



CALIFORNIA NATIVE PLANT SOCIETY
San Diego Chapter Newsletter

CHAPTER MEETING

**Casa del Prado Room 101
Balboa Park**

**April 17, 2018
7:30 p.m.**

**Garden-worthy Grasses
and Grass-like Plants for
the Garden**

by Carol Bornstein

We eat and drink them, build with them, and play on them. Of the 10,000+ species of grasses, discover some of the many California native choices for ornamental value as well. Whether replacing your water-guzzling lawn with a low-care alternative, creating habitat for wildlife, or simply adding movement to your garden, this talk will offer up many climate-appropriate native grasses and grass-like plants to consider.

Carol Bornstein is Director of the Nature Gardens at the Natural History Museum of Los Angeles County, where she oversees the long-term care and development of



this 3.5-acre habitat for urban wildlife. For nearly 30 years, she was horticulturist at the Santa Barbara Botanic Garden. Carol co-authored two books, the national award-winning California Native Plants for the Garden and Reimagining the California Lawn: Water-

conserving Plants, Practices, and Designs, both of which champion the benefits of designing gardens in harmony with nature. She continues to advocate for sustainable, regionally appropriate landscaping and to share her

knowledge of plants native to California and other Mediterranean and dry-climate regions through her writing, teaching, and design work. She received a B.S. in Botany from the University of Michigan and an M.S. in Horticulture from Michigan State University.

Meeting Schedule

- 6:30 pm – Natives for Novices. Developing a California Wildflower Garden by Greg Rubin.
- 7:00 pm – Refreshments, browsing, & socializing.
- 7:30 pm - Announcements
- 7:45 pm – Presentation.

Chapter meetings are free and open to the public.

**Native Garden Tour
“Native Gardens for
Beauty & Sustainability”**

April 14 & 15, 2018

9:30 a.m. - 4:00 p.m.

Don't miss the 2018 CNPS-San Diego Garden Tour: Native Gardens for Beauty and Sustainability. For tickets see:

<https://www.cnpsd.org/events/2018/4/14/native-garden-tour> .

Join us on the 6th Annual CNPS Native Garden Tour that will be held in North County on Saturday & Sunday, April 14th & 15th and includes the areas of Encinitas, Cardiff, Carlsbad, Oceanside, Vista, San Marcos and Escondido. We are featuring 20 residential gardens and several non-residential and public gardens. Spend a day or two exploring some lovely neighborhoods and backcountry areas. We have a great variety of lovely gardens including features such as gardening on slopes, dry streambeds, bioswales, water catchment, charming water features, bridges, garden art, striking sculptures and more.

FIELD TRIPS

April 1, Sunday: Guatay Mtn - Tecate Cypress Grove & Rare Plants.

TIME: 9 a.m. to 1 p.m.

DIFFICULTY: 5+ miles, Moderate to Difficult

PLANT KNOWLEDGE: Botanical experience required.

BRING: Valid 2018 ADVENTURE PASS REQUIRED to Park at Pine Creek Trailhead.

Easter is on April Fool's Day this year and we're going to head up to Guatay Mountain in the Cleveland National Forest for our very own Easter egg hunt! The April Fool's is that the eggs are rare plants and there's no guarantee they will be in bloom. **Jenny Moore**, the Forest Botanist, will assist leading us to the top of the mountain for a great view of East County San Diego. This hike is open to any professionals who have collected before and know how to key rare plants and log them into the SD Plant Atlas/iNaturalist. A portion of the trip will be off trail in sensitive habitat, so the discussions and rules will be very technical. **Experienced California Native Plant Society (CNPS) members and professional biologists are highly encouraged to attend.**

From the Pine Creek Trailhead, we'll head up the Guatay Mtn Trail. Through oaks, manzanitas and ceanothus chaparral, the trail will wind atop the gabbroic pluton that boasts many rare gabbro endemics such as *Calochortus dunnii*, *Diplacus (Mimulus) clevelandii*, *Allium marvinii*, and, of course, the grove of *Hespericyparis forbesii*. We'll be looking to check on the Tecate Cypress woodland and chaparral. In addition, we'll be adding to the list of known plant species within the Research Natural Area (RNA), where possible. Data on listed species found will be uploaded to the Plant Atlas. We are especially looking for any Review List species such as *Githopsis diffusa* ssp. *filicaulis* or *Heuchera rubescens* var. *versicolor* (though unlikely), as well as disjunct species like *Ceanothus foliosus* and *Salvia sonomensis*.

Bring ID keys, GPS units, lenses, gaiters, cameras, etc. Bring plenty of water, sunscreen and a lunch. We'll stop under the cypress grove before heading back down. We expect to be back to the vehicles around 1 p.m.

