



GOLD FIELD NOTES

EL DORADO CHAPTER ☼ CALIFORNIA NATIVE PLANT SOCIETY ☼ JANUARY-FEBRUARY 2021

JANUARY 26 PROGRAM

PINE HILL PRESERVE – NEW PRESERVES, NEW FIRE, AND NEW RESEARCH

Join chapter members Deb Ayres and Sue Britting for an update on conservation actions and research focused on the rare plants on gabbro soils in the Pine Hill Preserve.



L: Layne's ragwort, *Packera layneae* (Photo: Steve Perry 2011); C: Pine Hill ceanothus, *Ceanothus roderickii*; (Photo: Steve Perry 2018); R: El Dorado bedstraw, *Galium californicum ssp. Sierrae*, (Photo: Steve Perry 2011).

Online Zoom Presentation: This presentation is open to the public and free of charge. It will be available via a Zoom link sent to your email a few days before the talk. If you wish to receive the meeting link [CLICK HERE TO ACCESS THE REQUEST FORM](#).

Out of respect for the speaker, during the talk please keep your microphone muted, video off, and avoid using the chat feature. We will invite questions at the end. Unfortunately, we will likely not be able to address individual technical difficulties during the talk, but please email web.eldoradocnps@gmail.com if you experience difficulties so that we can address them for next time.



Rare plant habitat on Pine Hill: chaparral (left) and black oak woodland (right). Photos: Sue Britting.

CALENDAR

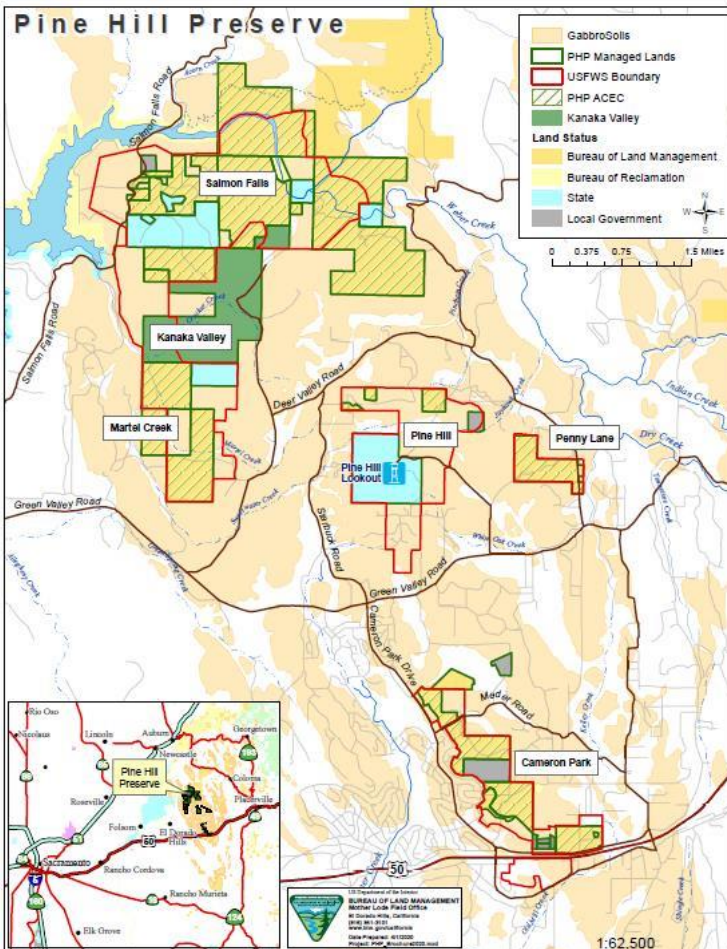
January 26 (Tuesday)

Chapter program.
Pine Hill Preserve – New Preserves, New Fire, and New Research with Deb Ayres and Sue Britting. Details to the right.

