Dedicated to the Preservation of California Native Flora

The California Native Plant Society

Bristlecone Chapter Newsletter

Volume 43, No. 4
July–August 2022

President's Message

Did you know that CNPS Bristlecone Chapter is an all-volunteer organization? Our chapter would not exist without dedicated and passionate volunteers. For many years, a small group of people have devoted their time and energy to running the organization, planning field trips, organizing speakers, weeding demonstration gardens, and writing letters in support of local conservation issues. As an organization, we work hard to advance our mission to conserve California native plants and their natural habitats, and increase understanding, appreciation, and horticultural use of native plants. We hope to continue in this, but we need your talents. The fact of the matter is that the vast majority of what we accomplish is through the work of 10–15 volunteers, including board members.

In order to uphold the mission of CNPS, Bristlecone Chapter holds native plant sales, which help gardeners to grow natives, and raise money to fund the yearly Mary DeDecker Botanical Grant. We coordinate field trips and other events designed to share knowledge and appreciation of native flora. We have volunteers who work tirelessly keeping track of conservation issues, writing letters, and attending meetings. We offer two demonstration gardens that are free for anyone to visit and enjoy. Plant databases are maintained by volunteers; rare plants are monitored. A volunteer compiles and edits the newsletter. Volunteers grow the plants for the plant sales, update the website, and perform required administrative and accounting work.

Volunteering is a great way to learn about the unique ecology of the Eastern Sierra, meet fellow plant lovers and contribute to the preservation of native plants and landscapes. Are you passionate about conservation? Join our Conservation Committee and speak up for native plants through letters and public meetings. Do you like organizing? Help coordinate field trips and schedule presentations. Do you like hands-on work? Help care for our demonstration gardens. Do you prefer a role in chapter governance? Join our board! Attend the next meeting and see how you can help.

If you or someone you know would like to volunteer, please contact us at kbahr@cnps.org or through our Facebook page. Thank You!

—Kelly Bahr

Conservation

Western Joshua Tree and Inyo Rock Daisy Status Updates

On June 15, 2022, the Fish and Game Commission (FGC) was scheduled to submit a final vote that would determine whether the Western Joshua tree (*Yucca brevifolia*) would receive permanent protection as a Threatened Species. As detailed in the listing petition submitted by the Center for Biological Diversity, the species is mainly threatened by climate change, development, and wildfire. Few western Joshua tree populations are expected to persist by the end of the century and populations are already declining in the southern part of its range.

The result of the June FGC meeting was a delay due to a deadlocked 2-2 vote (there is currently one vacant seat and thus no "tiebreaker" vote). While there appeared to be consensus that the Western Joshua tree is threatened to some degree, there was disagreement as to whether the California Endangered Species Act was the best tool for protection given the potential impacts to industry. A

(Top) Recent damage and (bottom) mortality of western Joshua trees due to small mammal herbivory at Lee Flat, Death Valley National Park. Due to ongoing drought, many creatures have no choice but to eat Joshua tree periderm to survive. Photos by Maria Jesus.

final vote is scheduled to take place during the October FGC meeting, and it is expected there will be some discussion about a conservation plan for the species in lieu of listing. In the meantime, the comment period has been reopened to incorporate additional tribal outreach and consultation into the record.

Another local species that is being considered for listing is the Inyo rock daisy (*Perityle inyoensis*) which is mainly threatened by mining-related development. California Department of Fish and Wildlife staff reviewed the listing petition and found sufficient evidence to warrant advancing the species to candidacy. A procedural vote is expected to take place during the August FGC meeting, at which time, the species will receive interim protection until a final decision is made.

