UC SANTA BARBARA

North Campus Open Space Restoration Project

NCOS NEWS *June 2018*

A killdeer guards its nest that is almost invisible next to a recently planted Suaeda (seablite) on NCOS. Photo by Elaine Tan.

UPDATES

Guided Tours

A grand opening of the trail and bridges, along with a walk/bike to school/work event is slated for October. In the meantime, please join us on a guided tour of the trails and bridges **Friday June 15, 5:30pm - 7pm, or Saturday June 16, 9:30am - 11**. Meet at the parking lot on Whittier Drive. Please RSVP to ncos@ccber.ucsb.edu.

The trail and bridge over the Phelps Creek tributary of NCOS.

Maximizing the Value of the Open Space for Future Generations

The NCOS project presents an increasingly rare opportunity to restore and protect a large and diverse open space within close proximity to an urban area, providing easy access to the outdoors and nature for multiple generations of students and all members of the local community. Contributions to the **project endowment** will help maximize the value of the open space for education, recreation and enjoyment of future generations. Significant contributions can be honored by naming a bridge or scenic overlook. Naming opportunities are going fast - a few have already been spoken for, including an overlook honoring the Santa Barbara Audubon Society, providing an example of leadership by a local group working together to benefit the greater community for future generations. The remaining bridges and overlooks that can be named in honor of endowment contributions are indicated in the map below.

Map of NCOS with remaining contribution naming opportunities labeled in red and yellow. Features already named are circled in blue.

Second Saturday - This Saturday, June 9th!

Take part in an opportunity to get on the project site and help restore NCOS

Meet at the parking lot on Whittier Drive at 9:30 am. Please RSVP to ncos@ccber.ucsb.edu. See the Volunteer Opportunities section of this newsletter for more information.

FEATURE STORY

The Value of NCOS for Budding Student Researchers

A student research intern collects samples for assessing aquatic invertebrate diversity in the newly restored NCOS wetland.

There are currently 6 ongoing, student-driven research and monitoring projects on NCOS, investigating topics ranging from aquatic invertebrates and water quality, to the effects of soil amendments on soil quality and plant growth, and wildlife use of habitat features. **Read on** about these projects and the experiences of research interns.
This feature story is continued on page 9.

VOLUNTEER OPPORTUNITIES

Second Saturdays at NCOS

THIS SATURDAY - June 9th

Take part in an opportunity to get on the project site and help restore NCOS. Meet at 6975 Whittier Drive at 9:30 am. Bring water, sunscreen, and wear a hat, clothes and shoes suitable for garden work. Please RSVP to ncos@ccber.ucsb.edu

Group Volunteer Opportunities

We gladly welcome local business, non-profit, school and other community groups to come out to

NCOS to help with planting and other activities. For more information, please send an email to ncos@ccber.ucsb.edu.

Thursdays - CCBER Greenhouse Associates

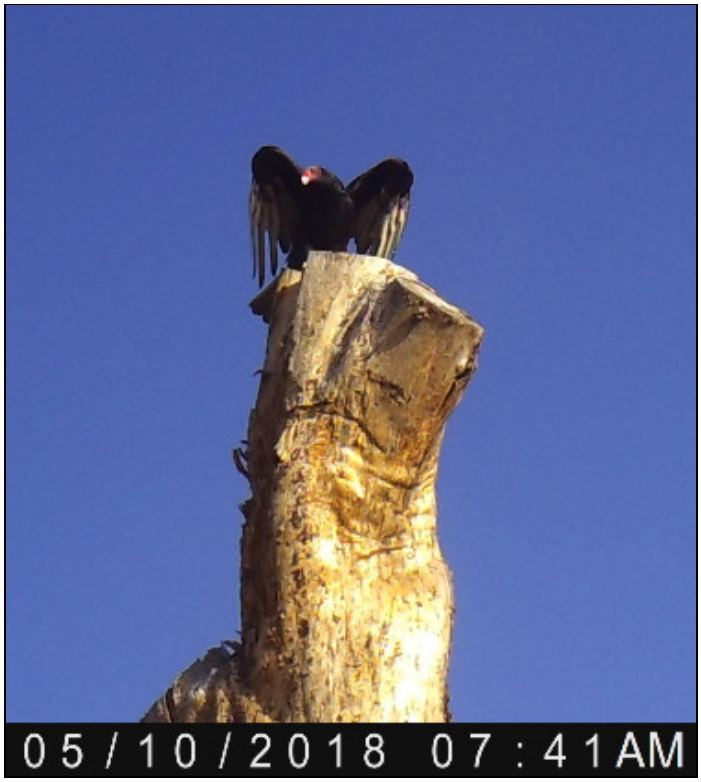
Come help transplant seedlings of native plants with the CCBER team from 9:00 - 12:00. To join, please send an email to ncos@ccber.ucsb.edu.

