



LASTHENIA

NEWSLETTER OF THE DAVIS BOTANICAL SOCIETY

VISITORS TO THE HERBARIUM: JORGE PÉREZ-ZABALA

Editor's note: This is the first in a series of reports on visitors with projects at the herbarium.

Jorge Pérez-Zabala, Faculty Director of the Herbario Gabriel Gutiérrez Villegas in Medellín, Colombia (MEDEL) visited the herbarium for several days in April 2023. Jorge is an expert on neotropical Rosaceae, especially *Prunus*, neotropical Rutaceae (citrus family) and the highly diverse Andean flora of Colombia.

Jorge was at the herbarium annotating the several large loans from North American herbaria used for his Ph.D. research so they could be returned. We also have a hefty stack of specimens collected by Jorge or given to him as gifts for determination to be retained here at DAV. These specimens are likely

to be of interest to researchers in other countries, so we will digitize and image them and make them available worldwide through the Global Biodiversity Information Facility (GBIF).

DAV is an unlikely repository for neotropical tree specimens. Most such collections in North America are at large herbaria. The Chicago Field Museum (F) is especially rich in Mesoamerican plant collections; Jorge says they have many good *Prunus* specimens and species type specimens. Missouri Botanical Garden (MO) also has many types, due to their long-standing Latin American program, and the New York Botanical Garden (NY) collection is very strong, especially in Brazilian flora. Brazil has a diverse array of *Prunus* in its isolated, seasonally-dry "Mata-Atlântica" forests.



*One of many gifts-for-determination specimens sent to Jorge by Missouri Botanical Garden. This typical tropical *Prunus* tree specimen is one of several new species Jorge is in the process of describing. Image scan: T. Barry*

Our collection is relatively small, but it is unusually good for a smaller her-

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ERNESTO SANDOVAL RETIRES

Ernesto Sandoval retired from his position as Curator of the UC Davis Botanical Conservatory in February 2023 after thirty-one years. This hardly seems possible to someone—me—who has known him since he was an undergrad, precociously leading groups of students and community members on week-long field trips to Baja California, Joshua Tree National Park and other botanical destinations. It can't have been that long... or, maybe a more apt cliché is: time flies when you are having fun. In any event, the Botanical Conservatory has seen many positive developments and changes during his time there.

Ernesto's long history at UC Davis began, unsurprisingly, as a freshman biology major from Southern California. Unlike most students, he brought



Ernesto Sandoval with Ted the Titan in 2021. Photo: K. Mawdsley.

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SANDOVAL (CONT. FROM PAGE 1)

considerable practical knowledge about horticulture, gained from working in his father's gardening and landscaping business. The standard tour of the Botanical Conservatory taken by all introductory biology students led to a summer job funded by the Biology Undergraduate Scholars Program for underrepresented students in science. The exposure to new aspects of plant science he encountered at the Conservatory led Ernesto to choose a Botany major, while continuing to work there throughout his student years. After what he describes as "as many botany courses as possible," he graduated in 1996.

Asked to reflect on changes at the Conservatory during his years, Ernesto cited the reorganization of the collections from a taxonomic to a biogeographic arrangement, co-locating plants with similar environmental needs. There were also extensive improvements in the physical facilities, many recorded in his semi-annual reports in *Lasthenia*. Plant benches of rotting redwood were rebuilt in a tiered pattern in more durable plastic. The stepped benches displayed more plants and made them easier to see. Ernesto first realized the need for this change when he looked at the old

benches from an elementary school student's vantage point and saw mostly table legs and pot bottoms. Irrigation, lighting, and ventilation systems were also gradually updated.

A major evolution was expansion of the Conservatory's resources for supporting UC Davis classes beyond the greenhouse walls. The plantings around the Esau Sciences Hall (formerly the Sciences Laboratory Building) were designed to be used by students in the basic biology course sequence, as described in detail in [Lasthenia \(No. 28, 2007\)](#). The Botanical Orchard and Garden, known as The BOG, took this concept further and has provided a learning laboratory for classes studying plant-pollinator interactions, the nitrogen-fixing nodules of lupine, and weather instrumentation. The South Africa bed, planted with aloes, bulbs, perennials and other succulents, is vividly colorful most of the year.

