North Central Climate Adaptation Science Center

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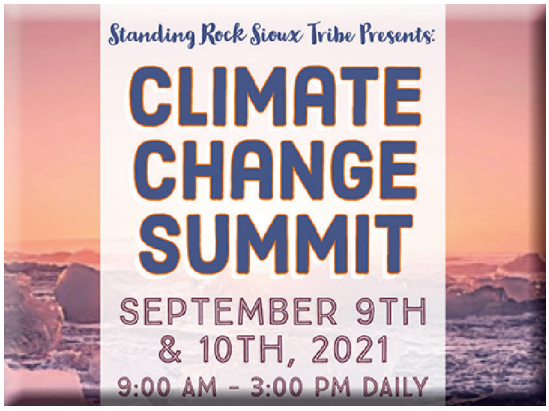
# Standing Rock Sioux Tribe Hosts Climate Change Summit in September

In a first of its kind summit, government leaders from the Standing Rock Sioux Tribe led a Climate Change Summit on September 9th and 10th, 2021 in Bismarck, North Dakota. Scientists from multiple institutions, including the North Central Climate Adaptation Science Center (NC CASC) were invited to speak on issues related to climate change. NC CASC's consultant to the Great Plains Tribal Water Alliance, James Rattling Leaf, Sr., was instrumental in the organization and hosting of this successful 2-day summit. As the planet heats up and we start to reach tipping points of irreversible changes, it's time to have conversations and to find solutions. There is power in partnership and this was on full display at the Climate Change Summit as tribal leaders and western scientists met to share knowledge and innovate ways to work together on future initiatives.




Creating space for developing a shared literacy on the impacts of climate change is requisite for building partnerships to address the climate crisis. NC CASC scientists shared information on topics relevant to the Standing Rock Sioux Tribe, such as wildfire hazards and impacts, water availability and scarcity due to drought, grassland management, scenario planning for grazing and vegetation, and climate adaptation for tribal nations. Thousands of attendees across tribal reservations, the state of North Dakota, and the country were able to participate via the online Zoom platform to listen to these talks and discussions. Planning and policy, as well as sharing of resources to support resilience, are key factors in adaptation. This summit serves as an excellent template for future such events in which tribal leaders lead the charge.

The Standing Rock Sioux Tribe Climate Crisis Resolution, written by tribal leadership, has helped frame specific ideas on meeting the climate crisis head-on. It calls upon leadership and tribal governments to acknowledge and support the Standing Rock Sioux Tribe to call upon the US government to declare a state of emergency climate crisis and support the Paris Climate Agreement. It humbly encourages all indigenous nations to also support and sign the agreement and to take all necessary and culturally appropriate actions to save Grandmother Earth, unci makah.

When looking for common solutions to challenging problems, mutual respect is of utmost importance, as is reciprocity and relevancy. Rising to the climate change challenge will take all of us, working together, towards a healthy and sustainable future. It will take work at the local, regional and national levels. There is power in partnership. The Climate Change Summit was the first of its kind, but let's ensure that it's not the last.

## Upcoming Events

***NC CASC Workshop: Climate Data 101 in Python***

Wednesday, November 17th from 9am-2pm MT

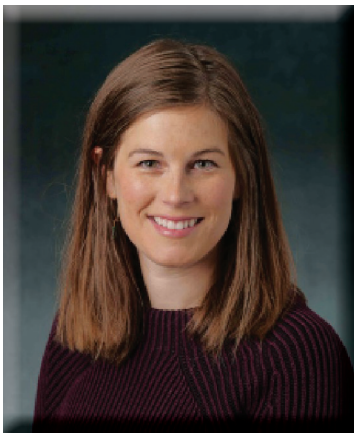
**For more information & to RSVP by November 7th:**

https://nccasc.colorado.edu/meetings/nc-casc-workshop-climate-data-101-python

***NC CASC Webinar Series Webinar, December 8, TBA.***

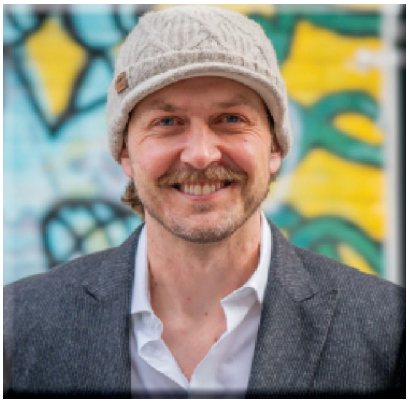
# *New Additions to the NC CASC Team*

The NC CASC welcomes Communications Specialist, ***Ulyana Horodyskyj***. Ulyana is a geologist/glaciologist/climate change expert with extensive experience in science communication, as well as previous experience as a research associate with the Alaska Climate Research Center (University of Alaska Fairbanks) and visiting assistant professor in the environmental program with Colorado College. Ulyana received her Masters from Brown University, PhD from CU Boulder, and completed a post-doc with the National Snow and Ice Data Center. In 2013/14, she was the recipient of a Fulbright Fellowship and lived abroad in Nepal for 10 months, finishing her PhD and launching a citizen science program called The Sherpa-Scientist Initiative.



