Obispoensis

Newsletter of the San Luis Obispo Chapter of the California Native Plant Society

February 2023

Shooting Star
Primula clevelandii

The larger of the two drawings of shooting stars (*Primula clevelandii*) that accompany this article were drawn by Bonnie in a good rain year (1979). The shorter one was drawn in the drought year, 1999, from one of my photographs taken during the Chapter's annual Malcolm McLeod field trip in April of that year. The difference between the two plants represented in the two drawings is due to a phenomenon called phenotypic plasticity. Before I try to explain what is meant by phenotypic plasticity, I would like you to look again at the two drawings. Which characteristics vary greatly? Which traits vary little or not at all? Now, it is time to return to the term phenotypic plasticity.

Phenotypic is derived from Phenotype and refers to the external appearance of a biological individual. That is, it is the sum of characteristics that allow us to distinguish one species from another, as well as one individual of a species from another individual of that same species. The final phenotype or appearance of any individual is due to the interaction between an individual's genotype, or genetic makeup, and his or her environment. The genotype consists of all the hereditary units (genes) that one receives from one's parents. These genes code for the proteins that specify or allow a given characteristic, say the correct flower color, to appear when it is required. Each gene has an optimal expression that is expressed when its environment is optimal. If humans are used as an example, each of us has a set of genes that specify how tall we can become. If environmental conditions are perfect, we will attain this pre-programmed height. On the other hand, if our environment is not perfect, then we will achieve a shorter stature. In other words, how close we come to our genetically pre-programmed height will depend on whether we received the correct amount and type of nutrition and exercise at the proper time during our development. A commonly cited example of this phenomenon is the increase in the average height of the Japanese people since World War II. It is usually attributed to the better diet that most Japanese have enjoyed since their country became a major economic power. How much a trait is allowed to vary from its optimum under the influence of the environment is called by biologists, phenotypic plasticity. Some organisms, such as birds and mammals including man, have relatively little plasticity for most characteristics, whereas others, such as most plants, show a great deal of plasticity in many characteristics. At this time you might be asking, what happens to an individual whose environment requires it to produce an expression not allowed by the individual's genotype? I.e., can we produce a dwarf out of a human genetically programmed for average height by severely limiting the child's food intake? Of course not! If we tried, the child would simply die. This is the fate of all individuals who are unlucky enough to find themselves in an environment outside that which they have been pre-programmed to survive.

Why do animals show little plasticity and plants a great deal? There are several answers to this question, and I will only discuss one of the more simplistic here. Most mammals and birds can move. Therefore, if they find themselves in an environment that is too hot or too dry, they simply move to where conditions are better. Humans will either move or they will change their environment through technology, (e.g., air conditioning and central heating). Plants, in contrast, are rooted in one place. They can't move when the day becomes too hot or the soil too dry. If the individual plant is to survive long enough to produce flowers and seeds, its genes must be programmed to allow operation under diverse conditions. Therefore, they must have a great deal of flexibility in their expression to allow them to operate under widely varying conditions. Plants can't always control the season in which they germinate either. If the season is a relatively rainy year, like 1979, the conditions will be closer to optimal, and the individual plants will be able to come closer to their pre-programmed optimal height of 9-15 inches and produce up to 20 or so flowers. On the other hand, if it is a drought year, or it happens to germinate in a soil with very low nutritional and water-holding abilities, then it will be more like our 1999 plant.

Not all characteristics of a plant are equally plastic or variable. Look again at Bonnie's two drawings. The traits that change deal primarily with size (length of leaves and inflorescence stalk (peduncle) or number of parts (e.g., leaves or flowers). Equally note what hasn't changed much. The leaves are still the same relative shape (oblanceolate) and the same arrangement (a basal rosette). The flowers have basically not changed at all. If flowers changed shape or became smaller, they would not be recognized as proper flowers by their pollinator and thereby would not be visited and pollinated. If a plant is not pollinated, it can not produce seed and would die without leaving offspring. A few seeds from a few flowers of proper size and shape are better than no seeds from many flowers.

