Mimulus Memo

California Native Plant Society
KERN CHAPTER

JUNE 2016

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Program, 7pm

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Program, 7pm

Superbloom!
Death Valley Phenomenon

by Nancy Nies

AT THE END OF FEBRUARY WE AND OTHER KERN CNPS MEMbers headed independently for Death Valley to witness this year's "superbloom" — a once-in-a-decade occurrence. Some of us had never before seen such a profusion of wildflowers in and around the valley. Exploring in different areas of the national park, different members made different discoveries, though we naturally saw many of the same plants in bloom. When I told *Mimulus Memo* editor **Dinah Campbell** that I planned to write about our shared experience, she confessed that she herself had thought, *"Somebody has to write about Death Valley in the next issue — it was just too remarkable not to."*

Photo: Dinah Campbell

Geraea canescens (desert sunflower) in Death Valley National Park, February 2016.

On our way to Death Valley on February 28, **Paul (Gipe)** and I had a taste of the bounty of blooms to come. When we stopped at the rest area in Trona, we found a good crop of *Chylismia claviformis* (brown-eyed primrose) blooming around the rest area's boulders and underneath a scraggly tree. What later grabbed our attention, as we climbed the pass between Panamint Valley and Death Valley, were roadside swathes of yellow *Chylismia brevipes* (yellow cups) and *Eschscholzia sp.*, as well as purple *Phacelia crenulata* (notch-leaved phacelia).

"...you had to scrape the pollen off your shoes."

The California Native Plant Society is a non-profit organization dedicated to the conservation of California native plants and their natural habitats, and to increasing the understanding, appreciation, and horticultural use of native plants.

Once inside the park, we saw the rocky flats tinged with the yellow of *Geraea canescens* (desert sunflower), the most abundant and eye-catching flowers of the superbloom. At the time, we didn't realize that the desert sunflowers on those flats would seem sparse in comparison to those we would see the next day. On February 29, with Kern CNPS friends **David** and **Dinah Campbell**, we set off for the southern end of the park. There, wide bands of sunflowers lined the roadside in many places and the flats became an increasingly intense shade of yellow. Paul points out that the sunflowers were so plentiful that after walking among them, "*you had to scrape the pollen off your shoes.*" The flats around milepost 27, thick with bright-yellow blooms, contrasted with the red cliffs and blue sky behind them — creating an irresistible opportunity for photographers.

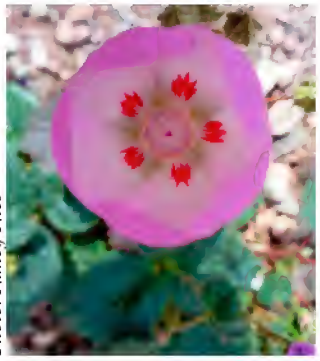


Photo: Nancy Nies

Eremalche rotundifolia (desert five-spot)

That day we drove as far south as Ashford Mill, stopping en route to get a close look at the lavender-pink clusters of *Abronia villosa* (desert sand-verbena), which became more and more numerous on the landscape. In this area we also began to see the delicate *Eremalche rotundifolia* (desert five-spot), with its five pink petals, each bearing a red splotch on the inside.

On the advice of **Gordon** and **Eva Nipp**, who had scouted out the area the day before, we left the main highway and took West Side Road to Warm Springs Road, which afforded a wonderful variety of wildflowers. In addition to many more desert five-spots, phacelias and sunflowers, we saw *Malacothrix glabrata* (desert dandelion), *Atrichoseris platyphylla* (gravel ghost), *Chaenactis sp.* (pincushion), and *Larrea tridentata* (creosote bush). While we were exploring in the south that day, Eva and Gordon were hiking farther to the north, in Echo Canyon. There, they sighted the rare *Mimulus rupicola* (Death Valley monkeyflower) blooming in a crevice high on a cliff, its showy pink-and-yellow flowers bright against the black limestone.

Photo: Eva Nipp

Rare Mimulus rupicola (Death Valley monkeyflower)

Photo: Dinah Campbell

Atrichoseris platyphylla (gravel ghost)

On March 1, our foursome enjoyed another day of botanizing, this time exploring two canyons on the east side of the valley. Walking up the scenic Natural Arch Canyon, we spotted *Mohavea brevifolia* (lesser mohavea), *Phacelia calthifolia* (caltha-leaved phacelia), notch-leaved phacelia, five-spots, and others.

