

# Carpenteria

CNPS SEQUOIA CHAPTER



July/August 2018  
www.cnps-sequoia.org

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## THE SCIENCE OF PLANTS

### Toxins and Pollinators

--Jane Pritchard

Plants are chemical factories that use light energy and carbon dioxide to synthesize sugars, amino acids, proteins, and an incredible diversity of chemical deterrents and poisons to defend themselves from insect, mollusk, and mammalian herbivores.



-*Andrena astragili*-  
U.S. Geological Survey © 2012

It is in the best interest of a plant to provide pollen and nectar for transfer of pollen to its same species. However, generalist pollinators can take nectar and pollen from a plant, but then visit a different species. In that case, the original flower loses nectar and pollen and gains no benefit. While specialist pollinators transfer the pollen to the same species again and again, nothing is gained by a plant from pollen and nectar thieves like ants. Toxic nectar and pollen repulses freeloaders (generalists and thieves). Toxic nectar or pollen has been found in 21 different plant groups, so this strategy to deter generalist pollinators and nectar thieves may be somewhat rare, but is widespread.

After genetic studies of meadow death camas (*Toxicoscordion venenosum* were performed; also known as *Zigadenus venenosus*), it was reclassified from the Liliaceae to the Melanthiaceae family (false-hellebore family), which includes

trillium and corn lily. All parts of death camas are highly toxic and it is one of the most poisonous plants in North America. Even the nectar and pollen will poison honeybees and other pollinators. Its primary toxin (which has no antidote) is a steroidal alkaloid similar to the toxin in green-skinned potatoes.

Well, something has to pollinate it! I thought it might be like the buckeye whose nectar is a neurotoxin to honeybees and harmless to native bees; but, it turns out that the only species known to pollinate death camas is the death camas bee (*Andrena astragili*), a solitary, ground-nesting species in a group called mining bees.



-*T. venenosum*- ©2012 Jason Matthias Mills

Death camas bees collect pollen from the flowers but do not eat it, and probably not the nectar either. These bees collect pollen from several plants, roll it into a ball, and place it into a nest dug in sandy soil. They deposit one egg on top of the pollen and seal the nest. The larva eats the pollen. It is possible that the larvae are tolerant of the poison, can sequester or detoxify the poison, or the pollen loses its toxicity before the egg hatches. The adult bee eats pollen and nectar from other species, thus being a generalist and nectar thief.

# GARDEN NOTES

## My Valley Oak Journey

--Thelma Valdez

Sometime in the fall of 1998, I attended a music event at the Academy Church on Madsen Avenue. I picked some valley oak acorns that were on the ground under the towering trees thinking maybe I would try to germinate them. This was only about the third year that I had been learning about gardening with California natives, so I set my expectations pretty low.

I followed the basic instructions about how to determine which acorns might be viable—I vaguely remember a plastic bag with damp paper towels in the refrigerator during the winter. Was that a dream? Lo and behold, in the very early months of 1999 two acorns showed signs of new life and into a tall pot with potting soil and some native soil they went!

In a couple of months they were about 6 inches above ground in the pot. I heeded the advice to plant them in the ground early in their youth so they could drive down a vital tap root rather than send the tap root round and round inside a pot. During their first short month in the ground they nearly doubled in height (you can see their baby pictures to the right). Looking back, I think that's when I really got hooked on native plants. How could I not?



Today they are a little over 20 years old and about 20 feet tall. I've been stingy with water throughout their entire lives hoping that would send their tap roots deep down to find enough water to take them through the dry summer months. Occasionally, during a week in summer when it isn't so hot, I give them a good soaking. They would be much taller and lusher if I were more generous with water, but I like my plants to be tough. These oaks handled the recent 5-year drought with only a couple of supplemental waterings during the entire drought.

Some years later, a friend germinated some valley oaks from acorns he collected at China Creek. I adopted his seedlings when he moved out of the area. Three oaks went into the ground ASAP, out in the field where it seems there's even less water than where I planted my original two. They are now about 14 feet tall despite their less-than-ideal tap root. They received supplemental water during their early years, but have received none for at least 6 years. These three seedlings became pseudo-bonsai valley oaks and tolerate my feeble attempts at doing right by them. The "bonsai" oaks typically have huge leaves compared to their brethren in the field.



If you've never watched a tree grow from a seed, you should. It matters not whether you or the scrub jays planted it. There's an eternal splendor being there at the beginning. Good thing, too, because I will certainly not be around when these Valley Oaks might reach their 100th birthday. I only hope they do.

# CHINA CREEK REPORT

## June Work Party

--Warren Shaw

If indeed there is any such thing, it was the perfect day for pulling and digging weeds, with temperatures in the eighties and cool breezes.

We had a good crew including Dolores from the Kings River Conservancy, our new partner in the Park restoration project. Hank was busy with his tractor, mowing the trail and digging yellow starthistle, which he hauled out by piling it on his mower (see photo).



