



U.S. Fish & Wildlife Service

Ventura Fish and Wildlife Office

2021 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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Fabiola Gomez, Hispanic Access Foundation intern, holds a crab during a children's summer camp hosted in partnership with the MERITO Foundation. USFWS



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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ON THE COVER: Juvenile western pond turtle. USFWS/Hazel Rodriguez

A Year in Review



Despite these trying times, the Ventura FWO mission holds fast: to conserve and recover rare fish, wildlife, and plant communities across the Southern and Central California coast from our beautiful coastal dune and sagebrush ecosystems to the rugged terrain of our chaparral and oak woodlands and forests. Buoyed by the Endangered Species Act, one of the nation's foremost wildlife conservation laws, we worked with partners this year to find innovative strategies to protect ecosystems that benefit society as a whole.

In response to the devastating effects of extreme drought due to climate change, we collaborated across four western U.S. states and Mexico to develop a rangewide management strategy to guide efforts to enhance and restore habitat for California's only native freshwater turtle, the western pond turtle.

We announced a blueprint to guide recovery efforts for the Nipomo mesa lupine and La Graciosa thistle, two endangered plant species that live only in the Guadalupe Nipomo Dunes and nowhere else on Earth.

Joining nationwide efforts to help Monarch butterflies, we worked with local partners to restore important overwintering and pollinator habitats and educate our communities about their role in monarch conservation.

We worked alongside renewable energy companies to reduce the carbon footprint while strategizing methods to minimize and mitigate impacts to threatened and endangered plants and wildlife.

We worked with the academic community to successfully breed and reintroduce Santa Cruz long-toed salamanders to help bolster populations and increase genetic diversity - a key component to their recovery in the wild.

We welcomed our first Kendra Chan Conservation Fellow to honor the life of former wildlife biologist Kendra Chan and carry on a legacy that champions diversity in conservation as an all-hands-on-deck effort.

Our leadership team began a dialogue surrounding racial injustices, recognizing the important work that lies ahead to foster an inclusive environment that celebrates diversity of thought, culture, and contribution.

This is only a snapshot of the important work carried out by our team in 2021. I am amazed by the resiliency of our staff and the progress we've made toward our mission amid surmounting natural resource challenges.

As we moved into the second year of the worldwide COVID-19 pandemic, the Ventura FWO adapted to serve the American public as a virtual workplace, using new technologies to connect and communicate with conservation partners and our communities, while prioritizing the health and safety of our staff. As we look to the future, we remain nimble to support our workforce and the American public we serve.

A handwritten signature in blue ink that reads "Stephen P. Henry".

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A western pond turtle released back into the wild following data collection by scientists in the Los Padres National Forest in Southern California. USFWS/ Hazel Rodriguez

Insert: Mature female turtles lay a clutch of eggs on land, leaving them to hatch and overwinter in the nest. The hatchlings emerge the following spring and find their way to water. Courtesy Joe Pignatelli/ Washington Department of Fish and Wildlife

Help Wanted: Saving California's only freshwater turtle

Food, water and shelter for California's only freshwater turtle are all becoming scarcer across the Western U.S. Wildlife experts say that worsening drought conditions, habitat loss and fragmentation, and invasive species could threaten the long-term survival of western pond turtles in the wild.

"Turtles, in general, are among the most imperiled vertebrates in the world," said Cat Darst, assistant field supervisor with the U.S. Fish and Wildlife Service in Ventura, California.

That's why federal, state and private partners across four western U.S. states and Mexico have developed a range-wide management strategy to help guide efforts to enhance, protect and restore habitat that is vital for western pond turtles in the future.

"Western pond turtles are a charismatic species that people get excited about," said Jessie Bushell, Director of Conservation at San Francisco Zoo. "Kids love turtles. Adults love turtles. There is a lot of interest from across the range to protect this species, and many local organizations, in partnership with state and federal agencies, are working toward conserving and restoring important habitat to ensure long-term, sustained populations."

Western pond turtles are made up of two distinct species, the southwestern pond turtle and northwestern pond turtle. They range from Puget Sound,

Washington, in the north to northwestern Baja California, Mexico, in the south. There are also disjunct populations in far Western Nevada.

The strategy was developed by the Western Pond Turtle Rangewide Conservation Coalition, a comprehensive team of stakeholders with a shared vision of ensuring the long-term viability of western pond turtles in the wild.

The coalition is part of the Association of Zoos and Aquariums Saving Animals from Extinction initiative and includes representatives from the U.S. Fish and Wildlife Service, U.S. Forest Service, National Park Service, U.S. Geological Survey, Bureau of Land Management, Department of Defense, Washington Department of Fish and Wildlife, Oregon Department of Fish and Wildlife, Nevada Department of Wildlife, California Department of Fish and Wildlife, San Francisco Zoo, Oregon Zoo and Fauna del Noroeste A.C. in Baja California.

"The strategy is a blueprint for agencies and organizations across the West Coast to help western pond turtles when and where they need it the most," Darst said.

Strategy recommendations include coordinated surveys, identification of priority conservation areas, threats management, outreach and education, and targeted research for recovery.

"People really care about turtles, and that bodes well for the long-term outlook," Darst said. "I'm optimistic and amazed by the level of interest and collaboration, but I am concerned about the increasing level of threats."

According to Darst, the coalition's shared vision requires on-the-ground commitment and action by landowners and land managers across the landscape.

