



- Montana's **official climate data stewards**.
- Provides **high quality, timely, relevant, and scientifically-based climate information** and services to Montanans.
- Operates the **Montana Mesonet** — an extensive and growing network of weather, soil moisture, and snowpack monitoring stations.

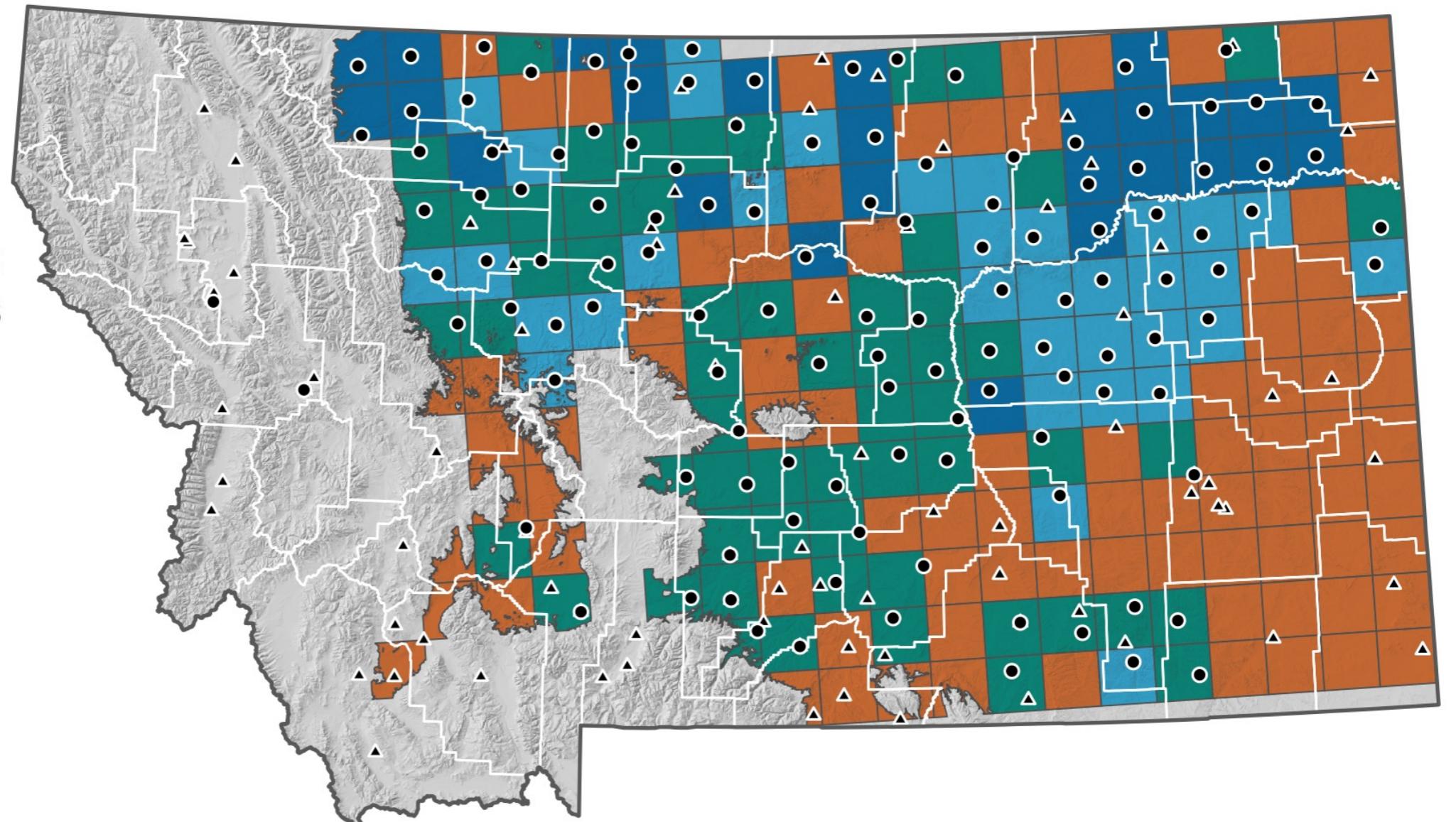
# Montana Mesonet: A collaborative model

## UMRB Project Station Status

- Operational
- Install 2024
- Install 2025
- Unassigned

## Subnetwork

- HydroMet
- AgriMet



**142 stations across the state (and growing!)**

# Montana Mesonet: A collaborative model

## Federal, State, and Private Partnerships

- US Army Corps of Engineers
- National Oceanographic and Atmospheric Administration (NOAA)
- DOI Bureau of Land Management
- USDA Forest Service
- MT Department of Agriculture
- MSU Agricultural Research Centers
- Stillwater County (Maureen Davey)
- Montana Bureau of Mines and Geology
- Bureau of Indian Affairs: Little Big Horn College, Crow Agency
- Fort Peck Tribes
- Blackfeet Nation
- Montana Department of Natural Resources and Conservation
- Lolo Watershed Group
- Musselshell Watershed Coalition
- Blackfoot Challenge
- Trout Unlimited
- National Drought Resiliency Partnership
- Community Collaborative Rain, Hail and Snow Network (CoCoRahs)
- Roberts L7 Ranch
- **Private landowners**

**142 stations across the state (and growing!)**

# Montana Mesonet: Building the HydroMet



Carly Andlauer, a University of Montana senior finishing up a bachelor's degree in ecology restoration, processes soil samples Thursday from across the state for a climate monitoring project. UM researchers recently received a \$21 million government contract for the project to better monitor soil moisture, snowpack, weather hazards and climate conditions.

## UM awarded \$21M contract

Researchers given Army Corps contract to expand climate monitoring network

Laura Scheer  
[laura.scheer@missoulian.com](mailto:laura.scheer@missoulian.com)

University of Montana researchers recently received a

\$21 million government contract, bringing more support and longevity to what has been a grassroots effort to build a better climate monitoring network across the state.

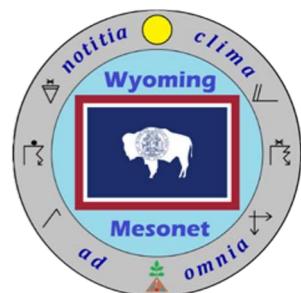
The funding from the U.S. Army Corps of Engineers will pay to expand and enhance a collaborative project spearheaded by UM's Montana Climate Office

in weather and soil moisture data throughout the state.

"This project is very unique," said Kelsey Jencso, a lead researcher and associate professor of watershed hydrology at UM. "This is a very applied project. It has a particular goal, which is to better monitor soil moisture, snowpack, weather hazards and climate conditions."

