April 2021
All of our Eschscholzia’s

The poppy family Papaveraceae is represented by nine genera in SLO County, but the genus *Eschscholzia* is the most widespread. While *Eschscholzia californica* (California poppy) is the best known and is the State Flower, there are six other species. The one shown on the cover is *Eschscholzia caespitosa*, which is very similar to *E. californica*, but lacks a spreading rim below the receptacle. The adjacent photos show rimless *E. caespitosa* on the left, and (right) the rim at the base of *E. californica*.

(Left) Another ‘almost look-alike’ is Lemmon’s poppy, *Eschscholzia lemmonii* subsp. *lemmonii* which is found in the drier country of the eastern Coast Range. The flower lacks a rim and has peduncles that are equal or longer than half the plant’s height. The leaves are hairy.

(Right) This distinguishes it from the last of the ‘almost look-alikes’, San Benito golden poppy, *Eschscholzia hypecoides* which has peduncles less than half the height of the plant. and is found around Paso Robles and the northeast corner of the county. The leaves are also hairy. Photograph by John Game (CC BY-NC 3.0)

(Left) The last of the ‘almost look-alikes’ is the Desert poppy, *Eschscholzia glyptosperma* which is a true desert species and the one collection is suspected to be a waif. It resembles *Eschscholzia caespitosa* but has only a basal rosette of leaves and lacks cauline leaves. The photograph is from Death Valley.

(Right) The tiny *Eschscholzia minutiflora* is also a desert species but has been found near Cottonwood Pass. The plant has leaves and branches above the base.

(Bottom Photos) Resembling *Eschscholzia minutiflora* is Diamond-petalled California poppy *Eschscholzia rhombipetala*, which can be found on the northern Carrizo Plain and Chimineas Ranch. It is State Listed 1B. 1. The leaves are all basal. Both photographs by George Butterworth.

All Photos David Chipping except where noted
California, preaching on the burning shore: assessing and mitigating the effects of climate change on California’s forests

Join us for our April chapter meeting and presentation with Dr. Sarah Bisbing. Sarah is an Assistant Professor of Forest Ecosystem Science at the University of Nevada, Reno.

Her research investigates the role that climate, landscape connectivity, and local adaptation play in determining the abundance and distribution of western conifers. In the Spring of 2020, Sarah was named the Director of the Whittell Forest and Wildlife Area, where she is responsible for the leadership, programs, and administration of the forest – a 2,650-acre area located on the western edge of Washoe Valley, south of Reno, Nevada.

Climate change and novel disturbances are fundamentally altering forest composition and have the potential to lead to long-term, permanent changes to forest ecosystems. Using a network of field sites across California, research in the Bisbing lab is quantifying the impacts of climate and disturbance on forest conditions in our beloved conifer forests. Sarah will present a vignette of findings from forests across the State, the changes documented in these systems, and the potential impacts of these changes on the future of California’s forests.

REGISTER IN ADVANCE FOR THIS ZOOM MEETING
https://cnps-org.zoom.us/webinar/register/WN_VF0icwpDSt-mUdQKYnODZA

Photos: Sarah Bisbing (center) Sarah taking in the sweet smell of Jeffrey Pine (bottom) Sequoia Sentinel
The Cal Poly Herbarium Needs Your Help!

The Robert F. Hoover Herbarium at Cal Poly needs your help to record when and where plants were collected. As lead institution of the California Phenology Network, a National Science Foundation-funded collaboration to “digitize” herbarium collections, the Hoover Herbarium has been photographing its plant specimens and putting them on the new online database for specimens from California herbaria, CCH2 (CCH2.org). However, many of these specimens are not searchable online because the basic label data are not transcribed into the database. You can help make these data available using Notes from Nature, a user-friendly website that enables you to view and transcribe specimens from a browser window. Look at plants, read old labels, learn about old collectors, and help science understand how plants respond to a changing climate. Label transcription is a critical but time-consuming step in digitization, yet with the efforts of hundreds to thousands of volunteers, many hands make light work!

To get started, visit NotesFromNature.org and click the poppy icon. Then click on one of the buttons pictured below ‘Get Started’. The “Cal Poly, San Luis Obispo #1” icon will take you to the Hoover Herbarium expedition, but our statewide collaborators also need help with their herbarium specimen collections. Try them all and experience the interesting flora collected across the state and across the world!

A photo of a herbarium sheet appears on the left of the page, with a form that you will fill up on the right side. Once the first page of the form is filled, it will switch to a second page, and so on. Once you reach the end, another specimen pops up.

