideae and the Tribe Atripliceae. The genus *Atriplex* includes 250-300 species distributed on both sides of the equator from subtropical to subarctic regions, or between 23° and 70° in latitude.

The name saltbush comes from the ability of many members of the genus to grow on saline or alkaline soils and to contend with such harsh conditions by sequestering salts in the leaves, giving them the appearance of being coated in salt. The name orache dates back to 1st century Rome and refers to edible members of the family like spinach (*Spinacia oleracea*) and mountain spinach (*Atriplex hortensis*). Described by Carl Linnaeus in 1753, the genus likely evolved first in Eurasia during the middle Miocene (16-11 MYA), spreading to North America around 9 MYA. Some 62 taxa are listed in the *Flora of North America*. California is host to 30 native species and another 21 native subspecies or varieties. Twenty taxa are considered rare while 12 taxa are non-native and naturalized in the state.

The genus *Extriplex* was split off from *Atriplex* in 2010 based on phylogenetic[1] studies which found the members to be quite distinct. For those of you following along at home, the Jepson key splits *Extriplex* from *Atriplex* based on the following features: non-Kranz leaf anatomy[2]; staminate flowers with four lobes; and seeds of a single kind (dark brown-black). There are only two members of this new genus, California orache (*E. californica*) and San Joaquin spearscale (*E. joaquiniana*), the type species for the genus.

As mentioned above, many members of the genus are halophytes, plants adapted to growing in saline conditions. These are the gray, ghost-like shrubs found across the world's "wastelands", growing where few other plants can survive. As such, these plants are often important forage plants for native animals like deer, pronghorn and bighorn sheep, and livestock such as cattle, sheep and goats. While these plants lack showy flowers, and really, to most folks, there's not much attractive about them at all, they are important host plants for myriad insects. Lacking extensive areas supporting saltbushes, San Francisco's plants don't likely play much of a role supporting pollinators. But elsewhere, they support butterflies such as common and Mohave sootywing, western pygmy blue, San Emigdio blue, and numerous species of moths, lacewings, beetles and parasitic gall-forming flies. They provide cover and forage and shelter for birds like quail, verdin and gnatcatchers, as well as small mammals and reptiles. Given their tolerance for harsh environmental conditions, saltbushes play another interesting role. They are widely used around the world for the revegetation of mining spoils and even phytoremediation of soils containing toxic chemicals like selenium.

Given their dominance in remote parts of the world, saltbushes must surely have served some role in the survival of human populations. As for foraging wildlife, the edible leaves and seeds provided emergency food for migrating humans. Native Americans used leaves as a soap for washing hair and for making poultices to apply to ant bites and itchy rashes. Ashes of burned leaves and stems were used as a baking soda and a dye for crafts. Stems were carved into arrowheads. Freshly ripe seeds were used as a laxative and to induce vomiting.

There are some 55 species of *Atriplex* native to California. Howell, et al. (1958) listed nine taxa as occurring in San Francisco, only three of which are considered indigenous here. Based on our freshly revised *Annotated Checklist of the Plants of San Francisco* (Wood, 2021), one additional indigenous species can be added to that list based on records in the Consortium of California Herbaria (CCH). A summary of the saltbushes recorded from San Francisco is presented in Table 1, below.

Of our native taxa, two have been extirpated. Spike saltbush (*A. dioica*) is an annual herb inhabiting moist, saline or alkaline soils at elevations below 200 m (650 ft). It ranges from along the coast from Southern California into the Bay Area, and the Central Valley; it can be found to eastern North America. In San Francisco, spike saltbush was first recorded in 1956 and was reported from Fort Pt. and Golden Gate Park; it has not been seen since 1974.

San Joaquin saltbush (*E. joaquiniana*) is another annual herb. It inhabits alkaline grasslands at elevations below 350 m (1,150 ft). It occurs in the South Coast Ranges, along the Central Coast to the San Francisco Bay Area, the Great Valley and the interior of the North Coast Ranges. It is endemic to California and is included in the *Inventory of Rare and Endangered Plants* as a List 1B.2 rare species (CNPS, 2021). It was recorded historically from the South Basin (presumably Hunters Point); it has not been seen here since 1921.

