

UC Santa Barbara

Newsletters

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NCOS News - October 2020

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UC SANTA BARBARA North Campus Open Space Restoration Project

NCOS NEWS

October 2020



A flowering *Datura wrightii* and other plants recently installed around the NCOS Visitor Plaza and Discovery Garden.

UPDATES

Fall Focus - Planting for Biodiversity & Habitat Development

This fall, restoration work will be focused on continued planting on the Mesa, the Northwest area of the site, and the new Discovery Garden.

Discovery Garden: several plants have recently been installed in and around the Visitor Plaza (like in the photo above), and in the bioswale and other parts of the Discovery Garden. We will continue to add more plants to this area over the coming months.



View of the Discovery Garden trail and bioswale bridge.

Mesa Grassland & Trail Edges: We intend to add biodiversity to the mesa grassland and along the trail, including the addition of *Dudleya* (upper-left photo below) to the base of boulders and rocks, and wildflowers such as Owl's clover (upper-right photo below), *Ranunculus* (middle-left photo below), *Sidalcea* (middle-right photo below), and Western thistle to the grassland. The recent mowing of the grassland this fall will help stimulate new growth.





Mowing of the grassland on the NCOS Mesa will help stimulate more growth and sprouting of wildflower species.

Oak Chaparral: We will also be adding flowering plants like Hummingbird sage (left photo below) and Heartleaf penstemon (right photo below) to the understory of the oak copses on the Mesa slopes.



Burrowing Owl Returns to New Habitat Enhancements

At least one Burrowing Owl has been seen on the Mesa recently, which will be the third year in a row that the species has come to the site since the NCOS project began! We have made some modifications in an effort to create a more suitable habitat for the visitors. These enhancements include the removal of a few snags that were used as perches by predators that would have potentially scared the owl away, and we are working on the

construction of a specially designed burrow (see image below). We hope that these changes might entice more Burrowing owls, including some that might stay into the breeding season.



Left: A recent photo of a Burrowing Owl at NCOS. Right: Construction in progress of specially designed burrows on the NCOS Mesa.

Plover Habitat Management

To improve the sand flat area where Western Snowy Plovers have attempted to nest the last two years, we will be clearing it out a little by pulling willow saplings and diking up some of the picklweed. This will help make the area more attractive to plovers by providing good visibility of their surroundings, easy access to the water's edge, and little pockets of vegetation to hide in.



A Western Snowy Plover adult and chick on the sand flat habitat at NCOS last spring. Photo by Mark Bright.

Crows are a big threat to plover eggs and young chicks. Another way we can help the plovers is if we all do our part to prevent crows from accessing trash and pet food, which makes it easier for them to reproduce and dominate - pushing other species away.