March 23 (Tuesday)

Chapter program.
Native plants in fire-resistant landscaping with Alice Cantelow. Check for details inside

Due to the requirements of social distancing, many of our events are on hold.



Map to left: Preserve boundaries, December 2020. The preserve covers 4,933 acres of which 3,275 acres are high priority rare plant habitat within the recovery boundary adopted by the US Fish and Wildlife Service. (Map: BLM)

TAKING UP A CARBON NEUTRAL PLEDGE

By being members of CNPS, we are champions for native plants in our community – not just plants, but pollinators, birds, and other wild creatures that thrive among the plants in the forests, woodlands, chaparral, and in our own backyards. Even as we enjoy and conserve nature, our activities release carbon dioxide and other greenhouse gases into the atmosphere

We will soon add a resource list on the chapter's Carbon Neutral Efforts webpage (<https://eldoradocnps.org/news-events/carbon-neutral-efforts>). Below are reading and viewing recommendations from chapter members which will start off this list. This is the perfect season to share information. The pandemic continues to isolate us. Also, we should hope that rain will keep us indoors and bored very soon.

Respectfully,
Tal Blackburn
Life is beauty, admire it.

1. Gardening in a Changing Climate

Online video presentation: http://mgeldorado.ucanr.edu/Public_Education_Classes/Handouts_-_Presentations/

“Here's what I found to be an excellent Master Gardener presentation on climate change and how people can live more sustainably. It's by Steve Savage, retired meteorologist and local Master Gardener and was given in 5 (!) one hour segments. It's available online at the Master Gardeners of Dorado County website. It would not be good as a general meeting talk -long and technical- but might be great to offer as a link. I really got a lot out of it and plan to listen again. (Lester really liked it too.)” -Alice

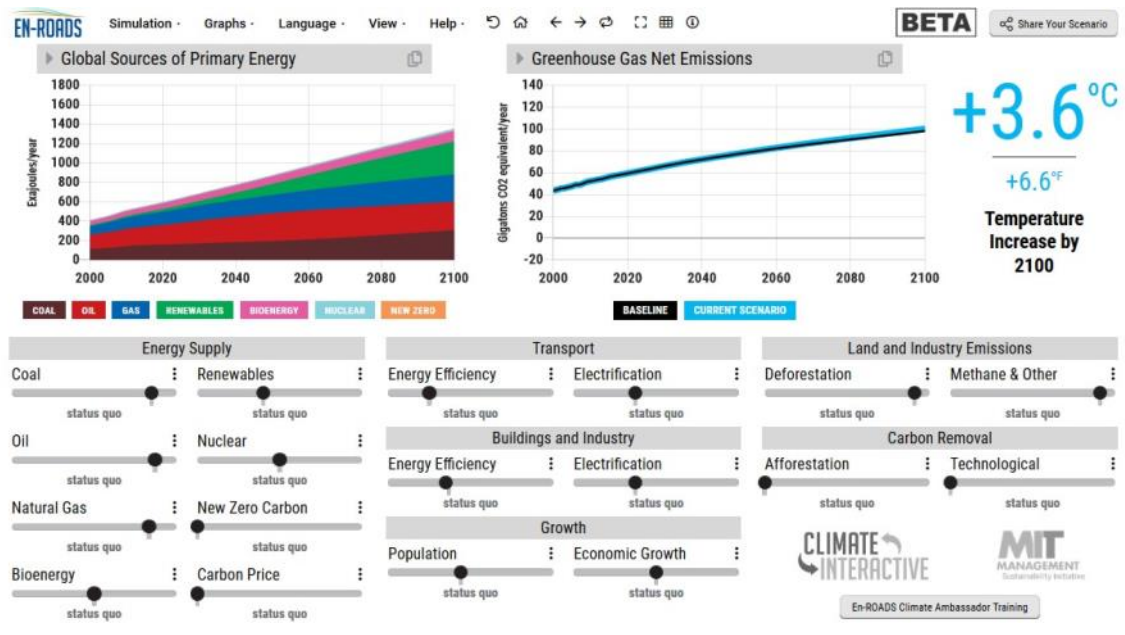
(Also, there are a plethora of other excellent presentations to peruse at this link.)

