

# Saving the environment to save ourselves

## A look at the environmental work at ASU that is making an impact on our state and the wider world

By Marshall Terrill , ASU News  
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Saving the environment.

At Arizona State University, that's not just a trendy slogan.

From water insecurity to wildfire awareness to cleaning pollutants in urban fishing waterways, ASU is tackling problems to not only keep our Earth clean but improve the lives of everyone living on the planet.

Here's a look at some of the ways ASU is making the world a better place for animals and people to thrive.

### Algae alert to protect drinking water

Senior Global Futures scientist [Taylor Weiss](#) and his team use solar-powered sensors to detect algae blooms in real time in the 336 miles of the Central Arizona Project canal system.

Algae blooms can reduce the efficiency of water flow through the canals, and they can create odor and taste issues in the drinking water. This system allows the researchers to see the problems as they're coming — providing information that is critical to homeowners and agricultural farmers throughout Arizona.

[Learn more.](#)

### WARM system cools off wildfire risk to electrical power infrastructure

Sensors not only work well in water but also in remote wilderness locations.

[Anamitra Pal](#), an associate professor of electrical engineering, is leading new research to develop and deploy a monitoring system for electric power infrastructure.

Thanks to a \$1.5 million award from the National Science Foundation, Pal has developed the Wildlife Awareness and Risk Management, or WARM, system. It deploys wireless sensors to

monitor the environment around power transmission equipment in remote locations. The data collected can guide more accurate grid operations during periods of high wildfire risk.

[Read more on ASU News.](#)

## Urgency inspires water innovation and resilience

For the last quarter-century, the Southwest has been facing a megadrought — its driest period in the last 1,200 years.

The [Arizona Water Innovation Initiative](#) at ASU, whose mission is to provide immediate, actionable and evidence-solutions to strengthen Arizona's water security, has already experienced great success since its 2022 debut.

To date, the initiative has patented technologies, strengthened the state's water policies toward conservation and empowered communities with a greater understanding of Arizona's water challenges. It has also provided modeling of Colorado River scenarios to help water managers know what their risks of shortage are at the municipal or irrigation district level.

[Read more on ASU News.](#)

## Casting a net on pollutants

Arizonans love their urban lakes, ponds and waterways, and many love the opportunity it gives them to fish right in their own backyard.

[Beth Polidoro](#), an associate professor of environmental chemistry and aquatic conservation, has studied Phoenix lakes and ponds and found microplastics, pesticides and metals in the fish that live there.

She says the findings don't necessarily mean the fish are toxic or dangerous, but they point to a need to for increased monitoring in the waterways.

Polidoro's research also helps assess risk. She looks at which chemicals are present in concentrations high enough to have potentially long-term adverse impacts on certain segments of the population.

[Read more about the state's rivers on ASU News.](#)

## Bearing down on endangered species

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### About this story

There's a reason research matters. It creates technologies, medicines and other solutions to the biggest challenges we face. It touches your life in numerous ways every day, from the roads you drive on to the phone in your pocket.

The ASU research in this article was possible only because of the longstanding agreement between the U.S. government and America's research universities. That compact provides that universities would not only undertake the research but would also build the necessary infrastructure in exchange for grants from the government.

That agreement and all the economic and societal benefits that come from such research have recently been put at risk.

Learn about more solutions to come out of ASU research at [news.asu.edu/research-matters](https://news.asu.edu/research-matters).

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One researcher's impact is being felt in the Arctic regions of Alaska, Canada, Russia, Greenland and Norway.

ASU graduate [Olivia Davis](#) recently gained national attention for developing a tool to improve the process of evaluating the status of endangered species. Specifically, the tool highlights whether a species is getting closer to recovery or declining.

The metric will allow practitioners and managers to decide where to intervene and where to focus on the recovery of endangered species like polar bears or Sierra Nevada bighorn.

The metric proved to be so efficient that the U.S. Department of Fish and Wildlife has agreed to adopt it. Davis hopes the adoption of the metric can help conservationists make decisions more efficiently in the future.

[Read more on ASU News.](#)

## Programs and projects

Here are more ways ASU is working to protect nature through policy, business practices, culture and more.

The [Center for Biodiversity Outcomes](#) bridges the gap between scientists, policymakers, industry and communities so that research can lead to better outcomes. It also models this process for other conservation groups to use.

The [Bermuda Institute of Ocean Sciences](#) is finding ways to help coral be more resilient to heat. It does this by exposing them in the lab to temperatures that stress — but do not kill — the coral. This controlled environment acts like a gym, training the coral to resist heat stress. Researchers also use the lab to bring cool water from deeper ocean layers up to the warmer surface waters during a heat wave. The strong fluctuations help the coral build temperature resilience.

The [Earth BioGenome Project](#) out of ASU's Julie Ann Wrigley Global Futures Laboratory, collects DNA that exists in an organism to help understand biology and protect biodiversity and human welfare. It does this by swabbing the genomes of a country's native wildlife, which could lead to new products like medicines, materials and technology. It can also help them pair animals to have healthy offspring or recover endangered species, like the California condor.

The [Center for Global Discovery and Conservation Science](#) works with several community projects in Hawaii. One uses Hawaiian agriculture to restore former cattle ranch land and sugarcane fields. Farming traditional foods like taro and bananas empowers Native Hawaiians. As they care for the land, they also feed more people, build community and give wildlife more place to live.

Closer to home, the [Central Arizona – Phoenix Long-Term Ecological Research](#), led by ASU scientist Kelli Larson, shows that urban green spaces such as backyards and neighborhood gardens can provide wildlife habitat. Their research also shows that native plants invite birds, pollinators like butterflies and bees, and other wildlife. That's why the ASU Polytechnic campus uses its space for native Arizona plants, mesquite trees, palo verde and prickly pear cactus in its

walkways.

Sound is also important when researching biodiversity, which is why ASU created the [Acoustic Ecology Lab](#). It uses several distinct sounds in a recording to measure biodiversity. In a study of Joshua Tree National Park, researchers have seen biodiversity measures fall. This suggests that the animal diversity is declining. Besides these insights, sound also helps us engage with our environment and find peace and tranquility.

*Scott Bordow, Katelyn Reinhart, Gary Werner, Madison Arnold and Mikala Kass contributed to this report.*

*This story originally appeared on [ASU News](#).*

## Main image



Photo of the Colorado River in Yuma, Arizona, by Charlie Leight/ASU News

## Text image(s)





Duane Barbano, a doctoral student who works with Assistant Professor Taylor Weiss, helps install a probe network at Lake Pleasant in Arizona. Photo by Charlie Leight/ASU News



Photo courtesy of the Bermuda Institute of Ocean Sciences