My fondness for South African bulbs apart, Ernesto emphasizes that the primary mission of the Botanical Conservatories continues to be support for UC Davis classes, especially the introductory biological sciences sequence, through tours of the botanical diversity of the greenhouses and plantings around Esau

and through providing the plants needed for laboratory exercises. Use of the collections by other campus classes also expanded during his tenure. He listed other outreach priorities as K–12 school tours and community college classes.

Ernesto has often called attention to the breadth and richness of the Conservatory's plants, with *Welwitschia*, the weird Namibian plant with only two, ever-elongating leaves, and Ted the Titan, the *Amorphophallus titanum*, as prime examples. The titan arum rarely blooms in cultivation, so Ted's initial flowering, in 2003, led to a campus press release, regional media coverage, and thousands of visitors who came to experience its "sensational and odoriferous" bloom,' to quote the [Lasthenia \(No. 22, 2003\)](#) article describing the extravaganza. It has bloomed six more times, including once while on loan to the conservatory at Strybing Arboretum in San Francisco.

Ernesto's accomplishments and dedication have enhanced the substance and influence of the Botanical Conservatory. His colleagues and friends in the Davis Botanical Society thank him and wish him well.

K. Mawdsley

VISITORS (CONT. FROM PAGE 1)



Jorge Perez with his *Prunus* collections in 2023. Photo: A. Colwell

barium, a result of the research focus of Director Dan Potter on Rosaceae and the projects of his former graduate students like Jorge.

Jorge became interested in plant taxonomy when he was 18. By the end

of his first year in college, he was working in the herbarium of his university. He has, in a sense, never left the herbarium, which he says is essential to becoming an expert in tropical botany. For example, when Jorge started working on *Prunus*, there were some ninety known species in the neotropics, but he

quickly realized that there was much overlooked diversity. *Prunus* is relatively easy to recognize as a genus, but only a very close inspection reveals the obscure differences between species. As is typical with tropical trees, one must rely on leaf

traits for identification much of the year. The glands on the leaves and stipules and leaf venation patterns are especially helpful for telling apart *Prunus* species. Jorge recommends, as a reference for this task, the [Manual of Leaf Architecture](#) by Beth Ellis et al.

Thus far, Jorge has described 15 new species, and has 10 more descriptions in process. He identified over 100 new taxa in his thesis, bringing the estimate of the total neotropical *Prunus* species to about 220, with some 90 remaining to be fully described. For comparison, there are 44 *Prunus* species in North America and a bit more than 400 *Prunus* species worldwide. Jorge's *Prunus* research is clearly a life's work, one of several "life research projects" Jorge is pursuing. We were very glad to see him again and help him tie up this phase of this project.

A. Colwell

PLANT PILGRIMAGE TO SOCOTRA



A very large *Adenium socotranum* growing on an eroded limestone hillside. Photo: G. Bacci

The UC Davis Botanical Conservatory is renowned among members of the Cactus and Succulent Society of America (CSSA) for first introducing the cucumber tree, *Dendrosicyos socotranus*, and the Socotran fig tree, *Dorstenia gigas*, to the botanical trade. These Socotran endemics are just two of the over 400 endemic plant species this Yemeni island hosts. Socotra is in the Arabian Sea, roughly 240 miles south of the Arabian Peninsula and 150 miles east of Somalia. It is home to about 60,000 people. In addition to its botanical appeal, the island itself is a beautiful place, mostly untouched by industrialized society, with crystal-clear clean waters and breathtaking views uninterrupted by the signs of modern society.