2. Climate Change Solutions Simulator

On-line tool: <https://en-roads.climateinteractive.org/scenario.html?p47=1.1&v=2.7.35>
More information: <https://www.climateinteractive.org/tools/en-roads/>

“You might be interested in looking at Climate Interactives' Climate Change Solutions Simulator. The purpose of it is to evaluate the best options for reducing greenhouse gases. Not surprisingly, putting a price on carbon is very effective.” -Gwen

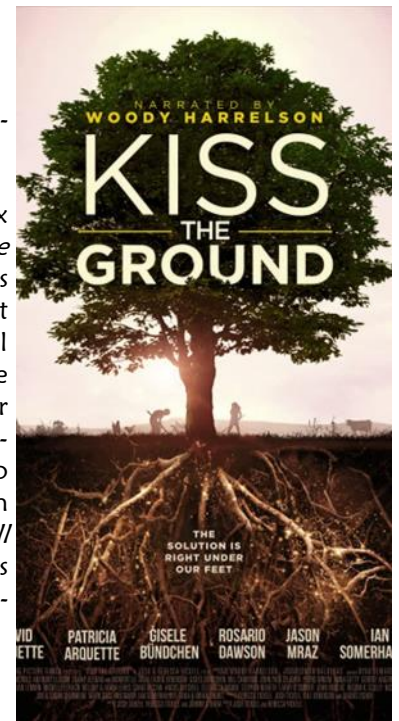
(See results to the right. The tool is very easy to use: you tweak scenarios by moving slide bars. Older kids may also be intrigued with this too.)



3. Kiss the Ground

Documentary available on Netflix

“A highly produced Netflix documentary called *Kiss the Ground* is worth mentioning as a resource. While directed at our destructive agricultural practices and not the average gardener, the message is clear that healthy soils sequester carbon. Watching it leads to many resources such as Kristin Ohlson's book, *The Soil Will Save Us*, and Elaine Ingham's www.soilfoodweb.com” -Christie



4. Zero Waste Groceries

Website: <https://zeroshop.co/>

“My son in SF sent me this link. If I lived in Bay Area, I'd try. They don't deliver up here but I signed up for their newsletter and expressed interest. Premise is no plastic waste... I thought you might be interested in the fact that there are services out there. It is one way to minimize a carbon footprint. They claim that only the nitrile gloves that they use are disposed. Everything else is reused. So this is a little FYI.” -O.J.



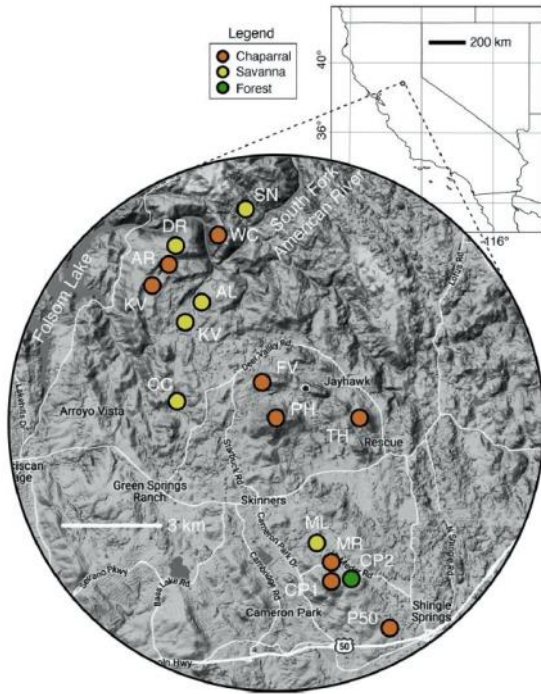
(Still just serving the Bay Area, the process is as follows: Order groceries online. They deliver. Enjoy your groceries. Return jars - they pick-up, clean and reuse. Repeat.)

