

UC Santa Barbara

Newsletters

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Authors

Chapman, Wayne

Clark, Ryan

Stratton, Lisa

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UC SANTA BARBARA North Campus Open Space Restoration Project

NCOS NEWS

January 2021



Aerial Photo by Bill Dewey looking northeast over Devereux Slough on December 29, 2020, a day after the first big rainfall of the season raised the water level in NCOS by more than two feet! Note the high surf washing over the beach berm into the slough.

UPDATES

Calling All Artists: Opportunities to Integrate Art and Nature at NCOS

Dear plein air, photographic, and other artists: we welcome your submissions for two opportunities to integrate art into the NCOS landscape:

- Roost Artwall Project -- An opportunity for selected artists to display your art celebrating NCOS scenes and wildlife enlarged and printed on banners on the external wall of the Roost building for all to enjoy (see mock-up example in image below).
- T-shirt Art Competition Celebrating the Full Opening of NCOS in 2021 -- Deadline extended to March 30th due to on-going COVID-19 restrictions delaying the proposed opening until late spring or early summer. Submit your NCOS t-shirt art to ncos@ccber.ucsb.edu in jpg, tiff or pdf formats.



A mock-up example of plein air art on the exterior of the Roost building at NCOS.

NCOS Naturalist Program - Survey Still Open

Last month we announced a survey for prospective participants to tell us about their interests that would help us shape an NCOS Naturalist Program. We have received 16 responses so far, and welcome more while we begin to develop educational materials and other aspects of the program. If you are interested in the program, please tell us what aspects of NCOS you would like learn more about and how you would like to participate in the program by completing [this short survey](#).

Wildflowers on the Mesa

Last year, we carried out a [project funded by the Santa Barbara Garden Club](#) that tested different methods of treating wildflower seeds and seedlings in plots on the Mesa to inform our strategy for establishing diversity in the grassland. The main findings of last year's experiments were that *Sidalcea malviflora*, *Rununculus californicus* and *Sisyrinchium bellum* grow well from planted seedlings, while other, more delicate species germinate satisfactorily and do not perform well if transplanted (e.g. lupines, owl's clover, lotus species). We are implementing a more broadscale planting and seeding of flowering annuals this winter and will monitor the growth and status of the three species planted as seedlings, as well as the general development of native plant cover and diversity on the Mesa.



Containers of locally collected wildflower seeds (left image) are being spread in large plots on the NCOS Mesa (right image).



Map showing the location of the wildflower planting plots (purple polygons) and the Mesa trail (yellow line).

Ventura Marsh Milk-vetch and Snowy Plover Habitat Area Management

NCOS community members have asked about the recent change to the flat, sandy area between the wetland channel and Venoco Road. Last month, we disked the area, which is essentially like dragging a large rake across it, in order to clear out some of the vegetation growth. This is important for Western Snowy Plovers as they prefer to have good visibility of their surroundings.



In addition, at the western edge of the sand flat, our successful introduction of a population of Ventura Marsh Milk-vetch has been expanded with new seedlings recently planted in mounds also created last month.



Ellwood Marine Terminal Work Continues

Last month we mentioned that the storage tanks and pipelines of the retired Ellwood Marine Terminal facility were in the process of being de-gassed and de-sludged, and that the work was expected to be completed by mid-

December. The process is taking longer than expected and the contractor now expects it will be completed by the end of January.

FEATURE STORY

[Wildlife Get Caught in the Crossfire of Our Poisonous War on Rats](#)



A female coyote at NCOS with a severe mange infection, recently photographed by a community member.

Sightings of sickly looking bobcats, coyotes, and other wildlife are becoming more common in and near urban areas. These animals have a severe case of mange, and there is increasing evidence that suggests it could be linked to the ubiquitous poison used to control rats. [Read more](#) about this issue and how CCBER is working with campus management to find alternative ways to control rats on UCSB property, and what you can do to help impacted wildlife. [This feature story is continued on page 10.](#)

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!

Breeding Season Has Begun - Submit Breeding Bird Observations [Here](#)

Recent sightings of birds on nests, such as the Allen's Hummingbird below (photographed by Glenn Kincaid at the UCSB Campus Lagoon) tell us that breeding season has begun! You can be part of CCBER and the Santa Barbara Audubon Society's Breeding Bird Study (BBS) by recording evidence of bird breeding activity (such as mating, nest building, chicks) and submitting that information [here](#). You can also view an interactive map of all



Allen's Hummingbird on nest. Photo by Glenn Kincaid.



A Hermit Thrush at NCOS. Photo by Dan Forseth.



A Black-crowned Night-heron roosts in the willows along Phelps Creek. Photo by Karen Lunsford.