For years, United States tourism to the island has been banned due to its affiliation with Yemen. However, last year the United Arab Emirates started offering direct flights to the island, opening it back up to US citizens for the first time in over a decade. As a botanical horticulturalist specializing in cultivating the xeric plants at the UC Davis Conservatory, I could not pass up this opportunity to visit! In January 2023, I spent two weeks exploring the island while documenting the flora and fauna I encountered. Here I will highlight four of the most famous

species I saw: *Adenium socotranum*, *Dendrosicyos socotranus*, *Dorstenia gigas*, and *Dracaena cinnabari*.

Adenium socotranum (Fig. 1), also known as the Socotran bottle tree, is a large pachycaul (thick-trunked) member of the Apocynaceae family. It reaches up to 8 feet in diameter and 15 feet in height, and is the largest member of the genus. It is by far the most abundant succulent on the island, found everywhere except for the highest mountains, where it is unable to tolerate the cold temperatures. Having the poisonous sap typical of its family, it is one of the only plants not eaten by wild goats (introduced as livestock nearly 2,000 years ago with the first settlers of Socotra) which roam and graze the island. Numerous individuals of this odd tree dot the

landscape, making it look like a science fiction world. In February, before the onset of the three-month rainy season, these plants bloom in mass, covering the island in a bouquet of bright pink pinwheel flowers. From a horticulturalist's perspective, these plants seemed to primarily grow on rocks, in coarse granitic soil, or straddling large limestone boulders.

Dendrosicyos socotranus, the cucumber tree, is the only extant arborescent member of the Cucurbitaceae, with some individuals reaching over 20 feet in height, and 6 feet in diameter. These plants are widely distributed on the island; however, individuals are few and far apart, due to low recruitment and overharvesting. These plants are an excellent food source for goats, being large and filled with water. Socotran goat herders used to chop down the trees to feed their animals, drastically reducing the potential for seed dispersal. This practice has now largely

stopped due to programs for conservation and local education. However, wild goats eat most seedlings as they sprout, meaning populations are barely recovering from past cutting.

By far the largest succulent member of its genus, *Dorstenia gigas*, commonly called the bottle fig, is a sight to behold—if one can muster the strength to reach one of its two known populations. These plants grow high in the mountains, clinging to vertical limestone cliffs, which must be scaled to reach this unusual member of the Moraceae. The first and most well-known population of these plants grows in a mountain pass south of the capital Hadibo, in the Haggeher Mountains. At this site is the largest population, both in numbers and size, with some individuals exceeding 15 feet in height and 3 feet in width. The second population, which occurs on Jabal Ma'alāh, contains a miniature form known as *Dorstenia gigas* forma *bullata*. Plants from this population seldom exceed 3 feet in height, although proportionally they are much wider, often appearing nearly as fat as they are tall. This form also has miniature bullate (appearing blistered) leaves hence the name.

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A medium-sized *Dendrosicyos socotranus* growing on top of a large granite boulder far away from the mouths of hungry goats. Photo: G. Bacci

INVASIVE AQUATIC PLANTS OF THE SACRAMENTO-SAN JOAQUIN DELTA



Pontederia crassipes. Photo: J. Carter

The Sacramento-San Joaquin Delta occupies an expansive area of California's Central Valley. Situated in the lower elevation areas of the Valley, it collects the waters of the Sacramento, San Joaquin, and Mokelumne rivers before they flow out through the Suisun Bay to the Pacific. The Delta is close to Davis; the northernmost region of the Delta extends into West Sacramento. This diverse area contains many rivers, sloughs, channels, coves, and even "sunken islands." This article introduces some of the history of the Delta and discusses a number of invasive plant species that have established themselves there.

The Delta was historically a vast wetland, with seasonal variations in water level due to precipitation and snowmelt. Over the 19th and early 20th centuries, the area was parceled up and purchased by private landowners, many of whom built levees encircling their lands to exclude water and open the land for agriculture. As a result, the Delta transitioned from a wetland to an agricultural archipelago with dozens of individual islands ringed by levees. Over time the exposed land began to subside, and many of these islands now have their ground level several feet below that of the surrounding water. Rudimentary earthen levees have also failed, creating "sunken islands" similar in appearance to an atoll, with a ring of earth surrounding an expanse of water of 5–8 feet in depth. Some well-known sunken islands include Franks' Tract and Liberty Island.