DIRK WALTERS

Cover: *Primula clevelandii* (photo: Marlin Harms)

FEBRUARY 2nd CHAPTER MEETING VIA ZOOM
YOSEMITE'S ALPINE PLANTS IN A CHANGING CLIMATE
Rachel Friesen

Register in advance for this meeting:
https://cnps-org.zoom.us/meeting/register/tZUvd-iorTkuEtTb0GyVttNTVUKjpU4omniq

The High Country of Yosemite National Park is home to many rare and endemic alpine plant species. Alpine plant communities are of special concern since alpine regions are warming at a faster rate than lowland areas because of anthropogenic climate change. In the 1990's, alpine vegetation plots were established across Yosemite, however, these plots have never been resampled.

A research team from Cal Poly, San Luis Obispo is resampling these plots to assess how alpine plant communities have changed over the last 30 years. In this talk, we will discuss special alpine plant adaptations, predictions about how alpine habitats will fare under future climate change, and our current research in Yosemite.

Rachel Friesen is a first-year Biology graduate student at Cal Poly, San Luis Obispo in Dr. Dena Grossenbacher's lab. She grew up in the Sierra Nevada foothills near Yosemite where her fascination in the local flora developed at a young age. Since graduating from UC Davis, she has worked as a field biologist with American Rivers, the Bureau of Reclamation, and the National Park Service in Yosemite and Kings Canyon on a variety of ecological restoration and vegetation monitoring projects.

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Lichen of the Month: *Buellia punctata*

The Lichen of the Month is *Buellia punctata* (*Amandina punctata*), a crustose lichen found on the bark of cypress trees along the bay front at White Point, Morro Bay State Park. The pinkish background is the thallus or fungal part of the lichen, also having a genus name of *Buellia*, and the block dots are the spore-producing apothecia.

The rocks at White Point have several other species of *Buellia*, distinguished by thallus color and by the arrangement of the apothecia.

Photo: David Chipping

The Carrizo Conservancy's Wildflower Alerts #1

Neil Havlik, President of the Carrizo Plain Conservancy told us: "*We got a great start to the rainy season in Carrizo Plain, with about 3 inches falling over a short period in late 2022, and 4 inches since New Year's Eve. Our Carrizo correspondent, Pat, reports that the Plain is "greening up" nicely. Rain coming in at this time of year (i.e., November, December, and January) usually means that the grass gets off to a slow start and does not compete with wildflower seedlings as much as if the rain began in October when the weather is warmer. So if we continue to get decent rainfall through February or March we may expect a pretty decent wildflower display. (Remember how disappointing last year was—-no rain at all in January, February, or early March after a great start.) Some of my more optimistic colleagues at the California Native Plant Society are beginning to talk about a super bloom, but I am not ready to use that term just yet. Nevertheless, the signs at this time are hopeful; the soil is moist and will not really dry out quickly because it is still wintertime, and so the wildflower plants can grow even without too much more rain.*"

Manzanita hike #3 – <u>NOTE CHANGE OF LOCATION</u>
January 22nd, Sunday, 9:30 am, Nipomo County Regional Park
Due to the temporary closure of Los Padres National Forest access, because of weather-related issues, the new location for this field trip will be the Nipomo Mesa. We will meet at the Nipomo Native Garden, located near the corner of Osage St. and Camino Caballo in Nipomo (35.036733, -120.503224). From there we will walk through the garden to the county regional park. The hike is a total of 2 miles in sandy soil, with a 150 ft. elevation gain. During this hike, we will see the rare Sand Mesa Manzanita, *Arctostaphylos rudis*, as well as other Nipomo Mesa endemics. Some of these ancient relics may be in the running for the largest manzanitas in the county. It is one of many manzanita species that occur on the Central Coast, of which 9 are locally endemic, occurring nowhere else in the world. Bring adequate water, and snacks, and dress in layers for the weather; a hat and sturdy shoes are advised. A carpool option from San Luis Obispo will be available from Santa Rosa Park, located at Oak St. and Santa Rosa St. (35.289530, -120.665144), departing at 9:00 am. Contact: Bill, 805-459-2103. Rain or threat of rain cancels.

