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EcoClimate News Southwest

July 2021

**Reflections from SW CASC Researcher,
Phillip van Mantgem, USGS**



Postfire forest conditions following high severity fire in the 2018 Carr Fire at Whiskeytown National
Recreation Area, California. Photo credit, Zach Wenderott, USGS.

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California is in severe drought and we are experiencing intense heat waves. The California 2020 fire year was record-breaking, and this year has the potential to be as bad. We all have strategies to adapt to this situation. Some of the ways I'm personally adapting to this situation is by starting field sampling earlier and moving up a family backpacking trip to avoid smoke we are expecting later in the summer. How are forests adapting?

Many low-elevation conifer forests in the West historically burned frequently, but at low intensity (fires with little surface fuels that produced relatively little heat). The fires today now often feature large areas of high intensity fire, where trees are killed over thousands of acres. To reestablish forests in these areas, seeds must travel long distances and may face hot, dry conditions where it is difficult for them to grow into trees. Knowing where and under what conditions forests might best recover gives us an early indication of how forests might ultimately adapt to severe fires and identify areas that may need help.

Recently, our team (USGS and US Forest Service) developed a [tool](#) that creates forecast maps of forest regeneration following fire for low-elevation conifers in California (access raw data [here](#); access associated publication [here](#)). This tool uses satellite imagery, forest conditions, and climate to predict where conifers are likely to establish seedlings five years following fire. We added the ability to adjust post-fire climate and seed production to estimate how forest recovery might vary under different possible futures. This tool is already being used by managers planning how to help forests recover from the 2020 wildfires.



Come Rain or Shine Podcast

Drought Adaptation & Social Learning



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Taking action to manage drought and adapt to changing conditions can sometimes have unintended impacts on the adaptive capacity of others in the same social and ecological system. Jen Henderson, an assistant professor of geography at Texas Tech University, shares insights about two instances where social learning took place after decision-makers from multiple sectors experienced unanticipated impacts from others' decisions. Jen is a disaster scholar and interdisciplinary social scientist who studies risk and uncertainty amid decision-making processes in weather and climate extremes. Her [recent work](#) highlighted in this episode, focuses on two cases from the Arkansas River Basin in Colorado.

If you're enjoying this podcast, please consider rating us and/or leaving us a review on Apple Podcasts, Podcast Addict, or Podchaser

<https://www.podchaser.com/ComeRainOrShine>

[Listen Here](#)

Register Now for Virtual Climate Change Adaptation Planning Course for Tribes!



Register now for the Virtual Western Region Climate Change Adaptation Planning Course for Tribes being offered by the Institute for Tribal Environmental Professionals (ITEP), Blue Lake Rancheria, Southwest Climate Adaptation Science Center (SW CASC), American Indian Higher Education Consortium, and the Affiliated Tribes of Northwest Indians. The course will take place via zoom **August 9-13, 2021**. If you have any questions, please reach out to Althea Walker at awalker@aihec.org or Nikki Colley at Nikki.Cooley@nau.edu.

[Register Here](#)

Welcome 2021-22 NRWD Fellows!



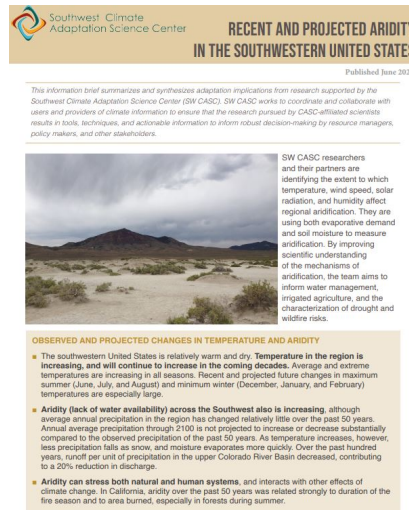
Congratulations to this year's Natural Resource Workforce Development Fellows! SW CASC Natural Resources Workforce Development (NRWD) Fellowship was developed to provide graduate students with opportunities for training and practice in developing use-inspired and actionable science to inform natural resource management decisions. Graduate students from each of the SW CASC consortium institutions work together as a team to conduct research. This year's science theme is: "Endangered streams: building strong and authentic bridges between science and practice to understand impacts of future water flows on aquatic ecosystems." We look forward to welcoming the new fellows to the SW CASC in late September! Check out the full list of fellows [here](#).