Through partnerships with

Please see CONTRACT, Page A3



**Mesonet**  
SDSTATE



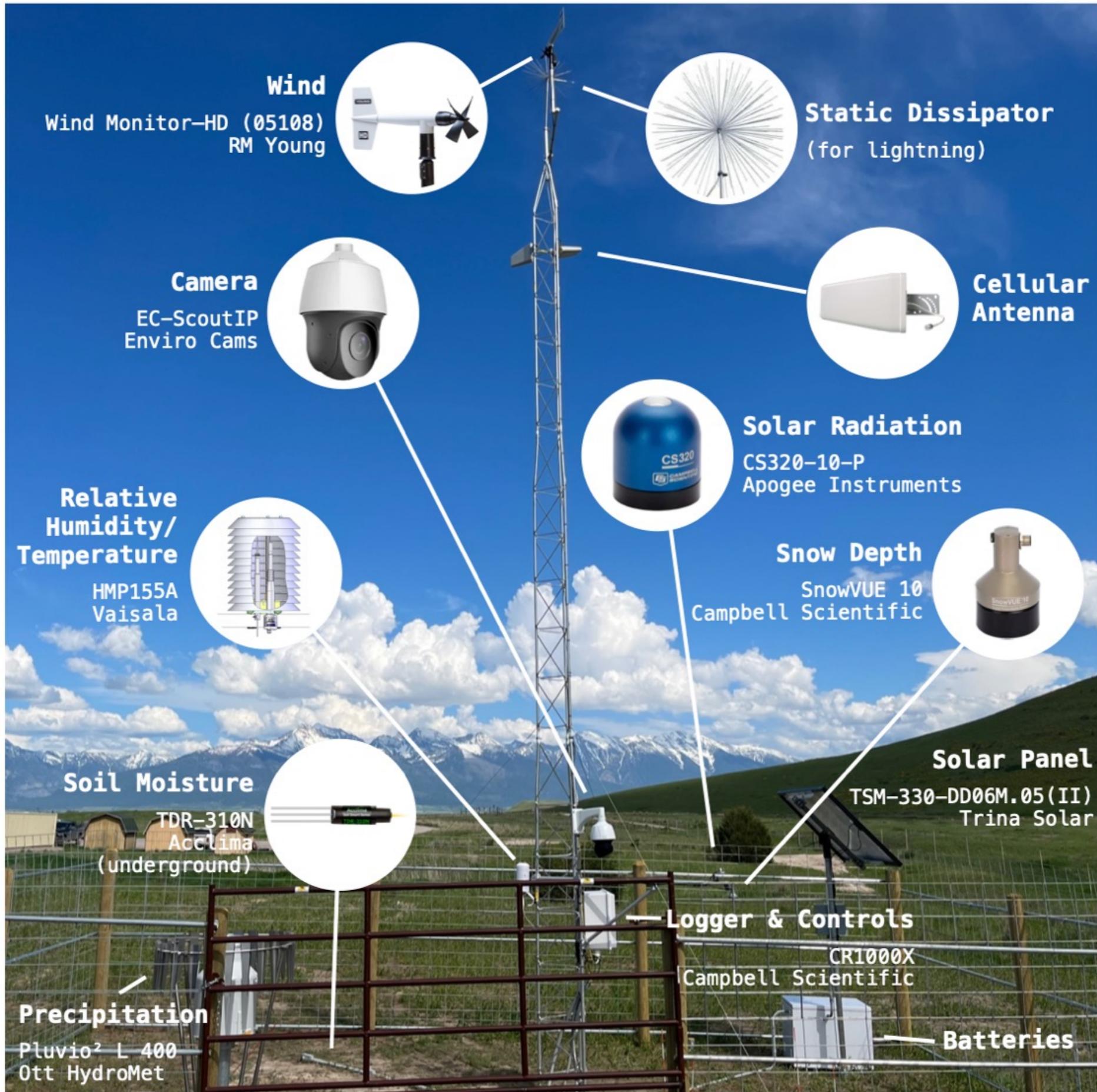
**NDAWN**  
NORTH DAKOTA AGRICULTURAL WEATHER NETWORK

 **Montana Climate Office**

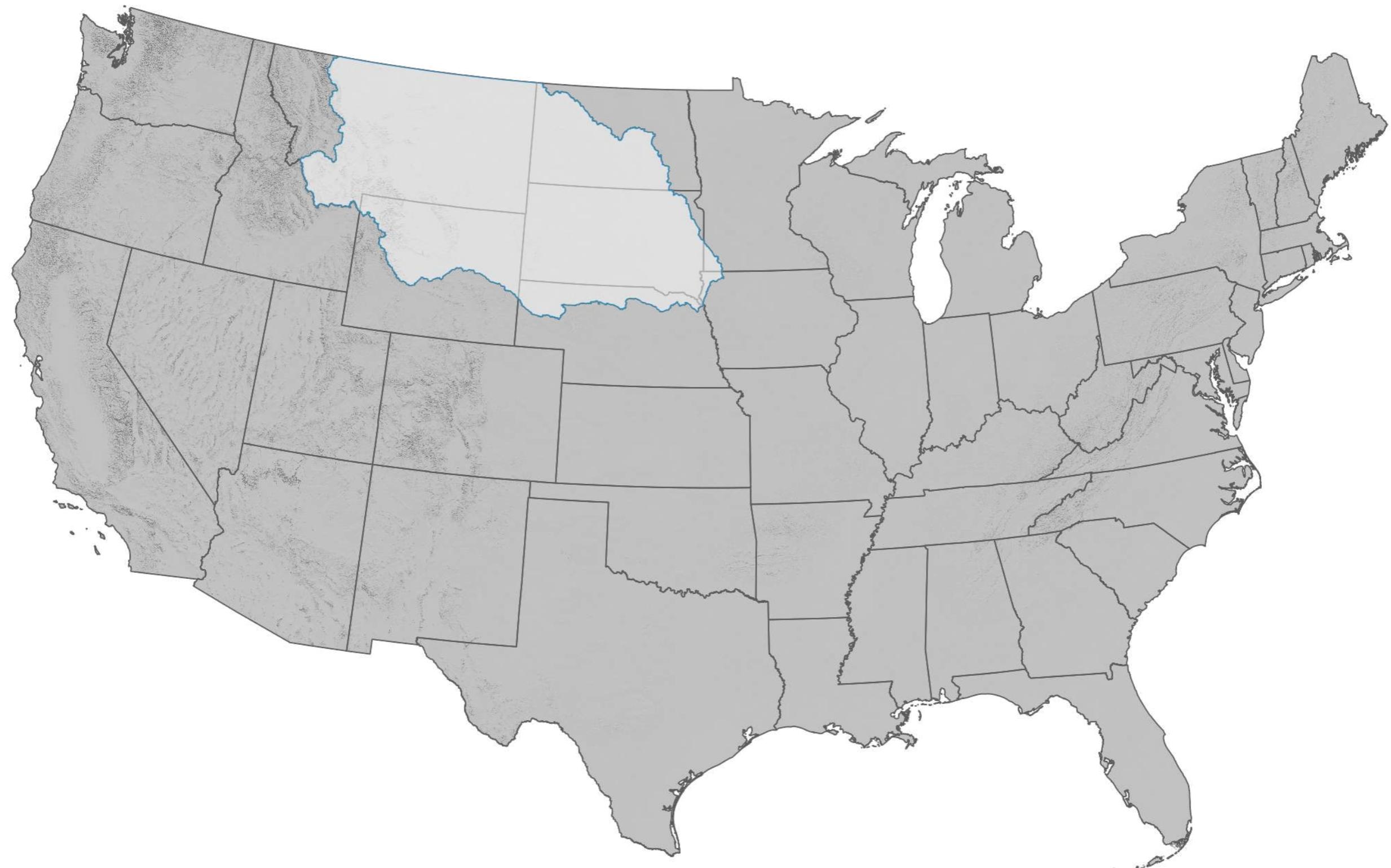
 **nebraska mesonet**



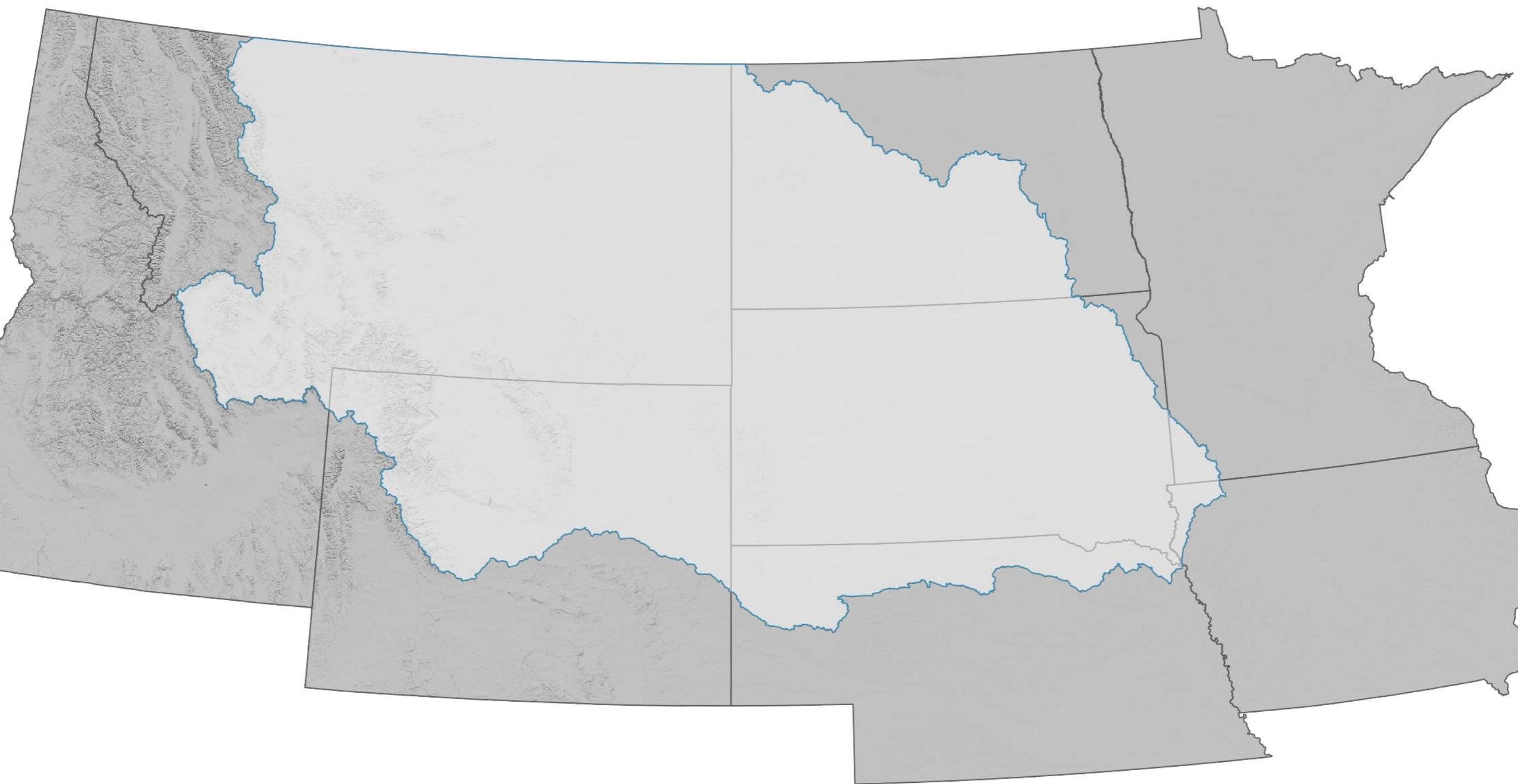
Corps of Engineers photo of June 16, 2011, showing the Fort Calhoun nuclear power plant surrounded by flood water



