

UC Santa Barbara

Newsletters

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UC SANTA BARBARA North Campus Open Space Restoration Project

NCOS NEWS

June 2020



Do you notice something different about this oblique aerial image of NCOS, Coal Oil Point Reserve and Devereux Slough taken by Bill Dewey on May 5, 2020? Hint: compare it with the image in [this newsletter](#).

UPDATES

Western Snowy Plover Nest

We are excited and cautiously optimistic about a Western Snowy Plover nest on the sand flat that was designed to provide buffer nesting habitat for plovers in the face of predicted sea level rise. The nest was found on May 22nd by Jessica Nielsen, Conservation Specialist at Coal Oil Point Nature Reserve who monitors all of the Snowy Plover nests on the COPR beach as well as any that turn up at NCOS. The nest is predicted to hatch by June 21st. We'll keep you posted!



A Western Snowy Plover nest with one egg (left image) on the sand flat at NCOS is being protected from predators with a specially made cage (right image). Photos by Jessica Nielsen.

Visitor Plaza, Discovery Trail & Overlooks

Construction of the NCOS Visitor Plaza and Discovery Trail is progressing well and most of the work should be completed around the end of June. CCBER will then begin planting the area and, hopefully, it won't be long before we can invite school groups of all ages back to NCOS!



Construction of the NCOS Visitor Plaza is nearly complete.



A preview of some of the wood that will be installed on the benches at overlooks along the NCOS Marsh Trail.

Recent Survey of Marsh Trail Use During the COVID-19 Pandemic

Last month, an observational survey of people using the main trail at NCOS was conducted over two weeks by UCSB student volunteer, Zara Furtado-Quesenberry, a 3rd year Biology major. More than 18 thirty-minute observation periods were divided equally between three main entry points to the site (Phelps Creek, Whittier Drive, and Venoco Road), three time periods (Morning (7 am – 10 am), Midday (11 am – 3 pm) and Evening (5 pm – 8 pm)), and between weekdays and weekends. The results of the survey demonstrate that NCOS is currently serving a significantly greater number of users than we observed in surveys conducted last year, even with a much lower than normal population of University students around. The overall average number of people on the site between May 21 to June 1 was 78 per half hour (or 146 per hour). In last year's surveys, the average number of users was much lower, ranging from 15 to 25 per hour. Users accessed the site equally between the three entry points, and the evening time period proved to be the most popular (244 users per hour) compared to the morning (86 per hour) and midday (136 users per hour). More people were using NCOS in sunny weather than when it was cloudy, but even when cloudy there were between 74 and 132 users per hour compared to 170 to 186 users per hour under sunny conditions. The majority of users (55%) were strolling around the site and 36% were more explicitly exercising (running or biking). Just 6% were walking dogs, and of those, 86% had dogs on a leash. We are impressed with this high number and hope that we can get to 100% of dog walkers using a leash for the safety and comfort of all users and to increase opportunities to enjoy the un-disturbed wildlife. Less than 1% of users were explicitly birding or commuting through the site, which is not surprising since very few people are actually “going to work” right now. In terms of age group, just over 50% of users were adults, 23% were college students, 13% were children, and 14% were seniors.



Community members on the NCOS Marsh Trail.

FEATURE STORY

Grassland Diversification Strategies on the NCOS Mesa



Acmispon wrangelianus (left side), *Catilleja densiflora* (center), and *Lupinus succulentus* (upper right) all grew well in the experimental plots on the western side of the NCOS Mesa.

Perennial bunch grasslands are becoming increasingly rare in California, and diverse grasslands with wildflowers are even more rare. Restoration projects like UCSB's North Campus Open Space are working to curb that trend. [Learn more](#) about a project funded by the [Garden Club of Santa Barbara](#) to test different strategies for diversifying the restored grassland on the NCOS Mesa. [This feature story is continued on page 10.](#)

VOLUNTEER OPPORTUNITIES



"Second Saturdays" at NCOS

Second Saturdays at NCOS will resume as soon as it is safe to do so.

Thursdays - CCBER Greenhouse Associates

Thursday mornings at the CCBER greenhouse & nursery will resume as soon as it is safe to do so.



