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UC SANTA BARBARA
Cheadle Center for Biodiversity & Ecological Restoration

Restoration Register

January 2024

NCOS has been filled to the brim! Aerial photo of NCOS taken on 12/22/23 showing the high water level following the storms in late December. Photo by Bill Dewey.

Updates

NCOS Mesa Burn Area

A Long-billed Curlew forages amongst resprouting Purple needlegrass (*Stipa pulchra*) in the Mesa burn area.

With the winter season upon us, we have been fortunate to have had several inches of much-needed rain. This has kicked off the growing season on our grassland. Several exciting things are happening on that space. For one, we are witnessing the emergence of tens of thousands of our perennial bunch grasses, Purple needlegrass (*Stipa pulchra*), which are vigorously resprouting after having been burned in the first Chumash-lit coastal fire in over 230 years that we celebrated last fall. Many other natives within the burn zone are also resprouting following the rains, such as Meadow Barley (*Hordeum brachyantherum*) and Succulent Lupine (*Lupinus succulentis*) in the grassland, along with Common Spikerush (*Eleocharis macrostachya*) around the Mesa vernal pools.

Meadow Barley (*Hordeum brachyantherum*)

Succulent Lupine (*Lupinus succulentis*)

Common Spikerush (*Eleocharis macrostachya*)

In our ongoing efforts to restore coastal grasslands and reintroduce the rarer taxa they once hosted, we have been salvaging, growing, and planting a variety of locally-occurring geophytes. Geophytes, essentially 'earth-loving' plants, typically have underground storage organs that are impervious to fire and hold energy in the form of carbohydrates. In this case, they belong to the Themidaceae (Liliaceae) and Asparagaceae families. Three locally-occurring taxa that we have recently planted are blue dicks (*Dipterostemon capitatus*), dwarf brodiaea (*Brodiaea jolonensis*), and golden stars (*Bloomeria crocea*). Additionally, we are cultivating and bulking the beautiful mariposa lily (*Calochortus venustus*). These taxa are not only ecologically crucial members of the natural community but also hold tremendous cultural importance.

These plants reproduce both sexually, by making seed, and asexually, by dividing their bulbs and making baby bulblets. For millennia these plants were staple foods for indigenous California cultures like the Chumash who dug for them with sharpened digging sticks weighted with doughnut stones, harvesting the larger bulbs for consumption and replanting the bulblets for future harvests.

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.

We have been growing these plants by the thousands for several years and we had a large bulb-planting party in the fall, where Chumash people assisted in getting the bulbs in the ground. Several weeks of waiting followed and we were finally rewarded with soaking rains. The bulbs have awakened and are getting rooted now in the grassland.

Blue dicks (*Dipterostemon capitatus*) have been the first bulbs to emerge.

We hope to continually build on this by selecting for the correct local taxa and their local forms, bulking these plants in the nursery, and encouraging their expansion with cultural fire. Keep your eyes peeled for their beautiful flowers this late winter and spring!

Ventura Marsh Milk-vetch

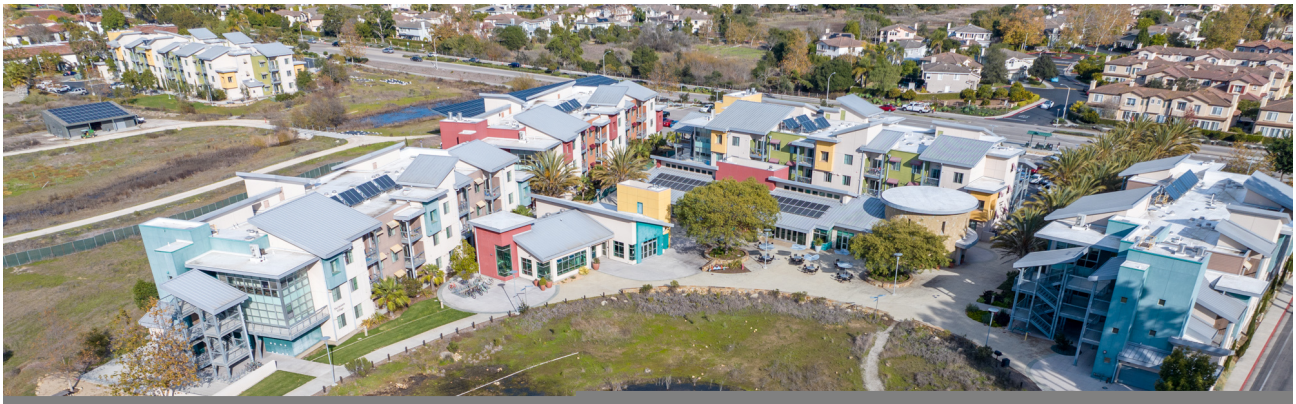
NCOS is home to one of the world's largest populations of the endangered Ventura marsh milk-vetch (*Astragalus pycnostachyus var. lanosissimus*), once thought to have gone extinct in the 1960s and rediscovered in 1997. This short-lived perennial shrub is a disturbance follower that makes its home in coastal wetlands. It has dimorphic seeds, meaning that it produces some seeds that are ready to germinate the following year and other seeds, with a thicker coat on the shell, persist in the soil until some environmental disturbance such as flooding triggers germination. It is hypothesized that this latter type of seed is the mechanism by which the species survived in the seedbank for decades in the 20th century without being observed by surveying botanists.