# The Upper Missouri River Basin



# The Upper Missouri River Basin



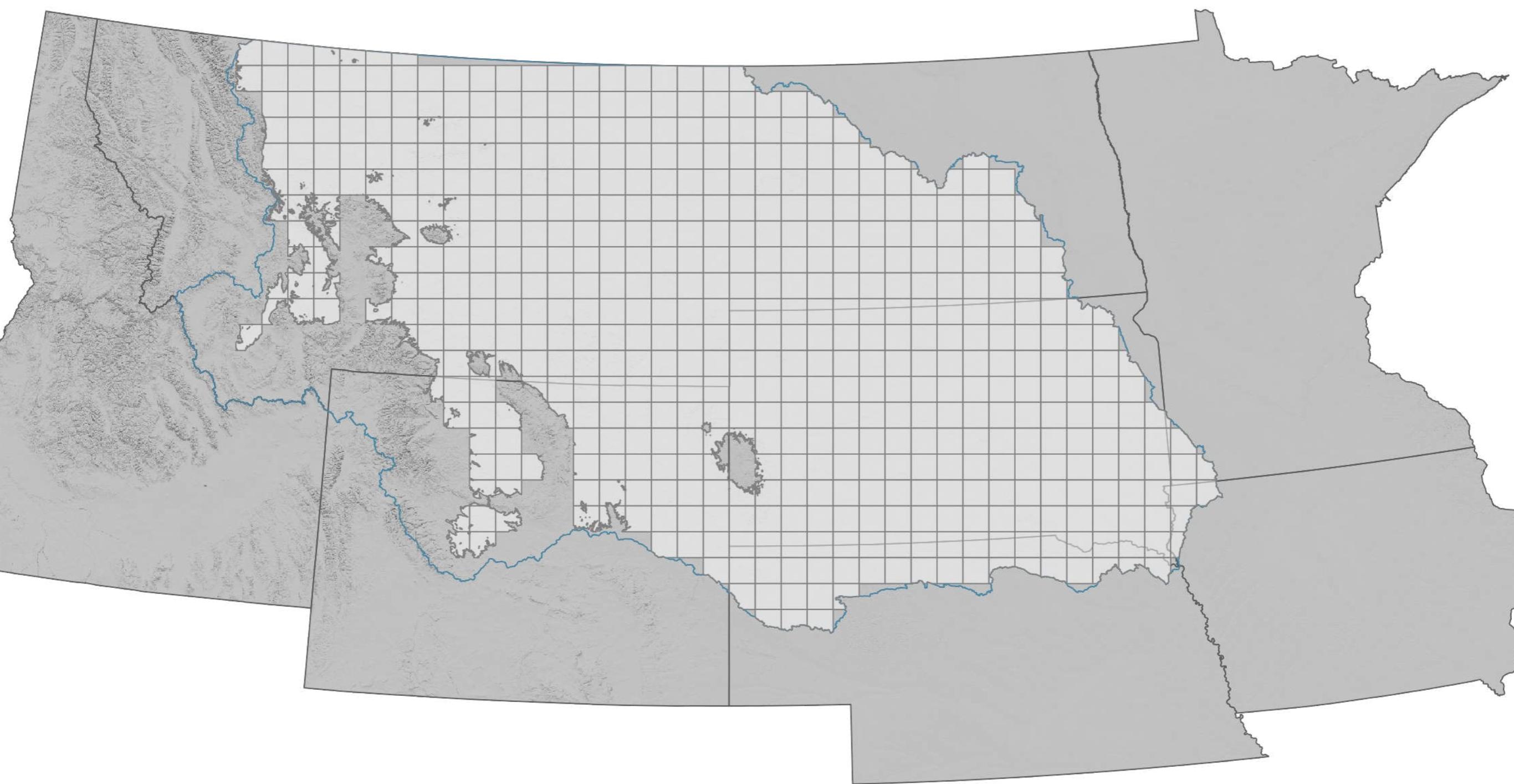
# The Upper Missouri River Basin

## Plains Below 5,500 ft.



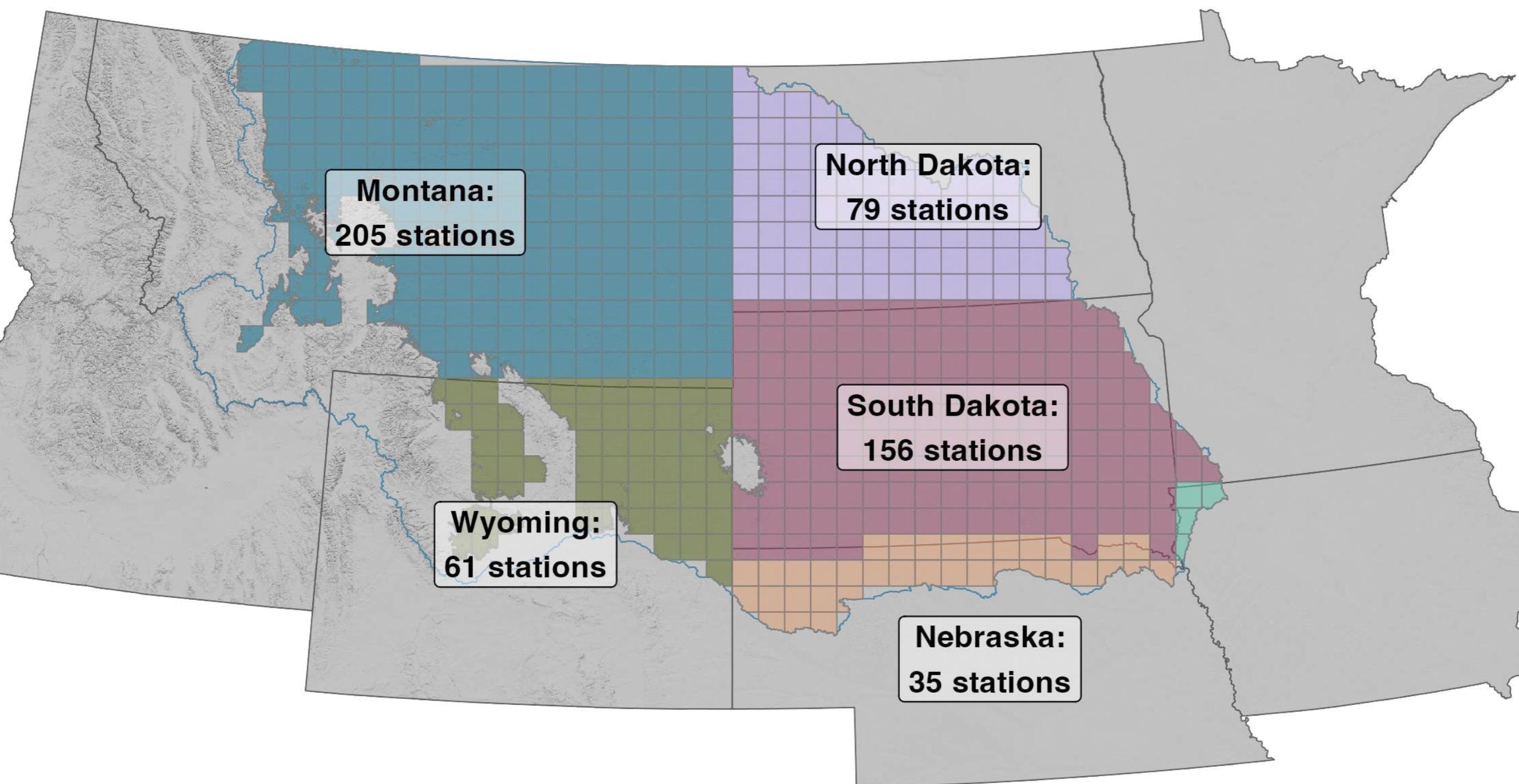
# The UMRB Monitoring Network

## 500 mi<sup>2</sup> Grid



# The UMRB Monitoring Network

## Participating State Mesonets



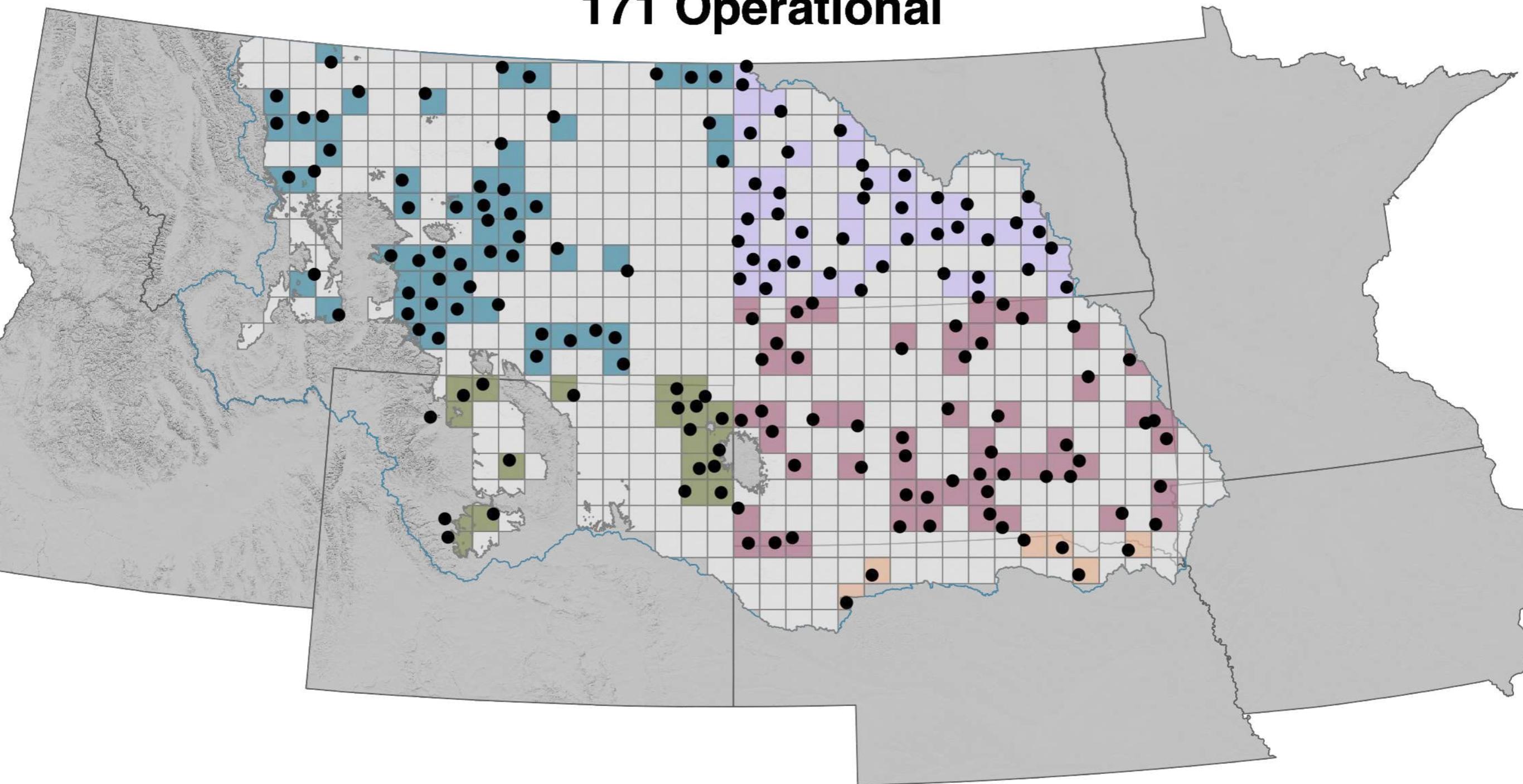
