
Obispoensis

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



February 2016

About The Cover

Bonnie's drawing for this issue of *Obispoensis* is based on a picture sent to me by George Butterworth. The species, *Cucurbita palmata*, has many common names. The ones I found on the web include coyote melon, coyote gourd, desert gourd, palmate-leafed gourd, coyote ear, buffalo gourd, stinking melon, calabazilla, or chilicote. Coyote melon is primarily a desert species that grows best where there are summer monsoons. Since we are a little north of the summer monsoon track coyote melon is relatively rare in our area. However, a few plants can be found in the eastern edge of our Chapter area (i.e., Carrizo Plain and the upper Cuyama Valley). It's a species that prefers sandy, disturbed soils where vegetation is scarce such as desert washes and dry, rocky slopes.

The most common name around here, coyote melon, refers to its vegetative resemblance to the pumpkin, squash cucumber, melon, or gourd, family Cucurbitaceae. The Cucurbitaceae are non-woody (herbaceous) vines with tendrils and broad, palmate-veined leaves. Flowers in coyote melon are unisexual (staminate or pistillate). In coyote melon they are large and yellow and borne solitarily in the axils of leaves. Fruits in the family are extremely variable and are considered unique to the family. Often it is a kind of quite large berry botanists call a pepo. Pepos have fleshy, fibrous, or watery flesh inside and usually are enclosed by a clearly defined outer skin or rind. When totally mature, they often dry out to a hollow dry spheroid.

From the list of common names for the family, I suspect it would be easy to conclude that the family produces a fair number of edible and otherwise useful cultivated species. The main economic species produce edible, fleshy fruit today. But this has not always been true and is certainly NOT true of coyote melon and most other wild members of the family today. The flesh of coyote melon is extremely bitter and if one is tempted to try to eat it, it would act as an extreme *emetic*. That is, it would rapidly be expelled from both ends.

So what's the link between inedible and/or poisonous wild cucurbits of today with the edible cucurbits listed above? It is best summed up by a quote from a November 20, 2015 paper by A'ndrea Elyse Messer titled "Loss of Mastodons Aided Domestication of Pumpkins, Squash." I actually heard (or read) about the article around Thanksgiving and decided to look it up on the Web. The quote that caught my interest was:

If Pleistocene megafauna – mastodons, mammoths, giant sloths and others – had not become extinct,

humans might not be eating pumpkin pie and squash for the holidays, according to an international team of anthropologists.

The article indicates that most wild cucurbits are bitter and that smaller organisms (and humans) tend to avoid trying to eat the fruit. It then notes that large mammals, such as the mastodon, have fewer bitter taste buds in their mouths so eating cucurbits shouldn't have been a problem. The authors note that they could deduce that the mastodons were eating cucurbits because when and wherever they examined fossil mastodon dung it contained cucurbit seeds. Since the only way cucurbit seeds could get into dung is by being eaten, they concluded cucurbits were an important food source for them. Being huge animals, mastodons had to migrate over wide distances so they also concluded mastodons were major dispersers of cucurbit seeds. The researchers also found that the DNA they recovered from the seeds in the dung was more similar to wild cucurbits of today than to cultivated edible ones. Therefore it's logical that the ancestors of the edible cucurbits were bitter.

What killed off the mastodons? A recent book titled, *The Sixth Extinction*, gives a possible clue. It turns out that large animals live in a very tight balance with their environment and the regular sustained loss of even a few key animals would lead to extinction in a relatively short time (a few thousand years). Early humans coexisted with the last of the mastodons. Early human hunters probably preferred to kill the biggest and healthiest animals as hunters still do today. This would mean they would have taken the breeding animals of a family or herd. When a parent is killed, often the rest of their family dies as well. So even with very modest losses of a few key animals a year, the book indicates it would lead to a slow extinction in a few thousand years.