Today the Delta still contains dozens of dry islands and a smattering of sunken islands. Small communities are scattered throughout the area, as well as larger cities like Stockton and Sacramento. People live, recreate, and transit through the Delta every day.

From a small kayak up to an ocean-faring container ship, the waterways are crisscrossed by various forms of human transport. This creates a perfect situation for invasive plants to enter the area: through ballast water, hitching a ride on an outboard motor propeller, or even from individuals dumping aquaria contents into the water. The Delta contains numerous exotic plant species, including *Pontederia crassipes*, *Limnobium laevigatum*, *Egeria densa*, *Myriophyllum spicatum*, *Cabomba caroliniana*, and *Potamogeton crispus*. If you are looking to ID some new aquatic plant species, I recommend you visit the Delta! You have a fantastic opportunity to see plants from all over the world making their home in our local watershed.

Let's familiarize ourselves with these plants so you can recognize some of them in the field. First, we have floating aquatic vegetation growing right on the water surface. The most famous of these is *Pontederia crassipes* (formerly *Eichhornia crassipes*), with glossy green simple leaves and large swollen petioles. If you snap one of these petioles in half, you

will find it is spongy and filled with air pockets. These buoyant leaves keep *P. crassipes* from sinking under the water. Later in the summer *P. crassipes* produces striking spikes of purple flowers, a great aid in identification. The purple flowers are the source of the plant's common name: water hyacinth.

Limnobium laevigatum also has spongy leaves, which explains its common name: spongeplant. However, the spongy texture of the leaves is not immediately apparent: these leaves grow in a rosette, with a smooth, glossy green surface on the upper side, with the spongy tissue hidden on the lower side. This spongy texture assists the plant in keeping afloat. If you are trying to tell *L. laevigatum* from *P. crassipes* with no flowers present, two key characters can assist you: whereas *P. crassipes* has spongy petioles, it is the leaf blade of *L. laevigatum* that is spongy. In addition, *L. laevigatum* roots tend to be very light to white in color, while *P. crassipes* roots are very dark to black.

Invasive plant species also grow beneath the water in the Delta. Most well-known of these is *Egeria densa*, commonly called Brazilian waterweed. It has simple leaves, generally in whorls of 4 or more. During the later summer, it produces small, but beautiful white flowers, with three crinkly petals and bright yellow stamens. The flowers floating on the surface give the appearance of almond tree petals having blown into the water. The dioecious *E. densa* growing in the Delta appears to

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Egeria densa. Photo: J. Carter

RECENT GIFTS

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Marla A. and Steven A. Knight
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Kevin T. Hague and Johanna J. Kwan
Glen L. Holstein and Susan C. Torguson
Marie A. Jasieniuk and Frank Roe
Judy Jernstedt
Kevin J. Rice and Kathy Tellin
Jean V. and Scott Shepard

Herbarium Operations and Gifts in Kind

Alison Colwell
Rita Colwell
Lewis J. Feldman
Kate Mawdsley
Stephen Rae
Marcel Rejmanek

Jack Major Student Grants Endowment

Mary M. Hekner

Thank you!

LAW FAMILY AWARDS



Ana Verschoor (left) and Laurel Schmidt have been the herbarium's key undergraduate assistants over the past year. Photo: A. Colwell

This year we have the opportunity to honor the herbarium contributions of four students with the Law Family Award for the Study of Systematic Botany.

Two of the students, Ana Verschoor and Laurel Schmidt, are undergraduates, and both will be graduating this June. Ana is a Biological Sciences major. She is interested in field botany and has been leading the California Plant Rescue seed collection project. She found out about the herbarium while doing an

“old-fashioned internet search” for a campus botany volunteer opportunity. Ana is also a radio deejay for KDVS, and has been advertising DBS and herbarium events for us on the air.