—Maria Jesus

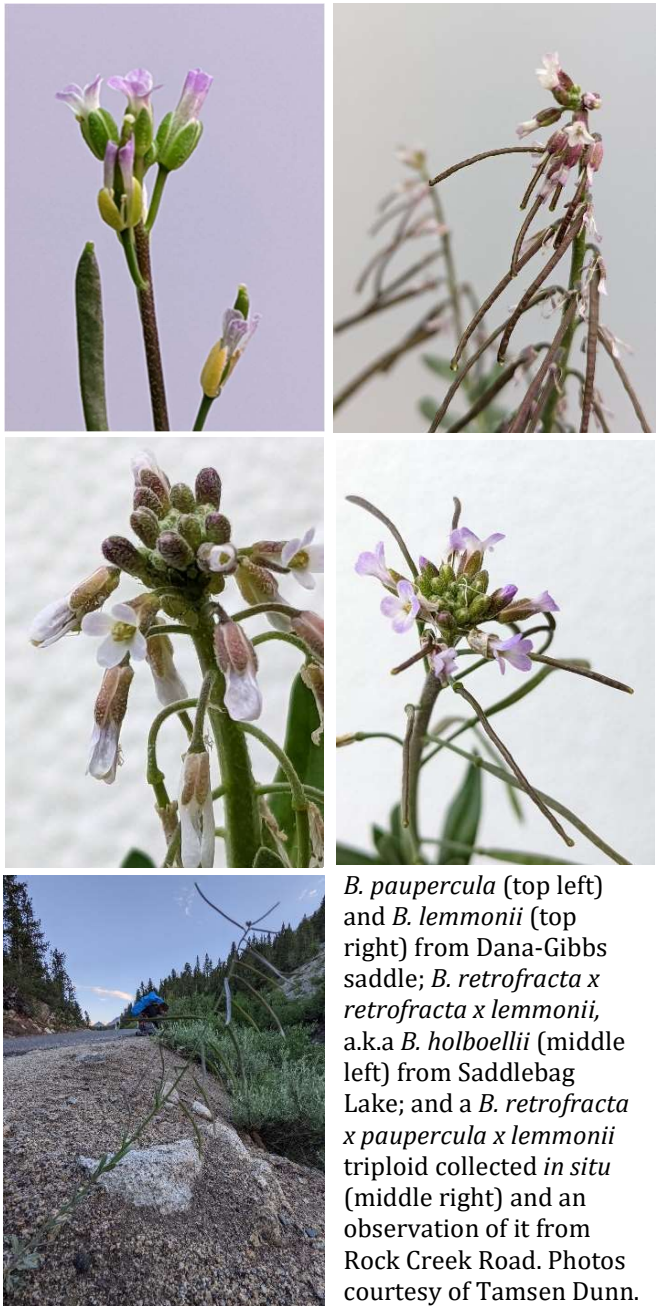
Mary DeDecker Botanical Grant, Recipient Report

Progress Report: *Unusual Robustness of a Novel Boechera of the Eastern Sierra*

Tamsen Dunn
PhD student in Evolutionary Biology
San Diego State University, 5500 Campanile Dr,
San Diego, CA 92182 and
University of California at Riverside, 900 University Ave,
Riverside, CA 92521

In 2004, an inconspicuous, intermediate-looking *Boechera* was collected high in the Clark range in southeastern Yosemite. This mountain plant conformed to no known species, but laboratory testing at SDSU revealed that the plant had unusual heat stress tolerance, surpassing even its desert-dwelling relations. Genetic testing suggested that the plant was a triploid hybrid of *B. retrofracta*, *B. paupercula*, and *B. lemmonii*. In my 2021 field work, I returned to the original Yosemite collection site as well as numerous sites throughout the Eastern Sierras in Mono and Inyo counties in search of more of these strange plants. In my 12 collecting trips between July and August, I logged over a thousand *Boechera* observations, and collected over 100 tissue and seed samples of (putatively) the novel tripolid and other *Boechera* hybrids, as well as the parental species *B. retrofracta*, *B. paupercula*, and *B. lemmonii*.

Genetic analysis is ongoing. However, morphological review confirms that the novel triploid exists in significant numbers at Red Peak Pass, Ottoway Lakes, Merced Peak, Saddlebag Lake, Gardisky Lake, Ruby Lake and along Rock Creek Road. For the next two years, I will be continuing genetic assessment of the collections, completing stress test assessments, expanding my field work, and performing a population analysis to elucidate the extent, origin and population dynamics of the (as yet unnamed) *retrofracta x paupercula x lemmonii* triploid.



B. paupercula (top left) and *B. lemmonii* (top right) from Dana-Gibbs saddle; *B. retrofracta x retrofracta x lemmonii,* a.k.a *B. holboellii* (middle left) from Saddlebag Lake; and a *B. retrofracta x paupercula x lemmonii* triploid collected *in situ* (middle right) and an observation of it from Rock Creek Road. Photos courtesy of Tamsen Dunn.