"With such a long-lived species, we still have time to help keep this turtle in much of its native range, but there are areas that will need more protections, more intervention and more monitoring to be sure that they don't disappear," said Bushell.

In December 2020, the U.S. Fish and Wildlife Service and Department of Defense formalized recommended best management practices for western pond turtles on military installations that own and manage thousands of acres of land across the West Coast.

These practices include, identifying and protecting nests during the breeding season, adding basking sites such as trees or logs, removing barriers such as fencing between ponds, streams and nesting habitats to allow for migration, and removing invasive predators such as bullfrogs, snapping turtles and non-native game fish.

conservation in action

“While the BMPs were developed for military installations, they can be used by landowners and land managers across the pond turtle’s range,” said wildlife biologist Robert McMorran.

Western pond turtles require both aquatic and upland habitat throughout their life cycle. Although maximum lifespan is unknown, some western pond turtles live to be over 55 years old in the wild. Older adults, especially females, are critical for population stability.

“You might see these turtles basking in the sun on the shoreline, or on logs or rocks, in all types of aquatic habitats including creeks and ponds, but they tend to prefer areas away from human disturbance,” said McMorran.

The turtle pet trade presents an additional hurdle. Invasive red-eared sliders, native to the Eastern U.S., compete with native turtles for precious remaining resources and habitat. McMorran explained, “Commonly purchased as pets, when they are no longer wanted, pet owners often release them into nearby aquatic habitats where potential for introducing disease and increased competition may be detrimental to our native species, such as the pond turtle.”

In 2012, Center for Biological Diversity petitioned the U.S. Fish and Wildlife Service to list the western pond turtle under the Endangered Species Act. In 2015, the Service determined the listing may be warranted and is currently reviewing the species’ status based on the best available science. The status review is on target for completion in 2023.

“Turtles and other native aquatic species are indicators of healthy ecosystems and clean water,” Darst said. “When we start losing our native species, it’s an indication that our water systems are impaired, and that’s not good for people either.”

According to Bushell, the combined commitment and actions of the



Western pond turtles range from Puget Sound, Washington, in the north to northwestern Baja California, Mexico, in the south. There are also disjunct populations in far Western Nevada. USFWS



A scientist measures a western pond turtle during surveys in the Los Padres National Forest. USFWS/Hazel Rodriguez

Western Pond Turtle Rangewide Conservation Coalition can get people on the ground and projects moving forward, especially in critical areas. “And I don’t think we are too late – we just need to keep moving forward,” she said.

If you own or manage land in Washington, California, Oregon, Nevada or Baja California, Mexico and would like to help western pond turtles, check out the resources below:

[Western Pond Turtle Rangewide Management Strategy](#)

[Western Pond Turtle Recommended Best Management Practices on Military Installations](#)



Red-eared sliders, like the one pictured above basking on a log in Missouri, are not native to the West Coast and compete with native turtles for precious resources. USFWS

A blueprint for recovery of endangered wetland plant on California's Central Coast

La Graciosa thistle (*Cirsium scariosum* var. *loncholepis*), a spiny wetland plant with white flowers tinged with a lavender hue, now has a blueprint for recovery, thanks to a draft plan prepared by the U.S. Fish and Wildlife Service and partners.

The endangered thistle lives around the edges of wetlands and riparian areas within coastal dune scrub habitat. It is currently found in only eight locations scattered throughout the iconic Guadalupe-Nipomo Dunes in southwestern San Luis Obispo and northwestern Santa Barbara counties along the Central Coast of California.

Conservation experts say the primary threat to the species is groundwater decline, likely from extraction for urban, agricultural and industrial uses. Climate change exacerbates this threat as drought conditions simply means less water is available.

“The recovery plan outlines specific actions to protect and enhance viable or self-sustaining populations of this thistle throughout its geographic range,” said Kristie Scarazzo, botanist for the Service in Ventura, California.

Recovery plans are required for endangered wildlife and plants protected under the Endangered Species Act, and are often developed in collaboration with academia, landowners and conservation groups that can help implement on-the-ground recovery actions.

Partners contributing to the plan include California Department of Parks and Recreation, Trihydro Corporation, Dunes Lakes Limited, Land Conservancy of San Luis Obispo County, Coastal San Luis Resource Conservation District and California Polytechnic State University, San Luis Obispo.

“The Guadalupe-Nipomo Dunes, and the species it supports, are a high priority for conservation, and we are glad to be part of their protection,” said Lindsey Roddick, senior restoration ecologist with the Land Conservancy of San Luis Obispo County. “While La Graciosa thistle is only one plant, it is an important spoke in the coastal ecosystem wheel.”

Conservation partners are already working to implement actions identified in the plan such as restoring habitat by removing

invasive weeds, sediment and overgrown vegetation to La Graciosa thistle propagation and planting.

The Service provided funds to the California and Santa Barbara Botanic Gardens to establish conservation seedbanks for La Graciosa thistle that serve as backup in the event of catastrophic loss. “This way, if all known existing occurrences disappeared, we have a safety net to propagate seeds and return them to their habitat,” Scarazzo said.

The Land Conservancy of San Luis Obispo County began growing seeds in 2020, and for a second consecutive year, will plant La Graciosa thistle at the Guadalupe-Nipomo Dunes National Wildlife Refuge, a safe haven for rare plants and wildlife. Sixty-five thistles will be planted at the end of June 2021.