This was our last work party of the summer and we especially wanted to leave the park in good shape for the long hot months ahead. We ranged over most of the area, doing our best to leave as few invasive exotic thistle plants as possible that could go to seed in our absence. While we know we didn't get it all, we feel pretty good about the way we're leaving it. We also enjoyed our new picnic table and the generally cleaned up area around the gate—thanks to Fresno County (and Gene, who got their attention).

Our September work party will be Saturday, September 15 from 8am-12pm. We'll be catching up with everything, including trail maintenance, more weeding and pruning, and treating tree-of-heaven root sprouts.

Have a great summer; hope to see you in September.

## FEELING LIKE A WEBMASTER?

Dear Sequoia Chapter Members,

Do you have some experience maintaining a website? I am looking at shifting some chapter responsibilities and would be happy to let an interested person maintain and expand the website.

Unfortunately, I do not have the time to train someone on the basics, but I will absolutely support a member with previous website maintenance experience who can take over this marvelous responsibility.

Contact me via email at [yucca37tv@yahoo.com](mailto:yucca37tv@yahoo.com) if you are interested or just want to learn more about this opportunity!

Thank you,

Thelma Valdez  
*Webmaster*



## Upcoming Classes in 2018

### •July 28, The Cryptobiotic Soil Crust Community

**Saturday, 9:00am – 4:00pm**

Location: Tilden Park, Loan Oak parking area, Berkeley, CA 94563

- Will take a hike to look at examples of biocrust community and compare it with other communities in which bryophytes live in the East Bay Hills
- Will discuss biocrusts, their role in nature, and threats they face
- Will discuss desiccation tolerance and reproduction
- After the hike there will be time for light refreshments, socializing, and further questions and answers



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Cost: Free

Information:  
<https://www.eventbrite.com/e/bryophyte-field-trip-tickets-47314251199>

Contact Brent Mishler at [bmishler@berkeley.edu](mailto:bmishler@berkeley.edu) with questions.

### Tree of Life Nursery: Gardening Workshop Series

**All workshops start at 9:00am**

Location: Tree of Life Nursery, 33201 Ortega Highway, San Juan Capistrano, CA 92675

### •July 14, Lessons of a Native Gardener: A Journey of Trial and Error

- A gardener will recount her experiences and recount lessons learned

### Tree of Life Nursery: Gardening Workshop Series (continued)

#### •July 21, Reciprocal Relationships

- Learn how to build a natural garden, how to engage with and care for it, and how to enjoy this unique reciprocal relationship

#### •July 28, Reflections of a Butterfly Gardener

- Learn how to create and provide habitat for butterflies and moths using native plants

Cost: Free

Information: <http://californianativeplants.com/july-at-tree-of-life-nursery-2018/>

### Jepson Workshop Series

#### •August 2-5, Introduction to Fire Ecology of the Sierra Nevada

**Thursday 8:00am – Sunday 1:00pm**

Location: Sierra Nevada Aquatic Research Laboratory just south of Mammoth Lakes

- Topics will include fire as a physical process, fire effects on ecosystems and vegetation, fire as an evolutionary force, etc.
- Curriculum will include 2-3 field trips to eastern Sierra Nevada sites exemplifying the fire ecology of yellow pine and mixed conifer forest, sagebrush, and subalpine forest.
- Share dormitories with the option to tent camp
- Hiking will be moderate to occasionally strenuous

Cost: \$400/\$430

#### •August 18-19, Ferns

**Saturday 8:00am – Sunday 1:00pm**

Location: UC Berkeley

- An introduction to ferns of the world, with a focus on species that can be observed in the wild in California
- Learn basic fern morphology, fern ecology, and fern evolution
- Will tour UC Botanical Garden to see the fern collection there at the end of the course.

Cost: \$275/\$305

Information for both Jepson Workshop Series at: <http://ucjeps.berkeley.edu/workshops/>

**Don't forget CNPS workshops can be found at:** <https://www.cnps.org/education/workshops>

## Sequoia Chapter Officers\* and Committee Chairs

### Membership

John LuValle

Thanks to new and renewing members.

If you require corrections or additions to your membership information, contact John LuValle at [jluvalle@mcn.org](mailto:jluvalle@mcn.org).

The Sequoia Chapter serves Fresno, Madera, and Kings counties.

The IRS considers dues in excess of \$12 per year and all gifts to CNPS as tax deductible. Renew your CNPS membership online using a credit card. As an option, renew automatically year after year. It is quick, easy, and convenient, and reduces renewal-mailing costs. Visit [www.cnps.org](http://www.cnps.org) and click on the JOIN button.

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### Next Newsletter: September 2018

Send newsletter suggestions to Laura Castro at [lacastror@outlook.com](mailto:lacastror@outlook.com). The deadline for submissions to the next newsletter is **Friday, August 24, 2018.**



JOIN
THE CALIFORNIA NATIVE PLANT SOCIETY
RENEW

Membership includes the quarterly CNPS journal, *Fremontia*; the quarterly *Bulletin* which gives statewide news and announcements of activities and conservation issues; and our chapter newsletter, *Carpenteria*.

