

The North Central Climate Science Center

Delivering actionable science to help fish, wildlife, water, land, and people *adapt* to a changing climate

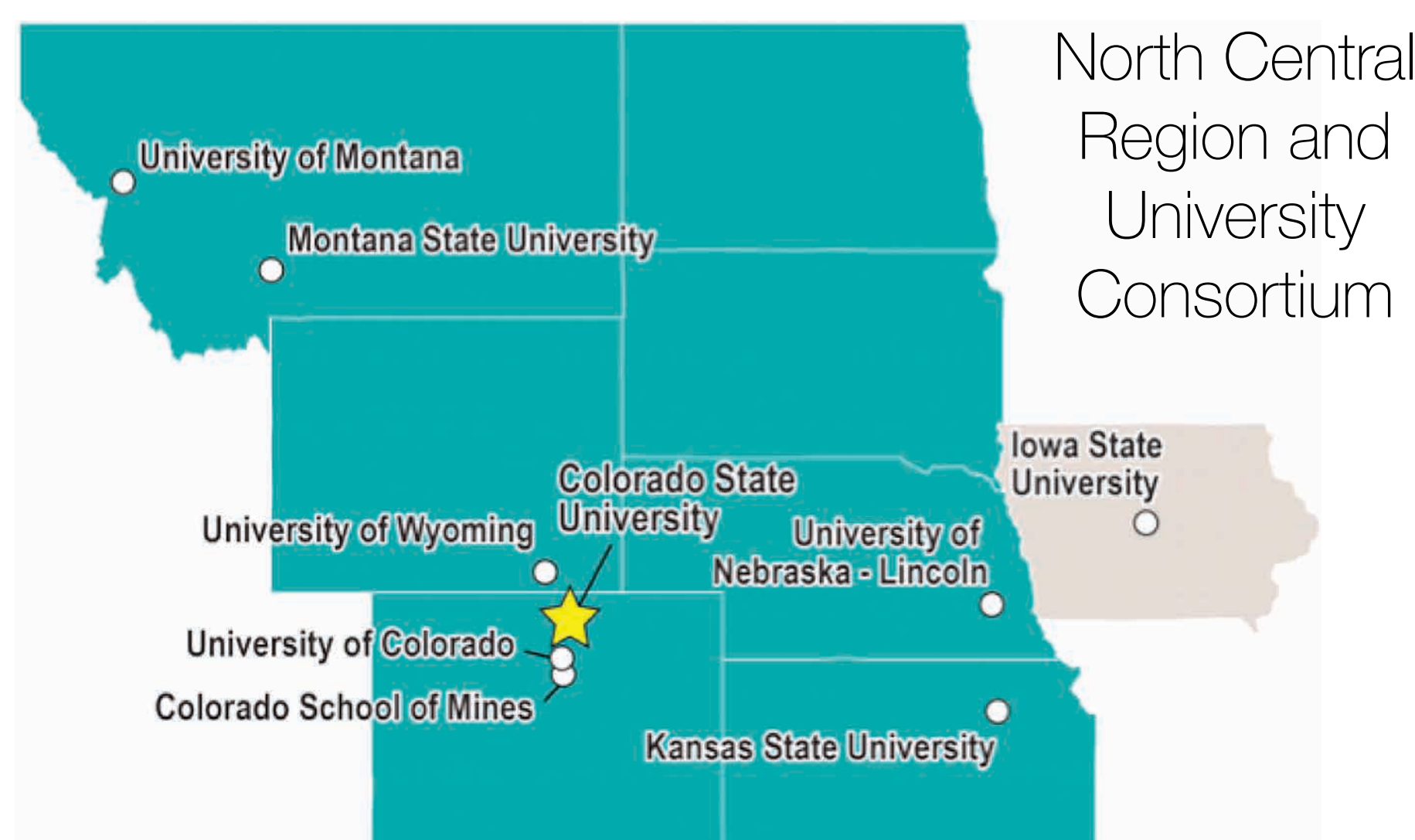
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Who are we?

The North Central Climate Science Center (NC CSC) is one of eight regional centers formed by the U.S. Department of the Interior to work directly with natural and cultural resource managers to understand their challenges, identify information needs, and provide the best climate adaptation science to inform their decision-making. The NC CSC is operated through the U.S. Geological Survey, in partnership with a university consortium led by Colorado State University, and serves the states of **Colorado, Kansas, Nebraska, North Dakota, Montana, South Dakota, and Wyoming.**



A new name – but the same people, resources, and mission. Congressional action to provide funds for government operations in Fiscal Year 2018 included approval of the addition of the word “adaptation” in our name to emphasize that our work focuses on this aspect of climate change. All CSCs will now become “Climate Adaptation Science Centers” (e.g. the North Central Climate Adaptation Science Center, NC CASC). In addition, the National Climate Change and Wildlife Science Center, the “headquarters” for the network, will be renamed as the National Climate Adaptation Science Center (NCASC).

