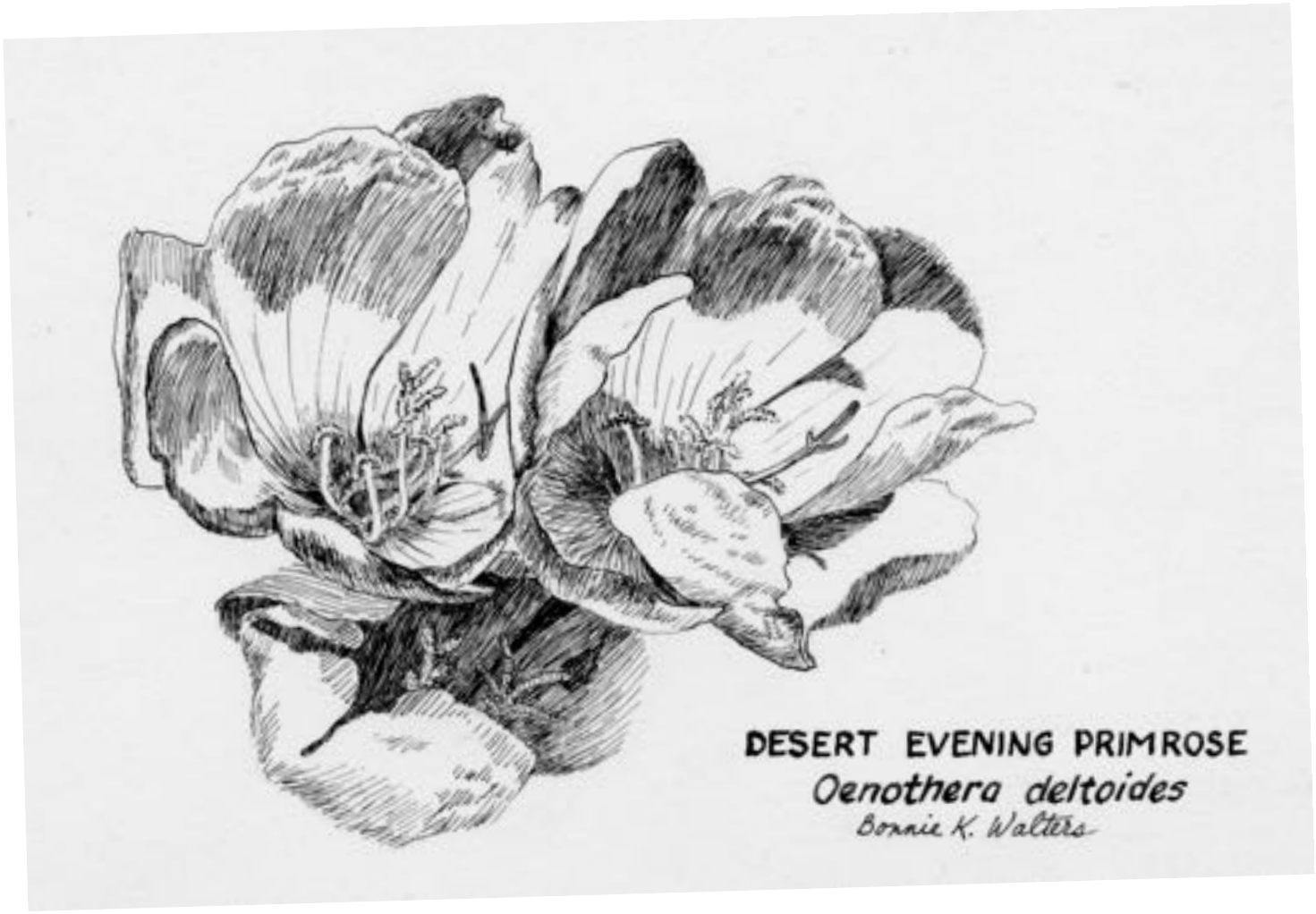
Obispoensis

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



MAY 2016

Desert Evening Primrose

Oenothera deltoides

About the Cover: Desert evening primrose (*Oenothera deltoides*) is in full bloom at Shell Creek as I write this. So it seemed appropriate to resurrect a drawing Bonnie drew back in 1981. It is one of her earlier drawings since it shows a lot of shading. The flowers are white and the plant starts out as a small mound and then spreads-out across the surface of the ground. It can reach several feet across. Fruits are produced along the full length of the branches. However, if you go to Shell Creek in summer and fall you will probably find little trace of it. This is because as the branches dry out, they turn upward forming what resembles a largish bird cage. Lastly, the dried plant breaks off and joins the other tumble weeds bouncing around and distributing its seeds. The species has several common names, including birdcage evening primrose, bird cage plant, basket evening primrose, lion in a cage, and devil's lantern**,** or as I've been simply calling it, desert evening primrose. As my name, desert evening primrose, implies it's found in the deserts, from eastern Washington, through California, Nevada, Arizona and into northern Mexico. According to *The Jepson Manual*, it has five recognized subspecies. This would be expected by a plant occupying such a large range with so many variations in habitat. It prefers well drained soils so it is very common on desert sand dunes thus another common name is dune evening primrose. In our area it is found in the valleys of the interior Coast Ranges, especially in sandy or well drained soils. The area around Shell Creek is the most northwestern extent of its range of which I'm aware. At Shell Creek it's most numerous in the sandy alluvial fan east of Shell Creek. The common names that refer to "cages" are references to its bird-cage shape the dried plant takes just before it tumbles away.

Fruiting plant of desert evening primrose before breaking off and becoming a tumble weed.

Some of the people on the Malcolm G. McLeod Annual Shell Creek Field Trip might have noticed quite a few of the flowers were fading, desert evening primrose flowers open in the evening and close up in the morning. That is, their large, fragrant, white flowers are open mostly at night when it's dark. The white flowers would make them visible in the twilight and darkness. The flowers are very odoriferous at least in the evening. The large, white, night-blooming, odoriferous traits indicate that the species is pollinated by moths, probably hawk moths.

Before 1969, the genus, *Oenothera*, was huge and included species given the common names evening primrose for the night blooming ones and sun cups for the day flowering ones. Sun cups and evening primroses share, with other members of its family, Onagraceae, four separate petals. In fact, the flowers of the Onagraceae, have a number of distinctive set of characteristics which makes them easy to recognize. They produce flowers that possess four sepals, four petals, eight stamens, attached to the top of a generally thin, often long tube constructed from the bases of the sepals, petals and stamens (hypanthium). The hypanthium arises from the top of the usually four-parted ovary. This means the ovary is said to be inferior or below all the flower parts. This can be summarized as …