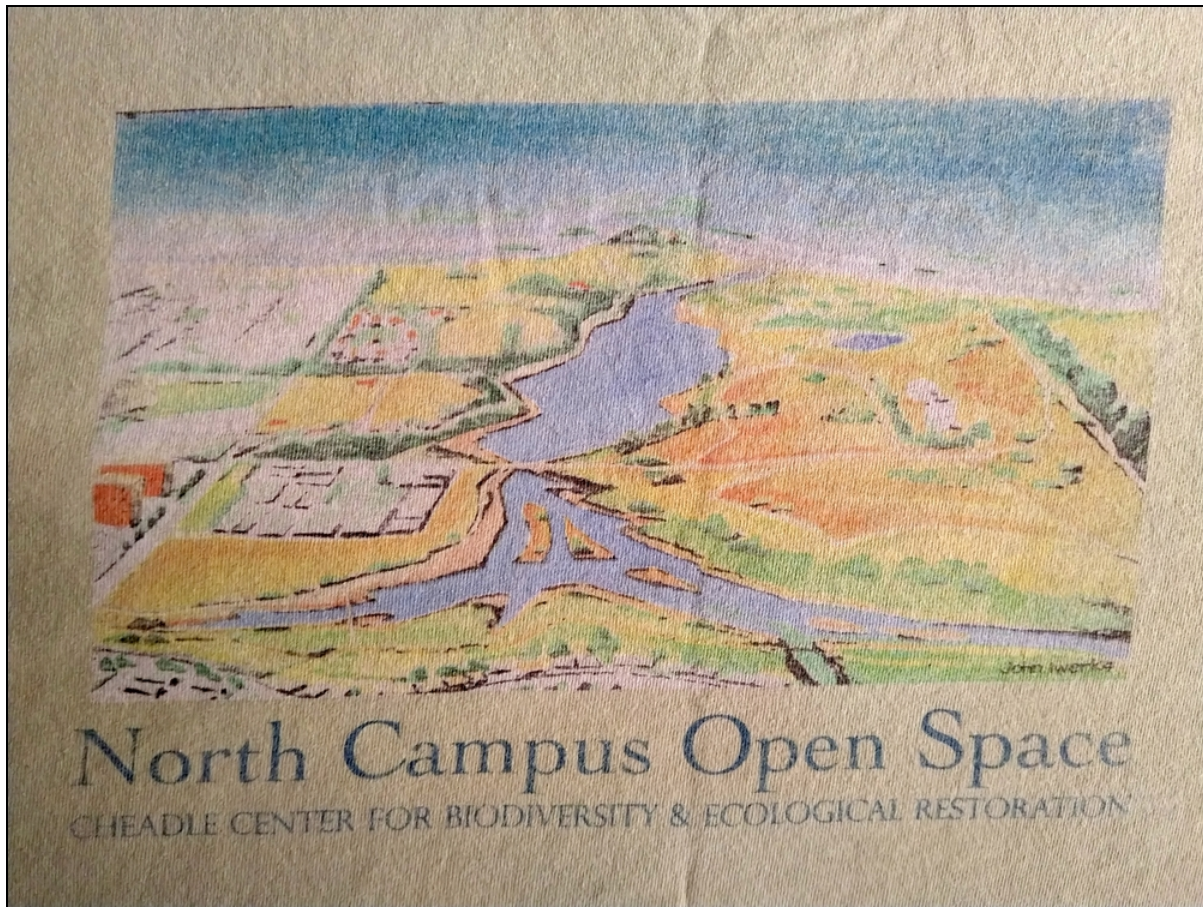
An enclosure placed over a Western Snowy Plover nest to help protect it from predators such as American Crows.

T-shirt Art Competition & Matching Challenge to Support Art Programming at NCOS

A reminder that CCBER is seeking submissions of original artwork for an NCOS t-shirt that we plan to make available at a grand opening in the spring. The artwork should portray either the physical aspects of the site, wildlife and/or vegetation found on site, or another creative concept that represents NCOS. A \$200 award will be given for the artwork selected for the t-shirt design. Submissions can be in JPG or PDF format, sent by email to ncos@ccber.ucsb.edu, and should be received no later than February 28, 2021. Contact ncos@ccber.ucsb.edu with any questions and for more information.

Celebrating the beauty of nature through art - matching challenge to support arts programming at NCOS! North Campus Open Space is about bringing back our unique natural history while also connecting people of all ages and walks of life to the wonders of nature. We aim to educate UCSB students through hands-on field work, support research by faculty and students, and provide community outreach and education through K-12 field trips, birding classes, simple outdoor recreation, and more. We recognize art is an important pathway to celebrating and understanding nature.

