Water Information System, Lidar, and Drought

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A Daunting Task…

Precipitation

Temperature

Reservoir storage

Water rights

Flood risk

Watershed health

Forecasts

Streamflow measurement

Snow

Technical reports

Drought

Water quality

Water Supply

Source water

Fish/Aquatic life

Remotely sensed data

Groundwater

Agricultural water use

Irrigation Infrastructure

Streamflow measurement

Water quality

Reservoir storage

Someone
needs to do it . . .

Montana Water Information System

- Facilitate water data discovery and access
- Coordinate with water data providers
- Update and maintain the Montana Hydrography Dataset

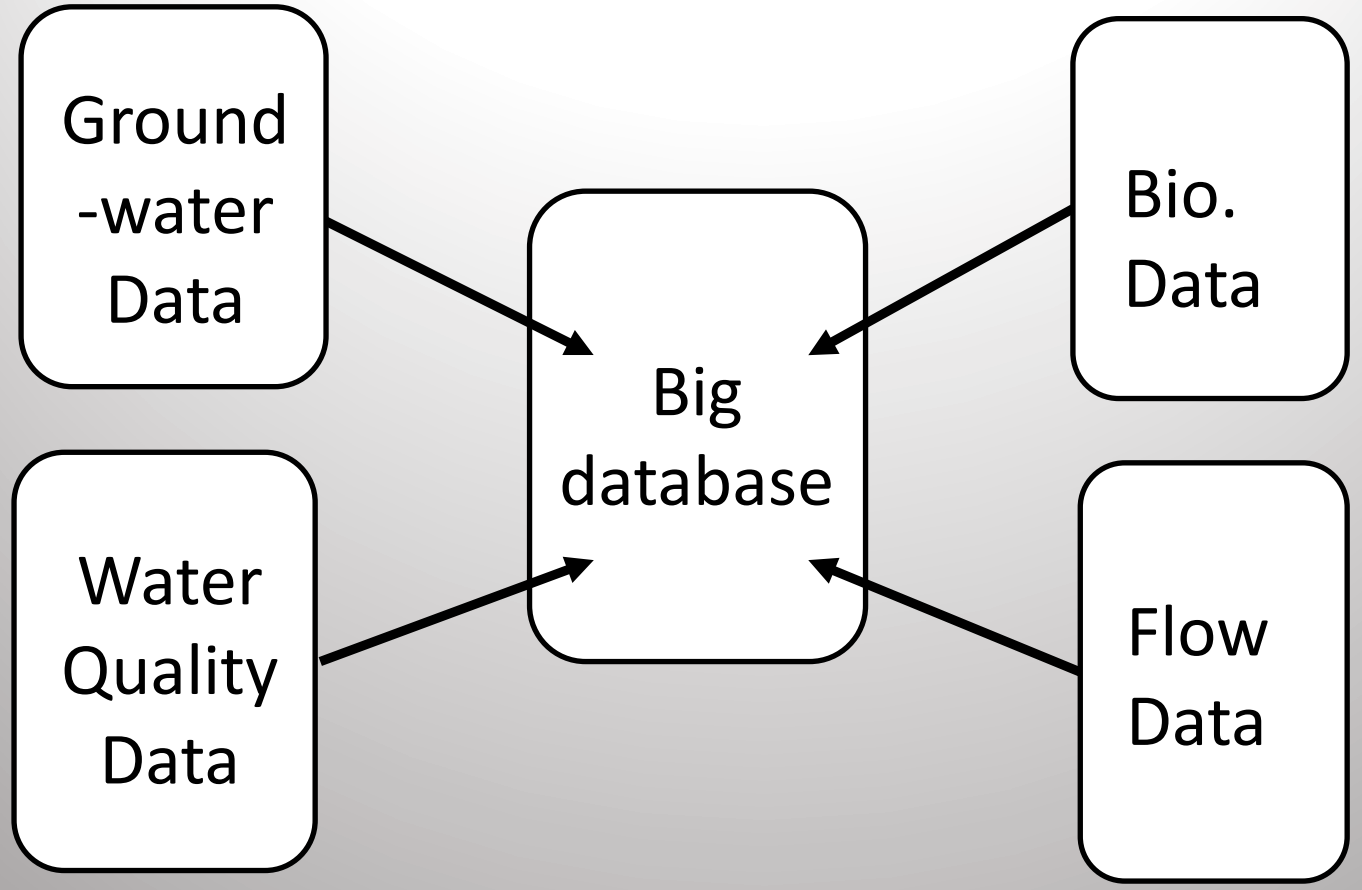
TITLE 90. PLANNING, RESEARCH, AND DEVELOPMENT
CHAPTER 15. NATURAL RESOURCE INFORMATION SYSTEM
Part 3. Information System