Welcome to ***Wynne Moss***, postdoctoral scientist at Conservation Science Partners (CSP), an NC-CASC affiliate! Wynne is an ecologist and conservationist biologist interested in how wild populations respond to environmental stressors, including land use transformation, climate change, and infectious disease. Her postdoctoral research, funded by the National CASC, uses collaborative science synthesis to better understand the potential for drought to trigger ecological transformation. You can read more about Wynne's research on her website.

***Dr. Ty Tuff*** is our friendly neighborhood data scientist based in Earth Lab's Analytics Hub where he helps members and affiliates of the lab process, analyze, and publish their hard-won data. He completed his graduate work in CU's department of Ecology and Evolutionary biology and then left Boulder for a few years to manage a series of large research projects for the Max Planck Institute for the Science of Human History and for the McGill Sustainable Systems Initiative. Ty specializes in modeling movement and demographic data in human and biological systems but also loves creating extravagant data visualizations and shouting at A.I. systems that don't behave the way he thinks they should.

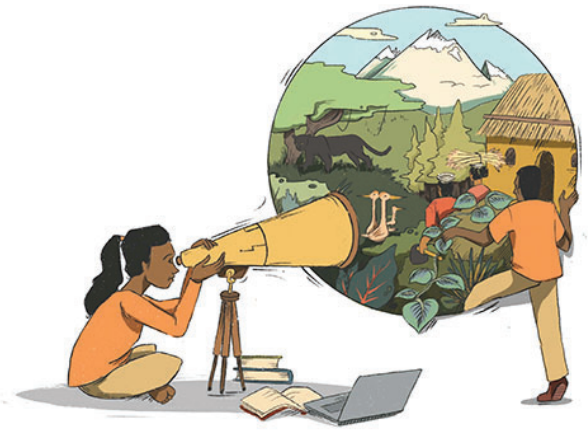


## *NC CASC's Edwards, Rangwala, Rattling Leaf, Tangen Contribute to Launch of U.S. Climate Resilience Toolkit's New Section for the Northern Great Plains Region*

In September 2021, the U.S. Climate Resilience Toolkit announced the publication of a new Northern Great Plains Region section. The section features narratives, tools, case studies, and reports related to the impacts of climate change across the Northern Great Plains and information on how people can build resilience to them. Used with the Climate Resilience Toolkit's Steps to Resilience, the new section can help communities and managers of agricultural and natural lands across the Northern Great Plains recognize their climate hazards, assess their vulnerabilities, and confront their climate risks. Several members of the NC CASC, including Laura Edwards, Imtiaz Rangwala, James Rattling Leaf, and Stefan Tangen, and many scientist partners contributed to the development of the toolkit.

## Molly Cross Writes Blog Post, Presents in NCASC Webinar

Consortium Partner Dr. Molly Cross, Wildlife Conservation Society, published a piece in the online magazine, *Current Conservation*, titled "Adapting the what, when, where, why and who of nature conservation to be more effective in a changing climate." The blog describes a recent paper published by Dr. Cross and colleagues in the journal, Conservation Science and Practice, which introduces a rapid assessment framework to make nature conservation more resilient to climate change. The authors draw on lessons learned from a decade of funding over 100 adaptation projects designed to benefit wildlife and ecosystems. The new "5Ws" framework offers conservation practitioners initial steps to ensure their work will withstand climate impacts by considering the "what, when, where, why, and who" of their project design.



Molly also presented, along with Paul Day, at an NCASC webinar on October 19th titled, "Setting Habitat Protection and Restoration Priorities in a Warming World: Lessons From Wyoming." They discussed the NC CASC-supported project that was designed to help the Wyoming Game and Fish Department include climate change in their Statewide Habitat Plan (SHP).

## *Imtiaz Rangwala Speaks at CIRES and DRI Webinar on Drought Tools*

NC CASC's Climate Science Lead, Imtiaz Rangwala, and his partners at the Cooperative Institute for Research in Environmental Sciences (CIRES) at the University of Colorado Boulder and Desert Research Institute (DRI) discussed different drought tools for drought early warning and research on a webinar organized by NIDIS. The webinar discussed tools that includes the Landscape Evaporative Response Index (LERI), the Evaporative Demand Drought Index (EDDI) and the Drought Index Portal whose development has in part been supported by NC CASC. Heather Yocum at NC CASC was also involved in planning and organizing these webinars. Watch the recorded webinar here.

