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CALIFORNIA NATIVE PLANT SOCIETY

BULLETIN

Sign of the Times!

CNPS is helping Californians change the way they garden.

By Caroline Garland, CNPS Horticulture Program Coordinator

A little more than one year ago, CNPS released a new public outreach tool—beautifully-designed, high quality, durable metal "Native Plants Live Here" signs. Perhaps you've had that pleasant surprise of coming across a yard or preserve that bears one of the signs? Over 1,000 signs have been distributed, in English and in Spanish. Many signs also display the logos of key partners such as Santa Barbara Botanic Garden, Tree of Life Nursery, and CNPS South Coast Chapter, and more are being posted every day!

These vibrant signs are the most visible part of the expanding CNPS effort to engage and support Californians in native plant gardening. In the coming year you'll be seeing more signs, as we roll out a few new initiatives. For example, this summer we will be reaching out to make sure these signs grace publicly visible gardens across California, so that people can understand why they are special and learn more about native plant gardening. These gardens will also be given outreach tips so that they can serve as ambassadors and help their neighbors start their own drought-tolerant, pollinator-friendly native plant gardens. If you know of an especially beautiful public native plant garden that deserves a sign, please email cgarland@cnps.org. Once "signed," many gardens will be added to an online map integrated in to Calscape (calscape.cnps.org), CNPS's innovaive website that helps users find plants native to their locale. This will allow gardeners to find nearby demonstration gardens, develop a list of plants for their own yard, locate retailers that sell those plants, and even find professionals to help design, install, and maintain the gardens.



Dan Gluesenkamp

In a Sacramento neighborhood, a "Native Plants Grow Here" sign is spotted gracing a drought-tolerant garden—and perhaps shaming its overwatered neighbor?

This work is supported by a very thoughtful anonymous donor, and by CNPS South Coast Chapter's Elain Conze bequest, and will literally put native plant horticulture on the map. Working with partner organizations, homeowners, and local public gardens, this and other outreach projects will help thousands of interested Californians connect with the resources they seek, moving us several steps closer to a California in which our urban landscape is an integral part of the conservation solutions we need.

CNPS 2016–2021 Strategic Plan Finalized

By Gordon Leppig and Andrea Williams

CNPS is on a roll. Never in our 50-year history has CNPS been so engaged and effective in meeting our mission. From the desert south to the Klamath north, from salt marsh to snow pack, in remote wilderness to backyards and the State Capital grounds, volunteers and staff work assiduously with our many partners to protect and restore native plant habitat, promote their value and beauty, and educate young and old.

With programs and activities as varied and numerous as horticulture and publishing, conservation, education, and advocacy, CNPS needed to update its strategy for where best to focus our efforts. We are proud to announce CNPS has just finalized and approved a 5-Year Strategic Plan to help guide and direct our work though the year 2021. The new Strategic Plan has four overarching goals:

1. Know—provide/promote the best available science to protect native plants and habitats.

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From the President

Getting Hooked on Plants

When did I first notice nature? That would have to be Walt Disney's "Painted Desert" train ride at Disneyland, and I certainly looked forward to the "Wonderful World of Disney" with its many nature themed shows. But I didn't get into the outdoors very often when I was a kid.

That changed when at the age of 9 my family moved from Van Nuys to Tarzana, where our new home was situated at the very end of the development; recently cut hillsides with homes in various stages of construction were our playground (before construction sites were fenced off) and at the top of the hill—the chaparral!

It wasn't long before I was hiking in the wild with my school friend Vincent, pre-teens hiking along deer trails, collecting rocks and fossils, seeing wildlife up close, and coming home smelling like sage.

In my 1971–1972 Taft High School AP Biology course, Mr. Jeffrey Clark had us write a nature journal, listing weather conditions, locations, and scientific name for mammals, birds and plants. I started going into the field with Mr. Clark to birdwatch and to take photos of wildlife. Mr. Clark was working with another teacher to produce—get this—film strips of different plant communities. Mr. Clark and I then took a weekend overnight camping trip along a transect of the San Gabriel Mountains, from the city to the desert, looking and documenting the diversity.

Then, in my first year at UC Berkeley, in spring quarter (after a very rainy 1972–1973 El Nino) I took Dr. Bob Ornduff's Botany 101 with a lab class where we had to key out native plants by family. I think the exact moment I got hooked was holding Robert Munz' *A California Flora and Supplement*, in which I felt all the answers must be contained.