Water Information System

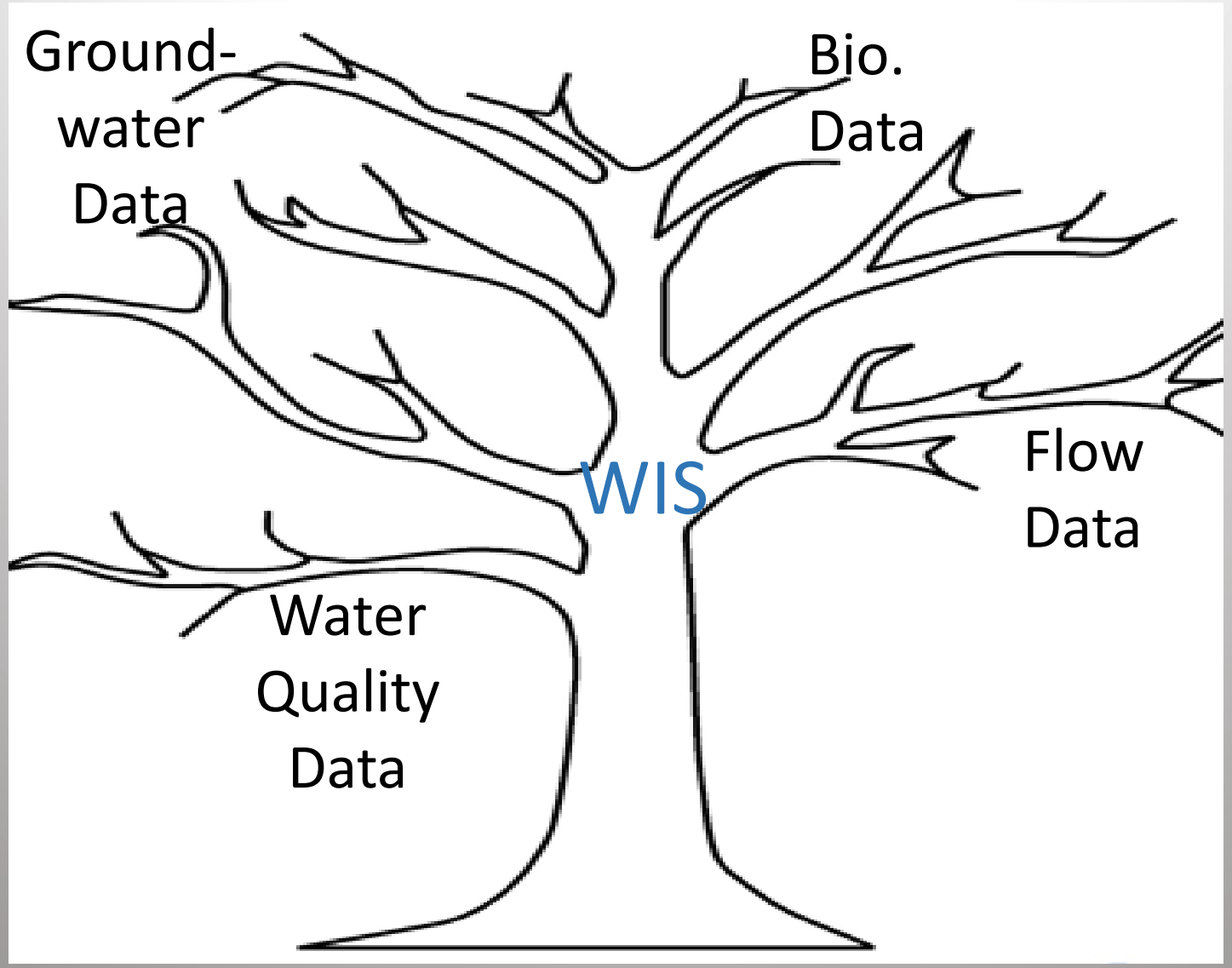
90-15-305. Water information system. (1) There is a Montana water information system, to be operated within the natural resource information system referred to in **90-15-301** and that is to be considered a part of the system.