# The UMRB Monitoring Network

- Operational

Summer 2024

Candidate 2025

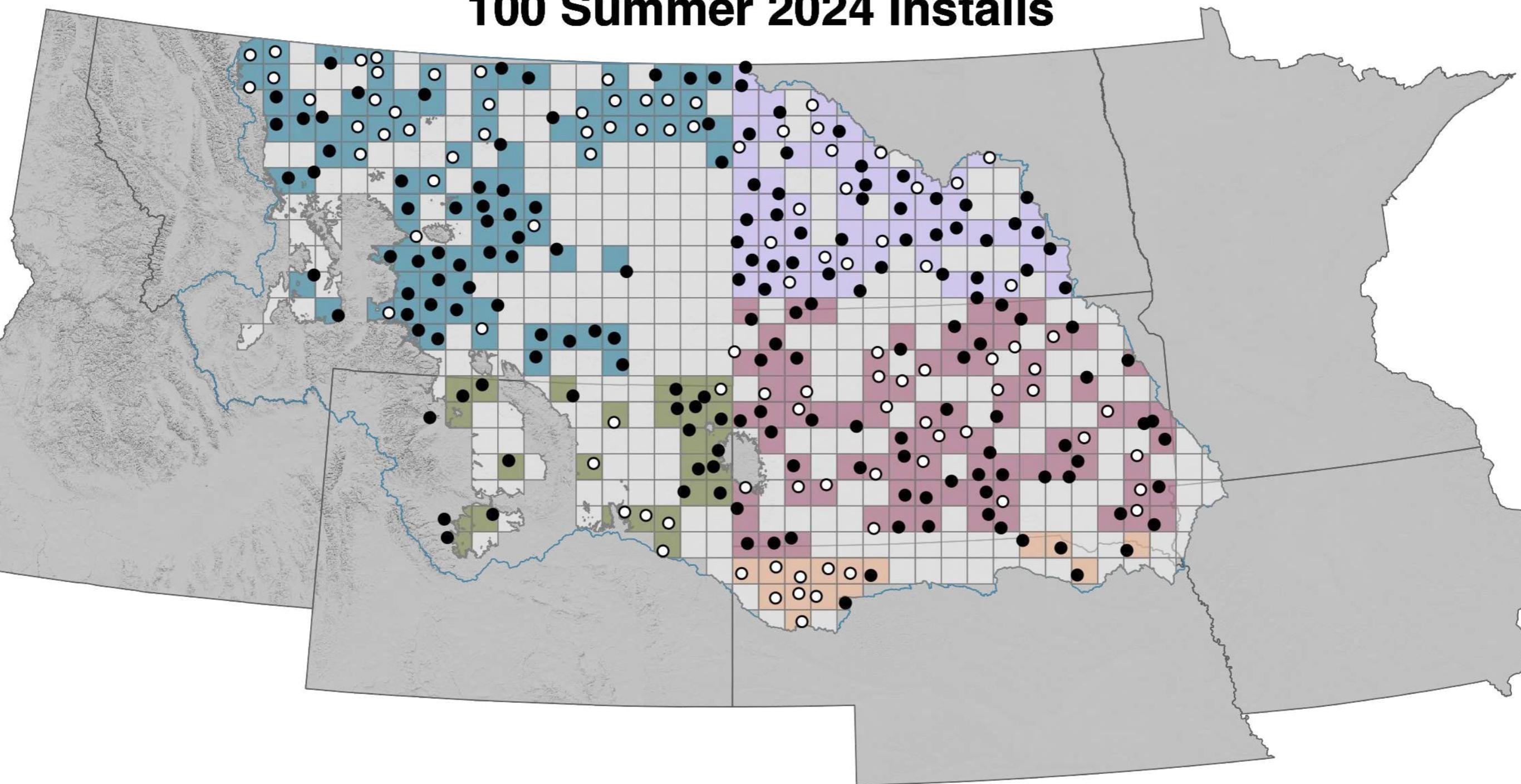
**171 Operational**



# The UMRB Monitoring Network

- Operational
- Summer 2024
- Candidate 2025

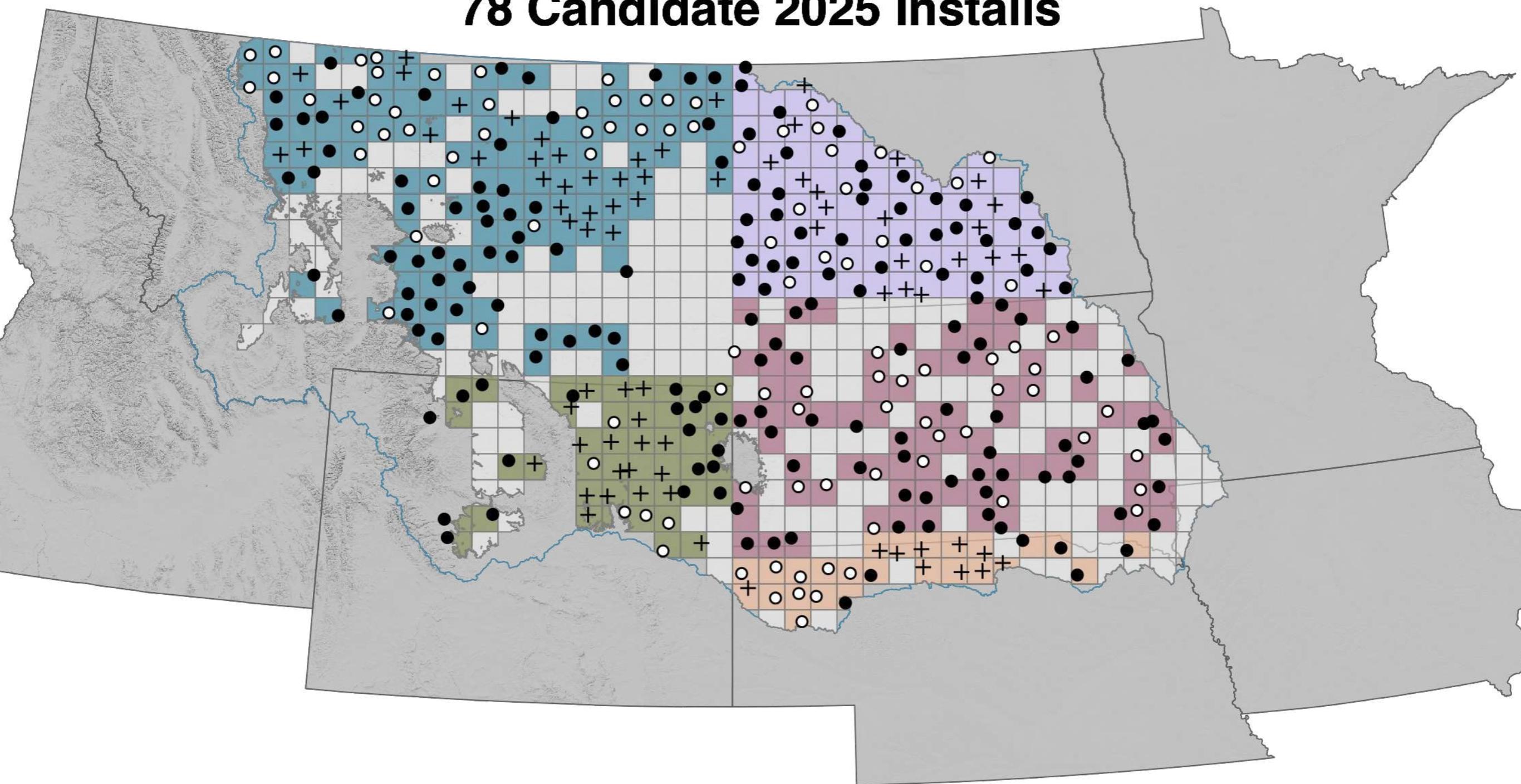
**100 Summer 2024 Installs**



# The UMRB Monitoring Network

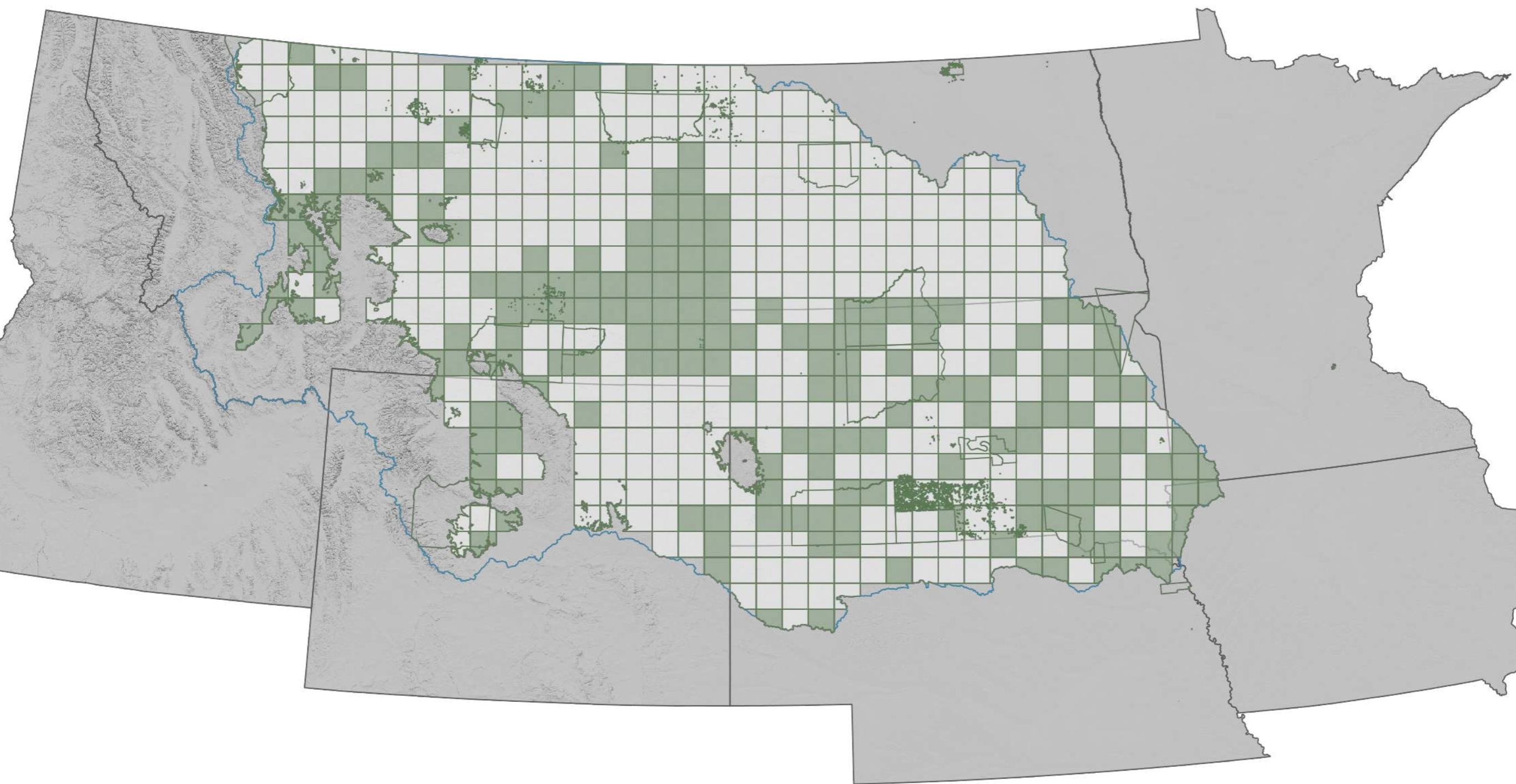
- Operational
- Summer 2024
- + Candidate 2025