Photo: Bill Waycott

January 28th, 2023, Saturday, 9:00 a.m., CNPS - iNaturalist Outdoor Training Workshop #1, Irish Hills Natural Reserve, San Luis Obispo, CA. Meet at the picnic area in the northeast corner of DeVaul Park, near the intersection of Madonna Road and Spooner Drive (35.255316, -120.693282). In this workshop, we will discuss the use of iNaturalist as an online community to record, share, and discuss observations of life on Earth. Please visit <u>https://www.inaturalist.org/</u> for an introduction. Ahead of this workshop, it is recommended to create an iNaturalist account by downloading either the Android app at Google Play, or Apple app at Apple.com. However, a mobile device is not absolutely necessary for use of this site. After the training, we will use the Madonna Road trailhead to access the Irish Hills open space where we will practice. Bring something on which to take notes, as well as adequate water and snacks. Dress in layers for the weather, a hat and sturdy shoes is advised. Contact Leif (805) 395-6544 for questions or information. Rain or threat of rain cancels. There will be a following meeting on February 25th, so stay tuned.

iNaturalist

February 11th, 2023, Saturday, 10:00 am, Winter Bike Outing in Adelaida, west of Paso Robles, CA. Join us for a road ride along beautiful rolling hills, rural canyons, and oak woodlands. This will be a loop ride of about 2 hours with a distance of about 10 miles on a paved road. There are moderate hills along the way. Elevation gain is about 750 ft. Bring your bike, helmet, other appropriate gear, and water/snacks. If you desire, bring lunch for a picnic after the ride. Meet across the road from Justin Vineyards parking lot, 11680 Chimney Rock Road, Paso Robles (35.654175, -120.900091). Contact David 805-459-9007 or Bill 805-459-2103 for questions or information. Bill will have his pickup truck available to ferry bikes and riders from SLO and David will have his pickup truck available from Cambria. Please contact one of them if you want to carpool. Rain or threat of rain cancels

Photo: Bill Waycott

February 18th, 2023, Saturday, 9:00 am, Manzanita Field Trip #4, Bishop Pine Forest, PG&E Pecho Ranch, south of Montaña de Oro State Park. Meet at the Coon Creek parking area at the end of Pecho Valley Rd, Montaña de Oro SP (35.258068, -120.886966). We will need to check-in at the PG&E kiosk, Point Buchon trailhead. From there we will walk up the ridge observing the local endemic Pecho manzanita (*A. pechoensis*) as well as the Brittle Leaf Manzanita, *A. crustacea*. This ridge has a healthy stand of Bishop pine, *Pinus muricata*, a two-needle pine that occurs in isolated groves along the coast between Santa Barbara and Humboldt Counties. Bring adequate water, snacks, and dress in layers for the weather; a hat and sturdy shoes are advised. Participants will need to RSVP one week prior to this outing. Email <u>bill.waycott@gmail.com</u> to reserve a spot (please put "Point Buchon" in the subject line), 805-459-2103. Rain or threat of rain cancels.

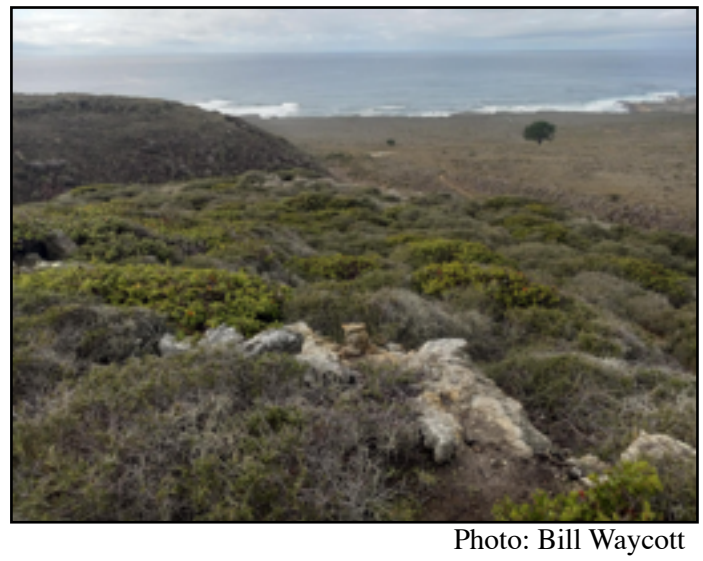


Photo: Bill Waycott

February 25th, 2023, Saturday, 9:00 am. Follow-Up to iNaturalist workshop.