Editor’s Note: If you have a label with lots of information, to save having to type it all, you can do the following. (a) Increase screen magnification and then take a screen shot of just the label. Open the web site https://brandfolder.com/workbench/extract-text-from-image and drop the photo into the input box. An instant text extraction appears which you can upload back to your computer, then copy and paste to the appropriate data fields. This is way better than any of the OCR image to text translators if have used in the past.

Congratulations to the Dunes Collaborative

The Dunes Collaborative is a partnership between federal, state, private, and non-profit organizations committed to restoration of the Guadalupe-Nipomo Dunes Complex, recovery of threatened and endangered species, and providing quality visitor experiences of this unique and fragile ecosystem. Members are the Guadalupe-Nipomo Dunes National Wildlife Refuge, the Land Conservancy of San Luis Obispo County, Guadalupe-Nipomo Dunes Center, California State Parks-Oceano Dunes SVRA, and County of Santa Barbara. Over $900,000 has been made available to restore a 45 acre area of the Black Lake Ecological area, a wetland that has been degraded by excessive groundwater pumping and subsurface recharge, and also a proliferation of non-native species, particularly veldt grass.

Our chapter submitted a letter of support for this funding and will (a) contribute $500 in cash-match funding to be paid over the course of three years and applied directly to materials, services, and/or labor required for the proposed project and (b) organize one volunteer work day annually for three years, which will be focused on manual removal of invasive species and, as needed, native seed collection to be used in restoration efforts. Up to 125 volunteer hours at $20 per hour will be provided annually, for a total of $7,500 ($2,500 annually) of in-kind services. If you are interested in participating, please contact Melissa at mjmoon@charter.net.

La Graciosa Thistle - A Dune Lakes Wetland State Listed 1B.1 Plant

One goal of the restoration work proposed around Black Lake (see above) is the enhancement of habitat of La Graciosa Thistle, Cirsium scariosum var. loncholepis. Confined to high-water table wetlands in dune swales, the plant is also found at the mouth of the Santa Maria river. Dr. Keil changed the status of the plant from being a separate species Cirsium loncholepis to that of a variety of Cirsium scariosum, citing a strong similarity to Cirsium scariosum var. citrinum, which has much shorter spines and is found in the headwaters of the Cuyama River. Dr. Keil suggests that the coastal plants originated from transport of seed from the Pine Mountain area, and subsequent divergent evolution.
Summary of points raised in Chapter Comments on Oceano Dunes SVRA Public Works Plan and Draft EIR

Our chapter has submitted very detailed comments on the Oceano Dunes State Vehicle Recreation Area Public Works Plan (PWP) and the Draft Environmental Impact Report (DEIR). Our comments were organized around the following issues:

PWP Issue No. 1. The Oso Flaco Improvement Project would cause irreparable damage and significant impacts to Oso Flaco biological resources.

PWP Issue No. 2. The proposed changes in the 40 Acres area destroy habitat and devalue past investment in dune restoration.

PWP Issue No. 3. The PWP Fails to identify mitigation sites.

PWP Issue No. 4. It is inappropriate to include development within the Phillips 66 Refinery property in the PWP without consideration of requirements associated with decommissioning, abandonment, and possible clean-up associated with the existing oil and gas operations, as well as additional information on important resources, such as individuals, populations, and habitat for Nipomo Lupine (also see DEIR issue No.6).

PWP Issue No. 5. HCP Potential Future Covered Activities are Limited.

PWP Issue No. 6. The definition of Environmentally Sensitive Habitat Areas (ESHA), as described in the DEIR Section 7.2.3, is not consistent with the San Luis Obispo County LCP.

PWP Issue No. 7. Protection of Agricultural Lands under the Local Coastal Plan (LCP) is misstated.

PWP Issue No. 8. There is little consideration of sea level rise in the PWP.


DEIR Issue No. 1. The DEIR relies too heavily on the HCP to provide the basis for assessing impacts.

DEIR Issue No. 2. The DEIR fails to identify sites suitable for 3:1 required replacement of impacted vegetation types.

DEIR Issue No. 3. Section 7.4 of the DEIR fails to describe impacts to open sand areas, which constitute ESHA. Section 4.3 of the DEIR also includes incorrect statements as to the consistency of the project with LCP policy.

DEIR Issue No. 4. Failure to perform botanic surveys undermines species impact determinations.

