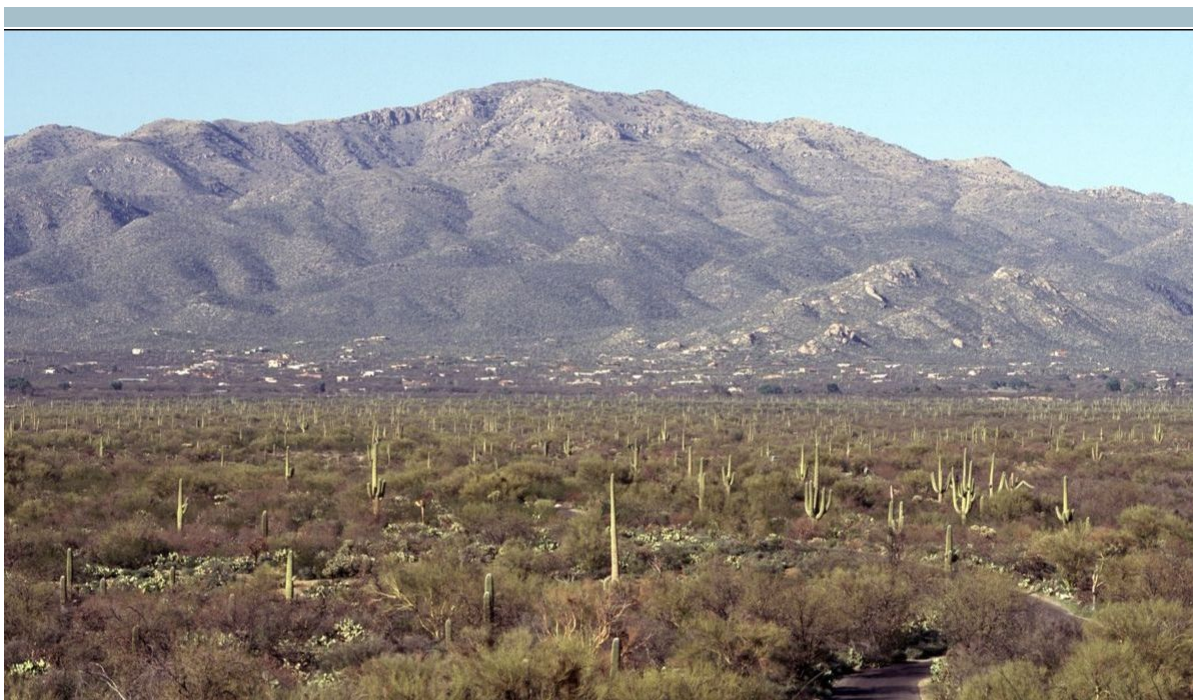


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EcoClimate News Southwest

September 2020

Reflections from SW CASC University Director, Dr. Gregg Garfin



Once again, this summer, numerous severe California fires have dominated the (non-COVID, non-election) news in the Southwest. Southwest CASC investigators and researchers funded by the SW CASC have already produced noteworthy scientific studies on:

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- the ways in which moisture-laden atmospheric rivers, ironically, contribute to increased fire risk, through enhancement of vegetation productivity;
- the effectiveness of prescribed fire in promoting drought resistance in forests;
- the ways in which high-elevation fires in the Sierra Nevada are changing forest structure;

and they are working with Indigenous natural resource managers in the region, to garner insights from traditional uses of fire in natural resource management.

In addition to excellent science, our investigators have been working to convene or contribute to dialogues with representatives of many organizations, agencies and community services involved in preparedness and recovery from fire. These colleagues work to foster consideration of “systemic risk” – the connections among the latent risks in multiple systems that can create a huge cascading risk, once a place is thrown into a new state by a single factor, such as wildfire. By fostering this type of thinking and connecting representatives of entities that manage forests, fires, insurance, social services, public health, emergencies, these colleagues help create opportunities to better anticipate climate-related risks, like wildfire, and decrease vulnerabilities at the intersections between these multiple systems and societal sectors.

We wish rapid success to firefighting crews in fire-stricken areas across the Southwest.

Welcome 2020-2021 NRWD Fellows!



