Southwest Biological Science Center Monthly Update

As a unit of the U.S. Geological Survey (USGS), the mission of the Southwest Biological Science Center (SBSC) is to provide quality scientific information needed to conserve and manage natural and biological resources, with an emphasis on the species and ecosystems of the southwestern United States. The SBSC has two research branches: Terrestrial Dryland Ecology and River Ecosystem Science, which includes the Grand Canyon Monitoring and Research Center (GCMRC). Both branches conduct research on the biology, ecology, and natural processes of the Southwest. SBSC has two research stations in Arizona (Flagstaff and Tucson) and one in Moab, Utah. You can find the SBSC online at: https://usgs.gov/centers/sbsc.

WELCOME

Below are recent products and activities coming from the SBSC, and SBSC personnel have an asterisk after their names. If you would like more information about the SBSC or with anything in this month’s update contact Todd Wojtowicz (twojtowicz@usgs.gov).

IMAGE OF THE MONTH

Looking down on Lees Ferry on the Colorado River.  
(Photo credit: Emily Palmquist, USGS)
Media, Broadcasts, and Films

Find us on Twitter

Look for us on Twitter (https://twitter.com/usgsaz). We post photos depicting field work, restoration approaches, arthropods, wildlife, flowers, and beautiful natural areas. We also provide links to our website and highlight some or our recent science.

Colorado River insects in Grand Canyon

The online magazine Undark published an article documenting part of an SBSC data collection trip on the Colorado River in Grand Canyon. The author documented the work and findings of Ted Kennedy’s* Aquatic Ecology Group (https://www.usgs.gov/centers/sbsc/science-topics/aquatic-foodbase). The title of the piece is, “Deep in the Grand Canyon, scientists struggle to bring back the bugs”, and can be found here: https://undark.org/article/wilo-doyle-colorado-river-insects/ https://undark.org/article/wilo-doyle-colorado-river-insects/. The article also linked to a paper containing several SBSC co-authors about the influence of hydropeaking on aquatic insects: https://academic.oup.com/bioscience/article/66/7/561/2463266.

Public, Partner, and Youth Outreach Activities

Information sharing about the federally threatened Chiricahua leopard frog

1) Several USGS scientists, including SBSC’s Brent Sigafus*, provided scientific information about the threatened frog species at the New Mexico Chiricahua Leopard Frog Conservation and Coordination Meeting. Other participants at the meeting were New Mexico Game and Fish, US Fish and Wildlife Service, US Forest Service, West New Mexico University, University of New Mexico, Fort Worth Zoo, Turner Foundation, The Nature Conservancy, and other non-governmental organizations.

2) Brent Sigafus* informed the US Fish and Wildlife Service about possible Chiricahua leopard frog habitat restoration on Buenos Aires National Wildlife Refuge.

3) Brent Sigafus* served as a moderator and provided information at the Arizona Chiricahua Leopard Frog Steering Committee Meeting. USGS is a major player in providing science about the Chiricahua leopard frog in southern Arizona. The USGS, Bureau of Land Management, Fish and Wildlife Service, US Forest Service, Arizona Game and Fish, University of Arizona, Arizona State University, Phoenix Zoo, American Museum of Natural History, and non-governmental organizations were represented at the meeting.
SBSC and Boy Scouts work together to help some Chiricahua leopard frogs

Boy Scout Troop 739 assisted Brent Sigafus* in adding riprap around an educational enclosure for the federally threatened Chiricahua leopard frog on Buenos Aires National Wildlife Refuge. The new rocks that form the riprap will provide cover for the frogs and make the enclosure more aesthetically pleasing. This is a continuation of work sponsored by the USGS Amphibian Research and Monitoring Initiative (https://armi.usgs.gov/).

Restoration Assessment & Monitoring Program for the Southwest (RAMPS)

1) Molly McCormick*, RAMPS coordinator, met with National Resource Conservation District (NRCD) program manager for Arizona to discuss ways RAMPS can work with the NRCDs, ranchers, and farmers in Arizona. RAMPS is dedicated to improving restoration strategies and outcomes for arid regions. More information on RAMPS can be found here: https://usgs.gov/sbsc/ramps.

2) Molly McCormick* has been meeting with Northern Arizona University (NAU) graduate students, faculty, and staff to plan an NAU chapter of the Society for Ecological Restoration. The group will host an introductory hands-on event in late April, where students will install native plants and pollinator habitat in the Students Nurturing Alternatives in Landscaping gardens on campus. The group has collected a long list of community partners where students could engage in ongoing restoration-related activities including enhancing landscapes, installing plants, building erosion-control structures, and collecting data.

Glen Canyon Dam Adaptive Management Program

Scott VanderKooi*, Chief of SBSC’s Grand Canyon Monitoring and Research Center (GCMRC) and GCMRC staff attended the winter meeting of the Glen Canyon Dam Adaptive Management Program’s Adaptive Management Working Group (AMWG) in Phoenix, AZ on February 14-15. VanderKooi and GCMRC Deputy Chief Mike Moran* provided a preview of results to be presented at the March 6-7, 2018 Annual Reporting Meeting to AMWG stakeholders. In addition, VanderKooi presented on potential flow experiments that may be conducted in 2018 and future years in Glen and Grand Canyons and research and monitoring activities to be conducted in support of these experiments.

You Can AZ youth program

Scott VanderKooi*, chief of SBSC’s Grand Canyon Monitoring and Research Center, is on the steering committee for the You Can AZ program. This program engages and encourages youth to take an interest in the outdoors and develop an interest in becoming environmental stewards. You Can AZ has partners from multiple federal agencies and Phoenix College. For more information about this program: https://youcanaz.org/.
Plant Conservation Alliance Federal Committee

Molly McCormick* and John Bradford* remotely attended the meeting for the Plant Conservation Alliance Federal Committee. The multi federal-agency alliance was looking for ways the USGS can engage further with this federal-level conversation effort that collaboratively works on plant conservation issues, including the National Native Seed Strategy. For more information about the Plant Conservation Alliance Federal Committee: https://www.blm.gov/programs/natural-resources/native-plant-communities/national-seed-strategy/pca.

SCIENCE

Highlighted Papers


SBSC scientists made progress addressing the long-standing issue of determining the degree to which the nonnative, but economically important rainbow trout negatively affect federally endangered humpback chub in the Colorado River, Grand Canyon. Using innovative modeling approaches and data from tagged fish, their results suggest that rainbow trout can have negative effects on humpback chub survival and growth. However, water temperature and the amount of sediment in the water can have even stronger (positive or negative) effects on humpback chub. This research can be useful to resource managers who simultaneously manage an important trout fishery and an endangered fish species in the Colorado River.


Renewable energy development is expected to dramatically increase in the West; however, energy facilities can negatively affect wildlife. Using publicly available tools and information, SBSC scientists developed maps of Arizona depicting areas with a high number of wildlife species. This approach provides energy facility developers and wildlife managers information that could indicate where to build or not build facilities to limit consequences to wildlife.

Published Papers, Reports, Data Releases, etc.


**Presentations, Posters, Lectures, Workshops, and Panels**


**OTHER NOTABLES**

**Native fish lecture**

David Ward* provided a guest lecture for Northern Arizona University’s vertebrate zoology class in January and spoke about southwestern native fish and conservation to approximately 97 students.

**Mentoring university students**

Kirsten Ironside* will be mentoring two Northern Arizona University undergraduates and providing them with research experience, which they need to fulfill the requirements for their capstone class. The project the students will be working on will focus on the consequences of wildfire to wildlife.

For more information about the Southwest Biological Science Center:

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https://www.usgs.gov/centers/sbsc

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