Apply Now for a Graduate Student Research Opportunity on the Cultural Use of Fire!



The Southwest Fire Climate Adaptation Partnership ([SWFireCAP](#)) is seeking a graduate level student to conduct literature review on the topic of cultural use of fire in the Southwest (primary focus on New Mexico and Arizona, but not exclusive of surrounding areas). Outputs will include annotated bibliography with entry into an existing fire/climate literature database, and a literature review. There is potential for further work in the future, including a larger synthesis aimed at helping land managers understand existing knowledge and practitioner interviews. Students from the Southwest or with ties to the Southwest are preferred. Learn more [here](#).

SW CASC Brief Examines Aridity in the Southwest U.S.



SW CASC researchers and their partners are identifying the extent to which temperature, wind speed, solar radiation, and humidity affect regional aridification. They are using both evaporative demand and soil moisture to measure aridification. By improving scientific understanding of the mechanisms of aridification, the team aims to inform water management, irrigated agriculture, and the characterization of drought and wildfire risks. Download the brief [here](#).

Drought-Induced Blue Oak Mortality in the Sierra Nevada



During a recent intense drought in California, blue oak mortality was about 18%, according to recent research funded by the SW CASC and published in [Ecosphere](#). These mortality results are surprising, given the drought-hardiness of this species. The researchers used hyperspectral imagery to predict blue oak tree mortality in the Sierra Nevada during the 2011-2016 drought (Hyperspectral imagery is a method for

possibly contributed to carbon starvation) combined with water deficit. The researchers argue that hyperspectral imaging can provide a basis for monitoring change and developing more accurate tree mortality predictions at the local and watershed scales—information that forest managers need.

U.S. Tidal Wetlands Vulnerable to Sea-Level Rise



Photo credit: Rich Ambrose

A large proportion of tidal wetlands in the contiguous U.S. are vulnerable to sea-level rise (SLR), according to SW CASC research recently published in [Earth's Future](#). Based on future scenarios, the researchers examined the ability of wetlands to move vertically (which can be outpaced by a rapid rate of SLR) and their ability to move inland (which can be restricted by topography and land use). They found that 43-48% of current contiguous U.S. wetland areas—mostly those located along the Gulf of Mexico and Mid-Atlantic coasts—are subject to limitations both vertically and laterally. The researchers hope that these results will help direct future research and planning efforts at a national scale.

San Francisco Bay Salt Marshes Returning to Natural Conditions



Photo credit: Kai Schreiber

Salt marshes in San Francisco Bay are returning to more natural ecological conditions, after being impacted by changing sedimentation regimes and heavy metal pollution over the last ~150-200 years, according to recently published SW CASC-funded research. The researchers examined sedimentation rates and heavy metal accumulation data from three San Francisco Bay marshes to determine European impacts in the context of earlier variability. There were significant European impacts on the geochemistry of marshes over the past ~150-200 years, however, over the past few decades, conditions have been returning to those more typical of the immediate pre-European period. This suggests that these ecosystems are resilient; nevertheless, potential impacts from anticipated 21st century sea-level rise remain an important concern. Read about it [here](#).

Community and Cultural Engagement in Adapting to Climate Change

This profile is a part of our consortium profile series, highlighting the people that make up the SW CASC—what inspires them, makes them passionate about their research, and gives them hope for the future. For this profile, Bryson Mineart (SW CASC communications student assistant and undergraduate student in the University of Arizona Computer Science program) interviewed SW CASC co-principal investigator, Alison Meadow, an associate research professor at the University of Arizona.