Sidewinder Canyon, however, held even more in store for us. The parking area offered the silvery-leaved *Atriplex hymenelytra* (desert holly). The trail to the mouth of the wash led us through a garden of desert sunflowers and brown-eyed primroses. In the wash itself, we saw more of the prolific purple-hued phacelias with their lush, green leaves, as well as the occasional rose-pink of a five-spot, standing out against the gray gravel from which it had sprouted. Blending in with its whitish-gray surroundings was the aptly named gravel ghost. We also saw healthy clumps of *Perityle emoryi* (Emory rock-daisy) and *Monoptilon bellioides* (desert star) with their white ray-flowers, and, here and there, *Aliciella latifolia* (broad-leaved gilia), with its large leaves and tiny, bright-pink blooms. In places, a mix of flowering plants transformed the dry, crumbly canyon walls into hanging gardens.

A few days earlier, **Clyde Golden** and **Lucy Clark** had visited Hell's Gate, the northeast entrance to the park, and Badwater, to the south, where they saw most of the above-mentioned blooms and identified many more—*Amsinckia tessellata* (bristly fiddleneck), *Cryptantha utahensis* (scented cryptantha), *Nama demissum* (purple mat), *Pectocarya recurvata* (arch-nutted comb bur), *Phacelia fremontii* (Fremont's phacelia), *Caulanthus lasiophyllus* (California mustard), *Descurainia pinnata ssp. glabra* (western tansy mustard), *Acmispon strigosus* (strigose lotus), *Astragalus didymocarpus var. didymocarpus* (dwarf white milk

Photo: Clyde Golden

Gilia brecciarum ssp. neglecta (Nevada gilia)

vetch), and *Allenrolfea occidentalis* (iodine bush).

Photo: Nancy Nies

Phacelia calthifolia
(caltha-leaved phacelia)

Lucy has a special memory of the 2016 superbloom. At Hell's Gate, she was excited to come upon a narrow path "with desert five-spot every two steps." Lucy picturesquely describes these, her favorite Death Valley wildflowers, as being *"like small pink bowls, with up-curved and overlapping petals, splashed with a fuchsia spot,"* and says she'd love to have a porcelain teacup painted as a desert five-spot, with a dusty-green saucer.

Clyde compiled an extensive list of their sightings, and remarked on the wide variety of plants he and Lucy found in neighboring Panamint Valley, mostly at the southern end. Among those they had not seen in Death Valley were three Cryptantha species, one of them the rare *C. scoparia* (pinyon desert cryptantha); two Eriogonum species, *E. inflatum* (desert trumpet) and *E. pusillum* (yellow turbans); *Emmenanthe penduliflora* (whispering bells); *Lupinus concinnus* (bajada lupine); *Encelia farinosa* (brittlebush); *Eschscholzia minutiflora* (pygmy poppy); and, last but not least, *Gilia brecciarum ssp. neglecta* (Nevada gilia), with its lovely, lavender flowers.

Photo: Nancy Nies

Mohavea brevifolia
(lesser mohavea)

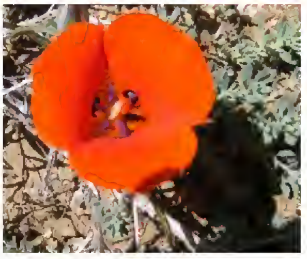
This year's superbloom was indeed exceptional. Seeing Death Valley and environs brought to colorful life by such a variety of wildflowers was a never-to-be-forgotten experience. ✿

Photo: Dinah Campbell

Abronia villosa and Geraea canescens
(desert sand verbena and desert sunflower)

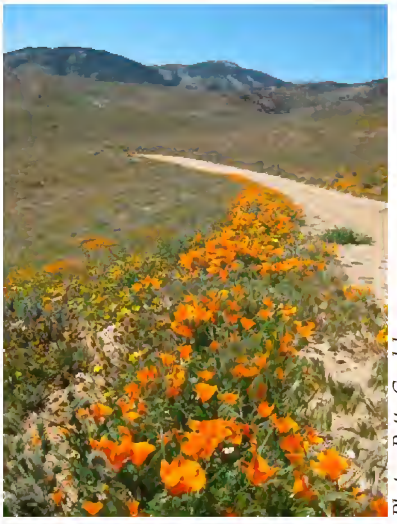
Field Trip Report
Tejon Ranch - Antelope Valley Area
by Patty Gradek

ON AN EXCELLENT FIELD TRIP TO TEJON Ranch on **April 17th, Laura Pavliscak**, Stewardship Manager for the *Tejon Ranch Conservancy*, took us to the southeastern area of the Ranch, known as the Antelope Valley portion.