Well, here it is, nearly a half-century later, and I'm spending more time than ever with my CNPS compatriots. I hope to see you in the field, and encourage you to email me at naturebase@aol.com if you want to connect.

Steve Hartman
CNPS President

Oregon Gulch Protected as Natural Area in Redding

By David Ledger

The Redding City Council recently voted to take 385 acres of City owned surplus land off the market and apply for state grant money to preserve the property as a natural area as well as to purchase and preserve an adjacent 160 acre property. This action was the result of several years of lobbying by the Shasta chapter working with the local chapter of Audubon Society, Sierra Club and seven other organizations.



Oregon Gulch Canyon.
David Ledger

The area, Oregon Gulch, has an intact habitat of foothill woodland and chaparral, an ephemeral stream with salmon and steelhead trout and if the protection effort is successful it will provide an excellent wildlife corridor to undeveloped lands to the west. The Shasta Chapter has led a number of fieldtrips to the area, including one that was attending by about 50 people including Redding's Mayor Francie Sullivan.

Blue oak and gray pine are the dominant trees of the area intermixed with scattered black oak, California buckeye and chaparral, primarily white-leaf manzanita and buck brush. The chapter hopes to see hiking trails built in the area for local citizens to enjoy the beauty of the place and to expand the natural area to surrounding undeveloped parcels.

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Professional Consulting Botanist to Finally Get Formal Recognition Through California Botanist Certification

By David L. Magney and Heath Bartosh

For many years botanists have been actively involved in setting environmental policy and assisting in science-based decision-making in California. Private environmental consulting and engineering firms and public natural resource agencies offer employment opportunities for professional botanists in field surveys and environmental document preparation, but until now there has not been an organization to offer professional certification to these practitioners.

ADDRESSING A LONG-TERM ISSUE

In 2016, CNPS is starting a new program to provide formal recognition of the field and consulting botanists that work in California. Professional botanists and conservationists within CNPS have long seen the problems with the lack of standardization and quality control in the consulting botanist profession performing work that can have significant effects on the California flora. To help solve this, CNPS is taking the lead in developing a detailed and significant means to formally identify those botanists that have the required qualifications to conduct adequate botanical field surveys and the consulting botanists that determine the level of impacts a project may have on the flora through a certification program, the California Botanist Certification (CBC). An organizational structure and broad collaborative effort is now being formed.

The CBC is run by a Board of Certification (BOC), which is composed of certified botanists and is administered by CNPS. The goals of the CBC are to establish standards of proficiency and professionalism that guide the training, development, and performance of botanists, and to facilitate relevant professional training. Certified botanists will receive an annual newsletter and be listed on a Register of California Certified Botanists. Goals of the CBC are to:

- Establish widely accepted standards of proficiency and professionalism that guide the training, development, and performance of botanists;
- Facilitate relevant professional training; and
- Identify and promote courses and training in academic, field oriented, and reporting arenas.

After formal approval by the CNPS Board of Directors, the Board of Certification will administer written examinations annually to those that wish to become certified as a Field Botanist or a Consulting Botanist. The BOC's goal is to have the first set of examinations this spring, first in southern California, then in northern California. Certification will be valid for a period of five years, with renewal achieved through demonstration of continuing education during that time.

THE OBJECTIVES OF THE CBC ARE TO:

1. Serve the needs of botanists outside of academia who wish to validate their professional credentials.
2. Guide biologists, government agencies, courts, and the public in defining minimum standards of knowledge and ability for professional botanists, and to encourage all practicing botanists to meet such standards.
3. Create and maintain public confidence in the advice and opinions of California Certified Botanists as well as educated and experienced professionals who have pledged to uphold the CBC Code of Ethics and to act in the best interest of conserving the state's native flora.
4. Assist the public in identifying qualified botanists by establishing a procedure for critical peer evaluation of a botanist's knowledge and skills based upon defined education, experience, and ethical requirements.

The CBC will be self-funded through annual membership dues and one-time examination fees. The CBC's BOC will consist of Certified Consulting Botanists that are elected by those that are Certified Field Botanists and Consulting Botanists, plus a liaison from the CNPS Board of Directors. Elections will be held annually.

EXPERIENCE NECESSARY

Applicants for certification will be screened by the BOC to be sure they have sufficient education and/or practical experience to successfully take the examinations.

