



U.S. Fish & Wildlife Service

Ventura Fish and Wildlife Office

2022 Year in Review



Conservation success stories from the people of the U.S. Fish and Wildlife Service in Ventura who work to protect fish, wildlife, plants, and natural habitats of the Central and Southern California coast.

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Based in Ventura, our biologists and natural resource professionals work across the Southern and Central California coast in Santa Cruz, San Benito, Monterey, Santa Barbara and Ventura counties; portions of Los Angeles and San Luis Obispo counties; and the northern Channel Islands.

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Visit our new website at fws.gov/ventura/

A Year in Review



Recognizing the fundamental value of diversity of thought and culture to achieve our mission of endangered species recovery, our Ventura leadership team is guided by the following vision:

A Ventura Fish and Wildlife Office that is relevant to and reflects the racial and cultural diversity of the communities in which we serve, while supporting the intersectionality of our people so they feel valued, inspired, and that they belong.

In 2022...

Our office engaged in inclusivity and racial bias learning sessions as a foundation to champion a workplace that celebrates the individuality and diversity of our people.

We welcomed our second Kendra Chan Conservation Fellow to carry on a legacy that champions diversity in conservation and funded more internships than ever before for budding scientists through the Hispanic Access Foundation and Directorate Fellowship Programs.

We also hired our first fully bilingual public affairs specialist to support outreach initiatives in our local community.

In addition to our important diversity work, we celebrated multiple Endangered Species Act successes from the delisting of the San Benito evening primrose to the downlisting of the Morro shoulderband snail.

Under a directive from Congress, we assessed the feasibility of reintroducing sea otters, a keystone species, to Northern California and Oregon. While the assessment indicates that reintroduction is feasible, input from key stakeholders and ocean users will be critical in informing next steps.

We finalized a conservation plan to support conservation and recovery of California tiger salamanders, California red-legged frogs, and Lompoc yerba santa, as part of activities at oil and gas facilities in Santa Barbara County. Under the conservation plan, permit applicants will be required to meet or exceed a high bar to demonstrate conservation actions for protected species.

And, we worked side-by-side with nurseries, students, and communities to keep the magic of monarch butterflies alive along the central California coast.

This year, we also honored a local scientist for her lifelong career dedicated to island plant conservation, and, we welcomed a new generation of interns, fellows, biologists and botanists to our team.

I continue to be proud of the adaptability of our staff as we work to provide excellent service on behalf of threatened and endangered fish, wildlife, and plants along the central California coast. Our mission cannot be acheived without the ingenuity and collaboration of our many partners. Thank you for your continued support.

Keeping the magic of monarchs alive

Steve Henry, Field Supervisor

After 31 years as a biologist with the U.S. Fish and Wildlife Service (Service) in Ventura, I continue to be enamored by the flora and fauna of our California coast, and the iconic monarch butterfly is no exception.

There is something magical about the graceful fluttering of orange and black wings – a fond memory of my childhood growing up in Oxnard. The monarch’s multi-generational migration seems fueled by magic itself but is an unparalleled feat of nature requiring specific environmental conditions.

As a California native, I often enjoy visiting the monarchs at overwintering sites at El Camino Real in Ventura and Goleta to gaze up at the monarch chandeliers hanging in the coastal monarch groves.

Sadly, monarch numbers have faced an astounding 95 percent decline at important overwintering sites along the California coast, dropping from more than 4.5 million in the 1980s to fewer than 2,000 in 2020. The decline is a culmination of multiple stressors from loss and degradation

of overwintering groves and loss of breeding and migratory habitat to climate change, parasites and disease, and pesticide use, particularly insecticides.

Counties across the Central California Coast can lead the way by championing initiatives to support monarchs and you too can do your part. Local gardeners, landowners, and nurseries all play a key role to help monarchs thrive.

A young girl admires a monarch butterfly at a coastal overwintering grove in California in January 2021. Photo by Ashley McConnell/USFWS



Here’s how you can help:

- Plant native nectar plants such as California bush sunflower, yarrow, and coyote bush found at your local nursery. These flowering plants provide the nourishment and habitat monarchs need.
- If you live at least one mile from the coast, plant early season native milkweed (narrow leaf milkweed, California milkweed, or Indian milkweed). It is important to plant milkweeds that leaf out early in the season because monarchs are known to leave overwintering sites earlier due to climate change.
- Try to plant pesticide free milkweed whenever possible. Avoid planting milkweed closer to the coast near monarch overwintering sites because it can interrupt their natural lifecycle and reduce migration. Milkweed did not historically occur on the coast.
- Do not plant non-native tropical milkweed because it can result in year-round breeding, increase parasites on monarchs, and the loss of monarch’s migratory behavior. Did you know that the State of California categorizes tropical milkweed as a pest of known environmental detriment? Ventura County has declared it a noxious weed, implementing a ban on the sale of tropical milkweed commercially.
- Use alternatives to pesticides, and particularly insecticides, because they are toxic to monarch butterflies and other pollinators.
- Be a monarch butterfly champion by educating others about how they can help.

Due in no small part to the efforts of citizens, scientists, land managers, and nurseries taking action to help save the monarch, there is reason for cautious optimism. In 2021, scientists from the Xerces Society documented an increase in monarch numbers along our California coast, a glimmer of hope as we put in the work to prevent their extinction.

The Department of the Interior and the Service continue to support habitat restoration and monarch education. In June, Secretary of the Interior Deb Haaland hosted a two-day summit to share the latest science and conservation actions being taken to address

the long-term population decline of the western monarch butterfly. The Department also announced crucial steps to invest in monarch conservation, including new funding and programs to ensure the survival of the monarch butterfly and other pollinators.

Our Partners for Fish and Wildlife Program has also worked with the Ventura County Resource Conservation District, among others, to fund on-the-ground habitat restoration for monarchs along the Central California coast, including at the Hueneme Masonic Cemetery in Oxnard this past year.

How to Help Our Western Monarch

In the last 20 years, monarch butterflies have faced significant declines at important overwintering sites along the California coast.

Monarch Migration

- Winter resting areas
- Spring migration path
- Fall migration path

HOW WE CAN HELP

- 1 Go Pesticide-Free**

Pesticides are lethal to monarch butterflies
- 2 Plant Nectar Sources**

Please plant these native plants:

 - California Bush Sunflower (*Encelia californica*)
 - Yarrow (*Achillea millefolium*)
 - Coyote Bush (*Baccharis pilularis*)
- 3 Plant Native Milkweed**

Please plant these native milkweeds:

 - Narrow Leaf Milkweed (*Asclepias fascicularis*)
 - California Milkweed (*Asclepias californica*)

Please don't plant non-native milkweed! Data shows that it can spread disease to monarchs. (e.g. Tropical Milkweed, *Asclepias curassavica*)

Look for this sticker when shopping for plants!

Visit www.fws.gov/savethemonarch to learn more!

Infographic for local nurseries produced in collaboration with University of California, Santa Barbara Bren School students. Photo by USFWS



The monarch tagged was documented to have traveled from Utah to California. Photo by Lara Drizd/USFWS

We worked with University of California students to develop monarch-friendly plant signage for local nurseries to educate gardeners about native plants that support monarchs at different stages of their lifecycle. We are also proud to fund our 2022 Kendra Chan Conservation Fellowship focusing on monarch research, education, and outreach.

Local communities from nurseries to neighborhoods remain critical to monarch conservation now and in the future. Let’s continue to work together to keep the magic of monarchs alive.

Why is tropical milkweed bad for monarchs?

Data shows that non-native, tropical milkweed can spread disease to monarchs that is linked to reductions in body mass, lifespan, mating success, and flight ability.

Because tropical milkweed continues to flower and produce new leaves throughout fall and winter, it allows monarchs to breed all year long which can reduce or eliminate their migratory instinct. This non-migratory behavior can

foster higher levels of transmission of a debilitating parasite called *Ophryocystis elektroscirrha*.

Native milkweed dies back seasonally and is typically absent during winter months, so it does not interfere with the monarch’s migratory cycle, thus reducing the risk of disease. Nurseries that offer native milkweed play an important role in reducing this parasite on the landscape.