CARPPOOLING: Available from Fashion Valley transit center from 8:00 to 8:10 a.m. Park near Fashion Valley Rd at the West Entrance to the mall or come in on the bus or trolley. Parking is free at Fashion Valley all day in spots marked "Trolley Parking", but it is still a private lot,

so please patronize the businesses there and be aware that there are risks to parking there like any mall.

DIRECTIONS: Meet at the Pine Valley-Las Bancas Rd & Old Hwy 80, Guatay, CA. Take I-8 East from San Diego. Exit Pine Valley Rd & turn North. Left (N) onto Old Hwy 80 in Pine Valley. Head on until Cleveland Natl Forest Sign for Pine Creek Trailhead & turn. Park at end of Pine Valley-Las Bancas Rd. Map is a bit inaccurate.

April 8, Sunday: Santa Rosa Plateau of SW Riverside County - Wildomar / Murrieta.

TIME: 10 a.m. to 1 p.m.

DIFFICULTY: ~4 miles. Easy, but long walks, little shade.

PLANT KNOWLEDGE: Beginner to some Advanced

COST: \$4 per adult, \$3 for children under 13.

Santa Rosa Plateau is an Ecological Reserve that protects over 9,000 acres of grassland, native prairie, oak woodland, riparian wetlands, coastal sage scrub, chaparral, and the famous and unique basalt flow vernal pools. The Reserve is managed by rangers and biologists - some of whom we might meet at the Visitors Center at the start of the field trip. The Visitors Center has books, art, restrooms, a wonderful garden and possibly an outdoor exhibition on Sundays.

The Plateau has unique geology for Southern California that has rare mafic intrusive igneous soils like gabbro and basalt hardpan. Situated above the developed valley in the San Ana Mtns near the coast, the Plateau boasts many plant communities that host plants found nowhere else in the world, including Santa Rosa brodiaea (*Brodiaea santarosae*), San Diego button celery (*Eryngium aristulatum* var. *parishii*), Thread-leaved brodiaea (*Brodiaea filifolia*), Parish's meadowfoam (*Limnanthes alba* var. *parishii*), and Navarettia (*Navarettia fossalis* & *N. prostrata*). The wildlife is amazing, too, including fairy shrimp, water fowl and amphibians like spadefoot and salamanders. Even if the pools are dry this year, the landscape is breathtakingly pastoral and filled with native plants in a way that is rare and special in California.

Bring sunscreen, hats, cameras, binoculars, guides, etc. and be prepared for detours should it rain in the days before or of the trip. We'll meet at the Visitors Center, then all drive to the vernal pool trail parking lot. From there, we'll examine the vernal pools and head down to the Adobes for lunch. After, we'll possibly explore more depending on the group. **Pets are allowed on leash but cost \$1 more** and are strictly prohibited from going off marked trails.

CARPPOOL: Fashion Valley Transit Center at the Fashion Valley Mall nearest Fashion Valley Rd from 8:20 - 8:30 a.m. Parking is free in stalls marked Transit Parking for 24 hours. Despite never having problems there, keep in mind that there is always risk to parking there as in any place. Security does patrol there.

DIRECTIONS: Santa Rosa Plateau Ecological Reserve. South Trailhead (Vernal Pool Trailhead). From I-15 North out of SD Cnty into Riverside Cnty, stay on I-15 towards Wildomar/Lake Elsinore at the 215 split. Exit Clinton Keith Rd and turn Left (West). Head on up the hill, look for the Visitors Center. The map above is a bit inaccurate.

April 15, Sunday: Silverwood Wildlife Sanctuary.

TIME: 9 a.m. to noon.

DIFFICULTY: 2-4 miles. Easy to Moderate.

PLANT KNOWLEDGE: Beginner to Some Experience.

Relax after filing your taxes by coming with us to the Silverwood Wildlife Sanctuary in East San Diego County. The Audubon Society's 785-acre property began 1965 with the donation of 85 acres and continues as a refuge in perpetuity for birds and other wildlife. The reserve manager of the Sanctuary, Phil Lambert, will take us briefly through the history and focus of the Sanctuary, and then lead us through riparian woodland and chaparral to view the plants within and the habitat's inhabitants. This is an opportunity to see inside a long-standing research area and get as much or as little knowledge from it you want. Phil has a wealth of information and I will also assist in identifying spring plants too, so come curious! Or, if you just want to experience a relaxing shady trail on a warm spring day surrounded by birdsong, you should come as well.