There are two extant indigenous species in San Francisco. California orache (*E. californica*) is a perennial herb inhabiting sandy soils of coastal dunes, sea bluffs, scrub and salt marshes at elevations below 200 m (650 ft). It is restricted to the coast from Baja California to the southern part of the North Coast. In San Francisco, it was first collected in 1866 and was reported from the Cliff House, Point Lobos, and Fort Point. It is extant at only three locations in the City: Land's End, Crissy Field and the Presidio Bluffs.

More common is beach saltwort (*A. leucophylla*), a perennial herb to subshrub inhabiting sandy soils of coastal dunes at elevations below 60 m (200 ft). It occurs from Baja California to Northern California. It was first collected here in 1891 and was recorded from Fort Funston, Point Lobos, Ocean Beach and Baker Beach. It can still be found at seven locations, including Fort Funston, Heron's Head Park, Ocean Beach, Baker Beach, Baker Beach North, Crissy Field and Fort Point.

There are three California native species that have been recorded from San Francisco but which are believed to have been incidental introductions. Mojave silverscale (*A. argentina* var. *expansa*), an annual herb, inhabits saline soils at elevations below 1,500 m (4,900 ft).

(RARITIES *continued on page 6***)**

photo: Toni Corelli

Extriplex californica
California orache

1. Phylogeny relates to the evolutionary development and diversification of a species or group of organisms, or of a particular feature of an organism (Wikipedia).
2. Kranz anatomy (observable at 10 ×, sometimes only after scraping off scaly, mealy, or powdery layer) characterized by veins that are darker green than rest of leaf, due to higher concentrations of chloroplasts in bundle-sheath cells surrounding veins (Jepson Interchange).

RARITIES *(continued)*

It occurs in the Great Valley, eastern San Francisco Bay Area, Central Coast, Southwestern California and the desert regions. It ranges east to Texas and Northern Mexico. It was recorded from near Islais Creek in 1955; it has not been reported from the City since.

Big saltbush (*A. lentiformis*) is a perennial shrub inhabiting alkaline and saline soils of washes, dry lakes and scrub at elevations below 1,200 m (3,900 ft). It occurs from the South Coast into the southern deserts, the Great Valley Great Basin. It ranges to southwestern Utah and Northern Mexico. It was not reported from the City in Howell, et al. (1958) and there are no collections in the CCH. It has been reported from Heron's Head Park, Hunters Point, Pier 94 and Yerba Buena Island where it is presumably a recent introduction.

Bractscale (*A. serenna*) is an annual herb inhabiting alkaline flats and coastal bluffs at elevations below 2,100 m (6,900 ft). It occurs from Baja California to the Bay Area along the coast, interior, Great Valley, Great Basin and deserts. It was first collected in San Francisco in 1919 and has been reported from Golden Gate Park and near Islais Creek. It has not been reported here since the 1950s.

Finally, three taxa that are not native to California have been reported here. Redscale (*A. rosea*) is an annual herb that has naturalized in the state in open, disturbed fields at elevations below 2,500 m (8,200 ft). A native of Eurasia, it occurs throughout California and ranges to eastern North America. It was first collected in the City in 1918 from near Islais Creek. There are no contemporary reports from San Francisco.

Arrowleaf spearscale (*A. prostrata*) is an annual herb that has naturalized in the state on the margins of marshes at elevations below 1,300 m (4,300 ft). Known by such synonyms as *A. triangularis, A. hastata,* and *A. patula* var. *hastata,* it is also native to Eurasia. It occurs throughout coastal and interior California, the Great Valley and Great Basin, and ranges to eastern North America. It has been reported in San Francisco only since the mid 1950s and is now widespread in low-lying, disturbed parts of the City.