“Plants that went in the ground in 2020 successfully flowered and produced seeds, and we now have a second generation emerging, which is exciting because our methods worked,” Scarazzo said.

Roddick says she looks forward to getting many more plants in the ground.

La Graciosa thistle is a federally endangered plant that occurs in coastal dune wetland habitats on sandy soils and is restricted to a small portion of the Central Coast of California. Kristie Scarazzo/USFWS

conservation in action

On a former oil field adjacent to the Refuge, neighboring landowner Chevron has implemented extensive remediation activities. Those include removing invasive veldt grass (*Ehrharta calycina*) and propagating and planting La Graciosa thistle in an effort to restore the landscape to what it looked like prior to the veldt grass invasion.

“Chevron is an exemplary model of what’s possible with the right amount of resources and commitment,” said Scarazzo.

Those successes are being replicated at the Land Conservancy’s Black Lake Ecological Reserve with funding from the Service’s National Coastal Wetlands Grant program. A \$584,909 NCWC grant will support the Land Conservancy’s efforts to remove invasive and overgrown vegetation, accumulated sediment and recontour wetlands to optimize

hydrologic function. That work is expected to begin in 2023.

With recovery actions underway, Scarazzo is optimistic about the future of this rare endemic plant. “We have a dynamic and innovative team committed to the species recovery. We can’t change the weather, but through active management, we can maximize the hydrologic function of the habitat and help restore the ecosystem processes that this plant depends on.”

According to Scarazzo, species recovery and other land uses are not mutually exclusive endeavors.

“We’re not saying stop agriculture or stop residential development,” she said. “We absolutely want that kale, we want those strawberries. We also want the rare plants that are part of the natural history and biodiversity of this remarkable part of the world to thrive.”

(Bottom Left) La Graciosa thistle, a spiny wetland plant with white flowers tinged with a lavender hue, now has a blueprint for recovery, thanks to a draft plan prepared by the U.S. Fish and Wildlife Service and partners. USFWS/Kristie Scarazzo

(Top Right) U.S. Fish and Wildlife Service botanist, Kristie Scarazzo (left), and The Land Conservancy of San Luis Obispo restoration coordinator Lindsey Roddick observe La Graciosa thistle seeds. USFWS/Kristie Scarazzo

(Bottom Right) The Land Conservancy of San Luis Obispo County began growing seeds in 2020, and for a second consecutive year, will plant the endangered thistle at Guadalupe-Nipomo Dunes National Wildlife Refuge, a safe haven for rare plants and wildlife. Sixty-five plants will be ready for planting at the end of June 2021. Courtesy Lindsey Roddick/Land Conservancy of San Luis Obispo







As part of his fellowship, Cisneros is working with the Santa Barbara Botanic Garden to conduct a germination study for five rare plant species on the Channel Islands.

A legacy lives on through the Kendra Chan Conservation Fellowship

Daniel Cisneros stood atop one of the highest peaks on Santa Rosa Island off the California coast, admiring the island oak and bishop pine trees, an ancient forest among the clouds brought back to life after years of human disturbance.

Cisneros, an ecology student at the University of California, Santa Barbara, is working with the U.S. Fish and Wildlife Service and Santa Barbara Botanic Garden to conduct a germination study for five rare plant species on the Channel Islands. The work will shed light on the role seed banking can play to help struggling plant populations.

Cisneros' research is made possible by the Kendra Chan Conservation Fellowship, a first-of-its kind annual program that 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. "I feel honored to be part of Kendra's long-lasting legacy," he says.

Chan, a wildlife biologist with the Service in Ventura, was passionate about endangered species and connecting people from all walks of life to science and the natural world.

A Southern California native, Cisneros says he feels a personal connection to the Channel Islands. "I see them every day from campus in Santa Barbara. I want to save plants in my own backyard." Through the fellowship, he is collecting data on the federally endangered soft-leaved paintbrush which dwells in only two cliffside locations on Santa Rosa Island.

Chan also championed the importance of diversity in conservation, and Cisneros aims to carry on that legacy by engaging communities in collaborative conservation and environmental

*Cisneros helps monitor soft-leaved paintbrush (*Castilleja mollis*) in an ongoing study to preserve the federally endangered species endemic to Santa Rosa Island. Courtesy Daniel Cisneros*





*Daniel Cisneros, first-ever Kendra Chan Conservation Fellow, stands beneath an island oak (*Quercus tomentella*) in a cloud forest on Santa Rosa Island, one of the northern Channel Islands off the California coast. (Inset) Soft-leaved paintbrush is a federally endangered species endemic to Santa Rosa Island. Courtesy Daniel Cisneros*

stewardship. “Our world has a variety of plants, animals, and fungi, all of which have their own differences, but are interconnected in so many ways,” says Cisneros. “We too, [as humans], occupy different niches in our society, and we all contribute to a healthier environment in general. We don’t have time to limit conservation to a select few anymore.”

Chris Diel is an assistant field supervisor with the Service in Ventura. “Kendra was passionate and curious and ready to take on new challenges,” he says. “She was able to bring everyone together to achieve conservation goals — from academia to agencies to private landowners. She brought positivity and inspiration that those common outcomes were possible.”

Diel helped form a team from across the country to design a

unique fellowship that combines the long-standing Service’s Directorate Fellowship Program with the Ecological Society of America’s leadership development program.