The Southern sea otter's return to ecological relevance

Lilian Carswell, Southern Sea Otter Recovery and Marine Conservation Coordinator

People traveling on California's newly built Highway 1 in 1937 saw something astonishing. Far below their vantage point at the edge of the rugged Big Sur cliffs, tossed on rough waters, was a cluster of buoyant, dark forms. On June 20, 1938, Life magazine published a photo of what it called "one of the rarest sights on earth"—a large raft of sea otters near Bixby Bridge, south of Monterey. Its headline proclaimed, "The 'extinct' sea otter swims back to life."

The Maritime Fur Trade

The sea otter's brush with extinction began far away from those rocky shores, in the Russian Far East. Aboard the ship Syvatoy Petr (Saint Peter), Vitus Bering's second Kamchatka expedition foundered in storms and wrecked near an uninhabited island, later named after Bering himself, who was buried there. From the moment Bering's men returned home to Russia with sea otter pelts, the species was in mortal danger. It was 1742. With more hairs per square inch than those of any other mammal, the thick, lush furs fetched enormous sums.

Other Russians soon returned to obtain more furs, forcing skilled Aleutian hunters to join their hunting expeditions. The money to be made sparked a multinational fur rush, involving Russian, Japanese, Spanish, British, and American traders. While some Native peoples within the sea otter's range had

traditionally conducted local hunting of sea otters, the scale of slaughter in the maritime fur trade was unprecedented, nearly eliminating sea otters from their global range.

Before the fur trade, the range of sea otters spanned the entire North Pacific rim, from the northern islands of Japan to midway down the Pacific Coast of Baja California, Mexico. By the time the International Fur Seal Treaty was ratified in 1911, prohibiting the hunting of sea otters in international waters, only 13 remnant populations, each numbering an estimated 10–100 animals, survived globally. Two of these populations disappeared by the end of the decade.

The population off Big Sur was the most isolated of all of these, separated from any other surviving sea otters by about 2,000 miles. These sea otters were the only living representatives of the subspecies that came to be known as the southern sea otter (*Enhydra lutris nereis*).

Back from the Brink

In 1911, most Californians weren't thinking about sea otters. Those whose grandparents remembered there were once weasel-like animals living along the cold Pacific shorelines of North America thought they were extinct, or at least extirpated from the lower 48. And for the most part, they were

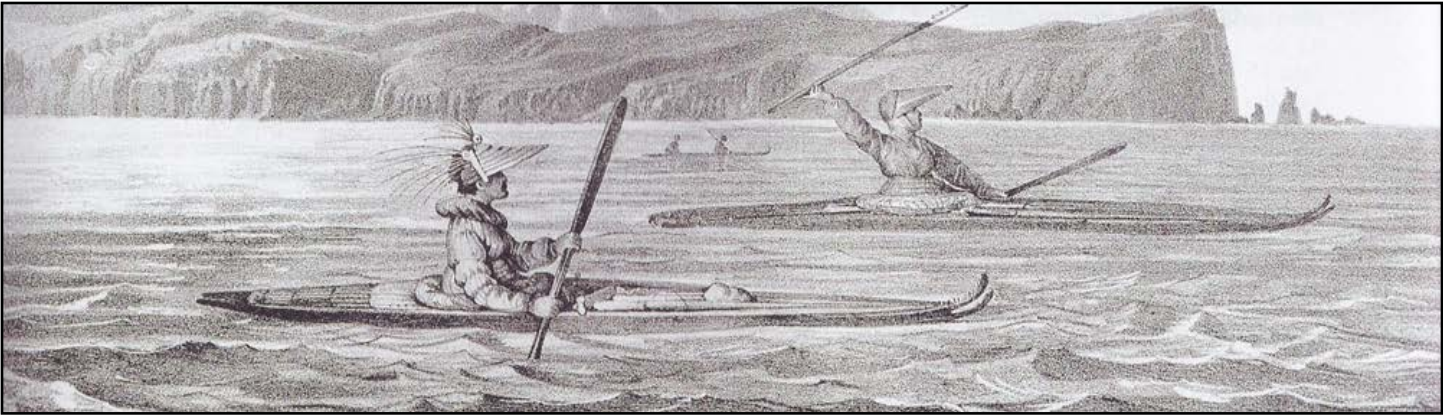
right. But a few biologists working for the California Department of Fish and Game had a secret: There was a tiny, precarious population that had survived near Bixby Cove, off California's Central Coast. These animals were in danger, and state officials knew it.

Sea otters are a shallow-water species, spending their lives within depths where they can reach the bottom for food, so the sea otter's range tends to hug the coastline, visible to and easily within reach of hunters.

The ban on hunting in international waters did little good for southern sea otters in nearshore waters, which were administered by the state, and by then sea otter skins were selling for more than \$1,500 each, about \$44,000 in today's dollars. In 1913, California declared the sea otter a "fully protected mammal." That designation made it a "high misdemeanor" to kill or possess them.

In 1915, a California Department of Fish and Game biologist reported sightings by local residents of up to 32 sea otters at any one time. The biologist attributed this improvement from their "near-extirmination" just a few years earlier to the state's total protection.

A male southern sea otter at Lover's Point, Monterey, California. Photo courtesy Nicole La Roche/U.S. Geological Survey



Top: Unalashka Natives with their canoes. F. H. von Kittlitz in *Litke’s Atlas to Voyage*, 1827. Bottom left: Pile of empty shells from part of a day’s work. Photo G. Bickford, 1960. Photo courtesy Scripps

Sea Otters and Abalone

Sea otters began slowly and methodically to expand their range to the north and south of Bixby Cove. In the 1960s, they reached the waters of Gorda and San Simeon, north of Morro Bay, prime fishing grounds for a lucrative commercial abalone fishery that had begun in earnest after World War II.

By this time, several generations of Californians had lived and died in a world essentially devoid of sea otters. With one of their main natural predators absent for so long, abalone could be found exposed on rocks instead of hidden

in crevices, sometimes piled several animals deep. When the sea otter returned and began to compete for these same shellfish, some saw the sea otter as an interloper, a destroyer of the ocean’s bounty. But to understand the sea otter’s relationship with abalone, and with other organisms in the nearshore marine communities of the North Pacific Ocean, we need to go back in time.

Unique Physiology

The ancestors of sea otters diverged from freshwater mustelids about 5 million years ago, making the sea otter the most recently derived of

all marine mammals. Sea otters are also the smallest marine mammal in the northern hemisphere. This puts them at a high potential for heat loss, especially because, unlike most marine mammals, sea otters do not have blubber to insulate them.

Their dense coat is one of two primary adaptations to maintain internal body temperature. The other is a metabolism more than double that of any land mammal of the same size. To fuel this metabolism, sea otters need to consume about a quarter of their body weight in prey each day.

A Keystone Species

Although abalone are a favorite prey item, they make up only a small proportion of the diet of the sea otter population overall, the remainder consisting of several dozen species of marine invertebrates, including many kinds of crabs, clams, sea urchins, mussels, chitons, octopuses, sea stars, and marine worms. The appetite of the sea otter is a threat to individual abalone who have not hidden themselves in deep rocky crevices, but where sufficient crevice habitat is available, this same appetite brings benefits to abalone populations.

By consuming sea urchins who are not similarly hidden, sea otters change sea urchin behavior. Instead of roving about and attacking the holdfasts that anchor living kelp to the rocky ocean floor, creating “urchin barrens,” fearful sea urchins adopt a “sit-and-wait” strategy, hiding in deep crevices and eating only those pieces of kelp that break off and drift down. This same drift kelp feeds the abalone. Without it, they starve. In a study on black abalone, which were listed as endangered in 2009 due to the combined effects of past overharvesting and a devastating disease called withering syndrome, researchers found that the highest densities of black abalone occurred in areas with the highest densities of sea otters. Because of sea otters’ role in protecting kelp forests, they impact the lives of not just abalone but hundreds of other species that depend on the shelter, food, or substrate provided by kelp.

The sea otter’s “keystone” role in nearshore marine ecosystems was first recognized in 1974, initiating an extensive body of work on sea otters’ indirect effects, including increases in the abundance of kelp-associated finfish. Since then, researchers have learned more about the complementary roles that other sea urchin predators, like sea stars, play in controlling overgrazing by sea urchins, but the conclusion that sea otters defend kelp patches and help to promote

eventual regrowth has not changed. Researchers have also uncovered other surprising indirect effects, such as sea otters’ beneficial effects on seagrass abundance and even its genetic diversity. Increases in kelp and seagrass due to sea otters can translate into increased carbon sequestration.

