Obispoensis

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






Celebrate the beauty of SLO County
Life DOES have a bright side!

June 2020 Electronic Version

CNPS FIRE RECOVERY GUIDE FREE FOR DOWNLOAD

The CNPS Fire Recovery Guide addresses questions in an easy-to-use booklet. The new statewide guide is a collaborative effort between CNPS, dozens of partner organizations, and scientists across the state. Sections include:

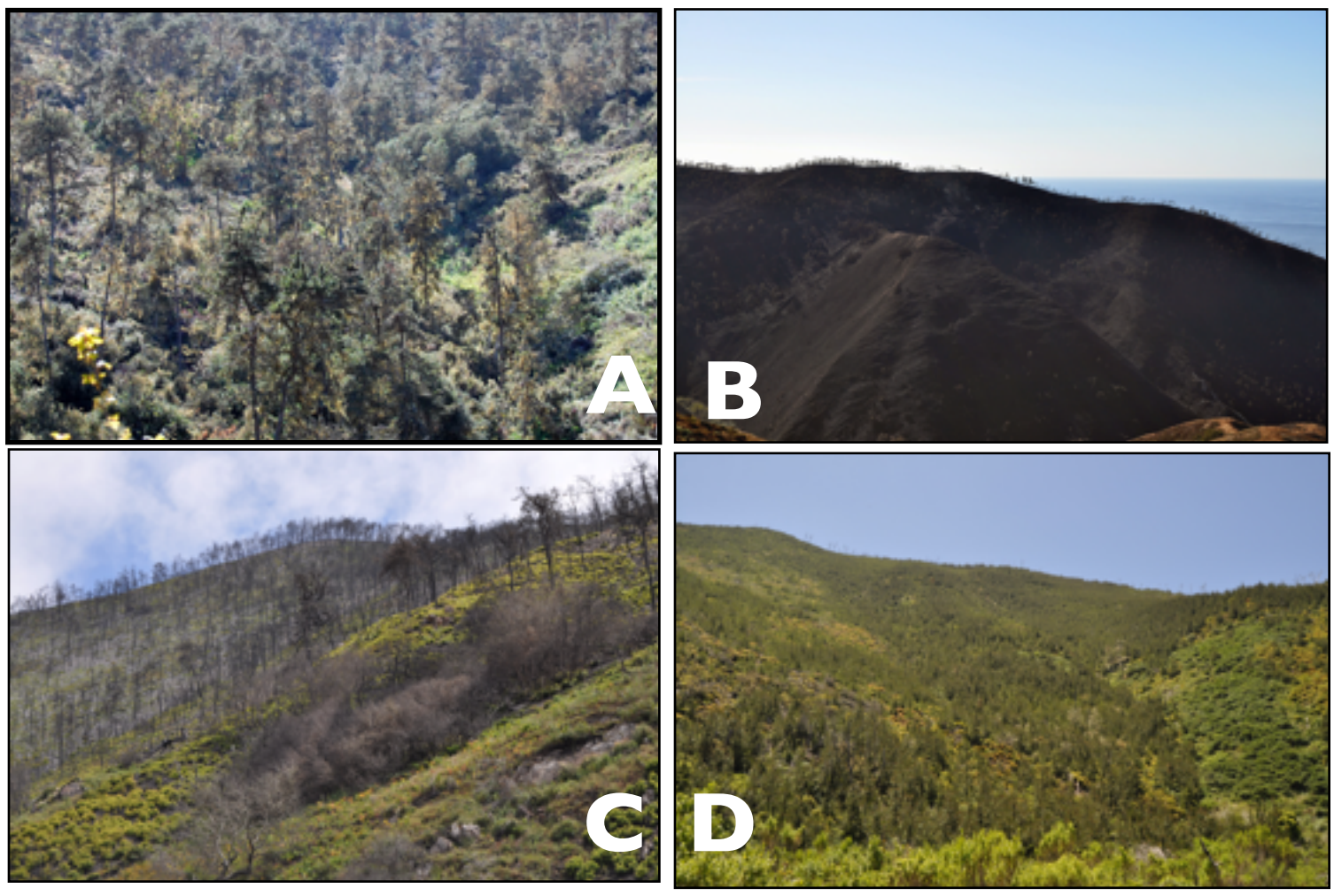
- Frequently asked questions about wildfire in California
- A post-fire checklist for property owners
- A decision-flow diagram for post-fire conditions
- Erosion control recommendations
- Tips for tree care and landscaping after fire
- Defensible space updates, and
- An overview of California's most fire-prone habitats

The "new normal" of intense fire seasons requires us to be informed and aware of how fires start, how they spread, and what to do to care for our land and the biodiversity we steward. This guide will help anyone who wants to make their property and their communities safer and more resilient. There is an excellent chapter on creating a defensible space with native plants.

www.cnps.org/give/priority-initiatives/fire-recovery

NATURE CAN LOVE FIRE - THE BISHOP PINE FOREST AT COON CREEK

Bishop pine is a fast growing tree with a short lifespan, adapted to fire by developing seed cones very quickly that release seed after being heated. The seeds fall on mineral soil cleared of vegetation by the fire, sprout and grow quickly. Photo A (2009) shows mature pines prior to the fire, Photo B (2012) shows the blackened hills after the fire. Photo C shows understory greening up in 2014, and Photo D the renewing forest today. Photo A shows an area in the lower middle of Photo D.

