

Partnerships with the U.S. Fish and Wildlife Service



Together, the USGS and USFWS inform the public and scientific community about the diverse wildlife of the U.S.

The Western Ecological Research Center (WERC) is a USGS Ecosystems Mission Area center serving primarily California and Nevada. These states are at the forefront of energy development and hot spots for ecosystem change, from rising sea levels to shrinking wetlands, and are a critical management area for the U.S. Fish and Wildlife Service (USFWS).

WERC has a strong and productive history of collaborating with USFWS, **providing studies and monitoring on endangered species, National Wildlife Refuge lands and other USFWS priorities.** We match the expertise of WERC researchers with management questions of concern to the USFWS throughout California and Nevada, producing independent scientific data and analysis that help inform USFWS policy decisions. Our studies provide statistics and long-term data on threatened and endangered species across the state, ecosystem response to threats like wildfire in National Wildlife Refuges, and interactions between wildlife and human communities.

These efforts are part of the USGS mission to provide sound science to federal, state, and local agencies, on topics ranging from sea level rise to land use impacts, from contaminants to invasive species. We invite partnerships with refuge managers and regional offices to deliver science-based solutions for our changing world.

RESEARCH CONTACTS

Main Research Page

<https://www.usgs.gov/centers/werc>

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PRINCIPAL INVESTIGATORS

- **J. Ackerman, M. Casazza, P. Coates, B. Halstead:** Dixon Field Station (FS)
- **K. Berry:** Box Springs FS
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USGS WERC-USFWS Collaborative Studies



TRUST SPECIES OF CONCERN

WERC scientists study DOI trust species of concern across California and Nevada. To support science-based decisions by the USFWS and other resource agencies, WERC's scientists study:

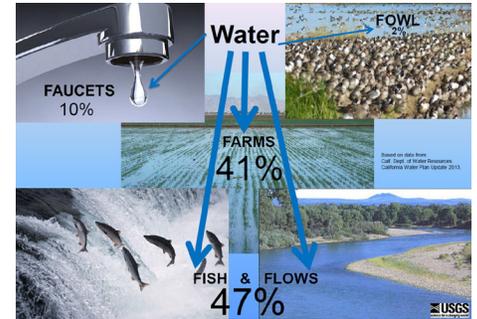
- **Greater sage-grouse** in the Great Basin
- Listed **sea otters** in coastal ecosystems from CA to AK
- **Rare plants** across Channel Islands National Park
- Movements, habitat use, and connectivity of threatened **desert tortoises**
- Threatened **giant gartersnakes** in CA's Central Valley
- Listed **mountain yellow-legged frogs, CA gnatcatchers, Least Bell's Vireos, Southwestern Willow Flycatchers, Stephens' kangaroo rats, arroyo toads, and Pacific pocket mice** in southern CA
- Endangered **Ridgway's rail** connectivity in SF Bay
- Desert restoration practices that include rehabilitation of desert tortoise habitat
- Restoring endangered **Eureka Dunes evening primrose** and **Eureka Valley dune grass** in the Mojave
- Migratory birds of the Pacific Flyway
- Impacts on wildlife (**golden eagles, seabirds, desert tortoises**) from renewable energy infrastructure
- Mohave ground squirrel habitat quality and occurrence of invasive plants
- Endangered **Amargosa vole** in the Mojave Desert
- Genetics of **numerous listed species**, including coastal California gnatcatcher, Coachella Valley fringe-toed lizard, willow monardella, salt marsh bird's-beak, San Diego thornmint, Otay tarplant and Encinitas baccharis



SCIENCE ON PRIORITY LANDS

WERC studies on priority lands support management decisions by the USFWS and other agencies. Key areas include the San Francisco Bay and Southwestern deserts, where historic and future human development may affect local ecosystems and wildlife. Projects include:

- Sea-level rise studies across 17 estuaries in WA, OR, and CA, including CA **NWRs**
- Marsh resiliency and carbon flows within wildlife foodwebs at the **Billy Frank Jr. Nisqually NWR, WA**
- Thin layer sediment augmentation at **Seal Beach NWR**
- Social attraction study for Caspian terns in the **Don Edwards San Francisco Bay NWR**
- South Bay Salt Pond Restoration Project
- Ecological modeling of desert bighorn sheep habitat in the **Desert NWR**
- Assessments of reef food webs, using parasite diversity to measure reef ecosystem health at **Palmyra Atoll NWR**
- Studies on declining amphibian populations in the **San Diego NWR**
- Movements of seabirds, including listed species, in offshore waters selected for renewable energy infrastructure
- Monitoring riparian habitat recovery to inform restoration projects in southern CA
- Work with partners on development and implementation of **Habitat Conservation Plans (HCPs)** for multiple species across southern CA
- California red-legged frog habitat at Camp San Luis Obispo and Point Reyes NP
- Work on multiple listed species at Camp Pendleton
- Desert tortoise translocation at Fort Irwin



SPECIES THREATS RESEARCH

WERC scientists study biological threats to ecosystems, habitats, and species. Threats like disease and invasive species can have significant effects on wildlife and human communities. Projects include:

- Modeling the water needs of **migratory birds** in the highly plumbed Central Valley
- Prevalence of **avian influenza** in wild waterfowl
- Invasive species such as **cheatgrass** in sagebrush-steppe
- Effects of fire on mountain yellow-legged frog in southern CA
- Effects of renewable energy on desert tortoise connectivity
- Impacts of invasive annual grasses on fire patterns on the **Channel Islands**
- Desert tortoise health and immunological response to environmental stressors
- Effects of **non-native grasses** on Southwest desert ecosystems
- **Mercury contamination** and its effects on birds, fish and other wildlife
- The role of parasites in estuarine ecosystems

Other partners on these studies include: California Department of Fish and Wildlife • Monterey Bay Aquarium Sea Otter Research and Conservation Program • National Park Service • US Bureau of Ocean Energy Management • Seattle Aquarium • California Academy of Sciences • The Marine Mammal Center • Santa Ana Zoo • UC Davis • UC Santa Cruz • US Bureau of Land Management • US Forest Service • US Navy • US Department of Defense • US Bureau of Reclamation • Nevada Department of Wildlife • US Army Corps of Engineers • Department of Water Resources • State Coastal Conservancy

The USGS Western Ecological Research Center is an Ecosystems mission science center of the U.S. Geological Survey serving California and Nevada. Online at www.usgs.gov/centers/werc