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Cheadle Center for Biodiversity & Ecological Restoration

Restoration Register

September 2026



Crab spider (family Thomisidae) on gum plant (*Grindelia camporum*) flower at the Sierra Madre restoration site. Crab spiders are ambush predators that often wait on flowers for visiting insects, using their enlarged front legs to capture prey rather than building webs.

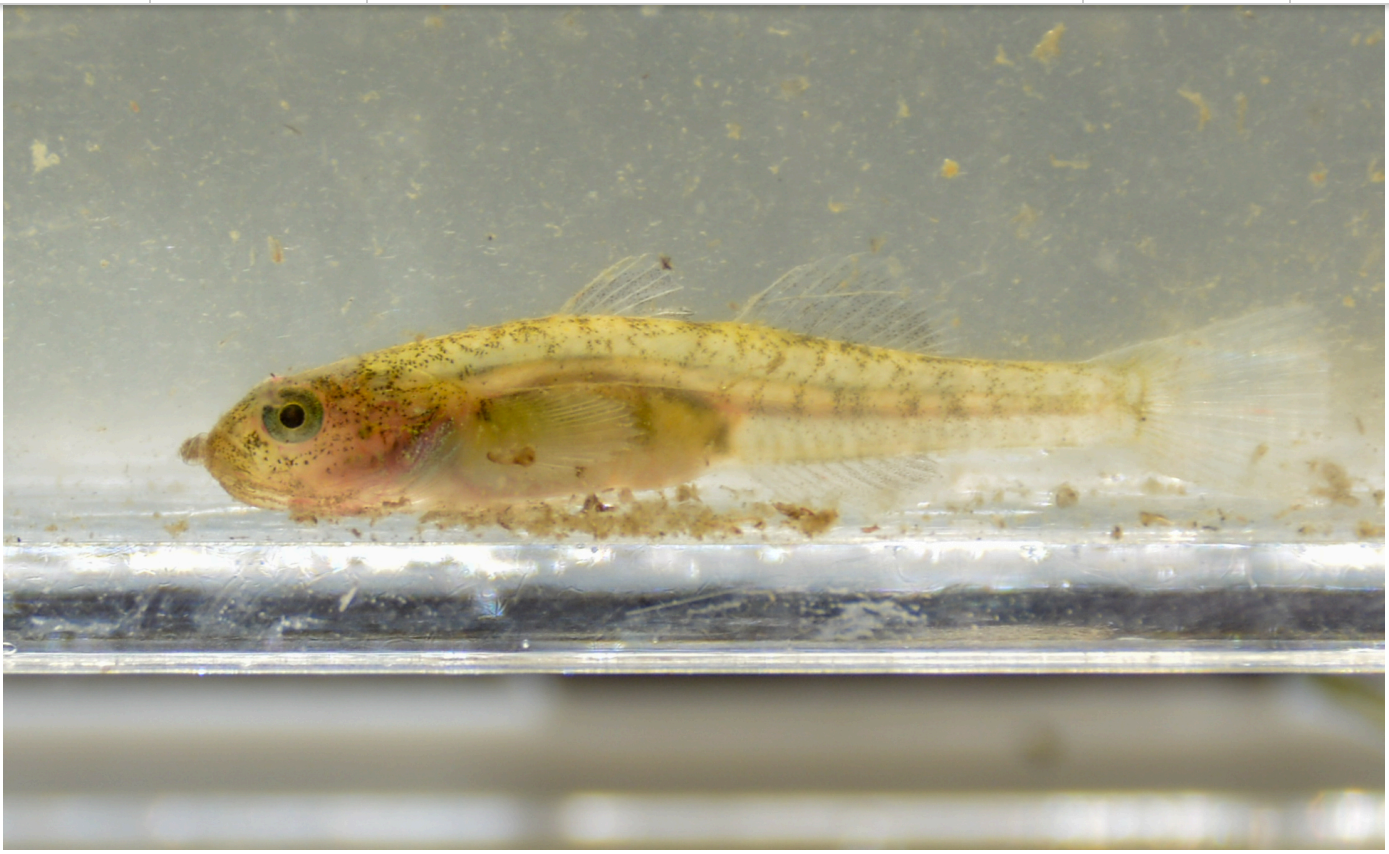
Tidewater Goby Survey



Cheadle Center staff conducting a seine-net pull at the COPR mouth.