Due to the rainstorm at the end of December, the slough's waterline has crept up into the sandy area where the milk-vetch grows, submerging many adults. While the milk-vetch can tolerate a moderate amount of intermittent flooding, several weeks of being underwater may be enough to kill them. However, these adults, some of them as old as three years, have had several growing seasons to produce fruit and drop seeds. Once the berm at the mouth of the slough breaks and the water recedes to the ocean, we may see many new milk-vetch seedlings recruit in this area. The population may even expand due to seed dispersal via water. Keep an eye on this rare plant as it sprouts new gray-green foliage in the next few months!

This calming video of the North Campus Open Space may be useful as a meditation aid.

Feature Story

Sierra Madre Restoration Area



Aerial view of the Sierra Madre central area and restored vernal pool.

Sierra Madre has been a Cheadle Center restoration area for over 8 years, serving as mitigation for the campus housing of the same name. With two zones, the Central area and the Northern wetland area, our Sierra Madre site is divided by apartments that offer students picturesque natural views.

The dominant feature of the Central area is the restored Vernal Pool. This pool is a wider version of the original existing wetland, which was incorporated into the layout of the Sierra Madre Villages. Surrounding paths lead students through a diverse array of local native plants, with the apartment buildings providing increased protection from invasive plant dispersal mechanisms. The apartment building barrier has allowed restoration teams to experiment with increased local biodiversity in the absence of invasive competition.

Sierra Madre has been managed for the past five years by Cheadle Staff member Johnny Alonzo, who has diligently worked on removing invasive plants through various methods. Recently employed strategies in the central area have included the use of green flame treatments to manage invasive annual grasses in the native grassland area.

Before and after images of green flame treatments in the Sierra Madre native grassland habitat.

Green flame treatments are most effective when invasive plants have recently germinated, so its the perfect time of year to employ this strategy. Native species present in the grassland area include Purple Needlegrass (*Stipa pulchra*), Blue-eyed Grass (*Sisyrinchium bellum*), and Creeping Wild Rye (*Elymus triticoides*), all of which can better withstand exposure to fire compared to their invasive counterparts.

Take a walk around the vernal pool in the coming months and you can expect to see a stunning display of flowering Succulent Lupine (*Lupinus succulentus*) and hear the croaking of Pacific Chorus

Frogs.

Northern area of Sierra Madre with flooded wetland.

The Northern area of Sierra Madre consists of a large wetland area adjacent to Storke Road, with the North Campus Open Space area to the west (upwards in above photo). This is the oldest restoration area in Sierra Madre, and represents a large stormwater management zone. Most plants are low lying salt tolerant species, such as Saltgrass (*Distichlis spicata*), California Saltbush (*Atriplex californica*) and Alkali Heath (*Frankenia salina*). The above photo illustrates the extent to which the area can flood, with water eventually draining through North Campus Open Space and into the Devereux Slough.

Solarization in progress within the northern area of Sierra Madre.

Recent restoration work in the northern area has involved targeted solarization of invasive plants. This method includes laying large sheets of black plastic over invasive plants for several weeks until they succumb to the heat. The rotating black plastic is employed to control non-native annual grasses as well as invasive forbs such as Cut Leaf Plantain (*Plantago coronopus*) and Stork's-bill (*Erodium cicutarium*). This approach allows for the growth of rhizomatous native plants that can withstand solarization, including species such as Creeping Wild Rye (*Elymus triticoides*), Saltgrass (*Distichlis spicata*), and Alkali Weed (*Cressa truxillensis*).

Creeping Wild Rye (*Elymus triticoides*) is growing well after the recent storms.

Volunteer Opportunities

"Second Saturdays" at NCOS

January 13th, 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.