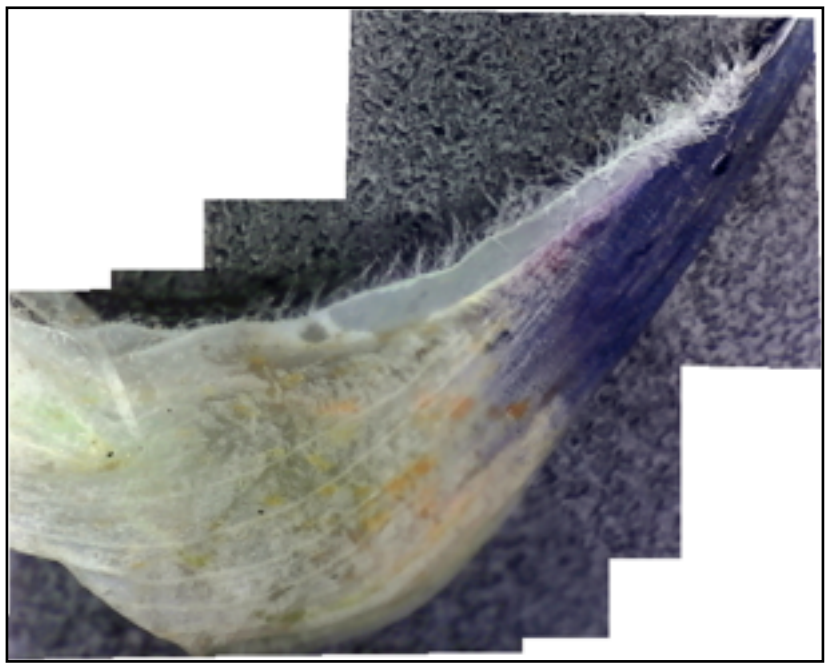


Time for the Tiny

Another Time-killing Activity by David Chipping

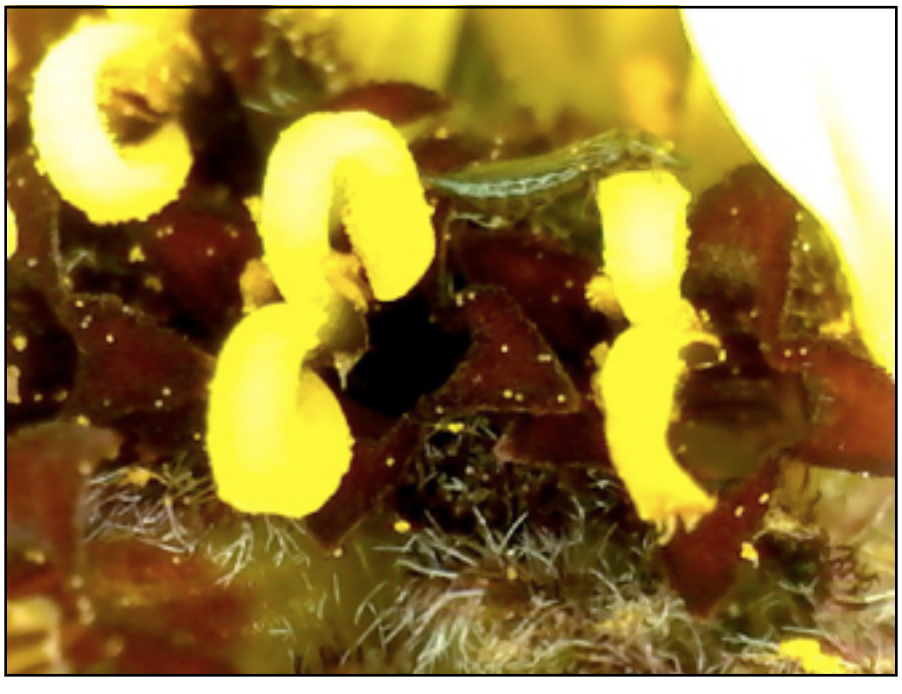
You may have heard the expression "the closer you look, the more you see", and if you are stuck at home and reckoning you know every square inch of your garden..... well.... you are wrong. For a relatively small financial outlay you can purchase a digital microscope that will enable you to see at about 40x magnification when it is connected to the USB port of your computer. There are at least two inexpensive brands that are worth trying. Amscope's Model SKU: UTP200X003MP has 10X-200X magnification for a 0.3 MP image with LED Illumination and Stand and was $34 at the time of writing. I purchased the Carson zOrb Digital USB Microscope Model MM-480B several years ago, which has illumination but no stand, but has a 2 MP image that allows further magnification on the computer screen up to 65x at good definition, I had to create my own stand, as the depth of focus is tiny, and steady vertical adjustment is a must. The lowest cost now is around $50. Carson have supportive software for Windows and Mac machines, but not for tablets.