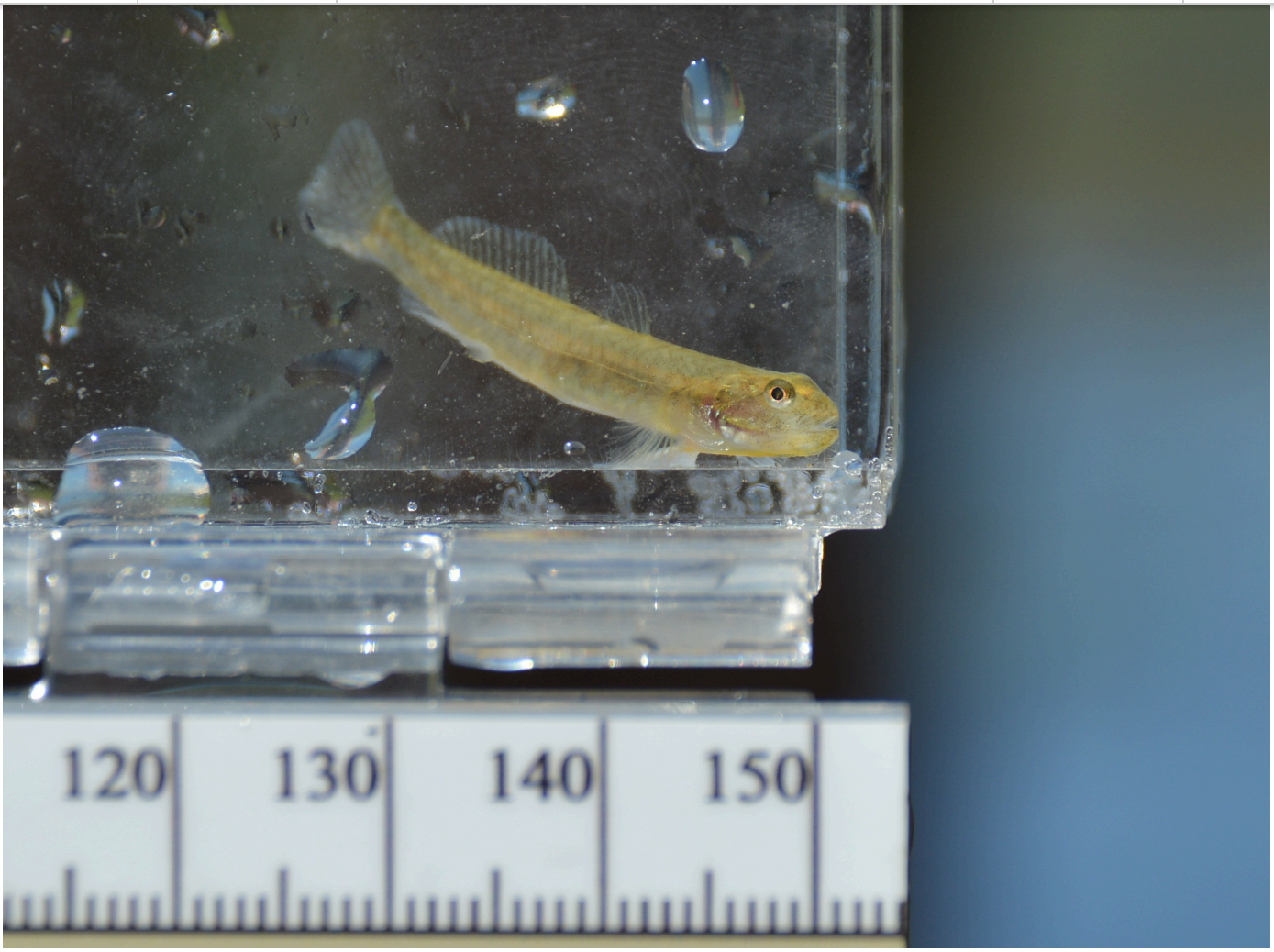
Cheadle Center staff, Hannah Donaghe (senior biologist at Catalyst Environmental Solutions), and partners from the U.S. Fish and Wildlife Service completed the annual Devereux Slough tidewater goby survey on July 15. Seven locations across Coal Oil Point Reserve and the North Campus Open Space were sampled using seines or dip nets, with water temperature, conductivity, and dissolved oxygen recorded at each site.