We saw vast fields of poppies, desert marigold, lupines, penstemon, chia, blooming cacti and many other species.

We also saw riparian areas with groves of willows and oaks, as well as the highest elevations of the Ranch. *The Tejon Ranch Conservancy* is managing a large portion of the Ranch as conserved areas. Laura exhibited a wide breadth of knowledge on the wildlife, geology, and history of the area, as well as the special ecosystems and plants. ✿



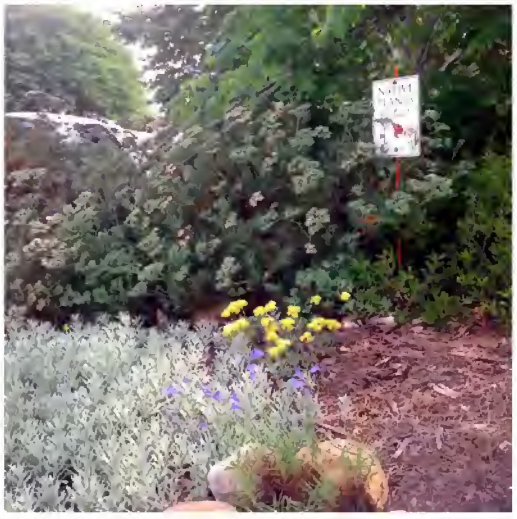
Photos: Patty Gradek

Both right and above:
Calochortus kennedyi
(Kennedy's mariposa lily)

Gardening with Natives
Visiting

by Monica Tudor

A FEW WEEKS AGO I HAD AN INVITATION TO visit the California garden of another CNPS member, **Dinah Campbell**. We made arrangements for a Sunday afternoon visit and I drove to her home. As I turned on to Dinah's street, I knew immediately which house was hers. The front yard was bordered by a magnificent California sycamore (*Platanus racemosa*) on one end and a beautiful desert willow (*Chilopsis linearis*) on the other. In between the two trees was a natural landscape that was amazing. I marveled at her front yard for at least five minutes before even going to the front door. It was certainly not a typical Bakersfield front yard. The whole impression reminded me of Santa Barbara or Davis. Just think…if even only half the front yards of Bakersfield were this inviting, it would be an even more wonderful place to live.



Photos: Monica Tudor

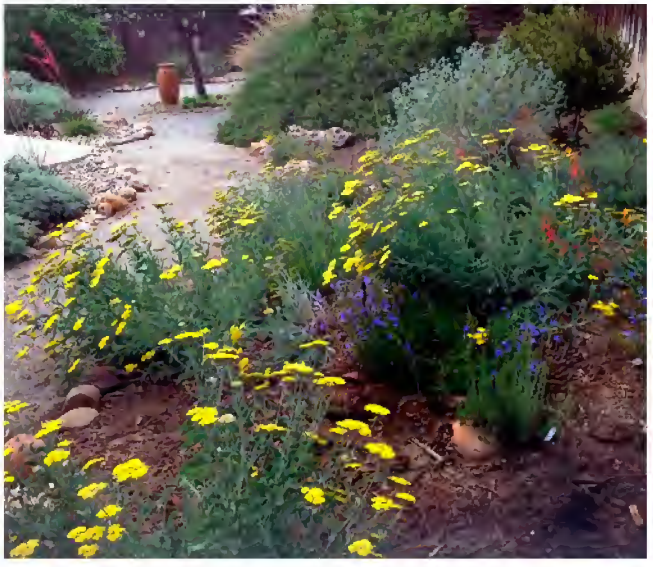
Front yard: *Eriogonum arborescens* (Santa Cruz Island buckwheat), *Eriogonum umbellatum* (sulphur buckwheat). *Artemesia ludoviciana* (white sagebrush), and *Penstemon heterophyllus* (Margarita BOP)

Dinah took me around her front yard and commented on each of the plants she was growing. Underneath the desert willow were some non-native wildflowers — red flax (*Linum grandiflorum rubrum*), and some gaura (*Gaura lindeimeri*). She had Penstemon BOP (*Penstemon heterophyllus "Margarita BOP"*, Santa Cruz island buckwheat (*Eriogonum arborescens)*, manzanita, redbud (*Cercis occidentalis*), California fuchsia (*Epilobium canum*), sulphur buckwheat (*Eriogonum umbellatum*), blue-eyed grass (*Sisyrinchium bellum*) and orchid rockrose (*Cistus x purpureus*). The front yard had an entirely natural look, including boulders and rocks and a healthy layer of gorilla-hair mulch. And just to let any interested person know, she has a CNPS sign posted up front: *"Native Plants Live Here"*.