“After losing Kendra as a member of our team and our agency, we asked the question, how can we carry on and embody that potential that we saw, and the traits we observed in her, into the future?”

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.

“This program has solidified my desire to go to graduate school to study botany more,” Cisneros says. “I would still like to be a biologist with USFWS — everyone is so passionate about what they do, and I want to contribute to that.” Cisneros will present his findings at the 2022 Ecological Society of America annual conference.

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 2019.

“Kendra was a remarkable human being. Her positive energy enriched the lives of those she touched through her love of nature, wildlife and the outdoors. She was a force for good and led a life that made the world around her a better place. She loved the ocean, from surfing and diving to tide pooling. Her passion, curiosity and enthusiasm for all living things — from tiny skeleton shrimp to the tidewater goby — were infectious. Not only was she a colleague, but a friend to us all. We miss her dearly and carry her energy with us in all the days ahead.”

— Staff of the Ventura Fish and Wildlife Office





Drill seeders can put large amounts of seed into the ground quickly and consistently with minimal impact to the ground surface. At optimal capability, a drill seeder can travel 4 to 6 mph and seed about two acres of ground per hour.

(Inset) Nine varieties of seed were planted using the seed driller. Each variety will help create habitat for pollinators. Courtesy Patrick Riparetti

Seeds for Success: Drill seeding project creates pollinator habitat

In February of this year, the U.S. Fish and Wildlife Service and Big Sur Land Trust completed a 5-acre pilot drill seeding project at the Arroyo Seco Ranch, west of Greenfield, California. This seeding project marks the beginning of a long-term goal to establish “waystations” for monarch butterflies and other pollinators along the Central California coast.

Arroyo Seco Ranch had been managed as a livestock grazing operation for generations, which maintained the area as a grassland with native grass and flowering plant species that provided good pollinator habitat.

However, during the Dolan Fire in 2020, the area was used as a base for firefighters and firefighting equipment which resulted in compacted soil and very little grass cover remaining. After the fire, the Land Trust was reimbursed to help restore pollinator habitat that was damaged by the firefighting activities.

“The drill seeding project was located within the footprint of the firefighting base and aimed to re-establish the native plants important for habitat value, improve soil health, increase the amount of healthy forage for cattle and counter the invasive weed species that threaten the site,” said Patrick Riparetti, Director of Stewardship for Big Sur Land Trust.

A drill seeder uses special technology that places seeds directly into the soil with very little ground-disturbance. The Truax seeder used in this project accommodates three seed types (large, small and fluffy) in three separate containers that can be calibrated individually to provide the most effective seeding rate (pounds per acre) to achieve a particular seed mix.

The Service provided funding for the drill seeder and the Land Trust provided the seed, including blue wild rye, California brome, purple needle grass, tomcat clover;

western vervain, Spanish clover, tidy tips, California goldfields, and Sandberg bluegrass. All these species are ideal for supporting pollinators. Future seeding projects will also include native milkweed for monarch butterflies.

“The primary focus with these projects is to plant native flowering plants,” said Shawn Milar, coastal program coordinator for the U.S. Fish and Wildlife Service along the Central California coast. “Most important in our geography are early-flowering plants for monarchs that are heading east after leaving overwintering sites along the coast.”

Most of the world’s flowering plants depend on pollinators – small insects and birds that help spread seeds - to survive. Although the work of pollinators is extremely important, their numbers have been dropping in recent years.



Drill seeders can put large amounts of seed into the ground quickly and consistently with minimal impact to the ground surface. At optimal capability, a drill seeder can travel 4 to 6 mph and seed about two acres of ground per hour. Courtesy Patrick Riparetti

Monarchs in particular have experienced a dramatic decline. The migratory western monarch population has declined by more than 99 percent since the 1980s. Approximately 4.5 million monarchs overwintered on the California coast in the 1980s, whereas in 2020, the population estimate for overwintering monarchs was less than 2,000 butterflies.

“This extreme drop in numbers is likely due to multiple stressors across the monarch’s range,” said assistant field supervisor Cat Darst. “Some of these stressors

include the loss and degradation of overwintering groves, loss of breeding and migratory habitat, climate change, parasites and disease, and pesticide use, particularly insecticides.”

Because pesticide use and habitat loss are two of the driving forces behind monarch population decline, creating pesticide free habitat is a priority for recovery. Planting native, pesticide-free milkweed and flowering plants is a way that everyone can participate in the effort to save imperiled pollinators, including monarchs.

Since habitat restoration is key for species recovery, Milar is hopeful that the seeder will continue to be used to plant native species and create new pollinator habitat. The Service will manage use of the seeder each year on a priority basis. Milar will offer training to more biologists within the Service on how to use the seeder and with growing interest, there is hope that more partnerships will be developed, and more projects will be completed in the near future.

“The Service provided essential equipment and technical expertise



Shawn Milar is the Ventura Fish and Wildlife Office Coastal Program coordinator for Central California. Milar plans to use the seed drill to create a network of native plant “waystations” for monarch butterflies and other pollinators. Courtesy Catherine Stanley

that saved us time and money and resulted in a better outcome,” said Riparetti. “It’s great to work with partners who are so knowledgeable about the natural resources and well-versed in practical and strategic applications to help achieve our goals.”

“We’re grateful to our partners and we look forward to more successful seedings in the future,” said Milar. “I would like to have the seeder rolling as much as possible, building a network of “waystations” for monarch butterflies and other pollinators. My hope is that we can

get a few hundred acres planted and growing for spring 2022.”

