

Western Ecological Research Center <http://www.werc.usgs.gov>

San Diego Field Station

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The **Western Ecological Research Center (WERC)** is a USGS science center serving California, Nevada and the greater Pacific Southwest — the most ecologically diverse geographic region in the U.S.

Our **San Diego Field Station** is one of several WERC offices serving Southern California, an area characterized by unparalleled natural biodiversity, enormous human population and more endangered and threatened species than any other area in the continental United States. Federal, state, local and military managers must balance biodiversity and habitat needs with opportunities for other appropriate land uses, and must rely on sound, independent science to base these decisions.

USGS scientists at the San Diego Field Station can help provide this science. They conduct research on the ecology and management of sensitive species in Southern California and Mexico, in riparian, coastal sage scrub, chaparral and desert habitats. Their work supports the information needs of the U.S. Fish and Wildlife Service, Bureau of Land Management, USDA Forest Service, Department of Defense, San Diego Association of Governments and other partners — developing management and monitoring plans and evaluating regional conservation strategies.

San Diego Field Station offices are located in facilities at San Diego State University's Coastal Waters Laboratory, with a satellite office in Irvine. Research sites range from the James San Jacinto Mountains Reserve to Fiji and the Palmyra Atoll National Wildlife Refuge. Research products include peer-reviewed journal articles, publication briefings for managers, annual data summaries, as well as ready-to-use GIS modeling packages and enterprise databases.

Southern California is a dynamic landscape unique to our Nation, the planet and its people. The WERC San Diego Field Station is here to collaborate with local partners and provide science on the landscape to serve this changing region.



Research Highlights

- Threatened/endangered species research informing USFWS recovery plans, including southwestern willow flycatcher, Bell's vireo and Riverside fairy shrimp.
- Providing data and scientific support to the San Diego Association of Governments (SANDAG) and City of San Diego Multiple Species Conservation Program (MSCP).
- Managing long-term species monitoring projects for USMC Camp Pendleton, such as for endangered bird species and Pacific pocket mouse.
- Leading collaborative projects with the San Diego Zoo Institute for Conservation Research, including coastal cactus wren genetics, western pond turtle studies and wild reintroductions of endangered Southern California mountain yellow-legged frogs.
- Research on landscape changes, including invasive species and habitat/biodiversity shifts due to wildfires.
- Landscape genetic studies and models to delineate threatened wildlife populations, estimate population size and evaluate habitat fragmentation.
- Developing a centralized, standardized, GIS-tagged "multitaxa database" for cross-agency use.

Field Station Lead Scientists

Field Station Location

<http://www.werc.usgs.gov/sandiego>

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Robert N. Fisher

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- Herpetology, including declining and rare species
- Monitoring program design and reserve design
- Invasive and endangered species in CA and Pacific Islands
- Research Professor of Biology, San Diego State University

Barbara E. Kus

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- Avian ecology
- Community ecology of riparian birds
- Riparian habitat restoration
- Endangered species management and conservation
- Research Professor of Biology, San Diego State University

Amy Vandergast

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- Landscape and conservation genetics
- Terrestrial invertebrate ecology
- Habitat linkage design and monitoring
- Research Professor of Biology, San Diego State University

Field Station Partners Include:

- USGS Council for Data Integration
- USGS National Biological Information Infrastructure (NBII)
- USGS Amphibian Research and Monitoring Initiative (ARMI)
- U.S. Fish and Wildlife Service
- National Park Service
- Bureau of Land Management
- Bureau of Reclamation
- U.S. Department of Defense
- U.S. Department of State
- USDA Forest Service
- Arizona Department of Game and Fish
- California Department of Fish and Game
- California Department of Parks and Recreation
- University of California Natural Reserve System
- San Diego State University
- San Diego Association of Governments (SANDAG)
- City of San Diego
- County of San Diego
- Irvine Ranch Conservancy
- San Diego Zoo and Safari Park
- Los Angeles Zoo
- Fresno Chaffee Zoo
- California Academy of Sciences
- The Nature Conservancy
- Palmyra Atoll Research Consortium

For Additional Information:

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WERC RESOURCE MANAGERS PORTAL

Search for Southern California science in our WERC Products Database. Online at:

<http://www.werc.usgs.gov/OutreachForResourceManagers.aspx>

WERC EVENTS LISTING

Interact directly with WERC San Diego scientists at upcoming workshops and conferences. Browse the calendar online:

<http://www.werc.usgs.gov/Events.aspx>

WERC OUTREACH PAGE

Stay up to date on Southern California ecology research news, classroom resources and scientist field journals. Online at:

<http://www.werc.usgs.gov/Outreach.aspx>

Research Highlights (Cont'd):

- Analyzing the use of restored riparian habitat by endangered songbirds.
- Monitoring landbird migration at Cabrillo National Monument.
- Assessing potential impact of renewable energy development in the Mojave Desert, using niche modeling and landscape genetic analyses to map suitable habitat, movement and gene flow corridors for as many as 30 species of concern.
- Tracking invasive species risk to Department of Defense operations in the Pacific Rim.
- Compilation of management recommendations for seabird nesting and native vegetation conservation for the Palmyra Atoll National Wildlife Refuge, Pacific Ocean.
- Taxonomic studies on new, rare and endangered iguana, gecko and other lizard species in Pacific Islands.
- Maintaining a tissue archive of over 400 species from Australia, New Zealand, South Africa, South/Central/North America with focus on California, for genetic and stable isotope analysis.
- Field station equipment includes 454 Genome Sequencer GS Junior system, and partnerships with San Diego State University Microchemical Core Facility.
- Assessing how roadways and urban development are fragmenting wildlife populations and community structure, in collaboration with Santa Monica Mountains National Recreational Area.
- Herpetological/mammalian monitoring of Irvine Ranch National Natural Landmark.