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



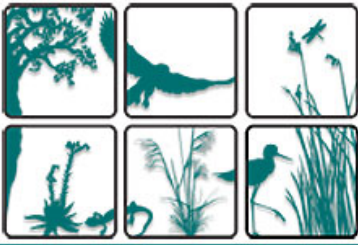
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WILDLIFE GET CAUGHT IN THE CROSSFIRE OF OUR POISONOUS WAR ON RATS

Have you ever noticed one of those plastic boxes, usually black in color, at the base of a familiar building, typically just off to the side in the landscaping? It could have been near a building on campus, your apartment complex, or around the side of a store in town. They are not hard to find. In fact, they are ubiquitous. What are these boxes? They are poison bait stations, placed there to kill one of the most common pests to humans - rats. Now ask yourself, if in recent memory, have you also caught a glimpse of a bobcat or coyote around your neighborhood or on campus? Did you notice anything peculiar or unusual about the animal? Was it healthy, with a thick shiny coat, or maybe it looked a bit worse for wear? More and more frequently, these native predators are becoming sickly, near death, and covered in mange, and there is more and more evidence pointing to a connection to the plastic poison boxes.



A bobcat that appeared to be acutely affected by mange was seen at North Campus Open Space in October, 2019.

Ever since humanity has loaded up onto vessels and set sail for lands unknown, whether in stone age canoes, European tall mast ships, or modern cargo vessels, there has been unintended cargo joining the voyage. Plants, animals, fungi, insects, microbes and all the rest have been, and still are, continually shuffled around the world inadvertently as a consequence of an unprecedented, and still growing, human population and the corresponding activity that follows. While many of these species are just reaching new shores and remote inland locations for the first time, some have been introduced and busy expanding their new ranges for centuries. One of the worst are rats.

Many species of rats exist around the world, most of which are of no threat to humans and contribute to the biological diversity of their respective native places. Over 20 different species of native rats occur in California alone, many of which are endangered or species of special concern. In addition, dozens more species of native rodents occur in the state, including mice, gophers, voles, squirrels, chipmunks, beavers and the porcupine. In the Cuyama region of Santa Barbara County, the endangered giant kangaroo rat can still be found. The large mounds of sticks commonly seen in the front country and beyond are made by dusky-footed wood rats, another native species that was once utilized as food by Native Americans.

Native faunal diversity, food chain support, and other natural ecosystem processes aside, the real vermin to humans, like so many other introduced species wreaking havoc on the natural world, are not wonderful native taxa, but rather two species of introduced rat: the common black, or roof rat, *Rattus rattus*, and the Norwegian rat, *Rattus norvegicus*. Despite the name of the latter, both species originally come from Asia. Having been introduced accidentally to Europe centuries ago, and subsequently around the world, their destructive abilities are diverse and well known to all. Most famously, the ubiquity of rats, their fleas, and the bacterium *Yersinia pestis* caused (among others) the bubonic plague, which killed an estimated 50,000,000 people in the 14th century. By some estimates, over half of Europe's population died because of the bubonic plague, an especially salient point during our current COVID-19 pandemic.

Anticoagulant Rodenticides, their Proliferation and Negative Impacts on Wildlife



Unfortunately, humanity, for all its ingenuity, has failed to control the spread and proliferation of black and Norwegian rats. Rodenticides are widely used around the globe, and, like other pesticides, they have unintended consequences, namely secondary poisoning. A wide variety of wildlife feed on small mammals, and they can be the main food source for some species. Now there are two, ever abundant non-native rats on the menu. This is something for which we should be grateful. Unfortunately, most of the rats in urban areas now come into contact with these pesticides, which means that in large, heavily populated areas like Southern California, rat poison is distributed across a lot of area. Secondary poisoning occurs when rats, after having consumed bait and usually in a state of sickness, are caught by predators and consumed. It most commonly affects birds of prey such as hawks, eagles and owls, and omnivorous or carnivorous mammals like bobcats and coyotes, but can find its way into just about every predator or scavenger in the ecosystem. Both common, rare, and endangered species, everything from mountain lions to American fishers, have been documented as being impacted, often fatally. Ironically, these are the very wildlife that control rats, naturally.

The main groups of rodenticides being employed today are called ARs, anticoagulant rodenticides. These include first-generation ARs, such as warfarin, diphacinone (which is used on the UCSB campus), and chlorophacinone. These usually require multiple feedings to induce death in the target rodents, have shorter half-lives, and are less toxic. Second generation ARs, developed in response to increasing resistance to first-generation rodenticides such as warfarin, are more toxic, more persistent, and have longer half-lives. These include brodifacoum, bromadiolone, and difethialone. These ARs kill by interfering with the production of vitamin K, ultimately causing uncontrolled bleeding in rodents and other animals. However, some animals, such as cats, do not die of the poisons immediately, but rather suffer a wide range of longer-term effects that can ultimately lead to severe health problems and death. A 16-year study on bobcats in Southern California by Serieys *et al.* (2015) found that ARs were detectable in liver and blood samples of both living and dead bobcats, including in fetuses. Secondary poisoning of bobcats by ARs was found to be prevalent in all regions studied. Ninety-two percent of bobcats looked at in the study that had both their blood and liver sampled were exposed. Further, they found that bobcats with the most complete sampling were exposed to three or more agents. So, if just a small percent of pest-control contractors out of many in a community opts for the more toxic second-generation AR, it is likely to be picked up in a rat by roving predatory animals with wide hunting territories.