With tools like the seeder, the future is looking bright for pollinators.

“We are thrilled about the new seeder,” said Riparetti. “It was exciting to witness its maiden voyage at Arroyo Seco Ranch, and it’s a great investment for the future.”

Rescued sea otter pup shows challenges single sea otter moms and pups face in the wild

A stranded southern sea otter pup found at Asilomar State Marine Reserve in Pacific Grove, California this May has found a new permanent home at Oregon Coast Aquarium. The young pup was cold and lethargic, and his mother could not be located.

“A sea otter pup’s mother is the sole caregiver for the first six months of life, which can take a toll on a single parent,” said Lilian Carswell, southern sea otter recovery and marine conservation coordinator for the U.S. Fish and Wildlife Service.

“Feeding and caring for a pup can deplete the mother’s energy resources.”

While the cause of Southern Sea Otter 918’s stranding is unknown, at just three weeks old and weighing about 6.5 pounds, the pup would have been unable to survive on his own.

The young pup was taken to Monterey Bay Aquarium where he received treatment and ongoing care. While surrogate sea otter mothers have been used to rear and

prepare stranded pups for eventual release to the wild, there were no surrogates available to care for the pup at the time. As such, he was deemed non-releasable by the Service.

Once it was determined that the Oregon Coast Aquarium would be 918’s new home, Turtles Fly Too volunteered to transport the precious cargo from California to Oregon. Turtles Fly Too coordinates the use of general aviation to transport endangered species and critical response teams and to

Sea otter mom and pup feed on a brittle star and purple sea urchin. Pup rearing and provisioning impose high energetic costs on females, requiring them to increase foraging effort during this period and leaving them highly susceptible to stressors, including human disturbance.
 Courtesy Joan Tisdale/Sea Otter Savvy



educate the community on marine life conservation.

“We specialize in transporting endangered species, yet [this otter] challenged us with lower temperature needs, medical team support during the flight and securing a high-speed aircraft to reduce the risk for our special passenger,” said Leslie Weinstein, President of Turtles Fly Too.

“Safe transport of the pup from California to Oregon would not have been possible without the

donation of time and talent from Turtles Fly Too,” Carswell said. “This transport is making room for the next stranded pup that comes into Monterey Bay Aquarium, potentially freeing personnel to care for a pup that has a chance to be released.”

Oregon Coast Aquarium’s Curator of Marine Mammals Brittany Blades, along with Willamette Veterinary Hospital’s Dr. Dan Lewer, assisted in the transport of 918 from California to Oregon. They closely monitored his health and

took measures to make the flight as comfortable as possible for the pup.

“We are so excited to welcome Earle [SSO 918] to the Aquarium,” said Blades.

918 was named Earle after oceanographer and explorer Sylvia Earle. “Earle will act as an ambassador for his species, connecting guests with ocean life and inspiring conservation. That connection is crucial to the protection and preservation of



sea otters and other endangered species.” Watch Earle live at the Oregon Coast Aquarium.

Southern sea otters are protected by the federal Endangered Species Act, Marine Mammal Protection Act and California law. Hunted to near extinction, they have since returned to West Coast waters; however, they continue to face serious threats, from bites by great white sharks to changing ocean conditions as a result of climate change.

“Southern sea otters are essentially at carrying capacity based on available food supplies in the central portion of their mainland range, and they continue to face high levels of shark-bite mortality in the northern and southern peripheries,” Carswell said. “That’s hemming them in to a small area that’s just a fraction of their historical range.”

In California alone, the carrying capacity—the maximum number of sea otters the habitat is able to

support—is about 17,000. Today the southern sea otter population hovers around 3,000, up from around 50 in the early 1900s. Scientists say expanding their range is a key component for their recovery, as well as for the restoration of coastal ecosystems.

Sea otters keep important elements of nearshore marine ecosystems, like kelp forests and seagrass beds, thriving. Kelp and seagrass provide habitat for thousands of other

“Turtle Flier” Peter T. Lewis, who hails from Santa Barbara, California, contributed his time, talent and Daher TBM 700 aircraft to fly the pup to his new home. Courtesy Turtles Fly Too



species. They also capture carbon dioxide from the atmosphere and store it where it can't contribute to climate change. Sea otters help maintain kelp by preying on sea urchins, which can clear-cut kelp forests when left unchecked. And they enhance the resilience of seagrass by consuming crabs, which prey on the surface grazers—like sea slugs—that clean fouling organisms off the seagrass blades.

Because they live and feed along shorelines, southern sea otters can also help humans detect pollutants and pathogens washed down from coastlands.

“SSO 918 will help make people aware of the challenges that face southern sea otters in the wild and the critical role they play in the marine environment along the West Coast,” Carswell said.

Photo: Southern sea otter 918 is groomed by a mammalogist upon arrival at his new home in Oregon. Courtesy Oregon Coast Aquarium

Field Feats

Building ponds to provide breeding habitat for rare amphibians in Santa Cruz County

We celebrated the construction of Buena Vista II Pond at Ellicott Slough National Wildlife Refuge and Upper Meadow Pond at the University of California Santa Cruz Coastal Science Campus in Santa Cruz County. These ponds will provide important breeding habitat suitable for rare amphibians, such as the Santa Cruz long-toed salamander, California red-legged frog, and California tiger salamander.