COMMUNITY FORUM & PHOTOS

We are interested in any observations of wildlife activity on NCOS. Please send your observations, with or without photos, to ncos@ccber.ucsb.edu. Thanks!



Mama Mallard (*Anas platyrhynchos*) and ducklings at rest. Photo by Jeremiah Bender.



A male House Finch (*Haemorhous mexicanus*) in breeding plumage on an *Encelia californica*. House finches are very common and can often be seen eating the seeds and petals of the flowers of this and other plants. Photo by Jeremiah Bender.



Another common bird in our region, a Black Phoebe (*Sayornis nigricans*) often flies to several different perches while foraging for insects. Photo by Karen Lunsford.



And to close this newsletter, we check in on the Canada goslings (*Branta canadensis*) that are closely tended to and well guarded by the adults of the NCOS gaggle. Photos 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



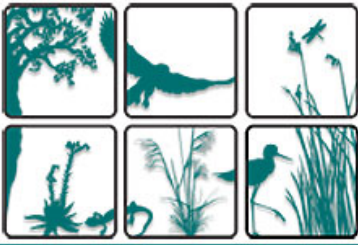
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GRASSLAND DIVERSIFICATION STRATEGIES ON THE NCOS MESA



A recent photograph of the Purple Needle Grass (*Stipa pulchra*) perennial bunch grassland on the NCOS Mesa.

Perennial bunch grasslands are becoming increasingly rare in California, and diverse grasslands that contain populations of flowering forbs and herbs (a.k.a. wildflowers) are even more rare. Habitat restoration projects like UCSB's North Campus Open Space (NCOS) are working to curb that trend. More than 15 acres of native perennial grassland has been planted on the NCOS Mesa. The majority of this grassland was established using a no-till seed drill to sow hundreds of thousands of locally sourced seeds of Purple Needle Grass ([Stipa pulchra](#)), a tussock or bunch grass that is the state grass of California.

CCBER has collected seeds from local populations of at least twenty native species of herbs and forbs to add to the Mesa grassland. Many of these species are small and ephemeral, which makes seed collection challenging. Consequently, the limited number of collected seeds were too valuable to spread across the entire grassland with the hope that the plants would establish on their own. In addition, studies have found that dispersed seeds can be consumed by herbivores (e.g. birds, rodents and some insects) and may not receive cues in nature that are suitable to germination and establishment. When seed is limited, it may be necessary to invest in establishing an initial population of a species on site using one or more interventions such as: placing a cage over the seeded area to reduce herbivory of seeds and young plants, pre-treating the seeds of certain species to stimulate germination, irrigation, and/or planting seedlings of longer-lived plants in order to guarantee that some plants will establish and disperse their seeds. Therefore, to determine the most effective methods for diversifying the Mesa grassland, CCBER staff and student interns recently conducted two sets of experiments that employed combinations of the aforementioned factors, along with four areas of broader dispersal of species for which

sufficient seeds were available. This project was made possible with special funding from the [Garden Club of Santa Barbara](#).



Experimental Plots: Seeds vs. Seedlings, Treated vs. Untreated, and Caged vs. Uncaged

Three of the factors that could influence plant germination and establishment were tested in two sets of experimental plots. One set of plots was installed in the eastern area of the Mesa, where clay soil dominates. The focus here was to assess the potential value of planting seedlings compared to spreading seeds as well as whether caging reduced herbivory. These factors were tested on seven larger, longer-living species tolerant to and/or adapted to clay soils: Cobweb Thistle (*Cirsium occidentale*), California poppy (*Eschscholzia californica*), California buttercup (*Ranunculus californicus*), Sharptooth sanicle or snakeroot (*Sanicula arguta*), California figwort (*Scrophularia californica*), Prairie Mallow or Checkerbloom (*Sidalcea malviflora*), and Blue-eyed Grass (*Sisyrinchium bellum*).

The other set of plots was installed in an area of sandy soil along the west facing slope of the Mesa. The effect of caging on herbivory was also tested at these western plots as well as the effect of pre-treating seeds in order to stimulate germination by scarification and/or soaking. The treatment was applied to the seeds of three species: Miniature lupine (*Lupinus bicolor*), Succulent lupine (*Lupinus succulentus*), and Blue-eyed grass (*Sisyrinchium bellum*), and these were spread along with the seeds of five other species associated with sandy soils: *Acmispon wrangelianus*, Nuttall's Snapdragon (*Antirrhinum nuttalianum*), Owl's Clover (*Castilleja densiflora*), Redmaids (*Calandrinia menziesii*), and Toadflax (*Nuttallanthus texana*).



