



North Central Climate Adaptation Science Center

Volume 1 Issue 7

September/October 2020

NC CASC Fire Scientists Featured Prominently in Media Coverage of Western Wildfires

As large fires blaze across the American west, NC CASC University Director Jennifer Balch has been fielding numerous media requests for her expertise in wildfire science. In addition to two new publications and her recent presentation at a National Academies of Sciences, Engineering, and Medicine Workshop, she was interviewed by multiple media outlets. Find the full list on our [website](#).

NC CASC consortium partner and Associate Professor, Phil Higuera, and Kim Davis, Research Scientist, University of Montana were also featured in several news outlets about the wildfires in the West, including the **Washington Post**, **National Geographic**, **Reuters**, **Seattle Times**, and the **Missoulian**. The pair recently published a new paper, ***Fire-catalyzed vegetation shifts in ponderosa pine and Douglas-fir forests of the Western United States***. Phil also co-authored a rapid-publication, ***Record-setting climate enabled the extraordinary 2020 fire season in the western United States***.



NC CASC Webinar Series:
Will there still be snow in wolverine denning habitat in the 2050s? High resolution projections for two study areas in the Rocky Mountains

**Thursday, November 12, 2020
11am MDT**

Presenters:

Joseph J. Barsugli, Cooperative Institute for Research in Environmental Sciences, University of Colorado Boulder, Boulder, CO; NOAA Physical Sciences Laboratory
Stephen Torbit, United States Fish and Wildlife Service, Lakewood, CO - retired
John M. Guinotte, United States Fish and Wildlife Service, Lakewood, CO

Register in advance [here](#)

Read the abstract [here](#)



NC CASC Welcomes USGS Data Steward, Sarah Burton

Sarah Burton is a USGS Data Steward serving the North Central CASC as well as the South Central and Pacific Island CASCs. In her position, she is responsible for overseeing data management activities for all projects from their onset through publication. This includes development of a Data Management Plan and assisting with the transition of data and information products into the CASC data repository, Science Base. Sarah recently received her Masters of Science in Fisheries and Wildlife Management from Michigan State University where she studied the role of social networks in partnership development with state wildlife agencies. Her professional interests include developing approaches to better understand the interactions between humans and wildlife habitat, natural resource ecology and conservation, quantitative & qualitative social science, and the use of GIS for resource management.



SDSU One of Four Schools Chosen to Lead the Upper Missouri River Snowpack Monitoring System, Awarded \$12.8 Contract



Laura Edwards, South Dakota State University

The U.S. Army Corps of Engineers has awarded major contracts to four universities, including **South Dakota State University**, to establish a network of stations to monitor snowpack and soil moisture throughout the plains area of the Upper Missouri River Basin. SDSU will receive a \$12.8 million contract, and in early October the first task issue was issued for the first 10 sites to be installed in South Dakota. The project is expected to be completed by 2025.

Photo credit: Genna Langum, South Dakota Mesonet

2020 National Tribal and Indigenous Climate Conference

Several members of the North Central Climate Adaptation Science Center (NC CASC) participated in the 2020 National Tribal and Indigenous Climate Conference held in September. The conference was the first ever national climate conference for Indigenous people and covered a variety of topics including renewable energy, emergency management, and water. The conference was hosted by the Institute for Tribal Environmental Professionals (ITEP) and boasted over 2,500 registered attendees throughout the week-long conference. The NC CASC was represented by USGS Deputy Director Aparana Bamzai-Dodson, Alisa Wade, James Rattling Leaf, Stefan Tangen and several consortium partners, including Molly Cross and Laura Edwards. All recordings from the conference can be found **online**.



SDSU Launches New Center of Excellence to Advance Bison Research and Knowledge

Laura Edwards, South Dakota State University

Officials from South Dakota State University, the National Bison Association, and the National Buffalo Foundation formally launched the **Center of Excellence for Bison Studies**, to be headquartered at SDSU's West River Research and Extension facility in Rapid City, SD. The center will focus on research activities to improve bison herd health and the economic viability of both private and tribal bison producers.