The initial BOC members, as appointed by the CNPS Board of Directors after successfully passing the examination, are: David Magney (Chairman), Heath Bartosh (Vice-Chairman), Aaron Sims, Connie Rutherford, Ileene Anderson, Rob Preston, Julie K. Nelson, and Cherilyn Burton. CNPS staff directly supporting the BOC include Mona Robison and Becky Reilly.

Additional information about California Botanist Certification can be found on the CNPS website at: http://cnps.org/cnps/education/botanist_certification/

CNPS Policy Supports Clean Nursery Practices

Our California landscapes are facing threats from new diseases that we are not prepared to control once they are introduced. The greatest threat is from a disease-causing agent or plant pathogen called *Phytophthora* (pronounced Fie-TOF-ther-uh), which is the Latin term for "plant destroyer." One of the most well-known *Phytophthora* species is *Phytophthora ramorum*, the sudden oak death pathogen, which at this point has killed over 3 million oaks in California since its introduction on nursery stock about 30 years ago.



Elizabeth Bernhardt, Phytosphere Research

Ted Swiecki in stands of the endangered Ione manzanita *(Arctostaphylos myrtifolia)* that are being killed by the exotic soil-borne plant pathogen *Phytophthora cinnamomi*. Living Ione manzanita (olive green color short shrubs) and killed plants (dead stems) are visible.

In December, CNPS adopted a policy to provide leadership on this threat to native plants and their habitats. "This policy supports plant nursery and propagation practices that help prevent plant diseases and that discourage the spread of Phytophthora and other harmful plant pathogens in California," said Dan Gluesenkamp, Executive Director of CNPS. "CNPS will educate native plant nurseries and give special attention to stock propagated or sold by our local chapters."

WHAT IS PHYTOPHTHORA?

Phytophthora is a genus of microscopic water molds, fungal-like organisms. Most—if not all of the over 120 described species cause plant diseases, including many of the most serious plant diseases worldwide. Increased international trade in live plants, especially nursery plants, has increased the rate at which these exotic pathogens are introduced to new areas. Many native plant species have little or no resistance to these invasive pathogens and may be killed or severely weakened when infected. During the past several years, a first-in-the-USA detection of *Phytophthora tentaculata* occurred in several California native plant nurseries and in Bay Area habitat restoration sites on out-planted nursery stock. Investigations to date have identified more than 25 *Phytophthora* species in native plant nurseries indicating that these pathogens are as common in native plant nurseries as they are in commercial ornamental nurseries.

"In addition to coast live oak, native species of manzanita, madrone and bay have been recognized as dying from *Phytophthora* infestations that have been introduced into their habitats," according to Gluesenkamp. "More recently the popular native plants for landscaping, bush monkey flower (*Diplacus aurantiacus*), sage (*Salvia* sp.), coffeeberry (*Frangula californica*) and toyon (*Heteromeles arbutifolia*) have been found to be hosts of these harmful pathogens. Planting of *Phytophthora*-infected nursery stock plants can inadvertently increase these pathogens in built landscapes and natural areas."

"We are working from an abundance of caution developed from experience with the sudden oak death pathogen," said Ted Swiecki, a plant pathologist who has studied *Phytophthora* for many years and is advising CNPS on implementation of its policy on plant pathogens. "Once these pathogens become widely established in native habitats, they are impossible to eradicate."

PLANT PATHOGEN CONCERNS GROW AMONG CNPS CHAPTERS

Interest in plant pathogens grew within CNPS following a pest alert released in February 2014 from the U.S. Department of Food and Agriculture on the discovery of *Phytophthora tentaculata* in California. "The following December we helped organize a seminar at the Presidio in San Francisco for the California Native Nursery Network to educate nurseries on *Phytophthora* species, how they affect native plants, and how they spread in nurseries and wildlands," said Swiecki. Sessions topics at last year's CNPS statewide conference on conservation in San Jose included *Phytophthora* and other pathogens and pests found in California landscapes.

At the quarterly meeting of CNPS Chapter Council last May, an ad hoc

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In Appreciation: Susan Gottlieb

A visit to Susan Gottlieb's native garden reveals the relationship between plants and wildlife: if you plant it, they will come. Set on a rather steep hillside overlooking a canyon in the Santa Monica Mountains, a series of handsomely designed walkways and steps leads down through a woodland of native shrubs and trees. Susan conceived of this garden in 1989 as a way of saving water by removing invasive vine species. It wasn't long after installing native plants that she noticed an increase of birds into her backyard. Subsequently over 100 plant species have been added, mostly local natives, but also desert species that can take advantage of hot microclimates around her home.