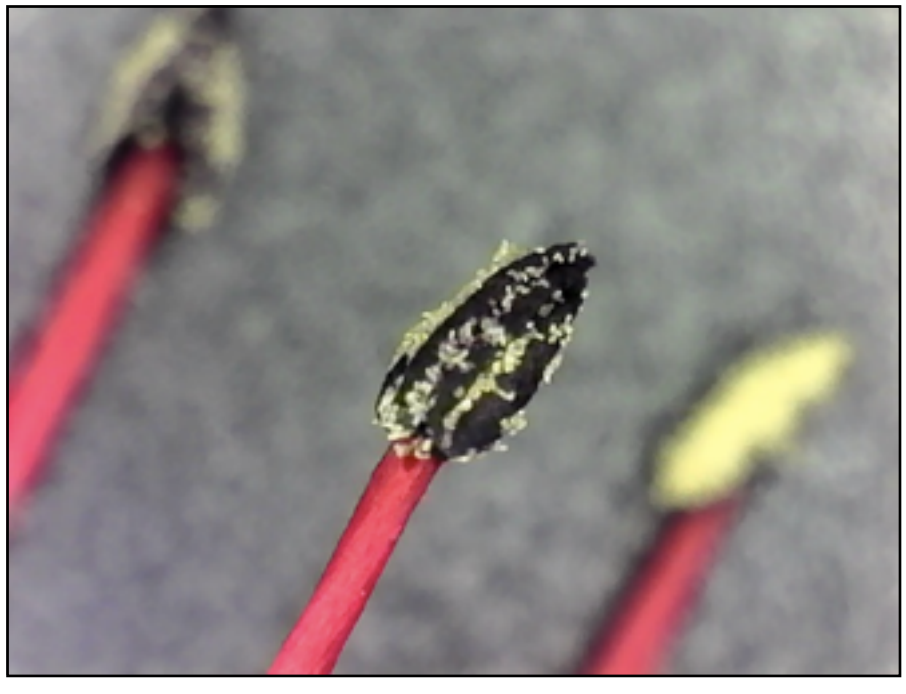
So.... a bush lupine came up from seed in the yard, and I was unsure about it being either *Lupinus arboreus* or *Lupinus albifrons*. Dr. Keil's key states that *L. arboreus* has "Upper keel-petal margin ciliate its full length" and *L. albifrons* has " Upper keel-petal margin proximally glabrous, distally ciliate". I took 4 photos of the keel, merged them in Photoshop, and came up with this composite photo. Just in case you are a bit vague on lupine morphology, the keel is a petal that contains all the naughty parts, and is concealed under two wing petals on the bottom half of the flower. Peel the wing petals off and you will see the keel. As you can see, the photo on the right shows that I have *L. arboreus*, as it has a hairy top to the keel.



Now I know all you taxonomy types say that you could have determined this in two microseconds with a hand lens, but, of course, you don't get a photograph.

A couple more examples from my yard... this year our *Encelia californica* put on a great display, so I took a look at the tiny disk flowers. While looking, a tiny green insect came from the inside of one of the flowers (top of photo, below left). The photo (below right) is the stamen tip of *Ribes speciosum* with pollen grains. Anyway, Google the microscopes to see more information





RETAIL SALES POSITION OPEN

Do you love books? How about selecting books that are on our Sales Table at most meetings and some events? If so, we would be excited to hear that you would be interested in becoming our Retail Sales Manager. If you've spent time gazing at the sales table, you know how wonderful the selection is. There are volunteers who help to staff the table, so help is always available. This is an opportunity to be creative, try new titles and stock the reliable titles, select Tshirt colors and share your enthusiasm for books with the folks that browse the table. If you are interested or have questions, contact Melissa Mooney.

Dr. Keil Discovers A New Species of Monkey Flower

Many of us have taken the steep and rocky trail up the west side of Froom Creek and seen the spring where the Chorro Creek Bog Thistle is growing, just east of the Poppy Trail junction. The seep runs over bare serpentinite rock and dampens nearby thin soils, and supports what all of us have previously though to be a dwarf version of the seep-spring monkey flower, *Erythranthe guttata*. However Dr. Keil noted the red spots on the calyx, also found in a Sierra Nevada species, *E. pardalis,* that set the species apart. Dr. Keil has published the new species in Phytoneuron: (*Keil, D.J. 2020. Erythranthe serpentinicola (Phrymaceae), a new serpentine-endemic species from San Luis Obispo County, California. Phytoneuron 2020-33: 1–13. Published 17 April 2020. ISSN 2153 733X*)

The abstract of that article now follows:

Erythranthe serpentinicola D.J. Keil, sp. nov. (Phrymaceae), is described from areas of serpentine soil in west-central San Luis Obispo Co., California. It is a member of Erythranthe sect. Simiolus and is disjunct from E. pardalis, a species of the Sierra Nevada foothills, to which it is most similar and perhaps most closely related. Both E. serpentinicola and E. pardalis are slender annuals with relatively small flowers. Calyces of both species are often dotted with dark red spots, and both are puberulent with delicate gland-tipped trichomes. Both occur primarily on serpentine soils. Erythranthe serpentinicola differs from E. pardalis in having usually sessile distal cauline leaves, a dense puberulence of fine, spreading glandless trichomes in addition to the gland-tipped trichomes, generally shorter fruiting pedicels, puberulent rather than glabrous styles that are longer exserted than those of E. pardalis, and longer corollas that are exserted to a greater extent beyond the calyx.

Photo: Dr. David Keil: *Erythranthe serpentinicola*

CNPS Garden Tour Videos.....

Marti Rutherford noted: " *I have been enjoying the CNPS garden tour videos and have a suggestion. The Presentation from Dr Doug Tallamy on April 26th was excellent. I think the link should be included in our next newsletter.....I think the video is well worth watching and should appeal to the Audubon Society members as well. Its pretty much all about supplying the insects that feed the birds and much of the rest of the world. Those insects need the native plants*." Marti saw him at a Master Gardner Conference, and he was a keynote speaker at the last CNPS Conference.. So here is a very long Youtube version of the original Webinar. So thank you Marti, and here is the link.

https://www.youtube.com/watch?v=oiAnuJ0KPds&feature=youtu.be&t=419

..... and Marti's Suggested Lockdown Activity

Once you have viewed the video described above, go out into your yard and count both native plants and introduced plants, observing the insect activity on both. The point Doug Tallamy (see above) makes is that native plants attract and support more insects, which in turn support more birds. He considers lawns biological deserts, and many flowering plants from nurseries look pretty, but don't seem to have any appeal to native pollinators. He suggests you try to have native species as at least 60% of your plants.