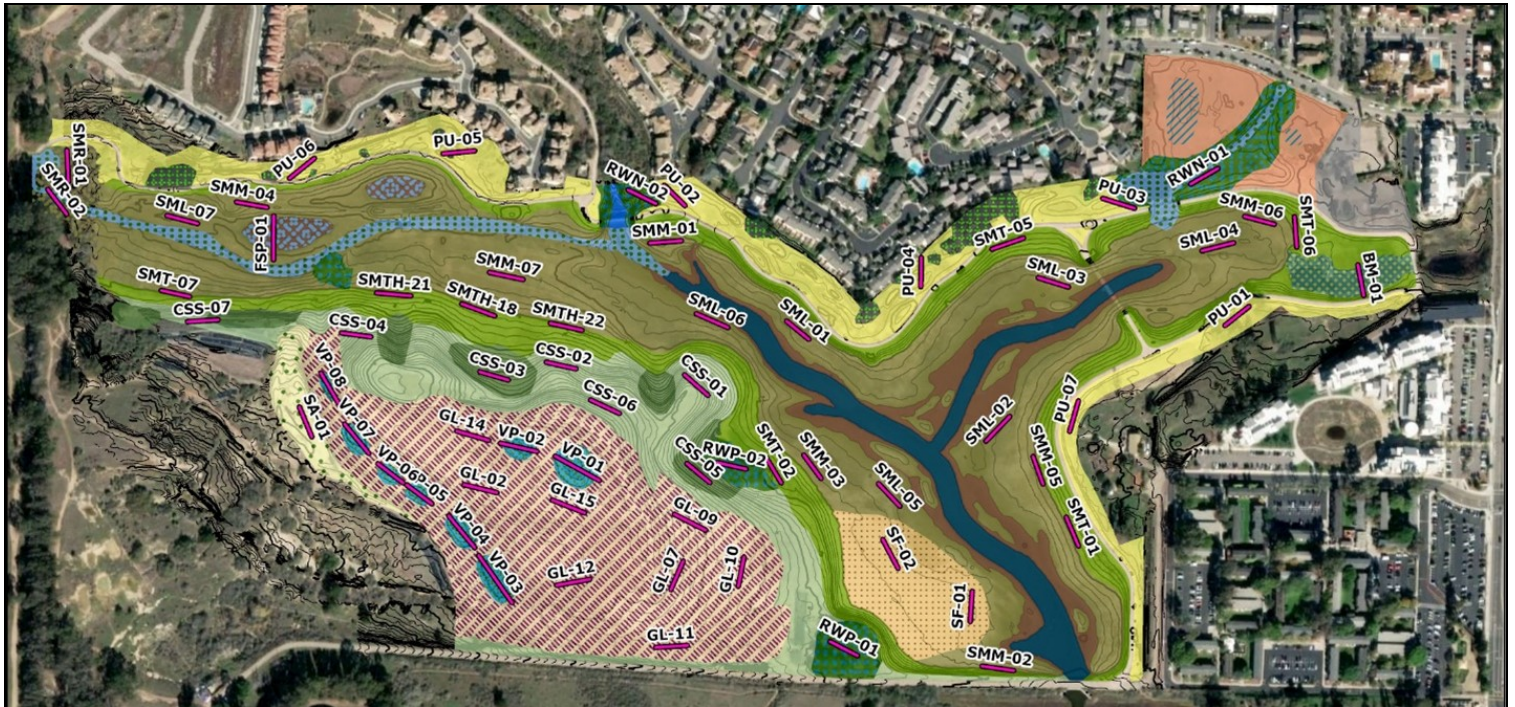
A generous \$10,000 matching gift has been offered to help launch art programming at NCOS! Your generosity will help construct the infrastructure and support ongoing programming that will provide a large, rotating exhibit of original artwork on the 'ROOST' building. Murals will be printed on huge fabric banners using original artwork and tightly connected to the building. Your donation will be doubled and help construct the display framework, print and install the first murals, and sponsor art shows! Contributions of any size will help to make this happen. You can make your contribution online to this project [here](#). Please add "NCOS ART" in the comment field. Similarly, you can also write a check, made out to the "UCSB Foundation" adding "NCOS ART" to the memo field. Mail checks to: Matt Fratus UCSB Office of Development Santa Barbara, CA 93106-1130 If you have any questions,



Artwork by John Iwerks is featured and still visible, though slightly weathered and faded on a t-shirt created for the NCOS Groundbreaking ceremony in 2017.

FEATURE STORY

[Stories from Year 3 of Vegetation Monitoring at NCOS](#)



Map of the plant communities/habitats and vegetation monitoring transects at the North Campus Open Space restoration project.

This summer, CCBER conducted the 3rd year of vegetation monitoring at the North Campus Open Space restoration project. With three years of data, we can now see more clearly how the restoration is progressing,

and where more work or a change in management may be needed. [Here we report](#) on some of this year's data and what it is telling us. [This feature story is continued on page 11.](#)

COMMUNITY FORUM & 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!