A rat poison bait station on the UCSB campus.

All around the world, where human populations occur, these agents are being used, and their secondary effects are happening in each respective place. Locally, sickened hawks, owls, bobcats and coyotes are a common sight. Many appear slightly or moderately affected. Others seem to be near their last breath. A resident of Hope Ranch recently shared that he witnessed a red-tailed hawk literally die on his woodpile in front of him. Sickly, hairless versions of once-beautiful animals are now commonplace. Not long ago, a small, mangey coyote pup ran in front of me on the road. It looked old for its age. Its head disproportionately large and its tiny size and lack of fur made it all the more disturbing to behold. At a certain point, these animals are so perversely distorted they invoke zombie-like comparisons, and to an extent they actually manifest similar behavior. The mythical “Chupacabra” of Mexican lore is said to be inspired by a dog with mange. So transformative is the condition of the animals, a mythical creature was culturally contrived to adequately describe them.

Mange, its Causes, Symptoms, and Exacerbation by ARs

Series *et al.* (2015) also studied 65 different health parameters and their impacts from AR exposure, and found that ARs tended to suppress some immune functions, while sending others into overdrive. This ultimately causes a slow and complex decline in health and leaves the animals unable to produce appropriate immune responses to things like mange, which then spirals out of control when it infects sickened, compromised animals. Mange is an inflammatory skin disease caused by parasitic, skin-burrowing mites. Also known as scabies, there are a few types caused by different species of mite. Notoedric mange, caused by the *Notoedres cati* mite, particularly affects felids such as bobcats and mountain lions, while for canids like coyote, *Sarcoptes scabiei* is the culprit. Mange causes severe discomfort and itching, resulting in dry, raw skin and severe hair loss. Eventually, crusted lesions that begin around the ears can make their way across the entire body. While mange is naturally occurring and highly contagious, it is not usually lethal. However, other researchers are finding that AR exposure, especially second-generation AR, create the cascade that leads to infestation. Seth Riley, wildlife branch chief at Santa Monica Mountains National Recreation Area, said of the area, “every species we have looked at has had massive amounts of exposure.”

In our local community, a bobcat and coyote with a severe case of mange have been seen at North Campus Open Space (NCOS) over the last couple years. Recently, a few people have reported sightings and provided photos of a coyote at NCOS that has a severe case of mange and might also be nursing pups. Wildlife badly affected by mange often exhibit unusual behavior, such as hunting or foraging during the day in order to avoid competition with healthier individuals, which makes them more easily seen by us. Mange can be treated with varying degrees of success. Treatment usually requires the infected animal to be trapped and treated by a vet at a wildlife care facility. However, some animals, such as coyote, are difficult to trap. An alternative to trapping is to attempt to get the infected coyote to consume a strategically placed dead rat baited with an anti-parasitic medication. CCBER has contacted the Santa Barbara Wildlife Care Network and they are offering to try and help the coyote at NCOS using this method. We are unsure whether this will be successful and we may need your help - if you see the coyote (see photos below) please send an email to ncos@ccbcr.ucsb.edu as soon as possible with a description of where you saw it and what it was doing, and send a photograph if possible. We will share updates on the status of the coyote when we receive them, and we thank the observant members of the NCOS community who informed us of this issue.



A female coyote at NCOS with a severe mange infection, recently photographed by different community members.

Alternatives to ARs and the Future of Rat Control

Non-native rats are an undeniable problem, both for conservation and human health. Extermination on small islands has been successful locally, such as on Anacapa island, and has had enormous conservation implications. There, on super-isolated islands and islets, rats introduced by shipwrecks had nearly eaten all nesting seabirds and their eggs. Extermination of these rats on the mainland, however, is not an option, and our focus needs to be on the best methods of control.

CCBER has been concerned about this for years and has experimented with many kinds of snap traps, CO₂ automatic traps, corn-based gluten baits such as Ratx, and has also initiated discussion with the campus Grounds department to address the use of poison and alternatives in the broader campus area. We are still searching for a viable solution, and while shooting rats with non-lead pellets may be one of the most effective and non-toxic methods available to some homeowners, shooting is, of course, not allowed on campus. Instead, creative trapping, along with properly cleaned up waste bins, pet food, and other food sources, is our recommendation.

We live in a cause-and-effect world. Through so many facets of our modern lives, we often exert corrosive, often hard-to-see effects on the natural world around us. This is truly a silent spring that is creating ripples of sickness and death far outside the boundaries of our field of focus, and our property lines. We have to be able to do better. The science is clear, and thanks to it, California may be turning a new page on the matter. 2020 was a rough year by many standards. We all move into 2021 hoping for better things ahead. And there is reason to hope that one measure of suffering we don't generally appreciate - that of poisoned wildlife - may be actually getting substantially better with the new year also. With new legislation that is leading the nation, beginning January 1, AB 1788 goes into effect banning the most toxic of these rodenticides in California. It will be very interesting to see the effects it has on wildlife, which we will learn only with time, observation, and confirmation by science.

We consulted the following sources for this article:

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Written by Wayne Chapman, Ryan Clark, and Lisa Stratton

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