

UC Santa Barbara

Newsletters

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UC SANTA BARBARA
**Cheadle Center for Biodiversity
& Ecological Restoration**

Restoration Register

November 2023



Aerial photo of NCOS taken on 11/08/23 showing the burnt area on the Mesa in the background. The wet winter and spring and foggy summer preserved higher than normal water levels in the estuary for this time of year. White edges reflect dried algae and high salt levels along the drying mudflats. Photo by Jeremiah Bender.

Updates

Donor Highlight - Sharon Metsch



Sharon Metsch began participating in the NCOS project as early as 2014 when she and her husband, Steve, participated in our Community meetings. She became an early supporter in partnership with multiple Audubon Society members who endowed the Audubon Overlook on the Mesa Trail in 2018. Since then, Sharon has built on her career in education and her life long curiosity and connection to nature by starting a fund for student interns, enabling us to build our field lab, and most recently helping sustain our management and monitoring programs! Now that the large construction grants are complete, our need to build our endowment and/or secure current use funds is in a critical phase. You can join Sharon in these endeavors and help sustain the Cheadle Center's ecological management, public access and student field and research opportunities [here](#).

News flash! Matching Opportunity: we have received a challenge grant of \$150,000 from Duncan and Suzanne Mellichamp if we can match it! All gifts toward this match will count! [Click here to donate](#). Thank you for your support!

Ellwood Marine Terminal



Exciting news! The Cheadle Center has secured two grants to support the campus project of removing the Ellwood marine terminal tanks and restoring the area. Wildlife Conservation Board will be funding the restoration of the land and the State Coastal Conservancy will be funding the restoration on Coal Oil Point Reserve along the loading line. The State Coastal Conservancy is also supporting an inclusive planning effort for the public access components that will include opportunities for YOU and our local Chumash community to learn more about the project and have input on the public access design.

Monarch Butterfly Grove Enhancement

The Cheadle Center was recently selected to implement the proposed Monarch Butterfly Grove enhancement project in partnership with the Open Space Manager and in alignment with the approved plans. We are excited to continue to expand and enhance habitat improvements across the protected coastal habitat protected under the Ellwood Devereux Joint Proposal in 2004. [Click here to view the plan.](#)

Salt Marsh Bird's Beak (Chloropyron maritimum ssp. maritimum)



Salt marsh bird's beak (*Chloropyron maritimum* ssp. *maritimum*) flowering in the southeast portion of the NCOS salt marsh.

The salt marsh bird's beak (*Chloropyron maritimum* ssp. *maritimum*) is a state and federally endangered annual plant in the Orobanchaceae, or broomrape family. A hemiparasitic plant, it derives most of its nutritional needs from the roots of host plants such as saltgrass, which it steals through structures that wrap around the host's roots called haustoria. While it is speculated that it historically occurred in Devereaux or Goleta sloughs, it has never been recorded in these marshes.

In an action called assisted migration, seeds of this plant were brought up from Carpinteria salt marsh in conjunction with Tidal Influence and the USFWS. We have learned a lot about the plant in its first year and are planning to sow more seed in what are now identified as the best locations for it to thrive. Overall 55 plants have survived to adulthood in our newly restored marsh. This is our 4th endangered taxa we work with and another example of our efforts to conserve, understand, and give sanctuary to the rarest and most esoteric members of our biological community.

Rare Plants Sign

AN INTRODUCTION TO SOME OF THE REGION'S RAREST PLANTS

Plants are vital to the survival of all life on earth. From the tiniest insects to the largest mammals, plants provide food, oxygen, and shelter. They provide humans with medicine, raw materials, fiber, fuel and energy and contribute to life as we know it. The distribution of plants is not equal around the world; it is estimated that 1/3 of

all earth's plant species are rare. Some of the rarest plants in the world are California natives, including several that live here on campus! Currently, the Cheadle Center works with 16 rare plant species, four of which are listed as state or federally endangered. Here are a few of these species and their stories.



Amazingly, the federally endangered Crotch's bumble bee (*Bombus crotchii*) was discovered foraging on the flowers of the endangered Ventura Marsh Milk-vetch.

Ventura Marsh Milk-vetch

Astragalus pycnostachyus var. *lanosissimus*

The Ventura marsh milk-vetch is a critically endangered plant in the pea family. It can grow to over 2 meters tall and live for multiple years. Its native range is limited to wetland edges with accessible groundwater within the coastal fog belt of Ventura and Los Angeles Counties; a habitat that is now all but gone due to development.