Special thanks to our partners at Resource Conservation District of Santa Cruz County, University of California Santa Cruz, California Department of Fish and Wildlife, PG&E, and Ellicott Slough National Wildlife Refuge who were key to the planning and construction of these important habitats.



Two ponds were constructed to support breeding for rare amphibians. Chad Mitcham/USFWS; Kelli Camara/Santa Cruz County RCD



Reintroducing endangered Santa Cruz long-toed salamanders to the wild

We worked with University of California Santa Cruz to successfully breed the federally endangered Santa Cruz long-toed salamander in captivity, resulting in the reintroduction of 2100 offspring to five sites across Monterey County to help bolster populations and increase genetic diversity - a key component to their recovery in the wild.



Preparing captive-bred Santa Cruz long-toed salamanders for release, including taking tissue samples to collect genetic information on the released animals. Chad Mitcham/USFWS

Improving overwintering habitat for Western monarch butterflies in Ventura and Santa Barbara counties

“Monarchs are most vulnerable during the overwintering and breeding stages of migration, which makes the preservation and enhancement of these sites incredibly important in increasing the Western monarch population,” said Mary Teague, Partners for Fish and Wildlife Program coordinator.

In 2020, Teague began working on a project with Resource Conservation District Ventura County and private landowners to enhance and restore important overwintering sites for monarch butterflies. Learn more about Mary’s passion for pollinator conservation and the [work she’s done to protect them here](#).



Soaring California condor. Kim Valverde/USFWS

Habitat for California condors and other listed species in San Benito County nears permanent protection

We collaborated with private landowners and other key partners to secure grants from the Bureau of Reclamation and USFWS Section 6 Recovery Land Acquisition Program which will help fund conservation easements on two working cattle ranches in San Benito County.



Volunteers installing native plants at Hueneme Masonic Cemetery. Mary Teague/USFWS

The ranches together encompass over 7,000 acres and support populations of the California condor, California tiger salamander, and vernal pool fairy shrimp, other sensitive species including the western spadefoot toad, and extensive areas of designated critical habitat. We hope to obtain the remaining funds needed to secure these easements from the Wildlife Conservation Board in coming months. Partners include California Rangeland Trust, San Benito Working Landscapes Group, California Department of Fish and Wildlife, Pinnacles National Park, and others.

State of the Birds Award to support western snowy plover conservation

We partnered with Point Blue Conservation Science to secure a \$148,813 ‘State of the Birds Award’ for western snowy plover conservation. The funded proposal is titled *Identifying Critical Drivers of Western Snowy Plover Reproductive Success to Guide Management*

towards Reaching Recovery Goals. The money from State of the Birds will supplement \$300,000 in funds from the U.S. Department of Defense, California State Parks, and Point Blue donors. Point Blue’s scientists will analyze existing long-term datasets to evaluate the impact of predation and human disturbance on reproductive success and population size of this threatened subspecies, and estimate the level of management needed to manage major breeding populations to achieve recovery.



Federally threatened western snowy plover. USFWS

Field Feats

Establishing successful germination techniques for endangered Lompoc yerba santa

Wildlife biologist Sarah Termond and Santa Barbara Botanic Garden rare plant program collaborators Dr. Heather Schneider and Sean Carson worked between 2018-2021 to establish successful germination techniques of the federally endangered Lompoc yerba santa.

Their research findings indicate that the species appears to require smoke-induced germinatory cues. These results can facilitate future propagation efforts, inform management, and highlight the important role of fire in the life history of this endangered plant. Their research findings were recently published in [Madroño](#).



Lompoc yerba santa. Courtesy Heather Schneider/Santa Barbara Botanic Garden



Ohlone tiger beetle. Courtesy Alex Jones/University of California, Santa Cruz

Emergence of native-born Ohlone tiger beetles shows successful reproduction after translocation

Native-born Ohlone tiger beetles have been documented at a reintroduction site near the city of Santa Cruz following a first-of-its-kind adult translocation in 2020. Ohlone tiger beetles are voracious predators of the insect world and found nowhere else on earth.

The emergence of native-born tiger beetles indicates to scientists that adult reintroduction into extirpated habitats can result in successful reproduction and re-colonization of extirpated sites. The translocation project is truly a team effort involving the University of California Santa Cruz, City of Santa Cruz, Resource Conservation District of Santa Cruz County, Land Trust of Santa Cruz County, and local tiger beetle experts.

Last known population of the critically endangered Scotts Valley polygonum receives permanent protection

A conservation easement now protects the only remaining population of the endangered Scotts Valley polygonum and its critical habitat. The easement was required during permitting of the Polo Ranch housing development project in the City of Scotts Valley near Santa Cruz, and also encompasses all known colonies of the co-occurring endangered Scotts Valley spineflower at the site.

The easement language and an improved habitat management plan were developed in collaboration with Lennar Homes, LSA Associates consultants, California Native Plant Society, California Department of Fish and Wildlife, and the Wildlife Heritage Foundation who will hold and manage the easement. Recovery actions at Polo Ranch such as outplantings may also help restore Scotts Valley polygonum at the two other locations in Scotts Valley where it historically occurred.