Congratulations to this year's Natural Resource Workforce Development (NRWD) Fellows! The [SW CASC NRWD Fellowship](#) was developed to provide graduate students with opportunities for training and practice in developing use-inspired and

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conduct research around this year's science theme--management in the aftermath of landscape-scale disturbances. We look forward to welcoming the new fellows to the SW CASC in October! See them all [here](#).

New Home for the SW CASC in the Arizona Institutes for Resilience at the University of Arizona

Research, Innovation & Impact



View of the Bighorn Fire in its early stages burning around Pusch Ridge near Catalina State Park, Arizona. Photo credit: Zack Guido/Arizona Institutes for Resilience

The University of Arizona has formed the [Arizona Institutes for Resilience](#): Solutions for the Environment and Society, or AIR, to better understand environmental challenges and to develop solutions that tangibly improve people's resilience in the wake of environmental shocks, including those due to climate change. AIR is the new home for the SW CASC at the University of Arizona.

AIR was formed by merging the university's [Institute for Energy Solutions](#), [Water and Energy Sustainable Technology Center](#) and the [Desert Laboratory on Tumamoc Hill](#) with programs previously housed in the Institute of the Environment (such as the SW CASC), creating the new institute. Using expertise across campus, the new institute's work is aimed at preparing people for a low-carbon, environmentally sustainable and socially just world, through a three-pronged approach: research, education and real-world implementation. Read the full announcement [here](#).

Come Rain or Shine Podcast



Episode 2: The Sustainable Southwest Beef Project

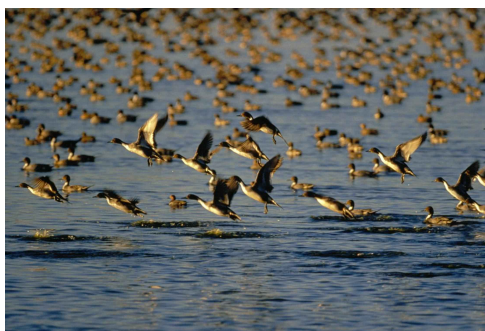
Episode 3: Precision Ranching Technologies

Episode 4: USDA Rural Development: Financing Climate Adaptation

The SW CASC has partnered with the [USDA Southwest Climate Hub](#) to produce our new podcast: "Come Rain or Shine." Each month, we highlight stories to share the most recent advances in climate science, weather, and climate adaptation and innovative practices to support resilient landscapes and communities. Each episode is published on the first Wednesday of the month.

Listen Here

Paleo Records Show Significant Changes to Biodiversity



SW CASC USGS Director, Dr. Stephen Jackson, is part of an international team of researchers that published new research showing how the recent geological past can inform conservation practices and policies in the future with climate change. Published in [Science](#), the article outlines the many advances in paleo (or past) environmental data that have shown how biodiversity has changed due to climate changes in the past, which can then be used to better anticipate future responses to accelerated climate change. The authors explain that terrestrial biodiversity will experience significant changes in the future due to climate change, including wide-scale declines in species. Read more [here](#).



As a part of the [SW CASC-funded project](#) on Understanding Fire-caused Vegetation Type Conversion in Southwestern Conifer Forests under Current and Future Climate Conditions, researchers from USGS, University of Arizona, and EcoAdapt convened a workshop to discuss observations and management options for fire-caused VTC in California. The workshop, held in December, 2019, was the second in a series aimed to “identify and fill knowledge gaps on fire-caused VTC to better inform research and management across the southwestern U.S.” Our own Dr. Stephen Jackson (SW CASC USGS Director) and Dr. Carolyn Enquist (SW CASC USGS Deputy Director) participated in the workshop, as well as other SW CASC partners from federal and state agencies, universities, and nonprofit entities. The summary of the workshop, as well as a call for resources, is now available [here](#).

Coping with Crisis: Building Psychosocial Resilience in the Face of Climate Change



What comes to people’s minds when you talk to them about climate change? Chances are, they think about melting ice and sea-level rise, extreme weather, wildfire, plant and animal extinctions, and other environmental effects. But how often do people consider the effects of climate change on human physical and mental health? What about social and cultural health? It is not just the environment that the climate is changing; it is also our well-being and the well-being of our communities.