Tidewater gobies (*Eucyclogobius newberryi*) are small, short-lived fish found in brackish lagoons, estuaries, and marshes along the California coast. Although adults can tolerate large fluctuations in temperature and salinity, eggs and larvae require more stable conditions. When habitat conditions are favorable, the species can reproduce quickly within its roughly one-year lifespan. Tidewater gobies were listed as endangered under the federal Endangered Species Act in 1994 after disappearing from many of the coastal lagoons and estuaries they historically occupied. Major threats include habitat loss, introduced predators, drought, climate change, and changes to lagoon hydrology.

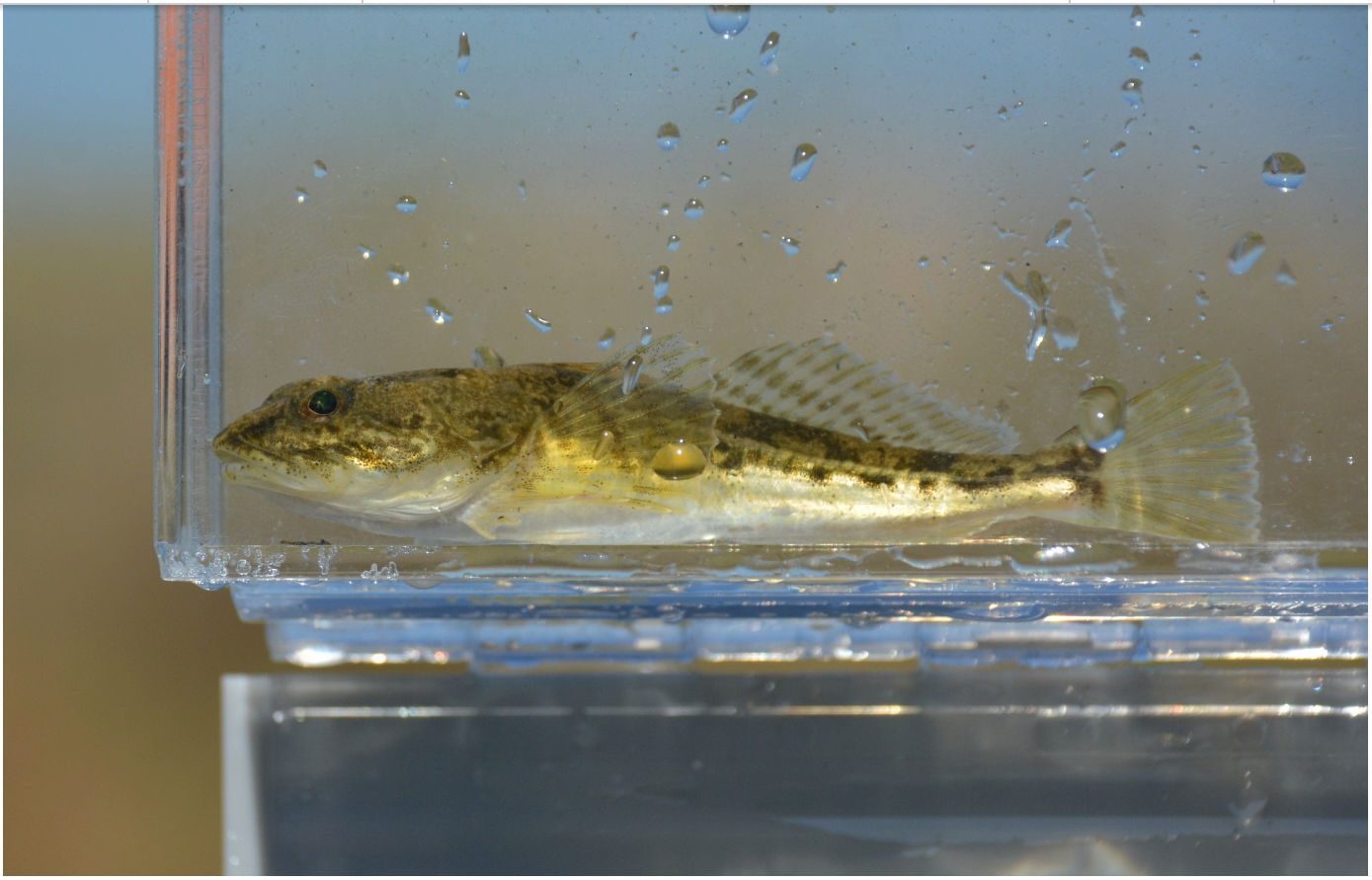


Tidewater goby found in the NCOS east arm.

During this year's survey, tidewater gobies were detected at two locations and, for the first time, all detections were within the North Campus Open Space. Two individuals were found at the East Arm and one at Phelps Bridge. The survey also documented a variety of other fish and aquatic species, including arrow gobies, longjaw mudsuckers, California killifish, staghorn sculpin, topsmelt, mosquitofish, silversides, crayfish, and crabs.



Arrow goby found at the COPR mouth.



Staghorn sculpin found at the COPR mouth.



California killifish found at Venoco Bridge.

Special-Status Birds at NCOS



Snowy plover chick on the shore of the Devereux Slough at NCOS.

Staff and local birders at the North Campus Open Space recently documented noteworthy observations of two special-status bird species: the Belding's savannah sparrow (Passerculus sandwichensis beldingi), which is listed as endangered under the California Endangered Species Act, and the western snowy plover (Charadrius nivosus nivosus), whose Pacific coast population is listed as threatened under the federal Endangered Species Act.

While western snowy plovers have bred at NCOS in previous years, this is the first year that fledgling Belding's savannah sparrows have been observed at the site. On July 28, staff observed two fledglings being cared for by an adult. On August 1, staff and local birders also documented four western snowy plover chicks at NCOS, following the observation of a suspected nest several weeks earlier.