Thought to have gone extinct in the 1960s, it was rediscovered in 1997 at an oil-waste dump site in Oxnard. Since its former habitat areas are highly modified or destroyed, we experimented with establishing it here (an action called assisted migration) to address our warming climate and the lack of protected suitable coastal wetland sites still available for reintroduction.

In 2019, the first group of these plants were introduced to the sandy area in front of you, which has near-surface groundwater. They now comprise the largest population in existence, with thousands of reproductive individuals. The Cheadle Center continues to work with this species through active stewardship, monitoring and research.



Salt Marsh Bird's Beak

Chloropyron maritimum ssp. *maritimum*

Salt marsh bird's beak, a federally endangered species in the broomrape family, is hemiparasitic (meaning it acquires some of its nutrition from nearby host species). A salt marsh specialist, this beautiful wildflower is related to owl's clover and Indian paintbrush. It occurs in just a few estuaries from Baja California to Carpinteria Salt Marsh and has genetically distinct forms in each location.

Oddly, the taxon was never known from Devereux or Goleta Sloughs. The decision to introduce the species to this recently restored site buffers it against its decline in Santa Barbara County and addresses threats from climate change. This is another example of assisted migration, a recovery strategy built on partnerships between regulatory and conservation organizations.

In 2023, seeds from Carpinteria, the closest population to campus, were sown experimentally around the restored upper Devereux Slough in partnership with the US Fish and Wildlife Service. Their future here is just beginning, but learning about their habitat preferences and expanding their population is meaningful for conservation under a changing climate.

Coulter's Goldfields

Lasthenia glabrata ssp. *coulteri*

Coulter's goldfields are bright annual wildflowers in the sunflower family. Members of the genus are famous for blanketing California landscapes in yellow during super blooms. Coulter's goldfields are specialists on saturated and salty or alkaline soils. In Santa Barbara County, they were reduced to small populations at Carpinteria Salt Marsh and Goleta Slough. They are given a local ranking of rare and endangered by the California Native Plant Society (CNPS), but are not listed as threatened or endangered at the state or federal level.

In 2019, the plant appeared on its own along the nearby campus lagoon edge, and provided the seeds that we then introduced around vernal pools on this site. They are now reproducing without help from us, which is a positive sign! The Cheadle Center is growing the species in the greenhouse to build up a seed bank for introduction into recently created habitat in order to expand its population.

MAKING RARE PLANTS COMMON:

The Cheadle Center is working to make locally rare plants more common through protecting and creating suitable habitats, seed collection, propagation and planting.

Our work includes identifying crucial microsites; creating intermedietes, rather than catastrophic, disturbance regimes through prescribed fire and flooding; and reducing the prevalence of non-native invasive plants. Some of these species are now common sights around the North Campus Open Space.

Southern Tarplant

Centromadia parryi ssp. *australis*



Southern tarplant occurs in intermittently disturbed sites and wetland edges remaining along southern California's overdeveloped coast. It reaches its northern limit near the UCSB campus, where it comes into contact with two other tarweeds in the genus *Deinandra*. This is the only place on earth that these three taxa come together, resulting in hybridization, a process which can allow new species to evolve and adapt to changing conditions. Tarplants attract many insect species including this hoverfly.

Santa Barbara Honeysuckle

Lonicera subspicata var. *subspicata*



Santa Barbara honeysuckle is rare mainly because of its small natural range along the coastal side of the mountains in Santa Barbara County. The small cream-colored flowers mature into orange-red berries.

The Cheadle Center is building a robust population here from a few original plants. This clay-adapted species provides abundant nectar and fruit resources for wildlife.

Wooly Seabligh

Suaeda taxifolia



Wooly seabligh is a fleshy perennial shrub that occurs from Santa Barbara County coastal bluffs and marsh edges into Baja California on shale and saline soils. Favored by cattle during the area's ranching era (1850s), along with later bluff erosion and housing development has made Seabligh quite rare.

Thousands of these plants were grown from the last remaining stand on Mesalitan Island and introduced here, where they now thrive and are a larval host plant for one of the world's smallest butterflies, the pygmy blue butterfly.

Find these rare plants on your walk, or visit ccber.ucsb.edu, to learn more.



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We're looking for feedback on our Rare Plants sign! This sign highlights the locally rare plants that can be found at the North Campus Open Space. Please email any feedback to ncos@ccber.ucsb.edu.