Canada, was in Native Studies and Anthropology. Her undergraduate programs concentrated primarily on community-based research methods. From here, Alison obtained an MA degree from the University of Arizona's American Indian Studies program and an MS from the UA's Planning program. Her doctoral degree is from the University of Alaska, Fairbanks, and it focused on climate change adaptation. Pairing Alison's social science skills with her background in climate science makes her a great addition to any team focused on climate adaptation. She provides the science information, while her community partners bring a multitude of other skills and expertise to the table. This sharing of knowledge and information creates a great team ready to make changes for a better future. Read more [here](#).

Fellows' Highlights

Who knows what science is?



Jacob Stuivenolt Allen is a master's student at Utah State University. Below are his reflections on the SW CASC Natural Resources Workforce Development (NRWD) Fellowship.

The fourth year of a graduate program is a dangerous time to ask yourself what science really means. You might find yourself unable to sleep at 3:00AM, googling “define science,” only to be unsatisfied with the vagueness of the answer. Most folks would probably expect graduate students to have this figured out by now, but my limited interdisciplinary experience suggests that if you locked us all in a room until we could agree upon a perfect definition, you would first want to remove all the sharp objects and provide copious amounts of caffeine. I must accept that most students four years into a PhD have probably figured this out, but I’m intent on taking my time. Read more [here](#).

Climate Service Providers Academy

CLIMAS (Climate Assessment for the Southwest) is co-developing this academy with two other RISA programs and the American Society of Adaptation Professionals. Please share with your networks!

Do your clients count on you to help them address climate challenges? Do you want to encourage them to be more climate-resilient? Do you work - or want to work - in the Great Lakes, Southwest, or the Carolinas? Then the 2021 Climate Service Providers Academy is for you. In this three week virtual course, hosted by American Society of Adaptation Professionals, you will:

- * Learn how to use the very best regional climate data and information in your services and programs.
- * Firmly ground your work in principles of social and environmental justice.
- * Connect with like-minded businesses and potential collaborators.

Learn from some of North America's most respected climate resilience leaders from across the private sector, public sector, and academia, including: Beth Gibbons (American Society of Adaptation Professionals), Sascha Petersen (Adaptation International), Joyce Coffee (Climate Resilience Consulting), Laura Briley (Great Lakes Integrated Sciences and Assessments), Michael Crimmins (Climate Assessment for the Southwest), Kirstin Dow (Carolinas Integrated Sciences and Assessments), and more!

ASAP members get 25% off the workshop fee. Early-bird registration is available through August 1. Questions? Contact Rachel Jacobson rjacobson@adaptpros.org.

Register Here

National Integrated Drought Information System Study Models Users' Trust in Drought Forecasts

Modeling studies of forecast valuation have rarely considered the role of user trust in a forecast's value. To fill this gap, a new [NIDIS-funded study](#) proposes a framework to model trust in drought forecast information that captures how users' trust forms and evolves over time and shows how trust influences users' decisions. In the study, published in *Weather, Climate, and Society*, researchers from the University of

their prior knowledge. Learn more [here](#).

Partner Events

Soil Moisture End Users Listening Session

Do you use (or *wish* you could use) soil moisture data or maps to support your decision making, advising, or other work activities? Do you want to share your opinions on which soil moisture datasets, maps, and tools are needed to better inform drought, flood, or other natural resource issues?

In July, the National Coordinated [Soil Moisture Monitoring Network](#) is hosting two listening sessions for soil moisture end users to share their thoughts, wish lists, and out-of-the-box ideas about what types of soil moisture products would best serve them.

Target participants include federal, regional, and state program staff; state climatologists; water resource managers; extension agents; and any others who are interested in products derived from soil moisture data, whether it be from in situ mesonets, modeling outputs, and/or satellite retrievals.

Participants can choose either July 13 or an identical session on July 22, both at 1 - 3 p.m. ET. Please register by Wednesday, July 7.