Mastodons and the other large mammals died out over ten thousand years ago. So why do we have edible cucurbits today. The article indicates that early peoples didn't use fresh cucurbit fruits for food, but waited until they were dry and hollow and used them for containers, noise makers (rattles) and/or fish floats. Although some species' seeds (e.g., coyote melon) are edible when totally mature, at least some of their seeds would have ended up in their disturbed, highly nitrogenous trash heaps. So people took over from the mastodons as major seed dispersers. So cucurbits would have been become common around early human settlements. Since a bitter compound is often poisonous in large uncontrolled amounts, but medicinal in small, (*continued on page 3*)

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regulated amounts, it can be assumed that early peoples used fleshy immature fruits as medicine. It doesn't seem to me to be a great stretch to assume enough genetic variability in early cucurbits so that some would have been less bitter. These would be selectively utilized by early people, probably the wives and mothers. By the time the mastodons were gone, early peoples would have been planting various cucurbits around their settlements. Once there, they would have been selected to be less and less bitter until we have the edible squash and pumpkins we enjoy today. So next Thanksgiving, remember to thank the mastodons and other large extinct mammals for your pumpkin pie. One final thought, pumpkins and squash were domesticated in the new world and in all likely hood the jack-o-lantern pumpkin was one of the few major crops domesticated within the lower 48 states.

Personally, I find coyote melon to be best (and safely) enjoyed as we find it, growing in nature. ☘

– Dirk Walters, Illustration by Bonnie Walters

President's Input

By Bill Waycott

Field Trips: With this rainy season getting off to a good start, the spring wild flowers should present a better show than in recent years. In planning for this possibility, I would ask CNPS members who have a favorite "plant place" they enjoy visiting during the months of February through May, to forward that information to me (bill.waycott@gmail.com) and we will do our best to create a series of field trips to those locations this year. Let's commit ourselves to visit the wild places this season and enjoy their splendor!

Workshop: During last December's meeting on Bryophytes, presented by Dr. Benjamin Carter of San José State University, Ben gave a workshop describing a simplified version of the taxonomy Bryophytes (Mosses, Liverworts and Hornworts) to 25 participants. Those of us who attended the workshop were treated to several different Moss genera, along with a couple of Liverworts, and one Hornwort genus. Using both dissecting scopes and microscopes, we were able to distinguish critical differences of these minute plants. All of the species described can be found in San Luis Obispo Co. Make sure to attend the February workshop on Feb. 4th at 6:00 p.m. to be presented by Dr. David Keil.

Chapter Meeting

Dr. Dave Keil has been working for many years on a revision of the *Vascular Plants of San Luis Obispo County*. Dave will give an update on the status of the revision, features of the new book, and an overview of changes in our knowledge of plants of the county since 1970 when Dr. Hoover published the flora.

Prior to the meeting please join us for a workshop at 6:15 on Plant Collecting. Dave wants to get members of the chapter involved in documenting plants of the county in this El Niño spring.

From 7:00 to 7:30 p.m. we will have the usual social part of our monthly meeting, followed at 7:30 by a chapter business meeting.

Thursday, February 4, 2016 at the San Luis Obispo Veterans Hall, 801 Grand Avenue, San Luis Obispo.



Carrizo Plain National Monument, March 2010 – photo by Bill Waycott



Bryophyte workshop, SLO Vets Hall, Dec 2015 – photo by Bill Waycott



CA Native Seed Workshop, SLO Botanical Garden, Nov 2015 – photo by Bill Waycott

Native Seed Workshop: During the third week of November, our chapter was treated to a California Native Seed Workshop, co-hosted by the SLO Botanical Gardens. Dr. Evan Meyer of Rancho Santa Ana Botanical Gardens, Claremont, CA gave the four hour workshop, which included a slide presentation about the value of seed banks and how they operate, followed by a walk through our the garden to observe the arrangements of native plant seeding structures (panicles) and discuss the different shapes and constructions of each seed species.

