

WERC on Wildlife and Renewable Energy

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Contact:
Steven E. Schwarzbach

Email:
steven_schwarzbach@usgs.gov

Phone:
916-278-9490

U.S. Geological Survey | Western Ecological Research Center | 3020 State University Dr. East, Suite 3006, Sacramento, CA 95819

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. and one at the crux of potential expansions in wind and solar energy development.

As solar farms, wind farms and other renewable energy projects expand in the landscapes of California and Nevada, WERC projects on **desert and sagebrush habitats** become ever more relevant. WERC findings on the status and trends of species and ecosystem responses can help resource managers optimally plan both for our Nation’s energy security and for the stability of these iconic American landscapes.



Image credit: coastangelphoto/4 at en.wikipedia

WERC Science and Desert Energy

- WERC has tracked and monitored the ESA-listed **Mojave desert tortoise** in NV/CA for four decades, measuring habitat loss, disease and mortality trends. (Box Springs Field Station, Las Vegas Field Station)
- WERC lead scientists **Kristin Berry** and **Todd Esque** serve as Independent Science Advisors for the **CA Renewable Energy Plan**. (Box Springs, Las Vegas)
- WERC tortoise disease studies and past studies on Fort Irwin tortoise relocations will inform proper relocation procedures during energy construction. (Box Springs)
- WERC researchers are now analyzing 30 desert species to map the **genetic health and movement corridor** of each population, which will help managers site energy developments and minimize population fragmentation. (San Diego Field Station, Las Vegas Field Station)
- WERC is investigating the **loss of native plants and soil** due to roadway construction disturbance and invasive fire-prone plants, and recording ecosystem connections of fire regimes, animal burrows, plant seed spread and erosion. (Las Vegas Field Station)
- WERC tracks NV **desert bighorn sheep** to understand movement patterns and genetic connectivity, helping map optimal conservation corridors that link sheep populations in the eastern Mojave. (Las Vegas)

WERC Science and Wind Energy

- WERC scientists are studying the Nevada **sagebrush-steppe ecosystem**, which face effects stemming from new wind energy transmission corridors in eastern Nevada. (Dixon Field Station)
- WERC research focuses on **greater sage-grouse**, an ESA-candidate species, studying grouse collision with turbines/structures, and tracks grouse with GPS tags to create detailed maps of grouse movement and preferred corridors throughout Nevada. (Dixon Field Station)
- WERC also monitors NV ravens, a major predator of grouse/bird nests and favors powerlines/towers for nesting and scouting. Ravens increased by 600% in one survey area due to new towers. (Dixon Field Station)
- WERC studies also focus on vegetation and fire regime changes due to invasive plants; sagebrush is fire-resistant, while construction often introduce invasive plants that increases wildfire risk. (Dixon Field Station)
- WERC also serves as the federal member on the Scientific Review Committee of the **Altamont Pass Wind Resource Area**, a wind project near Livermore, CA. WERC provides independent oversight over project data and statistical analysis of **raptor mortality**, as well as over mitigation progress/success reported by turbine operators. (WERC Sacramento Headquarters)

WERC Field Stations Studying Ecological Interactions with Renewable Energy

Box Springs Field Station

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

Kristin H. Berry, kristin_berry@usgs.gov

Dixon Field Station

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

Michael L. Casazza, mike_casazza@usgs.gov

Joseph P. Fleskes, joe_fleskes@usgs.gov

Roger L. Hothem, roger_hothem@usgs.gov

Las Vegas Field Station

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

Lesley A. Defalco, ldefalco@usgs.gov

Todd C. Esque, todd_esque@usgs.gov

Kenneth E. Nussear, knussear@usgs.gov

Kathy Longshore, longshore@usgs.gov

San Diego Field Station

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

Robert N. Fisher, rfisher@usgs.gov

Barbara E. Kus, barbara_kus@usgs.gov

Amy Vandergast, avandergast@usgs.gov

WERC Sacramento Headquarters

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

Julie L. Yee, julie_yee@usgs.gov

Other WERC Field Stations

CHIS Field Station <http://www.werc.usgs.gov/channelislands>

Davis Field Station <http://www.werc.usgs.gov/davis>

Point Reyes Field Station <http://www.werc.usgs.gov/pointreyes>

Redwood Field Station <http://www.werc.usgs.gov/redwood>

SF Bay Estuary Field Station <http://www.werc.usgs.gov/sfbe>

Santa Cruz Field Station <http://www.werc.usgs.gov/santacruz>

SAMO Field Station <http://www.werc.usgs.gov/samo>

SEKI Field Station <http://www.werc.usgs.gov/seki>

Yosemite Field Station <http://www.werc.usgs.gov/yosemite>

WERC Partners

- California Energy Commission • Independent Science Advisors for the California Desert Renewable Energy Plan • U.S. Army
- Desert Managers Group • Bureau of Land Management
- California Landscape Conservation Cooperative • National Park Service • Department of Energy • U.S. Fish and Wildlife Service
- Nevada Division of Wildlife • CA Department of Fish and Game
- University of Nevada, Las Vegas • University of Nevada, Reno
- UC Riverside • Denver University • PRBO • Ducks Unlimited

Resources for Managers

WERC PUBLICATION BRIEFS

Academic findings published by WERC scientists delivered as concise, one-page briefings with management implications, written especially for resource managers. Full list online:

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

WERC EVENTS LISTING

Interact directly with WERC scientists at upcoming workshops and conferences. Search calendar online:

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WERC RESOURCE MANAGERS PORTAL

Search for wind and solar energy topics in our Products Database, or learn more about WERC field stations. Online at:

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

FOR MORE INFORMATION, CONTACT:

WERC Center Director

Steven E. Schwarzbach, steven_schwarzbach@usgs.gov

WERC Outreach and Communications Coordinator

Ben Young Landis, blandis@usgs.gov

To propose collaborations, projects and workshop invitations, or to inquire about specific research findings and products, please feel free to contact the lead scientist or field station directly.

