

Mimulus MEMO

California Native Plant Society
Kern County Chapter
Spring 2006

CNPS President's Message

It has been wonderful to see so many of our members and friends at our winter meetings! I look forward to many of you joining us for our spring field trips, which will replace our meetings during the "flower season."

While we are hoping and waiting for rain, the wildflowers at my house near Woody are at work trying to reproduce themselves. The fiddle neck, popcorn, and Cryptantha have established their basal leaves, have developed a ½ inch stem, and atop that.... buds and flowers! They appear to not be waiting for more rain, but are producing their flowers, and thus their seed. If only we humans were as adaptable to the amount of rain we receive, and started conserving with the first sign of drought.

Hoping for rain!

Lucy Clark

Thank You !

Press Releases- Debby Kroeger

Hospitality- Laura Stockton, Debby Kroeger, Linda Cooley

March Meeting Location- Marcia Wolfe

Field Trip for Steve Hartman-

Linda Cooley, Ellen Cypher, Steve Hampson

Welcome to New and Renewing Members

Karen Meeks
Russell Pearson

John Reinsch
Randi & Jack G. Reynolds

Loretta Schield
Kathy Sharum

William Vanherweg
Aaron Wentzel

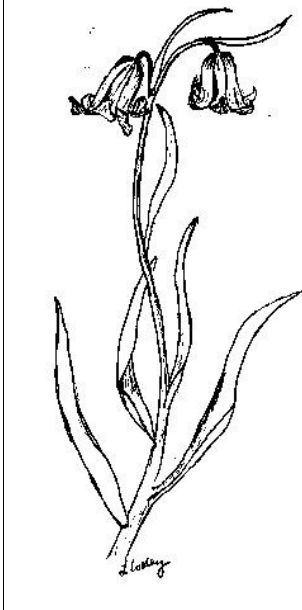
Business Meeting - All Welcome!

There will be a planning meeting held at the Garden Spot on Monday, April 3rd at 5:30 P.M. The Garden Spot is located at the corner of Truxtun and Oak in Bakersfield. Everyone is welcome to attend to add their ideas for the future. Some things we will discuss are Mimulus Shevokii monitoring with/for Denis Kearns of the BLM, weed whacking at the Sand Ridge Preserve, helping with habitat restoration, the fall plant sale, and the state-wide Chapter Council meeting in Ridgecrest the first weekend in June. We have been named hosts!

There is so much that we could do to aid our native plants (and have a good time!), so your officers will welcome each of you and any ideas or offers of help.

In The Field

A few of us took Steve Hartman, our February 21 meeting speaker, on a tour of Sand Ridge the following day. We were worried that it was too early for anything to be blooming, but there was actually quite a lot already up. Among the more obvious flowers were yellow pincushion, white tidy-tips, fiddleneck, jewelflower (*Caulanthus coulteri*), bladderpod, croton, lupine, phacelia, thistle sage, wishbone bush, sun cups, poppy, and a large amount of the noxious Sahara mustard. Bakersfield cactus was apparent but not yet in bloom. We discussed various methods for controlling the mustard, but in the end concluded that the best approach was probably just to organize some weed-pulling outings. This is not a big site, so we could have a significant impact if we can get a decent turn out of weed-warriors. In fact, while we debated the topic we were pulling up mustard, and by the end of the discussion it was piling up pretty deep. If this sounds like something you would be interested in, contact Lucy Clark.



A few days later a couple of us took a quick run up Rancheria Road in search of the striped adobe lily (*Fritillaria striata*). It was raining last year when we saw it, and it started raining this time as soon as we got out of the car. But getting wet is a small price to pay for adobe lily, and we were soon rewarded with at least 50 blooming plants. No doubt there were another 50, but at that point the novelty was wearing off, and our ardor was getting steadily damper, so we declared it lunch time and retreated to the car. In general, things looked pretty dry down at the low end of Rancheria, but hopefully the new rain will keep things growing a while longer.