Uncommon Avian Visitors

Though we have a shortage of community photos for this month's newsletter, birders have recently reported a few uncommon birds at NCOS: a White-winged dove, a Baird's sandpiper, and a Pectoral sandpiper! Photos of these were included in this [eBird checklist](#). Perhaps NCOS is beginning to be seen as a stopover site during migration.

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



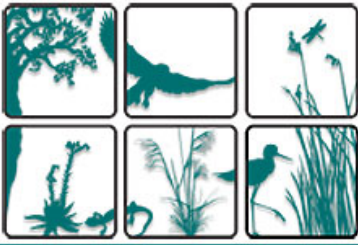
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STORIES FROM YEAR 3 OF VEGETATION MONITORING AT NCOS

This summer, CCBER conducted the 3rd year of vegetation monitoring at the North Campus Open Space restoration project. This monitoring is vital as it formally tracks the progress towards our restoration goals and can provide insights to guide our focus moving forward.

The progress of the restoration on a whole, in terms of growth and establishment of vegetation cover, has been easily visible. We have a photographic record of the development of NCOS that documents this and can be [accessed here](#). However, to ensure we are meeting or progressing towards the specific goals that were set out in the [restoration plan](#) for each plant community or habitat type, we need to zoom in and look at the details on the ground. That is why we developed a comprehensive monitoring program that collects detailed data on the types and coverage of native and non-native species. With three years of this data, we can now see more clearly how the restoration is progressing, and where more work or a change in management may be needed. Here we report on some of this year's data and what it is telling us. The complete set of monitoring data will be available in the Year 3 Monitoring Report.

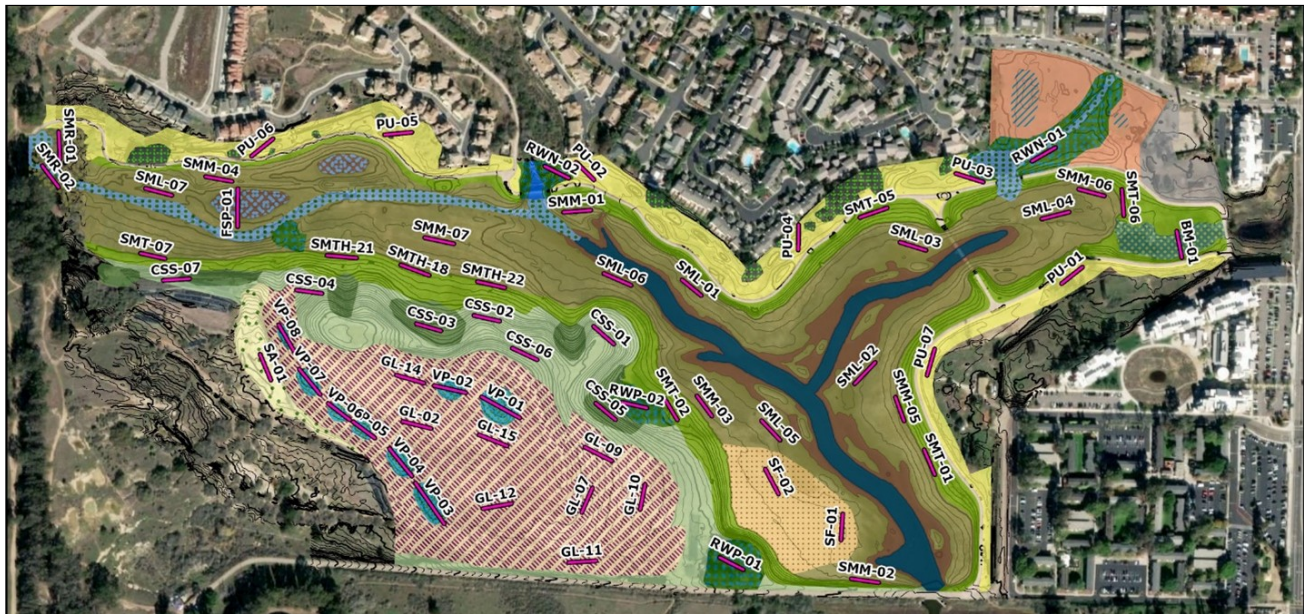


Figure 1. Map of the plant communities/habitats and vegetation monitoring transects at North Campus Open Space.