March 18th, 2023, Saturday, 10:00 am, Santa Rita Ranch, located near the intersection of Old Creek Rd. and Hwy 46, west of Templeton, CA. Meet at the ranch at 10:00 am, or join in a carpool from San Luis Obispo at 9:15 am. David Keil and Lindsey Roddick will be our guides. Santa Rita Ranch is one of the land holdings of the Land Conservancy of SLO Co. A link to the LCSLO ranch webpage is: https://lcslo.org/santarita/ A link to the CNPS plant list for this location is: https://cnpsslo.org/resources/finding-plants-in-the-wild/ Bring adequate water, snacks, and dress in layers for the weather; a hat and sturdy shoes are advised. Participants will need to RSVP one week prior to this outing. Email bill.waycott@gmail.com to reserve a spot (please put "Santa Rita Ranch" in the subject line), 805-459-2103. Further information will be available in late February. Rain or threat of rain cancels.

Week of April 1st, 2023, Saturday, field trips to Shell Creek and the Carrizo Plain National Monument
April 8th, 2023, Saturday, field trip and book release - The Flora of San Luis Obispo Co., Second Edition

Save the Date: CNPS 2023 Banquet Sunday afternoon March 19, 2023.

Although concerns over COVID have not completely abated, the SLO Chapter Board of Directors has decided to move forward with the CNPS 2023 Banquet. We are still in the planning stages of a combined outdoor/indoor event to be held on March 19 in the afternoon at the Atascadero Lake Park (confirmed) and adjacent Kiwanis Club (not confirmed). This will be reminiscent of our typical banquets with an outdoor reception of wine and appetizers, a potluck meal, Chapter updates, a presentation of awards, and a speaker or other presentation. Additional details will be provided in the March newsletter and follow-up announcement. Volunteers will be needed to help set up and break down. If you have any suggestions or questions, please contact Lauren Brown, lbrown805@charter.net or call/text 805-570-7993.

Cal Poly Botanic Events in February

Open to the public: All are welcome

Cal Poly, San Luis Obispo, College of Science and Math, Department of Biology

Friday Feb 24th 3pm in Fisher 33-286,
Seminar 'Evolution of California's Flora' by eminent California botanist Bruce Baldwin from UC Berkeley

Saturday Feb 25th 10am meet at Cal Poly, Plant Conservatory, Guided walking tour of the 'History of the Earth' and our new Plant Conservatory and the evolutionary mysteries therein.

Beaver Brigade Fundraiser 2 day Event, February 3rd and 4th

The Beaver Brigade is an important conservation group, encouraging the reoccupation of San Luis Obispo creeks by beavers. Beavers build dams, raise the water level that sustains wetlands, and enhance groundwater recharge. For more information go to www.slobeaverbrigade.com

Gardening with California Natives

Achillea millefolium is commonly known as Yarrow, Common Yarrow, or Woundwort; this has many synonyms. *Achillea millefolium* is found within the family of Asteraceae and has five varieties and several cultivars available in the horticulture trade. This lovely plant has many ties to ancient folklore. It is named after the Greek Warrior God Achilles. It is said that he carried Yarrow to be used to slow bleeding from battle wounds. The species name *millefolium* comes from the Latin term Mille (thousand) referring to the fern-like feathery leaves. These bi-pinnately compound leaves cause some to think that Yarrow is a fern.

Yarrow grows widely throughout San Luis Obispo County in many plant communities. In the coastal areas, Yarrow grows alongside *Eriogonum fasciculatum* (California Buckwheat), *Arctostaphylos morroensis* (Morro Manzanita), *Quercus agrifolia* (Coast Live Oak), *Salvia mellifera* (Black Sage), *Toxicodendron diversilobum* (Poison Oak) and many other plants.

Native Americans of our area and early European settlers found many uses for Yarrow. Its pungent odor is a clue to the chemical makeup of its foliage, which contains many types of acids. Salicylic acid, which we now know as aspirin, is one of them. A tea was made and drank for aches and pains. Leaves were placed on hot stones and water was poured onto them, releasing steam used to treat respiratory illnesses. Another tea was made to relieve stomach disorders. And as already mentioned, it has a blood-coagulating property. It was not particularly used as food; however, in small amounts, fresh leaves can be consumed.

