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EcoClimate News

Southwest

August 2021

Reflections from SW CASC Climate Adaptation Specialist, Jennifer Barton Smith, UC Davis

The state of California is poised to make significant and regionally-focused investments in wildfire hazard and ecosystem health management. Developing strategies for the implementation, monitoring, and reporting of these management projects across the state is enormously complex. However, a comparative challenge lies in communicating the need for and the expected benefits of these investments. As we've seen with other high-profile problems facing our society (such as the COVID-19 pandemic or impacts of climate change), it's difficult to strike a balance between providing an easily understandable message with one that acknowledges the uncertainty and nuance in the underlying science. As a scientist who works in the communication space, I noted a well-articulated distinction about the outcomes of wildfire and ecosystem investments.

Funding ecosystem health or fire resilience projects in a given area does not “buy safety” for that ecosystem or community. Instead, we are trying to change the probability of that area experiencing a severely damaging fire. In this regard, investing in these projects is similar to wearing your seatbelt. We buckle our seatbelts because wearing it reduces the risk of serious injury or death in the event of a collision. Projects that increase landscape-scale ecosystem resilience, create strategic fuel breaks in the wildland-urban interface, and harden homes in fire hazard communities, are the “seatbelts” that collectively reduce the risk of tragedy in the event of a wildfire.



Extreme Heat & Public Health



Episode art from [Pixabay](#).

According to the Center for Disease Control and Prevention, Extreme heat kills on average more than 600 people in the U.S. each year. Over the course of just a few weeks this summer (2021), three different heat waves baked the western U.S., breaking numerous heat records and killing hundreds. In this episode, as part of our educational outreach to local communities, we interview three experts, Drs. Jennifer Vanos and Rachel Braun, from Arizona State University, and Dr. Adelle Montebianco from Middle Tennessee State University, about the impacts of extreme heat on public health, especially in vulnerable populations.

[Listen 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 a 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 an annotated bibliography with entry into

managers understand existing knowledge and practitioner interviews. Students from the Southwest or with ties to the Southwest are preferred. Learn more [here](#).

Enhancing Ethical Practice to Improve Partnerships in Natural Resources Research

Photo credit: Althea Walker

New [SW CASC-funded research](#) outlines an expanded framework for enhancing ethical practice in research partnerships in transdisciplinary natural resources research. The authors, including SW CASC principal investigator Alison Meadow (University of Arizona), describe four principles (appropriate representation, self-determination, reciprocity, and deference) and two cross-cutting themes (applications to humans and non-human actors, and acquiring appropriate research skills) as a part of this framework. The authors aim to advance the conversation about ethical partnership, and hope that this discussion “inspires researchers to commit to the hard work of expanding and using their skillsets, resulting in more ethical and successful partnerships, knowledge generation, and natural resource management practice.”

Applying the Resist-Accept-Direct (RAD) Framework to Manage for Profound Ecosystem Change



In addressing profound ecosystem change—like that occurring because of climate change, invasive species, and other pressures—natural resource managers can be deliberate and strategic in how they manage ecosystems by resisting, accepting, or directing ecosystem change. This is according to a recently published paper in [Frontiers in Ecology and the Environment](#), co-authored by SW CASC USGS Director

may be more practical and appropriate under certain circumstances to move beyond resisting ecosystem change (which has been the traditional focus), to accepting inevitable change or even directing change along a more desirable pathway (the RAD framework). Read more [here](#).

Investigating Climate Change One Mystery at a Time

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, Glen MacDonald, a professor at University of California, Los Angeles in the Department of Geography with joint appointments in Ecology and Evolutionary Biology, and the Institute of the Environment and Sustainability.

Glen MacDonald's climate research stems from his love for solving mysteries and his joy of discovering the unknown. Glen finished his undergraduate degree in Geography at University of California, Berkeley and went on to get his masters in the same field at the University of Calgary. Glen finished his education with a Ph.D. in Botany from the University of Toronto with a minor in Geology. Glen's research focuses on issues of long-term climatic and environmental change and the impacts of such changes on ecosystems, fire, natural resources, and human societies. Glen did not get in to the climate field immediately. During his undergraduate degree, Glen was interested in art and history, but he quickly found that he did not have the skill in graphical art that his fellow students had. Pursuing natural resource management, Glen ended up taking an elective course in geography that concentrated on the impact humans were having on the environment. Read more [here](#).

Fellows' Highlights

Interdisciplinary Science Without Boundaries

Sonia Delphin-Pérez is a doctoral candidate in the School of Natural Resources and the Environment at the University of Arizona. Before joining her doctoral program,

projects to tackle some of the challenges facing the country. These challenges include deforestation, habitat fragmentation, and lack of livelihoods for local communities, among others. During her first year of PhD, Sonia was a University Fellow working on interdisciplinary projects with other peers from the University of Arizona. Her research aims to identify the feasibility of integrating ecosystem services with land-use planning to meet environmental, economic, and social goals in developing countries. This will include the engagement of multiple stakeholders and decision-makers from the region. Her research site is in the second largest forest of South America, the Gran Chaco. Below are her reflections on the SW CASC Natural Resources Workforce Development (NRWD) Fellowship.