We went to the backyard to see what she had done there, and continued talking about her plants. Her backyard was equally as stunning as the front, although slightly more formal in tone. Dinah had divided her yard into multiple large areas, separated by paths.There were some pre-existing fruit trees throughout her back yard, along with moonshine yarrow (*Achillea millefolium "moonshine"*), scarlet bugler penstemon (*Penstemon centranthifolius*), St. Catherine's lace (*Eriogonum giganteum)*, more manzanita, desert mallow, artemisia, desert agave, some paddle cactus and some yuccas. Parts of the garden are mulched with pebbles and other parts have gorilla hair, while the cactus area is without mulch. The paths are crushed/decomposed granite and are lined with cobbles of various sizes. Dinah has designed her garden to showcase the variety of plants in an extraordinarily pleasing design.

Dinah and her husband began converting a traditional landscape to a xeriscape garden landscape shortly after they moved in, 12 years ago. As they learned the advantages of native plants, they added more and more natives. They experimented a lot and learned what grew the best with their soil and microclimates. She had her husband cut out some concrete between the house and the pool and turned it into a planted area. I would have never thought of removing such a permanent thing as concrete. She has an eye for form and rhythm, so I asked Dinah if she had "design" in her DNA. She laughed and said no at first, but then commented that she is a graphic designer. (She puts this newsletter together!)

Thank you, Dinah, for sharing your stunning gardens with me. They are peaceful and inspirational, beautiful examples of amazing designs done with native plants. ✿



Backyard: *Achillea millefolium "moonshine"* (Moonshine Yarrow), *Penstemon heterophyllus* (Margarita BOP), *Penstemon centranthifolius* (scarlet bugler)

President's Message
The Search for the White Corn Lily
by Rich Spjut

WHITE CORN LILY CONTAINS CYCLOPAMINE, a steroidal poison and anti-cancer agent. This lily, *Veratrum californicum Durand*, is a tall native perennial herb appearing much like cultivated corn **(Fig. 1)**. It occurs usually in moist subalpine meadows in the western United States at elevations up to 2 miles high, but it also extends down to sea level where, in coastal marshes, it may become partly inundated at high tide. In Kern County, fields of white corn lily can be seen near Shirley Meadows in the Greenhorn Mountains, within a mixed conifer forest at about an elevation of 6,200 feet. Stands of corn lily spread from the underground branching of lobster-tail-like rhizomes — the rhizome growth likely stimulated by animals grazing and trampling on aerial stems during the growing season. Leafy stems from new and old rhizomes emerge in the spring, flower in the summer, and fall to the ground in the autumn. The genus *Veratrum* is classified with that of the death camas (*Toxicoscordion*) and 15 other genera in the *Melanthiaceae*, one of many families formerly in the *Liliaceae*.

Fig. 1 – Left: White corn-lily field, Deep Lake, 6,000 ft. elev., Marble Mountains Wilderness, Klamath National Forest, California (Early July, 2005). **Right:** underground parts of corn lily.

Rhizomes, along with the roots and bulb of *Veratrum californicum* **(Fig. 1)**, contain toxic steroidal alkaloids, notably **cyclopamine**, isolated and named by **Richard F. Keeler** of the **USDA Poisonous Plant Research Laboratory**. The name references birth deformities found in newborn lambs which resemble the one-eyed Cyclops of Greek mythology. The deformities were discovered in field observations in Idaho and in laboratory studies in Utah during the 1950s and 1960s. Pregnant ewes ingesting corn lily on the 14th day of gestation would give birth to lambs with cyclopia.

Once the culprit plant became known, sheep ranchers would steer their animals away from corn-lily fields. Ironically, corn-lily roots have been used in native-American medicine as a contraceptive, and the related green corn lily (*V. viride Aiton*) was introduced into pharmaceutical medicine in 1859 for treating human pregnancy disorders associated with seizures.