Field Trip Reports

March 5, Baker Creek

Photo courtesy of Steve Matson.

March 5th can be a bit early for wildflowers. It can also be cold and windy. Who would go on a fieldtrip under those conditions? Well, 13 sturdy folk (and three dogs) showed up in Big Pine to see what Steve Matson had up his sleeve, which in this case was three layers: cotton, fleece, and down.

We drove west out of Big Pine on Crocker Ave. and then up Sugar Loaf Rd. to the north of the Bernasconi Center onto Inyo National Forest land. We parked near the gauging station on Baker Creek, walked down to the gauging station and crossed a nice new footbridge. We then proceeded west along the north bank of Baker Creek with the narrow riparian corridor to our left. I had left stakes out so we would not miss the special plant of the day, *Muilla coronata*. Very small and easy to miss. We discussed shrubs and the evident beaver ponds as we moved west.

Eventually the slope tilted up to the right above the creek and we found ourselves on a steeper South-facing slope that was getting more sun, and for us a bit more protected from the north wind. We saw quite a bit of *Chylismia claviformis*, *Phacelia distans*, *Leptosyne* (*Coreopsis*) *bigelovii*, *Anisocoma acaulis*, *Ceanothus pauciflorus*, *Salvia columbariae*, *Calyptridium monandrum*, *Lupinus excubitus*, *Lotus corniculatus*, *Amsinckia tessellata*, and much else.

We made it over some rocky steeper terrain until finally making it back to the road which leads

to Warren Bench. We followed the road back to the east to our cars, making for a short day.
Everyone received a plant list for this region and eventually that list will appear on the plant checklist page for the Bristlecone Chapter. Congrats to all those who braved the weather and showed up!

—Steve Matson

May 14, The Search for Small Things

Clockwise from top left: *Nemacladus morefieldii, N. inyoensis*, and *N. matsonii*. Photos by Steve Matson.

Steve lead a small group of Bristleconers to a number of sites near Big Pine in search of three recently (2020) described species. That small group was augmented with some members of the Santa Clara Chapter of CNPS who were camping nearby.

We met at 9AM at the kiosk (we cannot say the "redwood tree" anymore as it died and was removed last year) at the junction of 168 and 395. We managed to squeeze into 3 vehicles, driving north 3 miles to our first stop. There is an access road here that follows a power line toward the Radio Observatory. This locale has been a wonderful spot for me to botanize for many years. Quite a few species of plant can be found here such as *Linanthus inyoensis*, *Linanthus parryae*, *Eriophyllum wallacei*, *Leptosiphon chrysanthus, Loeseliastrum matthewsii (desert calico)*, *Malacothrix sonchoides*, as well as many of the "usual" shrubs. We were able to find one newly described plant (Madrono, 2020) *Nemacladus matsonii*, tiny little bugger that it is; best found on hands and knees in the sand between the shrubs.

Our next stop was a place I call Butler Gulch, a wash along a road that leads to Butler Ranch in the Waucoba lake beds area off Death Valley Road. Here we were looking for the newly described *Nemacladus morefieldii*, which had been seen here (one plant!) a few weeks earlier and now no longer. There were plenty of compensatory plants, such as super abundant *Gilia cana*, *Aliciella hutchinifolia*, *Chaenactis steveiodes*, *Chaenactis macrantha*, *Encelia actoni, Eriogonum inflatum*, *Stanleya elata* and *pinnata*, *Langoisia setosissima*, *Nama pusilla*, *Psorothamnus arborescens*, *Tetradymia axillaris* and *glabrata*, *Xylorhiza tortifolia* and much more. We did find *Nemacladus orientalis* here instead, which resembles *N. morefieldii.*

We managed two further stops up the Death Valley Road. At the beginning of the road to Harkless flat we looked in vain for the newly described *Nemacladus inyoensis*. There were very few annuals to be found other than the very interesting *Ipomopsis polycladon*. Heading back to Devil's Gate we explored along the cliffs finding some early (no flowers) *Halimolobos jaegeri*, and some early (just a few leaves) of *Physocarpus alternans* (nevada nine bark) which was trying to hide amongst the desert gooseberry (*Ribes velutinum*).