Coevolution

Although these ecological discoveries are relatively recent, the relationships between sea otters and other organisms in the nearshore North Pacific, with whom they coevolved for

to attain much larger body sizes than those found in other oceans, where the herbivores do not have similarly effective predators. In fact, every species that feeds on these relatively chemically undefended macroalgae of the North Pacific may owe a debt to sea otters.

A New Respect for the Environment

The flourishing of ecological thought in the 1970s was matched by a flourishing of environmental legislation. The 1969 blowout of Union Oil’s Platform A off the coast of Santa Barbara sparked the modern environmental movement,



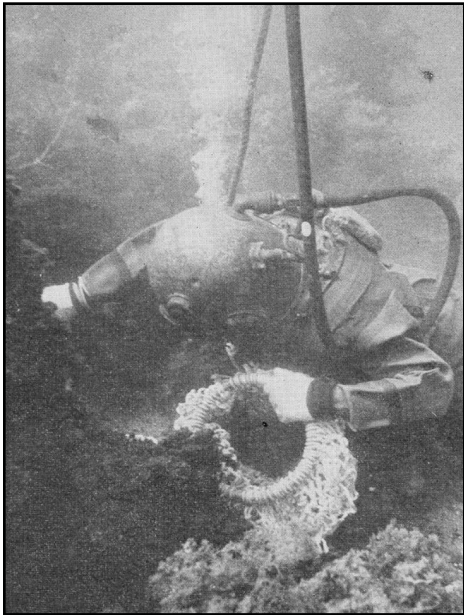
“Pile of empty shells from part of a day’s work” Photo G. Bickford, 1960. Photo courtesy Scripps

millions of years, are ancient. Evidence of this coevolution may be seen in the bodies of animals, like abalone, today. Researchers have proposed that sea otters and their evolutionary progenitors could be indirectly responsible for evolution of the unusually large body sizes of the abalone species in the North Pacific Ocean. According to this explanation, by defending macroalgae (like kelp) from herbivores that attacked its living parts, sea otters allowed the macroalgae to relax its chemical defenses, making the pieces that drifted down to waiting herbivores higher quality food. This higher quality food allowed abalone species

leading to the passage of several crucial pieces of federal legislation, including the Marine Mammal Protection Act (MMPA) of 1972 and the Endangered Species Act (ESA) of 1973. Sea otters were transferred from state management to federal management, and in 1977 the U.S. Fish and Wildlife Service (Service) listed the southern sea otter as threatened. While the ESA focuses on preventing extinction and promoting species’ recovery, the MMPA has a more explicitly ecological aim: to maintain marine mammal stocks at levels where they are “significant functioning elements of the ecosystems of which they are a part.” In other words, marine mammal stocks must be restored to ecological relevance.



Left: The “extinct” sea otter swims back to life. *Life Magazine*, 1938. Middle: Skins of sea otters, Unalaska, Alaska, 1892. NOAA National Marine Sanctuaries. Photo courtesy National Archives. Right: “Diver in hard hat gear gathering abalones. Woven basket holds 25 to 30 reds.” Photo courtesy G. Bickford, 1957



conservation in action



A southern sea otter pup eats red abalone off Otter Point, Monterey, California, while its mother dives for prey. Photo courtesy Nicole LaRoche/U.S. Geological Survey. Inset: January 28, 1970, first anniversary protest of Santa Barbara oil spill. Photo courtesy F. Brown/LA Times

Southern Sea Otter Translocation

Sea otters were not affected by oil from the Santa Barbara spill because they had not recovered their range that far south. Still, it was clear that a large oil spill could potentially cause the subspecies’ extinction. In the late 1980s, the Service translocated 140 sea otters to San Nicolas Island, off Southern California. The intent was to create a second population that could provide sea otters to replenish the mainland range in the event of a catastrophic oil spill. The Service terminated the translocation program and its associated zones in 2012. The population at San Nicolas Island remained small for many years because most translocated sea otters had dispersed from the island soon after release, leaving a founding population of only about a dozen animals. However, it eventually began to grow more rapidly, numbering about 100 at the time of the most recent range-wide count in 2019.

Hemmed in by Sharks

Today, there are about 3,000 southern sea otters, and although their condition has improved since the time of ESA listing, they remain far from the MMPA goal of restored ecological relevance. The southern sea otter has reclaimed only about 13% of its historical range, and its population size is far below its estimated historical population size in California, about 17,000 (though it could be as low as 10,000 or as high as 30,000), a number that does not include the historical populations in Oregon and Baja California. Net range expansion has not occurred in more than 20 years, due largely to increasing mortality of sea otters caused by white shark bites, especially at the northern and southern ends of the central California range. To get past this shark “gauntlet” and into safer waters to continue their recovery and return to ecological relevance, southern sea otters will likely need assistance.

Assessing Reintroduction

In 2020, echoing language of the MMPA, the U.S. Congress recognized that sea otters “play a critical ecological role in the marine environment as a keystone species that significantly affects the structure and function of the surrounding ecosystem.” This explanatory language, which accompanied the 2021 Appropriations Act, also instructed the Service to study the feasibility and cost of reestablishing sea otters on the Pacific Coast of the contiguous United States. The Service’s assessment reviews the biological, socioeconomic, and legal aspects of reintroduction feasibility and summarizes known information, key data gaps, and stakeholder perspectives. [Read the assessment here.](#)

Despite high attrition, reintroductions using translocated wild sea otters have resulted in about 35% of global

sea otter abundance. New methods of reintroduction using juvenile sea otters who stranded as pups and were raised by surrogate sea otter mothers also show great promise. Recent work in British Columbia has shown that the economic benefits of sea otter restoration stemming from finfish increases, carbon sequestration, and ecotourism outweigh the costs many times over, about sevenfold. The Service aims to be inclusive, thoughtful, and scientifically rigorous as we consider actions to support sea otter recovery and ecosystem restoration now and in the future. Input from stakeholders will be critical in informing next steps.

The MMPA’s Next 50 Years

The far-sightedness of the MMPA is only beginning to be realized. As the marine mammal species that it protects return to ecologically effective population sizes, we learn what their roles once were, and more importantly, how they might contribute to ecosystem resilience in the future.



Map: Current and historical range of the southern sea otter. Map Z. Cravens, USFWS. Image: A southern sea otter eats purple sea urchins off Wilder Ranch State Park in Santa Cruz, California. Photo courtesy J. Tomoleoni/U.S. Geological Survey



Artist, yogi, insect lover, and intern: Carly Chen studies monarchs and pesticides as Kendra Chan Conservation Fellow

On a typical weekend you can find Carly Chen exploring local rivers in her home state of Texas, reading books, practicing yoga, and dreaming of opening her own studio filled with art depicting the beauty of the outdoors where she draws her inspiration.

This summer, Chen, an undergraduate at Texas State University in San Marcos, traveled to California to join the U.S. Fish and Wildlife Service as the agency’s second Kendra Chan Conservation Fellow, to study the presence of pesticides on populations of narrowleaf milkweed plants, a critical host plant for monarch butterflies, in Southern California.

“This work is important because it will help us understand the prevalence of chemicals in Southern California and provide some insight on how chemicals are affecting the ecosystems and species of concern,” said Chen. “I hope this research,

and other research on how nontarget organisms can be easily affected by pesticide use, can help encourage sustainable restoration practices.”

According to scientists, monarch numbers have faced an astounding 95 percent decline at important overwintering sites along the California coast, dropping from more than 4.5 million in the 1980s to fewer than 2,000 in 2020. The decline is a culmination of multiple stressors from loss and degradation of overwintering groves and loss of breeding and migratory habitat to climate change, parasites and disease, and pesticide use, particularly insecticides.

Chen’s project also included hands-on, in-person outreach with local communities around the Santa Monica Mountains National Recreation Area to educate people on steps they can take to help monarch butterflies in their

time of need, like planting native nectar plants as a food source, and avoiding planting non-native tropical milkweed, which is known to lead to disease in monarchs.

“This fellowship provides a unique opportunity to immerse passionate students, like Carly, into the complex environment of natural resources conservation while supporting scientific research to help save the beloved Western monarch butterfly,” said Carly’s Service mentor, Karen Sinclair, a wildlife biologist with the Service’s field station in Ventura. “We are so grateful for the time, expertise, and resources from our partners who helped make this project a reality!”