An onion and an onion look-alike

Dr. Dirk Walters

Muilla maritima (Left) and *Allium peninsulare* (Right)

Both photographs by E.C. Cunningham and scanned from the CNPS photographic slide archive by Dirk Walters.

David Chipping has been collecting photographs for an on-line reference to accompany Dr. Keil's updated (and soon to be published) San Luis Obispo County Flora. Because the Chapter slide collection is currently housed at my house and I have a hopefully top-of-the-line slide scanner, I've been finding slides that David requires and scanning them. After they are scanned (usually around 25 per set), I send them to David via Dropbox. Well, in the recent set were slides of *Muilla maritima* taken by Dr. Malcolm McLeod and E. Craig Cunningham back in the 1970's and 90's. While we were discussing the scans of these slides, the genus of the onion (*Allium*) came up and that reminded me of a story I'd heard during my school days. It's sort of a fun story.

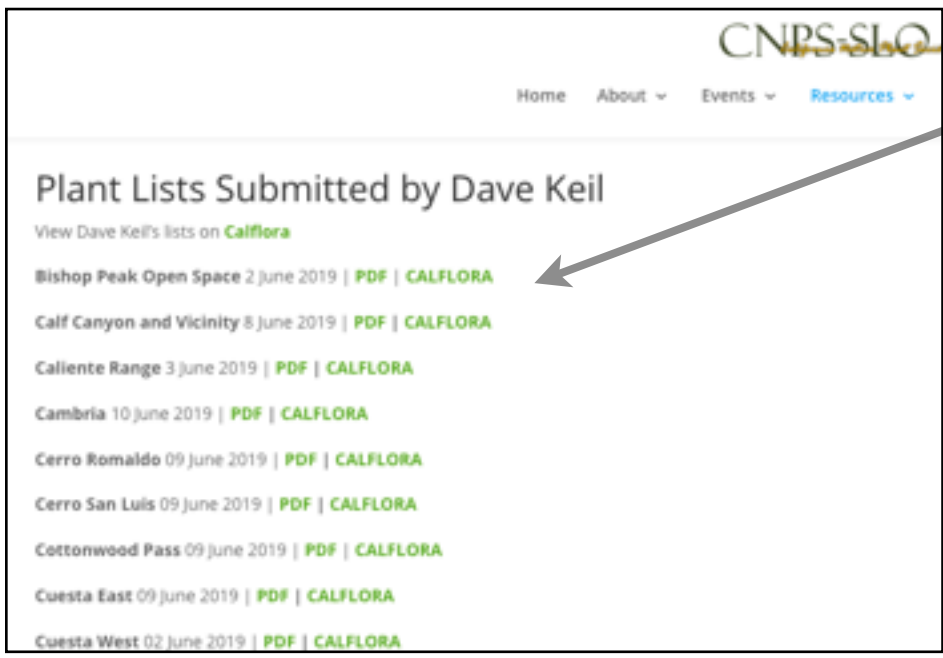
But first, I'll require you to look at the two pictures that accompany this article. Note that they seem very similar in appearance. in botanical characters but not flower size and color. Both species share many characteristics that are used to indicate that they are Monocots. These include flowers with 3 petals and 3 sepals although the sepals are also colored (petaloid) so it would be easy to mistake the sepals for petals and call the flower 6 petaled, which would be a mistake. The leaves are not shown in the photos as the leaves are born near the base of the plants (basal) or nearly so. But be assured that the leaves show parallel veins that run from the blade base to tip (parallel veined) like any good Monocot. Both photos show plants with similar flower clusters (inflorescence). Each of the flowers is borne at the end of its own stalk (pedicel) which arises from the top of single stalk (peduncle). The peduncle arises directly from the ground and lacks leaves. Such a peduncle is called a *scape*. This variety of inflorescence is very easily recognized and is often used to define plant families. It even has its own name (scapose umbel). In fact, they are so similar that based on conspicuous visual characteristic a case can be made that both should be in the same genus, but they aren't. The most obvious difference between the two species (& genera) is that *Allium* has a distinct onion odor that is totally lacking in the genus *Muilla*. Oh, did you also notice that the letters in the name *Muilla* are exactly the same as the letters in *Allium* only reversed? The story I remember being told is that the author of the genus name, *Muilla*, originally coined in the 19th century, was given to a species that is identical to any of the onion species except for the odor. If you insist on a visual character to separate the two genera, it's found in the leafy structures (bracts) at the base of the pedicels and the top of the scape. In *Muilla* the bracts are 2 and tiny and fused at their base, while in the onion they are generally 3 bracts large enough to cover the inflorescence before the flowers separate. I must generalize about onion characteristics as there are over 850 species on every continent except Antarctica and, if somebody planted a garden in Antarctica, I'll bet it had a few onions in it. In contrast, *Muilla* has a much smaller distribution of just 3 species that are restricted to the deserts of California (and Eastern SLO County, i.e. Carrizo Plain) and surrounding states including Baja Mexico.

