



Andrew Thompson/NOAA

Drought and Land Development Making Life in the Desert Even Harder for Threatened Lizard

The federally threatened Coachella Valley fringe-toed lizard is a remarkable animal that grows six to nine inches long. Its wedge-shaped nose helps it burrow beneath the sand when the desert heat becomes too intense, its specialized nostrils filter out bothersome sand particles, and the elongated scales on its toes allow it to “swim” across the dunes. **Amy Vandergast** conducted a study on the genetic health of Coachella Valley fringe-toed lizard populations in desert regions of the Coachella Valley in Riverside County, CA, before and after a severe drought between the late 1990s and early 2000s. Writer John Platt highlights her findings in an [entry](#) for *Scientific American*’s “Extinction Countdown” blog. Drought and habitat fragmentation from urban development and renewable energy structures, like the wind turbines in the photo above, have diminished the lizard’s genetic diversity across the remaining 5-16% of its original habitat. Lower genetic diversity can mean higher numbers of harmful mutations in a population, and ultimately, a greater risk of extinction.

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

<http://blogs.scientificamerican.com/extinction-countdown/coachella-genetics/>

NEW JOURNAL ARTICLES

Vandergast, AG, DA Wood, AR Thompson, M Fisher, CW Barrows, TJ Grant. 2015. **Drifting to oblivion? Rapid genetic differentiation in an endangered lizard following habitat fragmentation and drought.** *Diversity and Distributions*. doi:10.1111/ddi.12398

<http://www.werc.usgs.gov/ProductDetails.aspx?ID=5439>

Mack, JS, KH Berry, DM Miller, AS Carlson. 2015. **Factors affecting the thermal environment of Agassiz’s Desert Tortoise (*Gopherus agassizii*) cover sites in the central Mojave Desert during periods of temperature extremes.** *Journal of Herpetology* 49(3): 405-414. doi:10.1670/13-080

<http://www.werc.usgs.gov/ProductDetails.aspx?ID=5438>

U.S. Department of the Interior
U.S. Geological Survey

AWARDS

Christina Aiello won the “Best Student Presentation” award at this year’s **Desert Tortoise Symposium** in Las Vegas, NV. She investigates the behavior of threatened desert tortoises to predict their risk of spreading upper respiratory tract diseases.

EVENTS

Feb. 1-5, 2016 (Annapolis, MD)
WERC water bird specialists presented research at the **7th North American Duck Symposium and Workshop**.
<http://www.werc.usgs.gov/Event.aspx?ID=231>

Feb. 10-13, 2016 (Oahu, HI)
WERC scientists and volunteers presented at the **43rd Annual Meeting of the Pacific Seabird Group**.
<http://www.werc.usgs.gov/Event.aspx?ID=234>

Feb. 19-21, 2016 (Las Vegas, NV)
The **41st Desert Tortoise Council Annual Symposium** featured research from WERC scientists.
<http://www.werc.usgs.gov/Event.aspx?ID=230>

Feb. 22-26, 2016 (Pomona, CA)
WERC scientists attended **The Wildlife Society’s Western Section Annual Meeting**.
<http://www.werc.usgs.gov/Event.aspx?ID=232>

Feb. 23-26, 2016 (Salt Lake City, UT)
Pete Coates and **Matt Brooks** presented at the **Sagebrush Ecosystems Conservation Conference** in Salt Lake City, UT.
<http://www.werc.usgs.gov/Event.aspx?ID=237>

Mar. 7-10, 2016 (Newport Beach, CA)
Mike Casazza will present the results of a study that tracked more than 200 endangered Ridgway’s rails across San Francisco Bay at the **27th Vertebrate Pest Conference**.
<http://www.werc.usgs.gov/Event.aspx?ID=235>

This update is produced as a service to USGS/WERC staff, colleagues, partners and the interested public. To add your email address to the mailing list or to report errors/suggestions, please contact xrojas-rocha@usgs.gov.

NEW JOURNAL ARTICLES (CONT'D)

Sanders, JL, AG Jaramillo, JE Ashford, SW Feist, **KD Lafferty**, ML Kent. 2015. **Two myxozoans from the urinary tract of topmelt, *Atherinops affinis***. *Journal of Parasitology* 101 (5): 577-586. doi:10.1645/15-726
<http://www.werc.usgs.gov/ProductDetails.aspx?ID=5437>

Ryan, SJ, A McNally, LR Johnson, EA Mordecai, T Ben-Horin, K Paaijmans, **KD Lafferty**. 2015. **Mapping physiological suitability limits for malaria in Africa under climate change**. *Vector-Borne and Zoonotic Diseases* 15(12). doi:10.1089/vbz.2015.1822
<http://www.werc.usgs.gov/ProductDetails.aspx?ID=5448>