Experimental plots with cages on the eastern slope (left image) and sandy soils on the western side (right image) of the NCOS Mesa.

All of the plots were installed and seeds spread in late November to early December last year (2019). The seedlings in the eastern plots were planted by mid-December. CCBER staff and interns have conducted monitoring and weeding of the plots on a monthly basis since January.

As of June, the number of plants present in the eastern plots show that, of the seven species, only *Cirsium occidentale* exhibited more success from seeds than from seedlings, and caging had only a marginal benefit for most of the species. These results suggest that planting seedlings of these wildflower species in the grassland in winter may be the most effective way to establish populations, except for Cobweb thistle the seeds can be dispersed throughout the site.



Cobweb Thistle (*Cirsium occidentale*) in the seeds vs. seedlings experimental plot on the eastern slope of the Mesa grassland.

In the western plots, nitrogen fixing species such as the two lupines and *Acmispon wrangelianus* were the most successful in the sandy soil, along with the surprising success of the hemi-parasitic Owl's Clover (*Castilleja densiflora*). Treatment of seeds with scarification or soaking (for *Sisyrinchium bellum*) only conferred a clear benefit for the germination of *Lupinus succulentus*, but germination for the untreated seeds was also relatively successful. Caging did confer some benefit for both *Castilleja densiflora* and *Lupinus succulentus* but not to *Lupinus bicolor*, *Acmispon wrangelianus*, or *Nuttallanthus texana*. There was no germination observed for *Antirrhinum nuttallanthus*, *Sisyrinchium bellum* and *Calandrinia menziesii*. The species that did not germinate may not have had suitable conditions or received suitable germination cues in the field and may benefit from planting out as seedlings initially. Overall, caging does not appear to be vital to the long term persistence of the seedlings that survived. A report with more details on these experiments will be available soon.



View of the wildflower experiment plots on the western side of the Mesa in May.



Acmispon wrangelianus (left side), *Castilleja densiflora* (center), and *Lupinus succulentus* (upper right) all grew well in the experimental plots on the western side of the NCOS Mesa.



Lupinus bicolor (lower left) and *Lupinus succulentus* growing in the wildflower experiment plots on the western side of the NCOS Mesa.

Broadcast Seeding

For some of the wildflower species, we had collected a supply of seeds that was sufficient enough to allow for broadcast seeding. This was done in four large plots, two in the western sandy soil zone and two in the clay dominated soil on the eastern slope of the Mesa. In the western plots, the sandy soil was raked 1-2 inches deep prior to scattering seeds of the following species:



- *Amsinckia spectabilis/A. intermedia*
- *Calandrinia menziesii*
- *Cryptantha clevelandii*
- *Eschscholzia californica*
- *Nuttallanthus texanus*
- *Phacelia distans*



In the eastern plots, seeds of *Calandrinia menziesii* and *Plantago erecta* were scattered on the clay soil. Seeds were scattered in all four plots prior to a rain event on December 3, 2019.

A *Calandrinia menziesii* in bloom on the NCOS Mesa.

In addition, with significant volumes of seeds collected for several species, including asters that are known to have a relatively short lifespan in storage, we spread many of these more broadly in appropriate areas of the Mesa prior to rain events in December and January:

- *Calandrinia menziesii*
- *Centromadia parryi var australis (Southern tarplant)*
- *Deinandra fasciculatum*
- *Encelia californica*
- *Hazardia squarrosa*
- *Plantago erecta*
- *Psuedognaphalium californicum*
- *Sanicula arguta*
- *Stebbinsoseris heterocarpa*

The annual vegetation monitoring of the Mesa grassland will be conducted this summer, and we anticipate that the data will show the presence of at least some of these species. Once we have that data, we'll be sure to post an update on the progress of the diversification of the Mesa grassland.

Date:

Tuesday, June 9, 2020 - 10:45

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