Salt Marsh & Transition

At nearly 40 acres, the salt marsh and transition habitats (olive and lime green areas in the map above), are the most extensive plant communities on NCOS. Planting in the first year of the project was primarily focused on these habitats, with dominant species being Pickleweed (*Salicornia pacifica*), Salt grass (*Distichlis spicata*), Alaklii heath (*Frankenia salina*), and four others. Fortunately, these hardy, salt and drought tolerant plants did not need much help to establish and spread. As a result, the goal of 40% cover of native vegetation by year 2 was achieved, and the year 3 data shows continued expansion in coverage (Figure 2 below). We are also monitoring vegetation cover in the small remnant salt marsh at the western end of the site, which serves as a reference for what we expect the native cover of most of the restored salt marsh to reach. The goals for native species diversity in these two habitats are being far exceeded, which is in part due to how the slope of the wetland was carefully constructed to accommodate a range of flood regimes and specific niches for the different species. Pickleweed can handle regular flooding, but Parish's glasswort (*Arthrocnemum subterminale*), for example (which looks quite similar to Pickleweed), only grows at the upper edge of the salt marsh. We are currently working with the USFWS to investigate the potential for supporting a population of the endangered Salt Marsh Bird's Beak

(*Chloropyron maritimum* ssp. *maritimum*) on the site. The success of the Ventura Marsh Milk-vetch (*Astragalus pycnostachyus* var. *lanosissimus*) establishment gives us hope that the diversity of habitat niches created at NCOS will allow this site to serve as an important refuge for rare plants and animals.

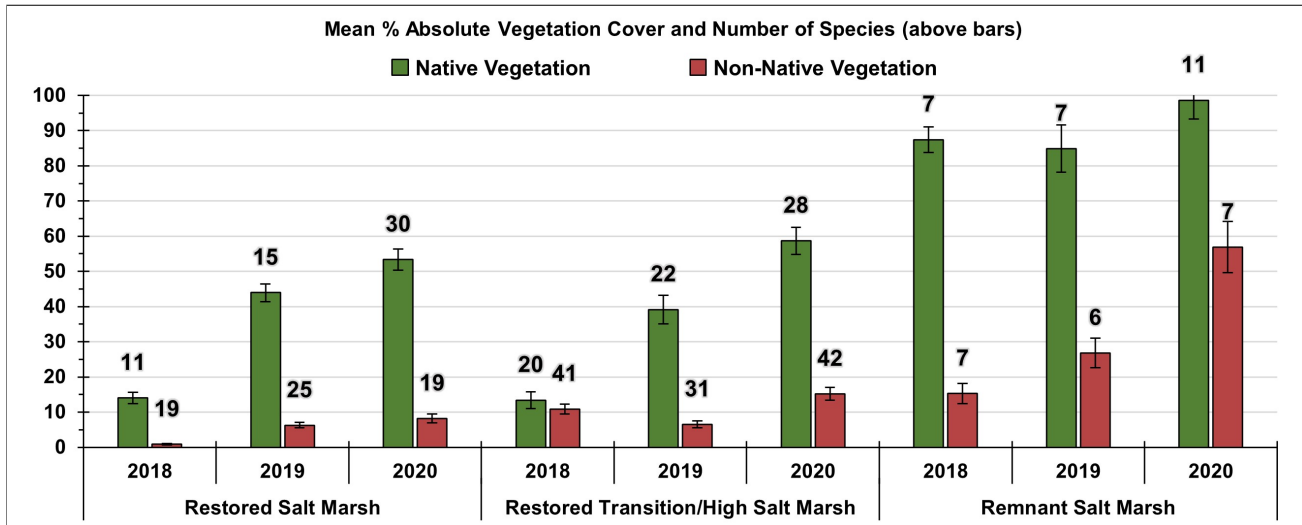


Figure 2. Bar chart of the mean absolute native and non-native vegetation cover (including standard errors) from three years of monitoring of the Restored Salt Marsh, Transition/High Salt Marsh, and Remnant Salt Marsh at North Campus Open Space. Number of plant species recorded are above the bars.