Now, in a mature native garden that is over 25 years old, it isn't just birds that are attracted, but wildlife including a great variety of insects (also attracted to extensive water features), amphibians and reptiles, not to mention the local array of mammals. (Find out much more at www.gottliebnativegarden.com featuring a wildlife journal and a species list; additional wildlife photos can be viewed at www.theg2gallery.com/gottlieb_garden.html).

Susan shares her garden with the public through viewings given to college classes, garden clubs, private tours, and the annual Theodore Payne Native Plant Garden Tour. The Gottlieb Native Garden, located in Beverly Hills, has been featured in The New York Times, The Los Angeles Times and Real Gardens.

Susan and her husband Dan shared an interest in photography and conservation which became a catalyst for their founding of The G2 Gallery in Venice, California.



Scott Logan



Jennifer MaHarry

It is an award-winning nature and wildlife photography gallery that facilitates change by bringing attention to environmental issues through the persuasive power of photographic art. G2 shares this passion with both celebrated and emerging environmental photographers, who use the camera as a tool to inspire conservation. G2 donates all proceeds from sales of the art to environmental groups.

Susan's concern about the environment and her direct actions to support the protection of native plants is an inspiration to anyone who meets her, and CNPS is grateful for her support.

Steven Hartman, CNPS President

CLEAN NURSERY PACTICES *continued from page 4*

group was established to identify a role for CNPS in preventing further spread of these plant pathogens. This ad hoc group drew from scientists, botanists, plant pathologists, public agencies and nurserymen throughout the state and immediately began work on a policy on plant pathogens for consideration by the Chapter Council.

CNPS works closely on habitat restoration projects in California, and local chapters use native plant sales to raise funds for their local conservation efforts, so the ad hoc group drafted a policy to promote healthy nursery stock for habitat restoration sites and CNPS-sponsored native plant sales. "Producing healthy nursery stock that is safe to plant requires practices similar to producing food that is safe to eat," said Swiecki. "Soil, containers, equipment, plant material, and water must be free of pathogens and contact with possible sources of contamination, such as the ground, needs to be avoided."

PATHOGEN POLICY WILL INCREASE THE COST OF NATIVE PLANTS

The ad hoc group worried that some recommendations will increase the cost of native plant nursery stock, said Gluesenkamp. "But their discussions always came back to the fact that many nursery practices were threatening native plants in natural stands, restored habitats, and residential landscaping. As the principal organization dedicated to California's native flora, we should do no harm if nothing else."

Gluesenkamp says "the policy will be used to guide our conservation activities with the nursery industry and government agencies to ensure that habitat restoration projects use biologically clean and healthy nursery stock, and will provide support to local chapters to reduce their risk of selling infected plants at their native plant sale fundraisers. It is encouraging that many nurseries such as the Presidio Nursery in San Francisco and Watershed Nursery in Richmond are helping develop best management practices for nursery operations. Our aim is to work together."

For more information on this CNPS policy and other policies see conservation page on the CNPS website.

Super



The words “El Niño” make us think of the weather - but El Niño is also a biological phenomenon. In the desert Southwest, where El Niño intensifies cool-season rain, wildflowers respond with spectacular displays, boosting the entire ecosystem. Pocket mice and harvester ants, coyotes and desert tortoises all benefit directly or indirectly from the massive input of flowers, greenery, and seeds that typifies the best El Niño years.

Many of us still recall the lush spring bloom after the El Niño of 1997-98, one of the strongest in recent memory. Photographer Carll Goodpasture’s breathtaking images of that bloom show the desert as few people ever see it, and were compiled in a gorgeous CNPS book: “*The Best Spring Ever: Why El Niño Makes The Desert Bloom*.” With text and captions by Janice Emily Bowers, it provides great background about El Niño and its influence on desert ecosystems, including the relation between rain and seed germination, the interactions between flowers and their pollinators, and human impacts on the desert.

Now, the California deserts are giving us another El Niño-blessed spring bloom! As waves of wildflowers sweep across vast expanses of desert, they are followed by thankful swarms of pollinators, caterpillars, and flower-crazed plant lovers. Here, we share with you some of the botanical ebullience underway across California this season. Please join our wonderful desert plants in celebrating the desert and its ever-inspiring contrasts.