In the garden setting, Yarrow's fern-like appearance can create a feeling of lushness. The new growth comes on quickly after winter dormancy. Within six months flower stocks appear and rise above the foliage. The flower color can range from white to cream to yellow, attracting pollinating insects, such as beetles, butterflies, and bees. As the flowers mature, they slowly turn brown and their seeds drop, providing food for small mammals, such as field mice and woodrats. Birds such as Quail, Towhee, Thrasher and Finches also dine on these seeds.

photo: Marlin Harms

Achillea millefolium is adaptable to many different soil types; however, it prefers moist well drained soil. It is considered semi-drought resistant but it does best with monthly supplemental moisture, beyond the seasonal rainfall. Yarrow has few pests; however, rabbits, deer, and birds will consume it frequently down to the soil. Yarrow has several attractive cultivars that are available in the horticulture trade. These cultivars have been selected for various attributes, such as flower and foliage color, stem length, and smaller compact growth. Yarrow makes a great foundation plant for meadow creation and to accent a dry streambed. Maintenance comes in the form of removing old flowers, thinning old leaves, and periodic division of roots before winter rainfall.

In conclusion, Yarrow is a wonderful addition to any garden, with its ancient history and many medicinal uses, it has earned its place as "plant of the month."

Best Wishes and Happy Gardening, John Nowak and Suzette Girouard

30-year Anniversary of the Listing of Chorro Creek Bog Thistle

Cirsium fontinale var. *obispoense*

If you check out the Looking Back section, you will see that a sustained effort to get this plant listed by the California Fish and Game Commission paid off 30 years ago after members of the chapter testified in Sacramento. The plant now is 'listed' as California Rare Plant Rank: 1B. 2 (rare, threatened, or endangered in CA and elsewhere).

The plant is not found outside of this county and is confined to springs emerging from serpentine bedrock. Some of those springs can be seen at the foot of the hill near the dog park area of Laguna Lake Park in the City of San Luis Obispo, and in springs on Froom Creek and on the apt-named Bog Thistle Trail in the Irish Hills Open Space.

The California Fish and Wildlife states the following relative to this plant:
Chorro Creek bog thistle is a California endangered plant species, which means that killing or possessing the plant is prohibited by the California Endangered Species Act (CESA). Chorro Creek bog thistle only occurs naturally in San Luis Obispo County and is restricted to open seep areas in serpentine soil outcrops. Chorro Creek bog thistle is known from only 13 California Natural Diversity Database occurrences, and due to its very specific habitat requirements it is unlikely that Chorro Creek bog thistle was ever very abundant. Chorro Creek bog thistle is also listed as endangered under the federal Endangered Species Act.

Populations of Chorro Creek bog thistle are threatened by impacts from cattle such as trampling, changes in the hydrology or water quality of occupied habitat including loss of natural water supply, competition with non-native plant species, and possibly due to the future effects of climate change. Protective fencing has been installed around some populations of Chorro Creek bog thistle to protect them from trampling. Despite some protections, Chorro Creek bog thistle continues to be threatened by the factors described above, and due to the vulnerability of small and localized plant populations to extirpation.

Several actions should be accomplished to conserve Chorro Creek bog thistle. These include working with local organizations and private landowners to survey for and conserve additional populations of Chorro Creek bog thistle; monitoring the life history stages of known populations; conducting hydrological studies of the water sources necessary for the populations; ensuring water sources are maintained; and expanding existing fencing enclosures for protection and to possibly expand populations. This Chorro Creek Bog Thistle Recovery Project report was funded by the Emergency Drought Relief Project and submitted to CDFW.

Mary Ann Showers

Froom Canyon: Photo: David Chipping

Photo: David Chipping

Invasive Species Report

Milk Thistle *Silybum marianum*

Milk thistle is in the Sunflower family (Asteraceae). It is a tall (1-7 ft.) biennial herb with prickly, oblong, lobed, shiny leaves (up to 20" long) with variegated white veins. It blooms from April-July with reddish-purple flowers from 1.5 to 4 inches diameter on each stem. It produces a dry fruit. A single plant may produce 6,000 seeds. Seed dispersal is by wind, water, vehicles and animals. Seeds may be viable for nine years. Milk thistle is from Greece to Afghanistan and is widespread in western California. It is found in disturbed pastures meadows and roadsides. It is found in disturbed pastures, meadows and roadsides. Milk thistle may form dense patches that outcompete native plants. It may be removed manually or by spraying.