The type specimen for *Fritillaria striata* was collected from this area in 1927, and it is one of the few unfenced spots along the road. Is it possible a rancher knows what is there and is being a good neighbor? If so, Thank You!!

Fritillaria striata: This rare species is found in pockets of adobe clay soils below 1000 meters in vernal grasslands and blue oak woodlands in the southern Sierra Nevada foothills near the Greenhorn Mountains of California. It has only been observed in Kern and Tulare counties.

Sketch by Linda Cooley 2/27/06

Chapter Meeting March 11 - Beginners' Wildflower Identification Workshop

If you have always wanted to learn to identify our beautiful and varied wildflowers, here is the time and place to get started! Ellen Cypher and CNPS volunteers will help you learn:

- How to use a key
- How to identify basic plant parts
- How to recognize some common plant families in California.

Bring paper and pen for any notes you might want to take, and bring any of the following that you might have:

1. Peterson Field Guide Series, *A Field Guide To Pacific States Wildflowers*
2. Jepson Manual- *Higher Plants of California* or *Jepson Desert Manual* (just to look at the glossary and how keys are structured)(...so don't buy one just yet!)
3. Magnifying glass or loupe
4. A lunch and drink

Please reserve your place by calling Ellen at 661.827.1992 or by e-mail, ecypher@bak.rr.com

Date: Saturday, March 11

Time: 9:00am to 4:00pm (if you can only come for one half day, please come for the morning)

Location: 110 South Montclair, Suite 201

Office of MH Wolfe and Associates Environmental Consulting, Inc.

2006 FIELD TRIPS

General Info: Please join us this season in learning about and enjoying our California native plants! We have planned another full calendar of trips this spring, led by some knowledgeable enthusiasts, as well as some trips where we will all take our field guides and (enthusiastically) work to identify the plants we find. (Ellen Cypher's workshop on March 11 will be a great boon to newcomers to plant ID.)

Always bring water, snacks, a hat, sun screen, and layers of clothing for variable weather. Although our insurance does not allow us to assign rides, we encourage car pooling. We ask that you let us know if you plan to attend, so we know whom to expect.

April 1st, Saturday Pixley Vernal Pools And Kaweah Oaks Preserve

Travel with us to Tulare County where we hope we will see the increasingly rare plant community of vernal pools, with their concentric circles of plants which appear as the pools evaporate. PVP was purchased in the 1970's by the Nature Conservancy. We will continue on to the Kaweah Oaks Preserve to see one of the best preserved oak riparian habitats in the San Joaquin Valley. Also purchased in the 1970's by the Nature Conservancy, it is now protected by the Sequoia Riverlands Trust. There is a donation of \$10.00 per person, which helps keep a caretaker on site. Both locations are on the valley floor, and level. Meet at 8:00 A.M. in the Denny's parking lot on Buck Owens Blvd. to car pool. Bring a lunch to eat at KOP. Google "Pixley Vernal Pools" for background information.

To attend, contact: Lucy Clark at lucyg391@gmail.com or 391-9302.

April 8, Saturday Maturango Museum Wildflower Show and Desert Walk with Steve Hampson in Ridgecrest

Visit the Museum's display of collected desert wildflowers, then join Steve for a walk in either Short or Poison Canyons, depending on the bloom. (Neither is strenuous canyon walking.) We will eat our lunches somewhere on the hike, surrounded by flowers. Meet at Taco Bell at the SE corner of Hwys 58 and 184 (Weedpatch Hwy) at 9:00 A.M. for carpooling. Otherwise meet us at the Maturango Museum at 100 E. Flores Ave., just off China Lake Blvd. (Across the street from a looming Home Depot)

To attend, contact Steve Hampson at shampson@gmail.com.