Photos from L-R: (*Langloisia setossisima ssp. punctata*) lilac sunbonnets. Photo by Michael Charters; Newly-designated Castle Mountains National Monument. Photo by Duncan Bell; Jim Bromberg celebrates the bloom. Photo by Jen Ackerman; Newly-designated Castle Mountains National Monument. Photo by Duncan Bell; (*Garaea canescens*) desert sunflower. Photo by Michael Charters; Canescens Mountains at sunset. Photo by Tom Chester; (*Euphorbia parishii*) Parish’s sandmat. Photo by Keir Morse; Photographer Keir Morse frolicking in the flowers. Photo by Landy Figueroa; (*Mimulus rupicola)* Death Valley monkeyflower. Photo by Keir Morse.









Above: Jake Sigg botanizing Death Valley top bar. Photo by Dan Gluesenkamp;
Flower images L-R: (*Nemacladus tenuis var. aliformis*) desert Nemacladus. Photo by Keir Morse;
(*Salvia funerea*) Death Valley sage. Photo by Keir Morse; (*Eremalche rotundifolia*) desert five-spot.
Photo by Keir Morse; (*Mohavea breviflora*) Lesser mohavea. Photo by Michael Charters.

While the flowers are nurtured by the drought-breaking 2015-16 rains, their exuberance is undoubtedly inspired by recent successes in protecting our deserts, their unique plants, and spectacular vegetation communities. In February, President Obama designated new National Monuments protecting 1.8 million acres of desert. The National Park Service will manage our new ***Mojave Trails, Sand to Snow,*** and ***Castle Mountains National Monument***, protecting each area's outstanding natural, cultural, and historic values.

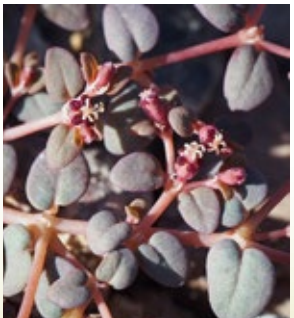
There is still much hard work ahead for CNPS and others committed to saving our deserts. For example, the Desert Renewable Energy Conservation Plan (DRECP) is nearing completion of Phase I. CNPS has been very successful in helping shape this plan, and CNPS advocacy for plants has secured some good outcomes, but serious conservation issues must still be resolved. 526,000 acres of habitat remain designated as "Unallocated Lands," not yet identified for either development or conservation within the Plan. These lands must have assurances to prevent future development on unallocated lands.

Similarly, we are working to save areas of dense microphyll woodlands that are inappropriately designated as energy development focus areas. Microphyll woodlands are places where desert trees like blue palo verde, ironwood, smoketree, mesquite, and desert willow provide essential habitat to a suite of wildlife species, and CNPS is dedicated to seeing that BLM redesignate these places as conservation areas.

With your help, CNPS has had a lot of success preserving these areas, and these successes inspire us to redouble our efforts. In the meantime, let's celebrate the great news about our deserts by getting out to see some flowers! With the desert, and all of California, in a rare bloom what better time is there to celebrate our national treasures and explore California's special places?!

California Native Plant Society



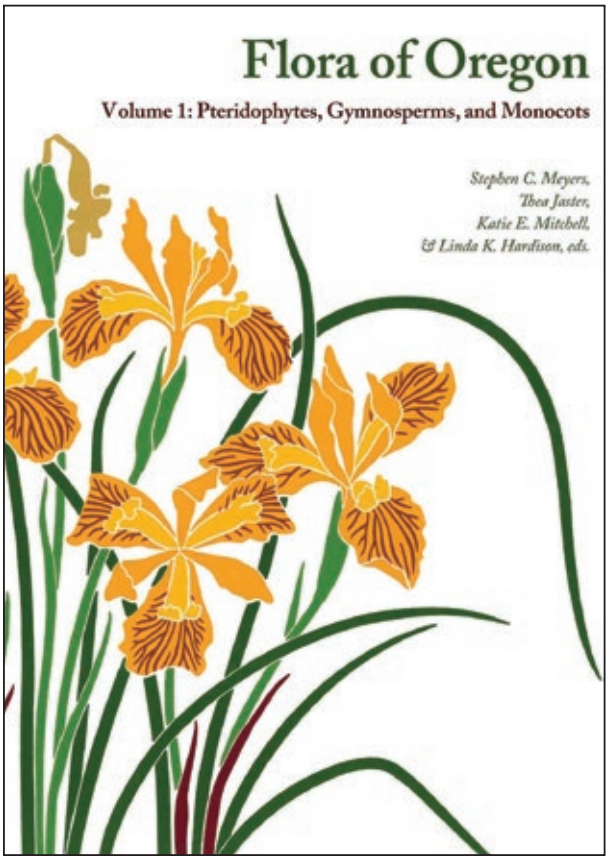




Flora of Oregon, Volume 1 now available

"There is now a new standard of excellence for a state flora."
—Neil Harriman,
Plant Science Bulletin 61(4):161.