## *Shelley Crausbay Presents at NPS RAD Webinar on Bandelier National Monument*

On October 6th, Shelley Crausbay, Conservation Science Partners (CSP), presented at at the NPS webinar, "Stewarding transforming landscapes using the Resist-Accept-Direct framework and transformation-oriented natural and cultural science." Watch a recording of the webinar.

## Brian Miller Speaks at UNC, Wildlife Society's Annual Conference, Participates in IPBES Review

On October 26th, USGS Research Ecologist, Brian Miller, presented his background and current work to a graduate seminar in ecology at the University of North Carolina at Chapel Hill. On November 3rd. Brian gave a presentation as part of the organized session, "Mechanistic approaches to modeling wildlife response to climate change," at the Wildlife Society's Annual Conference. His talk was titled "Projecting habitat responses to climate change and management with coupled ecological models." More information about the session can be found here.

Brian also participated in the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) review of the draft Nature Futures Framework. He and other members of the IPBES Scenarios and Models Task Force hosted online dialogues with national focal points and other government representatives, and all other stakeholders about the National Futures Framework.

## *James Rattling Leaf Speaks at GEO and Alliances for Climate Action Events*

Consultant to the Great Plains Tribal Water Alliance, James Rattling Leaf, spoke on Day 1 of a three-day Climate Workshop hosted by the Group on Earth Observations (GEO) in September. James discussed the perspectives of indigenous peoples, which focused on climate policy and finance. Watch a recording here. On October 20th, James spoke at the Alliances for Climate Action: Virtual Forum Series.

## Aparna Bamzai-Dodson Speaks at INSTAAR Seminar on Stakeholder Engagement and Actionable Science

On September 20th, NC CASC USGS Deputy Director, Aparna Bamzai-Dodson, spoke at CU Boulder's Institute of Arctic and Alpine Research (INSTAAR). Her talk was titled, "Engaging with stakeholders to produce actionable science: A framework and guidance." Watch the recording here.

## *Rattling Leaf, Miller Participate in Rising Voices Workshop*

Consultant to the Great Plains Tribal Water Alliance, James Rattling Leaf, and Research Ecologist, Brian Miller participated in the virtual 9th Annual Rising Voices Workshop from September 29th- October 1st. James served as a panelist on the session, "Centering Justice in Indigenous Data Sovereignty," and Brian, along with other members of the Indigenous Phenology Network, hosted a world café meet-and-greet session, along with a working group breakout session on phenology.

## Additional NC CASC Newsletters & Webinars

Tribal Climate Adaptation Newsletters contain information relevant to tribal partners and are posted monthly on our website. The September and October 2021 newsletters are now online. Interested parties can use this link to subscribe to the Tribal Climate Adaptation newsletter. Tribal Drought Webinars can be found on our YouTube channel.
Monthly NC CASC Webinar Series and Actionable Science webinars can be found on our website.

## *New Project Fully Open at NC CASC*

A new NC CASC-funded project, led by PI Amanda Kissel, is now fully open. The project, "A Framework for Guiding Management Decisions for Amphibians in an Uncertain Future," will determine which amphibians in the North Central region of the U.S. are at the greatest risk from the effects of climate change. The project will also develop a decision framework for weighing tradeoffs and impacts of potential management actions. Read about the project on Project Explorer.

## Recent Publications

***Engaging with stakeholders to produce actionable science: a framework and guidance***
September 2021 ● Weather, Climate, and Society ● A. Bamzai-Dodson, A. Cravens, A. Wade

***Historical changes in plant water use and need in the continental United States***
September 2021 ● PLOS One ● G. Senay

***Divergent, plausible, and relevant climate futures for near and long-term resource planning***
August 2021 ● Climate Change ● B.Miller

***PS3: The Pheno-Synthesis software suite for integration and analysis of multi-scale, multi-platform phenological data*** ● August 2021 ● Ecological Informatics ● B. Miller

***A new approach for representing agent-environment feedbacks: coupled agent-based and state-and-transition simulation models*** ● July 2021 ● Landscape Ecology ● B.Miller

***A typology of drought decision making: Synthesizing across cases to understand drought perspectives and response actions*** ● July 2021 ● Weather and Climate Extremes ● A. Cravens

***Limited shifts in the distribution of migratory bird breeding habitat density in response to future changes in climate*** ● July 2021 ● Ecological Applications ● NC CASC funded

***Towards a better future for biodiversity and people: modelling Nature Futures*** ● July 2021 ● SocArXiv Papers ● B. Miller

***Use of PhenoCam Measurements and Image Analysis to Inform the ALMANAC Process-based Simulation Model*** ● July 2021 ● Journal of Experimental Agriculture International ● NC CASC funded

***Divergent climate change effects on widespread dryland plant communities drive by climatic and ecohydrological gradients*** ● June 2021 ● Global Change Biology ● NC CASC funded

***Climate change scenario planning for resource stewardship at Wind Cave National Park: Climate change scenario planning summary*** ● 2021 ● National Resource Report ● B. Miller