Australian saltbush (*A. semibaccata*) is a spreading perennial sub-shrub that has naturalized in the state in disturbed areas, scrub and woodlands at elevations below 1,000 m (3,300 ft). Native to Australia, it has spread aggressively throughout the state and eastward to Utah, Texas and Northern Mexico. It was first collected here in 1957 and is reported from Heron's Head Park and Rocky Outcrop (Sunset Heights). Australian saltbush is rated as moderately invasive by the California Invasive Plant Council (Cal-IPC, 2021).

Identification of this complex group of plants can be very challenging and requiring to have in hand (or good close-up photos of) leaves, stems, flowers and fruits. Most of our species flower and fruit in the summer months, so now's the time to look for them. The best places to search are stable and partially stable dunes, sandy substrate, and the upper edges of our salt marshes. Be sure to post your observations on iNaturalist.org and let me know if you make any neat discoveries.

TABLE 1. SALTBUSHES OF SAN FRANCISCO

SCIENTIFIC NAME	COMMON NAME	OCCURRENCE NOTES	LIFE FORM	DURATION	HABIT / ECOLOGY	# EXTANT OCCS.	FLOWERING SEASON	ENDEMIC SF/Bay Area/CA	NATIVE - SF / CA
Atriplex argentea var. *expansa*	Mojave silverscale	[*A. expansa* var. *mohavensis*] Recorded historically (1955) from near Islais Cr. where it was presumably introduced (Howell, et al.); there are no SF records in CCH. There are no contemporary reports from SF.	h	a	Saline soils; Elevation: < 1500 m. WET: FAC	0	Jun-Sept	no	N/Y
Atriplex dioica	spike saltbush	[*A. subspicata*] Recorded historically (1956) from Golden Gate Park and the Presidio (Fort Pt.; CCH); not included in Howell, et al. Extirpated; last collected in 1974.	h	a	Moist, saline or alkaline soils; Elevation: < 200 m. WET: FAC	0	Jul-Nov	no	Y/Y
Atriplex lentiformis	big saltbush	Not included in Howell, et al. and there are no SF records in CCH. Reported from Heron's Head Park and Pier 94; presumably planted or recently introduced. Planted at Heron's Head, Hunters Pt., Pier 94, and Yerba Buena Is.	s	p	Alkaline or saline washes, dry lakes, scrub; Elevation: < 1200 m. WET: FAC	4	Apr-Oct	no	N/Y
Atriplex leucophylla	beach saltwort	[*Obione l.*] Recorded historically (1891) from Fort Funston, Land's End (Pt. Lobos), Ocean Beach, and the Presidio (Baker Beach; Howell, et al., CCH). Reported from Fort Funston, Heron's Head, Ocean Beach, and the Presidio (Baker Beach, Baker Beach n., Crissy Field, Fort Pt.) SF is the type locality (holotype of Obione l.)	h-ss	p	Prostrate to decumbent. Sandy soils, dunes; Elevation: < 60 m. WET: FAC	7	Apr-Oct	no	Y/Y
Atriplex prostrata	arrowleaf spearscale	[A. triangularis; A. hastata; A. patula ssp. hastata] Recorded historically (ca 1955) from Bayview Hills, Golden Gate Park, Islais Cr., the Presidio (Fort Pt., Mountain Lake; Howell, et al.); there are no historic SF records in CCH. Reported from Candlestick Pt., Heron's Head Park, Hunters Pt., Land's End, Pier 94, the Presidio (Crissy Field, Mountain Lake, Presidio Bluffs), Sutro Baths, Treasure Is., and Yerba Buena Is.; expected elsewhere.	h	a	Naturalized. Wet places, marshes; Elevation: < 1300 m. WET: FACW	11	Apr–Oct	no	N/N
Atriplex rosea	redscale	Recorded historically (1918) from near Islais Cr. (Howell, et al., CCH). There are no contemporary reports from SF.	h	a	Naturalized. Open, disturbed places, fields; Elevation: < 2500 m. WET: FACU	0	Jul-Oct	no	N/N
Atriplex semibaccata	Australian saltbush	Recorded historically (1957) from Hunters Pt. and near Islais Cr. (Howell, et al., CCH). Reported from Heron's Head Park and Rocky Outcrop; expected elsewhere. INVASIVE STATUS: M/3/—/—	h-ss	p	Naturalized. Disturbed areas, scrub, woodland; Elevation: < 1000 m. WET: FAC	2	Apr–Dec	no	N/N
Atriplex serenana var.	bractscale	Recorded historically (1919) from Golden Gate Park and near Islais Cr. (Howell, et al., CCH); presumably A.s. var. s. There are no contemporary reports from SF. Not likely indigenous to SF.	h	a	Alkaline flats, coastal bluffs; Elevation: < 2100 m. WET: FAC	0	Apr–Oct	no	N/Y
Extriplex californica	Cal. orache	[Atriplex c.] Recorded historically (1866) from Cliff House, Land's End (Pt. Lobos), and the Presidio (Fort Pt.; Howell, et al., CCH). Reported from Land's End and the Presidio (Crissy Field, Presidio Bluffs).	h	p	Sandy soils, coastal dunes, sea bluffs, scrub, salt marshes; Elevation: < 200 m. WET: FAC	3	Apr-Oct	no	Y/Y
Extriplex joaquiniana	San Joaquin saltbush	[*Atriplex j.*] Recorded historically (1921) from near South Basin (Hunters Pt.?) and Golden Gate Park (Howell, et al.); there are no SF records in CCH. Extirpated; last collected in 1921. RARITY STATUS: —/—/1B.2.	h	a	Alkaline soils; Elevation: < 350(840) m. WET: FACU	0	Apr-Oct	CA	Y/Y