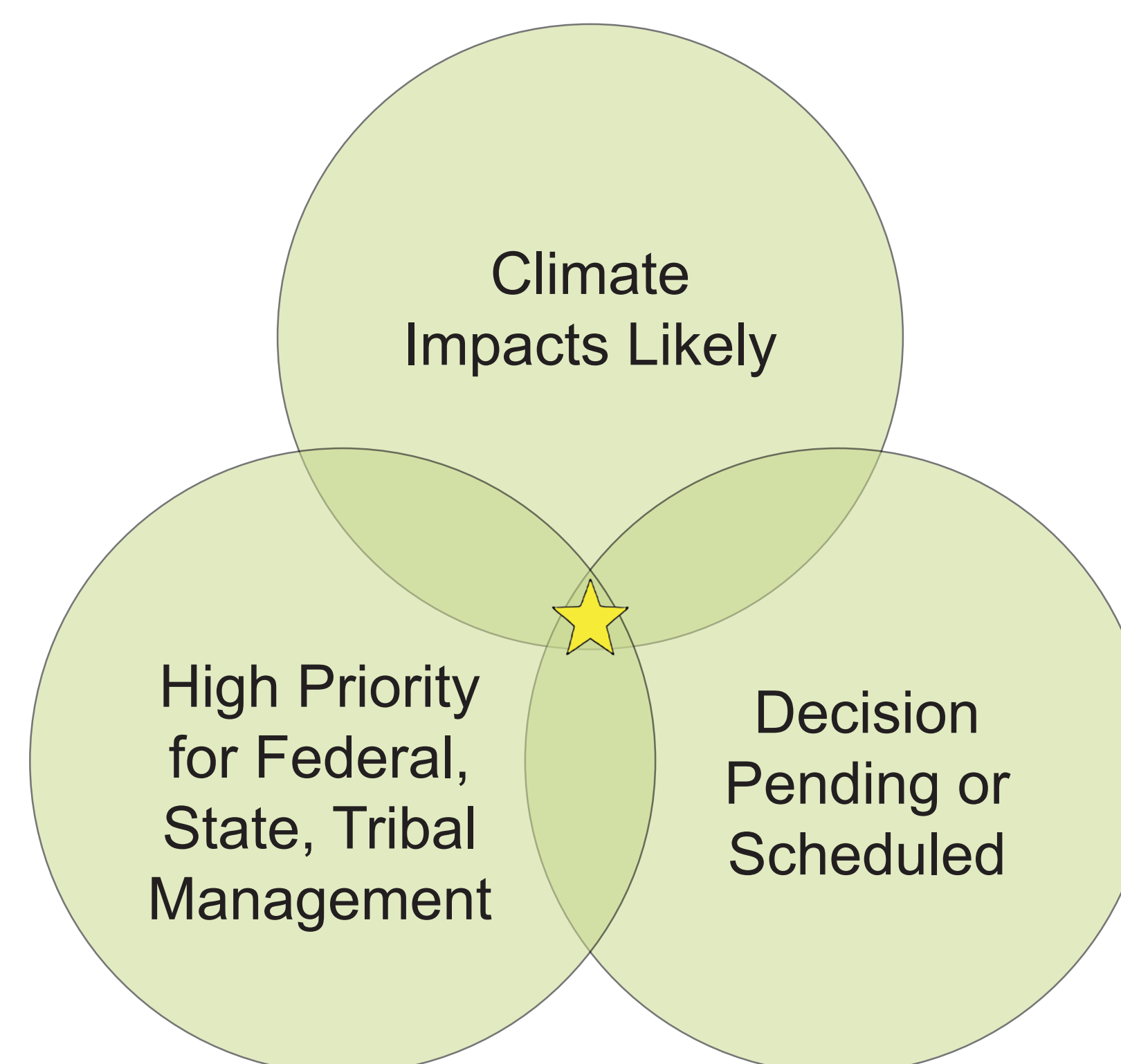
What do we do?

We accomplish our goals by:

- **Building connections** across federal, state, local, regional, and tribal organizations;
- **Producing science** that allows managers to anticipate, plan for, and adapt to a changing environment, using co-development principles wherever possible;
- **Increasing the knowledge, skills, and abilities** of students, researchers, and managers to prepare for and adapt to a changing climate; &
- **Adhering to best practices in science communication** when sharing new research and products with our partners.

What can we provide?

- **Climate Data Support:** which GCM? Which downscaling method? Which RCP? NC CSC experts will work with you to select the right data, including climate, drought, remote sensing, fire, and phenology.
- **Assessment of Impacts:** NC CSC scientists are experts in a variety of scenario planning and quantitative modeling techniques and have applied these models in ecosystems across the region.
- **Social-Science-Driven Adaptation Planning:** How people use and value resources are critical elements of all NC CSC planning activities.
- **Training and Capacity Building:** We use both formal university training as well as classroom training in advanced modeling, “Climate Smart adaptation,” and related skills identified by partners.



NC CSC projects support high-priority management decisions that will likely be impacted by climate.



Selected Projects



1

Forecasting sagebrush distribution and abundance

- Many sagebrush-dependent species are identified as species of conservation concern in State Wildlife Action Plans
- Evaluated big sagebrush distribution and abundance using climate models
- Results will inform sagebrush landscape management
- Forthcoming factsheet and more: ato.montana.edu/sagebrush/index.html



2

Detecting rapid-onset droughts with EDDI:

- EDDI can offer early warning of agricultural drought, hydrologic drought, and fire-weather risk
- The evaporative demand drought index (EDDI) shows flash droughts more quickly than other drought indices
- EDDI boasts a newly-updated website (esrl.noaa.gov/psd/eddi) with user guides, current projections, and historical time series tools



3

Monitoring wetlands-dependent birds in the Prairie Potholes

- About 120 species of migrating birds depend on these wetlands
- Conservation concerns mean high interest in planning and monitoring
- Modeled wetland densities and characteristics under predicted changes in land use, precipitation, and temperature
- Identified a small group of species that represent larger species groups of interest
- Improved monitoring efficiency



4

Preparing for drought on the Wind River Indian Reservation:

- Developed qualitative and quantitative location-specific decision tools to support drought preparedness
- Conducted formal and informal training for Tribal Water Engineer's office staff
- Received National Fish, Wildlife, and Plants 2017 Climate Adaptation Leadership award for working successfully across broad partnerships