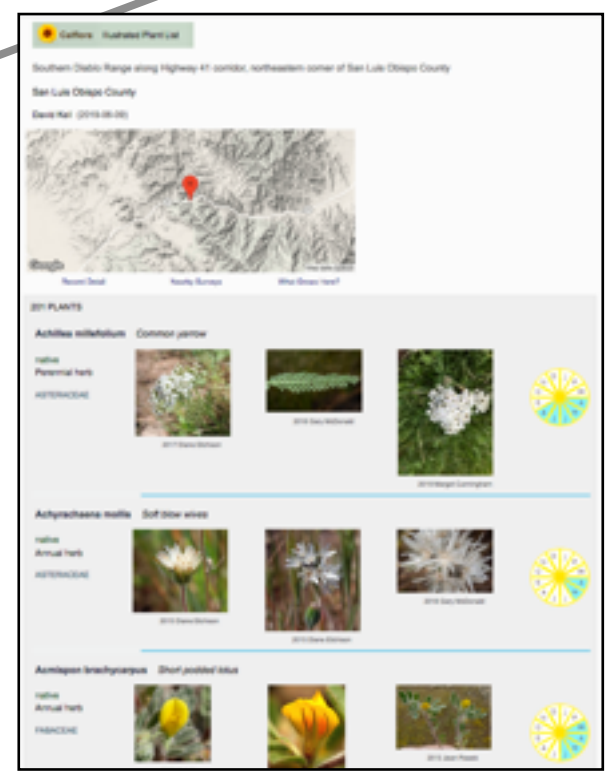
The story doesn't end there however. When I was a student, and during most of my teaching career, both genera were placed in a family ± defined by the scapose umbel (*Amaryllidaceae*). However, the Jepson Flora has moved many, but not all, of these genera to several new families including the *Alliaceae* [onion] and *Themidaceae* [*Muilla*]. Why? Here the story gets more difficult because the characters used to justify the switches get harder (maybe impossible) to see with the naked eye. If you go to the Jepson Manual's Group 16 key, which includes the *Amaryllidaceae*, *Alliaceae* and *Themicaceae*, you will find they share many Monocot characteristics. Then the families of what was the original *Amaryllidaceae* are separated, with the remaining *Amaryllidaceae* defined by their inferior ovary (flower parts attached to top of ovary), as opposed to the *Themidaceae* and *Alliaceae* which have superior ovaries (flower parts attached ultimately to the top of the pedicel (receptacle)). Finally, *Themidaceae* and *Alliaceae* get separated based partly on the presence of odor of onion. The *Alliaceae* has it and the *Themidaceae* doesn't. The presence of odor seems to be too minor a character to be used to separate two nearly identical species and place them not only in separate genera but also into separate families, but there are also subtle morphological differences. The *Alliaceae* have two inflorescence bracts, and the *Themidaceae* three or more bracts. In addition the different family designation comes from phylogenetic studies using mostly biochemical characters that are not available to us field botanists. They include, among others, the presence of needle-like calcium oxalate "raphide" crystals in their cells, and presence of a black, inert, organic (phytomelanous) seed coat. I'll admit I'm not even sure what these characters are, and I've certainly never tied to use these characters in the field.

DR. KEIL'S PLANT LISTS INTEGRATED INTO CALFLORA

Those of you who have used our web page will have been able to download the PDF files for the many location-based plant list that Dr. Keil has created and made available to use. These files are text-only, and don't provide a picture of each plant, but now, thanks to the generosity of CalFlora, you can see the plants,

First, go to the CNPS website. (https://cnpsslo.org) and click on "Resources/Find Plants in the Wild" (https://cnpsslo.org/resources/finding-plants-in-the-wild). There you will find a list of Plant Lists. (For a PDF of a list, click on the PDF link at the end of the Survey title). There is a link next to each plant list that takes you to the Calflora site and the illustrated plant list.





(left) Our “Finding Plants in the Wild” web page showing Dr. Keil’s plant lists and links. Arrow points to the Bishop Peak list. (right) The top of the Calflora web page showing the Bishop Peak list. Many thanks to David Krause for clarifying navigation, to Judi Young for enabling access at our end, and, of course, Dr. Keil for his lists. Also to that fantastic resource, Calflora. Support Calflora’s wonderful services with donations.

SLO CHAPTER DIGITAL PHOTO ARCHIVE INITIATED

Just like a herbarium is an important tool in recording the history of plants found in an area, photographs can also be very useful. In the early days of the chapter, a collection of transparency slides was assembled primarily by Malcolm McLeod and Craig Cunningham. Both were excellent photographers, but photo locations were not always precise enough for a person to revisit the photo site today. We are now going to resurrect the old photo committee in digital form. Dr. Walters is scanning much of the original slide collection for potential addition.

We will be assembling a digital collection that will include a set of high quality, morphologically diagnostic pictures keyed to Dr. Keil's upcoming county flora and cross referenced to precise location where possible. Every picture will contain a metadata file based on the XMP standard, and there will be an associated text file that will share the title of photo. We will be accepting pictures from members. A second data set will be based on location and subcollection... such as Carrizo Plain and Belmont Trail Vernal Pools.

At the start, as we begin the collection, the data will be held on two mirrored external hard drives that can be frequently cloned for anyone who wishes to support backup for the system and to have access to the data. Once we have built a sufficiently robust collection, we hope to migrate to a web-based collection as a sort of Calflora.

We will form a photo committee of interested people, including botanists who can do quality assurance on submissions, and computer experts who could optimize the ease of systen access, metadata accessibility and other techy stuff.

The photo archive also holds a lot of CNPS Chapter history. (left photo) shows Jack Beigle (center) and Malcolm McLeod taking delivery of the Dune Mother’s Guide, which was the chapter’s first large independent book project in 2001. (right photo). The book committee of Norn Hammond, Malcolm, Kathleen Jones, Grace Beigle, and Craig Cunningham,

Spotlight: 2020 McLeod Scholarship Recipients by Kristen Nelson

Our chapter sponsored two excellent projects with the McLeod scholarship this year, for Cal Poly master's students Dena Paolilli and Ella Abelli-Amen. While we hope to hear more about their work at future in-person presentations, I wanted to share a little about who they are, and what they have been up to.