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CHAPTER NEWS

VOLUNTEERS WANTED TO TAKE OUR CHAPTER TO THE NEXT LEVEL

We're making big progress toward our biodiversity goals. But as a hundred percent volunteer-run chapter, we need additional help to keep growing. Are you ready to lead, collaborate, have some fun while giving the local environment a fighting chance to thrive? If so, here are opportunities to choose from:

Conservation: Help lead a functioning committee involved in grassroots efforts to save our natural habitat from destruction in San Francisco and Northern San Mateo counties. Help out by speaking with public officials, advising partner organizations, writing comment letters and occasionally meeting with the press.

Communications: If you haven't heard about all of the great things the chapter is doing, it's because we need someone to help get the word out. You'd help coordinate a small team of helpers to publicize events, create the monthly chapter email and engage people on social media.

Graphic Design: We have the science. Provide your creative skills to make it readable, presentable and inspiring. Pitch in and help create beautiful online brochures, PDFs and educational material.

Membership: We have over 630 members in our chapter but feel we should have over a thousand. We're looking for someone who can interpret member data and develop ideas to reach new audiences and make being a member more meaningful and rewarding.

Education: Our chapter needs someone to help connect and maintain relationships with academic institutions, local public and private schools and students.

Field Trips: Help chapter members experience nature by recruiting field trip leaders and coordinating approximately 20 outings per year.

If you're ready to join a team of volunteers who're protecting our local natural heritage, send us an email at:yerba.buena.cnps.chapter@gmail.com

BIODIVERSITY AWARDS TO STUDENTS

The CNPS-YB Chapter presented Biodiversity Awards to six aspiring young scientists as part of the annual Science, Technology, Engineering, and Mathematics (STEM) Fair, a Bay Area competition for students in grades 6-12. This year students had the extra challenge of having to display their projects online. They still managed to show exceptional creativity, scientific thinking, and concern for the environment, social justice, and the future of the planet.

Two YB Board members, Noreen Weeden and Libby Ingalls, were judges for this year's competition and were impressed with the ingenuity of the students in attempting to find solutions to local and global problems. One award recipient designed and synthesized biofuel from invasive iceplant (*Carpobrotus edulis*), kelp, and walnut shells. Another raised the issue of social justice in soil remediation in two very different areas, the Presidio and Hunters Point, both contaminated by military toxic waste. She used earthworms to compare the health and vitality of the remediated soil brought in to the two areas; the worms thrived and reproduced in the Presidio soil, but mostly died in the remediated soil brought into Hunters Point. One young student studied the effect of wildfire ash on plant growth to learn about the connection between fires and biodiversity. Two recipients addressed the loss of biodiversity in the oceans due to toxic waste and ocean acidification. One experimented with kelp to filter untreated sewage and industrial waste; the other modified chaetomorpha algae to raise the pH, then used it in biofilters installed in marine ecosystems to neutralize the acidity. The final recipient focused on optimizing monitoring techniques for the Cal. Giant Salamander to obtain a more accurate count.