(2) The Montana water information system shall make available and readily accessible, in a usable format, to state agencies and other interested persons, information on the state's water resources, out-of-state water resources that affect the state, existing and potential uses, and the existing and potential demand.

NOT a single, central repository



Yes, separate databases linked to a common spatial framework



Montana Spatial Data Infrastructure: Hydrography

What is it?

Networked geometry and attributes representing surface water (lakes, ponds, streams, rivers, canals, ditches, etc.). Provides a system for indexing (addressing) water-relevant data.

Status

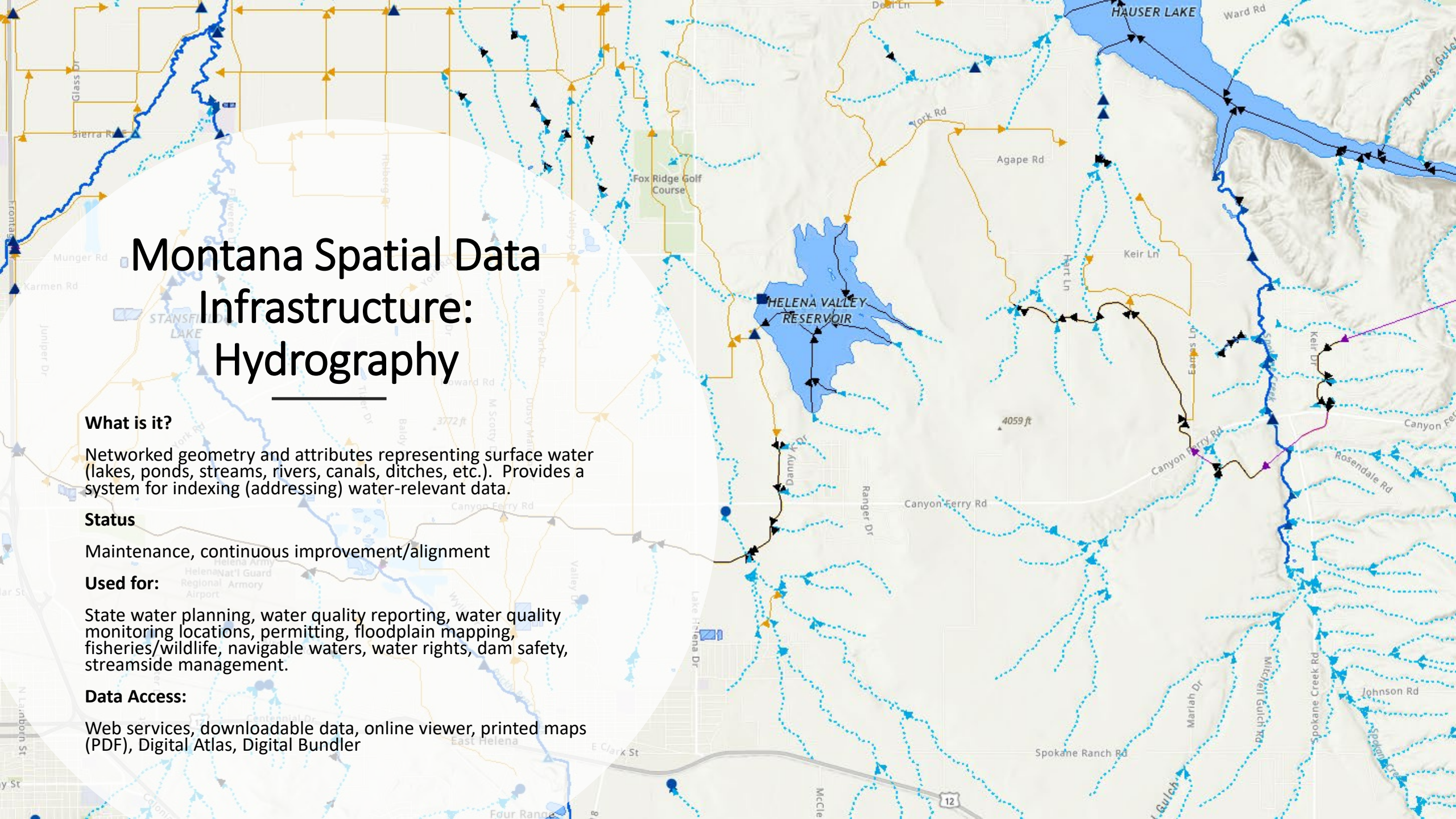
Maintenance, continuous improvement/alignment