Carly feels strongly about the role diversity and education play in the future of natural resources conservation, championing the legacy of the late biologist Kendra Chan after whom the unique fellowship was named.

“Education is important in order to work towards a more inclusive, equitable, and respectful relationship with the natural world and indigenous communities to reform and amend the wrongdoings of society and the human species,” said Chen.

“I believe diversity is the most important thing for the world in general. With a diverse ecosystem, the balance of nature can truly take place. Plans that target a diverse set of components can lead to a more successful outcome. With a diverse community there are a multitude of ideas, experiences, and levels of knowledge that can bring us together and help protect the natural world.”

Chen will graduate from Texas State University in May 2023

and will prepare and present her research findings for the Ecological Society for America Conference in August 2023, where the results of her study will help inform work by conservation organizations and land managers to help monarchs. One day soon, she hopes to return to the U.S. Fish and Wildlife Service to, “spread love and positivity while doing what I can to support diversity on Earth,” she said.

About the Kendra Chan Conservation Fellowship

The Kendra Chan Conservation Fellowship honors the late wildlife biologist Kendra Chan by giving budding scientists an opportunity to learn about the U.S. Fish and Wildlife Service’s mission and help endangered species.

The fellowship is a two-year commitment and is available to students with a demonstrated interest, education, and/or experience in conservation, and who are enrolled or accepted for enrollment as a rising senior or senior in an undergraduate program. Successful fellows may be eligible for a permanent position with the Service after successfully completing their fellowship and degree requirements. Kendra Chan joined the Service through the Directorate Fellowship Program in 2016 after graduating from the University of California, Davis. She served as a biologist with the Service in Ventura until her passing in 2019.

Carly Chen, Kendra Chan Conservation Fellow joins biologists and botanists on a field visit to Channel Islands National Park off the California coast to collect milkweed samples. Photo by Karen Sinclair/USFWS. Inset: Chen collects seeds from a narrowleaf milkweed plant hosting a monarch chrysalis. Photo courtesy Carly Chen



Local scientist honored as ‘Recovery Champion’ for role in rare plant conservation on California’s Channel Islands

This year, the U.S. Fish and Wildlife Service (Service) announced Dr. Kathryn McEachern, research ecologist with the U.S. Geological Survey, is the recipient of the Service’s prestigious 2021 Recovery Champion award for her leadership in the recovery of threatened and endangered plants on California’s Channel Islands.

“[Dr. McEachern’s] scientific rigor and emphasis on collaborative partnerships has guided our understanding of island plant communities, contributed to their protection under the Endangered Species Act (ESA), and helped prevent extinction of multiple listed species,” said Service Director Martha Williams.

For three decades, McEachern has worked under challenging and inhospitable conditions to monitor, survey, and map rare Channel Island plants. Her research informed the Service’s listing of 13 species under the ESA, which accelerated ongoing conservation and restoration efforts following years of land-use change on the islands, from ranching and grazing to the eventual stewardship of the islands as a national park and conserved area. Following development of the Service’s recovery plan for those 13 rare plant species, McEachern helped

implement numerous on-the-ground actions, from survival experiments to comparative mapping, to support their recovery. Due in part to McEachern’s efforts, the Service’s recent Species Status Assessments indicate strides towards recovery for several species, including the island bedstraw and Santa Cruz Island dudleya.

“We cannot achieve our mission of endangered species recovery without the pivotal scientific research that underpins conservation and management actions for rare species,” said Steve Henry, Service field supervisor in Ventura. “I am honored to present Dr. McEachern with this national award on behalf of our agency for her lifelong contributions to Channel Islands plant conservation and for her role in inspiring new generations of women scientists.”

McEachern also played an instrumental role in conducting cloud forest restoration efforts on Santa Rosa Island, including outplanting and seedbanking to benefit Santa Rosa Island manzanita, Hoffmann’s rock cress, and island oak. Her collaborative efforts have forged long-lasting partnerships with the Service, Channel Islands National Park, The Nature Conservancy, University of California Santa Cruz Island Field

Station, Santa Barbara Botanic Garden, California State University Channel Islands, and others. Her passion for plant ecology has inspired hundreds of researchers and students within these institutions, and her work serves as a model for community-based conservation throughout California.

“[McEachern’s] contributions to the restoration of island ecosystems have left a lasting impact for future generations. I applaud Dr. McEachern for all that she has accomplished on behalf of listed plants on the Channel Islands, and I join the rest of the Service in extending my best wishes for your continuing success,” said Director Williams.

The Service’s Recovery Champion awards are presented annually to partners and U.S. Fish and Wildlife Service staff whose work is advancing the recovery of endangered and threatened species of plants and animals.

Dr. Kathryn McEachern surveying for island phacalia on one of California’s Channel Islands in 2019. Photo courtesy Trey Demmond



Dr. Kathryn McEachern. Photo courtesy U.S. Geological Survey



San Benito evening primrose removed from Endangered Species List due to recovery

Thanks to decades of conservation efforts, the San Benito evening primrose, a small flowering plant native to California, has been removed from the federal list of endangered and threatened wildlife and plants due to recovery. The U.S. Fish and Wildlife Service (Service) listed the plant as threatened under the Endangered Species Act in 1985 due to ongoing threats of motorized recreation activities and commercial mining operations.

At the time of listing, the species was documented in only nine locations in a small area of San Benito County, California. Annual surveys for the species have confirmed that the plant now resides in more than 100 areas across multiple watersheds in portions of San Benito, Monterey and Fresno counties.

Understanding the plant’s ecology and habitat has improved due to the diligent efforts of the Bureau of Land Management to survey, study and conserve habitat for the San Benito evening primrose over the last three decades.

“Recovery of endangered species is challenging, but essential to the preservation of biodiversity,” said Ryan O’Dell, natural resource specialist, Central Coast Field Office for the Bureau of Land

Management. “It requires careful balance of land use to protect habitat, a thorough scientific understanding of the ecology of the species, and diligent effort to fulfill the recovery actions. The Bureau of Land Management is proud of its lead role in the recovery of San Benito evening primrose and the conservation of California floristic diversity for future generations.”

“Plants are indicators of environmental conditions in an area, and contribute to the greater ecosystem and food web,” said Service botanist Todd Lemein. “The San Benito evening primrose occupies a goldilocks niche, surviving best in areas with nutrient poor soils and a specific amount of disturbance. As a result, the San Benito evening primrose contributes to a primary trophic level in an environment where many plants can’t survive.”

The primary threats to the species at the time of listing no longer threaten the plant’s survival in the wild. The threat of motorized vehicle recreation was reduced partially due to a 2008 finding from the Environmental Protection Agency that found motorized vehicle use exposed riders to a higher than acceptable risk of naturally-occurring asbestos at the Bureau of Land Management’s

Clear Creek Management Area in San Benito County. This finding resulted in a temporary prohibition of vehicle use where San Benito evening primrose was known to occur. In 2014, formal restrictions on motorized vehicle use were included in the BLM’s Resource Management Plan to protect human health.

A post-delisting monitoring plan has been developed to monitor the plant’s status over the next five years to verify that the species remains secure from the risk of extinction.

The San Benito evening primrose is a small, annual plant with bright yellow flowers once thought to be in danger of extinction. Photo courtesy Ryan O’Dell/Bureau of Land Management

Endangered snail inches toward recovery

A rare snail found only around Los Osos and Morro Bay along the Central California coast is crawling toward recovery thanks to survey, habitat protection and conservation efforts with local partners. The U.S. Fish and Wildlife Service (Service) announced the Morro shoulderband snail is no longer in danger of extinction, improving its conservation status from endangered to threatened under the Endangered Species Act (ESA).

“The ESA is a catalyst for recovery, and we know it’s working when we see species large and small take steps toward delisting,” said Cat Darst, Assistant Field Supervisor for the Service in Ventura. “Thanks to city, county and state efforts that include habitat protection and increased surveying, Morro shoulderband snail numbers are now in the thousands rather than hundreds.”

Service partners supporting the snail’s recovery include the community of Los Osos, private landowners and local biologists, as well as the California Department of Parks and Recreation, California Department of Fish and Wildlife, Morro Coast Audubon Society, Land Conservancy of San Luis Obispo and the County of San Luis Obispo.

Despite conservation gains, the Morro shoulderband snail is still threatened by habitat loss and fragmentation due to land development, habitat degradation from invasive plants, wildfire and changing climate conditions, so it still requires ESA protection until these threats can be reduced or eliminated.