We wish the students success and hope the awards encourage them to explore, experiment, continue to care for the planet and seek biodiversity solutions.

BOTANICAL ART EXHIBITION

http://cnps-yerbabuena.org/urbanwilds/

Everyone is invited to sit back and enjoy a new botanical and wildlife art exhibition from the comfort of your home. Available now on the YB Chapter website, the show is an artistic celebration of our wild origins, *Urban Roots: The Art of the Franciscan Ecology*, featuring native plants, landscapes and wildlife that thrive in the urban wilds of San Francisco and Northern San Mateo Counties. Twenty-four artists interpret and share the beauty of our flowers, insects, birds, and landscapes in a variety of mediums, including watercolor, photography, murals, and poetry. YB Board member Bob Hall conceived the idea initially to celebrate California Native Plant Week in April, but it has been so successful we are keeping it up for more to enjoy.

Pedicularis densiflora indian warrior Mural by Mona Caron

BRAVO! TO THE RPD'S NATURAL RESOURCE DIVISION

A small, little publicized division of the San Francisco Recreation and Park Department (SFRPD) is having a significant impact on the biodiversity of the City. RPD's Natural Resources Division (NRD), established in 2016, combines the department's 25 year old Natural Areas Program with other functions. The NRD's mission is "to preserve, restore, and enhance remnant natural areas, and to develop community-based site stewardship of these areas."

Lisa Wayne is at the helm of a team of 16 people responsible for maintaining 31 different natural areas (remnant fragments of the city's original Franciscan ecosystem) that are spread out all over the city, and for implementing parts of the approved management plan for them. The 31 areas total about 1,100 acres within SFRPD's 3,500 acres of parkland, plus an area in Sharp Park in Pacifica and four other areas on SFPUC land. This is a Herculean task!

So how do they do it?

According to Jake Sigg, "a tracking system developed by [long-time senior] staff member Christopher Campbell makes it possible to keep them on top of endless needs and keep a bewildering array of projects on the radar. For example, if they are down to two functional gardeners (it happens!) or are hit by untoward events, they can be matched to the most urgent tasks. Some parks are large and complex, with needs changing from year to year, season to season, and day to day; the tracking system quantifies time spent and provides a historical record that can guide future action" and provide information along the way.

To maintain these areas, the NRD had to first inventory the biological resources in, and develop a database of baseline information for, each area. They then identified threats and ways to enhance biological diversity and maintenance of sensitive species. From there they could prioritize restoration and management, and provide guidelines for recreational uses, along with educational, research, and stewardship programs.

What has also helped the Division's effectiveness, Jake says, are two actions taken by SFRPD. First, the Division was established with care and in a professional manner. And second, the department recently introduced a new category of gardener, one with special training in working with the plants, along with animals and other organisms, found in the Franciscan ecosystem.

The CNPS-YB Chapter has played a significant role in helping to maintain these areas. Jake coordinated with NRD staff to set up regular work parties at different sites each week. One only has to look at Chapter Annual Reports to see how many thousands of hours of volunteer stewardship the chapter provided for over 25 years. With COVID, a pared-down version of those work parties continues. For information on how you can help, please contact the chapter's Volunteer Chair, Beth Cataldo, at yerba.buena.cnps.chapter@gmail.com.

For more insight into the work of the NRD, take half an hour to listen to a wonderful interview with Lisa Wayne conducted by none other than Jared Blumenfeld, California's Secretary for Environmental Protection since January 2019, and San Francisco resident: https://www.podshipearth.com/wildcity Well worth your time.

This article was suggested by Jake, and written in collaboration with Libby Ingalls and Linda Shaffer. Libby and Linda would like to add that Jake and others helped to create the Natural Areas Program all those years ago. We thank them.