Dena Paolilli: Assessing alpine vegetation shifts in the Sierra Nevada of California after 30 years of change

Dena is conducting research on changes in alpine habitat and species composition in the Sierra Nevada. This mountain range is an iconic part of the American West and contains a majority of alpine habitat found in California. Current predictions indicate that alpine habitat in California will decline by as much as 50-90% by 2100. However, the effect of recent climate warming and changes in precipitation on the alpine plant communities there is understudied. Dena's research includes resurveying 150 National Resource Inventory vegetation plots, originally set up in the 1980's and early 1990's in Sequoia and Kings Canyon National Parks. By focusing efforts on the high alpine sites within this dataset, she is hoping to determine what changes, if any, have occurred in this sensitive environment.

Due to the extreme variability in topography and weather in the alpine, individual species responses may vary regionally. Some existing studies have found a decrease in species diversity whereas others are finding a significant increase in diversity. Understanding and documenting such regional variability in species responses requires local-scale data, like what Dena is collecting. Sequoia and Kings Canyon National Parks span a large portion of the southern Sierra Nevada with alpine habitat (10,000 feet elevation or greater) covering more than 48% of these two parks. This alpine region is home to 536 vascular plant species, thirty of which are listed as special status, and an unknown number of lichen species.

To monitor the vegetation found within these two parks, the National Park Service started a National Resource Inventory project in 1984. Plots were set up throughout the park, including 150 plots in alpine habitat, with the idea that they would be regularly resurveyed. Due to funding constraints, the vast majority of plots have not been revisited since their establishment. For her research, she resurveyed 100 alpine plots, and will resurvey the remaining 50 this summer. She will compare her findings to the historical data to assess change in species diversity and abundance over time.

Dena is a California native, and has lived in San Luis Obispo County for the past five years. She spent ten seasons working for Sequoia and Kings Canyon National Parks in various backcountry capacities, most recently as a wilderness ranger. Dena started the master's program at Cal Poly in September 2018 and began field work on this project the summer before that. Though it is difficult to choose, her current favorite alpine species is *Eriogonum incanum*.

Ella Abelli-Amen: Understanding oak mistletoe (*Phoradendron villosum*) host preferences in San Luis Obispo County oak savannas

Ella is researching an interesting pattern observed in the host preferences of oak mistletoe (*Phoradendron*), a native parasitic plant that grows on oak trees. Her research is focusing on the documentation of a very intriguing pattern of mistletoe occurrences on three species of oaks in particular: coast live oak (*Quercus agrifolia*), valley oak (*Q. lobata*), and blue oak (*Q. douglasii*). Anecdotally, Ella has observed that mistletoe will parasitize coast live oak when it is the only oak species in a stand, but if all three of the oak species are growing together in a mixed stand, the mistletoe switches hosts and seems to 'prefer' growing on the valley oak and blue oak.

Ella will be collecting data to address two primary hypotheses that may explain the observed pattern: 1) There are genetically distinct populations of mistletoe that specialize in growing on different oak species, and 2) Birds that forage on mistletoe berries prefer spending time in valley oak and blue oak trees when they have the option, and so tend to disperse seeds to these trees more often. To address these questions, Ella will be extracting DNA from mistletoe to compare the genetics of individuals that are growing close together, but on different host species.

Ella is a California native and a San Luis Obispo County resident of five years. Her favorite species of oak is the graceful blue oak. You can help with this research by contacting Ella if you know of any locations where mistletoe parasitizes all three hosts. She can be reached directly at ellaabelliamen@gmail.com or (707) 291-9505.(continued p.8)

Spotlight (continued)
Photographs from Ella Abelli-Amen's mistletoe project

THINKING SEEDS

I've spent the last two months sheltering at home but I feel incredibly lucky because I have my garden to give me something to do other than focus on the news. I enjoy wandering in the morning and observing the changes. How quickly it changes. The earlier blooming plants are done and in some cases the seeds have matured to the point where I capture them. I have gathered from *Encelia, Leptozyne, Ranunculus, Calindrinia* and *Claytonia* and am just starting to get some *Gilia* seed. My methods of capture have evolved over time. Some are easy. The seed heads are big enough to just pick them when they look mature. But tiny things like *Calindrinia* and *Claytonia* are different. They blossom gradually over the length of their inflorescence and thus mature gradually and the seeds drop a few at a time. The seed head is quite small and difficult to harvest without destroying the rest of the the inflorescence. Many of my smaller plants are in pots as they just disappear when planted in the garden. Having them in a pot offers an advantage when it comes to seed collection. I have discovered that I can place the pot in an aluminum tray and the seeds drop into that. I generally do daily collections, definitely making sure to take the seeds out of the tray before I water the pot.