Some of the rare species of flora we might come across are Lakeside ceanothus (*Ceanothus cyaneus*) and Engelmann's oak (*Quercus engelmannii*). With luck, annuals will be in bloom alongside flowering perennials, all attracting insects and birds. From the website for Silverwood, some resident bird species here are bluebirds, hummingbirds, woodpeckers, flycatchers, towhees, wrens, goldfinches, phainopeplas, and many other songbirds. Springtime is breeding season, so we'll likely see breeding pairs and nesting habits. The Plant list includes 324 species, most of them native.

Bring sunscreen, water, hiking wear, etc., as always. There are many photo opportunities, especially for wildlife. We'll aim to be done before lunch. However, there are ample restaurants nearby including the

Barona casino (Chance to blow the tax return!). Donations help to keep the Sanctuary functional: suggested amount is \$5 to \$10, but more always helps!

CARPPOOL: Per usual, carpool will be available from Fashion Valley mall transit center from 8:20 to 8:30 a.m. Park near Fashion Valley Rd at the West Entrance to the mall or come in on the bus or trolley. Parking is free at Fashion Valley all day in "Transit Station" marked stalls, but it is a private lot, so please patronize the businesses there and be aware that there are risks to parking there like any mall.

DIRECTIONS: Silverwood Wildlife Sanctuary. 13003 Wildcat Canyon Rd, Lakeside. Take the 52 East OR I-8 East to the SR-67 and head into Lakeside. At Maplevue St, turn East and then North onto Ashwood St, which becomes Wildcat Canyon Rd. Head up the canyon on Wildcat Canyon Rd. until you see the sign for Silverwood. Map is a bit inaccurate!

RULES: No pets allowed. Also, you will need to sign in for the trip with both me (Justin Daniel) AND with Phil Lambert. Thank you for your understanding!

April 22, Sunday: Algodones Dunes BLM Wilderness Area, Imperial County.

TIME: 9:00 a.m. to 1:00 p.m.

Imperial County is a large and sparsely explored botanical mystery to most, especially in areas that would appear at first glance to be inhospitable to life. When most people hear of Glamis and the Imperial Sand Dunes, the thoughts of people riding over sand dunes in buggies and ATVs comes to mind, running over the desert at a quick enough pace that the heat is calmed by a breeze of their own making. A deeper look uncovers a place that is very complex and amazing to study. The Dunes are a location set within an environmental duality, where temperatures can vacillate wildly between night and day, where moisture is both absent and surprisingly common, and extreme adaptations are required to survive.

Late April is a time when very odd and very rare plants put up bloom, catching a very narrow window between too cold and too hot, and then bedding back down for another year, or many years. We're taking this opportunity to access this amazing area with the kind grace of Wildlife Biologist Camden Bruner of Bureau of Land Management's El Centro Office. We're all looking forward to finding sandpaper plant (*Petalonyx thurberi*), Colorado Desert buckwheat (*Eriogonum deserticola*),

Giant Spanish Needle (*Palafoxia arida* var. *gigantea*), Wiggins Croton (*Croton wigginsii*), Desert sunflower (*Geraea canescens*), Algodones Dunes sunflower (*Helianthus niveus* ssp. *tephrodes*), Pierson's locoweed (*Astragalus magdalenae* var. *peirsonii*), Fanleaf crinklemat (*Tiquilia plicata*), dune primrose (*Oenothera deltoides*), and sand verbena (*Abronia villosa*). With a great deal of luck we may find the most alien of plant species: the parasitic Sand food (*Pholisma sonorae*) which is often covered by the rolling sand as it feeds on the moisture and energy of other plants.

From the Ranger Station, the plan is to access the Imperial Sand Dunes Wilderness Area in two or three locations starting with the Osborne Overlook to focus on the dunes themselves, then onto a shaded area of microphyll woodlands off Ted Kiff "Road" where Honey mesquite (*Prosopis glandulosa*), Ironwood (*Olneya tesota*), and Paloverde (*Parkinsonia florida*) grow in great number.

Bring lots of water! At least a gallon, better two. I will provide ice coolers in my truck with some extra water. Be prepared for the heat - temperature during the midday sun could go over 100°F (38°C). Large brim hats, fans, light clothing, sturdy shoes (sand!), lunch, sunscreen, icepacks, etc. Cameras, notebooks, walking sticks, kerchiefs, and umbrellas are also encouraged. If you plan on driving, take a vehicle that can handle sandy roads, meaning high clearance and all-wheel drive. Watch your gas, tires, radiator, and check your AC before heading out

CARPOOL: Day trip. Meet at Fashion Valley Mall in Mission Valley at 6:20 to 6:30 a.m. Park at the western entrance nearest the Transit Station. Parking is free for 24 hours and has mobile security and cameras. Keep in mind there is the same risk to parking there as any public street. If you plan to take the trolley and can't make it in time, we can coordinate an alternative. If we have too many people to fit my truck, be prepared to drive and take people with you. The roundtrip is about 310 miles, so please consider a ride fare of \$10 or more. Aiming to return to San Diego around 4:30 or 5 p.m.