During the 1990s a Stanford University researcher, **Philip Beachy**, was able to create similar birth deformities in mice while experimenting with gene substitution (called "*knockout*"). In his studies elucidating the biochemical pathways of embryonic development, cyclopamine was found to inhibit a protein within the so-called "*Hedgehog Pathway*"— its name is coined from a birth deformity found in fruit flies in which their larvae resemble a hedgehog, a small spiny mammal much like a porcupine with a piggy nose. The "hedgehog gene" is one of ~50 involved in early embryonic development, producing three unique proteins that lead to differentiation of body

All photos courtesy Richard Spjut

Fig. 2 – White corn lily in different seasons in the same valley of the Manti-la-Sal National Forest, Utah, 10,000 ft. elev., late Oct., 2004 and early Jun., 2005. **Left:** Corn lily identifiable by the lumps in the snow. **Right:** Corn lily in early stage of spring growth. A sample of rhizomes from 10 plants yielded > 2.0 g/kg cyclopamine in October and in June.

Message *(Continued)*

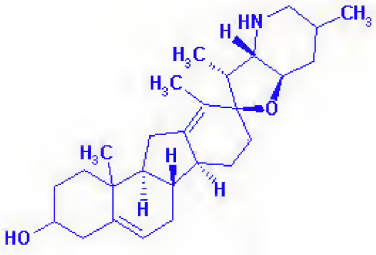
parts, such as limbs, skeleton, muscles, skin, eyes, etc.

In adults it has a more passive role in the maintenance of stem cells, but aberrant reactivation can cause various cancers. Cyclopamine has been found to halt this cancerous development. Although cyclopamine can be synthesized, it was more easily obtainable from corn lily plants.

Fig. 3 – *Veratrum californicum* in different plant associations. **Left:** Dense growth in a valley with subalpine fir and quaking aspen, Sawtooth National Forest, Idaho, 7,200 ft. elev., Jul., 2009. **Right:** Scattered plants in a ponderosa pine woodland on the eastern slopes of the Cascades in Oregon. Cyclopamine content 2.28 g/kg, at the Idaho site, 0.33 g/kg at the Oregon site.

In September 2004, I was asked by the **Infinity Pharmaceuticals Inc. (IPI)** to collect rhizome samples of *V. californicum*. They had created a cyclopamine derivative **(IPI- 926)** that showed promise for treating pancreatic and other cancers, and they were getting plant material from Idaho in the region where corn-lily sheep poisoning was first reported.

I had previously, as a grad student at Humboldt State University, collected a 43-pound dried sample of stem-leaves for the **National Cancer Institute (NCI)** near Mt. Shasta. A USDA Agricultural Research botanist, **Arthur Barclay** (the researcher who first collected the sample of yew bark that led to the discovery of the anticancer drug **taxol**) had originally also collected the NCI-active corn lily on Mt. Shasta in July 1962. Thus, it seemed logical to go to northern California for the IPI sample. However, cyclopamine was not found in a sample collected ~40 air miles west of Mt. Shasta.



At the same time, I received a permit from the Forest Service to collect a second sample at a site ~60 miles NW of Oroville in the northern Sierra Nevada. But it too lacked cyclopamine. With two strikes against me, I decided to look outside California. A Forest Service district in Utah had reportedly been experimenting with various methods of ridding their meadows of the corn lily where it had become invasive, which is generally associated with a long history of grazing. This seemed like a logical place to go — help the Forest Service get rid their corn lily and use the plants for cancer research.

And I did not strike out; the Utah samples I dug up under the snow in October 2004 **(Fig. 2)** had <u>twice as much cyclopamine content</u> as the Idaho plants.
In the summers to follow, I sampled large stands, 1—10+ acres, of white corn lily from Wyoming, Colorado and New Mexico, Washington, Oregon and California. The cyclopamine plants were eventually determined to occur within a narrow latitude of the species range. The variation in cyclopamine was not only related to geography but also to the vegetation in the surrounding meadows. For example, corn lily plants in meadows associated with ponderosa pine forests lacked cyclopamine, whereas those within subalpine fir forests contained more than the minimum 2.0 g/kg required for recollection **(Fig. 3).**

Fig. 4 – Far left: Structure of cyclopamine. **Above:** Collecting a large sample of white corn lily in the Manti-la-Sal National Forest, Utah in Aug., 2005, same site shown in Fig. 2.