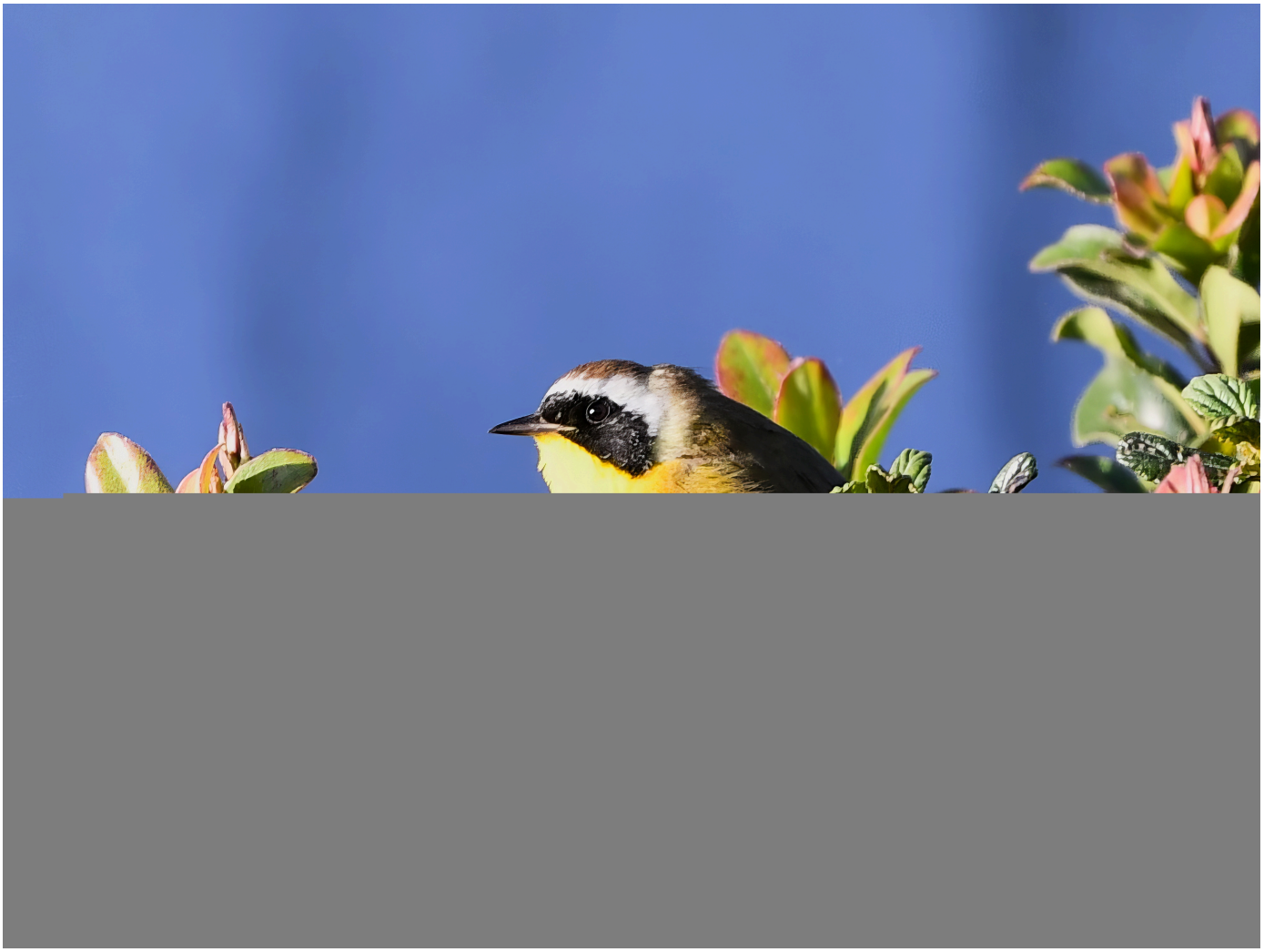
Nature Guide Tour

January 20th, 9:30 - 11:00

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

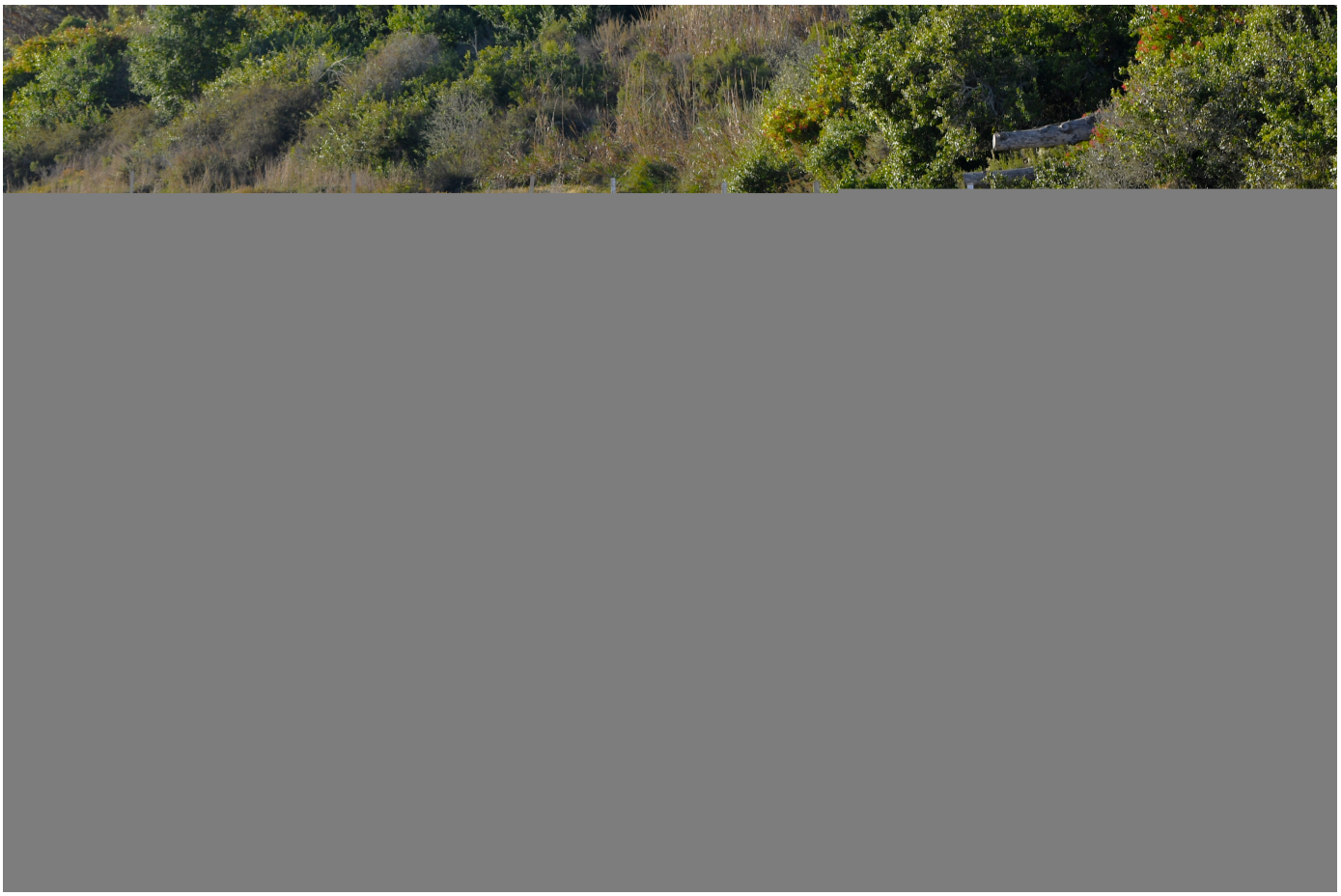
Community Photos

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!



Common Yellowthroat at the Manzanita Village restoration site. Photo by Daniel Forseth.

Great Blue Heron and Brown Pelican at the Campus Lagoon. Photo by Daniel Forseth.



Willets, Cormorants, and Snowy Egrets at the Campus Lagoon. Photo by Daniel Forseth.

Bonaparte's Gull at the Campus Lagoon. Photo by Daniel Forseth.

Young Gopher Snake at the South Parcel restoration site. Photo by Jeremiah Bender.

Red-shouldered hawk and crow at NCOS. Photo by Jeremiah Bender.

Orange-crowned Warbler at NCOS. Photo by Jeremiah Bender.

American Bittern next to Whittier Pond at NCOS. Photo by Jeremiah Bender.

Bushtit in the NCOS salt marsh. Photo by Jeremiah Bender.

Lapland longspur on the NCOS Mesa grassland. Photo by Jeremiah Bender.

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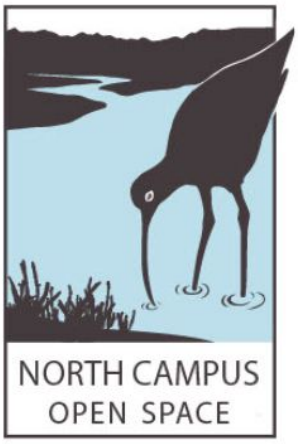

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