DIRECTIONS: Imperial Sand Dunes Cahuilla Ranger Station. Gecko Rd, Brawley, CA. East on I-8 from San Diego past El Centro (100 miles). Exit to Hwy 111 North towards Brawley (15 miles), then East onto the 78. Head out another 20 miles to Gecko Rd and the Ranger Station. Map is inaccurate but locates Gecko Rd ok. Allow about 2.5 hrs.

~ Justin Daniel, Field Trip Chair

BOARD MEETING

Wednesday, April 4, 6:30 – 9:00 p.m. 4010 Morena Blvd, Suite 100, San Diego (Thomas Guide 1248 C4). CNPS-SD Executive Board meetings are always the first Wednesday of the month, except when the 1st Wednesday falls on a holiday. Members are welcome to attend as observers. To add an issue to the agenda, please email president@cnpssd.org.

WELCOME NEW MEMBERS

Kimberly Allan

Kristie Ashby

Jane Barger

Eleanor Benzel

Melana Brandt

George Cox

Carol Davis

Jana Fortier

Prashanth Gowda

Jenna Hartsook

Craig Hunsicker

Eric Isaacson

Diane Kennedy

Scott Kilian

Cathy Long

Hollie McGee

Jason Phillips

Katherine Quint

Susan Reel

Jose Robins

Alanna Sullivan

Rosalee Wood

GARDENING WITH NATIVES

Native Gardening Committee Meeting

April 11. The Native Gardening Committee meets the 2nd Wednesday of each month at various locations. Contact gardening@cnpssd.org for location and time.

Native Plant Landscape in Old Town State Historic Park

April 14, Saturday. 9:30 a.m. to noon

All Hands on Deck: the Old Town Landscape Needs Weeders

The good news is we finally are getting rain, and the natives love it. The bad news is we are finally getting rain, and the weeds love it too. Please come help us grub out unwanted non-native pest plants. Bring your own gloves and hand tools or share ours. After we hit the noon hour, some of us will go for a no-host lunch.

The landscape is at the corner of Congress and Taylor

Streets. Park for free in the lot off Calhoun Street, past the green dumpsters. Questions? Contact Kay or Peter at oldtownlandscape@cnpsd.org

~ Kay Stewart

CONSERVATION

Conservation Committee

April 3. Usually the first Tuesday evening of each month. Contact **Frank Landis** at conservation@cnpsd.org for details.

HELP!

(Your Conservation Activities for Native Plant Month)

Yes, it's really Native Plant WEEK, April 15-21, 2018, but we need a month of work this year. Fortunately, or unfortunately, there are things you need to do to help CNPSSD conservation this month. I'm going to highlight some of the same things that Susan and Kay did in their article that follows this one. Unfortunately for nature, they are not the only things going on right now.

To be blunt, this is the busiest I've ever been as conservation committee chair. Here is what the conservation committee is dealing with, as of St. Patrick's Day:

- Harmony Grove Village EIR recirculated, comments due April 9. this may have issues with greenhouse gas part of the EIR, since they seem to claim that replacing the native plants with street trees will increase carbon sequestration. My snarky addition to that is, "yes, so long as there is no tree-killing droughts or pests, and the trees don't grow tall enough to block the solar panels you also want to install."
- Lilac Hills Ranch EIR Recirculated, comments due April 9. **See below.** This has similar greenhouse gas issues to Harmony Grove, as well as being a zombie project trying to dig itself out of its hole right across the freeway from where the Lilac Fire started last fall.
- Pure Water North City Reclamation Plant goes to SD City Council for approval April 10. There is a major issue with *Geothallus tuberosus*, a rare liverwort that occurs on the project site, even though they didn't survey for it. **See below.**
- Otay Ranch Village 14 EIR, comments due April 16. This is a really nasty project proposed just west of

Proctor Valley. There are a number of rare plant issues, and the environmental community is gearing up for a major fight on this. **See below.**

- Save Our San Diego Countryside Initiative, petitions due May 1. **See below.**
- Merge 56 Update: Going to the SD City Council for approval, probably May 22. Hopefully I will not be the only person testifying against this.
- This doesn't count developments like Newland Sierra, Safari Highlands, and DS-24/Borrego Springs Country Estates, which will (likely) come through later this spring or summer.