DEIR Issue No. 5. The DEIR fails to independently analyze impacts to HCP-covered species, inadequately addresses cumulative impacts, and instead refers back to the HCP DEIR.

DEIR Issue No. 6. The DEIR does not adequately address impacts to Special Status plant species.

DEIR Issue No. 7. Pg. 7-28 of the DEIR, Impact 7-8, recognizes impacts to some ESHA-protected communities, but fails to identify adequate mitigation.

DEIR Issue No. 8. Pgs. 7-31 through 7-34, Impact 7-9, incorrectly characterizes Wetlands impacts as less than significant.

DEIR Issue No. 9. Prime Agricultural Land is Protected, and the value of the land runs independently of the ownership.

DEIR Issue No. 10. Failure to evaluate groundwater elevation and its control at the proposed Oso Flaco campground, and failure to address potential issues with pesticide contamination.

DEIR Issue No. 11. Section 16 fails to address noise issues adequately.

Why We Fight: Aerial Photographs Record OHV Destruction of Vegetation and Subsequent Restoration and Recovery

The earliest photograph at the top of the next page was flown by the U.S. Army in 1939. The causeway extending Oso Flaco Road across the two lakes is clearly visible. Note the extensive vegetated areas north and northwest of the western end of the causeway. The photograph below is taken from a U.S. Dept. Agriculture flight in 1978, showing the almost complete destruction of vegetation north of the lakes and the multiple OHV tracks. (There appears to be an increase in vegetation immediately west of Oso Flaco Lake). The next page shows a California Coastal Commission Survey photograph from 2001, with the boardwalk completed and re-vegetation under way in the 40 Acre area north of the boardwalk. The Google Earth 2013 screen shot shown below shows further re-vegetation. This clearly illustrates that dune habitat restoration works. The top of the following page shows how OHV activity destroyed foredunes from their original state in 1940 to 2013 (Google Earth screen shot).
Aerial Photograph U.S. Army 1939: Note vegetation northwest of causeway and lack of vehicle tracks through vegetation

Aerial Photograph U.S. Dept. Agriculture 1978: Note lack of vegetation northwest of causeway and abundant tracks through vegetation, plus sand incursion into the lakes
Aerial Photograph California Coastal Commission 2001: Note revegetation northwest of causeway and lack of vehicle tracks through vegetation

Aerial Photograph Google Earth 2013: Note revegetation northwest of causeway and lack of vehicle tracks through vegetation except service road north of Oso Flaco boardwalk and service road from Phillips 66 Refinery
Invasive Species Report: Bermuda buttercup *Oxalis pes-caprae*

*Oxalis pes-caprae* is in the Oxalidaceae (wood sorrel) family. Oxalis is based from the Greek oxys (acid, sour, sharp) and salis (saltiness) referring to the salty taste of the stems and leaves. This attractive herbaceous low growing, bulb producing perennial has clover like (trifoliate) leaves and yellow flowers. It is about 1ft wide and 1.5 ft tall. The foliage dies and the bulbs become dormant in late summer. Bermuda buttercup is often called sourgrass due to its sour flavor. Its flower petals can be used to produce a yellow dye.

*Oxalis pes-caprae* is native to South Africa, not Bermuda, and was introduced as an ornamental landscape plant. It grows in coastal dunes, scrub, oak woodlands, gardens, turf, urban areas, orchards and agricultural fields. It is invading in coastal California, the Coastal Ranges and in the Sacramento Valley. It is a big headache in the home garden. Although this species does not produce seeds, it is extremely difficult to control because of its ability to form many persistent bulbs which is unusual for dicots. Unfortunately pulling up the stems will leave bulbs behind. Cultivation may be an effective control if carried out when the plants are just beginning to flower. Biological control may be carried out by the larvae of the *Kludeana* moth. Grazing should not be considered because *Oxalis* is toxic. Burning doesn't work. Effective chemical treatments include Fluroxypyr, Triclopyr, glyphosate and imazapyr.