$$\frac{CA^4\ CO^4\ A^8}{G\textcircled{4}}$$

CA^4 is short for calyx which is the collective term for the 4 sepals; CO^4 stand for the corolla, the collective term for the 4 petals. A^8 is the abbreviation for androecium, which translates as the "male things" which are the 8 stamens). G^4 stands for gynoecium (female thing) which represents the four-parted ovary, style and/or stigma. The circled four indicates that the 4 subunits (carpels) that make up the gynoecium are fused into a single pistil (visual unit of the gynoecium within a flower). The most conspicuous character that separated plants with the common names, sun cups and evening primroses, is the stigma. A look at Bonnie's drawing will show it to have four hair-like stigma branches. Only true evening primroses (*Oenothera*) have this trait. The rest of the old, un-split genus *Oenothera* display a single wide hemispherical cap. At first, all these species were put into the single genus, *Camissonia*. Unfortunately this is no longer the case as the knob-stigma species are now scattered into several genera with differences of opinion as to how many.

One last point, these are EVENING primroses not primroses. I bring this up because a number of web sites left off the evening in the name evening primroses when giving their lists of common names. I know that common names are not regulated, but to call them simply, primroses, I find totally confusing. True primroses are in the totally unrelated family, Primulaceae. The Primulaceae have flower parts in 5's. That is, they have 5 sepals, 5 **fused** petals and 5 stamens placed in front of the petal lobes. The ovary is superior and has only a single cavity, not 4, inside. A common weedy member of the Primulaceae is scarlet pimpernel which is a weed in almost all of our gardens. At least it is in those of us who are not great gardeners. ❀

Dirk Walters, illustration by Bonnie Walters

Conservation

Lauren Brown crafted our chapter's comments on the Guadalupe-Nipomo Dunes (GND) Draft Comprehensive Conservation Plan (CCP) and Environmental Assessment(EA). The CNPS SLO Chapter fully supports the proposed management Alternative B (moderate increase in wildlife and habitat management, incremental increase in visitor services and environmental education). If budget considerations do not allow implementation of Alternative B, we would support Alternative A (no action), where the current level of management and public use opportunities are maintained. We strongly oppose Alternative C (minimal wildlife and habitat management and the Refuge is closed to the public), as written, for the following reasons: (1) the minimal level of monitoring and maintenance described in Alternative C is insufficient to ensure the continued existence of these species within the Refuge; (2) we concur with the findings of the EA that a decrease in the current level of invasive species management, as proposed in Alternative C, will increase the threat of invasive species to degrade and potentially destroy wildlife habitat within the refuge, and adjacent to the refuge; (3) decreased oversight will fail to detect newly introduced invasive species; and (4) feral swine must continue to be controlled due to the damage they cause.