Scotts Valley polygonum. Courtesy Tim Milliken/LSA Associates

Senior wildlife biologist Chris Kofron with our partners published two papers on listed species in peer-reviewed journals

[Survey for Morro Bay Kangaroo Rat: A Rare Mammal of Uncertain Status](#)

Francis X. Villablanca, Christopher P. Kofron, Lauralea Oliver, Michael J. Walgren, Lisa E. Andreano, Alexandra Thiel

The Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*) is a small, nocturnal, burrowing rodent endemic to the vicinity of Morro Bay in San Luis Obispo Co., CA. It was listed as endangered pursuant to the U.S. Endangered Species Act in 1973. Despite many searches over three decades, the Morro Bay kangaroo rat has not been captured or sighted in the wild since 1986. While recognizing that the Morro Bay kangaroo rat may be extinct, Dr. Kofron and Dr. Villablanca in a previous paper also speculated it may be persisting at extremely low density in isolated colonies and recommended surveying with wildlife scent-detection dogs and baited camera traps.

The group searched with a wildlife scent-detection dog and baited camera traps in four historically occupied areas and detected no Morro Bay kangaroo rats. Unfortunately, their



Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*) 1985. Courtesy Moose Peterson.

data combined with all other existing data do not allow them to conclude whether the Morro Bay kangaroo rat is extinct or extant. Therefore, considering all available information, they conclude the Morro Bay kangaroo rat must be considered as possibly extant. They recommend that search efforts continue in several specific areas, including the Morro Bay sand spit. If the Morro Bay kangaroo rat still exists, it will be challenging and difficult to rediscover because of its likely low density and patchy distribution in the expansive landscape, combined with its small size, nocturnal nature, and secretive lifestyle.

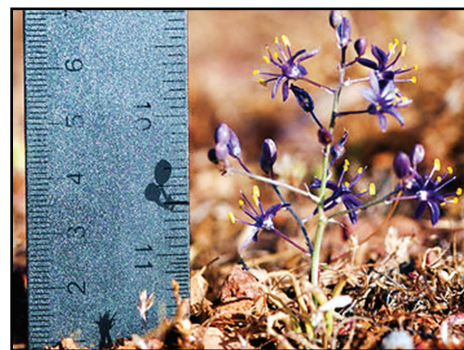
[Camatta Canyon amole Hooveria purpurea var. reducta \(Agavaceae\): a Threatened Plant in La Panza Range, San Luis Obispo County, California](#)

Christopher P. Kofron, Connie Rutherford, David L. Magney, Mark Borchert, Lloyd G. Simpson

Camatta Canyon amole is a bulbous, perennial plant known from four occurrences in La Panza Range and adjacent hills in central San Luis Obispo Co., CA. The species was listed as threatened under the U.S. Endangered Species Act in 2000. As currently known, Camatta Canyon amole is narrowly distributed, with a geographic range of 3.05 km² and area of occupancy >36.47 ha, of which 21.15 ha are on Los Padres National Forest.

Based upon preliminary search on a nearby private property, Camatta Canyon amole likely has greater distribution and abundance here than on national forest. Their data suggest the number of plants where monitored on national forest has declined since the 1980's and 1990's. In 2021, the primary threats are invasive plants, climate change including severe

drought and increased temperatures, and road maintenance and vehicles in the right-of-way of St. Hwy. 58. They suspect that targeted cattle grazing, and if not practicable then light cattle grazing, would likely benefit Camatta Canyon amole by reducing invasive plants and thatch.



Camatta Canyon amole *Hooveria purpurea* var. *reducta* (Agavaceae) on Red Hill Ridge in Los Padres National Forest, central San Luis Obispo County, California, 14 April 2013. Courtesy Christopher J. Winchell

Assistant Field Supervisor Cat Darst named Earth Day Champion!

The Ventura County Board of Supervisors recognized Cat's extensive Western monarch conservation and recovery work. We appreciate the support of the County of Ventura and the steps it's taking to help monarchs! [Learn more in this video.](#)



Monarch butterflies at overwintering site in California. USFWS

Field Feats

Go gobies! Go, go gobies!

Fish and wildlife biologists Chris Dellith, Kirby Bartlett, and Stephanie Leja helped relocate federally endangered tidewater gobies around Highway 101 in Carpinteria to suitable habitat.

The gobies were relocated because CalTrans is preparing to replace the northbound and southbound bridges over Arroyo Parida, where the gobies were known to occur. The tidewater goby, a fish species endemic to California, is found primarily in waters of coastal lagoons, estuaries, and marshes.



Wildlife biologists seine for tidewater gobies. Chris Dellith/USFWS



Studying least Bell's vireo in the Santa Clara River riparian area

We partnered with the Western Foundation of Vertebrate Zoology and Five Point biologists to complete the first season of data collection for a least Bell's vireo population study. While in the field, we were fortunate to see and hear many least Bell's vireos, and learn more about their habitat in the Santa Clara River:



The study will tell us the size of the vireo population in the Santa Clara River riparian area, and will continue for two more years. This will help inform management decisions to benefit vireos, and help us gauge how close we are to our recovery goals for this species.

Scenes from least Bell's vireo surveys around the Santa Clara River. Courtesy Chris Dellith/USFWS; Amy Plesetz/Western Foundation of Vertebrate Zoology; Robert McMorran/USFWS

Hispanic Access Foundation interns connect culture and conservation

Through the Hispanic Access Foundation (HAF), we welcomed Fernando Lara and Fabiola Gomez to the Ventura FWO in 2021! Fernando and Fabiola collaborated to film educational videos that will be made available in English and Spanish to students, teachers, and the public via Youtube and social media.