Here's the "See belows:"

1. Lilac Hills Ranch: Yes, this is effectively the same project that you voted against in 2016. It's still alive because they fiddled with it a little bit and added back the stuff they stripped out from the referendum version, thus making it a "new project."

The issue for CNPSSD is the Lilac Hills Ranch site farm land, so there aren't any big plant issues for us to take the lead on. I will certainly write a comment letter, but it will be focused on their, ahem, new and improved greenhouse gas analysis.

This is where you come in. You need to contact your supervisor on this issue. Here's how:

1. Go to: <https://www.sandiegocounty.gov/content/sdc/general/bos.html>
2. Click on the link to your supervisor, and when you get to their homepage, click on the "Contact" link.
3. Either call or email and tell them politely that you are one of their constituents, that you are troubled by the new proposed Lilac Hills Ranch Project, that this is effectively the same project that was rejected 2:1 by a bipartisan majority of the County voters in 2016, and that you expect them to respect the will of the voters and to not approve this project when it comes before them. Ask for updates from their office on this project and thank them for their attention to this issue and the time they've spent on it.
4. If you like, call or email me and tell me how it went.

What's going on here: The developer knows two things: right now he has a strongly pro-development County Supervisor Board to pass this project, but he probably won't have one as favorable in 2019. He also knows that the SOS initiative is in the pipeline. If it

passes, he'll have to face the voters again after 2019 if he doesn't get the project in now. We're holding the supervisors' feet to the fire, since they will likely vote on Lilac Hills Ranch before the election.

Yes, concerted action by CNPSSD members will be more effective than me just writing a letter. Please step forward and send an email or call.

2. The SOS Initiative: What I'd add to Susan and Kay's article is that I've got a copy of the petition, too, so if you see me at a committee meeting, board meeting, General Meeting, or the Garden Tour, please take a minute to sign it if you haven't already. If you want to get involved in circulating the petition, contact Sierra Club (858-569-6005) to get involved.

In a nutshell, if someone wants a General Plan Amendment project that increases housing density beyond what the General Plan allows, they have to do the CEQA process, get the supervisors to pass it, then (the new step) get it past the voters. Hopefully this will hold the supervisors more accountable for the projects they approve, and we'll get better decisions and more projects that fall within the scope of the General Plan. The General Plan favors truly affordable housing and better transportation, so hopefully the SOS initiative will stem the flood of high end fire traps being proposed for the back country (and developments like Lilac Hills Ranch, Newland Sierra, and Safari Highlands have the only minimum, legally required amount of affordable housing required by law, despite widespread ads to the contrary. They will NOT solve the County's housing crisis, but sticking to the General Plan could help).

3. *Geothallus tuberosus* and the CNPSSD legal fund. *Geothallus tuberosus* is this unusual little liverwort that turns out to be really, really rare. I've gotten involved in trying to conserve it, as has the CNPS Bryophyte chapter. We're probably going to send a listing petition to get it protected under the California Endangered Species Act.

The Pure Water North City Reclamation Project might impact one of the 14 known *Geothallus* populations. Over the next month, I'm going to try to convince the City to do the right thing, which in this case simply means avoiding the *Geothallus*, which might turn out to be trivially easy. We'll need to survey the project sites, but it should be a simple matter of mapping *Geothallus* and avoiding it when the project goes in. However, if they remain as obdurate as they were in their response on the Pure Water EIR, then CNPS may well pursue litigation to protect *Geothallus*. This is the last option if all else fails, but protecting rare species is one of CNPS'

core missions, so this is not something we should turn away from.

That's not the only thing we're spending our legal fund on. We've been contributing funds to Endangered Habitats League (EHL) to help pay for lawyers' time in responding to the VTP, and we're likely to spend money contributing to the legal response on Otay Village 14. EHL has been doing much of the legal heavy lifting for the southern California conservation community, and where their work overlaps ours, we support each other in combating problematic projects.

Unfortunately, lawyers are expensive, and our funds are limited. If you can, please contribute to the legal fund. Contact me or the chapter treasurer (Connie di Girolamo), or send your check to CNPSSD, P O Box 121390, San Diego CA 92112-1390, and note in the memo line that it is a donation to the CNPSSD legal fund.

Thank you for all the help you give. Happy Native Plant April!

~ Frank Landis, SD Conservation Chair

PROTECT RURAL LANDS TO PROTECT NATURE AND PEOPLE: SUPPORT "SOS"

As Earth Day approaches, please keep in mind the ripple effect: everything you do affects the planet, from wild plant and animal biodiversity, to our own health. The more we change our planet, the harder it is for most wild species of plants and animals to survive.