POTRERO GATEWAY ECOPATCH NATIVE PLANT GARDEN

by Noreen Weeden and Eddie Bartley

On a sunny spring Sunday (April 18, 2021) a small, socially-distanced Open Garden event celebrated the Potrero Gateway Ecopatch in San Francisco. At just under 1,000 square feet, this San Francisco native demonstration garden has been evolving (with cooperation from Caltrans and SF Public Works through the Adopt-a-Highway program) since early 2020. From concept to design to implementation, CNPS Yerba Buena volunteers, including landscape architects from the Field Collective, have collaborated with the SF Green Benefit District (GBD) and community volunteers on this experimental garden in Potrero Hill.

The coastal dune scrub plants include beach strawberry (*Fragaria chiloensis*), yarrow (*Achillea millefolium*), California sea pink (*Armeria maritima* v. *californica*), seaside daisy (*Erigeron glaucus*), coast buckwheat (*Eriogonum latifolium*), and silver bush lupine (*Lupinus albifrons*).

Working with the Locally Significant Plant List of San Francisco, Field Collective architects designed eight plant community "archetypes" to be evaluated, putting special focus on the unique habitat qualities of the local serpentine soil. Plants were purchased from local nurseries specializing in SF native plants through the generosity of the GBD and the Yerba Buena Plantsgiving program.

In the summer of 2020 the site soil was lab tested, and large weeds, rubble and trash removed. Cardboard, mulch, and compost were applied for weed suppression in treatment areas one and two. A third area incorporated a solarization weed suppression technique with mulch then added as the base for native plantings. After the first rains of the fall season, planting began in earnest, completed by early winter. Subsequently, neighborhood volunteers removed weeds (relatively minimal), added a small wildflower meadow, and occasionally irrigated the patch – especially important due to the meager precipitation this past winter.

At our first Open Garden event, we couldn't have been more pleased with the spring bounty! Absolutely gorgeous! Abundant purple blossoms of *Phacelia californica*, three species of *Lupinus (albifrons, variicolor, nanus)* and Douglas iris are bright, flashing welcome signs for our native pollinators. Hundreds of bees were humming with excitement hurrying from one blossom to the next occasionally diverting to the many golden blossoms of wallflower and poppies. Butterflies such as the Red Admiral and Common Checkered Skipper were loading up on nectar too from pink sea thrift (*Armeria maritima* v. *californica),* fluttering to the lupines when the bees gave way. Meanwhile, birds waited patiently to resume their foraging, except for Anna's Hummingbirds who buzzed right in amongst us.

Normally closed to the public, the garden can be viewed from the sidewalk on the west side of Vermont Street between Mariposa and 17th Streets. A street level sign designed by the Field Collective describes the area and the native plants; QR codes detail the plants in each of the eight archetype plots. Future Open Garden events will be planned as public health conditions improve and volunteers are available. With most of the Ecopatch work behind us, we're looking forward to seeing what blooms next, especially the bright pink ruby chalice clarkia (*Clarkia rubicunda*) now flourishing in the meadow.

SAN FRANCISCO LUPINES
by Libby Ingalls

Lupines are one of our state's most widespread, distinct, and taxonomically confusing wildflowers. California supports seventy-two species of native lupines, plus over 200 subspecies and varieties, found in almost every plant community, from sea level to the highest mountains, from the coast to the deserts. No wonder identifying them can be challenging. According to the soon-to-be-released 3rd edition of Mike Wood's *Annotated Checklist of the Vascular Plants of San Francisco*, 15 taxa of lupine have been recorded in our city since historic times, eight of which are extant. Lupines are not only beautiful, but also a valuable nectar and food plant for insects, butterflies and moths. Three species (*L. albifrons*, *L. variicolor*, and *L. formosus*) are important food plants for the endangered Mission Blue butterfly, and all support other species of butterflies and moths, as many as 54 species, as well as attracting bees. Lupines are in the Legume family (Fabaceae), have palmately-compound leaves and pea flowers in a raceme (on a column).