How do people cope when faced with a crisis? Climate change is more than a crisis; it is an existential threat to our very existence, and it can feel overwhelming. If you work on the front lines of climate change adaptation, then you know better than most

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adaptation. There are steps we can take to help support and strengthen mental, social, and cultural health in our communities. Read more [here](#).

Shasta Gaughen is the Environmental Director and the Tribal Historic Preservation Officer for the Pala Band of Mission Indians in Pala, California. On July 29th, 2020, Dr. Gaughen presented on this topic in a SW CASC webinar. View the recording [here](#).

Fellows' Highlight

How Do I Fit In? Finding My Place and Leaning in to Boundary Spanning



Christina Morrisett is a PhD candidate at Utah State University. Below are her experiences and insights as a SW CASC Natural Resources Workforce Development (NRWD) Fellow.

I remember thinking *that's totally me* when I read the theme for the 2019-2020 SW CASC Fellowship. *Improved understanding of the linkages between the management of headwater ecosystems and downstream resources? That's totally me.* My research focuses on how headwater dam operation and regional groundwater management impact streamflow for farms and fish in the lower reaches of Idaho's Henry's Fork watershed. This fellowship felt like the perfect fit and I couldn't pass up the opportunity to apply.

Read the full blog post by SW CASC NRWD Fellow Christina Morrisett [here](#).

SW CASC in the News

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Tucson, AZ.

[*Future Tucson will likely deal with more days of extreme heat, Arizona Daily Star, September 6, 2020*](#): SW CASC PI Dr. Alexander Gershunov (Scripps Institution of Oceanography - UC San Diego) and University Director Dr. Gregg Garfin (University of Arizona) discuss the record temperatures in Tucson, AZ this summer and what we can expect for the future.

[*Don't Forget the Climate, Eugene Weekly, August 27, 2020*](#): SW CASC PI Dr. Erica Fleishman (Oregon State University) explains how climate plays a role in the extent of fires in Oregon and California.

[*To Manage Wildfire, California Looks To What Tribes Have Known All Along, NPR, August 24, 2020*](#): SW CASC PI Dr. Beth Rose Middleton (UC Davis) discusses traditional burning in Indigenous communities.

[*The RNC Begins Today & Climate Change and California Wildfires, KPFA, August 24, 2020*](#): SW CASC PI Dr. Mark Schwartz (UC Davis) discusses climate change and wildfires in California.

[*Colorado Wildfires Are Climate Change 'In The Here And Now' -- And A Sign Of Summers To Come, CPR News, August 20, 2020*](#): SW CASC PI Dr. Brad Udall (Colorado State University) explains how he sees trends in hot, dry periods of time as "the new abnormal."

[*Sweltering heat is shattering records, triggering power outages across California, NBCNews, August 13, 2020*](#): SW CASC PI Alexander Gershunov (Scripps Institution of Oceanography - UC San Diego) discusses the recent heat waves in the Southwest U.S. and the role climate change is playing.

[*Another first for the tree-ring lab, University of Arizona News, June 23, 2020*](#): SW CASC investigator Dr. Valerie Trouet (University of Arizona) has been promoted to full professor in the Laboratory of Tree-Ring Research--the first woman in the history of the lab to achieve this status!

Help Improve the CASC Project Explorer!

The [CASC Project Explorer](#), maintained by the Alaska Climate Adaptation Science Center and the Scenarios Network for Alaska & Arctic Planning, serves as the central hub for information about projects funded by the entire nationwide Climate Adaptation Science Center network. Your input will help developers improve the user

improvements to the site's functionality.

Partner Highlights

USDA CA Climate Hub Welcomes Forestry and Climate Coordination and Communication Specialist



Jennifer Smith joins the USDA California Climate Hub as their new Forestry and Climate Coordination and Communication Specialist to carry out facilitation and coordination activities, develop science communication outputs, products and support, outreach and extension efforts related to climate enabling decision in supporting California forest management. Her position is jointly funded by a Cal Fire contract to the CA Climate Hub and the SW CASC.

