

BEATING THE ODDS
 How otters along the coast of California are making a comeback—and restoring an ecosystem

...all September, sea otter biologist Kat Mayer received a desperate phone call. Someone walking on a remote beach near Santa Cruz, California, had heard a squeaky cry coming from the shoreline. The passerby realized it was the sad squeal of a baby otter, abandoned near the water's edge. It was after dark when Mayer, who manages sea otter rescue and care at the Monterey Bay Aquarium's Sea Otter Program, got the call. "The pup was on this rocky area that was shallow but exposed to powerful waves and high tide," Mayer says. "People were worried that the animal would get pulled into the water." The area where the pup had stranded was too dangerous to access that night. And since the tuby was still calling out, there was a chance that its mom would return. That would have been the best scenario because then it could remain in the wild. So Mayer and his team made plans to search for the pup in the morning and hoped the baby would survive the night. "The best thing we could do for that pup was leave it there," Mayer says.

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Department of Fish and Wildlife rescued it and delivered the pup to Mayer. The otter was a 1-week-old female. She'd been separated from her mom for at least 12 hours, "at Mayer. "At that age, that's a really long time to go without any milk." But the otter was still alert and vocalizing. Mayer was optimistic she would survive. The pup was temporarily named Otter 081 since she was the 081st southern sea otter rescued by the Monterey Bay Aquarium's Sea Otter Program since 1984.

BOUNCING BACK
 Otter 081 is descended from a long line of survivors. Southern sea otters, also known as California sea otters, were nearly extinct in the 19th century. Continued on the next page →

REACTIVITY
 Are the dinosaurs of Jurassic World more fact or fiction?

INSIDE
 Summer Mysteries Explained
 Debates: The Science of Minecraft
 Earth's Sky: Can a Super-Cool Super-Cool?

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EVENTS

August 9-14, 2015 (Baltimore, MD)
 WERC scientists, including **Jon Keeley**, **Kevin Lafferty**, **Tim Tinker**, and **Erin Boydston**, will have research presented at the **100th Annual Meeting of the Ecological Society of America**.
<http://www.werc.usgs.gov/Event.aspx?ID=219>

September 17-18, 2015 (Oakland, CA)
Laura Valoppi and others will speak at the **12th Biennial State of the San Francisco Estuary Conference**.
<http://www.werc.usgs.gov/Event.aspx?ID=221>

October 22, 2015 (Mountain View, CA)
 The **Biennial South Bay Science Symposium** will be held at the Computer History Museum in Mountain View, CA
<http://www.werc.usgs.gov/Event.aspx?ID=220>

IN THE NEWS

California's Big Trees Dying of Thirst (AGI EARTH)
 Writer **Thea Boodhoo** quotes **Nate Stephenson** in a story about forest composition shifts in California.
<http://www.earthmagazine.org/article/californias-big-trees-dying-thirst>

Will We Need to Rescue the Sequoias? (Sierra2theSea)
 Writer **John Lindt** asks **Nate Stephenson** about the current severity of foliage dieback in giant sequoias.
<http://sierra2thesea.net/central-valley/will-we-need-to-rescue-the-sequoias>

Predicting Tree Mortality (The UC Santa Barbara Current)
 Writer **Julie Cohen** highlights the study coauthored by **Nate Stephenson** on tree mortality from drought, insects, and their interactions in a changing climate.
<http://www.news.ucsb.edu/2015/015489/predicting-tree-mortality>

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Scholastic Science World Shows How Sea Otters Help the Ecosystem

The May 4th edition of *Science World* from Scholastic, Inc. includes the feature article "Beating the Odds" by writer **Amy Barth**. The story includes interviews with **Tim Tinker**, along with research partners from the Monterey Bay Aquarium and University of California, Santa Cruz.

One focus of the story is the 2013 study coauthored by **Tinker** detailing the food web interactions of sea otters in Elkhorn Slough, California. Research by then-graduate student **Brent Hughes** demonstrated how sea otters can influence the food chain of crabs, sea slugs, algae, and eelgrass in Elkhorn Slough, resulting in the reduction of algae coating the eelgrass, allowing eelgrass beds to thrive and function as habitat.

http://scienceworld.scholastic.com/issues/05_04_15/book/#8 (Subscription Required)
<http://www.werc.usgs.gov/ProductDetails.aspx?ID=4940>

NEW OPEN-FILE REPORTS

Hothem, RL, JT May, JK Gibson, BE Brussee. 2015. **Concentrations of metals and trace elements in aquatic biota associated with abandoned mine lands in the Whiskeytown National Recreation Area and nearby Clear Creek watershed, Shasta County, northwestern California, 2002–2003**: U.S. Geological Survey Open-File Report 2015-1077, 64 p., doi:10.3133/ofr20151077
<http://www.werc.usgs.gov/ProductDetails.aspx?ID=5290>

Klinger, RC, AP Few, KA Knox, BE Hatfield, J Clark, DW German, TR Stephenson. 2015. **Evaluating potential overlap between pack stock and Sierra Nevada bighorn sheep (*Ovis canadensis sierrae*) in Sequoia and Kings Canyon National Parks, California**: U.S. Geological Survey Open-File Report 2015-1102, 46 p., doi:10.3133/ofr20151102
<http://www.werc.usgs.gov/ProductDetails.aspx?ID=5284>