An adult Belding's savannah sparrow (front right) with two fledglings. The fledglings can be distinguished by the bright white tips and buffy edges on their fresh feathers, while the adult's older feathers are more worn and sun-bleached. After the adult molts, its plumage will more closely resemble that of the juveniles. Identification information provided by Mark Holmgren.

Ventura Marsh Milk-vetch



Ventura marsh milk-vetch (*Astragalus pycnostachyus var. lanosissimus*) thriving at the North Campus Open Space in 2022.

The Cheadle Center is partnering with the California Native Plant Society (CNPS), which has committed funding to support our work with Ventura marsh milk-vetch (*Astragalus pycnostachyus var. lanosissimus*). Annual monitoring was completed in July, and the main population remains well below its 2022 peak of 1,924 adults and 16,957 seedlings. In 2026, the main population totaled 87 adults and 640 seedlings.

At NCOS, the Ventura marsh milk-vetch population occurs within a relatively small watershed with extensive urban cover and does not receive the same degree of flooding and sediment deposition that occurs in some other coastal estuaries. Our studies suggest that Ventura marsh milk-vetch performs best in low-nitrogen soils, where its ability to fix its own nitrogen may give it an advantage. In more nitrogen-rich soils, plants face greater competition from fast-growing invasive species and also appear to experience increased pressure from spider mites and other pests.

We will use some of the grant funding to mimic the effects of a natural sediment-deposition event using heavy equipment. Nitrogen-rich surface soils will be buried and replaced with excavated, low-nutrient soils from adjacent areas. We will then sprinkle the “magic dust” of Ventura marsh milk-vetch seeds onto the newly placed soils to see whether we can recreate the conditions that supported the dramatic increase in this endangered species during the first three years of the restoration.

Salt Marsh Bird’s-beak



Salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*) in the eastern salt marsh at the North Campus Open Space.

Salt marsh bird's-beak (*Chloropyron maritimum ssp. maritimum*) monitoring was completed in July, and the population continues to expand at a record pace. This year's population is 54,288 individuals, which is approximately 128% larger than last year's population and 2,736% larger than the population recorded the year before!