Native Lupines Extant in San Francisco

Silver bush lupine (*Lupinus albifrons* var. *collinus*) Perennial, 2 ft., not woody throughout, grows close to the ground, found on cliffs, in woodland openings; flowers in open column, 4-6" long, pale banner spot turns purple; leaves small, each leaflet less than 1", with silver hairs.

Yellow bush lupine (*Lupinus arboreus*) Perennial, 4-7 ft., woody, grows along the coast; flowers are yellow, although blue and violet varieties exist, inflorescence up to 11"; leaflets often sparsely covered with fine silky hairs.

Silver beach lupine (*Lupinus chamissonis*) Perennial, 5-7 ft., woody, grows along the coast, often in dunes; leaves small, covered in dense silver hairs; violet and blue flowers in clusters up to 8".

Varied lupine, coastal prairie lupine (*Lupinus variicolor*) Perennial, to 20", sometimes has a woody base, on dunes and coastal prairie; varicolored flowers in blue, purple, white, rose, and yellow; no banner spot.

Summer bush lupine (*Lupinus formosus* var. *formosus*) Perennial, to 2.5 ft., spreading or erect; inflorescence up to 12 ", white banner spot turns magenta; large leaves, narrow leaflets, densely hairy; summer blooming, June-Oct.

Sky lupine (*Lupinus nanus*) Annual,1- 2 ft., in open and disturbed areas; stem erect and hairy; flowers sky blue to deep royal blue, white spots turn magenta; wide banner, as wide or wider than length.

Arroyo lupine (*Lupinus succulentus*) Annual, to 3ft., abundant in open or disturbed areas; 6" inflorescence of purple flowers; thick, sparsely hairy stems; leaflet wider near tip.

Miniature dove lupine (*Lupinus bicolor*) Annual, 4-15"; inflorescence 3", usually two colors, often white and deep blue, banner spots turn maroon; thin leaflets.

Native lupines extirpated from San Francisco

Silver bush lupine (*Lupinus albifrons* var. *albifrons*) - There is an unconfirmed report of it occurring at Twin Peaks.

Spider lupine (*Lupinus benthamii*)) - not confirmed as indigenous

Seashore lupine (*Lupinus littoralis*)

Meadow lupine (*Lupinus polyphyllus* var. *grandifolius*)

Big pod lupine (*Lupinus pachylobus*) - not confirmed as indigenous

Chick lupine (*Lupinus microcarpus* var. *microcarpus*) (reintroduced to YB Island) – A stand was just rediscovered at Bayview Hill.

Loose-flowered annual lupine (*Lupinus sparsiflorus*) – recorded in SF but not indigenous

Sources:

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Calflora https://www.calflora.org/

Calscape https://calscape.org/

Plant ID http://plantid.net/

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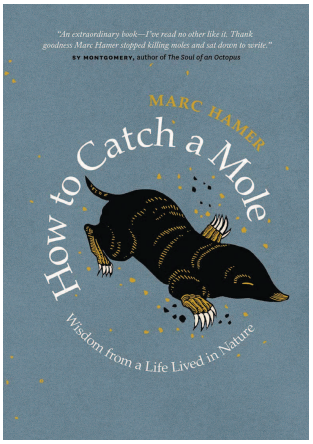
photo: Bob Hall

Lupinus variicolor
varied lupin at Mori Point

RECOMMENDED READING
by Beth Cataldo



How to Catch a Mole: Wisdom from a Life Lived in Nature
By Marc Hamer, Greystone Books, 2019

You won't find any California native plants in *How to Catch a Mole*, a book written by a man who has spent most of his life as a mole-catcher in Wales. What you will find, though, is Marc Hamer's lyrical memoir and philosophical storytelling about the rhythms of nature and the passing of seasons and time.

Retired after 30 years as a traditional mole-catcher, Hamer has decided to share knowledge about how to succeed in the business. He explains that the art of catching moles goes back to the Romans, who used mole traps to protect their crops and gardens. Still today, there are moles and their holes and angry people trying to take control of their gardens. This is where mole-catchers come in.