One of our biggest impacts is when farms and ranches are converted to housing, and the co-existing plants and wildlife are wiped out. San Diego's rural land is supposed to be protected from subdividing into small home lots by the County General Plan that allows adding up to 50,000 new homes by expanding the several dozen rural "villages", not by dividing large rural parcels that are far from major roads. The villages already have services that homeowners need: water, utilities, fire protection, larger roads, and schools. And the impact on wild animals and plants is reduced to the boundaries of the villages, rather than converting intact rural lands that frequently include native habitat.

But land speculators can make huge profits converting those distant rural lands. They mislead people by saying that "we need housing." They don't want people to realize that the County General Plan allows new housing. Please read this April issue's Conservation News about one speculator's plan that threatens a large

rural area. If you act by April 9, you could help prevent it from happening.

The public shouldn't have to leap into action every time a new speculator wants to violate the General Plan. So a huge alliance of over 20 San Diego area groups are working to get an initiative called "SOS – Save Our San Diego Countryside" on the Fall ballot. This initiative would require every proposed General Plan amendment to automatically go to a public County-wide vote.

The petitions to put the initiative on the ballot must be turned in by May 1. If you have not signed a petition already, and you'd like to, or want to help gather signatures, send a note to conservation@cnpssd.org. If "SOS" gets on the ballot and passes, it may be able to stop sprawl. The benefit to San Diegans includes reduced greenhouse gas output from excessive commuting, reduced fire risks by reducing long strands of powerlines over wildlands, and reduced direct destruction of San Diego's native animals and plants. CNPS cares.

~ Kay Stewart and Susan Lewitt

BOTANY

Prehistoric San Diego County

Part 1

Introduction

Much evidence exists that during the Pleistocene the vegetation in the Southwest of North America was composed of trees and shrubs that require much more precipitation than currently falls here. Some of the evidence is based on the patterns of existing vegetation including isolated and disjunct populations and consideration of prehistoric distribution of plants influenced them. Other evidence is based on fossil woodrat middens which contain plant parts that can be identified as representing the vegetation from thousands of years ago. Fossil evidence also exists for times ranging from the past few million years when the climate was wet enough to provide for native members of the genus *Persea* (Avocado) with *Pinus torreyana* (Torrey pine) and *Pinus radiata* (Monterey pine) and Palms growing with them (Axelrod and Deméré 1984) to closer to 10,000 years ago when forests existed in coastal Southern California (Axelrod and Govean 1996). Fossil evidence also exists that indicates an extremely diverse fauna of large animals that fed on the vegetation supported by greater levels of precipitation.

There are local indications that in the past, the vegetation in San Diego County specifically must have represented wetter conditions. In the Sierra de San Pedro Mártir well south of the Border with Mexico, an entire community of subalpine vegetation exists complete with *Pinus contorta* (Lodgepole pines) and *Populus tremuloides* (Quaking aspen). This subalpine vegetation is far away and disjunct from its typical distribution. For example, the Lodgepole Pines are typically found in the Sierra Nevada and the San Jacinto and San Bernardino Mountains more than 200 miles away from the Sierra de San Pedro Mártir. Except for a small grove in the San Bernardino Mountains 250 miles away, the Aspen is also found far north in the Sierra Nevada of California but also the Spring Mountains in Nevada. Not only that, a form of Douglas tree squirrel (*Tamiascurus mearnsii*) a close relative to species typically found in the Sierra Nevada and Coast Ranges of California north of San Francisco, occurs in the Sierra de San Pedro Mártir, nearly 400 miles south of its closest relative. Since the aspen is not a good long distance disperser because its seeds are only viable for a very short time, and tree squirrels don't travel far, they are indicators that the vegetation between the current populations to the north and south of San Diego County must have been connected. These species along with *Sarcodes sanguinea* (Snowplant), another subalpine disjunct species indicate an entire subalpine ecosystem must have extended between the Sierra Nevada and the Sierra de San Pedro Mártir. The path between their current distribution and the Sierra de San Pedro Mártir passes through the San Diego and low elevation areas near Valle de Trinidad of northern Baja California. Therefore, they must have occurred in San Diego County during the prehistoric times that conditions were favorable (Oberbauer 1986). Another indication of different vegetation patterns is the presence of ironstone concretions, rust nodules, small round balls, in the soil that are thought to have formed under the acidic conditions of decaying conifer needles. These nodules are found in a variety of locations in San Diego County. Folded in with these pieces of evidence is the presence of fossils in La Brea of between 10,000 and 40,000 years ago. The La Brea flora includes *Sequoia sempervirens* (Redwood trees) and an assortment of pines and cypress demonstrating a wetter climate (Stock et al 1992). Evidence of wetter vegetation in the past also exists in the form of isolated populations of a redwood associated shrub *Vaccinium ovatum* (California huckleberry), in places in San Diego County (Oberbauer 2013). *Arbutus menziesii* (Madrone) in isolated locations in northern San Diego County

