

UC Santa Barbara

Newsletters

Title

NCOS News - February 2022

Permalink

<https://escholarship.org/uc/item/2g3879vg>

Authors

Bender, Jeremiah
Stratton, Lisa

Publication Date

2022-02-01

[We recommend viewing this email in your web browser](#)

UC SANTA BARBARA North Campus Open Space Restoration Project

NCOS NEWS

February 2022



The open connection to the ocean at the mouth of the Devereux Slough can be seen in this aerial image taken by Bill Dewey on January 6th, 2022.

UPDATES

Research and Monitoring Mentorship Program

CCBER's Research and Monitoring Mentorship Program (RAMMP) got the financial boost it needed to kick off this year! Thanks to a very generous contribution to the NCOS Endowment of \$500,000 from Judy and Jack Stapelmann that will yield \$20,000 a year plus matching gifts from the Santa Barbara Foundation, Gail Osherenko and Oran Young, and Darlene Chirman, we will have enough to fund a part time Post Doctoral Researcher who will mentor students in research on soil development processes related to restoration and rare plant establishment on significantly altered soils. This will complement on-going research in hydrology, water quality, aquatic invertebrates, terrestrial invertebrates, wildflower establishment and wildlife use of the site that provide a diversity of opportunities for students to engage in the NCOS Living Laboratory. Please let us know if you'd like to know more about this program and opportunity!



The soil development processes project will expand the many opportunities that NCOS already offers to UCSB student researchers.

Preschool and K-12 Kids in Nature programs are back!

With Omicron in retreat, pre-School students from Orfaea Children's center and IV Youth Project will now be visiting NCOS multiple times each week through the summer and students from IV Elementary and other local schools have already started connecting to nature at NCOS. These students are currently learning about wetland and upland plant adaptations, wildlife, and have been leaving their imprint on the project site by planting along the Discovery Trail and, soon, will be planting the new Duttonhaver Outdoor Classroom!



These 5th graders from Isla Vista Elementary school visited NCOS last week to learn about wetland ecology. These trips are made possible by funding from UCSB's Coastal Fund for CCBER interns who lead small group nature connection opportunities with the students.

Parking Lot Construction

Due to rains and dense clay soils, the compaction of the parking lot base has taken a lot more work than anticipated, but the unseasonably long, dry January and February is helping us regain lost ground and we anticipate that the paving will occur by February 20th on this Wildlife Conservation Board Public Access project. In the meanwhile, lovely loamy soils are being placed on the mounds that delineate the outdoor classroom. Student groups will soon be digging their trowels into the soil and planting flowering coastal sage scrub plants to support a diversity of insects and birds and to beautify the learning area. Your Children's Trees student group will be planting oak trees on March 5th.



Newly graded parking lot.



Headwaters of the bioswale that will drain the parking lot, filter the water and provide habitat.



Grand Opening

Mark your calendars (at least in pencil): May 12th and 14th are the proposed dates for the long anticipated opening of the Mesa Trail (off Venoco Road) and the Parking lot, Carlton-Duncan Visitor Plaza, and Duttenhaver Outdoor Classroom. We anticipate a formal event to acknowledge funding agencies, key individuals and donors on Thursday May 12th and a Community Open House on Saturday the 14th to share the full site with neighbors, supporters and other interested users! If you have ideas about how best to celebrate this project, please send emails to ncos@ccber.ucsb.edu. Be a part of the planning committee!



California poppies bloom around the Carlton-Duncan Visitor Plaza.

NCOS in the News

This [recent article](#) from UCSB's The Daily Nexus details the journey from golf course to wetland, highlighting both the ecological changes as well as the student involvement that has been such a major part of the NCOS restoration.



What was once a waterlogged golf course now welcomes the return of the upper reaches of Devereux Slough. *Sean Crommelin / Daily Nexus*

FEATURE STORY

[Aquatic Macroinvertebrate and Water Quality Intern Program at NCOS](#)



Lauren Stiles (Left) and Megan Norman (Right) sorting invertebrate samples in the NCOS Field Lab.

This summer Sharon Metsch's Field Lab at North Campus Open Space (NCOS) was put to good use as the new location for our aquatic macroinvertebrate and zooplankton monitoring and identification project. This project was originally started by Audubon member Steve Senesec in 2017. Steve's enthusiasm about understanding what aquatic insects are available for birds to feed on quickly gained the interest of UCSB students, who took on a diversity of roles as part of the project. Students enjoy the beauty of the wetland while also gaining meaningful hands-on scientific experience in aquatic macroinvertebrate and zooplankton collection methods, invertebrate identification, scientific inquiry, and project management. [This feature story is continued on page 27.](#)

VOLUNTEER OPPORTUNITIES & SITE TOURS

"Second Saturdays"

This month: February 12th and 26th, 9-12

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.