But Hamer is a mole-catcher, not a mole-killer. When he took the job, he set out to become the best and most humane mole-catcher there could be. There are ethics in his tactics and strategies. His tale jumps between descriptions of his craft as a mole-catcher and his years spent living as a homeless youth – a vagrant roaming through nature – and reflections on the power, beauty and cruelty that surrounds those who spend time in the wild.

For those interested in moles – both their natural history and how to catch them – you will come to understand these fascinating creatures on a deeper level. For example:

"Most moles will travel on the surface only when they leave the nest in the spring as young. They wander a sufficient distance from their home and then dig and start a tunnel system of their own, or if they are lucky they find an abandoned one. Nobody knows how they know when they are far enough away. How does any creature choose his territory? My supposition is that they use their sense of smell, and when the smell of home fades and there is no smell of other moles they start to dig."

How to Catch a Mole is most remarkable for the poetic voice that expresses nature's manner, which comes through his descriptions of insects, mammals, birds and their interactions with the world that surrounds them. And, of course, his knowledge about tracking and catching moles. It is an inspirational book, especially for those who have a deep connection to the natural world.

BOARD MEETINGS /OFFICERS & CONTACTS
Board meetings are held on the second Monday of each month at 7 pm, on Zoom while we shelter-in-place. People interested in the work of the chapter are welcome to attend as a guest of any board member. Email us at yerba.buena.cnps.chapter@gmail.com for more information.

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JOIN OUR MEETUP GROUP!
The CNPS-YB Chapter is now announcing our speaker series, field trips and restoration activities on our Meetup group. Please join to get the most recent information about what we're doing and to RSVP to activities.
Sign up at:
https://www.meetup.com/California-Native-Plant-Society-Bay-Area-Meetup-Group/

JOIN THE CALIFORNIA NATIVE PLANT SOCIETY

Learn to understand California's unique flora and help to preserve this rich heritage for future generations.

_____Yes, I'd like to join.

Affiliation: **Yerba Buena Chapter**

Membership Category

_____ $2,500 Benefactor
_____ $1,000 Patron
_____ $ 500 Supporter
_____ $ 120 Plant Lover
_____ $ 50 Individual
_____ $ 25 Fixed Income/Student

Make your check out to "CNPS" and mail with this form to:

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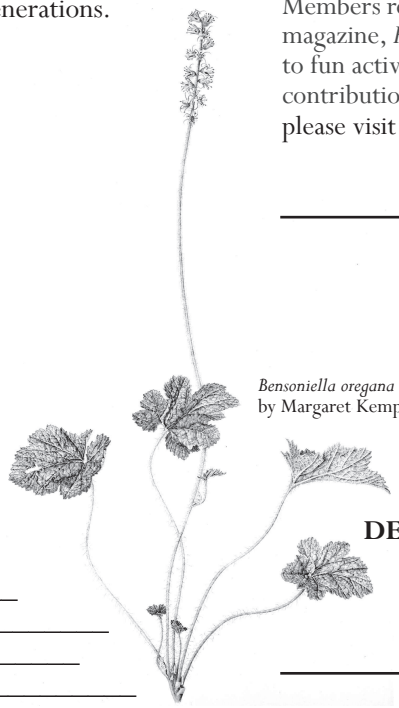

Bensoniella oregana by Margaret Kemp

Members receive many benefits including free subscriptions to *Flora* magazine, *Fremontia* journal, and *Yerba Buena News*, e-news, access to fun activities, plant sale and nursery discounts, and more. All contributions are tax-deductible. For more information or to join, please visit www.cnps.org/membership.

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DEADLINES FOR SEPTEMBER NEWSLETTER
Articles & general copy – July 25
Time-dependent material – August 5
Late-breaking news – By arrangement

Visit: www.cnps-yerbabuena.org

California Native Plant Society
Yerba Buena Chapter

YERBA BUENA NEWS

THE YERBA BUENA CHAPTER OF THE CALIFORNIA NATIVE PLANT SOCIETY FOR SAN FRANCISCO AND NORTHERN SAN MATEO COUNTY

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