It is best to pull them at the seedling or young plant stage. Removal before reproduction is an effective strategy. Cover bare soils with mulch. When planting shrubs and trees, a 6-inch layer of wood mulch is a great way to control weeds. Mark Skinner

PECHO MANZANITA *Arctostaphylos pechoensis* (see Feb. 18 Field Trip)

Photos: David Chipping

Dudleyas Replanted.. Thank You Marlin, Dennis and State Parks

You might remember that we reported in late February 2022 that members Marlin Harms and Dennis Sheridan reported a vehicle that had some native *Dudleya*s (small succulents) that appeared to have been poached from the wild. They were going tidepooling near Point Sierra Nevada on the northwest SLO Co. coast and spotted the plants in a pickup truck. They photographed them and after getting a distance away, called Fish & Wildlife to report what we saw. Later that day Marlin was called and thanked and informed that four people were cited and the *Dudleyas* were confiscated and given to State Parks.

In January 2023, Marlin got the note below and attached photos from state parks employee John Sayers. As Marlin noted: *"Good timing, right before all this rain. It's not a re-greening of America, but feels good to be a small cog."*

Photos: John Sayers

John Sayers wrote: *"Hey Marlin. Just wanted to update you that we planted all the Dudleya back up at Arroyo de la Cruz area yesterday. 86 healthy plants in total were put back. We had divided the original confiscated plants into smaller ones and let them fill out 4" pots. I hope they enjoy the rain this weekend. Thanks for the assistance!*

Editor's Note: All three of these gentlemen have done great good and triumphed over evil, just like ***Dudley Do-Right*** in the **Rocky and Bullwinkle Show**, but they are all much smarter... so consider them **Dudleya Do-Rights**

Continued Request for Photographs for the Chapter Photo Collection

Still working through Asteraceae, and here is the February 'ask': *Lasthenia glabrata* subsp. *glabrata, Lasthenia leptalea, Lasthenia maritima, Lasthenia microglossa, Layia chrysanthemoides, Layia gaillardioides, Layia pentachaeta* subsp. *albida, Leontodon saxatilis, Lessingia nemaclada, Malacothrix clevelandii, Malacothrix phaeocarpa, Malacothrix saxatilis* var. *tenuifolia, Matricaria chamomilla*

Fungi: The Oft-Ignored Part of the Life Cycle of the Oak Forest

Hericium coralloides Coral Tooth Fungus Los Osos Oaks Reserve (photo: David Chipping)

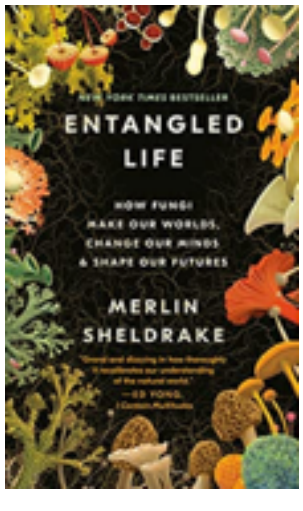
Why are we discussing a fungus this month? For starters, this is the month that usually follows the annual Fungal Foray into the Cambria Forest. There really are not many flowers to talk about at this time of year, although the heavy rains promise a possibly exceptional wildflower season. What we are seeing, due to the rains, is an abundance of fungi of every shape and form, so it seems like a good time to mention their place in the life history of the oak. This is usually described as (1) the parent tree making an acorn (2) the acorn sprouts (3) the tree lives (4) the tree dies after creating acorns for the next generation. What is missing is the part of the cycle that continues as follows: (4) the tree dies (5) the leaf litter and wood of the tree are broken down by fungi (6) chemicals generated by the breakdown are available to be taken up by the trees via a subsurface fungal network integrated with the tree roots (the mycorrhizal network) AND accumulating litter of dead leaves and fallen wood is removed. This actually enables the second step (2) the acorn sprouts, because if the depth of forest litter got deeper and deeper with each passing season, no acorn would be able to sprout, and thus there would be no more oaks.

Fungi can be both generalists, finding a wide variety of hosts to which their chemistry has evolved, and some extreme specialists that are confined to a very mall ecological niche. Some part of this is evident from a comparison of the fungal populations of the Cambria pine forest with that of Los Osos Oaks State Reserve, which are quite different from each other. The reason is that the chemistry of fallen pine needles and pine trees is very different from that of the oak forest.