Date: July 13, 2021 or July 22, 2021

Time: 1:00 PM - 3:00 PM ET (Both Days)

Register by Wednesday July 7, 2021

Register Here

2021 Traditional Ecological Knowledge Summit

The Bi-State Tribal Natural Resources Committee is preparing for the upcoming 2021 Traditional Ecological Knowledge Summit to be held July 14-16, 2021. A virtual Zoom conference will be held July 14th and 15th. An in person, COVID19-safe, field tour is planned for July 16th. The Field Trip will be about 6 hours in duration and will showcase Tribal-Agency conservation efforts within the Mono Basin. Space is

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More details on the Summit agenda will be available soon. A preliminary draft agenda can be found on the Agenda for the 2021 TEK Summit tab: [Agenda](#).

Date: July 14-16, 2021

[Register Here](#)

Desert Laboratory on Tumamoc Hill's (Tucson, Arizona) Summer Monsoon Series: Desert Senses Awake

Scientists, poets, ethnobotanists, farmers, chefs, and artists will be your guides as we explore the science and art of Sound, Sight, Smell and Taste of the monsoon summer. \$45 each or \$170 for all four (one more in August), including access to all recordings for six months. Optional field trips are priced per session (\$45–\$55).

Dates: July 17, July 24, & August 14, 2021

[Register Here](#)

Southern Plains Climate Science Webinar

The Southern Plains Climate Science Webinar is excited to host our next webinar, which will take place July 19 at 2 pm CDT. In this webinar, Daniel Denipah (Director of Forestry for the Pueblo of Santa Clara) and Eytan Krasilovsky (Deputy Director with the Forest Stewards Guild) will present Working Together for Forest Resilience: Navigating a Path in Climate and Fire Impacted Forests. They will share how they have worked together using fire as a management tool to maintain the health of the forests of The Pueblo of Santa Clara, situated in north-central New Mexico along the Rio Grande in the Jemez Mountains.

Date: July 19, 2021

Time: 2:00 PM CDT

[Register Here](#)

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USDA Agricultural Research Service (ARS) scientists are in the process of creating a Water Research Vision to 2050 (WRV) for U.S. agriculture. They will be hosting a 3-day [facilitated virtual workshop](#) for ARS partners and scientists to consider how the WRV can include partner perspectives and needs, explore opportunities for collaboration, and consider next moves together.

Date: July 20-22, 2021

Time: 11:00 AM - 2:00 PM MDT (each day)

[Register Here](#)

Western Drought Crisis Webinar

Historic drought conditions across the western United States continue to rapidly worsen and expand with over 80% of the West now in drought, according to the U.S. Drought Monitor. Widespread impacts are being felt. To provide the latest information on drought conditions across the Southwest, California, Pacific Northwest, and the Missouri River Basin, as well as the serious impacts on diverse sectors of the economy, National Integrated Drought Information System (NIDIS) is joining with our federal, state, tribal, and local partners to host a drought webinar specifically for western communities.

The webinar, hosted by NOAA's NIDIS, will include an update on the current drought situation and outlook, an overview of wildland fire conditions and outlook, and will feature perspectives from those on the ground who are responding to worsening drought conditions. Key discussions will include a summary of past and current conditions in terms of many climate variables like snowpack, temperatures, precipitation, soil moisture, etc.; as well as potential and ongoing impacts from drought across sectors (e.g., agriculture, water resources, recreation, etc.).

Date: July 20, 2021

Time: 11:00 AM MDT / 10:00 PM PDT

[Register Here](#)

Panel Discussion Wonder at Home: Urban Heat Resilience

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how cities are innovating to advance their urban heat resilience through the perspectives of urban planning, public health, and housing.

Date: July 22, 2021

Time: 12:00 PM PDT

[Register Here](#)

Facilitation Trainings Southwest Decision Resources 2021

8-Hour Facilitation Training (Virtual)

2 Groups

July 27 & 29 OR July 28 & 30

Each training is a set of 2-hour Zoom sessions 10am-12pm & 2-4pm PDT each day. This interactive training will help prepare you to design and facilitate successful meetings in natural resource and community settings.