Laurel, an Evolution, Ecology and Biodiversity major, found out about the herbarium while developing her honors program project “Diversity of *Fusarium* basal rot in *Allium* crops” and has since been working in the herbarium weekly, learning all aspects of herbarium curation. Laurel became interested in tropical botany as a result of a Study Abroad Program quarter in Costa Rica, and she has applied to post-graduate internships in Latin America.

We are also honoring the contributions of two graduate students, Kandiss Dowdell and Will McMahan. Kandiss and Will are Potter Lab students working on systematics projects and contributing both specimens and significant volunteer time to the herbarium. Will is interested



Graduate students Will McMahan (left) and Kandiss Dowdell staff the pressed-flower bookmark table on Picnic Day. Photo: A. Colwell

in the systematics of neglected and underutilized economic plant species with dissertation research focus on the tropical Malvaceae genus *Corchorus*. Kandiss is working on a phylogenetic resolution of *Salix* and exploring their possible coevolution with *Euura* sawflies that induce the galls on them.

A. Colwell

SOCOTRA (CONT. FROM PAGE 3)



The author standing next to a large *Dorstenia gigas* clinging to the nearly vertical limestone cliffs. Photo: G. Bacci

It is theorized that these plants once had a much larger distribution across the island, but they are now found only in areas goats cannot reach.

Lastly, *Dracaena cinnabari*, also known as the dragon blood tree, is a large dichotomously-branching arborescent species reaching 30 feet or more in height. It is famous for its valuable, red, resinous

sap, the source of the common name. The sap has been used for centuries to produce cinnabar-colored dyes and stains. Most notably the dye was used as a stain for Stradivarius violins. Today, the plant is highly endangered due to seedling predation and sap over-harvesting. Natural recruitment of *D. cinnabari* is entirely non-existent; all seedlings are eaten by goats before they reach maturity (which takes more than a century). The existing populations of adult plants are also weakening due to repeated sap harvestings to make the valuable cinnabar dye. Along with climate change and drought, these factors have caused a massive decline in the number of mature trees on the island. Currently, there

are several local efforts to protect and cultivate the plants, but it is painstakingly slow; and goats often break into the seedling nurseries, damaging or killing the young plants.

My two weeks on Socotra granted me a greater appreciation for many of the plants endemic to the island and introduced me to many new fascinating species. These unique organisms, however,



A typical example of *Dracaena cinnabari* growing in the Firmihin Forest. Photo: G. Bacci

are currently under threat due to climate change, invasive species and other direct human impacts. To save and preserve this magnificent island, we must work to raise awareness of the threats and implement protective measures such as more nursery cultivation efforts and secure breeding programs for the endemic species that call this island home.

G. Bacci

AQUATIC INVASIVES (CONT. FROM PAGE 4)

produce only male flowers, so no sexual reproduction of this species has been observed in California.

Myriophyllum spicatum, also known as Eurasian watermilfoil, is another whorled-leaved, submerged plant. Whereas *E. densa* has simple leaves, *M. spicatum* bears feather-like pinnate leaves. Each whorl bears precisely 4 leaves. The profusion of pinnate leaves informs the Greek genus name, meaning “countless leaves.” During the late summer, small spikes of inconspicuous flowers poke above the water surface, where they are primarily pollinated by wind.

Cabomba caroliniana, commonly called Carolina fanwort, has opposite leaves. Each leaf is finely dissected, dividing dichotomously into a fan shape.