A group of geology students (you know, the ones in all those white vans this time of year) from Durham (in the UK) allowed us to chat them up as our field trip wound down, sufficient in plants and rocks for one day.

—Steve Matson

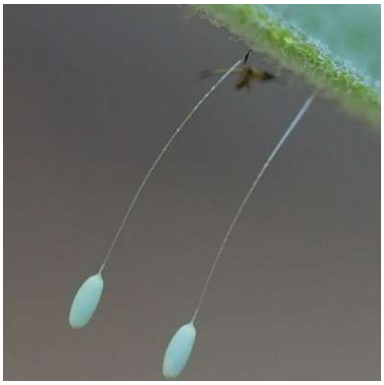
The Milkweed Village

Our native milkweeds are more than a home for monarchs. They are villages with a wide variety of insects and other arthropods. There are over 10 species of insects that attack different species of milkweed. Other insects are attracted to the flowers for nectar and other arthropods use them as homes or as stations to attack prey. The evolving interrelationship between these milkweed "bugs" and milkweed species is extraordinary. Here's a small representation of insects on milkweeds in our area:

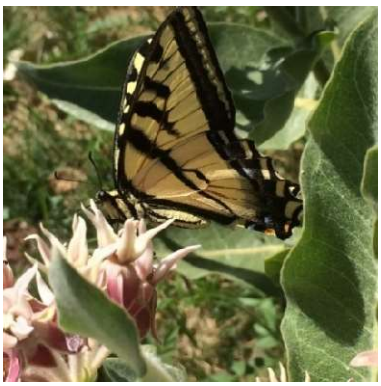
Small milkweed bug (*Lygaeus kalmii kalmia*) on narrow leaf milkweed (*Asclepias fascicularis*).

Aphis nerii on showy milkweed (*Asclepias speciosa*).

Cobalt milkweed beetle (*Chrysochus cobaltinus*) on showy milkweed (*Asclepias speciosa*).



Lacewing eggs (Chrysopidae), on showy milkweed (*Asclepias speciosa*).



Western Tiger Swallowtail (*Papilio rutulus*) nectaring on showy milkweed (*Asclepias speciosa*).

—Bob Zimmerman

Greenhouse and Native Plant Sales Updates

This spring was certainly a weird one for the weather with a warm February followed by some late freezes at the end of May; the poor plants just didn't know what to do. Then came the insects. My lupines had an infestation of blister beetles (large ¾" long black beetles that eat the larvae of other insects, including grasshoppers and bees). After they left, I noticed aphids on the leaves but also lots of ladybug larva (who are voracious consumers of aphids). I thought "this is what a pollinator garden is—a place to watch nature take care of itself".

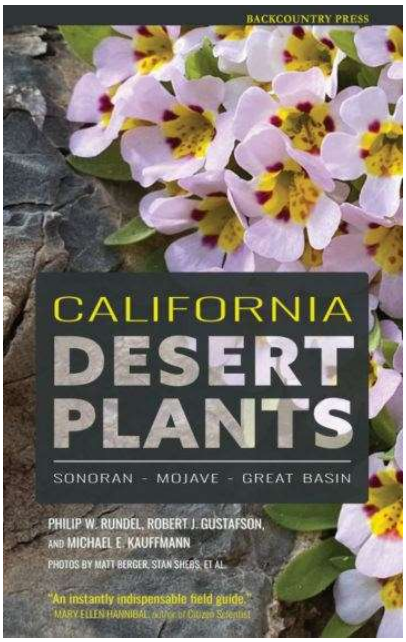
The spring plant sale at Eastern Sierra Land Trust's GardenFest was a huge success—we just about sold out of all the plants I grew. So that put my spring into full gear transplanting and starting plants for the fall sale. Last year I had trouble getting soil due to the supply chain issues, so this year when I found out Ace hardware was carrying the soil mix I like, I bought 10 bags instead of the 5 I usually get. With soil not being a limiting factor, I potted up all the seedlings I had and now have a much larger inventory for the fall sale. (2700 plants if they all make it.) The late freeze didn't affect the native plants and they are, so far, looking good. We now must hope that the insects don't have a negative influence on their growth.

As soon as the plants were potted up and on their way, it was time for me to start collecting seeds for next year. It is amazing how quickly these plants go from beautiful flowers to seeds ready to plant. My greenhouse is now full of buckets with seed heads drying.

