

Water Resources

The Southwest is known for its severe droughts, which have long shaped the region’s water challenges, including the current reduced flows in the Colorado and Rio Grande basins. Although the water supply-demand imbalance in the region is widely acknowledged, finding information on solutions to water scarcity has often required searching across numerous sources, because no central repository has existed. In response, the SWCH launched the **Water Adaptation Techniques Atlas** (WATA, <https://webapps.jornada.nmsu.edu/wata/>), a publicly accessible virtual atlas of more than 260 examples of water scarcity solutions to support broader application of solutions. In the past year, the tool was viewed 2,756 times, shared at seven conferences and webinars, and described in an open access [article](#). It was also featured in an ARS media release reaching 7.2M customers.

Indigenous communities

The SWCH region is home to Native Hawaiians, Pacific Islanders, and over 80 Native American Tribes. We recognize that each indigenous community has a unique cultural heritage and specific needs for scientific and technical support to address climate adaptation. Therefore, in FY24 the SWCH both led and partnered in efforts with indigenous communities. We supported indigenous youth in a regenerative agriculture program at Fort Lewis College and a cohort of adult learners who attended “An introduction to Beekeeping and Pollinator Stewardship for Indigenous Stewards” at the Institute of American Indian Arts Land Grant program. Our team co-hosted the Navajo Farmer Rancher Congress and Navajo Nation Climate Adaptation meetings, offered a hands-on agroforestry service-learning opportunity in Hawai’i, and participated in the NIFA-funded Native Climate Project. We also continued a cultural resources vulnerability assessment that identifies specific threats to cultural heritage and informs strategies for their protection. Our partnership efforts in FY24 resulted in significant accomplishments, such as updated climate projections for 633 U.S. tribal areas, new teaching curricula on soil health, rainwater harvesting, beekeeping, and the reestablishment of the Navajo Farmer and Rancher Congress.



(Picture: Native Climate Reporter Shecota Rae Nalwood Nez interviews a conference participant about their climate experiences at the 2024 National Tribal and Indigenous Climate Conference in Anchorage, Alaska. Credit: Native Climate.)

BY THE NUMBERS

<i>Journal Articles</i>	7
<i>Reports and government documents</i>	2
<i>Peer-reviewed case studies</i>	8
<i>Case studies hosted in WATA</i>	260
<i>Workshops</i>	20
<i>Conference presentations</i>	21
<i>Outreach presentations</i>	28
<i>Webinars</i>	16
<i>Youtube Videos</i>	13
<i>Bulletins</i>	3
<i>Podcasts released</i>	13
<i>Podcast downloads</i>	3240
<i>Tool hits</i>	11468
<i>New tool users</i>	7704
<i>Students reached</i>	3225

We reached more than 16,925 people in FY24!

Convening and Training: SWCH co-hosted the Southwest Adaptation Forum and supported the Southwest Drought Learning Network, fostering connections among people and organizations to advance adaptation efforts. We also continue to strengthen relationships with Cooperative Extension to collaboratively develop and expand adaptation solutions.

Science Synthesis and Collaboration: By synthesizing and sharing scientific knowledge, we help ensure that decision-makers have the most up-to-date and comprehensive information available to guide actions. The Southwest Climate Hub contributed to the authorship and outreach for the Fifth National Climate Assessment (NCA5). We actively helped share the report at major events. We hired our first Associate Director for Science, intended to strengthen our connections with USDA researchers and partners.

Agriculture

Animal agriculture accounts for about one-third of agricultural revenue in the Southwest. Warming temperatures and drought are expected to reduce the sustainability of cattle production, particularly in Arizona and New Mexico, due to decreased yield and nutritional quality of forage. However, novel innovations and data-driven approaches offer promise for future climate-smart production, while supporting rangeland health, producers, and rural communities. The SWCH led the Sustainable Southwest Beef Project extension team to investigate and share information about the opportunities for heritage genetics, precision ranching, and novel supply chains to support future production. Additionally, we used a data-driven approach to develop climate analogs of future temperature and rainfall on grazing allotments. The projections will allow managers to plan with site-specific information. Notable outcomes in FY24 include a comprehensive dataset for climate risk assessment at localized spatial scales, a searchable library of more than 550 digital tools in **Tools for the Beef Industry** (TOBI, <https://webapps.jornada.nmsu.edu/livestock/>), and an in-person field day that led to a virtual fencing coalition to support producer decision-making.



Understanding how adverse weather impacts productivity is key to building resilience in agricultural and rangeland systems. Assessing the extent, duration, and severity of historical crop and livestock losses due to weather and climate disruptions helps inform adaptive strategies for future climate change and extreme weather events. We continue to keep the AgRiskViewer tool up to date, providing critical historical context on losses caused by weather extremes. The tool includes the latest data from the Risk Management Agency (RMA), visualizing county- and state-level crop loss indemnities and acreages from 1989 to 2023. The SWCH also supports work on carbon and nitrogen cycling in semi arid cropping systems. Recently published research highlights “the enormous” potential of restoring croplands to perennial grasslands in the Southern High Plains for enhancing soil health and promoting carbon sequestration.

Forestry

In recent years, the Southwest has experienced extraordinarily large and severe wildfires, a trend that is expected to continue in the coming years. When scientific information is easily accessible, managers can better prepare for wildfires and take steps to reduce their severity. The SWCH team hosted five climate adaptation workshops to integrate adaptation into management actions, and the NEPA planning process with national forests and BLM. We also launched **Forest Resource Index for Decisions in Adaptation** (FRIDA, <https://webapps.jornada.nmsu.edu/frida/>), an online library of decision-support tools and resources to help support adaptation decision-making and forest stewardship in the Southwest. FRIDA allows managers and decision-makers to easily query the 577 resources currently included based on their objectives and area(s) of interest. This year, we’ve presented FRIDA at six major events reaching at least 381 people.

Hawaii and the US Affiliated Pacific Islands

In Hawaii and the USAPI, sea level rise, altered rainfall patterns, and rising ocean and air temperatures impair access to clean water and nutritious foods. Additionally, non-native grasses increase wildfire risk and associated devastating impacts. Despite these challenges, there are management actions to reduce these impacts. To expand application and knowledge of these actions, the SWCH hired a Hawai’i based climate coordinator. In FY24, our new HI coordinator co-hosted Hawaii Climate Week, and a forum at the Hawaii Conservation Conference that focused on the rising challenges of managing invasive species in the face of intensifying tropical cyclones. Our team is also continuing to develop a Decision Support Tool for prioritizing fuel mitigation efforts to reduce wildfire risk.

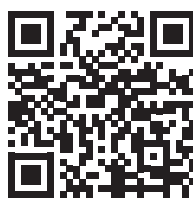
Youth Climate Education

Future climate resiliency requires the support of a climate-literate citizenry and workforce. The Southwest Climate Hub’s education modules focus on the impacts of climate change in the Southwest, engaging students as they learn about the issues that will affect them the most, like wildfire, extreme heat, and drought. In partnership with the Asombro Institute for Science Education, SWCH supported five training workshops for middle and high school teachers and reached 3,225 students in FY24. Asombro distributed over 70 classroom education kits to 128 participating teachers.

For more, join our [bulletin](#), [podcast](#), or contact Dr. Emile Elias; emile.elias@usda.gov.



Bulletin



Podcast



Contact