Bringing Back Our Wetland Showing



BRINGING BACK OUR WETLAND

Community Film Screening & Panel Discussion



Learn how UC Santa Barbara, working alongside a community of visionary environmentalists, restored a Goleta golf course back into a wetland

Tuesday December 5, 2023 | Doors at 6:30 PM, Show at 7:00 PM
The Santa Barbara Maritime Museum

FREE ADMISSION!

UC SANTA BARBARA

We're excited to announce another showing of Michael Love's documentary *Bringing Back Our Wetland*. The showing will take place at the Santa Barbara Maritime Museum on Tuesday, December 5th. Doors open at 6:30 pm and the showing is at 7:00 pm. You can RSVP using the QR code on the picture above or via the [link here](#).

Bulb Planting on the NCOS Mesa



On Thursday, October 19th the Cheadle Center hosted a planting of various bulbs within the recently burned Mesa grassland habitat at NCOS. Species included Cluster Lily (*Brodiaea jolonensis*), Golden Star (*Bloomeria crocea*), and Blue Dicks (*Dipterostemon capitatus*). We have planted many of these bulbs on site over the past few years before the burn and this additional post-fire planting will hopefully maximize the spread of these beautiful wildflowers.





Members of the Chumash community participated in the bulb planting and will continue to partner with the Cheadle Center to implement traditional foraging practices which have been documented to increase plant cover while also providing food support in the fall.

Feature Story

A Chumash cultural burn reignites ancient practice for wildland conservation



Wayne Chapman uses a hand drill to start a coal, which Chumash Elder Ernestine Ygnacio-De Soto (seated) will use to start the fire. Photo by Matt Perko.

Members of the Chumash community gathered at UC Santa Barbara's North Campus Open Space for an event that none of them had ever witnessed, a practice that had been lost for generations, that most thought would never happen again. More than two centuries since the last cultural burn in the region, they were returning fire to the land in a manner their ancestors may have recognized.

"We're active in cultural revitalization, language revitalization, and doing this burn is one of those missing puzzle pieces," said Robyne Redwater, whose family hails from villages in Santa Barbara and the Channel Islands.

Fire was an integral part of Chumash livelihood for centuries, if not millennia. Periodic controlled burns kept the landscape open, promoted the growth of useful plants and facilitated hunting. "A cultural burn is targeted to promote the health of the environment and growth of particular resources like food plants, medicinal plants and basket material," explained Jan Timbrook, curator emeritus of ethnography at the Santa Barbara Museum of Natural History.

"Here in Southern California, it actually was probably a much more efficient way of producing food than agriculture would have been at the time," Timbrook said. Today's familiar crops need water throughout the year, so growing them in Southern California requires irrigation. Even most native crops — think corn, beans and squash — need summer rainfall or irrigation. That requires a high level of centralized authority and labor.

"It was a lot more efficient to just burn these patches periodically, every few years, to increase the growth of these really calorie-dense foods like chia and red maids," Timbrook explained.

Historical and archeological evidence suggests that this practice was incredibly effective. Although they practiced a hunter-gatherer lifestyle, the Chumash were far from nomadic. Pre-contact Southern California was likely the most densely populated region north of the Valley of Mexico. The total Chumash population — which extended from Paso Robles to Malibu and inland to the edge of

the Central Valley — numbered some 15,000 to 20,000 people.

“Around the Goleta Slough and Mugu Lagoon there were large towns. Some of them had as many as 1,000 people,” Timbrook said. This was a vibrant, bustling society supported by a diversity of resources paired with effective land management.

Now, the Chumash have become a minority in their own homeland. “I frankly thought I was the only Chumash in the world,” said Chumash Elder Ernestine Ygnacio-De Soto, recounting her childhood in the last Chumash-speaking household. Many people with Chumash heritage aren’t part of a federally recognized tribe, don’t have a cultural center and don’t have their own land.

“So it’s important for places like UCSB, the North Campus Open Space, to open these areas for us to do this,” said Marianne Parra, a Chumash woman active in cultural revitalization.

Revitalizing land and culture

In 2009, UC Santa Barbara embarked on a 13-year restoration of the former Ocean Meadows golf course in Goleta. The project transformed the graded grass monoculture back into the vibrant wetland ecosystem it once was, including nearly 20 acres of native California grassland. The North Campus Open Space (NCOS) fully opened to the community in May 2022.