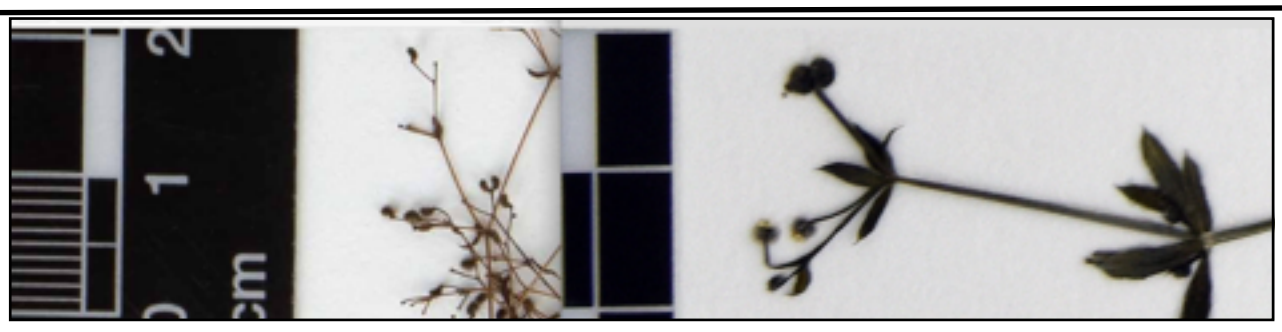
Photo: Marti Rutherford

Another thing that I enjoy while wandering the garden is noting some plants that I have grown from seed. I have gotten some surprises. Years ago I managed to germinate a few *Salvia spathecea* (Hummingbird sage) from seed which I probably got from the SLO Botanic Garden. I planted them out under trees and most managed to survive, in fact some are spreading nicely. But the flower color of one of them is not at all what I expected. It is pink, the buds having a yellow tinge. It's pretty. If it continues to grow well I may try to propagate it from rhizomes. Maybe it will be the next big thing though I have not observed whether the hummingbirds enjoy it!

At this point I do not know whether we will have a seed exchange or a seed sale but I am collecting as though we will. And I hope others are doing the same. Just a gentle reminder, you need permission to collect seed from a property not your own. We do not collect seed from rare plants for our seed exchange. Another thing to note, for those plants that hybridize easily if seeds are collected from a garden where more than one species is grown, the seeds might not be pure.

Marti Rutherford

A TALE OF TWO GALIUMS



If you look at Dr. Keil's key to *Galium*, you will see that *G. aparine* and *G. parisiense* key close together and are differentiated by the size of the mericarps, and the length of the axillary flower clusters relative to the subtending leaves. (A mericarp is one of the paired seed balls, and not, as zoologists might think, a happy fish). However for field identification of quickly-taken field trip photos, a browse through Calflora's picture bank yields very similar images where scale was not evident. I was uncertain about field identification UNTIL I went to the Consortium of California Herbaria's CCH2 Portal, and found herbarium sheets which had rulers for scale. The real size differences in the mericarps are revealed against the 2 cm scale, with the picture showing *G. parisiense* on the left and *G. aparine* on the right. Incidentally, both these plants were once thought to be introduced, although now *G. aparin*e is considered to be native. The common name 'bedstraw' is derived from the fact that some varieties, including *G. aparine*, stick to themselves like Velcro, and could be gathered and stuffed into a pillow case. DAVID CHIPPING

CNPS History--Wildflower Weekend
By David Krause

Many years ago, Malcolm McLeod (who was Chapter Historian at the time) asked me to write the history of the Wildflower Weekend, a very popular event sponsored by our Chapter in the 1980's and 1990's. Unfortunately, I was busy at the time and put it on the back burner and there it stayed. I would give it thought from time to time but never got around to writing it. Now is a good opportunity to get this task done.

In the 1980's, Bert Wilson and Mary Coffeen came up with the idea of a Wildflower Weekend. This would be a chance for people to come to our county in the Spring and stay for a weekend to attend wildflower presentations and field trips while enjoying spectacular wildflower displays over many areas here.

It was advertised throughout the state and people came from all over to attend. The event was headquartered at Rancho El Chorro, just north of Hwy 1, across from Cuesta College and up the canyon behind the County Office of Education. The camp had a large auditorium for indoor presentations, a dining hall, barbeque area, and cabins for those wanting to lodge on site.

Presentations were planned for Friday and Saturday nights in the auditorium. Breakfast was served in the dining hall and dinner at the barbeque area. Sack lunches were provided for participants to take on the field trips.

Excursions were planned for Saturday morning and afternoon and Sunday morning. Members of our local chapter led trips to various parts of the county, including north to Santa Rita Canyon and Cambria, south to Pismo Beach, Arroyo Grande, and Oceano areas, east to Reservoir Flats, Cuesta Ridge, Shell Creek, and the Carrizo Plains, and west to Los Osos and Montaña de Oro.

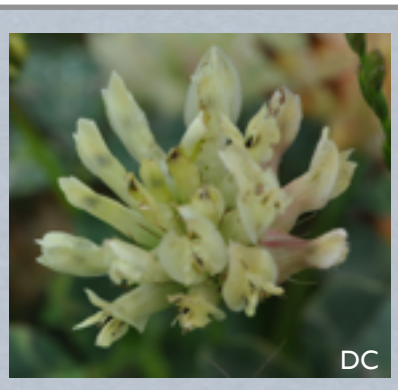
When I moved to the county in 1980, I joined our local CNPS chapter and started attending meetings. Bert Wilson invited me to help with the Wildflower Weekend and so I showed up on a Saturday morning to help with breakfast. Bert told me to meet him at the barbeque area. I thought there might be some kind of early morning gathering there but to my surprise, Bert was stoking up the fire and getting ready to start cooking breakfast on the outdoor grill. I was a little skeptical of cooking bacon, eggs, and pancakes on a large slab of steel over a bed of coals for 50 or more people but it turned out fine and everyone enjoyed their breakfast. The next year, in addition to helping cook the meals, my duties included driving my VW bus to the train station in SLO to pick up visitors and helping Criag Cunningham lead the Santa Rita field trip. I continued working on the Wildflower Weekend for many years.

As time went on, Bert and Mary retired from the event and Tim Gaskin took over. Tim had to end his participation because of moving out of the area and I volunteered to take over (this was about 1987). Tim gave me a big box of supplies and when I unpacked it, I found a package of green bacon in the bottom, left over from the previous year! We decided then to move breakfast to the dining hall, which had a large commercial kitchen with adequate refrigerator space.