- explore the many applications of facilitation
- introduce key principles and best practices
- practice specific tools and methods to design and facilitate in person and virtual meetings, from small teams to large public workshops.

16-Hour Facilitation Training (In-Person)

Flagstaff: September 9-10

Tucson: July 24-25

8:30 AM - 5:00 PM Both Days

This training will include the content covered in the 8-hour training, and will deepen your facilitation knowledge and skills through:

- additional tools and techniques
- complex scenarios
- intensive opportunities for skills practice
- idea sharing on participant projects

In addition, this more intensive two-day in-person experience builds a support network of peers.

[Register Here](#)

Sustainability Programs in Beef Cattle Production

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Photo credit: Dannielle Duni.

A webinar on sustainability programs and supply chain options for beef cattle producers in the Southwest. Presentations to include: supply chain research from the Sustainable Southwest Beef Project, an overview of the Ranch Systems and Viability Planning (RSVP) network, and a panel of ranchers sharing their own experiences participating in sustainability-centered programs. If you have questions or need more information, please contact Skye Aney (sierra25@nmsu.edu). This event is supported by the Sustainable Southwest Beef Project and USDA SW Climate Hub.

Date: August 17, 2021

Time: 6:00 PM - 8:00 PM MT

[Register Here](#)

Save the Date!
National Tribal & Indigenous Climate Conference



Workshop

Understanding the User-Centered Design Process - Methods to More User-Friendly Scientific Products

The User-Centered Design Process describes a set of formalized procedures used by designers, where user input is considered in each phase of product development. This workshop, Understanding the User-Centered Design Process – Methods to More User-Friendly Scientific Products, introduces participants to the fundamental concepts. In June and September, the USGS Cascades Volcano Observatory, in partnership with University of Tennessee User eXperience Laboratory, will offer two identical workshops. The workshops focus on application of the User-Centered Design Process for creation of products that are well-defined, consistent, engaging, and effective, in a word: usable.

Date: September 20-24, 2021

Time: 1:00 - 3:00 PM PDT

Register Here for the September Workshop

Job and Funding Opportunities

Student Opportunities

[Cultural Use of Fire in the Southwest- Literature Review Outreach](#)

Seeking graduate level student to conduct literature review on the topic of cultural use of fire in the Southwest. Outputs will include annotated bibliography with entry into an existing fire/climate literature database, and a literature review. Students from the Southwest or with ties to the Southwest are preferred.

[Graduate student Opportunity](#)

The [Center for Climate Adaptation Science and Solutions](#), within the Arizona Institutes for Resilience, is seeking an hourly graduate student worker to assist with a project to be funded by the USGS through the SW CASC. The project involves an assessment of the effectiveness of green infrastructure in mitigating coastal climate-change related hazards. The student will need to be available at least 10 hours a week during Fall 2021 and Spring 2022. If you are interested, please contact Kathy Jacobs at jacobsk@email.arizona.edu.

[Earth Grant Application](#)

Eligible Earth Grant recipients are undergraduate students in any major enrolled for at least 9 units of credit at the University of Arizona, eligible to work in the United States, and passionate about making an impact in advancing community resilience and protecting the environment. Earth Grant students commit to participation for the duration of the 2021-22 academic year through a 10-20 hrs/week paid internship and enrollment in a one-credit course for both semesters. Learn more [here](#).

Job Opportunities

[Water Policy Advisor](#)

Arizona Municipal Water Users Association in Phoenix, Arizona is looking to hire a passionate and high-performing water professional for the role of Water Policy Advisor. The position assists the AMWUA Executive Director in facilitating, collaborating and advocating on behalf of the AMWUA members. This position researches, evaluates and formulates policies and positions on water issues that affect the AMWUA members. If you are interested in this opportunity, please submit a cover letter, resume and a writing sample to Diana Pina at dpina@amwua.org.