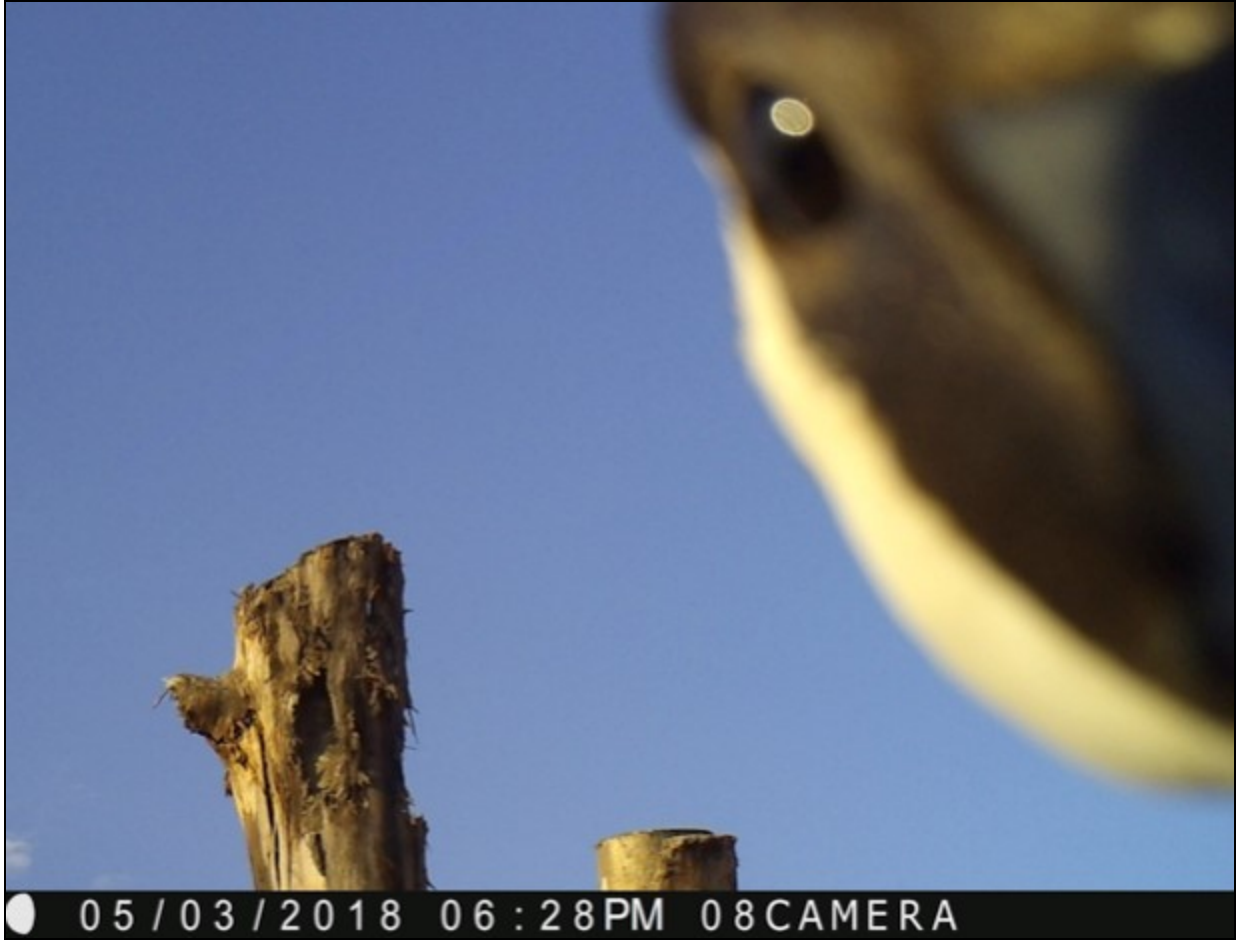
COMMUNITY FORUM & PHOTOS

Photos

Last month saw a lot of excitement over the Western Snowy Plovers spotted breeding on NCOS. The pair seem to have decided to nest elsewhere (most likely closer to conspecifics at Coal Oil Point Reserve). This month we are excited to note that another special species, the Belding's Savannah Sparrow, has been foraging around in the young NCOS salt marsh. And we've also had some intriguing photos of wildlife using some of the habitat features on site, captured by a motion detection camera (read more about this and the student intern working on this project in **this month's feature story**).

A state endangered Belding's Savannah Sparrow recently spotted at NCOS. Note the defining yellow eye stripe and dark striping features. Photo by Adrain O'Loghlen.





Top left: Infrared photo of a Great-horned owl on a snag. Top right: A Turkey Vulture landing on the same snag. Bottom: A Canada Goose closely investigates a wildlife camera.

Have a plant, wildlife, or other photo of the NCOS project site you'd like to share? We welcome submissions of photos of the project site and/or the adjacent Ellwood-Devereux area to share with NCOS News readers. Please email a photo you would like to share along with a brief description to ncos@ccber.ucsb.edu.

For more information on the
North Coast Open Space Restoration Project, Click here**, or email** ncos@ccber.ucsb.edu

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The Value of NCOS for Student Researchers

One of the most important components of the multi-functional North Campus Open Space (NCOS) is that it provides a place for students to gain hands-on experience with research and monitoring in restoration, biodiversity, natural history, open space stewardship, and more. In fact, NCOS has already been a research education and training resource for several years before the restoration project began. Some of this earlier research was highlighted in a feature story last summer.

A student research intern collects samples for assessing aquatic invertebrate diversity in the newly restored NCOS wetland.

Currently, there are 6 ongoing, student-driven research and monitoring projects on NCOS, investigating a broad range of topics from aquatic invertebrates and water quality, to the effects of soil amendments on soil quality and plant growth, and wildlife use of habitat features. Many of these projects are at least partially funded by the UCSB Associated Students Coastal Fund. For this month's feature story, we're highlighting four of these projects, and we asked some of the current research interns about their experiences at NCOS and how it may have influenced their plans for the future.