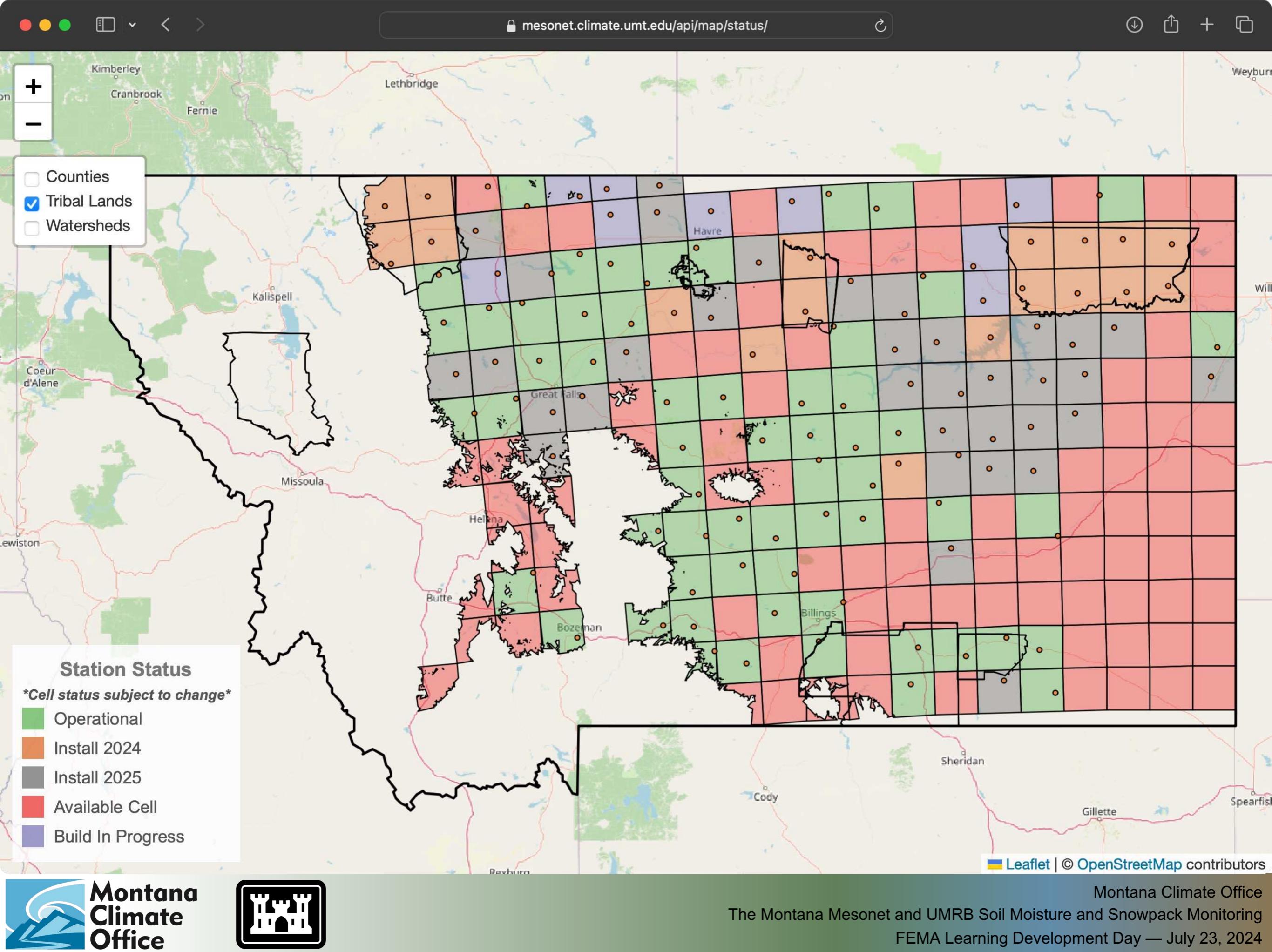
**78 Candidate 2025 Installs**

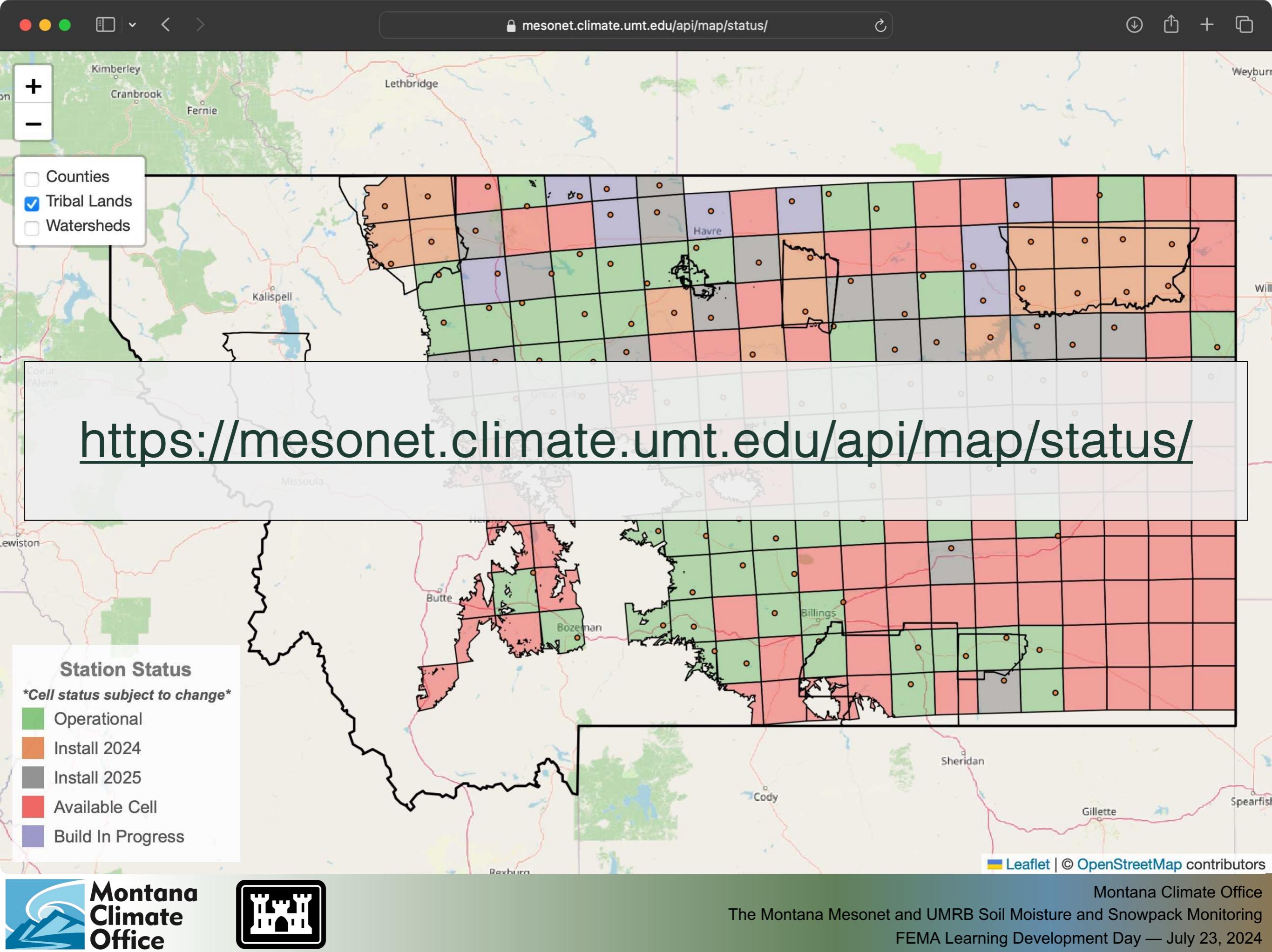


# The UMRB Monitoring Network

## 190 Grid Cells Remaining









# The Montana Mesonet Dashboard: CSKT Bison Range

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Latest Data

Ag Tools

Data Downloader

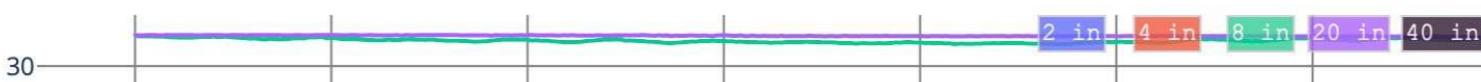
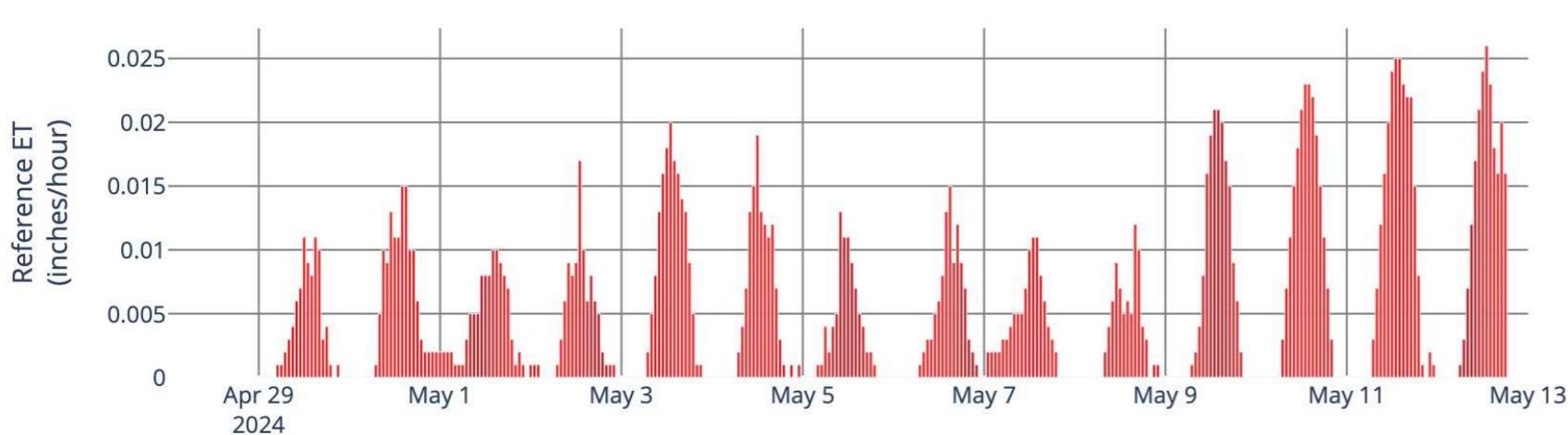
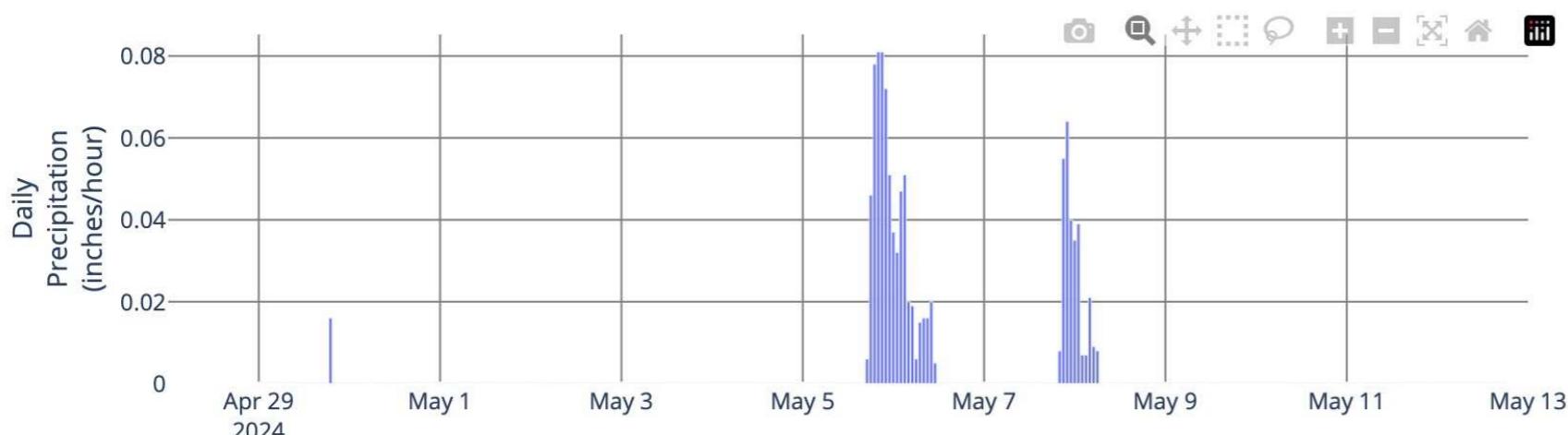
Satellite Indicators

CSKT Bison Range (HydroMet) ▾

04/29/2024 → 05/13/2024

 Hourly  Daily  Raw

 gridMET Normals

 HydroMet  AgriMet
[ABOUT THESE VARIABLES](#)
 Air Temperature  Atmospheric Pressure  Bulk EC  Gust Speed  Max Precip Rate  Precipitation  Reference ET
[Wind Rose](#)[Weather Forecast](#)[Photos](#)
 North  South  East

 West  Snow

2024-05-12 Afternoon

[Locator Map](#) [Station Metadata](#)[Current Conditions](#)

## Latest Data Summary

Timestamp	2024-05-12 20:05:00-06:00
Air Temperature [°F]	76.964
Precipitation [in]	0
Max Precip Rate [in/hr]	0
Atmospheric Pressure [mbar]	915.24
Relative Humidity [%]	28.83
Soil Temperature @ 2 in [°F]	69.08
Soil Temperature @ 4 in [°F]	71.86



## The Montana Mesonet Dashboard: CSKT Bison Range

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Latest Data

Ag Tools

Data Downloader

Satellite Indicators

CSKT Bison Range (HydroMet)