I have been spending a lot of time in Los Osos Oaks State Reserve, and have visited that lovely forest each rainy season, and in this exceptional year, just about every day. Mushrooms are simply the means by which the hidden subsurface mass of fungal fibers sends up structures to release spores that will travel by air or water to establish new populations. Some specimens are extremely short-lived, sometimes for less than a day, and break down when wet, while others may persist for years and years.

Los Osos Oaks State Reserve is extremely rich in species (well over 100), although my count is based on photograph comparisons and lacks deeper diagnostic analysis: (chemical tests, spore prints in which the mushroom/s cap is placed on paper and allowed to drop its spores, and microscopic examination of the spores.)

One final word; To identify a mushroom you need to see both the top and the underneath of the cap, and so the mushroom is pulled out of the ground. If you put the mushroom back, the spores will still be released, just as if the mushroom had remained intact. But if you 'collect' the mushroom, there will be no chance for the species to seek new habitats. Excessive collecting removes the visual display of the fruiting bodies so that they are lost to later visitors. David Chipping



A Review (in part) *"Entangled Life," is Sheldrake's ebullient and ambitious exploration of a subject that surrounds us yet too few of us think about. Plants get so much human attention, but Sheldrake wants to direct our gaze at fungi, without which so many of the plants that we take for granted wouldn't exist. If you think about fungi at all, you might conjure an image of a mushroom, sprouting from a tree stump or ready to be eaten from a plate. (Sheldrake's first name — Merlin — helpfully makes me think of a wizard and his enchanted toadstool.) But mushrooms are just the minuscule flowering tip of the vast fungal world. The largest recorded fungal network is in Oregon, a network — or mycelium — that covers four square miles and is thousands of years old.*

What's more, fungi are not only everywhere; they are doing things. Though they often get lumped in with the plants that used fungi as root systems for tens of millions of years before the plants evolved their own, Sheldrake says that fungi are more closely related to animals. When thinking of plants and the fungal networks that sustain them, we too easily fall back on a "plant-centrism" that makes us "fungus-blind." (NY Times Jennifer Szalai May 27, 2020)

LOOKING BACK. WHAT THE OLD FEBRUARY NEWSLETTERS TELL US

Looking Back 10 years to February 2013, we were discussing the production of a Carrizo Plains Book, and planning the SOD Blitz. We were concerned with the recovery from the Coon Creek Fire, and attending meetings on a North County Habitat Conservation Plan.

Looking back 15 years to February 2008, John Chesnut leads students in a native garden planting at Los Osos Middle School. We were concerned about budget reductions proposed for the Coastal Commission and State Parks.

Looking back 20 years to February 2003, we were concerned about oak moth infestations and Sudden Oak Death. Our work on the Morros Advisory Committee came to an end. We were evaluating the Estero Plan, which had been sent back by the Coastal Commission due to significant failure to address conservation.

Looking back 25 years to February 1998, we were evaluating the North Coast Plan with concern for coastal bluff plant communities. We were annoyed by the Board of Supervisors passing a very weak Tree Ordinance, especially with a massive removal of oaks by Kendall-Jackson near Los Olivos. We opposed a proposed addition to Cabrillo Estates in Los Osos into the Morro manzanita habitat.

Looking back 30 years to 1993, we were happy with the listing of Chorro Creek Bog Thistle as Endangered by the State Fish and Game Commission after we testified in Sacramento, although a listing for Morro manzanita was postponed. We initiated Plant Communities mapping using transects in Dune scrub in Los Osos. We were active on a committee studying Transfer of Development Credits.

Looking back 35 years to 1988, we attended a visit to a proposed Abalone Farm near the mouth of the Santa Maria river. It was during this field trip that leaking oil diluent was observed, resulting in a subsequent massive cleanup of Unocal's oil field.

Looking back 40 years to 1983, We were initiating a photo contest, and concerned about a proposed one-third cut in Coastal Commission funding

and in every one of these newsletters, we see drawings by Bonnie Walters illustrating a plant description by Dirk Walters.