CNPS was represented by Dr. Neil Havlik in our opposition to the proposed annexation and development of the El Villaggio development on Los Osos Valley Road and Calle Joaquin (the southwest corner of the intersection). Dr. Havlik testified that (1) the City's General Plan requires that new development in the Irish Hills stay below the 150 foot elevation line. The current proposal ignores that restriction and extends well above that line in two areas of the property. One of these locations contains at least two plant species of concern in the City's General Plan (Chorro Creek bog thistle and clay mariposa lily) and likely others. The nearby Vineyard Church was developed in the County (which had and has no elevation limit for development) and should not be used as a justification for the City abandoning its stated policies; (2) even if rare plants are "protected" by a 50 ft. buffer, the project will likely affect the hydrology required by the bog thistle; (3) there are serious wetlands impacts including so-called restoration of Froom Creek which is essentially destructive channelization, and apparent destruction of wetlands along Calle Joaquin. Sadly, the SLO City Council was unanimous in letting the project move forward, so that our next opportunity to stop the project will be the issuance of an EIR.

In other issues, the chapter is supporting the proposed release of Cape-Ivy gall fly, following may years to testing that the gall fly will only affect cape ivy. We wrote a support letter to the Animal and Plant Health Inspection Service (APHIS) at the request of California Invasive Plant Council. Several other issues regarding dangerous pests that we will be considering are the impacts of new giant tumbleweed that has arrived from the Central Valley, the spread of Sahara mustard in Los Osos, and the migration of polyphagous shot hole borer as it moves north from the LA Basin, killing a wide variety of trees. People interested in working on these issues should contact me or Mark Skinner who is taking over from Lauren Brown on weed issues.❀ David Chipping

Chapter Meeting

"Diversity and Evolution of California's Bountiful Borages" by C. Matt Guilliams, the Ken and Shirley Tucker Plant Systematist and curator of the Clifton F. Smith Herbarium at the Santa Barbara Botanic Garden.

Dr. Guilliams completed his Ph.D. in the Jepson Herbarium and Department of Integrative Biology at the University of California Berkeley in 2015. His work, primarily in Boraginaceae, focuses on understanding major themes in plant evolutionary biology, including the inference of evolutionary relationships using morphological and molecular data, biogeographic inference, and study of plant diversification in the California Floristic Province. All of his research incorporates an element of conservation and community outreach. At the Garden, Matt is finishing a book-length Flora of Santa Catalina Island, and is initiating phylogenetic work spanning the Channel Island archipelago.

Meet at the Veterans Hall, 801 Grand Avenue, San Luis Obispo, Thursday, May 5, 7 p.m.

Seed Exchange

Hopefully many of you are remembering that we will have our first seed exchange before the October meeting. If you are interested in participating, now is the time to start closely observing your plants for seed formation and maturation. I have already started taking a few seeds from my *Ranunculus californicus* (buttercup), *Lepechinia calycina* (pitcher sage), and *Heuchera maxima* (island alum root). With a neighbor's permission I have wandered her pasture collecting seed from *Callindrinia ciliata* (red maids). By the time this appears in the newsletter I suspect I will be gathering from my *Stipa pulchra* and *Melica californica*. So hone your observational skills, get close to your plants, and collect seeds!

See our website for an article regarding information on the collection and cleaning of seeds. Marti Rutherford

President's Notes by Bill Waycott

Diana and I spent a Sunday in early April this year, visiting the Pinnacles National Park from the west side, near Soledad, CA. It was a drizzly day, making the rock formations appear surreal – larger than life. If you have not walked the park, the trails are wide and gentle, easy for those who take their time. It is the perfect place to take the whole family for an outing.