How many times have we heard that everything in the world is connected? We may not have realized it until we had to face one of the worst pandemics in history: COVID-19. Last year, we were able to witness how something that started in one part of the world could spread so quickly across the entire globe. This pandemic has caused a global crisis that we will always remember. Many people have lost loved ones, their jobs, and for many their lives will no longer be the same. On the other hand, we also witnessed the impact of lockdowns on the rehabilitation of nature—aquatic life of many kinds returned to some water courses, less polluted air and water, and the list goes on. We gave nature a break in order to heal! Read more [here](#).

Partner Highlights

Collaborative Planning for Climate Resilience

This report provides a framework for planning to achieve regional resilience to climate change impacts in the San Diego County region. To contend with the multiple impacts that may occur across this complex natural and societal landscape, the report lays out a process through which planning can be made more effective through collaboration among local and regional government agencies, working jointly with scientific institutions and non-governmental organizations.

While current planning focuses largely on reducing greenhouse gas emissions and the resulting climate change impacts, the approach here has the further objective of explaining how collaborative planning can make communities more resilient to those impacts. It places special emphasis on the needs of historically marginalized communities — including low-income communities, communities of color, tribal communities, and some rural areas — that are particularly vulnerable to climate

impacted by climate change.

Read More Here

Flash Drought: Current Understanding & Future Priorities

Some droughts occur with such rapid onset that it seems as if they appear in a “flash,” rendering them and their consequences hard to predict and prepare for. These flash droughts can have substantial agricultural and economic consequences, including billions of dollars in losses. Notable flash droughts over the past several years have included the Central U.S. in 2012, Northern Plains in 2017, and Southeast U.S. in 2016 and 2019. The National Integrated Drought Information System (NIDIS) held a virtual workshop in December 2020 to explore characteristics and definitions of flash drought, and to coordinate and co-develop a research agenda to address its associated management challenges. This report describes the workshop’s key takeaways and provides a list of priority actions to help both NIDIS and the broader research community advance flash drought research activities and tool development. Additionally, NIDIS held a webinar on August 3 recapping the report. Read more [here](#).

Arizona Sky Islands factsheet now available from USFS!

The U.S. Forest Service [Rocky Mountains Research Center](#) has developed a useful factsheet on the Arizona Sky Islands. The brief discusses climate change, carbon, fire, and ecological transition in the Madrean Sky Island ecosystem. Rocky Mountain Research Station research ecologists used an ecosystem process model to examine the potential for prescribed fuel treatments to mitigate the effects of climate and fire in the Huachuca Mountains. The team found that the forests of the Huachuca Mountains may transition from a carbon-neutral system to a significant carbon source over the coming decades, and simulated the effects that fuel treatment could have on tree mortality. Read more [here](#)!

Tucson Water and artist Alex! Jimenez are asking you to join their community-wide participatory audio project. This summer, capture the sounds of a Tucson monsoon/chubasco and contribute to an audio archive of the unique tropical storms that visit us each year. A chubasco is a particularly violent storm with thunder and lightning that drops water in a deluge. Pause from your busy life and record a 3-minute sample of the chubasco speaking. Visit [here](#) for more information.

New Southwest Water Lesson for Middle School Students

The newest lesson on climate change in the Southwest has arrived from the SW Climate Hub and Asombro Institute! Using data from across the southwest, these activities help students make a claim about the future of water availability and back it up with evidence. An engineering design challenge then asks them to look to the past to plan for the future and conserve water with methods that have been used in arid regions for centuries. Whether you work with students, in class, at home, after school, or homeschool, find these ready to teach materials and more [here](#).

Meeting Summary: Addressing Air Quality, Agriculture, and Climate Change across the Southwest and Southern Plains

In February 2021, almost 60 professionals from agricultural, environmental, and health sectors met to identify knowledge gaps and progress barriers within the agriculture-air quality-climate change nexus for the Southwest and Southern Plains regions. Discussion resulted in a roadmap of needs for policy, research, and land management. The meeting summary is now formally published in the Bulletin of the American Meteorological Society (BAMS) and is available online [here](#).

Partner Events

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

for six months. Optional field trips are priced per session (\$45–\$55).

Date: August 14, 2021

[Register Here](#)

Sustainability Programs in Beef Cattle Production

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 MDT

[Register Here](#)

Southwest Drought Briefing

Join us to hear from Ben McMahan and Mike Crimmins of the Climate Assessment for the Southwest about the monsoon and some drought related decision-support tools. United States Drought Monitor indicates that nearly all of the Southwest is experiencing some level of drought, but recent monsoonal rain is improving drought conditions. This short drought briefing focuses on how the monsoon is impacting drought conditions and provides a general update of current drought conditions and forecasts for Arizona, Colorado, New Mexico, Utah and Nevada.