REFLECTING UPON ROOTS

I'm sitting out the day watching the deluge of water pouring down. I can't recall such an abundance of rain over my forty years of living on the central coast. In early January, my wife and I went to Morro Strand State Beach (off of San Jacinto St.in North Morro Bay). We witnessed the crumbling of fifty to one hundred-year-old sand dunes. Many dunes still remained with the long exposed roots of Sand verbena (see picture). Even though Sand verbena could not withstand the onslaught of the waves, most plants do prevent major erosion issues. I find that the more fibrous the roots, (eg. *Juncus* spp., *Sequoia sempervirens*), the better chance the plant will survive. Besides securing the soil with their roots, plants redirect and slow surface water, and contribute their own organic matter back into the soil around them - a true full circle. Along with preventing run-off, leaf litter mulch supports microorganisms, retains moisture, and supplies nutrients to the plant community around it. In your own yard it works the same; so leave the leaves. With all of the rain this year, plants will spring (Spring) to life. Seeds, decades in dormancy, will likely germinate bringing a huge amount of visual surprises.


Photo: John Doyle

We are planning a Spring plant sale on Saturday, April 1st, 2023 at our same location (Pacific Beach High School on LOVR in SLO). There will be plants for sale on-line starting in mid March, as well as plants, books, seeds and more on the day. We'll also try to add new species to the list. All of us hope you can attend the plant sale and support our chapter. Most importantly with all of this water, continue to plant more natives. All the best in the planting year ahead! John Doyle

A Little More on the Primulaceae

Flower fields of Shooting Stars can be seen on High Mountain Road, east of Lopez Lake, and Red Hill Road. Shooting Star Rd, close to the O'Donovan/Highway 58 junction is well-named. As you can see, the beauty can be quite overwhelming!

Photos: David Chipping

Androsace elongata subsp. *acuta*: Shooting Star's only relative in SLO County

Dr. Keil recognizes only two species of the Primrose Family, the Primulaceae, within the county. Dirk Walters described the very attractive and early blooming Shooting Star in our "cover story." The other species, known as the California Rock Primrose. It is uncommon or overlooked, but is usually found on grassy, brush-covered, or wooded sites,: hills near the mouth of Cantinas Creek, Santa Lucia Range; Cottonwood Pass to Temblor Range, Carrizo Plain, and Caliente Range, according to Dr. Keil. It is an annual, 2-8 cm high, rising from a basal rosette of linear-lanceolate leaves. The white corolla is almost hidden in the calyx. The upright stance of the plant has earned it the name 'fairy candelabra.'

Photo: George Butterworth

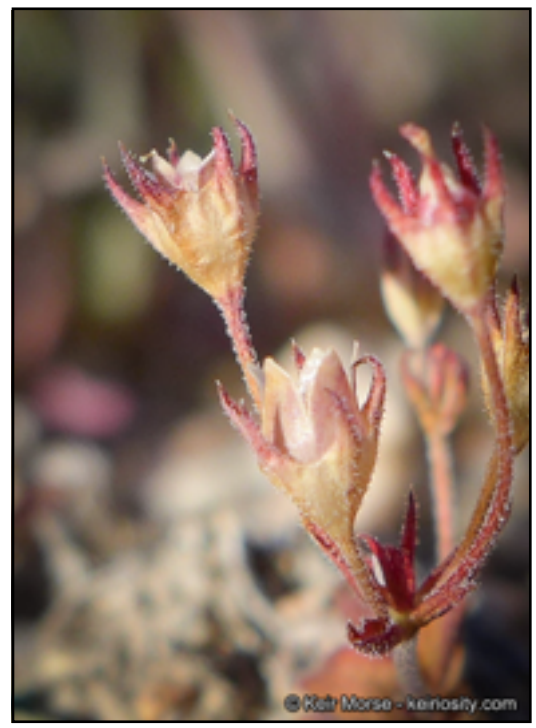


Photo: Keir Morse (CC BY-NC-SA 3.0)

A short note from Acting President David Chipping

Great thanks to retiring President Melissa Mooney, who has done so much for our chapter and who has done it so well. We really do need a new President, so if you want to take this on. get back to me. We have a really great team on the Board, and we welcome members to join us, even in At-Large positions. Melissa gave the newsletter these photos she took in the Cambria Forest, where, sadly, the Fugal Foray was cancelled.

Amanita muscara

Boletus edulis

Chroogomphus vinicolor.

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WE ALWAYS NEED PEOPLE TO HELP OUT. OUR MISSION IS VITAL AND OUR FLORA IS AT RISK.

Newsletter Editor David Chipping (805) 528-0914 dchippinATcalpolyDOTedu

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