This is a magic place and it has had a loyal fan club for a long time. The property was protected during the administration of Theodore Roosevelt in the early 1900s. We may know the Pinnacles as heap of giant rocks and caves, aligned along the west side of the San Andreas Fault in San Benito County. Its lesser twin, the Neenach Formation, is located 195 miles to the southeast on the eastern side of the fault. A walk in the Pinnacles during March and April is a feast for the eyes, with an abundance of wildflowers throughout the park.

I wanted to briefly share with you some of the highlights of our visit and encourage you to make a stopover there when traveling north.

Clearly, the first assault on the senses when leaving the parking lot on foot is the grand, odd-appearing rock designs dotting the landscape. Then, amongst these giant pillars are the plants that add to one's wonder and excitement. It was the plethora of larkspur (*Delphinium parryi*) that first caught our eye, some upwards of 7 feet tall, in large, dense, purple-blue clusters. (For a better view of these pictures, view this article on our website – CNPSSLO.)

Delphinium parryi

As we rounded the bend in the trail among crevasses and tall boulders, we noticed mats of dark-green liverworts (*Asterella sp*.) covering the stony surfaces, showing their umbrella-like spore capsules suspended atop them. These primitive plants seek the damp and shaded rock areas in the deepest parts of the canyon.

Turning around to see what grew on the southern exposures, which receives more light, we found significant coverings of a tiny dudleya, *Dudleya caespitosa*, coating the rock faces. These small, silver-leaved succulents, no larger than a quarter in diameter with their bright yellow inflorescences, were all linked together by tiny rhizomes resembling spaghetti, running over the rock faces and creating one giant carpet. We'd never seen anything like it.

On our way towards the top of the ridge, we found a number of plants that we have rarely seen in our county. The vividly orange, western wallflowers, *Erysimum capitatum*, were mixed with golden monolopia, *M. lanceolate*. Additionally, there were the large, eye-catching Venus thistles, *Cirsium occidenta*le var. *venustum*, with their enchanting and vibrant shocking-pink hues, along with a small attractive, chalk-white buckwheat, *Eriogonum saxatile,* growing near the top among the rock outcrops. (c*ontinued on page 5*)

Asterella sp.

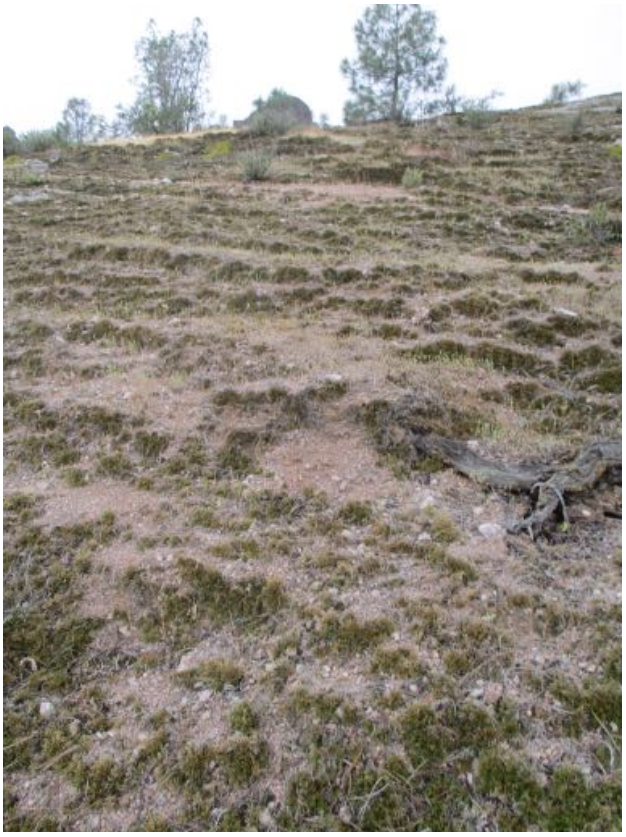
Dudleya caespitosa

Erysimum capitatum and Monolopia lanceolate

*Cirsium occidenta*le var. *venustum*

As we crossed the rocky ridge and descended the eastern side, we encountered a large area, over an acre in size, covered in tiny terraces, filled with the lowly resurrection plant, *Selaginella bigelovii*. For those not familiar with this plant, although it is a higher plant, it is called a spike moss, and very closely resembles a non-vascular bryophyte. It is endemic to California and remains dormant for most of the year, but it quickly greens up during the rainy season. So here, on the enormous exposed rock face, grows this tiny plant and nothing else.