 Hourly  Daily Air Temperature

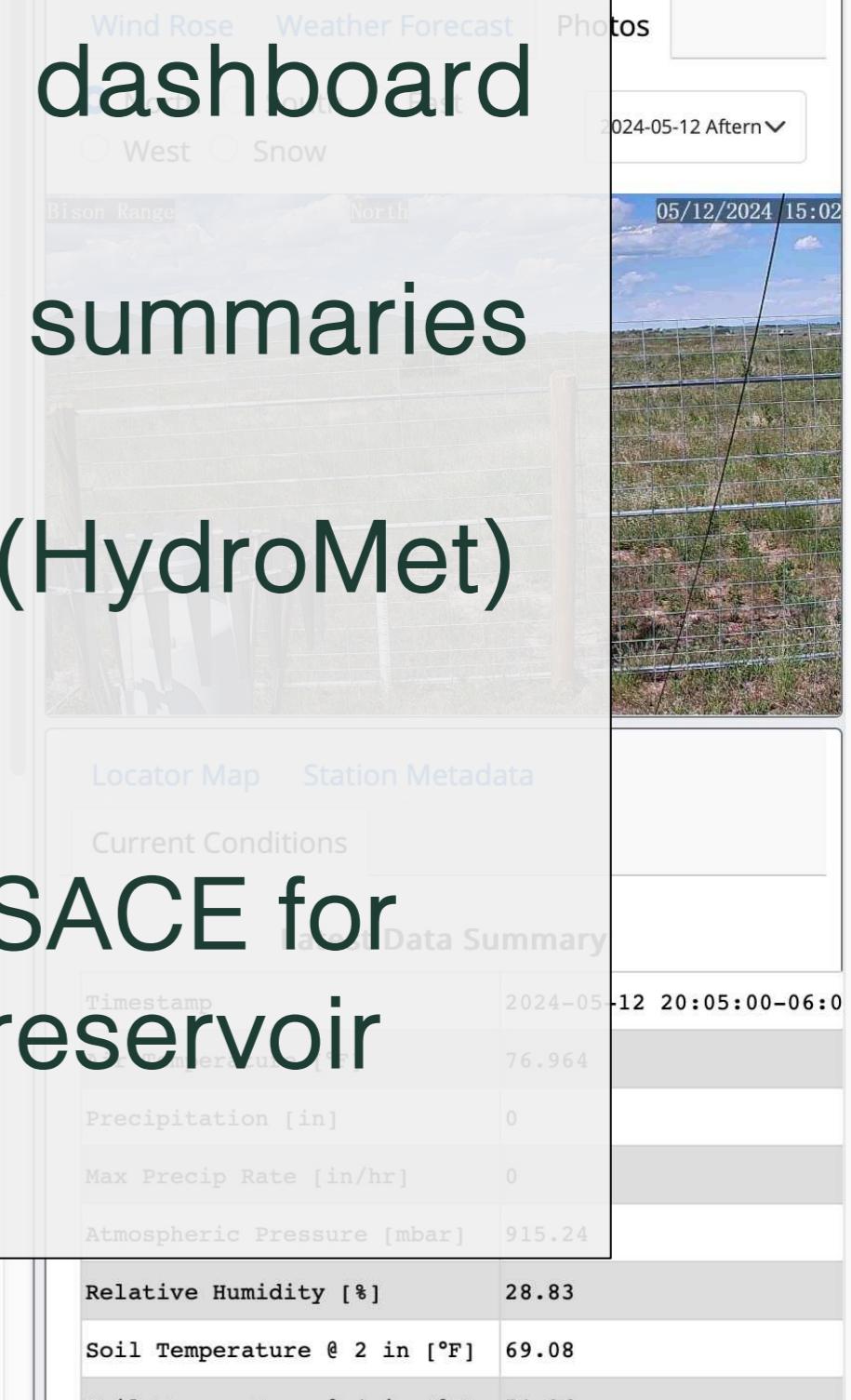
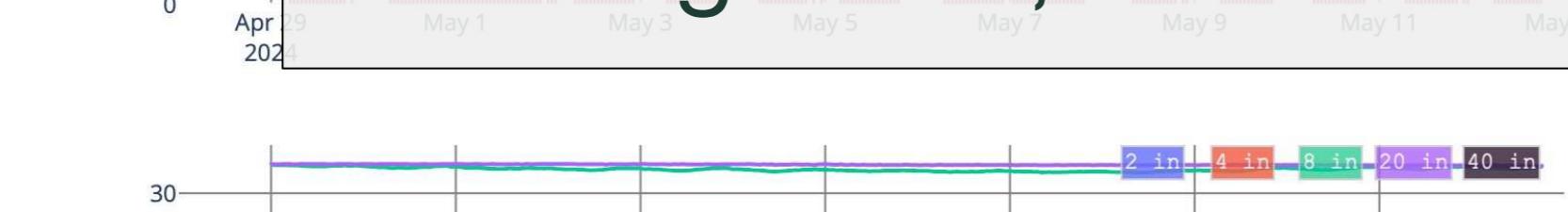
- Publicly available API and dashboard

 Air Temperature

- Map based and graphical summaries

- Updated every 5 minutes (HydroMet) and 15 minutes (AgriMet)

- Data used by NWS and USACE for flood/drought prediction, reservoir management, and more





# The Montana Mesonet Dashboard: CSKT Bison Range

[GIVE FEEDBACK](#)[LEARN MORE](#)[SHARE PLOT](#)

Latest Data

Ag Tools

Data Downloader

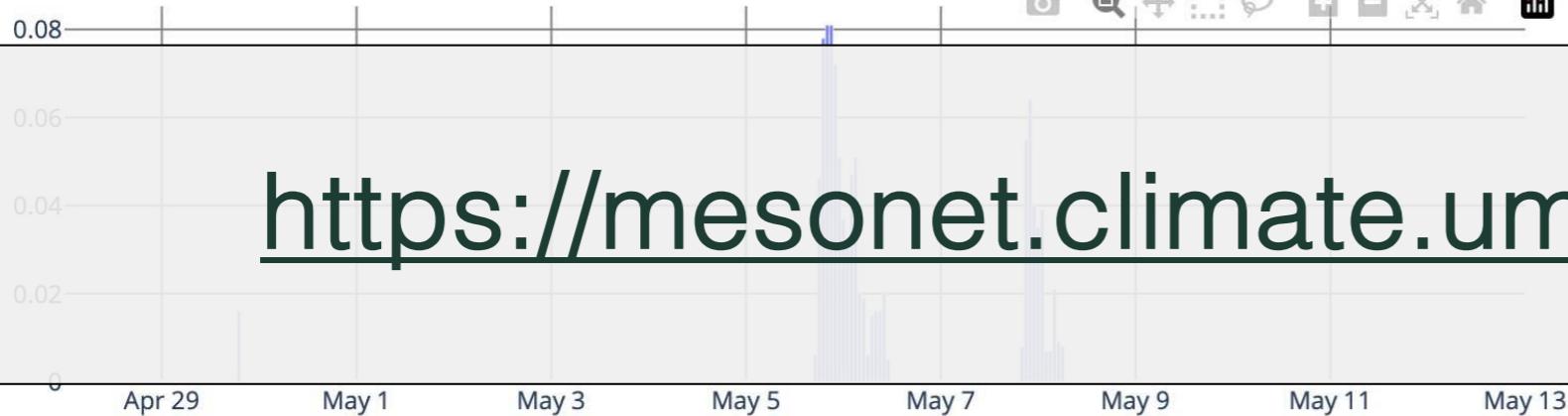
Satellite Indicators

CSKT Bison Range (HydroMet) ▾

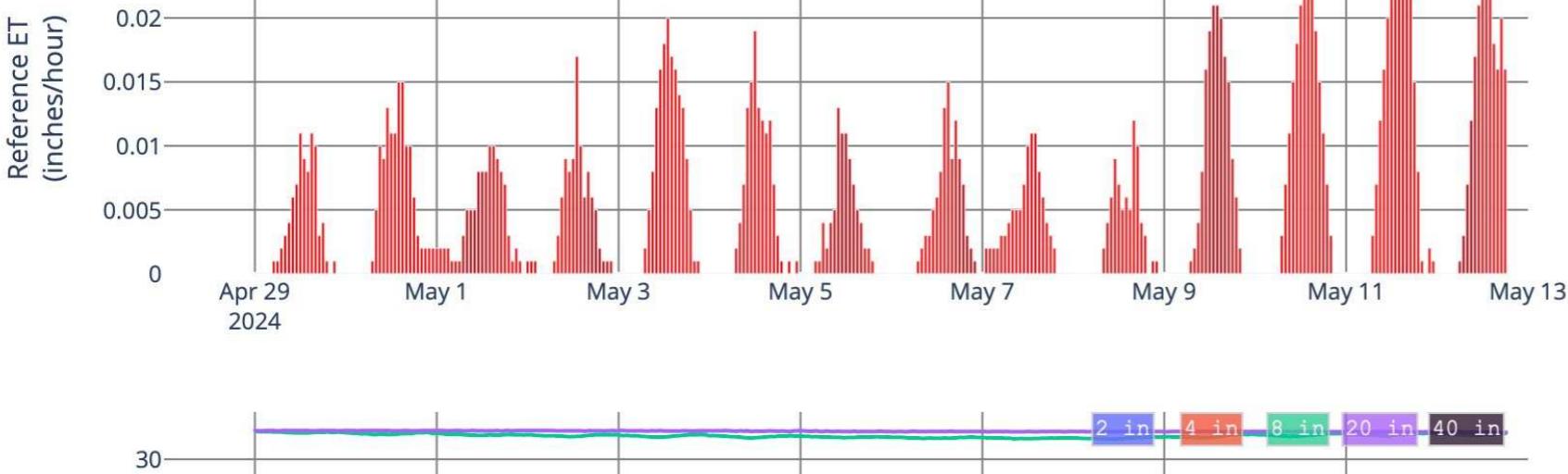
04/29/2024 → 05/13/2024

 Hourly  Daily  Raw

 gridMET Normals

 HydroMet  AgriMet
[ABOUT THESE VARIABLES](#)
 Air Temperature  Atmospheric Pressure  Bulk EC  Gust Speed  Max Precip Rate  Precipitation  Reference ET