Used for:

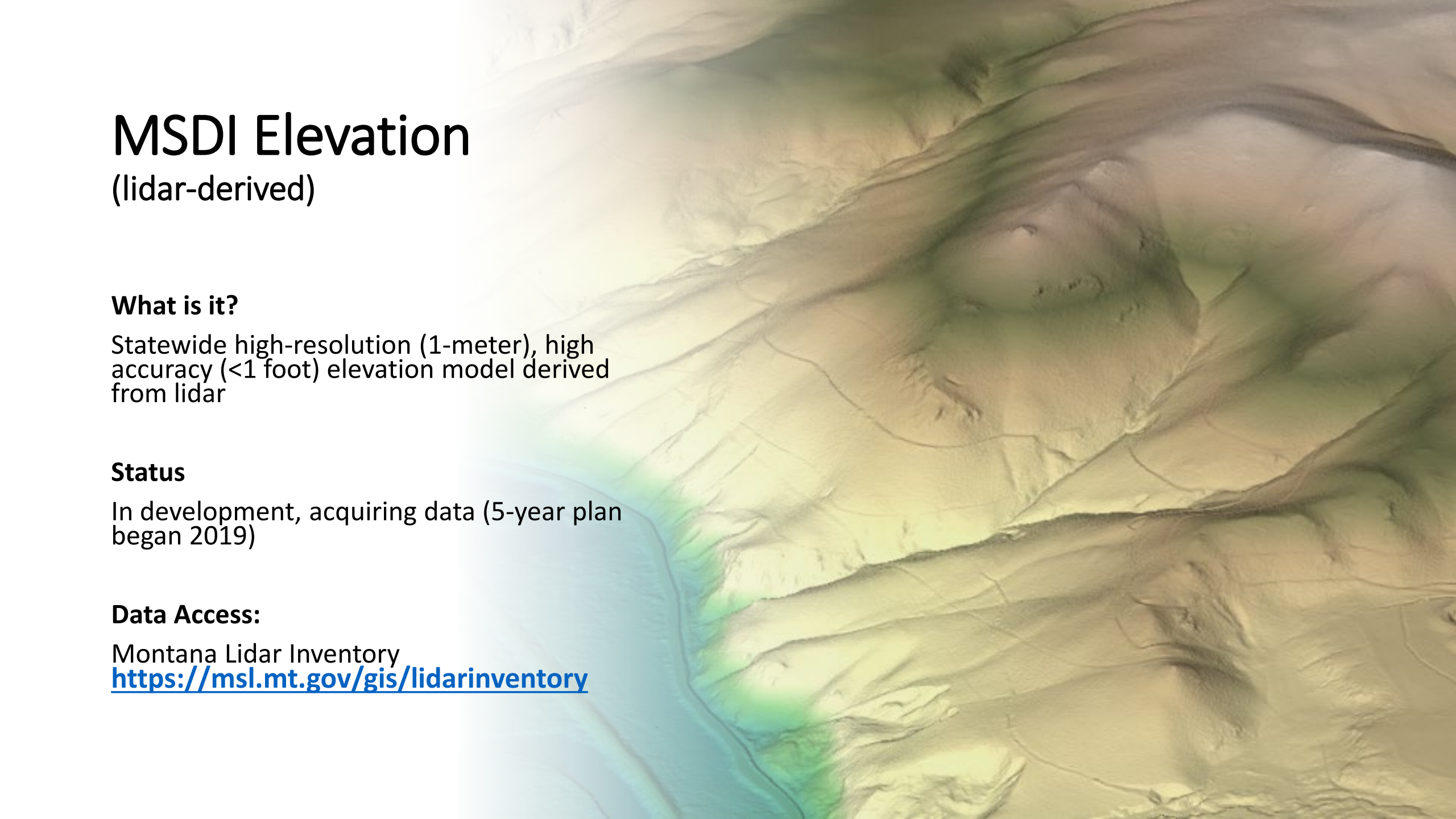
State water planning, water quality reporting, water quality monitoring locations, permitting, floodplain mapping, fisheries/wildlife, navigable waters, water rights, dam safety, streamside management.