Eriogonum saxatile



Selaginella bigelovii

Further down the eastern slope, we found two more beauties, Fremont's monkey flower, *Mimulus fremontii*, a very small plant, no more than four inches tall, with a tubular magenta flower and two golden stripes angled into its center. These plants are clearly ephemeral and could be easily missed because of their size. Their flowers are easily twenty times the size of the few visible leaves, leading us to wonder where the energy comes from to put on such a floral display.

The other discovery was a mariposa lily, *Calochortus venustus*, known as the butterfly mariposa lily. The word "mariposa" is Spanish for butterfly. These large flowers stood high on plants, well above the annual grasses at their base.

Mimulus fremontii

Calochortus venustus

I find that a more careful study of mariposa lilies can be fascinating, because each flower is slightly different. This is partly because they change as they open; a newly opened flower bears little resemblance to its older, pollenated selves. Yet, if one looks more closely, the distinctive markings that adorn so many in the genus, vary among flowers in placement, size, color, and intensity. To me, this dance of color and shape reminds me of the intricate motifs found in Native American art. It is as if each flower has its own unique facial alignment, in the way features identify an individual on a human face. Next time you encounter a mariposa lily in bloom, gaze into "its face" and observe the minute and detailed spender within. Make sure you have a 10x hand lens with you at that time.

Walking in our natural surroundings is a great activity. We breathe the fresh air, we see the remarkable and intricate patterns of the landscape, and our heart beats a bit faster as we head up the trail. We native plant enthusiasts are fortunate to have these opportunities to explore and be healthy!

Chapter Support for Budding Botanists!

Your SLO chapter recognizes the importance of helping students begin their careers in botany. Several years ago, the Malcolm McLeod Scholarship was established to help graduate students fund their research with scholarships in the $300-$1000 range.

This year there are three recipients. They are Kristen Nelson, *Understanding the ecological impacts of Eucalyptus globulus on California native habitats*; Julia Harencar, *Indistinguishable Species of Goldfields: A case of Ecological Selection*?; and, Lindsey Whitaker, *Managing for biodiversity in the Guadalupe Nipomo Dunes and the rate of invasion by invasive grass, Ehrharta claycina* (Veldt grass).

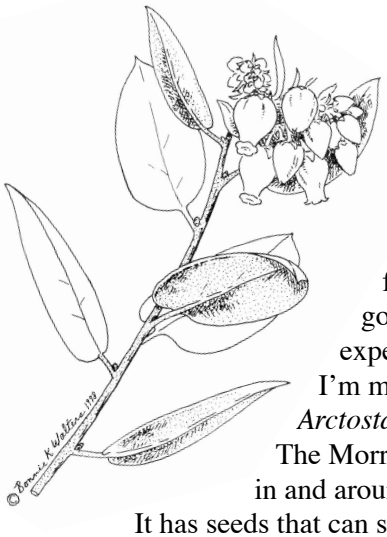
Put our June 1 chapter meeting on your calendar. These students will be joining us to do presentations on their research.

Kristin Nelson

Lindsey Whitaker

Julia Harencar

Horticulture



The prune-ability of *Arctostaphylos* has been well known in the nursery industry for many years. I'm going to discuss my experience with the species I'm most familiar with, *Arctostaphylos morroensis*. The Morro bay manzanita grows in and around the Los Osos area. It has seeds that can survive many years in sandy soil. I have found them germinating in yards located around Montaña de Oro State park. In many cases these plants come up in areas where their large stature would not be appropriate. Rather than removing them, I have transplanted some, or have talked the owners into letting me shear them into a hedge shape.

In most cases, I find that the plants are doing very well. They seem to live for many years under this intense pruning. The plants have maintained a much smaller stature, which is what the home owners wanted. They have developed a much denser canopy and their leaves have a much lusher color. The only downfall I have found is the new growth can be a magnet for aphids. The aphids invade the new growth before it matures causing a red appearance as the insects drain the chlorophyll out of the new shoots. This new growth can also become deformed causing a very ugly mess. However, don't worry, you can prune off the infested new growth and then apply a soapy spray solution. It maybe necessary to redo this treatment three times to rid the plant of all the aphids. There is also a reduction in leaf spot. Leaf spot can be a real problem on the older, mature leaves. Since the leaves are being trimmed all the time, the leaf spot cannot take hold.