Fabiola and Fernando led students in a scientist for a day experience as part of the MERITO Foundation's (Multicultural Education for Resources Issues Threatening Oceans) summer beach camp for children aged 8 to 12 years old at Ventura beach. Students conducted sand crab surveys, observed shorebirds, and fished (catch and release) off the Ventura pier; and took a boat trip to the Channel Islands to see island wildlife including a nursery pod of more than a thousand common dolphins and napping island fox.

Thank you for your outstanding work to connect people to nature, Fernando and Fabiola!



(Left) MERITO Foundation summer campers look for shorebirds at Ventura beach with HAF intern Fabiola Gomez. (Below) Fabiola Gomez (left) and Fernando Lara (right) birding at a wetlands preserve near Ventura Harbor. USFWS



Assessing the feasibility of sea otter reintroduction on the West Coast

Under a directive from Congress, we worked with stakeholders to evaluate 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."

The assessment reviews the biological, socioeconomic, and legal aspects of reintroduction feasibility and

summarizes known information, key data gaps, and stakeholder perspectives.

We aim to be inclusive, thoughtful, and scientifically sound as we consider actions to support sea otter recovery now and in the future. Input from key stakeholders will be critical in informing next steps related to any potential reintroduction proposals, should consideration of reintroduction continue.

After the report is delivered to Congress, we will notify the public through social media and make it available on our website.

In the future, should there be a move to formally propose the reintroduction of sea otters, we would initiate a National Environmental Policy Act review process prior to any formal decision.



Sea otter foraging on sea star: Lilian Carswell/USFWS

Field Feats

Climbers and conservationists protect dudleya in Santa Monica Mountains

For more than a year, USFWS, California State Parks Access Fund, and the local climbing community have worked together to protect and support one of the two occurrences of Santa Monica Mountains dudleya- a federally threatened succulent in the Santa Monica Mountains - that happened to exist at a local climbing area.

After multiple site visits with local climbers, Access Fund, California State Parks, and one of our botanists, Mark Elvin, all agreed that the existing climbing hardware should be removed and the area closed to rock climbing to preserve and protect the dudleya. The local climbing community assisted in removing the hardware in a safe manner.

“It was a huge, long journey that was difficult at times. I am so excited that we got this done, and that everybody helped so much. It was a huge team effort, period,” said USFWS botanist Mark Elvin.



Right: Dudleya plant grows near climbing hardware. Left: Climbers remove equipment at local climbing area. Courtesy California State Parks Access Fund; Mark Elvin/USFWS



Gaviota tarplant. Mark Elvin/USFWS

Working with wind developers to conserve endangered sunflower in Santa Barbara County

We worked with California Department of Fish and Wildlife and BayWa r.e. Wind, LLC to conserve and manage Gaviota tarplant, a federally endangered sunflower at risk of extinction from a proposed wind development facility in Santa Barbara County. Thanks to strategic conservation efforts, more than \$16 million will be dedicated to the conservation of the species and preserving habitat for the ecosystem in which the plant lives.

Faces of U.S. Fish and Wildlife Service



“Steve Irwin has always been my conservation hero. He had such a pure, yet fiery passion for wildlife conservation, and he made sure the world knew it. I strive to one day become as unabashedly yet charismatically vocal as he was about conservation. Seeing his family continue his legacy makes my heart happy.” - [Amy Hughes](#), *fish and wildlife biologist*

“I am excited to be a part of an ongoing effort to recover federally listed plants on the Northern Channel Islands, as well as continue the legacy of Kendra Chan’s impact on the natural world that she cared so much for.” - [Daniel Cisneros](#), *Kendra Chan Conservation Fellow, 2021-2022*



“I am an animal person. I’m always watching animal documentaries like David Attenborough’s series called *Wildest*, and all other documentaries on animal life. I received my MBA from City University, and Doctor of Business Administration (DBA) from the University of Phoenix. During my doctoral program, I taught information systems, project management for IT, business design and analysis, and internet concepts and computer survey courses.” - [Renee Harmon](#), *administrative assistant*



“My conservation heroine is Rachel Carson, and my conservation hero is Aldo Leopold because each of them was an excellent communicator during their time... It is Leopold’s and Carson’s abilities to communicate well, so captivatingly, that regularly inspire me to be a better communicator, especially in my new role as a Service biologist.” - [Andrew Dennhardt](#), *fish and wildlife biologist*



“I very much treasure the years spent in the field with the condors, working with and forming great friendships with colleagues and volunteers, and exploring remote and beautiful areas in southern California. I am still in awe of the work and dedication that has gone into recovering this species, the strong partnerships across agencies and state lines, and the fortitude of the California condor.” - [Erin Arnold](#), *fish and wildlife biologist*



“My conservation hero is a woman whose work illuminated insect life-cycles at a time when people still believed insects spawned from mud. Maria Sibylla Merian was a German naturalist and prolific scientific illustrator in the late 1600s... She and her daughter went on an insect-classifying voyage to South America in a time when it was rare for women to even know how to read!” - [Anna Lad](#), *Directorate Resource Fellow Summer 2021*

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December 2021



We honor the beauty that is found in every unique individual and celebrate our shared diversity.

Illustration of rare plants that we work to conserve and protect along the Southern and Central California coast by Karen Sinclair/USFWS