MARK SKINNER

Photographs: Mark Skinner
Redshanks: Chamise’s Big Sibling

The county line between Santa Barbara and San Luis Obispo counties through the Cuyama Gorge marks the northern limit of *Adenostoma sparsifolium*, which has the common name Red Shank(s) or Ribbonwood because it sheds bark in long strips. It has been collected from Chimineas Ranch on the east side of the Cuyama Valley and from near Pozo and east of Lopez Lake. It is a small tree growing up to 6 m in height, with a reddish bark, and is common in the mountains of southern California. The leaves are small and filament-like, a typical adaption to droughty conditions. It is usually found in chaparral along with the shrub *Adenostoma fasciculatum* or chamise, which is very common in our county and can be seen in abundance on the drier, south-facing slopes in Montana de Oro State Park, the granite country east of the Salinas River along Highway 58, and in the open dunes of Los Osos Oaks Reserve. The two members of the Rosaceae are the only members of the genera, and, although living side-by-side, do not hybridize due to different flowering times.


Another Virtual Field Trip to the Crespi Trail, Morro Bay State Park

This is not the smoothest presentation but you might find it interesting.

The link is [https://www.youtube.com/watch?v=QXRSnbeNmOg&t=48s](https://www.youtube.com/watch?v=QXRSnbeNmOg&t=48s)

Oh Dear, What Brodiaea?

There are 3 Brodiaeas in the county. *B. jolonensis*, *B. terrestris subsp. kernensis*, and *B. terrestris subsp. terrestris* is the only one of these has white staminodes. So the photo by E.C. Cunningham is definitely *B. terrestris subsp. terrestris*. The other two have blue-purple staminodes, and those of *B. jolonensis*, tend to hook inward at the top. Staminodes are sterile stamens.
**Good Piggy, Bad Piggy**

Those of you who walk the trails to Montana de Oro State Park’s Shark Inlet at the extreme southern end of Morro Bay will remember the extensive reed beds (top left photo). These are from freshwater springs, and do not get inundated with salt water. Unfortunately the roots are considered a tasty treat by feral pigs, and recently almost the entire reed bed has been churned up and de-vegetated by the pigs (top right photo). We expect that there will be enough root mass for the stand to regenerate.

Can we say anything nice about the pigs? The older dune sands of the area suffer a serous invasion by narrow-leaved ice plant (*Conicosia pugioniformis*). The annual pest plant has a carrot-like root, and pigs are digging up the plant and eating the root. However the pigs only kill a small percentage of the annual infestation. An African common name for *Conicosia* is ‘pigroot’.

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**THE GARDEN CORNER**

It has been a long dry winter, as most of you know. Only once before has California’s central coast had a consecutive Februarys with little or no rainfall at all. Season to date rainfall totals are way off throughout the central coast regions and here where I live in Los Osos, we have only received about half of what is consider normal for this time of year. These figures include the rainfall from our most recent storm, March 9th through March 11th, as I write this article.

So, what does this mean for our existing oaks, chaparral shrubs and pine trees? As discussed in my previous article in the February newsletter, our native shrubs and trees are accustomed to receiving their ‘belly full’ of moisture during December through April. When Mother Nature does not come forth the plants will suffer.

Most gardeners have been taught that California natives are drought resistant; therefore, don’t need watering. This is true during the summer months. I’m sure you have heard stories of old oaks being killed by homeowners planting lawns around them in the north county. But winter drought is something different. Without adequate rainfall, shrubs and trees become weak and this opens them up to pest infestations; like thrips, spider mites, oak moth larvae and pine beetles. Gophers and ground squirrels can also invade a garden and destroy drought stressed shrubs and trees.

Like the Coronavirus to humans and other animals, plants can quickly succumb to dieback and death brought on by drought conditions. Each yard is different, just like you, the owner. It’s up to you to decide, to let nature take its course or if you desire to step in. Supplement water now in the form of overhead sprinklers if you can afford it. It appears on the California central coast that we will be about 10 inches behind in annual seasonal rainfall this year (from July 2020 through June 2021). Stop watering by April to not encourage fungal root problems.

When it comes to gophers and ground squirrels in your garden, do not use poison to kill them. Use smoke bombs, as poison can lead to non-target animal deaths; like hawks and owls. If you have spider mites and/or white flies, use neem oil to control them. And to control oak moth larvae on oaks, use *Bacillus thuringiensis*.

Walk your garden regularly and examine your trees and shrubs. Collect rainwater and store in covered containers when you can and most of all enjoy this beautiful place we call home.

**Until next month, happy gardening.**

*John Nowak*
Memories from the Past

We all have them, memories of the past places and the joys we experienced when we were children. At a young age I was drawn to the coastal sage chaparral. Living in an area close to Torrey Pines State Park, I rode my bike many times to the ranger station/visitor’s center. Most people might not know, but Torrey Pines is a State Park; known since 2007, as Torrey Pines State Natural Reserve.