So now that you know a little bit more about *Arctostaphylos morroensis* and its abilities, I hope you will consider it as a hedge substitute. If you have any plant questions, please fill free to e-mail me. Until then, Happy Gardening! John

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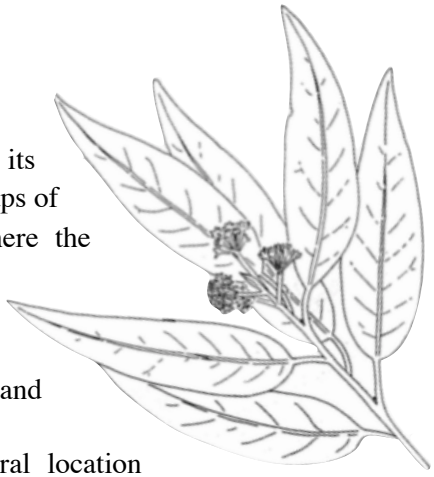
Sudden Oak Death (SOD) Blitz #4 - 2016
San Luis Obispo – May 20, 21, 22 (Friday, Saturday, Sunday)

Sudden Oak Death (SOD), a serious exotic disease, is threatening the survival of tan oak and several oak species in California. Currently SOD is found in 14 coastal California counties, from Monterey to Humboldt. Researchers have discovered that *Phytophthora ramorum*, the pathogen that causes SOD, spreads most often on infected California bay laurel leaves. Some management options are available, but they are effective only if implemented before oaks and tan oaks are infected; hence, timely detection of the disease on bay laurel leaves is essential for a successful proactive attempt to slow down the SOD epidemic.

This is a great opportunity to participate in a state-wide, very successful citizen science program. None of the samples collected in 2013, 2014, and 2015 were positive for SOD. But, it is very important to continue the monitoring to ensure this disease does not appear in SLO County or to manage the disease if we do get a positive result.

Purpose of SOD BLITZ



The SOD-blitz is to inform and educate the community about the disease and its effects, get locals involved in detecting the disease, and produce detailed local maps of disease distribution. The map can then be used to identify those areas where the infestation may be mild enough to justify proactive management.

- A community meeting/training session held on a Friday evening; followed by collection of leaf samples by volunteers on Saturday and Sunday.
- Samples and accompanying forms are then turned in at a central location Saturday and Sunday afternoon/evenings.
- We will provide a list of recommended areas for sampling at the meeting.
- We will divide into groups for collecting. Ideally, one person in a group will have a GPS device or tablet or phone with GPS capability.

San Luis Obispo SOD BLITZ - 2016

Training - Friday, May 20, 6 pm to 7-7:30pm, SLO County Department of Agriculture,
2156 Sierra Way, San Luis Obispo, CA Map Link

Collecting – Saturday and Sunday, May 21 and 22 (Locations TBD). **Individuals or teams determine the collecting/days times.** All of the materials necessary for the training and the collecting over the weekend will be provided.

If you need additional information on the SLO SOD Blitz, please contact
Lauren Brown: lbrown805@charter.net , (805)460-6329 or (805)570-7993

Dedicated to the Preservation of the California Native Flora

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 *Bulletin*, which gives statewide news and announcements of the activities and conservation issues, and the chapter newsletter, *Obispoensis*.

San Luis Obispo Chapter of the
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I have a few people to thank:

We love to acknowledge those who have joined our group or renewed their memberships, because our members are what makes it possible to do what we do. Your contributions are what drive our programs and we want to show our appreciation for your support. Nonetheless, we've learned that not everyone wants their name in print and we also want to respect your wishes. If you are one who prefers that we not use your name, please contact me (Holly Sletteland) via email (hslettel@calpoly.edu) or phone (805-239-3928) and we will refrain from doing so in the future. In the meantime, a big shout out to the following folks for their recent membership contributions:

Dennis	Arroyo Grande
Evan	San Luis Obispo
Margaret	Atascadero
Suzette	San Luis Obispo
Liz	Los Osos
John	San Luis Obispo

The San Luis Obispo Chapter of CNPS holds its meetings the first Thursday of the month, October through June, except January, at the Veterans Hall, Grand Avenue, San Luis Obispo.

Refreshments at 7:00 and program at 7:30 p.m. You don't have to be a CNPS member to attend!

Obispoensis is the newsletter of the San Luis Obispo Chapter of CNPS. It is published October through June except January. Items for submittal to *Obispoensis* should be sent to rhotaling@charter.net. The deadline is the 10th of the preceding month. Botanical articles, news items, illustrations, events, and tidbits are welcome!

To find out more about the California Native Plant Society visit our websites, **cnps.org** and **cnpsslo.org**.