Figure 3. Photos of Restored Salt Marsh vegetation monitoring transect SML-07 taken in August (from left to right) 2018, 2019, and 2020.

Perennial Grassland

In the first year of monitoring, only about one-third of the perennial grassland (area with diagonal magenta stripes in the map in Figure 1) on the NCOS Mesa had been seeded with Purple Needle grass (*Stipa pulchra*). The remainder of the grassland was seeded in late 2018, and while most of the seed sprouted successfully, the first two years of growth did not cover much ground. This clearly changed over the third year of the project, as indicated both in the monitoring data and photos (Figures 4 and 5 below). Now that the dominant species, *Stipa pulchra*, is established and most invasive plants are under control, we are beginning to work on adding diversity with annual flowering forbs and herbs, such as Miniature lupine (*Lupinus bicolor*), Owl's clover (*Castilleja densiflora*), Buttercup (*Ranunculus californicus*), Checkerbloom (*Sidalcea malviflora*), Western thistle (*Cirsium occidentale*), Blue-eyed grass (*Sisyrinchium bellum*), and California poppies (*Eschscholzia californica*). We conducted experimental plantings of some of these species in plots on the Mesa last winter and spring to determine the most effective strategy for establishing diversity in the grassland (read more about that [here](#)). In next year's data (year 4 of the project), we expect to see greater diversity as well as a further increase in native cover within the Mesa grassland.

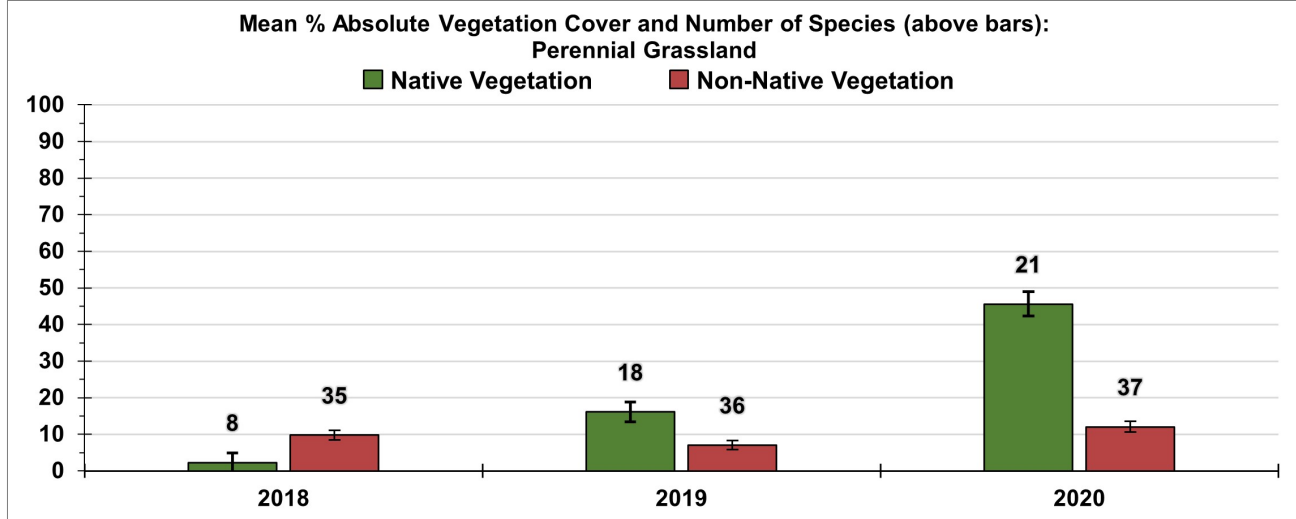


Figure 4. Bar chart of the mean absolute native and non-native vegetation cover (including standard errors) from three years of monitoring of the restored Perennial Grassland at North Campus Open Space. Number of plant species recorded are above the bars.



Figure 5. Photos of Perennial Grassland vegetation monitoring transect GL-12 taken in June (from left to right) 2018, 2019, and 2020.