NEW SCIENTIFIC INVESTIGATIONS REPORTS

Martin, P, RA Schroeder; with chapters by RA Schroeder, GA Smith, P Martin, AL Flint, **E Gallegos**, **RN Fisher**. 2015. **The source, discharge, and chemical characteristics of selected springs, and the abundance and health of associated endemic anuran species in the Mojave network parks**: U.S. Geological Survey Scientific Investigations Report 2015–5027, 128 p., doi:10.3133/sir20155027
<http://www.werc.usgs.gov/ProductDetails.aspx?ID=5272>

NEW JOURNAL ARTICLES

Anderegg, WRL, JA Hicke, RA Fisher, CD Allen, J Aukema, B Bentz, S Hood, JW Lichstein, AK Macalady, N McDowell, Y Pan, K Raffa, A Sala, JD Shaw, **NL Stephenson**, C Tague, M Zeppel. 2015. **Tree mortality from drought, insects, and their interactions in a changing climate**. *New Phytologist*. doi:10.1111/nph.13477
<http://www.werc.usgs.gov/ProductDetails.aspx?ID=5286>

Esque, TC, RH Webb, CSA Wallace, C van Riper III, C McCreedy, L Smythe. 2013. **Desert fires fueled by native annual forbs: effects of fire on communities of plants and birds in the Lower Sonoran Desert of Arizona**. *Southwestern Naturalist* 58(2): 223-233. doi:10.1894/0038-4909-58.2.223
<http://www.werc.usgs.gov/ProductDetails.aspx?ID=5297>

Fifield, VL, AJ Rossi, **EE Boydston**. 2015. **Documentation of mountain lions in Marin County, California, 2010–2013**. *California Fish and Game* 101(1):66-71.
<http://www.werc.usgs.gov/ProductDetails.aspx?ID=XXXX>

Nesmith, JCB, **AJ Das**, KL O'Hara, **PJ van Mantgem**. 2015. **The influence of prefire tree growth and crown condition on postfire mortality of sugar pine following prescribed fire in Sequoia National Park**. *Canadian Journal of Forest Research* 45:910-919. doi:10.1139/cjfr-2014-0449
<http://www.werc.usgs.gov/ProductDetails.aspx?ID=5287>

Peterson, SH, **JT Ackerman**, DP Costa. 2015. **Marine foraging ecology influences mercury bioaccumulation in deep-diving northern elephant seals**. *Proceedings of the Royal Society of London B* 282(1810):20150710. doi:10.1098/rspb.2015.0710
<http://www.werc.usgs.gov/ProductDetails.aspx?ID=5295>

Sime-Ngando, T, **KD Lafferty**, DG Biron DG. 2015. **Editorial: Roles and mechanisms of parasitism in aquatic microbial communities**. *Frontiers in Microbiology* 6:446. doi:10.3389/fmicb.2015.00446
<http://www.werc.usgs.gov/ProductDetails.aspx?ID=5293>

Takekawa JY, **JT Ackerman**, LA Brand, **TR Graham**, CA Eagles-Smith, **MP Herzog**, BR Topping, GG Shellenbarger, JS Kuwabara, E Mruz, SL Piotter, ND Athearn. 2015. **Unintended consequences of management actions in salt pond restoration: cascading effects in trophic interactions**. *PLOS ONE* 10(6): e0119345. doi:10.1371/journal.pone.0119345
<http://www.werc.usgs.gov/ProductDetails.aspx?ID=5285>

Takekawa, JY, SR Heath, SA Iverson, N Gaidet, J Cappelle, T Dodman, W Hagemeyer, WD Eldridge, SA Petrie, GS Yarris, S Manu, GH Olsen, DJ Prosser, **KA Spragens**, DC Douglas, SH Newman. 2015. **Movement ecology of five Afrotropical waterfowl species from Malawi, Mali and Nigeria**. *Ostrich* 86(1-2):155-168. doi:10.2989/00306525.2015.1033773
<http://www.werc.usgs.gov/ProductDetails.aspx?ID=5299>

Weinstein, SB, **KD Lafferty**. 2015. **How do humans affect wildlife nematodes?** *Trends in Parasitology* 31(5):222-227. doi:10.1016/j.pt.2015.01.005
<http://www.werc.usgs.gov/ProductDetails.aspx?ID=5280>

IN THE NEWS (CONT'D)



Collaborative Project Targets Five-Needle Pines (*Sierra Nevada Monitor*)

The newsletter of the National Park Service Sierra Nevada I&M Network profiles a new multiagency project involving **Nate Stephenson**, **Adrian Das**, and **Peggy Moore** to study the white pine blister rust (caused by *Cronartium ricicola*), which could potentially threaten several species of pine trees in California.
<https://irmafiles.nps.gov/reference/holding/523996>

Chip to Identify Iguanas (*Fiji Times*)

Reporter Shayal Devi discusses **Robert Fisher**'s habitat restoration work on endangered *Brachylophus* iguanas on Malolo Island, a collaboration with San Diego Zoo Global and local partners.
<http://www.fijitimes.com/story.aspx?id=310707>
<http://www.fijitimes.com/story.aspx?id=310871>

OUTREACH NEWS



“Crossing Los Angeles on Four Legs”

Erin Boydston presented a public talk at Temescal Gateway Park on June 16th as part of **The Chautauqua Series** hosted by Mountains Recreation & Conservation Authority. Boydston discussed the challenges for wildlife living on the edges of urban areas, and her research tracking wildlife movements across Southern California freeways.
<http://on.fb.me/1BEVFRV>