CCBER Greenhouse Associates

Every Thursday

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.



Nature Guide Tour

This month: February 19th, 9:30 -11

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

Ethnobotany and Chumash Baskets

This month: February 26th, 9:30 -11

Take an Ethnobotany tour of NCOS and learn about Chumash basket making.



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!



The secretive Sora often stays hidden in dense vegetation. Photo by Bryant Baker.



Sora occasionally venture out onto open water. Photo by Bryant Baker.



Spring is coming and birds are breeding! Remember to keep your dogs on leash so birds like these mallards feel safe laying eggs and raising their young in the area. Photo by Daniel Forseth.



Northern Shovelers odd-shaped bill has about 110 fine projections (called lamellae) along the edges that filter out tiny crustaceans, seeds, and aquatic invertebrates from the water. Photo by Jeremiah Bender.



Bufflehead are North America's smallest diving duck. Photo by Jeremiah Bender.



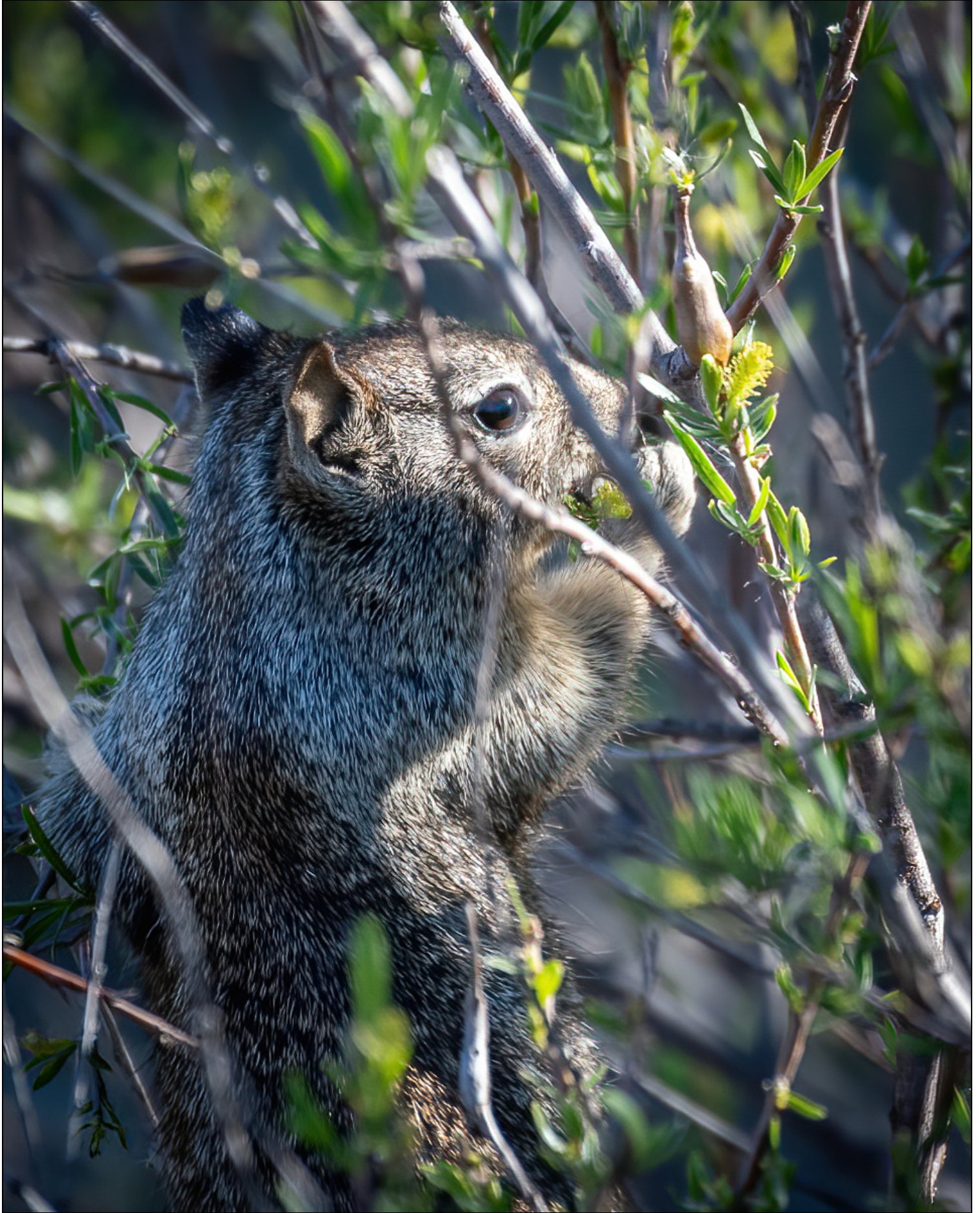
Wrentits are one of the most sedentary birds in North America - they rarely travel more than 1,300 feet from where they were born. Photo by Jeremiah Bender.