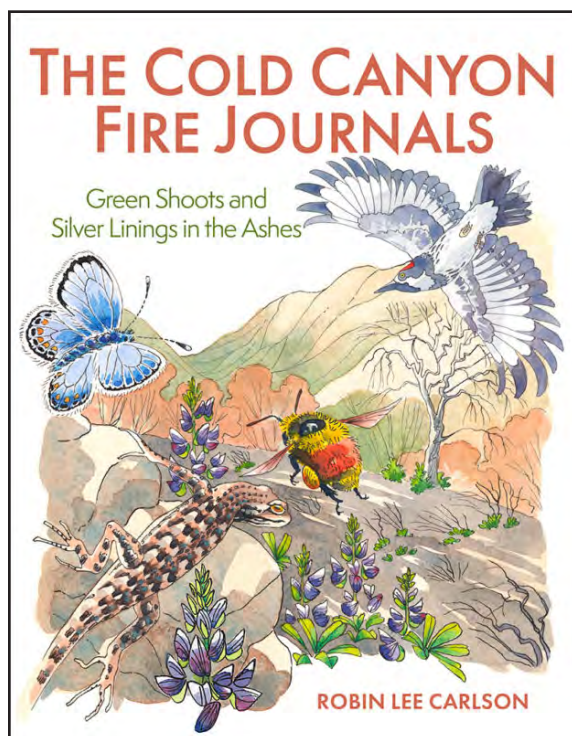
Due to the many leaf dissections, it is sometimes confused with *M. spicatum*. However, where *M. spicatum* has whorled leaves *C. caroliniana* has leaves in pairs. The flowers are also quite attractive, although they are infrequently observed. If you are lucky enough to see this plant in bloom, you will see small white to pink flowers held above the water surface, associated with distinctive, diamond-shaped floating leaves.

Potamogeton crispus bears alternate simple leaves with distinctive wavy margins. They look like lasagna noodles! Those notable leaves inform the common name curlyleaf pondweed. There are several members of this genus native to California, though *P. crispus* is not one of them. The genus name *Pota-*

mogeton means “river neighbor,” and the genus is certainly friendly between species – there is evidence that *P. crispus* is hybridizing with native *Potamogeton* species. This species also develops flowers that poke up above the water surface, but they are inconspicuous and mostly wind-pollinated.

Next time you get a chance, I encourage you to explore the Sacramento-San Joaquin Delta. It is an area rich with local history, as well as a rich collection of invasive plants from all over the world. If you do get out on the water, please remember to rinse any plant fragments off your boat when you get to shore so these invasive plants don’t hitch a ride to new waters.

J. Carter



Cold Canyon Fire Journals by Robin Lee Carlson is a beautiful book about fires, their impacts and the recovery of many kinds of biota in the UC Stebbins Cold Canyon Reserve. It is popular natural science writing at its best. Published by HEYDAY (heydaybooks.com; ISBN 978159714848) in Berkeley in 2022, it is available in local bookstores and from online sources. Wherever you find it, you will be not disappointed!

Robin Lee Carlson has been familiar with Cold Canyon since her childhood. But only after the Wragg Fire in 2015, when she had been trained as a biologist and illustrator, did she decide to record in writing and pictures the multifaceted post-fire biotic succession in this area. Learning more and more about recovery of plants and animals over five years, Carlson argues that fire can be a positive force, responsible for maintenance of biodiversity.

The 2015 fire came 27 years after the previous one that had scorched the area in 1988. This was probably in the range of time intervals between fires in which fire promotes species diversity of vascular plants and many organisms that are dependent on them. Based on her numerous field observations, studies of the fire ecology literature and discussions with biologists and reserve managers, Carlson

puts together eye-opening narratives and illustrations of oaks, gray pines, re-sprouting chaparral shrubs, germination of whispering bells, lichens, pyrophilous (benefiting from fire) fungi, pipevine swallowtail caterpillars, charcoal beetles, oak gall wasps, California newts, hummingbirds, Nuttall's woodpeckers, and many other either fire-surviving or re-colonizing taxa. Over 80 vascular plant species and over 70 animal species are discussed in the text.