REVIEW BEGINS - *June 25, 2021*

[Research & Post-Doc Opportunities](#)

Do you want to do research that impacts local to global sustainability decisions? Do you take a systems focus -- and thrive when working on a team? We want to meet you. We're the University of Minnesota Institute on the Environment (IonE), and we're looking for multiple researchers, postdocs, Ph.D. students, and a research coordinator to join our Knowledge Initiatives team. We're looking for multiple new team members who have a range of research and coordination skills. If you have any questions, please contact the supervisor for the position or me (makenney@umn.edu).

REVIEW BEGINS - *June 28, 2021*

[Science Translator & Communications Specialist](#)

The South Central Climate Adaptation Science Center is seeking applicants for our Science Translator & Communications Specialist position. The Science Translator & Communications Specialist will work with the Assistant Director and other South Central Climate Adaptation Science Center (CASC) staff to ensure the science generated by the research team is accessible and useful to various audiences including resource managers, tribal partners, and the general public. The position will be located in our main office at the University of Oklahoma in Norman, Oklahoma.

JOB POSTED - *July 1, 2021*

[Communication Specialist](#)

The North Central Climate Adaptation Science Center (NC CASC) invites applications for a part-time Communication Specialist. This position will work closely with the NC CASC team to develop communication products that tell engaging stories about the science, education, and outreach activities we do to help natural and cultural resource managers adapt to a changing world.

REVIEW BEGINS - *July 12, 2021*

[Research Social Scientist/Natural Resource Biologist](#)

Federal job based out of Missoula. The scientist is expected to develop meaningful and impactful lines of research, partnerships, and outreach related to investigating and improving the relevance of Federally designated wilderness to communities who have been

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[Postdoctoral Research Fellow](#)

The Department of Ecology, Evolution and Environmental Biology at Columbia University invites applications for two-year positions as Postdoctoral Research Scientists from September 15, 2021 to September 14, 2023. Positions will be based at Columbia University in New York City, as part of the Environmental Defense Fund's Nature-Based Climate Solutions (NbCS) project. Reporting to Professor Ruth DeFries, the postdoctoral scientists will focus on either one or both of the following areas: 1) quantitative evaluation of options for nature-based solutions for climate mitigation in agriculture and forest management in India and 2) fine-scale evaluation in selected locations to assess the ability to implement nature-based solutions in the context of livelihoods and land tenure.

DEADLINE - September 1, 2021

[Community-led Conservation Program Associate](#)

The Community-led Conservation Program Associate will support management of large, multi-country grants to advance our global communities strategy in coastal, grassland and tropical forest ecosystems around the world. This position will work closely within our IPLC team and with priority geographies to monitor progress against key project activities and long-term outcomes for community-led conservation. Today, we are working in partnership with Indigenous Peoples and local communities on shared conservation goals across the United States, Canada, and 24 additional countries in Asia, Africa, Latin America and the Pacific.

Funding Opportunities

[Coping with Drought Competitions: Ecological Drought](#)

This competition will focus on research to improve our understanding, early warning, and management of drought risk in terrestrial and aquatic ecosystems to inform more deliberate and expanded decision-making that supports sustainable, healthy, and resilient ecosystems. [Notice of Funding](#), [Information Sheet](#), [Informational Webinar](#)

DEADLINE - October 18, 2021

[Coping With Drought: Building Tribal Resilience](#)

Applications should be developed by or in full partnership with tribal nations to fund the implementation of actions—together with research on those actions—to build drought resilience contained in existing plans and strategies. Plans may include, but are not limited to, drought contingency plans; drought, water, or natural resource plans; agricultural resource management plans; or climate adaptation plans. [Notice of Funding](#), [Information Sheet](#), [Informational](#)

DEADLINE - October 18, 2021

[Agriculture and Food Research Initiative Competitive Grants Program](#)

In this Request for Applications, the National Institute of Food and Agriculture requests applications for six AFRI priority areas through the Foundational and Applied Science Program for 2021 and 2022. The goal of this program is to invest in agricultural production

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DEADLINE - *Depends on Program Area*

Contact us at:

University of Arizona, ENR2 Building, 1064 E. Lowell St., Suite N441, Tucson, AZ 85721

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