A little history about how the park came to be. It was established by San Diego in 1898, when the city council passed an ordinance to set aside 364 acres of pueblo lands as a public land. In 1911, Ellen Browning Scripps donated additional land to add to the park. In 1959, the now approximately 1,000 acre park was donated to the State of California to provide further protection to this unique ecosystem.

Back when I was a child, not much was monitored in the park and so it was easy to go off the trail to areas that were not on the normal path. Being twelve years old, I would sneak off to areas that had cliffs, wash outs (there is one that’s called Fat Man’s Misery) and to groves of old Torrey Pine trees. These trees were left over from a cooler time period in California; probably being “a relict population of a much more extensive Ice Age distribution”.

Torrey Pines only exist now in the natural state on the coast in San Diego area, *Pinus torreyana var. torreyana* (Kral 1993), and on Santa Rosa Island, *Pinus torreyana var. insularis* (Haller) Silba 1990. Santa Rosa Island is a California Channel Island off the coast of Santa Barbara. At the time those facts didn’t matter much to me. It was the enchanted nature of these massive pines that kept me mesmerized. It wasn’t long before I brought a tape measure and started collecting data on the size, at trunk base, and location of individual trees. I started to realize there was a correlation between tree size and exposure to wind, sun and soil types. These may seem common sense to all of us now, but at the time I was just becoming aware of what a special place this was and why it was preserved for children like me and adults to enjoy.

Today Torrey Pines State Natural Reserve is known throughout the world and thousands of people visit each year. But unlike me, decades ago, people stay on the trails. It’s important, especially now, to remember what started us on the special path of caring for this wonderful place we call California. — John Nowak

The California Fire Science Consortium

The California Fire Science Consortium (as part of the Joint Fire Science Program's Fire Science Exchange network) is a network of scientists and managers that strives to accelerate the awareness, understanding, and adoption of wildland fire science information by federal, tribal, state, local, and private stakeholders within ecologically similar regions. Our mission is to be an inclusive, neutral, customer-driven collaborative group that facilitates the flow of fire science information and dialogue.

http://www.cafiresci.org/
Heather Johnson

We have to relate sad news. Heather Johnson passed away on March 1st after a long battle with illness. She transformed our CNPS chapter with a strong “get going” attitude by embracing the book sales table, helping organize our Garden Tours and bringing her grandmother’s beautiful vases and table cloths to the Annual Banquet to grace the tables, to mention just a few of her contributions. For many years she and her husband Jim stored all of our sales material at their house and brought everything to each meeting, setting up the tables, and then Heather made the sales which are such an important part of our chapter's finances. In recognition of their services, the Chapter awarded Heather and Jim the Hoover Award in 2008.

Heather was a native Californian with deep roots in San Luis Obispo County. Arriving to the Central Coast was like a homecoming for her. She loved California native plants and gardened tirelessly with them surrounding her Los Osos home she shared with Jim. She painted beautiful watercolors of many California native plants. A number of her watercolors graced the Obispoensis front cover, accompanied by descriptive text from Dirk Walters.

She shared her generosity with many people and many of us are grateful recipients of her kindness. If you were a friend then you were family too. To Jim and Judi Young we extend our condolences.

When preparing this article, the suggestion of a surrounding black border of mourning was rejected, as that would be the last thing she would want, so instead we offer a selection of Heather's wonderful watercolors.

Her Many CNPS Friends

(Left) Heather’s warm smile (Right) Heather receiving the chapter’s Hoover Award (Center) The CNPS State Volunteer Recognition Award to Heather and Jim
THE GOOD PEOPLE WHO MAKE THE CHAPTER ‘HAPPEN’ AND HOW TO FIND THEM

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WE ALWAYS NEED PEOPLE TO HELP OUT. OUR MISSION IS VITAL AND OUR FLORA IS AT RISK
CNPS SLO Chapter gratefully acknowledges French Hospital and the Copelands Health Education Pavilion
for the use of their facilities for our Board meetings.

Protecting California’s Native Flora since 1965
The California Native Plant Society is a statewide non-profit organization of amateurs and professionals with a common interest in California’s plants. The mission of the Society is to increase understanding and appreciation of California’s native plants and to preserve them in their natural habitat through scientific activities, education and conservation. Membership is open to all. Membership includes the journal, *Fremontia*; the quarterly *Flora*, which gives statewide news and announcements of the activities and conservation issues, and the chapter newsletter, *Obispoensis*.

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