“Integrating prescribed fire in the grasslands was a high priority from the beginning because it could revive a long-practiced tradition, allow us to educate the community and to study how that practice works in the modern context with invasive plants, housing and other constraints,” explained Lisa Stratton, director of ecosystem management at the university’s Cheadle Center for Biodiversity and Ecological Restoration.

Scientists are beginning to realize that Indigenous burning created the patchwork of habitats and ecosystems that fostered greater biodiversity in Southern California. A low-intensity burn can flash through a landscape and open it up to different kinds of plants, many of which are adapted to periodic fires. Indeed, fire agencies, land managers and scientists are increasingly using prescribed burns as an important tool.

But California’s grasslands have changed since colonization. Introduced grasses have taken over, outcompeting the region’s diverse wildflowers with a live-fast-die-young strategy. The dry thatch they leave behind, smothers native herbs and shrubs, and fuels wildfires that race across the landscape.

“Clearly we have problems with fire in California, but if you can pick the time and the place, fire can be a great tool,” said Wayne Chapman, a restoration manager at UCSB’s Cheadle Center. “Especially for grassland management, I think it’s one of the most exciting things we have not yet been able to implement at all, let alone on a regular basis.” For instance, a flush of growth followed the last fire in the San Marcos foothills, including native plants never documented in that area.

Chia sage and red maids (“’ilépush” and “khutash” in in the local kaswa’a language) were among the plants that most benefited from cultural burns. The seeds of these plants — a staple of the traditional Chumash diet — ripen in late spring through early July. Women used seedbeaters to knock the seeds into gathering baskets, in the course of which some seeds were inevitably

scattered. After harvesting, they burned the fields to promote the next year's growth.

Although most knowledge of the technique has been lost to colonization, there are a few things we still know. "They probably used a hand-drill," explained Chumash Elder Julie Tumamait-Stenslie. "And mugwort was the punk underneath."

It was then a matter of spinning the drill on the base quickly enough to create an ember. "I've tried it once before," said Tumamait-Stenslie. "It's not easy."



An elderberry drill, hearth of California buckeye wood, mugwort tinder, and a few other sticks provide the material to start the fire. Photo by Matt Perko.

Once the tinder caught, the flame was probably transferred to the landscape with a firebrand. Women may have carried the fire from a domestic fireplace if the site was close enough to a village or camp. And it was definitely women who did this, Timbrook noted, as they were generally the ones gathering food and medicines. "They're the people who know the most about how these plants grow and the resources that they provide," she said, "so it seems logical that the women would be handling the management of those kinds of resources."

"It was up to the older women to do this," added Parra. These matriarchs were able to draw from years of experience to ensure this dangerous task was carried out safely and successfully.



Elder women like Ernestine Ygnacio-De Soto traditionally oversaw cultural burns. Photo by Matt Perko.

That's why the community chose Ernestine Ygnacio-De Soto to lead the fire-lighting ceremony. Ygnacio-De Soto is the daughter of the last native speaker of any Chumash language and traces her ancestry to a long line of local chiefs. The irony is that she's terrified of fire. "I got my fingers burned playing with matches when I was four or five. So fire is not my favorite," she said. "Never played with matches again."

So why did she agree to light the fire? "Because I'm the elder," she replied. "Because I'm from here. I do descend from the chiefs, and I have to hold that position."

A broken chain

The Chumash peoples practiced sophisticated land management to sustain themselves. But colonists had a different way of life and a different perspective, so they didn't recognize the utility of Indigenous burning practices. "Some of the earliest Spanish explorers who came through this area complained in their journals about the fact that they're having trouble finding pasturage for their horses and livestock because the 'heathens' had burned off all the grasslands," Timbrook said.

The tradition of burning came to an abrupt end on May 31, 1793, when interim Spanish governor José Joaquín de Arrillaga outlawed the practice. In his proclamation, Arrillaga sought to "uproot this very harmful practice of setting fire to pasture lands," making the practice illegal not just in the vicinity of towns, "but even at the most remote distances."

"It's basically been a crime throughout much of California for 230 years now," said restoration specialist Chapman. "And the first place that it was made a crime was Santa Barbara: posted at the Presidio."

"One can imagine that there was this horrible moment where these old women walked up to do what they'd been doing in the fall, and some Spanish soldier rode up on a horse and made it clear, in no uncertain terms, that it was not going to happen anymore," Chapman said.