Dinosaur National Monument and Apostle Islands National Park Scenario Planning Workshops

Brian Miller, Brecken Robb, Danika Mosher

On October 28-29th, NC CASC-USGS scientist Brian Miller, USGS interns Brecken Robb and Danika Mosher, along with staff from the NPS Climate Change Response Program, NPS Biological Resources Division, and Scenario Insight, LLC, co-facilitated a remote workshop on climate change scenario planning to inform grazing management efforts at Dinosaur National Monument. The workshop applied the concepts of scenario planning to explore how future climate conditions and other factors may affect sustainable management of livestock grazing in Dinosaur NM. Participants considered several climate futures and other consequential uncertainties, and developed challenging, plausible, relevant, and divergent future scenarios that qualitatively assess how grazing resources and management in Dinosaur NM may be influenced.



On September 21-25th, Miller, Robb, and Mosher held a similar workshop that included staff from the NPS Climate Change Response Program and Denver Service Center to work on climate scenario planning for the Apostle Islands National Park. The workshop aimed to identify implications of non-climate and climate change stressors on natural and cultural resources, as well as preliminary climate-smart stewardship goals.



New Projects Live, Focus on Native Trout and Pinyon-Juniper Communities

Two new projects went live in late October, “Assessing the Vulnerability of Native Trout in the Northern Rockies: Linking Science and Management for Climate Adaptation,” and “Determining Successful Management and Restoration Strategies for Pinyon-Juniper Communities in the Face of Changing Climate and Wildfire.” Both are funded by the NC CASC and are led by USGS PIs.

NC CASC Partners Awarded NOAA-NIDIS “Coping with Drought” Initiative Funding

Shelley Crausbay, Molly Cross

NC CASC consortium partners Shelley Crausbay, Conservation Science Partners, and Molly Cross, Wildlife Conservation Society, were awarded funding by the **NOAA Climate Program Office’s Coping with Drought in Support of NIDIS Initiative** for their project, “Visualizing ecological drought impacts, vulnerabilities, and drivers to inform deliberate decision-making”.



Recent Lectures & Speaking Engagements

James Rattling Leaf, Sr., “Swept Away: Safeguarding Tribal Cultural Heritage from the Impacts of Climate Change”, Environmental Law Institute, October 21, 2020

James Rattling Leaf, Sr., “Building Effective Partnerships with Indigenous Communities”, Boulder Labs Diversity Council, October, 7, 2020

Imtiaz Rangwala, “Understanding and Quantifying Impacts of Regional Climate Change”, University of Wyoming, October 6, 2020

James Rattling Leaf Sr., NOAA Environmental Data Talks (NEDTalks)- Speaker Series: “Data, Diversity, and Disaster “, September 18th, 2020

Version 0.3.0 of the Climate Futures Toolbox (CFT) R Package Released

The ***Climate Futures Toolbox R Package*** provides easy and robust access to MACA Climate Data. Updates in this release should increase the ease of installation and usability of the package.

Recent Publications

2,200-Year tree-ring and lake-sediment based snowpack reconstruction for the Northern Rocky Mountains highlights the historic magnitude of recent snow drought • Quaternary Science Advances • October 2020 • Funded by the NC CASC

Lessons Learned From the 2017 Flash Drought Across the U.S. Northern Great Plains and Canadian Prairies • Bull American Meteorological Society • September 2020 • Laura Edwards

In the Line of Fire: Consequences of Human-Ignited Wildfires to Homes in the U.S. (1992-2015) • Fire Journal • September 2020 • Jennifer Balch

Anthropogenic and lightning-started fires are becoming larger and more frequent over a longer season length in the U.S.A. • Journal of Global Ecology and Biogeography • January 2020 • Jennifer Balch

The role of economic returns in land use change: Evidence from farm-level data in the US Northern Great Plains • Journal of Soil and Water Conservation • September 2020 • Funded by the NC CASC

Fire-catalyzed vegetation shifts in ponderosa pine and Douglas-fir forests of the Western United States • Environmental Research Letters • October 2020 • Kim Davis, Phil Higuera

Projections of Mountain Snowpack Loss for Wolverine Denning Elevations in the Rocky Mountains • Earth’s Future • October 2020 • Imtiaz Rangwala

A new framework to map fine resolution cropping intensity across the globe: Algorithm, validation, and implication • Remote Sensing of Environment • December 2020 • Funded by NC CASC

Small-scale water deficits after wildfires create long-lasting ecological impacts • Environmental Research Letters • March 2020 • Funded by NC CASC