The plant sale will be online again this year. Current members will get the URL on August 14th and the general public will get it on the 15th. The website will remain open until August 18th and orders will be ready for pickup on August 20th out at the White Mountain Research Center. There are many of certain plants but limited quantities of others, so if there is a specific plant you want, then order it early in the week.

—Katie Quinlan

Plant Life in California's Deserts



There are three distinct desert areas in California—the northwestern portion of the Sonoran Desert, the Mojave Desert, and the western margin of the Great Basin. A key feature of the California deserts is the dominance of infrequent rainfall in the cool winter months and the absence of rainfall in the summer months when warm temperatures are otherwise favorable for growth. These conditions make it tough for anything to survive. Plants in California's deserts have evolved unique combinations of traits that allow them to temper the impacts of infrequent rain and long-term drought.

"More than any other ecosystem, deserts present unique environmental challenges with no simple solution of form and function for plant survival. What makes deserts so interesting is that plant species have multiple strategies that allow for success and survival." says Phil Rundel, the book's lead author.

For the past 15 years Phil has been developing this book through his long-term relationship and travels in deserts of the world. His vision is now a reality. California Desert Plants: Ecology and Diversity is a new book written by Phil Rundel, Robert Gustafson, and Michael Kauffmann and published Backcountry Press. It explores traits and strategies that allow plants to survive in some of the world's harshest environments. The book includes over 400 photographs to complement the text.

Dr. Rundel, Professor Emeritus of Ecology and Evolutionary Biology at the University of California Los Angeles, would be the first to admit that California's deserts are his favorite—and this new book goes a long way to showing why.

"This book gives the context in which plants make sense, and helps us to see relationships between species, across families, and in response to place." Says author and naturalist John Muir Laws.

"What is fascinating to me about these plants," says Michael Kauffmann a co-author, "is that they live within one of the most dramatic desert landscapes on Earth. Including Death Valley and Joshua Tree national parks, the Mojave National Preserve, Anza-Borrego Desert State Park, and numerous other National Monuments. California's deserts are well protected, stunningly beautiful, and easy to visit."

"I love photographing plants in California's deserts because they are both beautiful and among the toughest plants on Earth." Says Matt Berger, one of the lead photographers in the book.

California Desert Plants is a spectacular celebration of the compelling flora and the patterns they form in California's deserts. It is available at backcountrypress.com and from independent bookstores across the region.

California Native Plant Society
Bristlecone Chapter

Native Plant Sale

Online sale August 15th – 18th
Pick-up Saturday, August 20th

Where: White Mountain Research Station,
3000 E. Line St., Bishop

Current members get the link on the 14th.

Plant Prices

Small tree pot	$5.00
Cactus pots	$5.00
Gallon Pots	$8.00
Tall tree pots	$10.00
5 gallon pots	$25.00
10 gallon pots	$35.00

A complete list and quantities are available on the web site
http://bristleconecnps.org

Welcome, Welcome, Welcome

We have many to greet who have joined our Bristlecone Chapter: Susan in Berkeley; Allegra, Lora and Matthew in Bishop; Bob in Bridgeport; Lorain in Brunswick; Michael in Capitola; Courtney in Claremont; Katy in Darwin; Boon in Del Rey Oaks; Lois in Flagstaff; Mai in Grass Valley; Brett in Laguna Beach; Nathalie in Lompoc; Lewis, Margaret and Riley in Mammoth Lakes; Sally and David in Mill Valley; Dana of Newport Beach; Jeni in Oakland; Tania in Ojai; Gina of Palos Verdes Estates; Lauryn in Pearblossom; Kendyl in Portola; Daniel of Ramona; Peter in Salinas; Brian of San Anselmo; Mary of Santa Barbara; Lisa in San Diego; John in San Franscisco; Ben in South Pasadena; Randy in Sparks; Crystal of Tehachapi; Jeanne in Vista; Steve in Walnut Creek; Dendro in Whitethorn; Lee in Woodside; and Amy in Yerington. A warm summer welcome to all!