I suspect this variation has to do with the fungal flora that associate symbiotically with roots of plants — generally known as mycorrhizal fungi. This is evidenced by reports of mycorrhizae found in roots of green corn lily and by the variation in cyclopamine content in clonal plants. This variation made it necessary to collect rhizomes from 10 individuals to get some idea as to how much cyclopamine a stand would yield **(Fig. 3, 4)**.

Fig. 5 – Comparison of flowers of *V. californicum* **(left)** from California and Colorado **(right)**.The Colorado plants have been named *V. tenuipetalum* by **A. Heller** for the slightly narrower tepals, but differences overlap, thus, both usually treated as the same species.

Genetic factors undoubtedly contribute to variation as evidenced by the lack of cyclopamine in Colorado plants. Some authorities regard them as a distinct species because of their relatively narrower tepals **(Fig. 5).** I have found from experience in digging up rhizomes that the Colorado rhizomes lie deeper in the ground and tangle more with roots of other species. Similarly *V. caudatum A. Heller*, usually treated as a variety, has longer terminal tassels **(Fig. 6)** but intermediates are common.

Unfortunately, the IPI-926 compound that appeared so promising in lab studies was not so promising in a human clinical trial. Consequently, my corn lily surveys terminated in 2012; however, cyclopamine continues to be investigated in the United Kingdom for treating colorectal cancer.

It may be noted that nearly half of the drugs listed by the **American Cancer Society** for treating pancreatic cancer are directly or indirectly of a plant origin in which microbes are closely associated with the plants. Although Sierra Nevada corn lilies generally lack cyclopamine, those in Kern County had 1.03 g/kg — a yield still below the 2.0 g/kg to be considered economical for large-scale collection and extraction.

I suspect this variation (in cyclopamine) has to do with the fungal flora that associate symbiotically with roots of plants.

While collecting rhizome samples, I additionally collected leaf fragments which were placed in silica sand tubes and have since been kept in refrigeration. They can be made available to qualified researchers for DNA extraction. References for this article can be found on the **World Botanical Associates** webpage, http://www.worldbotanical.com/veratrum.htm. ✿

Fig. 6 – Comparison of inflorescences ("tassels") of *V. californicum* from eastern Idaho near Wayne (**left**) and northern Idaho at Giant White Pine, **(right)** July, 2009. Plants with longer-tailed inflorescences have been named *V. californicum var. caudatum*.

Members Recognized
Keeping Bakersfield Beautiful!

FOUR KERN CNPS MEMBERS HAVE BEEN recipients of awards from Bakersfield Mayor Harvey Hall's office and the *Keep Bakersfield Beautiful* program. On March 30th at the Bakersfield City Council meeting **Rob** and **Diana Nelson** received the ***Yard of the Quarter*** award. The following month **Dale** and **Patty Gradek** won a ***Yard of the Month*** award. These awards highlight residents who contribute to the sensory enjoyment of the city with their landscaping. The award gives special consideration for water-saving designs.

To be considered for public recognition in the programs, you must be a city resident. Please e-mail 2–6 recent photos of your (or your nominee's) yard with the address and phone number to kbb@bakersfieldcity.us. ✿

Photos: Diana Nelson

Some of the plants in the Nelson's front yard. **Top:** *Eschscholzia Californica* (California poppy), *Lupinus nanus (*sky lupine), *Solanum umbelliferum incanum* (bluewitch), Sphaeralcea parvifolia (globe mallow); **bottom**: *Sphaeralcea ambigua* (apricot mallow) and *Penstemon pseudospectabilis* (desert penstemon), *Zauschneria californica Catalina* (island California fuchsia)

Chapter Meetings

upcomingTOPICS

Thursday, June 16, 2016 - 7 pm:
Nick Jenson,
Flora of Tejon Ranch Conservancy

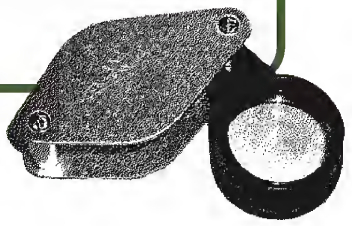
NO MEETINGS IN JULY & AUGUST

Thursday, September 15, 2016 - 7 pm:
Joy England, *Plants of Rock Creek*

Thursday, October 20, 2016 - 7 pm:
Orchid Black,
Gardening with Natives

All chapter meetings are held the 3rd Thursday of each month at the Hall Ambulance Community Room 1031 21st Street (21st & N St.), Bakersfield, CA.