The Service also announced a 4(d) rule for the species to provide incentives for additional

conservation efforts, allowing select activities that facilitate conservation of the species, even if they result in some potential loss of individuals. The 4(d) rule will enhance conservation of the Morro shoulderband snail by allowing activities that contribute to its recovery, such as habitat restoration and fire hazard reduction.

Snails are key contributors to the ecosystems they inhabit, feeding on decaying plant material and providing a food source for a diversity of animals including birds, reptiles, amphibians and mammals. Most of their feeding, reproduction, movement and growth occurs during California’s rainy season, which typically occurs from October through April.

Morro shoulderband snail. Photo courtesy Dan Dugan



Assessing sea otter reintroduction feasibility in Northern California and Oregon

Photo: By the time sea otter pups reach weaning age around six months, they are almost the same size as their mothers. Photo by Lilian Carswell/USFWS

Under a directive from Congress, the U.S. Fish and Wildlife Service (Service) evaluated the feasibility of reintroducing sea otters to their historical range along the West Coast of the contiguous United States. The Service focused the assessment on northern California and Oregon, where potential sea otter reintroduction would have the greatest conservation value.

The Service’s assessment indicates reintroduction is feasible, but it does not provide a recommendation as to whether sea otter reintroduction should take place. Additional information and stakeholder input would be needed to help inform any future reintroduction proposal if the initiative moves forward.

Sea otters once lived across the north Pacific Rim from the northern islands of Japan to Baja California. By 1911, this heavily hunted

species was nearly extinct and survived in only a few small disjunct populations. After slow population recovery and past reintroduction efforts, sea otters now again inhabit portions of their historical range. However, sea otters remain absent from the contiguous Pacific Coast, with the exception of central California, one island in southern California, and the northern coast of Washington. Sea otters in California are listed as threatened under the Endangered Species Act.

As a keystone species, sea otters play a fundamental role in the ecological health of nearshore ecosystems. Sea otters eat sea urchins and other marine grazers, which helps keep kelp forests and seagrass beds in balance. Their presence in the ocean enhances biodiversity, increases carbon sequestration by kelp and seagrass, and makes the ecosystem more

resilient to the effects of climate change. Additionally, reintroduction could increase the genetic diversity of recovering sea otter populations and contribute to the conservation of the threatened southern sea otter.

“If sea otters are reintroduced to northern California and Oregon, it would benefit both otters and the nearshore marine ecosystem,” said Craig Rowland, acting state supervisor for the Service’s Oregon office. “Additional work is needed to evaluate the possible impacts of a potential reintroduction as well as measures to offset these impacts. While we anticipate an overall socioeconomic benefit to coastal communities, we also recognize that some local shellfish fisheries could be affected.”

In the consideration of sea otter reintroduction, the Service’s

assessment recommends stakeholder engagement in the identification of potential reintroduction sites and small-scale experimental reintroductions as next steps. If there is a move to formally propose the reintroduction of sea otters, the Service would initiate a public review process under the National Environmental Policy Act.

The Elakha Alliance, an Oregon nonprofit group, separately evaluated the feasibility of bringing sea otters back to the Oregon Coast. The Service partly funded this study. The feasibility assessment by the Service is intended to be read as a companion to the Elakha Alliance study, but it expands the geographic area under consideration in response to the request from Congress.

For more information and a copy of our report, please visit: <https://www.fws.gov/project/sea-otter-feasibility-assessment>.

Frequently Asked Questions

Why did the Service conduct a feasibility assessment for reintroducing sea otters?

Under a directive from Congress, the U.S. Fish and Wildlife Service evaluated the feasibility of reintroducing sea otters to the West Coast of the contiguous U.S., where sea otters historically thrived. The congressional mandate points to the sea otter’s “critical ecological role in the marine environment as a keystone species that significantly affects the structure and function of the surrounding ecosystem.” Sea otters have been absent from most

of the Pacific Coast since the early 1900s, since their near extinction as a result of the maritime fur trade.

How is this related to the Elakha Alliance feasibility study?

This assessment is intended to be read as a companion to a study of the feasibility of restoring sea otters to the Oregon coast recently released by the Elakha Alliance, a nonprofit organization. The Elakha Alliance Feasibility Study is available online at <https://www.elakhaalliance.org/feasibility-study/>. The Service had collaborated earlier with the Elakha Alliance to explore the possibility of restoring sea otters to the coast of Oregon. Because the Elakha Alliance has already compiled much of the best available scientific information on the topic, we largely adopt and incorporate their compendium of the science by reference, and to

avoid duplication of effort in our assessment we emphasize the socioeconomic and legal aspects of feasibility. In addition, our assessment expands the scope of geographic consideration beyond the Oregon coast, but it does not include the entirety of the Pacific Coast. We focus our study of feasibility on the potential reintroduction of sea otters to the largest remaining gap in their range, on the coasts of northern California (from San Francisco Bay north) and Oregon.

What were the conclusions of the Service’s feasibility assessment?

The feasibility assessment reviewed the potential biological, socioeconomic, and legal impacts from a potential reintroduction in northern California and Oregon and recommended next steps. While the assessment indicates that reintroduction of sea otters to portions of the West Coast of the contiguous United States is feasible, additional information and stakeholder input are needed to help inform any future reintroduction proposal. The Service does not make any recommendation in this report as to whether reintroduction should take place. The feasibility assessment summarizes known information, identifies key data gaps, and presents stakeholder perspectives. In particular, because specific reintroduction sites have not yet been identified, one of the outstanding information needs to inform further consideration of reintroductions is a targeted assessment of the positive and negative local socioeconomic impacts.

Does this mean reintroduction is moving forward?

There is no active proposal to reintroduce sea otters at this time. Assessment of feasibility is the first step in any reintroduction effort, but it is not a reintroduction proposal. In the future, should there be a move to formally propose

the reintroduction of sea otters, the Service would need to initiate a National Environmental Policy Act review process that includes public review and engagement, including input from a broad range of stakeholders, prior to any formal decision.

What would be the objective of reintroduction?

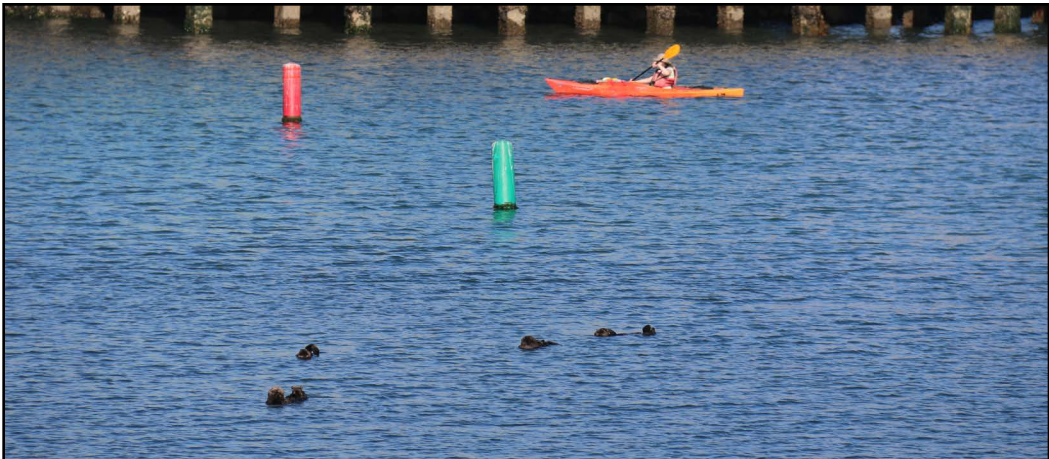
Reintroducing sea otters to the Pacific Coast of the contiguous U.S. would advance two interrelated and overarching conservation goals:

- 1. Restoration of the species, *Enhydra lutris*, within important gaps in its historical range, including improving the status of the federally threatened subspecies, *E. l. nereis* or southern sea otter.
- 2. Restoration of ecosystem function, including enhancing ecosystem resilience, biodiversity, carbon sequestration, and resilience to the effects of climate change.

If the Service considers the possibility of reintroductions, what would be the next steps?