The beautiful new *Flora of Oregon* indeed delivers more than your typical flora. Chapters in this first volume cover biographies of notable Oregon botanists, the ecology and predominant habitats of the state, and 50 destinations—organized by ecoregion—for exploring Oregon's botanical diversity; these are accompanied by 73 color photographs. Five appendices emphasize plant taxa of interest to conservationists: endemic species, those occurring in a single ecoregion, and taxa not collected in over 50 years. The floristic treatments cover 1,054 taxa (representing 23% of Oregon's vascular flora) of Pteridophytes, Gymnosperms, and Monocots that are native or naturalized. Dichotomous keys aid identification, and each terminal taxon (species, subspecies, or variety) has a detailed description and distribution dot map. Over half the taxa are illustrated with pen and ink drawings. Edited by Stephen Meyers, Thea Jaster, Katie Mitchell and Linda Hardison with contributions from more than 20 taxonomists, this work from the Oregon Flora Project is the first statewide flora for Oregon since the second edition of Morton Peck's flora of 1961. Volumes 2 & 3 of the Flora of Oregon are expected in 2017 and 2019.



OREGON FLORA PROJECT

Visit the **Oregon Flora Project** website http://www.oregonflora.org/ for more information and additional interactive resources. Order the book online at http://shop.brit.org; by email at orders@brit.org; or phone 817-332-4441x264. Specifications: 7.5" x 10.5" hardback, 608 pp., 520+ b/w illustrations, 1000+ distribution maps, 73 natural landscape color photos. $75.

Not ready for a Flora yet or looking for the perfect complement to the *Flora of Oregon Vol. 1*? Expand your knowledge and enjoyment of Oregon's abundant wildflowers—both monocots and dicots—with the **Oregon Wildflowers App**. This easy-to-use plant identification app is a photo-rich guide to over 1,050 wildflowers, vines and shrubs throughout the state. Works on Apple, Android, and Kindle devices. To order visit *http://highcountryapps.com/OregonWildflowers.aspx*

Strategic Plan Finalized

(from page 1)

2. Save—conserve native plants and their habitats through numerous coordinated actions.
3. Enhance and Restore—reclaim habitat for native plants through horticulture, restoration, and stewardship.
4. Engage and Energize—increase organizational resources and enhance opportunities for members and partners to celebrate and appreciate native plants and more meaningfully participate in and support CNPS.

Each of these goals is supported by a number of representative strategies. The Strategic Plan is an overview document that broadly lays out how CNPS intends to achieve our mission. Much work still lies ahead for staff and volunteers to better define and develop—and ultimately implement—the many strategies that will help CNPS meet our stated goals.

Many deserve credit for helping complete the new Strategic Plan. Initial work was done by two Strategic Plan committees. Then the Board of Directors and Chapter Council worked though many drafts to refine and improve it. A draft also went to all CNPS chapters to gather input and insight from chapter members statewide. Consequently, this final Strategic Plan is the result of substantial input from hundreds of CNPS members. We thank the numerous CNPS staff and volunteers that put countless hours into this Strategic Plan. It is currently prominently displayed on the CNPS website. Please check it out—and prepare to be inspired.

Preserving Yadon's Rein Orchid

By Sally Childs

Monterey County is home to the federally endangered *Piperia yadonii*, commonly called Yadon's rein orchid. The majority of these native orchids are located on the Monterey Peninsula, but they also occur amongst the maritime chaparral in the hills of Prunedale where I live.

A friend enlisted me in an effort to protect these little plants from the usual culprit, proposed plans to build on top of them. I talked to my county Supervisor about the need to protect



Katie Pofahl

Evaristo Alvarez and Sally Childs protecting Yadon's rein orchid.

these orchids in our local 500 acre Manzanita Park. He told me that my little plants were more threatened by pampas grass than building development. This encounter led to a 10 year long pampas grass removal project.