USDA SW Climate Hub Western Drought Resilience Workshop



How will western rangelands respond to climate change? The USDA Southwest Climate Hub convened collaborators from the Ranching, Rangelands, and Resilience project, led by Drs. Katie Suding and Peter Adler, to share preliminary climate

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rancher experiences, resource managers discussed current and future drought response. View recorded presentations [here](#), or if you only have 25 seconds, watch this figure come to life [here](#). For more information, please contact Maude Dinan (mdinan@nmsu.edu).

Drought Learning Network Updates from USDA SW Climate Hub

The Drought Learning Network aspires to link climate service providers with land managers to foster drought resilience.

This recorded webinar, organized by the DLN Beginning Farmers and Ranchers team, was presented to apprentices in Quivira Coalitions New Agrarian Program. In [Weather, Drought, Aridity and Tools for Agriculture](#), Dr. Nancy Selover (Arizona State Climatologist), Dr. Peter Goble (Colorado Climate Center) and Dr. Steph McAfee (Nevada State Climatologist) explain weather, climate and available tools to new agricultural managers.

In [Drought 2020: a conversation](#), experienced cattle growers discuss how they plan for and manage drought. New Mexico ranchers Mimi and Tom Sidwell and James Stewart explain how they plan for and manage their rangelands and herd during drought, how 2020 measures up to previous droughts, and their experience with marketing during COVID.

Tools and Handbooks

Mapping Southwestern Grass-fed Beef

This dynamic, web-based map helps characterize the current extent of grass-finishing in the Southwest U.S. (<https://southwestbeef.org/grass-fed-beef>). Most calves raised on the extensive, arid pastures of the Southwest are exported to the Ogallala Aquifer region for grain finishing. An alternate option is to finish cattle on grass or forage, and the Sustainable Southwest Beef Project (a five-year project that promotes ranch and rangeland resilience in the western U.S.) is investigating the economic and environmental trade-offs associated with both of these options. Please contact Skye Aney (sierra25@nmsu.edu) for more information.

Dust Mitigation Handbook Now in Hardcopy

The Dust Mitigation Handbook, a one-stop resource for dust mitigation on agricultural lands, rangeland, and natural surfaces, is now available in print. A digital copy of the Handbook can also be accessed here: <https://dust.swclimatehub.info/>.

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Climate Hubs and the Natural Resources Conservation Service (NRCS). If you would like to order a printed copy, please contact Skye Aney (sierra25@nmsu.edu).

Sea Level Rise Planning Handout for San Diego, Los Angeles, and the Central Coast

A [handout and powerpoint graphics](#) that assist in communicating the state of the science and planning for future sea level rise and extreme events.

Historical Precipitation Percentiles

[Time series of precipitation percentiles](#) from 1900 to present for different climate regions in California and Nevada.

CNAP Sea Level Monitoring Website

[Daily sea level anomalies](#) for the California coast.

Partner Events

Webinar

Drought 2020: Let's Talk About Soil Health

The USDA SW Climate Hub and partners are hosting a webinar: "Drought 2020: Let's Talk About Soil Health." Jimmy Emmons will present on how the Emmons farm became an award-winning "soil-health system" and Steve Kadas, NRCS State Resources Conservationist (NM), will talk about the dynamics of how water is stored in or lost from soils, and how healthy soil structure provides resilience to drought.

Date: September 22, 2020

Time: 5:00pm MDT

Register Today

CA-NV Drought & Climate Outlook Webinar



Drought.gov
U.S. Drought Portal

The California-Nevada Drought Early Warning System (CA-NV DEWS) September

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parties in the region with timely information on current drought status and impacts, as well as a preview of current and developing climatic events (i.e. El Niño and La Niña).

Date: September 28, 2020

Time: 11:00AM-12:00PM PDT

Register Today

Job and Funding Opportunities

Job Opportunities

Pending Job Openings in Climate Variability, Change, Impacts, and Adaptation

The host universities for all Climate Adaptation Science Centers **may** have several positions available during the next 6-12 months. Positions include several Post-Doc positions, a Research Coordinator position, and a Graduate student opportunity, all focusing on the impacts of climate variability and change on ecosystems, natural resources, cultural resources, infrastructure, tribal lands and waters, urban and rural settlements, and economic development. If you wish to be contacted about official job postings if grants are awarded, please send contact information (name, address, email, and phone) to info@southcentralclimate.org.