Peripheral Uplands

The Peripheral Uplands (light yellow areas in the map in Figure 1) comprise narrow areas along the northern and eastern periphery of the NCOS project, and they are some of the most diverse and challenging habitats to restore. The high diversity comes from these areas being a mixture of grassland, coastal sage scrub, and wetland species as well as a couple of areas where non-native trees were retained. Some of the challenges of restoration along the periphery include: delays in planting along the eastern side due to the pending Ocean Meadows housing development adjacent to that area, a remnant non-native dominated seed bank in the soil, and the close proximity to non-native dominated areas means these habitats are one of the first places where non-native seeds can try to settle and establish. These challenges mean that we have not quite met the first native vegetation cover goal for the Peripheral Uplands as a whole, and the percentage of non-natives remains high. But if we look at the data for each of the seven monitoring transects (Figure 6), we can see that restoration is progressing well and some of the native cover goals are being met in the parts of the habitat where we have been able to plant and control weeds since the start of the project – mainly the central-northern periphery (transects PU-03 and PU-04 - photos of the latter in Figure 7). We expect further progress in the north-western periphery (transects PU-02, PU-05 and PU-06) this coming year, while the eastern periphery may have to wait until the housing development is constructed.

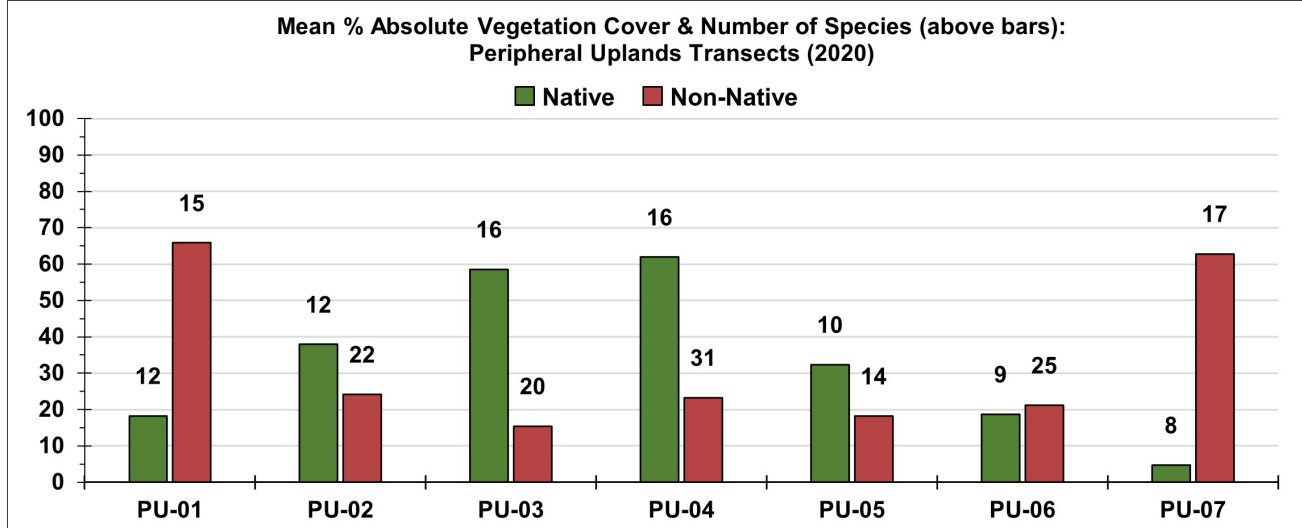


Figure 6. Bar chart of the mean absolute native and non-native vegetation cover (including standard errors) from the 2020 monitoring of seven transects in the Peripheral Uplands at North Campus Open Space. Number of plant species recorded are above the bars.



Figure 7. Photos of Peripheral Uplands vegetation monitoring transect PU-04 taken in June (from left to right) 2018, 2019, and 2020.