BEES OF THE PINE HILL PRESERVE

Summarized from a report by Dylan Burge and Landon Eldredge. The full report is posted on our website: [Part 1](#) and [Part 2](#).

Native bees are diverse and ecologically important in California. In natural ecosystems, native bees are the primary pollinators of most plants. Nearly all of the flowering plant species of the Pine Hill Gabbro formation depend on insects, especially bees, to facilitate sexual reproduction. However, little was known about pollinator diversity and plant-pollinator interactions in this area. Over the course of five years, Dylan Burge and Landon Eldredge surveyed 16 sites across the Pine Hill formation to determine which bees were associated with specific

rare plants (see map). They identified 145 native bee species visiting 65 native plants. Several native plants hosted a disproportionate amount of bee diversity (up to 40 species). The eight rare plants of the Pine Hill formation hosted 68 bee species (47% of the fauna), with 40 bee species visiting *Wyethia reticulata*. Other keystone common species include *Eriodictyon californicum* (22 bee species), *Lepechinia calycina* (23 bee species; see Picture 1), and *Grindelia camporum* (25 bee species). The late flowering of *W. reticulata* and *G. camporum* may help to support bee abundance and diversity on the Pine Hill formation by providing nectar and pollen at a time when these resources become scarce. Non-native European honeybee, *Apis mellifera*, was a pollinator of 4 of the rare plants; *W. reticulata*, *Chlorogalum grandiflorum*, *Calystegia stebbinsii*, and *Fremontodendron decumbens* (see Picture 2). Three bee species were found to have strong relationships with rare plants, including *Lasioglossum sisymbrii* on *F. decumbens*, *Lasioglossum sp. E.* on *C. grandiflorum*, and *Diadasia bituberculata* on *C. stebbinsii* (see Picture 3). Although these bees all visit other plants the relationship revealed by the study suggests that these bees and plants have a close, potentially ecologically meaningful relationship. In the case of *C. stebbinsii* and *D. bituberculata*, this rare plant is pollinated by only two other bee species, while the bee visits only four other plant species, suggesting an important relationship between this rare, large flowered plant and *D. bituberculata*.

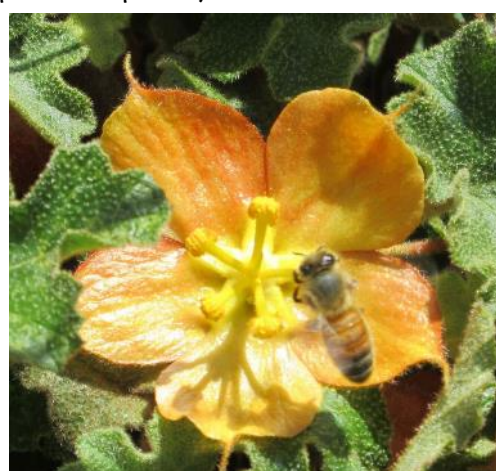


Map of the Pine Hill formation showing specific sites and the varied plants communities surveyed. (Burge and Eldredge)

This work provides an ecosystem perspective on the bee fauna of a diverse plant community that is rich in rare plant species. The analysis suggests that there are few specialist bee-plant relationships; instead, they found that bees visiting rare plants, and presumably providing pollination services, also visit a variety of common native and introduced species, demonstrating the potential for more common plant species to support rare species by providing resources during periods when rare plants are not in flower. This finding further suggests that conservation of the mutualism between bees and rare plants on the Pine Hill formation should not simply address the bees that visit rare plant species, but also address the need for an ecosystem that supports a more robust plant-pollinator network. Practices that promote abundance of the four keystone plants uncovered in the study, *Wyethia reticulata*, *Eriodictyon californicum*, *Lepechinia calycina*, and *Grindelia camporum*, could help to maintain or even build bee diversity and abundance on the Pine Hill Preserve.