For next steps in considering potential reintroductions, the assessment recommends convening a series of structured decision-making workshops with scientific experts and key stakeholders to explore reintroduction options, including the identification of possible reintroduction sites; initiating a rigorous socioeconomic impact study to look at potential negative and positive local impacts;

This kayaker is moving parallel to the otter and keeping more than 50 feet of distance allowing the otter to remain undisturbed. Photo by USFWS



Southern sea otters float close together at Moss Landing, California. Photo by Lilian Carswell/USFWS

with reintroduction, not all costs and benefits would be distributed equally. The shellfishing community in particular has expressed concerns about a potential reintroduction. We are exploring mechanisms to offset financial impacts that could be incorporated into any potential reintroduction proposals. We would also recommend the initiation of a local socioeconomic assessment by a team of qualified resource economists and social scientists at the earliest opportunity to provide accurate information for specific geographic areas that may serve as potential sites for sea otter reintroduction to the Pacific Coast.

Why is the feasibility assessment focusing on potential reintroduction efforts in Northern California and Oregon?

Today, there are two distinct sea otter subspecies in the U.S., the northern sea otter and the southern (or California) sea otter. Northern sea otters live in the nearshore waters of Alaska, British Columbia, and Washington State, and southern sea otters live along the central coast of California and at San Nicolas Island in southern California. Historically sea otters were distributed continuously along the north Pacific Rim, with Oregon serving as a transition zone between the two subspecies. Reintroducing sea otters to northern California and Oregon would help increase genetic diversity and long-term sustainability of sea otters in the wild by beginning to reconnect the northern sea otter and southern sea

otter subspecies. Scientists have identified that northern California and Oregon have suitable habitat to support sea otters, and this area constitutes the largest remaining gap in the formerly continuous historical range of the sea otter.

What benefits do sea otters provide to people and ecosystems?

Sea otters benefit nearshore marine ecosystems, contribute to climate change resiliency, and can support local economies through eco-tourism. Because they are efficient predators and consume large quantities of marine invertebrates, sea otters play a significant role in nearshore marine ecosystems, enhancing kelp forests and seagrass beds. Kelp forests provide numerous benefits, including habitat for hundreds of invertebrate and fish species, reductions in coastal erosion, and carbon storage that can moderate climate change. Seagrasses also provide important benefits, such as nursery habitat for many other species, shoreline protection, and carbon sequestration.

How do sea otters help mitigate climate change?

Sea otters help maintain kelp by preying on sea urchins, which can clear-cut kelp forests when left unchecked. Sea otters in British Columbia and central California have also been shown to enhance seagrass, though by different mechanisms. In British Columbia, sea otters enhance seagrass genetic diversity by creating disturbance

while digging for buried prey. This disturbance causes the seagrass to reproduce sexually instead of asexually, increasing its genetic diversity and thus its resilience to stressors. In central California, sea otters increase seagrass abundance and resilience to human-caused pollution by preying on crabs, which eat sea slugs and isopods. In controlling the predators of these mid-size underwater grazers, sea otters allow the sea slugs and isopods to graze the pollution-fueled algal epiphytes that coat the seagrass blades, allowing sunlight to penetrate and the seagrass to flourish.

Kelp and seagrass capture carbon dioxide (CO2) from the atmosphere and transform it into organic carbon. Some of this carbon is stored in their bodies, and some is sequestered in the deep ocean or in sediments where it is no longer cycling and contributing to climate change. Kelp and seagrass protect shorelines from erosion caused by sea level rise and increased storm intensity, and they locally reduce ocean acidification, which results from the ocean’s absorption of excess atmospheric CO2. Ocean acidification can be devastating to calcifying organisms, such as the shell-forming species that constitute much of sea otters’ prey.

What happens next?

The assessment outlines a series of next steps if reintroduction is considered further. The assessment recommends convening a series of structured decision-making workshops with scientific experts and key stakeholders to explore reintroduction options, including the identification of potential reintroduction sites; initiating a rigorous socioeconomic impact study to look at potential negative and positive local impacts; developing plans for pilot studies or small-scale experimental reintroductions to resolve key uncertainties in reintroduction methods; and integrating existing Oregon and California population models.

Field Feats

Collaborative surveys for endangered songbird in Santa Clara River watershed

In early June 2022, Service biologists finished a second season of point-count surveys for the least Bell’s vireo across the main stem of the Santa Clara River. Thanks to the help from our partners at the Western Foundation of Vertebrate Zoology, County of Ventura Public Works, Friends of the River (Hedrick’s Ranch), the City of Santa Clarita and Woodstar Biological LLC, surveyors visited a total 104 locations three times, and least Bell’s vireos were detected at numerous locations, including areas on the way to and from surveys quite often. These field efforts are important because analyses of the associated data will help us answer important questions about vireo biology and population status.

“We are incredibly fortunate and grateful to have eager and knowledgeable partners to help us survey the Santa Clara River from Ventura to Santa Clarita. To date, we have collected exceptional information on the least Bell’s vireo and its biology, and we just wouldn’t be able to accomplish that feat without the generous help of our partners,” said wildlife biologist Andrew Dennhardt. “Honestly, this is what collaborative conservation looks like, and such broad-scale accomplishments help keep us motivated to make a difference for threatened and endangered species in California—one day, one survey, at a time.”

Least Bell’s vireos are euphonic, gray, little songbirds that deserve our protection and observation, though it’s best to enjoy the birds at a distance so as to not disturb them.



A male least Bell’s vireo perches high atop a shrub to prepare to sing his illustrious song. Photo by Chris Dellith/USFWS

Partnership conservation efforts lead to downlisting of coastal California beach plant

This March, the Service announced the downlisting of beach layia from endangered to threatened under the Endangered Species Act (ESA) due to substantial improvements in the species’ status since listing in 1992. As a result of years of collective conservation efforts of federal, state, local and private partners, this species is one step closer to full recovery.

Beach layia is a succulent annual herb belonging to the sunflower family. The plant grows on dry, exposed beach sites spread across six isolated dune systems in coastal California. From north to south, there are 13 populations of beach layia from

Humboldt County to Vandenberg Space Force Base in Santa Barbara County.



Beach layia. Photo by David Imper/USFWS



Service botanist Todd Lemein joins Lisa Stratton with the University of California, Santa Barbara’s Cheadle Center Lisa Stratton to observe Ventura marsh milk-vetch at the North Campus Open Space. Many of the plants are natural second and third generations following an initial planting effort. Photo by Ken Niessen/USFWS

Ventura marsh milk-vetch recovery at University of California, Santa Barbara’s North Campus Open Space

Service botanists are working with staff from University of California Santa Barbara’s (UCSB) Cheadle Center for Biodiversity and Ecological Restoration to recover populations of Ventura marsh milk-vetch at UCSB’s North Campus Open Space (NCOS). This federally endangered plant is endemic to coastal Southern California and was once thought to be extinct before being rediscovered in 1997.

“The Service has been instrumental in supporting the restoration of the

UCSB North Campus Open Space. The area had been developed into a golf course and is being restored to more historical conditions with a large dynamic wetland system. Large dynamic wetland systems have almost all been lost due to development in Southern California,” said Service botanist Ken Niessen.

“The Cheadle Center has taken on the task of introducing the milk-vetch to the NCOS wetlands, giving it room to find its niche as climate-change induced sea-level rise continues.”

Thanks to collaboration with our partners, NCOS will ultimately feature 136 acres of restored and preserved coastal open space featuring trails and boardwalks for public access and recreation.

It will also be used for teaching, research, and community outreach. The restoration of this coastal wetland system will help move rare species like the Ventura marsh milk-vetch towards recovery by buffering climate change effects and providing habitat.

Field Feats

General conservation plan supports strategic conservation of California tiger salamanders and other rare species in Santa Barbara County

The Service has finalized a General Conservation Plan (conservation plan) and Environmental Assessment (EA) to support conservation and recovery of federally protected species including California tiger salamanders and California red-legged frogs and their habitats, and an endemic rare shrub called Lompoc yerba santa, as part of operations, construction, maintenance, and decommissioning activities at existing oil and gas facilities in Santa Barbara County.

The conservation plan identifies compensatory mitigation to support the species’ long-term recovery and takes a proactive, comprehensive, and strategic approach to recovery actions while ensuring Endangered Species Act compliance as part of operations, construction, and maintenance activities, including inspecting and repairing infrastructure and decommissioning of existing oil and gas facilities.

Under the conservation plan, permit applicants will be required to meet or exceed a high bar to demonstrate conservation actions for protected species,” said Rachel Henry, habitat conservation plan coordinator for the Service in Ventura.