Salt marsh bird's-beak is a state- and federally endangered annual herb in the Orobanchaceae, or broomrape family. This family includes many parasitic and hemiparasitic plants, including familiar wildflowers such as owl's clover and Indian paintbrush (*Castilleja* spp.). Salt marsh bird's-beak is native to Southern California salt marshes, with populations ranging from Carpinteria to northern Baja California; however, the species had not previously been observed or collected in the Goleta or Devereux Sloughs. Because Southern California populations can develop distinct local forms, seed introduced to the North Campus Open Space restoration site was sourced from the nearest known population at Carpinteria Salt Marsh.

The prime real estate appears to be along the intermittently flooded edge of the sandy zone at NCOS. This area has a relatively shallow freshwater table and supports a robust population of salt grass (*Distichlis spicata*), one of the primary hosts for this hemiparasitic plant.

Burrowing Owl Conservation



Burrowing owl using a winter-specific type of artificial burrow installed in 2024.

With funding from the SB County Fish and Wildlife Commission, the Cheadle Center team—Wayne, Claire, Bren graduate student Mandi Salinas, and student volunteers—began the first meaningful steps towards addressing one of the most overlooked conservation issues in the county's history, which is the long-neglected decline of the Western burrowing owl. Towards that objective, they recently completed a comprehensive set of visits and surveys at multiple sites to evaluate their potential to better support this once-widespread and common member of our local ecosystem.

Burrowing owls are currently under review for listing by the state of California and have been nearly extirpated across much of their former habitat by development, widespread tree planting, and the heavy control of ground squirrels. Currently, any local occurrences are limited to overwintering birds from breeding populations in Washington, Oregon, Northern California, and British Columbia. Even under the best of circumstances today, they still face significant threats in Santa Barbara County and elsewhere. These threats include prohibitively dense vegetation, which limits their ability to hunt on the ground, locate burrows, or see ground-based predators; a lack of burrows to shelter or breed in due to the significant reductions of ground squirrels and badgers across the open range; and the proliferation of tall, primarily non-native trees, which serve as perches for predatory hawks and owls and provide an outsized advantage to these ubiquitous raptors. These trees are significantly shifting avian populations towards common generalists and away from rare habitat-specialist species.



Burrowing owl sheltering in artificial burrow on the NCOS Mesa in November 2020.

Adding artificial burrows to well-grazed rangelands with flat land or gentle slopes has been identified by the team as one of the fastest and best strategies to support and retain overwintering burrowing owls. To this end, the Cheadle Center has been helping property owners construct artificial burrows and will be monitoring them this winter to document and assess which types and locations of burrows best support and protect the owls. In 2020, the Cheadle Center constructed the first artificial burrows in the county's history at NCOS. This project will be the first significant, scaled-up effort in some of the wildest, rarest habitat remaining on the south coast.

The Dangermond Preserve holds the best of this habitat remaining in the county, with hundreds of acres of undeveloped, flat or rolling hills. Even here, however, the grasslands have notably low ground squirrel numbers, and have not escaped the ubiquity of tree planting, installation of tall vertical utility lines, and weed invasions—but small habitat modifications can yield very positive results. Studies performed on the pellets of owls on the Dangermond Preserve indicate they feed well on a diversity of invertebrates and small mammals there, including California voles.

Using Fire to Restore Native Biodiversity



Lagoon island prescribed burn in 2024.

When the Chumash burned landscapes to open them for culturally valuable annual plants such as redmaids, or xutaš, they were not contending with the invasive annual grasses that now dominate our landscapes. We have found through research in the early 2000s and 10 subsequent prescribed fires that using supplemental woody fuels to a depth of 1.5 to 2 feet is critical for achieving soil temperatures hot enough to completely burn off the weedy grass seed bank.

With the seed bank eliminated, we are able to spread the seeds of nearly 18 native annual wildflower species that we have carefully collected and nurtured over the years to provide sufficient seed for subsequent burns. We are excited to announce that this year County Fire will be assisting with a prescribed fire at COPR adjacent to the s'o' hil xus project, as well as our biennial fire on Lagoon Island. We expect these burns to take place September 14 or 15 if wind and weather conditions are appropriate.