April 22nd, Saturday Intermountain Nursery in Prather

Intermountain Nursery is one of the plant suppliers for our annual sale. The nursery is located in Prather, about 2 1/2 hours north & east of here. We will be given a tour of the nursery's gardens, growing grounds and hot house. We will be taught some of the peculiarities and specifics of growing native plants. Plants in the nursery will be in bloom and ready to be bought! Meet at 7:30 A.M. at the Montgomery World Plaza parking lot, south side, near the recycling bins. Bring your lunch, we will picnic by the creek. Estimated time of return is 5:00pm. This is a great opportunity to learn from experienced and knowledgeable growers and purchase plants that are usually not available for our sale because they were sold out. Be prompt, we will leave at 7:30 AM.

To attend, contact: Debby Kroeger at dkroeger@Kern.org or 323-4259.

April 29th, Saturday Cal Poly SLO Leaning Pine Arboretum

We will visit the gardens on the campus of Cal Poly SLO. Time and weather permitting we will also visit the SLO Botanical Garden at El Chorro Regional Park. The garden features plants from the world's five Mediterranean climate zones. Meet in Wasco at the Save Mart parking lot along Hwy 46 at 7 A.M.

To attend, contact: Harriet Morris at 631-1491.

May 6th, Saturday Wishon Road with Linda Cooley

With little rain so far this year, roadsides, with their run-off, may be the best place to see our Sierra wildflowers. Wishon Road has many interesting and beautiful species along its gradual rise. Bring your cameras and wildflower books, and explore with us this Tulare County "garden."

Meet at 8 A.M. at the Denny's parking lot at Hwy 65 and 7th Standard Rd. to car pool to beyond Springville to Wishon Rd. off Hwy 190. This will be a drive, walk, look-around trip at around 3300'.

To attend, contact: Steve Hampson at shampson@gmail.com.

May 13th, Saturday Breckenridge Road with Steve Hampson

We will motor up to the oaks and stop for hikes, and looks-around on the roadside. We will top out at 6600' in the yellow pine forest for lunch. For those who need to return to town early, you can return the way we came. We will continue on to Bodfish and down the Kern Canyon, or perhaps loop back through Caliente.

Meet at the Taco Bell parking lot at the southeast corner of Hwys 58 and 184 (Weedpatch Hwy) at 8:30 A.M. sharp.

To attend, contact: Steve Hampson at shampson@gmail.com.

June 4th, Sunday McNalley Burn Area with Janet Westbrook

This is the field trip offered to Chapter Council delegates attending the quarterly meeting, which will be held in Ridgecrest on June 2, 3, and 4. Reports are that native plants are springing back to life vigorously! This is an opportunity to see how nature responds to fire, as well as educate ourselves about what the U.S. Forest Service has planned for spraying these pesky natives, in order to plant tree farms. At this time I do not have a location where we can meet the group coming from Ridgecrest, as that has not been settled yet. If you are interested, please contact me or Steve after May 29th. We can plan a meeting place from which to carpool.

I will be organizing our summer field trips soon. If you have a favorite place, or somewhere you have always wanted to go, please let me know at lucyg391@gmail.com. I have in mind a trek up Sunday Peak (8000') for Penstemons and views, so start getting in shape! We are also thinking of having a weekend camp-out somewhere along Sherman Pass Road, sometime in August. Any other ideas from Frazier Park, Kernville, or Tehachapi?

Lucy Clark

Native plants remaining from our plant sale

All the plants are in 1 gallon pots; all have new growth.

3 buttonwillow, *Cephalanthus occidentalis*
2 winter currant, *Ribes sanguineum*
2 Sierra currant, *R. nevadense*
1 chokecherry, *Prunus virginiana demissa*
7 redberry, *Rhamnus crocea illicifolia*
7 Sierra coffee berry, *R. rubra*
2 cherry cheesecake, *Iris hybrid*
1 mock orange, *Philadelphus lewisii*
1 yerba santa, *Eriodictyon californica*
1 Fresno ash, *Fraxinus dipetela*

and 1 mystery plant !!!