Under the Service’s conservation plan, permit applicants must first comply with all applicable federal, state, and local statutes and regulations.



California tiger salamander. Photo by John Cleckler/USFWS

Surveying for salamanders in Santa Barbara County

This past spring, Service biologists teamed up with academic and private partners to survey ponds for California tiger salamanders throughout northern Santa Barbara County.

This work supports what the Service calls its ‘annual round up’ to collect data on salamander occupancy and relative abundance at ponds as well as take length measurements of captured amphibians, including the salamander and western spadefoot. Such data are important for helping us understand the condition and status of listed amphibians and their habitats in Santa Barbara County.

“It’s the joint creativity and innovation of landowners and Service biologists, particularly with the help of their academic, industry, and non-profit partners, that has helped the ‘annual

round up’ of salamanders continue over the years,” said wildlife biologist Andrew Dennhardt. “This important work has provided essential broad-scale data toward enhancing Service decisions about future recovery of listed amphibians and is expected to continue.”



Service biologist Andrew Dennhardt and Justine Cooper with Storrer Environmental Services search dip nets for collected amphibians at a small pond in northern Santa Barbara County. Photo courtesy John Storrer/Storrer Environmental Services.

California State University, Channel Islands students learn botany on the ‘Galapagos of the North’

“The California Channel Islands are considered to be a Galapagos of the north, yet so many local people have no idea what is out there. The California State University (CSU), Channel Islands Santa Rosa Island Research Station introduces a wide range of people from underserved communities to some of the amazing things on the islands, and nature in general,” said botanist Ken Niessen with the Service in Ventura.

“I was grateful for the time helping students learn about the history of the islands and their remarkable plants and talking about the role the Service

plays in preserving some of the most vulnerable species.”

As part of a four-week field studies program, Niessen joined students from CSU Channel Islands for two days at the research station on Santa Rosa Island to teach the history of island ecosystems and how scientists and land managers work together to recover federally threatened and endangered plants.

The field studies program was a first-time island experience for many of the students, and for most, their first experience learning about plant ecology.



Service botanist Ken Niessen leads students from CSU Channel Islands on a plant ecology hike on Santa Rosa Island, part of California’s northern Channel Islands as part of a field studies course. Photos courtesy Dan Reinemann/California State University, Channel Islands



Field Feats

Southern mountain buckwheat sampling

In late July 2022, Service botanists Mark Elvin and Ken Niessen met with partners from the California Botanical Garden and San Bernadino National Forest to collect samples of southern mountain buckwheat in Lockwood Valley within the Los Padres National Forest. This federally threatened plant is restricted to pebble plains habitat – treeless, open areas within a forest that contain unique plant associations and soil characteristics.

Twenty years ago, questions arose over whether the southern mountain buckwheat population in Lockwood Valley had been identified correctly, given that this population was so far away from its only other known occurrences in the San Bernadino Mountains. The samples collected from this recent field visit will be used in a genetic study led by experts at the California Botanic Garden to determine the identity of this species.

“Other than the Lockwood Valley area, southern mountain buckwheat is apparently restricted to the San Bernardino Mountains about 150 miles away,” said Niessen. “In these times of uncertain climate and unpredictable wildfire, having occurrences that are known across the species’ historic range helps prevent extinction of the species.”



Southern mountain buckwheat in Los Padres National Forest. Photo by Ken Niessen/USFWS

European beachgrass removal at Guadalupe-Nipomo dunes to help restore balance to coastal dune ecosystem

At 2,553-acres, the Guadalupe-Nipomo Dunes National Wildlife Refuge was established in 2000 and is part of the 18-mile Guadalupe Nipomo Dunes Complex along the Central Coast of California.

The area is one of the largest coastal dune landscapes along the west coast of North America and provides habitat for a variety of state and federally protected plant and animal species from the state threatened and federally endangered La Graciosa thistle to the federally threatened California red-legged frog. Because European beachgrass, an invasive species, outcompetes and threatens the survival of native plants, the Service works with partners to treat European beachgrass, and this year successfully treated 35 acres and received funding to treat an additional

43 acres in the northwest section of the refuge.

“European beachgrass chokes out native plant species. By treating it, other native plants, like beach spectaclepod, surf thistle, coastal dune scrub and giant coreopsis have a better chance of establishing and thriving, which is a much-needed step to help bring our coastal dune ecosystem back into balance,” said Colleen Grant, wildlife biologist with the Service’s Coastal Program in Ventura.



Guadalupe-Nipomo Dunes National Wildlife Refuge. Photo by Ian Shive/USFWS

Go gobies go! Tidewater goby translocation success

In late September, Service biologists teamed up with California State Parks, the Resource Conservation District of the Santa Monica Mountains and California State University, Channel Islands to successfully translocate 500 tidewater gobies from Topanga Lagoon, where the population of tidewater gobies is plentiful, to Malibu Lagoon, where the population of tidewater gobies saw a great decline approximately two decades ago and has remained low since.

The gobies with the best chance of survival and reproduction were caught via nets and transported in coolers to previously identified areas of suitable habitat within Malibu Lagoon.

Rarely exceeding two inches in length, the tiny tidewater goby is endemic to California. Habitat loss affecting the lagoons in which they reside, among other threats, led to their protection under the Endangered Species Act since 1994. We hope this translocation will augment the local population of tidewater gobies in Malibu Lagoon.

Thank you to our partners for helping us protect and recover this endangered fish!



Biologists capture and translocate tidewater gobies to help boost populations. Photo by USFWS

Faces of U.S. Fish and Wildlife Service



“In 2019 my partner and I were travelling in our RV at South Padre Island in Texas. We were motorcycling, saw Santa Ana National Wildlife Refuge, visited, then asked if we could become volunteers. I had the best time learning the new flora and fauna and working at the visitor center and trails! I had told one of my ranger friends how I wished I could do this as my job, and they told me I could!

I thought I might be too old or not have the right education. They helped by going through my resume and pointing out how my skills were readily transferable. I gratefully got a seasonal job with the National Park Service and while I loved it, I knew conservation has always been deep in my heart and in practice in my community. The opportunity with Service’s office in Ventura and all I can say is, thank you!”

- Ann Bliss, office assistant



“I love to read, create art and explore natural areas. I am a big river person and am often at the river reading, drawing and practicing yoga. I am also a big foodie; I love to try new restaurants and recipes.

During my internship, I focused on Western monarch butterfly outreach and restoration. My internship involved sampling milkweed at 17 sites throughout the Santa Monica Mountains, one at CSU Channel Islands, and two on Santa Cruz Island to analyze the pesticide concentrations found within the plants.

The other half of my internship is focused on outreach where I attend events to help educate the public on western monarch butterflies and milkweed.”

**- Carly Chen, Kendra Chan
Directorate Fellow**



“I was inspired to apply as a biologist intern for the Service when I did a field studies semester abroad in Costa Rica to learn about sustainable development. It was there that I learned many sustainable practices and of course was able to experience some crazy biodiversity leading me to scour Google for a job in this field!

My conservation hero is Valerie Taylor because she is a woman who shared her experiences, hardships, work ethic, passion and errors with the world. At a young age she overcame her first life obstacle-polio. Then, throughout her life, she had to deal with double standards and gender inequality. This pushed her to work even harder to be the best at everything she did. Her life story shows immense personal growth because she began as a recreational spear fisher; then became a photographer, filmmaker and finally a well-known conservationist.”

**- Kathya Argueta, Hispanic
Access Foundation intern**

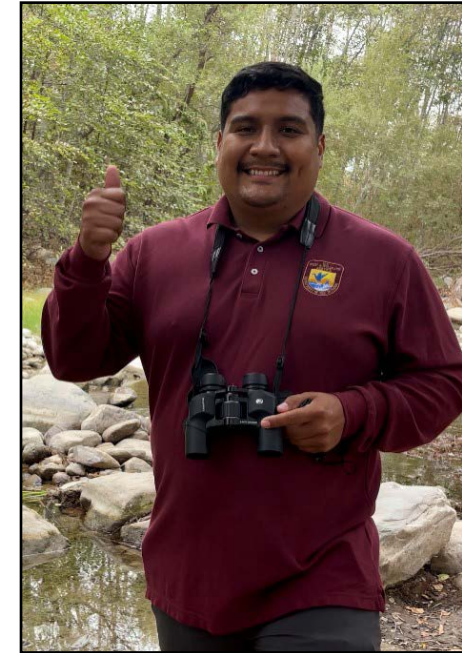


“I am a bilingual public affairs specialist at the Ventura Fish and Wildlife Office. I am so excited to work here!