For the next several years, our chapter continued holding the Wildflower Weekend. Mark Brunschwiler and I organized the event, planned the field trips and served as chief cooks and bottle washers. Mark was also the field trip coordinator. Linda Chipping did the publicity and a multitude of other jobs. Chapter members devoted many, many hours helping by making presentations, leading field trips, organizing participants, and doing chores. The Wildflower Weekend became so popular, we had to send out this message in 1994: "t*o give you quality outings and accommodations, we feel we must limit enrollment to 100 participants this year*."

We entertained and educated hundreds of people throughout the years and we really enjoyed ourselves, even though we were all exhausted by the end of the event. In 1996, we had to cancel the event with this statement that was sent to potential participants: "...Our crew of volunteers has experienced changes in their lives; new jobs, broken bones and other family needs limit our volunteer time. These events forced us to reconsider our ability to provide a quality weekend for you and we concluded we were not able to provide the attention that you and the weekend deserve...."

When work and other obligations got in the way, we finally had to give up the event. The last year for the Wildflower Weekend was 1997.



Agatha Christie would love *Trifolium repens*, the white clover common in lawns. Why?..... because it uses cyanide against its enemies. It stores the compounds needed to make hydrogen cyanide in different but adjacent leaf cells, and when an animal chows down and crushes the cells, the cyanide is formed. Not enough to kill, but enough to be really unpleasant.

And so..... After weeks of lock-down with your significant other, don't let us catch you looking at your other.....the lawn.....your other ...the lawn.....

"There can be nothing in the world more beautiful than the Yosemite, the groves of the giant sequoias and redwoods, the Canyon of the Colorado, the Canyon of the Yellowstone, the Three Tetons; and our people should see to it that they are preserved for their children and their children's children forever, with their majestic beauty all unmarred."

From Outdoor Pastimes of an American Hunter, 1905.

How Does Your Garden Grow? by John Nowak

In this, the first article of a new concept that I have, I would like to introduce "How does your garden grow?". The plan is to bring interesting concepts to help you achieve a beautiful native garden. Over the years other Mediterranean climate zones, such Australian and South African, have dominated the plant scene. But many of us have stuck with California natives. As always, I'm not an expert but after 30 years of working in my own garden as well as many of my clients' gardens, I have had some good luck and also some bad luck.

No worries, this is normal and should be expected. I was told once by a very knowledgeable person, 'John be happy if you get 50% success with your native plants'. Luckily now with the improvement of horticultural practices and the availability of quality plants, namely at the annual CNPS plant sale, the rate has gone up to 75% or better.

Achieving beauty and success in the garden can be challenging with climate change, water restrictions and new plant pathogens and pests. I get many questions on what to do and what's best for the birds, bees and benefical insects which are out there every day helping us. But I feel confident that we will learn as we go forward and I will bring new ideas as I find them.

So to wrap things up for this article, it would be fun to go over some old recipes my father used in his garden to kill pests and fertilize his plants organically. Apparently, he obtained his recipes from a very controversial Jerry Baker, who for decades has been churning out weird, so-called organic formulae for every possible problem that you might encounter in the garden. **CNPS absolutely does not endorse trying any of these**, but you can see some of the strange concoctions on his web site at https://www.jerrybaker.com/tips-and-tonics. Here are some examples that my father used:

Bug Spray: ½ c. chewing tobacco, 1 c. dish soap, 2 Tb. witch hazel and 4 Tb. Lipton's instant ice tea. Mix into one gallon of water and let sit in the sun for two days. Then strain the liquid and add to your sprayer. Apply at dusk.

Deer Repellent: Mix one well beaten egg with ½ tsp. Tabasco sauce, ¼ c. dish soap, and 1 Tb. white pepper. Mix into ½ gallon of water. Spray at dusk before deer are active.

Fertilizer Recipe: 1 can cheap beer, 10 oz. fish emulsion fertilizer, 2 oz. Jack Daniel's whiskey, 3 Tb. Lipton's instant ice tea, 3 oz. dish soap and ½ c. epsom salts. Mix ingredients into a 5 gallon bucket. Apply one quart of mixture per plant, allow 10 minutes to pass and follow up with one quart of fresh water.

So this ends the first issue of "How Does Your Garden Grow?". Be safe and enjoy your garden. If you have any questions, contact me at gritlys@gmail.com. Until next time, happy gardening. **John Nowak**

A FREE PLANT GUIDE TO DOWNLOAD FROM OUR WEB SITE

This is a searchable PDF file featuring about 400 plants from the immediate area around Cambria, including the pine forest, riparian corridor, and coastal grassland. Based on plant lists compiled by Dr. David Keil, and plant descriptions from his upcoming county flora, you can search by flower color and structure, and from linked indices of scientific and common names. With large fonts, it is designed to be readable on portable devices with PDF readers, such as the free Acrobat Reader recommended for Mac, Windows and IPhone systems. If your reader has Slide Show options, do not use them as internal links will not work. When viewing in Acrobat Reader, open the file, select Page Display as Single Page and then, in the same pull-down menu select Full Screen Mode or Reading Mode. This will scale the pages to your viewing device. On loading the program, give it about 30 seconds to 'settle down' as it has to set all the internal links. A caution to Android users: Acrobat Reader apparently does not recognize the internal navigation links, so another PDF reader is recommended. MuPDF, PDFelement, WOSOfffice and GoodReader are said to recognize internal links, but we have not tested any of them. Most PDF readers will have a search function that will work externally on the file.

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