CIRES/NC CASC Grasslands Project Post-Doctoral Researcher

The North Central Climate Adaptation Science Center is seeking a Postdoctoral Researcher to coordinate two interdisciplinary working groups to synthesize the science around climate change and climate change adaptation in the grassland socio-ecological systems of the North American Great Plains. Review of applications will start on September 15, 2020.

DEADLINE - Position open until filled

Student Opportunities

M.S. Graduate Research Assistantship in Southeast Alaska Hydrology and Juvenile Salmon Ecology

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fine-scale hydrologic variation with juvenile salmon growth in Southeast Alaska streams.
Start date will be mid-January 2021.

DEADLINE - September 11, 2020

[Paid Internships: Science Support for Conservation and Resource Management Programs](#)

The University of Arizona School of Natural Resources and the Environment is looking for eight part-time undergraduate or graduate student interns to work on the [Collaborative Conservation and Adaptation Strategy Toolbox \(CCAST\)](#). For more information contact Dr. Larry Fisher, lafisher@arizona.edu.

[2020-2021 Oregon Executive Fellowship: Climate Change Natural and Working Lands Coordinator Fellowship](#)

This nine-month opportunity is intended to give a student or recent graduate first-hand experience in natural resource policy at the state level. Eligible applicants must be enrolled in a Masters, Ph.D. or professional degree (e.g., law school) in any discipline at an accredited college, university or non-profit academic institution of higher education in the U.S. or have completed their graduate degree after December, 2019.

DEADLINE - September 9, 2020

Funding Opportunities

[Regional Conservation Partnership Program \(RCPP\) Conservation Projects](#)

USDA has announced \$360 million in funding for the next round of Regional Conservation Partnership Program (RCPP) conservation projects. Project applications are now being accepted for locally driven, public-private partnerships that improve the nation's water quality (including drinking water sources), combat drought, enhance soil health, support wildlife habitat, and protect agricultural viability. Projects are eligible to receive between \$250,000 and \$10 million in RCPP funding.

DEADLINE - November 4, 2020

[AZ Department of Forestry and Fire Management - Landscape Scale Restoration Grants](#)

The Arizona Department of Forestry and Fire Management is soliciting project proposals from \$150,000 to \$280,000 that promote restoration of priority forest landscapes in the state. Eligible applicants include units of local government, including counties, municipalities and towns, as well as state agencies, non-profit organizations, Indian Tribes,

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DEADLINE - September 25, 2020

[Joint Fire Science Program \(JFSP\) Funding Opportunity Announcements \(FOAs\)](#)

The Joint Fire Science Program has several funding opportunities available, including their Graduate Research Innovation award and several calls for research proposals.

DEADLINE - September 30, 2020

Learning Opportunities

[Free Course: Managing for a Changing Climate](#)

The South Central Climate Adaptation Science Center is offering a free course on Managing for a Changing Climate: Climate Models, Downscaling, and Assessments. In this three week long course, you will learn the basics of climate modeling and climate assessments, including how global climate models work, why and how to do downscaling, and an overview of key assessment reports. Anyone who is interested is encouraged to attend. The course starts October 3rd and runs for four weeks.

REGISTRATION DEADLINE - October 5, 2020

We at the Southwest Climate Adaptation Science Center stand in solidarity with Black communities in the fight for freedom, liberation, and justice. We acknowledge that Black and Indigenous communities, and all people of color continue to experience systemic and institutional racism. We commit to challenging these entrenched systems through our work on climate change adaptation, and through our personal behavior. We acknowledge that communities of color are disproportionately affected by climate change due to the legacy and continuing burdens of environmental racism and injustice. The SW CASC is hosted by The University of Arizona, which sits on the ancestral homelands of the Tohono O'odham Nation and the Pascua Yaqui Tribe. The University of Arizona is recognized for being a Hispanic Serving Institution and has long-standing programs and institutions focused on underrepresented communities, including a strong commitment to Indigenous community governance and resilience. Collaboration with tribal communities is a key tenet of the SW CASC mission. We commit to using our expertise and experience, in collaboration with our colleagues, to work in partnership with Black, Indigenous, and other communities of color to anticipate, monitor, and adapt to climate change impacts and collaborate on

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

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