This YouTube video provides a great background on the methods and outcomes of these burns for our local floral diversity. Many of these native forbs were essentially eliminated from the landscape by the persistence of dense thatch and the seed bank of ripgut brome, but we are finding that these treatments are allowing diverse native areas to persist as islands within a sea of annual grasses.

Phelps Trail Restoration



Baseline conditions at the Phelps Trail project. We look forward to sharing photos of the restored bioswale and improved trail!

The much-anticipated improvement to the wide trail that runs west from the end of Phelps Road toward the Ellwood Monarch area broke ground on Tuesday, September 8. Over the next six weeks, crews will construct a bioswale along the trail edge and establish a more durable trail surface. The Cheadle Center will then step in to add native plants to the project. These improvements will create a drier, more durable trail while also expanding high-quality habitat for pollinators and birds.

Campus Point Restoration



Asphalt pad, looking north towards UCSB Campus.

It has taken numerous small grants to reach the point where we can remove the asphalt from Campus Point and restore dune scrub and backdune swale plant communities at the site, but we anticipate breaking ground in mid-September. Heavy equipment will be working in the area for a few weeks, after which we'll be able to dig in and start planting. Key funding for this project was financed by County of Santa Barbara's Coastal Resource Mitigation Fund, a partial mitigation of impacts from the following offshore oil and gas projects: Point Arguello, Point Pedernales, and Santa Ynez Unit.

This will be a great site for school groups to help with restoration—the sandy soil is easy to plant in, and the views are excellent. Please reach out to Andy Lanes, our Environmental Education Coordinator, at lanes@ccber.ucsb.edu to set up a visit, learn more about Campus Lagoon, and help with planting.



Pink outline shows the full 1-acre extent of asphalt, partially under ice plant.
Yellow outline shows approximately 0.5 acre of visible asphalt.
Green outline delineates the restoration area for coastal sage scrub, dune, and backdune swale.

Feature Story

Connecting Students with Nature



OFCC students observe a native butterfly at NCOS.

Environmental Education Programs Begin a New Year

The Cheadle Center is kicking off the 2026–2027 school year with environmental education programs that connect young people with natural areas and restoration projects while preparing UCSB students to become environmental educators. Activities range from preschool nature walks at the North Campus Open Space to high school field programs at the Dangermond Preserve. Through observation, place-based lessons, and hands-on restoration, participants deepen their understanding of local ecosystems and learn how they can contribute to their care.



Second graders from Peabody Elementary School plant native coastal sage scrub species at s'o' hil xus (Bear Spring).

Exploring the Dangermond Preserve

This fall, the Cheadle Center and the Dangermond Preserve education team will begin a new season of field programs for Lompoc middle and high school students. Fifteen field trips are planned with funding from The Nature Conservancy and the Natalie Orfalea Foundation, continuing a collaboration now entering its fourth season.

During fall 2025, the program provided 12 day-long field experiences for 592 middle and high school students. Fourteen UCSB undergraduates and six Bren Environmental Leadership Fellows received field training and helped lead small-group activities focused on biodiversity, oak woodland ecology, and land conservation. Classroom visits at Lompoc Valley Middle School, Lompoc High School, and Vandenberg Middle School introduced key concepts before the field trips and reinforced them afterward. Combining classroom instruction with direct experience at the preserve helps students connect ecological concepts to the landscapes and conservation challenges they encounter in the field.



Lompoc students at Dangermond Preserve.



Lompoc students investigate creek habitat at Dangermond Preserve.

Nature Walks with OFCC

With support from the Coastal Fund, the Cheadle Center and the Orfalea Family Children's Center (OFCC) have collaborated since 2020 to introduce pre-K students to the natural world. Cheadle Center staff and UCSB interns guide groups of three- to five-year-olds on nature walks from OFCC to the North Campus Open Space and Coal Oil Point Reserve.

Activities encourage children to explore local plants and wildlife using their senses and natural curiosity. Winter walks have included listening and looking for birds and observing and collecting insects, while spring programs have focused on the diversity of flowers and leaves. These experiences help young children practice careful observation, become more comfortable outdoors, and begin recognizing seasonal changes in the natural world. During the 2025–2026 school year, the program completed 58 pre-K nature walks.



OFCC pre-k students observe wildlife at NCOS.