Date: August 24, 2021

Time: 1:00 PM - 1:30 PM MDT

Register Here

Managing for a Changing Climate Short Course Series

The South Central CASC is pleased to offer our Managing for a Changing Climate short course series. The first course in the series will be an Introduction to the Climate System. This course will introduce participants to the basics of how the climate system operates, including an overview of the Earth's energy budget, the carbon cycle, atmospheric and oceanic circulations, and natural climate variability. Upon completion of the course, participants will receive a certificate of completion.

DEADLINE- August 30, 2021

Register Here

Save the Date! National Tribal & Indigenous Climate Conference

Facilitation Trainings Southwest Decision Resources 2021

16-Hour Facilitation Training (In-Person)

Flagstaff: September 9-10

8:30 AM - 5:00 PM

This interactive training will help prepare you to design and facilitate successful meetings in natural resource and community settings. This training will include the content covered in the 8-hour training, and will deepen your facilitation knowledge and skills through:

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

Register Here

Wildfire: Weather, Water, Weeds, Wildlife | 3-Day Symposium Series

Day 1 panelists will present, discuss, and answer questions on the physical conditions and human impacts of larger, more frequent and severe wildfires under climate change.

Date: September 16, 2021

Time: 9:00 AM - 12:00 PM PDT

Register Here for Day One!

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

Webinar

Emerging Tools for Flash Drought Monitoring and Prediction

staff, climate professionals, and other operational service providers to learn about the current state of research on flash drought and the potential for improved monitoring, prediction, and planning/response tools (datasets, maps, etc.). For more information on flash drought click [here](#).

Date: September 29, 2021

Time: 2:00 - 3:00 PM EDT

Register Here

U.S. Drought Monitor Forum

Join us virtually for the U.S. Drought Monitor Forum. We will gather from Noon to 3:00 pm CT each day to discuss a variety of topics related to the USDM. Click the register button for more information!

Date: October 21 - 22, 2021

Time: 12:00 - 3:00 PM CDT

Register Here

Save the Date! Exploring the Fire Within Us

The 2022 SWTCCS will build upon key takeaways from the [2019 SWTCCS](#) held in Idyllwild, CA. In 2022, we will once again bring together Tribal leaders, professionals, and community members from across the Southwest to explore the kinship with fire and its role in community, conservation, and climate change adaptation through hands-on activities, networking, and professional training opportunities.

Learn More!

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.

Job Opportunities

[Experts for Two New IPBES Assessments](#)

The Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) is currently seeking policymakers and experts in natural science, social science, and/or the humanities to develop two new thematic assessments: 1) on the interlinkages among biodiversity, water, food and health, and 2) on the underlying causes of biodiversity loss and the determinants of transformative change and options for achieving the 2050 Vision for Biodiversity.

DEADLINE - *August 30, 2021*

[USGS Tribal Climate Strategies Research Scholar](#)

The Southeast CASC is accepting applications to develop and conduct research with and for Tribal Nations/organizations relevant to the Southeast CASC mission “to deliver science to help wildlife, ecosystems, and people adapt to a changing climate.” This includes evaluation of the current Southeast CASC research portfolio for relevance to Tribal Nations/Organizations, support for developing a Northeast/Southeast CASC Tribal Climate Resilience Engagement Strategy, and other technical support.

DEADLINE - *August 31, 2021*

[USGS Postdoctoral Fellowship in Climate Impacts](#)

The Southeast CASC is accepting applications to provide technical assistance and research on the impacts of climate on eastern U.S. ecosystems. This research will fill significant gaps in the understanding of climate processes on important eastern US ecosystems, particularly the role of uncertainty in modeling climate and ecosystem changes.

DEADLINE - *August 31, 2021*

[Postdoctoral Associate - Climate Extension Specialist](#)

The South Central CASC seeks a postdoctoral associate to synthesize the research developed through the past nine years of funded science projects and combine it with our

agencies. They will answer climate change-related questions from our partners and help to infuse the state-of-the-science into our partners' management planning and implementation. Apply [here](#) with job number 212437.

APPLICATION REVIEW - *September 1, 2021*

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*

South Central CASC Science Translator

The Science Translator and Communications Specialist will work with the Assistant Director and other South Central 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 the main office at the University of Oklahoma in Norman, Oklahoma. The position is open until filled.

Funding Opportunities

The Bureau of Indian Affairs (BIA) Funding for the Hiring of Tribal Climate Resilience Liaisons in Alaska, the Northwest, and the Southwest

The BIA is collaborating with the Department of Interior (DOI) Climate Adaptation Science Centers (CASCs) to continue supporting tribal climate resilience needs and selected tribal organizations will enter into cooperative agreements with the BIA. This provides a mechanism for the BIA to provide the selected Tribal organizations with non-recurring funding for mutually agreed upon tasks in keeping with the climate science needs of the BIA and all tribal communities in the Northwest, Southwest, and Alaska CASC regions (learn more and see map of DOI CASCs [here](#)). Eligible applicants include tribal non-profit, non-governmental organizations and tribally-controlled colleges or universities (TCUs) that serve federally-recognized tribes. Other entities may participate as sub-grantees. The solicitation is available on grants.gov, and named BIA-2021-TCRP.

DEADLINE - *August 23, 2021*

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*

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*

Contact us at:

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

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