My reason for taking on the pampas grass problem was to focus attention on the park's plant life. One tenth of the park is used for a youth sports complex. Locals were more aware of that developed part of the park than the other 450 acres of rare manzanita, orchids, Monterey spineflower, Eastwood's golden bush, and other native plants.

I recruited a team of local high school students, all immigrants from Mexico, to remove the invasive pampas grass, yellow star thistle, and French broom in the park, and to protect the rare plants. At first, park supporters donated money to give stipends to our youth, but later the Monterey County Agriculture Department began providing funding because the invasive plants are considered a threat to local agriculture.

One team member, Armando Cortes, was 16 when he began working on the invasive plant removal. He managed the field work and recruited other team members. He continued the work from the beginning all through his college years. Nearly all of the pampas grass and yellow star thistle are gone from the park now. Without Armando that wouldn't be the case. To this day a dozen years later, he is the person I call upon when people ask about our habitat restoration.

Evaristo Alvarez is another key person in our efforts to preserve the endangered orchids in the park. In the process of removing the invasive plants we became very familiar with the park's rare plants so we wouldn't disturb them. We heard about plant mapping and decided to map the location of all the native orchids we could find. Evaristo and I attended a workshop in Watsonville where Dan Gluesenkamp (then of Calflora Database) gave us information we needed to start orchid mapping using Evaristo's smart phone.

When piperia emerge in December and January they are plentiful, but not easy to find unless you know where to look. We visited all the spots where we had seen them previously and took



Sally Childs

Armando Cortes with invasive pampas grass.

pictures with their GPS locations so we could create maps. Manzanita Park also has *Piperia elongata* (dense flowered rein orchid) which appears the same as *Piperia yadonii* in the leaf stage. In order to tell the particular kind of piperia at a location, we have to see them in bloom. This doesn't occur until June and July. By that time about 90% of the non-flowering plants have dried up. In June of 2012, we returned to all the previously mapped locations and mapped the remaining flowering orchid plants. We did this for two years in order to map most of the piperia in the park. During the recent drought years there was a decline in piperia sightings, but we have documented where to look for these shy plants when conditions improve.



Sally Childs

Yadon's rein orchid amongst the manzanita.

This is only a snapshot of our work in Manzanita Park over the years, but we know we have made positive changes. The vast majority of the invasive plant threats have been removed. The endangered *Piperia yadonii* are still present at their documented locations. Low income immigrant youth have spent many hours working to preserve this local habitat, and as a result, have formed a closer bond with nature in all its complexity. We elders have formed a closer bond with the youth, helping them become citizens and voters as well as being dedicated stewards of the earth. From our work together, we know that we and the park are better than before.

"Not" Turpentineweed

By Eric LoPresti

Trichostema laxum—like so many of California's native forbs—is practically un-studied. Why has no one chosen it for their attention? Its patchy distribution on northwestern California on serpentine? Its coexistence with showier *Clarkia*, *Diplacus*, *Helianthus* and *Delphinium*, to name but a few of its associates? Its flowering season during the hot June and July sun? Or someone's unfortunate choice of "turpentineweed" as a common moniker?

Being neither turpentine-smelling, nor particularly weedy in the general sense of the term, *Trichostema laxum* has proven a captivating plant to tough out the hot days of summer studying! In contrast to its better-known relatives, *T. laxum* is a forb (unlike the shrubby *T. lanatum*) and is far smaller and less-showy than the common vinegarweed, *T. lanceolatum*. But look closer at this small plant and it becomes a rather showy summer wildflower… with a bunch of odd traits.



Eric LoPresti

Poor plant "W3". As a mint, *T. laxum* can produce only 4 seeds per flower, meaning that W3 likely produced less than 20 seeds during its whole two-month life span. It looks longing on nearby California snapdragon, Antirrhinum cornutum (not pictured), which might produce 10x that figure in a single fruit.



Eric LoPresti

This is the "normal" morph of *T. laxum*. Being normal has never been so beautiful. If the sheer wonderful-ness of this plant has not completely derailed you, notice how far beyond the anthers the stigma is. This plant cannot fertilize itself without an insect assistant.



Eric LoPresti

I'd steer clear of putting my bare hand on any real turpentine, but this pink-morph *T. laxum* is fortunately misnamed.

Swarming with bees in the mornings, it would be easy to conclude that *T. laxum* is an obligate bee-pollinated flower. However, look closer at the flowers and some mysteries appear—why do some plants produce copious nectar while others produce none? Why are the stigmas and anthers widely-spaced in some plants, while nearby plants have these structures in contact? Why do some populations have several color morphs of flowers growing interspersed?