Phytophthora Workshop: The December statewide CNPS Chapter Council meeting was held in the SF Bay Area. SLO members David Chipping and Bill Waycott attended the meeting during which the council deliberated and then approved the 2015 – 2020 CNPS Strategic Plan (a copy of which can be obtained by writing to bill.waycott@gmail.com). In addition, a workshop directed at the nursery trade was presented on the fungus *Phytophthora*, which is being spread around the state in plant nursery stock. Three scientists presented their research data illustrating where these diseases first entered the state and how they have spread to ?? counties. The workshop ended with a fieldtrip to Acterra Native Plant Nursery, located in Los Altos Hills, where participants were shown the best management practices used by nurseries to prevent the introduction and spread of *Phytophthora* in their facilities.



Phytophthora workshop, Acterra Native Plant Nursery, Los Altos Hills, CA, Dec 2015 – photo by Bill Waycott

Conservation

When developers graded a population of *Sanicula maritima* without getting a permit from the California Dept. of Fish and Wildlife, the Department, the City of San Luis Obispo and CNPS were concerned. It turns out several populations sit in the Margarita Area Specific Plan development area, and the fate of the populations regarding mitigation is, at the time of writing, unclear. Whatever the outcome, our chapter will conduct a survey of the county to see if we can find any more populations of the plant and to assess the possibility of starting new populations. Bear in mind that CNPS has a long standing policy against mitigating losses by moving plants to other sites. Transplantation seldom works, and is not a valid mitigation for destroyed habitat in the Margarita Specific Plan. Gaining knowledge of the plant's status and the most suitable habitats will better inform our response to this issue.

County planners took a proposed revision of the ordinance on the land application of biosolids, the 'nice' term for the dried sludge coming from sewer plants. Planners wanted to start an EIR but a split Board declined as the interim ordinance seems to work and is good for another two years. Commenters stated that the proposed ordinance does not meet the requirements spelled out by the Board and a Sewage Sludge Land Application Task Force in 2002. CNPS has been concerned that sludge might be dumped on rangeland or agricultural marginal lands, thus changing nutrient balances and habitat, so we will be keeping an eye on the issue.

The carbon recycling issue is at the core of global warming issues, and warming was made evident by the current blooming of *Chorizanthe* populations on serpentine in eastern Montana de Oro Park. I hope the pollinators will be around to do their work. ☘

David Chipping

The 21st Annual Spring Outing Botanical Excursion Foray, Retreat, and Escape to the Environment Brought to you by the new Bryophyte Chapter of the California Native Plant Society!

Friday to Monday, March 18-21, 2016

North Coast Range near Occidental, California

Founded in 1996, SO BE FREE is a series of West Coast forays started by the Bryolab at UC Berkeley, but open to all botanists. The main focus is on bryophytes, but we also encourage experts on other groups to come along and smell the liverworts. We welcome specialists and generalists, professionals and amateurs, master bryologists and rank beginners. SO BE FREE is held each spring, somewhere in the Western US, associated with spring break at universities. Evening slide shows and informal talks are presented as well as keying sessions with microscopes. In addition to seeing interesting wild areas and learning new plants, important goals for SO BE FREE include keeping West Coast bryologists (and friends) in touch with each other and teaching beginners. To see pictures and information from past outings, visit the SO BE FREE website at: http://ucjeps.berkeley.edu/bryolab/Field_Trips.html

Early Registration Deadline is Dec. 15, 2015. Regular registration Deadline is Feb. 19, 2016
http://ucjeps.berkeley.edu/common/images/SBF21_announcement.pdf

Field Trip

Saturday, February 13, 9 a.m., Santa Margarita Lake. Join Audubon and California Native Plants on a bird and plant walk. For those who want to focus mainly on birds (freshwater fowl), you will walk along the south lakeshore for a distance of roughly two miles. For those who want to focus on both birds and plants, you will hike the Grey Pine Trail, returning along the lakeshore. The Grey Pine Trail hugs the north-facing hills on the lake's south edge. This walk is roughly 3.5 miles with 300 feet elevation gain.