Mountains and *Acer macrophyllum* (Big leaf maple) on Mount Laguna and Castro Canyon on the Agua Tibia Mountains are other examples of hold over species which are generally found in Central and Northern California in modern times (Oberbauer 2013b and 2013c). Also, *Pinus muricata* (Bishop pine), and *Pinus attenuata* (Knobcone pine) in small locations in northern Baja California indicate that in the past, there must have been more continuous distributions of those two species that are currently absent from San Diego County, but also occur to the north. The vegetation of the offshore islands, *Leptosyne gigantea* (Giant coreopsis) and *Lyonothamnus floribundus* (Island ironwood) may also provide a source of species from the Pliestocene woodland. All of these factors together provide evidence that at times during the Pleistocene and previous periods, conditions in San Diego County favored vegetation that was representative of greater moisture than currently occurs here. One other point is the seasonality of rainfall. It is likely that it would have generally been Mediterranean with winter precipitation. It is also very probable that summer rain enhanced the winter rain to keep streams and rivers flowing even through the summers but still not wet enough to prevent the natural cycle of vernal pools and seasonal ponds to become desiccated during part of the summer.

The last glacial period or pluvial period, the Wisconsin pluvial period, when referring to San Diego County ended only 10,000 years ago with the maximum cooling only 21,000 years ago after occurring the pluvial period lasted for 75,000 years. During the peak period, the sea level was more than 400 feet lower than present due to the fact that so much of the earth's water was frozen in the northern and southern latitudes (USGS 2012).

Generally the landforms, Mountains and Valleys, would not have been much different than today since geologically, that was not very long ago. However, during the time of the sea level retreat, examination of sea floor elevations indicate that the coast line was quite different. The southern three Coronado Islands were connected to the mainland with a great coastal plain. South of the La Jolla canyon and in the area west of Camp Pendleton, the coast line was up to 6 miles west of its current location, though in between it was as narrow as only two miles west in the Carlsbad area. San Diego Bay was a shallow, broad valley. The coast consisted of a long series of cliffs and bluffs except for the area of the La Jolla Canyon that was a deep inlet into the Pleistocene coastline. The offshore islands of San Clemente, Santa Catalina, San Nicolas and Santa

Barbara Islands would have been larger but farther out, Tanner and Cortez Banks provided additional island exposed by the lower sea level.

There were opportunities for waves of habitat moving up and down the west coast during the past several million years and during the Pleistocene. However, the end of the Pliestocene would have maintained conditions that could provide for the almost inconceivable assembly of species of the La Brea collection of animals while the geographic landforms were the same as they are now.

With all of these climate and geographic differences, we can imagine, with this information as a guide, what the environment looked like in San Diego County in the late Pleistocene, between 10,000 and 15,000 years ago. At that time, nearly all of the species of plants and animals that we have now already existed. However, the animals and plants that occurred here at the time of European contact was only a subset of the real diversity of animals and plants that existed in the Pleistocene.

Similar to the discussion about the environment when Europeans arrived (CNPSSD Newsletter February 2018) we will again start with the Coast in this discussion and work our way through the Valleys, Foothills, Mountains and Deserts.

~ Tom Oberbauer, Chapter President

(This article will be continued in the May 2018 newsletter.)

RELATED ACTIVITIES

San Diego Horticultural Society 2018 Spring Garden Tour

Sat, April 07, 2018

9:00 am - 4:00 pm

General Admission – \$35.00

SDHS Member – \$30.00

This self-guided tour features exquisite private gardens of Encinitas in and around the Olivenhain neighborhood. There will be about eight gardens on the tour, each featuring existing plants, found and collected art, and unique hardscape solutions that will be sure to inspire you. This year's gardens feature both fully mature plantings as well as newly designed gardens suited to our Southern California climate. We have several large estates that feature multiple outdoor rooms; properties with raised vegetable gardens; and lawns, meadows, as well as unique plants.

As usual, the tour also features local artisans selling their hand-crafted garden art. Watch artists as they

paint the gardens they are in and you can take home gifts that will last a lifetime.