-DebbyKroeger (contact me if you are interested in any of these plants)

Yucca and its Yucca Moth

by Wayne Armstrong

abridged from the article at Wayne's Word

<http://waynesword.palomar.edu/ww0902a.htm>

The genus *Yucca* is one of the most remarkable groups of flowering plants native to the New World. It includes about 40 species, most of which occur in the southwestern United States and Mexico. Although they are often associated with arid desert regions, some species are native to the southeastern United States and the Caribbean islands. What truly sets this genus apart from other flowering plants is their unique method of pollination: A specific moth that is genetically programmed for stuffing a little ball of pollen into the cup-shaped stigma of each flower. Like fig wasps and acacia ants, the relationship is mutually beneficial to both partners, and is vital for the survival of both plant and insect. In fact, yuccas cultivated in the Old World, where yucca moths are absent, will not produce seeds unless they are hand pollinated.

Depending on the authority, yuccas are usually placed in the lily family (Liliaceae) or the agave family (Agavaceae). The name *Yucca* is derived from "yuca," a Carib Indian name for the cassava or tapioca plant (*Manihot esculenta*) of the euphorbia family (Euphorbiaceae). *Yucca* is also the creole word for cassava. "Yuca" is not to be confused with the lovely yellow-flowered morning glory (*Merremia aurea*) of the Cape Region of Baja California. Apparently the connection with starchy cassava roots is that yucca buds and young flower stalks of are also roasted for food. Yuccas are trunkless shrubs with rosettes of stiff, sword-shaped leaves arising at ground level, or tree-like with distinct trunks and limbs. Examples of the rosette forms include Spanish bayonet (*Y. baccata*) and chaparral yucca (*Y. whipplei*). Tree-like forms include the Joshua tree (*Y. brevifolia*) of the California and Arizona desert region, and tree yucca or "datillo" (*Y. vallida*) endemic to southern Baja California.

Creamy white blossoms are produced in large erect flower clusters (panicles) during late spring and summer. In the Mexican species (*Y. filifera*), the panicles are up to six feet long and are pendent rather than erect. Individual yucca flowers have six fleshy petaloid segments which are called tepals by some botanists since the petals and sepals are indistinguishable. The pistil of each flower terminates in a three-lobed stigma, the lobes in some species with glistening, feathery branches. The stigma lobes surround a central orifice that leads to a recessed receptive stigma. In order for pollination to occur, masses of pollen must be forced down into this central stigmatic depression. Herein lies the adaptive advantage and marvelous genetic programming of a little moth that is absolutely vital for the survival and perpetuation of yucca plants.

Several species of *Yucca* are cultivated in southern California, including the Baja California endemic *Y. vallida*, the Mojave Desert yucca (*Y. schidigera*), and the chaparral yucca (*Y. whipplei*). The latter species grows wild throughout the coastal mountains of southern California, decorating the chaparral each spring with huge, candle-like flower clusters that may reach 12 feet. In their native habitats, all these yucca species require pollination by a female moth of the genus *Tegeticula* (*Pronuba*). For example, the pollinator of Mojave yucca (*Y. schidigera*) in the Mojave Desert and *Y. filamentosa* in Missouri is a white moth named *T. yuccasella*, while the pollinator of joshua trees (*Y. brevifolia*) is a dark gray moth named *T. paradoxa*. According to J. Powell and R. Mackie (University of California Publications in Entomology Volume 42, 1966), yucca moths are not all host specific because *T. yuccasella* was collected from 19 different species of *Yucca*.

Each spring, male and female yucca moths emerge from their subterranean cocoons. They crawl to the surface and fly to nearby yucca plants. During this moth emergence period, male and female moths presumably rendezvous with each other and mate. At this time the yucca plants have developed erect flower stalks and the flowers open one-by-one into a magnificent inflorescence. At maturity, yucca pollen grains adhere into sticky masses called pollinia, two inside each chamber of the anther. Unlike most other flowering plants, the pollen is not dispersed as individual grains. The gravid (pregnant) female yucca moth collects up to a dozen pollinia within the yucca flower and forms them into a golden mass. She uses a pair of long, curved, prehensile appendages in the mouth region (called maxillary palpi) to collect, form and carry the pollen ball. Male yucca moths (and most other moth species) do not have these greatly enlarged, specially adapted palpi.