OFCC pre-k students observe sheep grazing at NCOS

Training Environmental Educators through ES 191

UCSB's Environmental Studies 191: Nature and Science Education Practicum prepares undergraduate students to translate environmental concepts into engaging lessons for younger learners. During fall 2025, UCSB students enrolled in the course were introduced to elementary environmental education curricula and helped lead activities for fifth graders from Isla Vista Elementary School at Coal Oil Point Reserve. Winter programs continued at the North Campus Open Space, where lessons focused on wetlands, watersheds, and local biodiversity.

Together, the Dangermond, OFCC, and Environmental Studies 191 programs prepare approximately 40 to 50 UCSB students each year to serve as environmental educators. These experiences allow students to develop practical skills in teaching, communication, and field leadership while sharing their knowledge with younger participants. They also introduce UCSB students to environmental education as a potential career path, and some participants have gone on to careers in education and environmental education.



ES 191 students teaching at the North Campus Open Space.

Learning Across Campus Landscapes

In addition to the guided nature walks offered through OFCC, the Cheadle Center works with schools and community organizations to provide field experiences at Cheadle Center management areas and project sites across campus. At the North Campus Open Space, 100 sixth graders from Oxnard's Juanita Academy of Literacy, Communication Arts and Technology explored wetland ecology and local biodiversity. At the s'o' hil xus (Bear Spring) restoration site, more than 100 second graders from Peabody Elementary School and 20 third graders from Washington Elementary School helped plant native species. Sixth graders from Valley Beth Shalom School also participated in planting activities at the site.



Elementary students from the Juanita Academy of Literacy, Communication Arts and Technology at the North Campus Open Space.



Washington Elementary students plant native species at the s'o' hil xus.

At West Storke Wetland, sixth graders from Crane Country Day School combined native planting with bird monitoring. By participating in active restoration projects, students can connect lessons about plants, wildlife, and habitat with visible changes to the landscape. These experiences show how individual and collective actions support habitat recovery and long-term care while encouraging continued involvement through volunteering and environmental stewardship.



Crane Country Day School students birdwatching at West Storke Wetland.

In summer 2025, 100 seventh- and eighth-grade girls participating in the American Association of University Women's Tech Trek program visited the UCSB Lagoon for native planting, bird monitoring, and nature journaling. These activities paired scientific observation with creative reflection, giving participants several ways to connect with the landscape.



Eighth-grade students participating in the American Association of University Women's Tech Trek program at the Campus Lagoon.

Taken together, these programs create a progression of environmental learning—from helping preschoolers build knowledge, curiosity, and a sense of connection to local habitats through their first guided nature walks to giving UCSB students experience leading field lessons and developing skills relevant to education, science, and environmental stewardship.

Volunteer Opportunities

Second Saturday Volunteer Day



Please RSVP to ncos@ccber.ucsb.edu. Meet at 6969 Whittier Drive at 9:00 a.m. Bring water and sunscreen, and wear a hat, clothes, and shoes that are suitable for outdoor work.



Greenhouse Transplanting

Thursdays 9:00 a.m. - 12:00 p.m.

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

Community Photos

We are interested in any observations of wildlife activity from our management areas, as well as plants and landscapes. Please send your observations, with or without photos, to ncos@ccber.ucsb.edu. Thank you!



A beautiful late summer sunset over NCOS. Photo by Kim Geritz.



Red-necked Phalarope (*Phalaropus lobatus*) near Venoco Bridge. Approximately 50 individuals were present in the area on August 31 and September 1, exhibiting their characteristic spinning foraging behavior, which helps bring small prey toward the water's surface. Photo by Jeremiah Bender.



Bushtit (*Psaltriparus minimus*) foraging on horseweed (*Erigeron canadensis*) at the Duttenhaver Outdoor Classroom. Bushtits are active, acrobatic foragers that often move through vegetation in flocks, eating small insects and spiders from leaves, stems, and twigs. Photo by Jeremiah Bender.



Lesser Goldfinch (*Spinus psaltria*) foraging for seed on tall willowherb (*Epilobium brachycarpum*) at the Duttenhaver Outdoor Classroom. Photo by Jeremiah Bender.

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