Up-Coming Events

(For updated information, visit www.bristleconecnps.org/events)

July 14–17
Volunteer Backcountry Stewardship Week—West Walker River Drainage
Bridgeport, CA
Join Friends of the Inyo and the Bridgeport Ranger District of the Humboldt-Toiyabe National Forest for a spectacular three days of stewardship in the Hoover Wilderness. We'll be working to monitor weed species in the West Walker River drainage and taking care of any trail issues we come across. And we'll also save plenty of time for hiking, sharing stories, and enjoying a beautiful place. Training will be provided. Space is limited—RSVP now to stewardship@friendsoftheinyo.org to ask questions or hold your spot for this backpacking trip. More information at: https://friendsoftheinyo.org/event/west-walker-wilderness-week-2022/

Up-Coming Events

(For updated information, visit www.bristleconecnps.org/events)

Aug 13, Saturday, 9:00 a.m.–12:30 p.m.
Hydrology of the Sierra Nevada at Virginia Lakes with Bradley Olson
Virginia Lakes Trailhead
Come hike with Trail Ambassador Bradley Olson up Virginia Lakes Canyon and learn about the hydrology of the Sierra Nevada. Discussions will include how water shaped the Sierra in the past and created the many ecosystems we see today and how crucial water will be to the area in the future. Space on this hike is limited to 12 folks. RSVP online at: https://friendsoftheinyo.org/event/hydrology-of-the-sierra-nevada-at-virginia-lakes-with-bradley-olson-8-13-22/

August 15–18
Chapter Native Plant Sale, Online
This online sale is open to the public August 15th–18th (Current members get the weblink a day early on the 14th). Pick-up your orders on Saturday, August 20th at White Mountain Research Station, 3000 E. Line St., Bishop.

Please send any submissions to us by August 15, 2022 for the next issue.

Bristlecone Chapter Directory

President: Kelly Bahr kbahr@cnps.org
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Secretary: Kathleen Nelson secretary@bristleconecnps.org
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Conservation/Partnerships: Maria Jesus conservation@bristleconecnps.org
Education: Martin Purdy education@bristleconecnps.org
Programs: Michèle Slaton vicepresident@bristleconecnps.org
DeDecker Grants: Michèle Slaton grants@bristlecone.org
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DeDecker Gardener: Kelly Bahr kbahr@cnps.org

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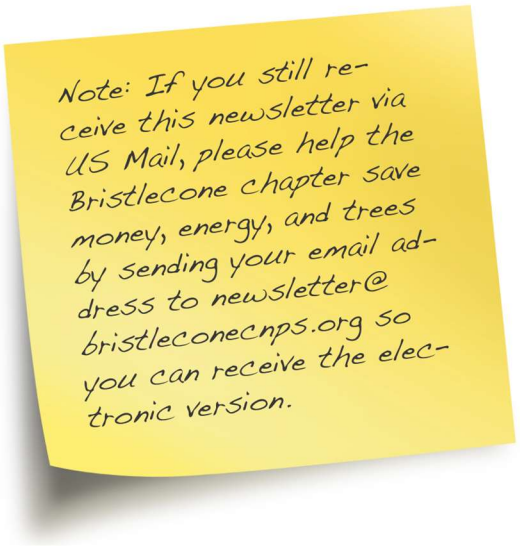

Membership

The California Native Plant Society is an organization of laypersons and professionals united by an interest in the plants of California. It is open to all. The society, working through its local chapters, seeks to increase the understanding of California's native flora and to preserve this rich resource for future generations.
To join or renew online: Go to www.cnps.org and select JOIN/RENEW (at the top of the webpage or select it after clicking the menu button) or mail the form below:

Name: _____
Address: _____
City: _____ **State:** _____
Zip Code: _____ **Phone:** _____
Email: _____
I wish to be affiliated with the Bristlecone Chapter: _____
Other: _____

Mail To / Make Payable To:
California Native Plant Society, Attn: Membership
2707 K Street, Suite 1
Sacramento, CA 95816

Gift Contribution: _____Wherever needed ☐
Specific Area: _____

Membership Category

__ Student / Fixed Income	$25
__ Individual	$50
__ Plant Lover	$120
__ Supporter	$500
__ Patron	$1,000
__ Benefactor	$2,500
__ Steward	$5,000
__ Guardian	$10,000
__ Additional Contribution	_____

Go Perennial! To become a monthly sustaining (perennial) member, join or renew online at **www.cnps.org/perennial**

Membership Type: ___ New Member
___ Renewal