Laying the groundwork to answer these questions has taken the form of field observations coupled with lab and greenhouse grow-outs and lots of flower measuring, nectar collecting, standardized photographs, crosses and more. From grow-outs, we have produced a great deal of seed with known parentage. Jenny Van Wyk, another graduate student at UC-Davis, and I have been concentrating lab work on the selfing traits, though floral color is an interesting trait, as well. To get at the hereditability of flower color—and to give some love to this under-appreciated species—we've enlisted the help of CNPS gardeners. We're sending out about 75 packets of seeds that we've made from crosses in the greenhouse and asking for simple photographs of the plants that result. These plants will give us basic data on color morph and hopefully motivate someone to come up with a better common name than "turpentineweed."

Southern Sierra Nevada Foothills Vegetation Project

By Julie Evens, Jennifer Buck-Diaz and Jaime Ratchford

This spring, the CNPS Vegetation Program and partners will head back into the field for another season of vegetation sampling in the southern Sierra Nevada Foothills. This on-going project, which began in 2008, strives to gain a greater understanding of the diversity of vegetation within this important region though sampling, categorizing, and mapping at a fine scale. The region covers more than 1.7 million acres from the east and south side of the San Joaquin Valley floor upward to roughly 5,000 ft. (1,525 m) elevation in the Sierras, and also includes the San Emigdio Mountains, which climb above 7,500 ft. (2,285 m) in the foothills region.

This past year's funding has come from a contract with the California Department of Fish and Wildlife (CDFW), and this project is yet another piece of CNPS and CDFW's long term goal of detailed vegetation mapping across the entirety of California. The southern foothills region is of high priority because it, along with the Northern Sierra Nevada Foothills (mapped previously in 2011), and Great Valley (being mapped separately), have the greatest potential for increasing urban, suburban, and rural residential development in the state.

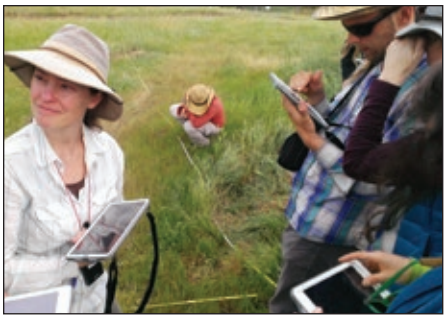
The resulting field sampling and digital mapping data are critical to the success of local and regional conservation and management planning processes currently underway in the region. Vegetation maps, when integrated with other data layers in Geographic Information Systems (GIS), provide land managers with tools to inform decision making and planning processes, whether to identify what types of vegetation face encroaching development, require mitigation, provide habitats for threatened animals, or are in need of restoration. Maps also can be used to locate high quality habitats and areas with sensitive plant communities, assess wildfire risks and plan post-fire actions, model and predict wildlife and plant distributions, evaluate potential effects of climate change, and identify appropriate wildlife corridors.



Jennifer Buck-Diaz

The Sierra Nevada foothills region is botanically diverse. In this photo alone are several types of plant communities from popcorn-flower, poppy, and fiddleneck grasslands to blue and interior live oak woodlands as pictured from the Ruth McKenzie Table Mountain Preserve.

As we continue to gather new information on vegetation types within each ecoregion of the state to refine our understanding of the California flora, the CNPS vegetation team is actively seeking locations and properties to survey in 2016. If you are a landowner in the southern Sierra Nevada foothills, and are interested in having our field staff visit your property, please contact Jaime Ratchford at jratchford@cnps.org.



Vanessa Stevens

CNPS staff in 2015 during a field sampling training in the Southern Sierra Nevada Foothills.

Additional details about the mapping project results in the Sierra Nevada Foothills to date are available on the CNPS website (http://www.cnps.org/cnps/vegetation/reports.php). Already, the northern Foothills map has been used successfully by many counties, academic institutions, and other groups for natural resource management planning, conservation planning, wildfire risk and protection planning, wildlife habitat analysis, habitat connectivity analyses, and climate modeling.

CNPS and CDFW also are seeking additional funding to map the rest of the southern Sierra Nevada foothills region beyond the 50,000 acres that we have mapped in the region. Thus, please contact us if you are interested in helping us continue this important resource assessment work across the rest of the southern foothills.

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