Directions: Santa Margarita County Park is located off of West Pozo Road, 10 miles southeast of Santa Margarita, CA. At mile-9 along Pozo Road, bear left onto Santa Margarita Lake Road. When you arrive at the park entrance, tell the ranger you are part of the bird watching group, then proceed to the adjacent parking lot just inside the park. Bring water and snacks, and dress in layers for changing weather. A hat, sunscreen, and sturdy shoes are recommended. No RSVP needed. For more information, call Bill at (805) 459-2103 or email: bill.waycott@gmail.com. Rain or the threat of rain cancels.



Call for CA Native Plant Week Committee Members

We are looking for volunteers to help plan for California Native Plant Week (CNPW) 2016. As a member of the committee, you will help generate ideas and plan for statewide efforts to support and promote CNPW, which is April 16-24, 2016. If you are interested, or would like more information, please contact Caroline Gardand, cgarland@cnps.org.

SAVE THE DATE!

Next Chapter Council Meeting

March 11-13, 2016

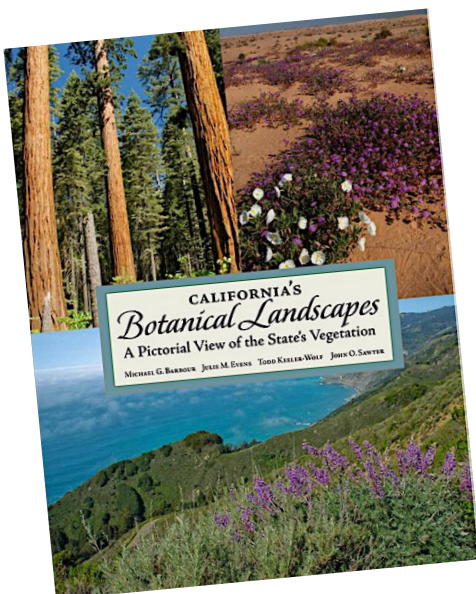
San Pedro, CA

Hosted by the South Coast Chapter

Why should I attend Chapter Council?

1. You will connect with, and learn from, other CNPS members from around the state
2. You get to contribute to important decisions that impact our organization
3. Through social events and field trips, you will meet like-minded people and get to know a new area of the state - ***it's fun!***

Hope to see you there!



New Books from CNPS Press

In early 2016, two new books from CNPS Press! *California's Botanical Landscapes: A Pictorial View of the State's Vegetation*, by Michael G. Barbour, Julie M. Evens, Todd Keeler-Wolf, and John O. Sawyer, is a beautiful exploration of our native vegetation, with a phenomenal array of photographs paired with interpretive descriptions from California's top plant ecologists. It is now available at CNPS online books.

Kern County Flora: A Key to Vascular Plant Species of Kern County, California, is a modernized 2nd edition from L. Maynard Moe, including updated nomenclature and nearly 300 additional taxa.

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Editor

Newsletter editor and Hospitality Positions are Open!

Our chapter is looking for a Newsletter Editor to produce our chapter newsletter, *Obispoensis*. If you like to write, edit and do a little page layout design, this position is perfect for you. The newsletter is published eight times each year, monthly October through June except January. No previous experience is necessary. Contact Bob Hotaling, rahotaling@gmail.com or Bill Waycott, bill.waycott@gmail.com.

The Hospitality committee arrives at meetings early to organize and set up refreshments. Contact Mardi Niles (805) 489-9274, mlniles@sbcglobal.net or Bill Waycott, bill.waycott@gmail.com, (805) 459-2103.

Requesting Native Plant Lists: If you have a list of native plants, observed in a specific area, e.g., Morro Bay State Park, or along a trail, e.g., Hazard Peak Trail at Montaña de Oro, CNPS wants to receive a copy. CNPS member Madeline Fay has volunteered to review the lists and bring the taxonomy up to date using the latest scientific names. With permission, the corrected copies will be placed on the Chapter website. Please contact Madeline by e-mail at madfay@charter.net, and she will be happy to work out the details with you. Thank you.