For five years, this was an optimistic story of fire and healthy fire cycles as a force for renewal and long-term biodiversity preservation. However, as many of us observed, this changed substantially with the 2020 Markley Fire (a part of the

huge complex of the LNU fires). Most of the blue and interior live oaks that survived the Wragg Fire were killed, as well as most of the pines. Recovery of obligate seeders (*Ceanothus* species and *Arctostaphylos manzanita*) was drastically interrupted because new seedlings were killed and their soil seedbanks had not been replenished since the last fire. At the same time, the 2020 fire was not hot enough to kill the seeds of European annual weeds. Fewer fire-following whispering bells (*Emmenanthe penduliflora*) appeared this time, and geophytes were also rarer. Dense stands of invasive annual grasses and thistles now compete with native flora and provide an opportunity for more fires in the second half of the year.

The 2020 fire came only five years after the last one. Based on all we know, this is a much shorter interval than the average for natural fire regimes. A shortened fire return interval is most likely one of the consequences of progressive human-caused global warming and associated droughts in the western US.

This situation leads Carlson to conclude with very relevant discussions on native tribal burning practices and modern control burning practices. What Carlson repeatedly points to is often called the "intermediate disturbance hypothesis," that maximum species rich-

ness is maintained by intermediate frequency and/or intensity of disturbances. Intermediate frequency and/or severity of fires supports highest landscape species diversity (e.g., Collins 1992, Richter et al. 2019). Frequent, large-scale and spatially homogeneous fires are major threats to the amazingly diverse flora and fauna of our state. On the other extreme, in habitats like Cold Canyon, long intervals between fires allow a few tree species (e.g., gray pine and interior live oak) to dominate and suppress other plant species and the fauna associated with them.

In this book, packed with so many observations and species names, there are probably only a very few small mistakes. As a botanist, I believe that the picture of "*Trifolium gracilentum*" on p. 92 is more likely *T. wildenovii*. Cattail in Cold Canyon is *Typha domingensis*, not *T. latifolia* (p. 258). *Collinsia heterophylla* (p. 259) is usually called Chinese houses, rather than "innocence." Iris in the reserve is *I. macrospylon* rather than *I. fernaldii* (Dean and Mawdsley 2017). This, of course, does not diminish the enormous scientific and cultural value of this book.

Reading the insightful, often very personal, account in Carlson's book, so richly illustrated in pen, ink and color, I suddenly recalled the words of the recently (July 26, 2022) deceased genius James Lovelock, the author of the Gaia theory: "We have inherited a planet of exquisite beauty. It is the gift of four billion years of evolution. We need to regain our ancient feeling for Earth as an organism and revere it again. If we could revere our planet with the same respect and love that we gave in the past to God, it would benefit us as well as the Earth."

M. Rejmánek

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DAVIS BOTANICAL SOCIETY

UPCOMING EVENTS

The last of the Nights at the Conservatory Lectures and open greenhouses will be held on June 8th at 6 pm in the Botanical Conservatory. Shawn Shumaker will discuss cultivation and care of carnivorous plants. The talks are in-person or on Zoom. To get a Zoom link, contact Marlene Simon (mrsimon@ucdavis.edu). Watch the Conservatory's website for information about the next season: <https://greenhouse.ucdavis.edu/conservatory/>

Ceanothus Field Botanist Association drop-in keying sessions continue on third Saturdays of the month, 9 am–noon, in the Center for Plant Diversity Herbarium, Katherine Esau Science Hall. Contact leader Mike Bower (ceanothusfieldbot@gmail.com) to get on the mailing list.

Saturday, October 28, 9 am to 4 pm: Introduction to Lichens & Lichen Identification Workshop at the Center for Plant Diversity Herbarium. Taught by Klara Scharnagl, Curator of Lichens at UC & Jepson Herbaria, Berkeley. This one-day workshop will introduce you to lichen morphology and identification. For more information, contact Alison (aelcolwell@ucdavis.edu).

Saturday, December 2: The California Lichen Society (CALS) is sponsoring a drop-in Lichen ID Session at the Center for Plant Diversity Herbarium. Use microscopes and chemicals to key your lichen collections with a group of enthusiastic amateurs of varied experience levels. For more information, contact Ken Schneider (kschnei1000@gmail.com).

LASTHENIA

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