Meeting times:
6 pm — Discussion groups on plant identification and native plant gardening
7 pm — Program presentation



Updated Key Now Available
Kern County Flora

CNPS HAS FACILITATED THE RECENT PUBlishing of ***Kern County Flora*** by longtime local botanist and popular CSUB professor, **Maynard Moe**. Kern County, due to its geological and geographical position, is host to an unusual abundance and diversity of plant species — a fact which Moe says originally brought him to Kern County.

The book is available free to CNPS members or for purchase (**$20**) to non-members. Contact **Monica Tudor**, **Don Turkal** or **Paul Gipe** to obtain a copy. ✿

"Annual" Summer Trip
Horse Meadow Campground
by Lucy Clark

PLAN ON ATTENDING OUR SUMMER TRIP TO **Horse Meadow Campground** in the Sequoia National Forest. We had a great time with our fellow members last year, and with remarkable flower displays in the campground and on Sherman Pass Road, in spite of the drought.

When the best time is determined, **Andy Honig** will send a message to all members with an email address. Lucy will contact others with a call. We hope to give us all 2 weeks' notice.

Be thinking about this trip, and the dinners together, the star-gazing, the clean air.... ✿

22nd Annual Spring Retreat "So Be Free 22"
March 27-30, 2017

CNPS' NEWEST CHAPTER, THE BRYOPHYTE Chapter, formed **30 May 2015**, is sponsoring "***SO BE FREE 22***". This retreat/field trip/learning event has been held each spring (timed to coincide with university spring breaks) somewhere in the western U.S. for 21 years. The focus this 22nd year will be on bryophytes, but plant-lovers of all stripes are welcome.

The retreat will be held in the Three Rivers area just outside Sequoia NP in areas rich in bryophytes. A beginners' session/walk will be offered on the first day. Lodging is offered at the **Saint Anthony Retreat Center** or **Santa Teresita Youth Conference Center** where the event is based, but other lodging is available. Prices range from $65 to $355 depending on the type of lodging you choose. Registration deadline is **15 Dec. 2016**.

The Bryophyte Chapter is tied not to a location but to an interest. Most people are familiar with vascular plants — ferns, conifers and flowering plants — while bryophytes comprise the other three plant lineages — liverworts, mosses and hornworts. Chapter membership is open to all.

You can join the chapter, get on their mailing list and/or register for this event at *bryophyte.cnps.org.* ✿

Thank you to:

... **Maynard Moe** for his presentation on *Kern County Flora* and the diversity found in Kern County and California in conjunction with the publishing of his new book of the same name.

... chapter president **Rich Spjut** for his memorable program on *Baja California, Botanical Wonderland*

... **Dennis Kearns** for an interesting St. Patrick's evening program on the botany of Ireland

... **Monica Tudor** for her cheerful efficiency in seeing to the printing and mailing of the *Mimulus Memo.*

... **Patty Gradek,** for making arrangements, coordinating schedules and counting heads for so many of our field trips.

... **Clyde Golden** for coordinating the Nature Conservancy trip.

... **Rich Spjut** for maintaining our webpage

... all the members who provide refreshments at our meetings. ✿

CALIFORNIA NATIVE PLANT SOCIETY

CNPS is the leader for providing reliable information on California native plants and plant conservation. Comprehensive information about Californias's flora and vegetation communities is available throughtout the state for conservation and educational purposes. CNPS's leadership influences personal ethics and actions, as well as public policy for native plant protection.

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California Native Plant Society
KERN CHAPTER

Mimulus Memo

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California Native Plant Society

The Kern Chapter of the California Native Plant Society meets the third Thursday of each month at: Hall Ambulance Community Room, 1013 21st St. (21st & N St.), Bakersfield, CA. Chapter website: kern.cnps.org

The California Native Plant Society is a non-profit organization dedicated to the conservation of California native plants and their natural habitats, and to increasing the understanding, appreciation, and horticultural use of native plants. CNPS has 31 chapters throughout the state and membership is open to all persons — professional and amateur — with an interest in California's native plants. Members have diverse interests including natural history, botany, ecology, conservation, photography, drawing, hiking and gardening. As a Kern County resident, your membership includes Fremontia, *a quarterly journal with articles on all aspects of native plants; the* Bulletin, *a statewide report of activities and schedules; and* The Mimulus Memo, *the newsletter of the Kern Chapter.*

Join CNPS or renew your membership online at *www.cnps.org*.

Student/Limited Income – $25
Individual – $45
Family or Library – $75