<https://mesonet.climate.umt.edu/dash/>

[Wind Rose](#)[Weather Forecast](#)[Photos](#)
 North  South  East

 West  Snow

2024-05-12 Afternoon

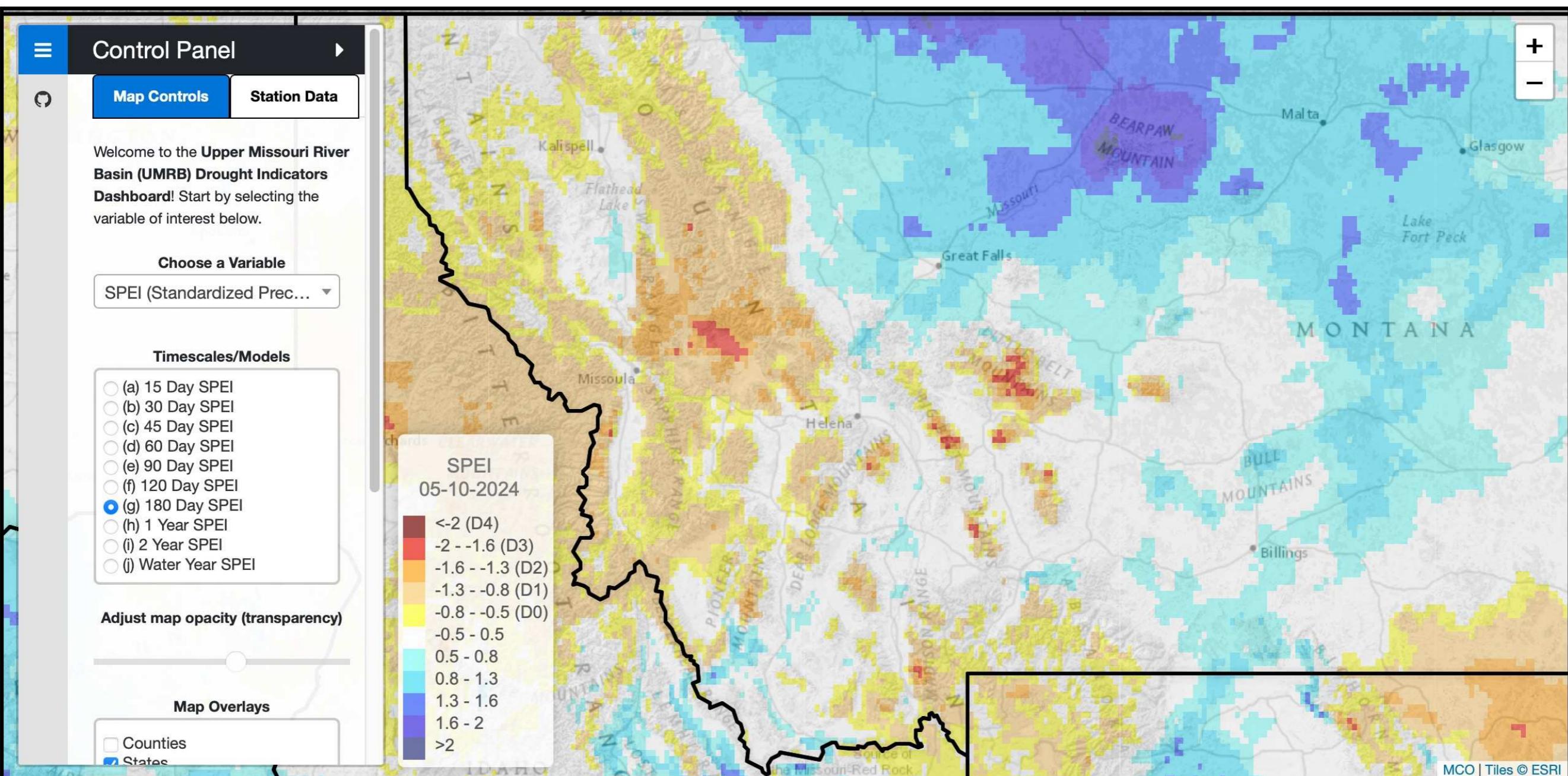

[Locator Map](#) [Station Metadata](#)

Current Conditions

Latest Data Summary

Timestamp	2024-05-12 20:05:00-06:00
Air Temperature [°F]	76.964
Precipitation [in]	0
Max Precip Rate [in/hr]	0
Atmospheric Pressure [mbar]	915.24
Relative Humidity [%]	28.83
Soil Temperature @ 2 in [°F]	69.08
Soil Temperature @ 4 in [°F]	71.96

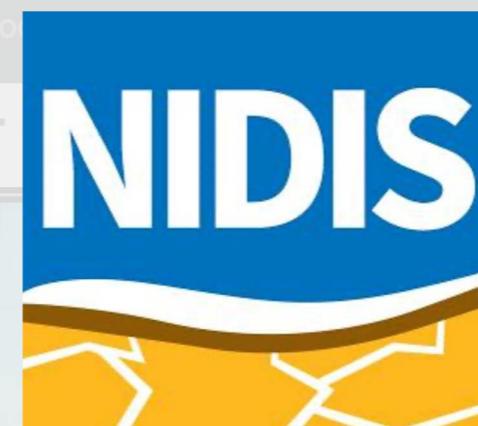
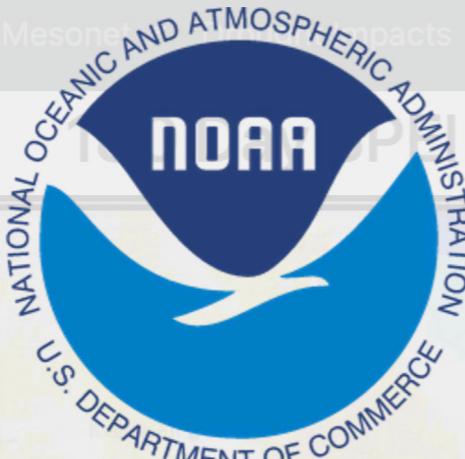
# 180 Day SPEI for 05-10-2024



## Drought Indicators Dashboard

MT Mesonet Impacts

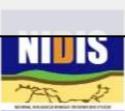
Do



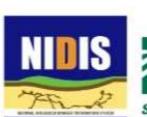
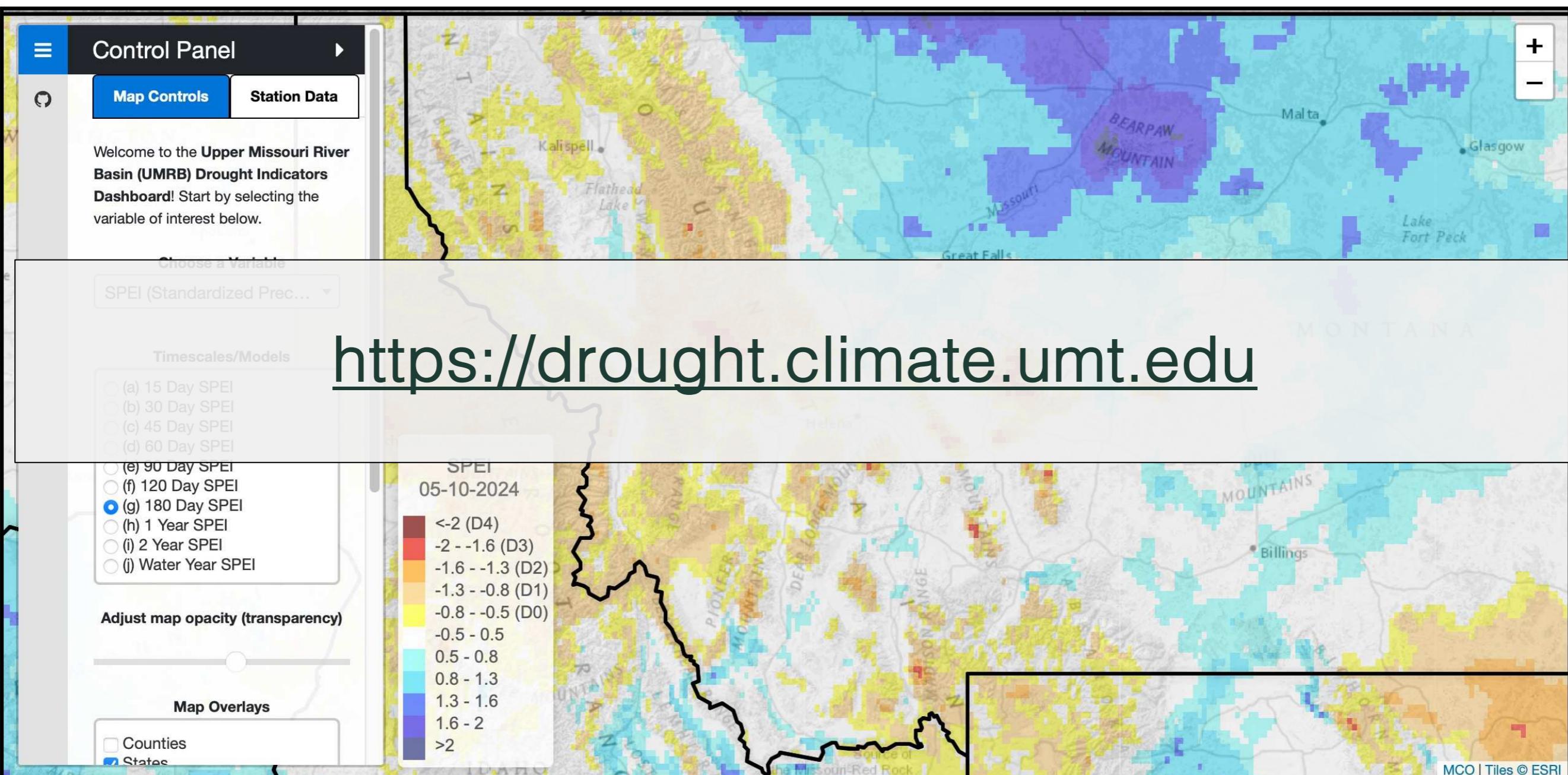
## Operational drought models

- Interactive
- Daily to weekly
- 30m – 1km resolution
- Local validation via MT Mesonet

These data form the basis for objective assessment by the monitoring committee and making our case to the USDM



## 180 Day SPEI for 05-10-2024





# Thank You!

# Questions?

Montana Mesonet Station, Matador Ranch, Phillips County