At this point the female is ready for egg laying. It is presumed that the moths fly to another plant, as in the well-documented behavior of the yucca moth *Tegeticula yuccasella*. The female moth crawls into a flower and positions herself on the side of the ovary, head outward, and inserts her egg-laying device (called an ovipositor) into the ovary wall near the partition between adjacent ovary sections (carpels). The ovary wall is thinnest near the partition between carpels. A single, slender egg is inserted into the ovule chamber (locule). Now she is ready for pollination--the crucial event that enables the perpetuation of all yuccas in the wild.

After inserting her egg into the flower ovary, the female moth (still carrying a pollen mass in her coiled palpi) climbs to the top of the ovary. Uncoiling her palpi from the pollen mass, she draws them back and forth over the stigma, pressing pollen into the central stigmatic depression. This insures pollination of the flower in which she has deposited an egg. Germinating pollen grains send hundreds of sperm-bearing pollen tubes into the ovary, resulting in the fertilization of hundreds of ovules (immature seeds) inside, some of which provide food for the hungry moth larva.

The yucca moth larva hatches inside the green developing ovary of the flower during late spring and summer and begins to feed on the maturing seeds. It remains inside the ovary (seed capsule) through the summer and fall, high on a branch of the flower stalk. The seed capsule is composed of three sections or carpels, each with two columns of seeds. At maturity during the fall, up to 38 flattened black seeds lie in tightly packed tiers within each column, resembling coins stacked in a dispenser. In the column containing the moth larva, six to 14 of the seeds in the lower portion of the tier are fastened together with silk, and a robust, pinkish larva occupies a cylindrical feeding cavity within these joined seeds. According to Powell and Mackie (1966), yucca capsules may be occupied by more than one larva, but the average number is usually one or two. Although the larva is a seed predator, it only consumes a small percentage of the hundreds of seeds within the capsule. Since the larva develops into a moth that pollinates the yucca plant, the relationship is clearly beneficial to both partners. By comparison, the relationship between the Mexican jumping bean (*Sebastiania pavoniana*) and its symbiotic moth (*Laspeyresia saltitans*) is clearly one-sided. The moth is a seed predator but plays no role in the pollination of its host shrub.

By late fall, dark brown yucca seed capsules split open between the seams of the carpels, releasing hundreds of black seeds. The pinkish moth larva remains inside its little feeding cavity of fused seeds within the capsule until the first autumn rains. Then it emerges from the capsule and drops to the ground. Some authors report that the larva lowers itself on a strand of silk, but I have never observed this on *Yucca whipplei*. Upon reaching the ground the larva burrows into the soil and constructs a silken cocoon covered with grains of sand. The cocoon may be spherical or elongate, about 6-8 millimeters long. The larva remains in its cocoon during the winter months until spring rains and warming temperatures presumably stimulate pupation and the emergence of an adult moth. Cocoons observed in captivity did not contain a pupa until shortly before the emergence of a moth in spring. It is imperative that the adult moths emerge when yucca plants are once again in bloom so that this remarkable cycle between a moth and a plant can be renewed.

Our Kern County CNPS website is at <http://www.cnps.org/chapters/kern/>
If you know of some sites we should include links to, please let us know. Or, if you have some pictures or information on your own home page that you would like to share, that would be great! We would like to start a "local links" section on our web page where Kern CNPS members can share their thoughts, pictures, trips, gardening experiences, or whatever with other members.

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The mission of the California Native Plant Society is to increase understanding and appreciation of California's native plants and to conserve them and their natural habitats through science, education, advocacy, horticulture and land stewardship.