Coastal Sage Scrub – Chaparral

The last major habitat to be planted at NCOS was the Coastal Sage Scrub/Chaparral mosaic (CSS Mosaic) on the northern and eastern slopes of the Mesa (sage green area in the map in Figure 1). The initial planting here was conducted last fall and winter, while copses of Coast live oaks (*Quercus agrifolia*) have been installed since late 2018 (darker green blobs within the sage green area in Figure 1). While we are in the third full year of the restoration project, this is really only the first full year of restoration of the CSS Mosaic habitat, and this is clearly reflected in the monitoring data (Figure 8). In this habitat we measure the coverage of the canopy (vegetation above 2 meters in height) and sub-canopy (vegetation below 2 meters) separately. The oaks are not yet tall enough to be considered canopy vegetation, so all of the data reported is for the sub-canopy. This year's data shows a good amount of native coverage that even exceeds the 3rd year goal for this habitat (Figure 8). However, the caveat is that it is largely dominated by one species, *Symphotrichum subulatum* (see 3rd photo on the right in Figure 9). This native annual forb established on its own and is why much of the Mesa slopes currently look like they are covered in drab, dead vegetation this time of year. While it is a ruderal (weedy) species, it provides several functions to the site. For example, it produces copious small seeds adored by sparrows and finches, and the roots of these many colonizers are helping to improve the dense, nutrient-poor clay soils by creating pore holes for water and air infiltration, and leaving behind organic matter (roots and carbon-rich root exudate and mycorrhizal fungi networks). All of this will help the natural ecosystem functions and soil structure to develop and support the other, slower growing shrub species.

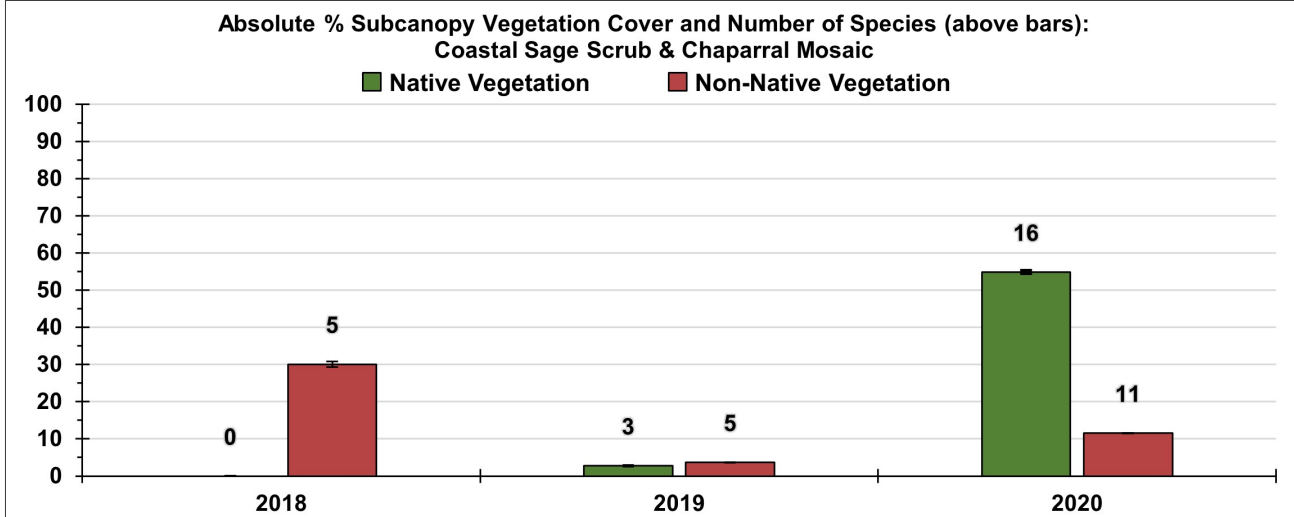


Figure 8. Bar chart of the mean absolute native and non-native subcanopy vegetation cover (including standard errors) from three years of monitoring of the restored Coastal Sage Scrub/Chaparral Mosaic at North Campus Open Space. Number of plant species recorded are above the bars.



Figure 9. Photos of Coastal Sage Scrub/Chaparral Mosaic vegetation monitoring transect CSS-03 taken in June (from left to right) 2018, 2019, and 2020.

Date:
Tuesday, October 13, 2020 - 16:45

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