COASTAL FUND
UC SANTA BARBARA
ASSOCIATED STUDENTS

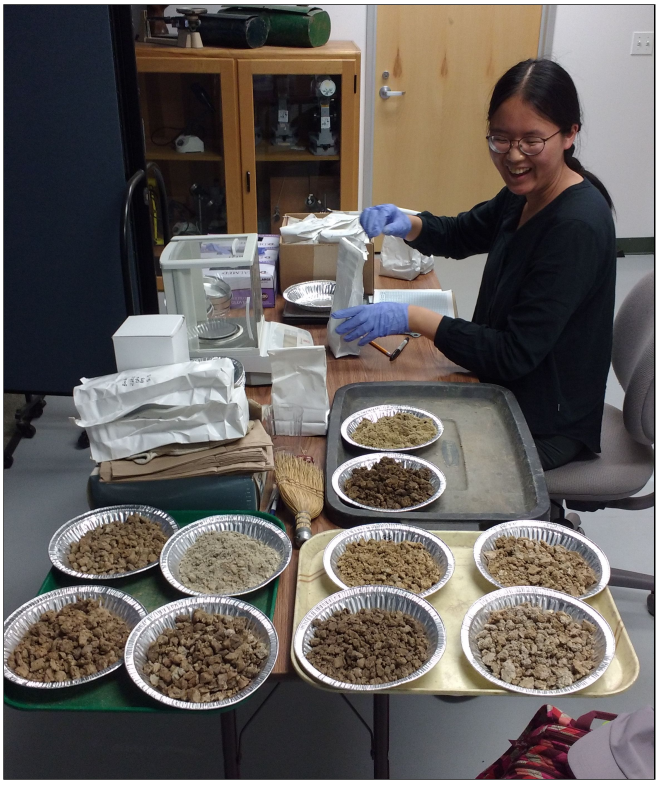
Aquatic invertebrates play a vitally important role in a wetland, particularly as a key food source for many animals further up the food chain, and also as an indicator of water quality and ecosystem health. With the generous help and oversight of the local chapter of the Audubon society, and with assistance from Professor Scott Cooper and the Coal Oil Point Reserve Nature Center, a team of at least 5 students has been monitoring the colonization of aquatic invertebrates into the newly

restored NCOS wetlands to answer questions such as: who is showing up, how fast are they colonizing and how does the diversity compare with a reference site? This project involves the monthly collection of samples from three main types of wetlands on NCOS: estuarine, seasonal ponds and vernal pools (pictured at right). The invertebrates in the samples are sorted by type and counted, and this information is paired with water quality data collected at the time of sampling to look for relationships. One of the lead students on this project, Victoria, is an Environmental Studies major. In addition to learning water quality and invertebrate sampling methods, she has gained organizational skills as she coordinates the other students working on the project, and she is also learning how to write a research paper. Victoria enjoys going into the field and working with and getting to know different people. She says: “The internship has reassured me that I am capable of doing environmental science, and that it is what I want to pursue in the future.”

Two of the types of aquatic invertebrates found at NCOS so far: Daphnia (left) and Ostracods (right).

In addition to the water quality associated with aquatic invertebrates, monitoring the overall water quality and hydrology of the restored wetland system has been a key focus of the NCOS restoration plan. Over the last three quarters, Maddie, a fourth year environmental studies major (B.S.) with an emphasis in earth sciences, has been essential to the successful implementation of the multi-part hydrology and water quality monitoring plan, as well as other monitoring projects at NCOS. Maddie has been responsible for the weekly monitoring of groundwater levels and salinity at several index wells across the site, and the collection of weekly data on dissolved oxygen, salinity and temperature at the surface and each foot of depth at 6 open water areas. She has also assisted with analyzing hydrology and water quality data collected from storm runoff events. Her work will contribute to a comparison with similar data collected before the restoration project, and to understanding how the restored wetland will affect these factors as well as contribute to the long-term functioning of the system. Maddie says: “I have really enjoyed learning about all of the little aspects that go into monitoring a body of water over time, and cannot wait to apply that knowledge to future careers and research. Because of this internship, I now I have the skill set necessary for an official water quality monitoring job, and I would like to continue my work on restoration sites as a future career.”