I wish to affiliate with the Sequoia Chapter.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_

State: \_\_\_\_\_ Zip: \_\_\_\_\_

<input type="checkbox"/> Student, Limited Income _____	\$25
<input type="checkbox"/> Individual _____	\$45
<input type="checkbox"/> Family, Group, or Library _____	\$75
<input type="checkbox"/> Plant Lover _____	\$100
<input type="checkbox"/> Patron _____	\$300
<input type="checkbox"/> Benefactor _____	\$600

Make your check payable to "CNPS" and mail with this form to:

New Member       Renewing Member

**California Native Plant Society**  
2707 K Street, Suite 1  
Sacramento, CA 95816-5113

The California Native Plant Society is a statewide nonprofit organization of amateurs and professionals with a common interest in California's native plants. The mission of the Society is to increase understanding and appreciation of California's native plants and to preserve them in their natural habitat through scientific activities, education, science, and conservation.

# ***CARPENTERIA***

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July/August 2018

## **CALIFORNIA NATIVE PLANT SOCIETY SEQUOIA CHAPTER**

c/o Jeanne Larson ♦ 3457 Redlands ♦ Fresno, CA 93726

### **ANNOUNCEMENTS**

-*Carpenteria californica*-

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#### **Newsletter Contributions**

Would you like to share your native plant experiences, botanical information, gardening ideas, or pertinent courses with your fellow newsletter readers? If so, please send your contribution to [lacastror@outlook.com](mailto:lacastror@outlook.com).

#### **Suggestions to the Editor**

Are there topics we currently aren't covering that you would like to read or learn about in the chapter newsletter?

Do you have suggestions for or feedback about articles or the newsletter?

Are there changes you would like to see to the newsletter that would make it more effective or readable?

If so, please send an email with your ideas and comments to [lacastror@outlook.com](mailto:lacastror@outlook.com).

Share your voice!



July 2018 ☀  
Sequoia Chapter  
CNPS



Spurry Buckwheat  
(*Eriogonum spergulinum*  
var. *reddingianum*)



Miniature Tarweed  
(*Asteraceae hemizonella minima*,  
Formerly *Madia minima*-)



Layne's Monkeyflower  
(*Diplacus layneae*)



Three-leaved Lewisia  
(*Lewisia triphylla*)



Frosted Buckwheat  
(*Eriogonum incanum*)



Short-Leaved Hulsea  
(*Hulsea brevifolia*)



Jeffrey Pine seedling  
(*Pinus jeffreyi*)



Bridges' Pincushionplant  
(*Navarretia leptalea*)



Mountain Pride  
(*Penstemon newberryi*)



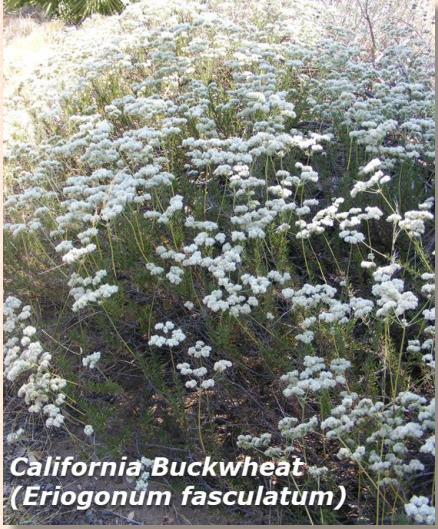
Granite Phacelia  
(*Phacelia quickii*)



Brewer's Monkeyflower  
(*Erythranthe breweri*;  
formerly *Mimulus breweri*)



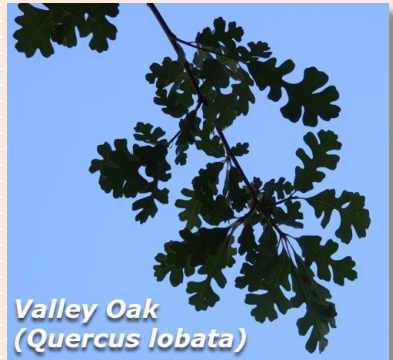
Sticky Currant  
(*Ribes viscosissimum*)



California Buckwheat  
(*Eriogonum fasciculatum*)



Common Soaproot  
(*Chlorogalum pomeridianum*  
var. *pomeridianum*)



Valley Oak  
(*Quercus lobata*)

Photo credits: Jane Pritchard (Short-leaved Hulsea, Spurry Buckwheat, Frosted Buckwheat, Brewer's Monkeyflower, Three-Leaved Lewisia, Bridges' Pincushionplant, Jeffrey Pine seedling and cones, Granite Phacelia, Sticky Currant, Star Tulip, Layne's Monkeyflower, Granite Phacelia.) Thelma Valdez (Common Soaproot, California Buckwheat, Valley Oak)