Snow geese take a welcome break from their migration at one of the vernal pools. Photo by Jeremiah Bender.



Now numerous in North America, the exotic mute swan was originally imported from Europe in the mid 1800s. Photo by Jeremiah Bender.



California ground squirrel feeding on Sandbar Willow (*Salix exigua*) flowers. Photo by Jeremiah Bender.

California native wildflowers are beginning to bloom and bring color to the NCOS landscape! These are just some of the many wildflowers species that can be found on site. Take a walk along the Marsh trail and see how many you can find! Photos by Jeremiah Bender.



Red Maid (*Calandrinia ciliata*)



Deerweed (*Acmispon glaber*)



Blue-eyed Grass (*Sisyrinchium bellum*)



Western Vervain (*Verbena lasiostachys*)



California Bush Sunflower (*Encelia californica*)



Hummingbird Sage (*Salvia spathacea*)



Beautiful but deadly! The sticky trichomes of hummingbird sage trap small insects.



Succulent Lupine (*Lupinus succulentus*)

Received this email from a friend? [Click here](#) to subscribe to our mailing list.



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



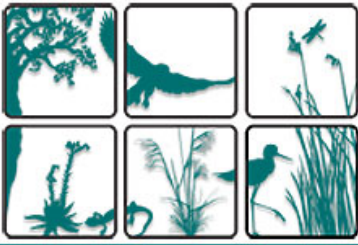
Want to change how you receive these emails?
You can [update your preferences](#) or [unsubscribe from this list](#)

This email was sent to <<Email Address>>

[why did I get this?](#) [unsubscribe from this list](#) [update subscription preferences](#)

Cheadle Center for Biodiversity and Ecological Restoration (CCBER) · Bldg 578 Harder South · UCSB, MC 9615 · Santa Barbara, CA 93106 · USA





[Home](#) » [Blogs](#) » [jeremiahbender's blog](#)

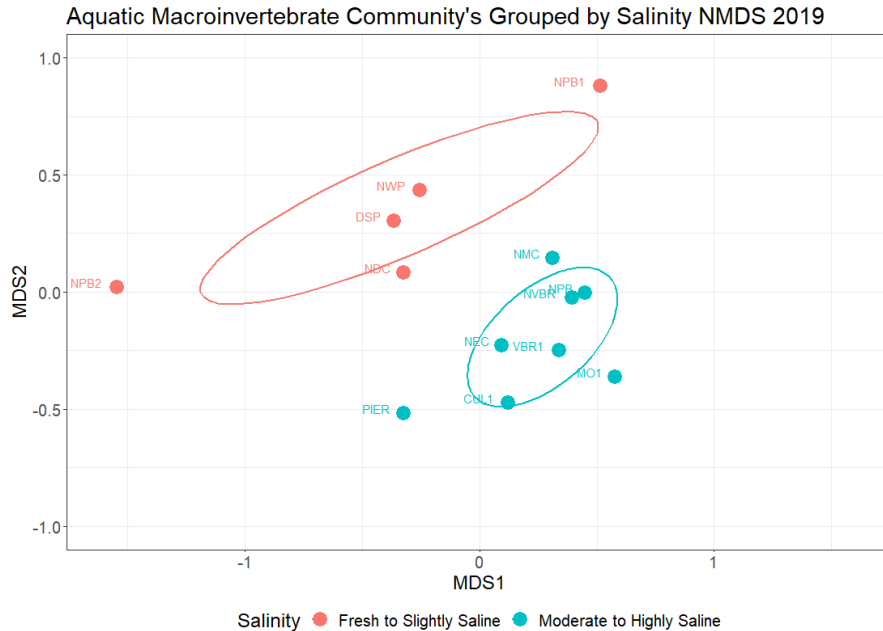
AQUATIC MACROINVERTEBRATE AND WATER QUALITY INTERN PROGRAM AT NCOS

This summer Sharon Metsch's Field Lab at North Campus Open Space (NCOS) was put to good use as the new location for our aquatic macroinvertebrate and zooplankton monitoring and identification project. This project was originally started by Audubon member Steve Senesec in 2017. Steve's enthusiasm about understanding what aquatic insects are available for birds to feed on quickly gained the interest of UCSB students, who took on a diversity of roles as part of the project. Students enjoy the beauty of the wetland while also gaining meaningful hands-on scientific experience in aquatic macroinvertebrate and zooplankton collection methods, invertebrate identification, scientific inquiry, and project management. The field team collects and preserves aquatic macroinvertebrate samples as well as water quality parameters from designated field sites. Back at the lab students learn to identify and quantify the preserved species collected from each site. The purpose of this study is to analyze the effect of NCOS restoration on the aquatic food web and to understand how abiotic factors such as dissolved oxygen and salinity influence aquatic organisms.