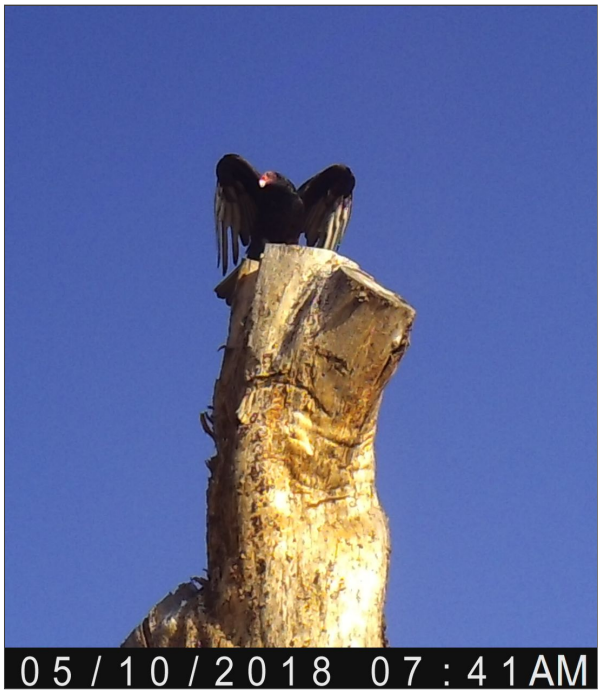
Research intern Maddie installing a water level meter (left) and preparing to sample water quality (right) at NCOS.



Carbon Sequestration is an important function of ecosystems and is currently a significant research topic. The restoration of native grassland at NCOS incorporates a combination of soil amendments, particularly biochar, compost, and gypsum, that can help decrease salinity and increase soil carbon and water holding capacity, microbial activity, and plant growth. This project is a collaboration with professors from the Geography and Environmental Studies departments, and has involved four research interns at CCBER, as well as additional student assistants. Project work involves the collection and processing of soil samples for the analysis of soil moisture, salinity, carbon and nitrogen content, and texture. In addition, grassland plants are measured, and some are harvested to analyze the biomass to height regression curves. Kaitlyn is a senior majoring in Environmental Studies and has played a significant role in carrying out key aspects of this soil project. Along with gaining relevant experience on a restoration project, performing data analysis and conducting scientific research, Kaitlyn says that the most enjoyable part of being a research intern at NCOS is “the reward in seeing everyone’s hard work pay off when, at the end of the day, you realize you discovered something new and enticing.” Her experience has influenced her future choices, and she feels that she can now definitely approach a future career working within and amongst the outdoors.

Above left: Research intern Zihan processing soil samples for moisture content. Lower left: Students extracting soil samples; Right image: Zihan measuring native grasses planted on NCOS.

Monitoring the types of wildlife that are using or living on NCOS, and where and how they're using the site, can provide a lot of information about the progress and success of the project, particularly regarding features designed with wildlife in mind. Along with the native vegetation and various aquatic habitats, the restoration project also includes three "habitat features", tree snags, logs and hibernacula, which were installed specifically to support some of the larger, more visible wildlife in our region. By setting up motion detection cameras, Michelle, a 2nd year Zoology major, has been helping to find out who is using these different features, as well as where and when. For Michelle, "the most enjoyable aspect of being an intern at CCBER is spending time with like-minded people who are so knowledgeable and accepting. The people I have worked with have mentored me and helped me develop my skills of communication, time management, and adaptability. I have created long lasting memories that I can look back on and I have met amazing people who I hope I can keep working with in the future. Being an intern has helped me further my knowledge and opened up new opportunities that I feel have influenced my career path in a positive way."



Above right: Research intern Michelle sets up a camera that captured a Great Horned Owl (left) and Turkey Vulture (right) utilizing an installed snag habitat feature on NCOS.

Other ongoing projects include the continuing analysis of pre-restoration collection of terrestrial invertebrates from a variety of habitats to serve as a baseline reference to compare with a future study of invertebrates in the restored habitat. A study of greenhouse gas exchange of the wetland began recently and will continue throughout the summer. Stay tuned for future updates on all of these projects and more!

A project that began two years ago continues to provide research opportunities for students, pictured here sorting and counting invertebrates collected from NCOS in 2016, before the restoration began.

Date:
Tuesday, June 5, 2018 - 17:30