“Our ancestors that went through the mission system probably assumed that many of these rituals or practices would never happen again,” Parra said. And while cultural burning has been mostly lost to history, that hasn’t stopped Chumash today from trying to rediscover and revitalize what their ancestors did. Parra herself didn’t fully understand traditional burning growing up, but her grandmother Anne continued the practice in spirit. Each year, Anne Parra would perform a ritual before setting her own garden alight. “I didn’t realize the value of what she was doing every day,” Parra said, recalling how her grandma would wake the children up to participate in various ceremonies and traditions.

“I’m so thankful that I had that upbringing, and that I got to spend so much time with her as a child,” she added. “Those are lessons you can’t purchase.” Parra has used this gift wisely, sharing her knowledge and inspiration with her daughters, Robyne Redwater and Alikoi Parra, who have taken up the baton as well.

Hope, determination and action

Despite what the Chumash lost to colonization — and they lost a lot — cultures are living things, characterized as much by their history as their future. “We always say we’re the past, present and future,” Marianne Parra said.

The Chumash are working hard to gain more agency over their own cultural practices. “Being out here getting first-hand experience, and hopefully being able to carry it to future generations ourselves, is really the ultimate goal,” said Redwater, who is currently learning the kaswa’a Chumash language, as well. “In the future, our hope is to have an all-female, Indigenous fire-keeper team.”

And the term “fire-keeper” is important. “We’re trying to really push away from this dichotomy of good and bad fires,” said Redwater’s sister Alikoi Parra. The same fire can be beneficial and destructive, useful and harmful. “We have to learn how to work with fire.”



Flames burn behind a sign for the North Campus Open Space while firefighters manage the burn in the background. Photo by Matt Perko

Personnel from the Santa Barbara County Fire Department managed the burn after the Chumash lit the grassland. The event's success involved coordination between several organizations and agencies.

"I'm always a great believer in continuity of care," said Ygnacio-De Soto, who worked as a nurse for 45 years. "So it's not the start of bringing these practices back that matters as much as what happens after." For her, that includes future burns, greater Chumash involvement and cultivation of traditional food plants.



Purple needlegrass (*Stipa pulchra*) resprouting just weeks after the fire. Photo by Jeremiah Bender.

According to Stratton, UC Santa Barbara has every intention to continue this relationship. "We've been meeting with people from different groups of Chumash, and one of the realizations is that this is just the first step in a much longer process of integrating the Chumash into these traditional land management practices," Stratton said. She'd like to see cultural burns expand beyond NCOS. There are a lot of degraded grasslands in coastal California, she explained. This burn could initiate a larger process of learning to use fire to open up the landscape and promote biodiversity in conjunction with Indigenous communities.

"We're going to have to just relearn it, and help each other," added Chapman. "It's not about going back. It's about going forward with knowledge from the past and lessons from the past to make a better future."



Patches of resprouting salt grass (*Distichlis spicata*) are clearly visible within the burn area. Photo by Jeremiah Bender.

Article by [Harrison Tasoff](#)



Volunteer Opportunities



"Second Saturdays" at NCOS

December 9th, 9:00 - 12:00

Please RSVP to ncos@ccber.ucsb.edu

Help us restore and create NCOS with plants and more! Meet at 6969 Whittier Drive at 9am. Bring water, sunscreen, and wear a hat, clothes and shoes that are suitable for outdoor work



Thursdays - Greenhouse Associates

Thursdays 9:00 - 12:00

Come help transplant seedlings of native plants with the CCBER team. To join, please send an email to ncos@ccber.ucsb.edu.



Nature Guide Tour

November 18th, 9:30 - 11:00

Come take a walk around NCOS and learn about native plants and animals with a trained Nature Guide.

Community Photos

We are interested in any observations of wildlife activity on NCOS, as well as plants and landscapes.

Please send your observations, with or without photos, to ncos@ccber.ucsb.edu. Thank you!



Eastern Kingbird near Whittier Pond at NCOS. Photo by Ron Swick.



Great Blue Heron portrait, taken at Venoco Bridge on NCOS. Photo by Daniel Forseth.



Sora in Phelps Creek at NCOS. Photo by Jeremiah Bender.



Banded Garden Spider at NCOS. This individual spun its web in a patch of flowering coastal goldenbush (*Isocoma menziesii*) that was attracting pollinators. Photo by Jeremiah Bender.

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**For more information on the
North Campus Open Space Restoration Project,** [Click here](#), **or email** ncos@ccber.ucsb.edu

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