See more at <https://sdhort.org/>

Register at <https://sdhort.org/event-2613505/Registration>

Seaside Neighborhood California Native Plant Garden Tour

April 8, Sunday. 2 p.m. Come see over 18 Native Plant Gardens in the Historic Seaside Neighborhood in Downtown Oceanside! Plant experts and neighborhood locals will lead a 1.5-mile walking tour to see these wonderful front yard gardens. Meet at St. Mary's School parking lot at 515 Wisconsin Ave. The guided walk is free. Kids will be selling lemonade and cookies along the route. St. Mary's School is one block east of the 101 Cafe near Coast Highway and Wisconsin St. The Oceanside Coastal Neighborhood Association and the Buena Vista Audubon Society sponsor our 16th Annual Tour. For Info: call 760-439-2473 or visit www.BVAudubon.org or www.OCNA101.org.

Citizen Science Day/Calflora April 14, Saturday, 1:00 - 5:00 pm, free

Do real science in San Diego! Science needs you. Learn more about projects you can help in San Diego!

Where: North University Community Library, 8820 Judicial Drive, San Diego, CA 92122.

Who: Anyone who wants to help science!

Details: <http://www.sandiegocitizenscience.net/>

Nature Talk at OB Library San Diego's Native Plants

May 1, Tuesday, 6-7 p.m. San Diego residents are invited to free nature talks at the Ocean Beach Library, starting with "San Diego's Wonderful Native Plants". San Diegans will see a lovely slide show about San Diego's native plants developed by naturalist/photographer **Phil Roullard**. Phil will present the slides and will be followed by landscape architect **Kay Stewart**. Kay will have an exhibit that illustrates many activities that the California Native Plant Society hosts to encourage people to enjoy San Diego's native plants, in the wild as well as in gardens and landscapes Librarian Destiny Rivera will enable residents to learn more, by sharing a list of books about California native plants that are in the City Library system. Q&A will follow.

The Library is at 4801 Santa Monica Avenue, just off Sunset Cliffs Drive. Future nature talks are being planned for Tuesday afternoons at the Library.

Julian Wildflower Show

May 4 - 6, 2018

The show will be open from 10:00 am to 4:00 p.m.; held in the Julian Town Hall, lower level, at Highway 78/79 and Main Street. The show is free to the public. The Julian Wildflower Show has been an historical event for over 91 years. Because of Julian's mountain valley location, bordering a national forest and close to the Anza-Borrego State Park, we have 855 species of plants within 25 miles of town, many of which were used for health and healing by Native Americans. The Show is meant to educate club members, local residents, out-of-town visitors and children about the botanical wealth of Julian and its vicinity.

With permission from landowners, club members spend two days gathering wildflowers from five plant zones. The wildflowers are displayed in the Julian Town Hall for four days. The flowers are arranged on tables representing the different geographical areas and plant zones in which they are picked. Display cards provided the name of the plant and described uses of the various plants by Native Americans.

The CNPS-SD Newsletter is generally published 12 times a year. The newsletter is not peer reviewed and any opinions expressed are those of the author identified at the end of each notice or article. The newsletter editor may edit the submittal to improve accuracy, improve readability, shorten articles to fit the space, and reduce the potential for legal challenges against CNPS. If an article, as edited, is not satisfactory to the author, the author can appeal to the board. The author has the final say on whether the article, as edited, is printed in the newsletter. Submissions are due by the 10th of the month preceding the newsletter; that is, July 10 for the August newsletter, etc. Please submit items to newsletter@cnpsd.org

CNPS-SD Activities Calendar April 2018

- 4/1: Field Trip to Guatay Mtn, p.2
- 4/3: Conservation Committee Mtg, p.5
- 4/4: Board Meeting, p.3
- 4/8: Field Trip to Santa Rosa Plateau, p.2
- 4/11: Garden Committee Mtg, p. 4
- 4/14-15: Garden Tour, p.1
- 4/14: Old Town Garden Workday, p.4
- 4/15: Field Trip to Silverwood, p. 2
- 4/17: Chapter Meeting, p.1
- 4/22: Field Trip to Algodones Dunes, p.3

MEMBERSHIP APPLICATION

___ Student or Limited Income \$25; ___ Individual \$45; ___ Family \$75
___ Plant Lover \$100; ___ Patron \$300; ___ Benefactor \$600; ___ Mariposa Lily \$1,500
Name(s): _____
Address: _____
Phone: _____ e-mail: _____

Mail check payable to "CNPS" and send to: CNPS, 2707 K Street, Ste 1, Sacramento, CA 95816-5113.

CALIFORNIA NATIVE PLANT SOCIETY

San Diego Chapter
C/o San Diego Natural History Museum
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April 2018 Newsletter

Dedicated to the preservation of the California native flora
CALIFORNIA NATIVE PLANT SOCIETY – SAN DIEGO

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