Steve Senesec and Victoria P. collecting macroinvertebrate sample at NCOS.

Data from 2018 and 2019 field collections were synthesized during COVID when field and on-campus lab activities were curtailed. [Results from the first few years of monitoring](#) demonstrate that NCOS has similar or better abundance and biodiversity of aquatic macroinvertebrates as compared to our reference site, Coal Oil Point Reserve. One interesting finding is that salinity has a strong effect on species abundance and biodiversity.



Statistical analysis of aquatic organism abundance and diversity using the filtered beaker method of collection. There is a clear separation of communities found in fresh water versus those in saline water. The data clusters by the mix of species found in each sample. Labeled with the abbreviations for collection sites, one can see that samples from freshwater creeks have similar aquatic communities to each other (red samples) and samples from the Slough, with brackish to hyper-saline water form a second cluster (blue samples).



Steve Senesec leading a group of 6 students to one of the macroinvertebrate and zooplankton sampling sites.

Steve Senesec played a pivotal role mentoring students, curating data and establishing a dynamic research and monitoring program. Steve is passing the leadership torch to CCBER, but is helping the project move forward through an Audubon Society-funded stipend internship program. We sincerely appreciate Steve's leadership in this realm.



Left: Student McKenzie Goetz collecting a filtered beaker sample from our culvert field site. Right: Syrphidae (Rat tailed maggot, top) and Ephydriidae (Brine fly, bottom) collected from the culvert Site. These species can tolerate heavy pollution and extremely low dissolved oxygen. The tail like feature on the Syrphidae is an adaptation to allow the organism to use oxygen from the air rather than the water.



Left: Student Megan Norman collecting a sample using the filtered beaker method at our Phelps Bridge Site. Phelps bridge is a freshwater stream with relatively high dissolved oxygen compared to our other sites. Right: A preserved sample from Phelps bridge. This sample has three of the most common species we see at NCOS; from bottom to top: Copepod, Ostracod, and Cladocera.

When CCBER took over this project in August 2021 there were five student participants, but student interest quickly grew and we now have 20 student interns, 7 of which are receiving credit and/or funding for their efforts. This year's monitoring effort will establish a third year of comprehensive sampling over the course of the establishment of NCOS and enable us to build a robust baseline data set that will capture annual variation. The scope of the study is also expanding with some students interested in conducting their own small research projects on topics related to invertebrate associates with algae, change in zooplankton abundance with depth of soil core samples, and the relationship between soil texture and invertebrate communities. Other students are working on creating informational materials for their fellow student interns about the life history of different organisms and their role in the food web.



Lauren Stiles (Left) and Megan Norman (Right) sorting invertebrate samples in the NCOS Field Lab.

One way in which this project has recently expanded is by collecting environmental DNA (E-DNA) from our sample sites. Aquatic Environmental DNA uses samples of water substrates and DNA amplification techniques to identify organisms in a body of water from the tiniest fragments of the organisms. This provides a non-invasive way to detect species. Our goal is to assess this tool as a complement to current IDs using microscopes and to look for relationships between algae, fish and aquatic macroinvertebrates to better understand the food web. Some interns that were exceptionally enthusiastic about E-DNA spent extra time in the field helping PhD candidate Joanna Tang collect environmental DNA at various vernal pools near UCSB for her research project.

Another additional study that will begin in the next few weeks is creating a small aquarium of zooplankton cysts- this study will be conducted by undergraduate student, Justin Huitman, who after learning about the unique attributes of vernal pools, wanted to learn more about how organisms can survive in such variable conditions. This is an interesting topic because zooplankton cysts can survive after being completely dried out for 8 or more months- an environment that most species cannot live in! In conjunction with this project, a few NCOS interns will be taking soil samples and comparing the macroinvertebrate communities at different depths in the soil. When this study is complete we will have a better understanding of where both adult aquatic macroinvertebrates and macroinvertebrate cysts are most abundant. More independent studies may evolve at our lab as students come up with research questions they would like to answer.



From Left to right: Justin Huitema, Megan Norman, and Ella Jones carefully handling E-DNA samples from a vernal pool.



Students Bailey Kimery and Cole Diemer cleaning E-DNA sampling materials with DI water to prevent contamination.

Date:
Tuesday, February 8, 2022 - 13:00

Contact Us

Cheadle Center for Biodiversity and Ecological Restoration • [Earth Research Institute](#)

Copyright © 2007-11 The Regents of the University of California, All Rights Reserved.

UC Santa Barbara, Santa Barbara CA 93106 • [Terms of Use](#)

UCSB website