I do believe every experience and opportunity I’ve had up to this point has led me to the USFWS.

There have been many times I have felt insecure about my unconventional career path, but when I read the job posting for a bilingual public affairs specialist at the Ventura Fish and Wildlife Office, I suddenly realized that my journey has been unique and valuable. I encourage anyone reading this to never turn down opportunities just because you are afraid you don’t/ won’t belong. You do! There is so much to out there for you if you just take a chance on yourself and keep working towards your goals.”

**- Vanessa Morales, bilingual
public affairs specialist**



“The person who got me into maps was my dad. He used to go out of town for work, and this was like 2009 when we had just purchased a computer and internet. He did not have a GPS system in his truck, so he would call me on the phone, and I would be his navigator; live streaming him directions that I read from a map on the computer.

I grew up watching Animal Planet and Discovery. I thought they were so cool. I also grew up going to my grandpa’s ranch in Mexico so I spent a lot of time outdoors there as well, and I loved it.

My parents came here in 1992, and their whole background has always been rural living in Mexico, working the land, and I think it is important for us to follow those traditions we have, like living with the land. I think it’s important for us to advocate for Hispanic and Latino communities to enjoy green spaces.”

**- Fernando Lara, Hispanic Access
Foundation intern**



“BeachCOMBERs is a citizen science program supported by the U.S. Fish and Wildlife Service, where trained volunteers will go out to the beach and survey for dead birds or marine animals. The volunteers will then input data like species and the condition it was found in into a mobile phone application. This data helps the science community understand the health of our coastlines.

My favorite part of citizen science programs is they connect people with their local environment. You get people who are not scientists contributing to important research and to care for our community and nature, which I think is really cool. Volunteers could be people who do not otherwise know much about wildlife, but because of the BeachCOMBERs program, they build their knowledge about beach ecosystems.”

**- Mireya Bejarano, Hispanic
Access Foundation intern**

Faces of U.S. Fish and Wildlife Service



“I loved the team-oriented atmosphere I felt during my interview with the Ventura Fish and Wildlife Office. Also, knowing I can help improve the world we live in and the species we share it with captured me.

To be able to help spread the word on what we as people can do to make it better for the animals and plants gives a sense of accomplishment like no other.

I feel people should spend more time outdoors to truly see and enjoy the world we live in, its beauty and the sense of peace it can bring to one’s life. For me, it’s the sound of flowing water, whether it’s a roaring waterfall or light waves washing over the shore.”

- **Monica Martinez, budget technician**



“I first fell in love with the Service in 2009 while completing a visitor services internship with the Southeast Louisiana Refuges Complex in Lacombe, Louisiana. I loved that the Service’s mission was about protecting wildlife for future generations, and I enjoyed working with people who were passionate about wildlife like I was.

I’m proud of myself for overcoming my fear of failure and returning to school. Growing up, I struggled with math and developed a lack of self-confidence in academics. Even though I enjoyed and excelled in biology and chemistry in high school, I lacked the confidence to pursue a biology degree in college. It’s been a winding journey to get to where I am today, but I did it and I’m excited to see what I’ll accomplish next... I also can’t discount the small victories I’ve experienced along my career like those “ah ha” moments when a child connects to nature on a deeper level or seeing the pride on a landowner’s face when they are recognized for restoring habitat on their property.”

- **Christine Fox, wildlife biologist**



“When I was in junior high, I remember learning about Dian Fossey and Jane Goodall and the incredible work they did with primates; what stands out to me now is that when I learned about these kick-butt woman as a young girl, I didn’t consciously think of them as “women in science,” but rather, as scientists.

I’m really lucky to have had these conservation heroes pave the way so that I didn’t see being a woman as a barrier towards working in conservation as a career. My grandma gave me one of Goodall’s books about animals that have been saved from the brink of extinction, which really resonates with me now and inspires me in this career.

In wildlife conservation, most folks recognize the importance of biodiversity and the critical roles that sometimes unassuming flora or fauna play in ecosystem functioning. To me, the importance of diversity in conservation is similar: everyone has something unique to offer, and by working together we can be most successful.”

- **Sam Lantz, wildlife biologist**



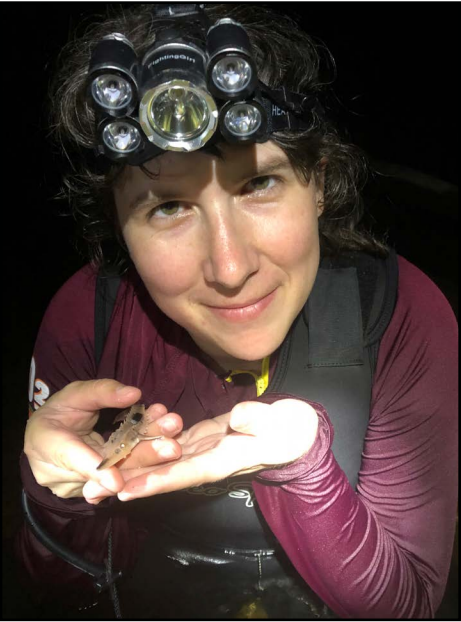
“I spent my early career conducting conservation research and restoration in wildlands and cities around the country.

I found I enjoyed convening stakeholders to identify obstacles to conservation and strategize on solutions for the people and wildlife of California.

I am extremely proud of the work I’ve done with aspiring biologists. They have been the backbone of the conservation programs I’ve led to protect endangered species, such as the island fox, and the native pollinators of our endemic California ecosystems.

So many of them have gone on to grad school and now work in conservation lands management. As long as amazing people like that keep showing up for conservation, our plants and animals will be cared for and represented.”

- **Christie Boser, wildlife biologist**



“My conservation hero is Carl Safina, author of a suite of conservation themed nonfiction books. I first met Carl when I was a junior in high school, and he gave a talk to the English department at the university in my hometown. This talk was the first time I had ever even realized that the places and species I cared about were in danger and probably the first time I had ever heard about conservation. This one presentation completely changed my trajectory and life goals and has really stuck with me.

I’ve been able to keep in contact with Carl over the years, including when I went back to do my master’s at Stony Brook. On top of being an excellent conservation advocate and communicator, he’s been instrumental in helping me be successful pursuing my career interests. I wouldn’t be where I was today without his talk, his help, or his guidance.”

- **Sarah Hugentobler, Directorate Fellows Program intern**



“I was in the hiking club during high school and we were fortunate to visit the island of Kaho’olawe in Hawai’i. We learned so much about its history and helped to replant native vegetation on the island. There is still lots of work to be done but I feel good knowing I contributed to the spirit of the place, and that my work will help the native plant and animal communities that find sanctuary there.

I feel diversity in conservation is important because it speaks to our interconnectedness as both humans and living beings with the world around us. From an ecological perspective it shows that we are all important pieces holding up the system together. Given our differences in proximity or other socioeconomic factors, it is something we strive for in our work. And knowing how I have benefited from outdoor spaces growing up in Hawai’i, the ability to find reciprocal connection and nourishment with the land should be available to all.

- **Billy Kahula O’Brien, Science in the Service intern**

Supporting our Community



Photo Captions:

(Above) Field Supervisor Steve Henry (second from right) and wildlife biologist Colleen Grant (far right) celebrate with community members the grand opening of a North Campus Open Space trail at the University of California, Santa Barbara campus. Photo courtesy University of California, Santa Barbara

(Left) Botanist Kristie Scarazzo talks to kids at Mound School in Ventura about traditional Chumash uses of native plants. Photo courtesy Mound School

(Top right) Service biologists join community members to install protective fencing for Western snowy plovers during the breeding season in Oxnard. Photo by USFWS

(Top far right) Digital communications specialist Olivia Beitelspacher teaches Instagram followers about monarch butterflies through a monarch butterfly cupcake demonstration. Photo by USFWS

(Bottom right) Intern Fernando Lara and Deputy Field Supervisor Jenny Marek at a monarch-themed educational booth at P-22 Day celebrating urban wildlife conservation in Griffith Park. Photo by USFWS



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Monarch butterflies at an overwintering site along the coast of Central California. Photo by USFWS