Picture 1: *Bombus vandykei* on *Lepechinia calycina*; Photo: L. Couper.



Picture 2: *Apis mellifera* on *Fremontodendron decumbens*. Photo: D. Ayres.



Picture 3: *Diadasia bituberculata* on *Calystegia macrostegia*. Photo: N. Hamlett.

RECENT RESEARCH BY EL DORADO CHAPTER MEMBERS DEBRA AYRES AND VIRGINIA MEYER ON PINE HILL PLANTS

Conservation of rare plant species requires an understanding of how plants and populations respond to natural and human-caused disturbance. Over the past three decades such knowledge has been achieved through the work of several scientists on five rare Pine Hill plants (see <https://www.eldoradocnps.org/education-and-outreach/science-in-the-county/pine-hill-research>). Last month 2 papers examining individual and population response to disturbance were published in the California Department of Fish and Wildlife's special fire issue available online here: <https://wildlife.ca.gov/Publications/Journal/Contents>

The first paper, [Effects of a firebreak on plants and wildlife at Pine Hill, a biodiversity hotspot, El Dorado County, California \(PDF\)](#) by J. Mario, K. Klip, Molly R. Caldwell, Debra R. Ayres, and Virginia Meyer focuses on *Ceanothus roderickii*. The second paper, [Survival of the rare *Packera layneae* \(Asteraceae\), under chaparral and after fire \(PDF\)](#) by Debra R. Ayres, Virginia Meyer, Melanie Gogol-Prokurat, and Lauren Fety examines the response *Packera layneae* to fire and bulldozing. These studies will be discussed during the Jan. 26th 2021 general meeting.

MARCH 23 PROGRAM: NATIVE PLANTS IN FIRE-RESISTANT LANDSCAPING.

Join chapter member Alice Cantelow for a tour of native plants that you can plant compatible with fire-resistant landscaping. This presentation begins at 7 pm on March 23 and will be hosted remotely on Zoom. [Please sign up to receive emails from El Dorado Chapter](#) to receive the information to connect to the Zoom program meeting.



Ceanothus roderickii seedling marked with a nail to follow post-fire survival. Photo: Deb Ayres.



Packera layneae resprouting after a fire. Photo: Deb Ayres.

CALIFORNIA NUTMEG: THEN AND NOW

Here's a note from California Farmer and Journal of Useful Sciences, Volume 11, Number 8, 25 March 1859 on the California nutmeg tree:

Notwithstanding it has often been stated, says the Yreka Chronicle, that a genuine and superior species of the nutmeg tree grows in the mountains of this State, and bears fruit in great profusion, there are many who do not give credit to it. We have seen them growing in the mountains above Georgetown, El Dorado county, and can attest to the beauty of the tree, and to the superiority of the fruit. The tree, in appearance of foliage, is divided between the cedar and aborvita, with a bark of darker and more rough exterior.

Many thanks to Doug Walker for sharing this tidbit with us.



Fruits of California nutmeg (*Torreya californica*). Photo: California Academy of Sciences 2001.



California nutmeg (*Torreya californica*).
Photo: Jean Pawek 2017.

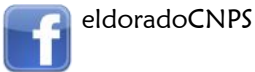


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January-February 2021



For Updates Visit Us on the Web
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CALIFORNIA
NATIVE PLANT SOCIETY

**DEDICATED TO THE
PRESERVATION OF
CALIFORNIA'S NATIVE FLORA**

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 conserve California native plants and their natural habitats, and increase understanding, appreciation, and horticultural use of native plants. Membership is open to all.

Membership includes the journal *Fremontia*, quarterly magazine, *Flora*, which gives statewide news and announcements of Society activities and conservation issues, and the chapter newsletter *Gold Field Notes*. To join, call our main office in Sacramento, (916) 447-2677, or visit www.cnps.org to join online.

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