Raimondi, P, LJ Jurgens, **MT Tinker**. 2015. **Evaluating potential conservation conflicts between two listed species: sea otters and black abalone**. *Ecology* 96(11): 3102-3108. doi:10.1890/15-0158.1
<http://www.werc.usgs.gov/ProductDetails.aspx?ID=5449>

Klicka, LB, **BE Kus**, PO Title, KJ Burns. 2015. **Conservation genomics reveals multiple evolutionary units within Bell's Vireo (*Vireo bellii*)**. *Conservation Genetics*. doi:10.1007/s10592-015-0796-z
<http://www.werc.usgs.gov/ProductDetails.aspx?ID=5450>

van Mantgem EF, JE Keeley, M Witter. 2015. **Faunal responses to fire in chaparral and sage scrub in California, USA**. *Fire Ecology* 11(3): 128-148. doi:10.4996/fireecology.1103128
<http://www.werc.usgs.gov/ProductDetails.aspx?ID=5451>

Ackerman, JT, CA Hartman, CA Eagles-Smith, **MP Herzog**, J Davis, G Ichikawa, A Bonnema. 2015. **Estimating mercury exposure of piscivorous birds and sport fish using prey fish monitoring**. *Environmental Science and Technology* 49: 13596-13604. doi:10.1021/acs.est.5b02691
<http://www.werc.usgs.gov/ProductDetails.aspx?ID=5452>

Coates, PS, BE Brussee, RL Hothem, KH Howe, ML Casazza, JM Eadie. 2015. **The effects of heterospecifics and climatic conditions on incubation behavior within a mixed-species colony**. *Journal of Avian Biology*. doi:10.1111/jav.00900
<http://www.werc.usgs.gov/ProductDetails.aspx?ID=5456>

Berger-Tal, O, DT Blumstein, S Carroll, **RN Fisher**, SL Mesnick, MA Owen, D Saltz, CC St. Claire, RR Swaisgood. 2015. **A systematic survey of the integration of behavior into wildlife conservation and management**. *Conservation Biology*. doi:10.1111/cobi.12654
<http://www.werc.usgs.gov/ProductDetails.aspx?ID=5457>



Joe Fleskes Awarded Appreciation Plaque

The U.S. Fish and Wildlife Service, Refuges, and Partners for Fish & Wildlife have presented **Joe Fleskes** with a plaque in appreciation of his waterfowl research in Southern Oregon-Northeastern California (SONEC). The research program provides results that have spotlighted the SONEC region's importance to migrating waterfowl and served as the scientific basis for new habitat conservation programs.

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

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

EVENTS CONT'D

Mar. 19, 2016 (Joshua Tree National Park, CA)

Kristin Berry is co-teaching a "Desert Tortoise Conservation Biology" class at Copper Mountain College.
<http://www.werc.usgs.gov/Event.aspx?ID=236>

IN THE NEWS

Climate Change is Leaving Native Plants Behind (*Climate Central*)

Nate Stephenson is quoted in a news piece that explains how native California plants might not shift boundaries quickly enough to keep up with warming temperatures.
<http://www.climatecentral.org/news/climate-change-is-leaving-native-plants-behind-19992>

Mercury Said to Put Northern California Water Bird in Danger (*Napa Valley Register, San Jose Mercury News, The Sacramento Bee*)

An online article describes reproductive risks that mercury poses to Western and Clark's grebes living in popular Lake Berryessa. The results stem from a study with lead author **Josh Ackerman**.
http://www.mercurynews.com/news/ci_29424732/mercury-said-to-put-northern-california-water-bird-in-danger

Elkhorn Slough is Booming with Baby Otters (*The Santa Cruz Sentinel*)

The Santa Cruz Sentinel quoted **Tim Tinker** on the healthy sea otter population in Elkhorn Slough, CA. The thriving group includes 13 fuzzy pups and has helped boost the health of the slough ecosystem by consuming crabs that would normally target algae-eating snails, the slough clean-up crew.
<http://www.santacruzsentinel.com/environment-and-nature/20160219/elkhorn-slough-is-booming-with-baby-otters>

Mistletoe is a Parasitic, Explosive Plant that Maybe You Shouldn't Stand Underneath (*Atlas Obscura*)

Writer Andy Wright composed an online article all about mistletoe, that parasitic plant that can propel its seeds up to 60 miles per hour. **Todd Esque** is quoted on mistletoe's importance to wildlife like beetles and birds.
<http://www.atlasobscura.com/articles/mistletoe-is-a-parasitic-explosive-plant-that-maybe-you-shouldnt-stand-underneath>