Data Access:

Web services, downloadable data, online viewer, printed maps (PDF), Digital Atlas, Digital Bundler



MSDI Elevation
(lidar-derived)



What is it?

Statewide high-resolution (1-meter), high accuracy (<1 foot) elevation model derived from lidar

Status

In development, acquiring data (5-year plan began 2019)

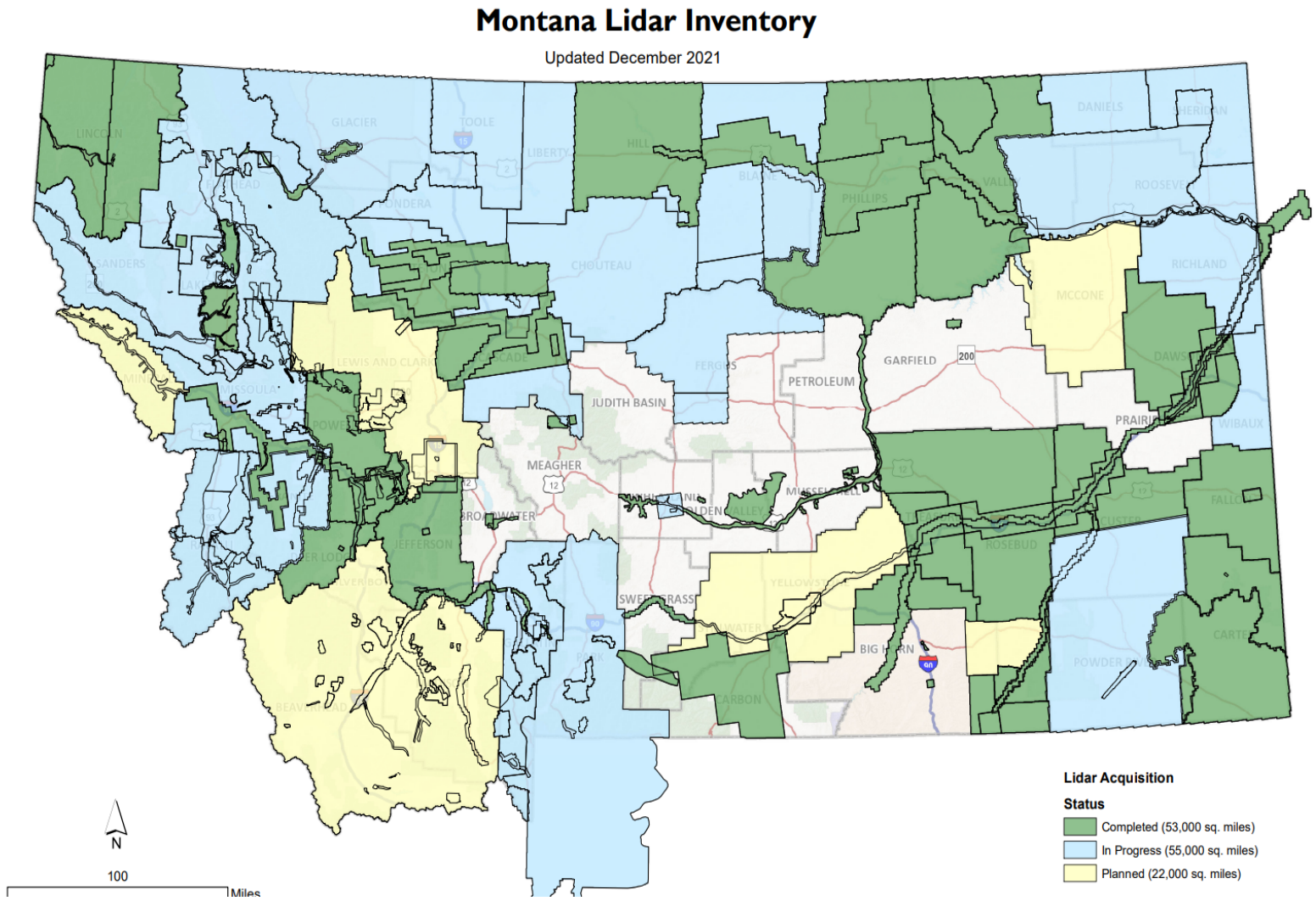
Data Access:

Montana Lidar Inventory
https://msl.mt.gov/gis/lidarinventory

Montana Lidar Inventory – Acquisition Status

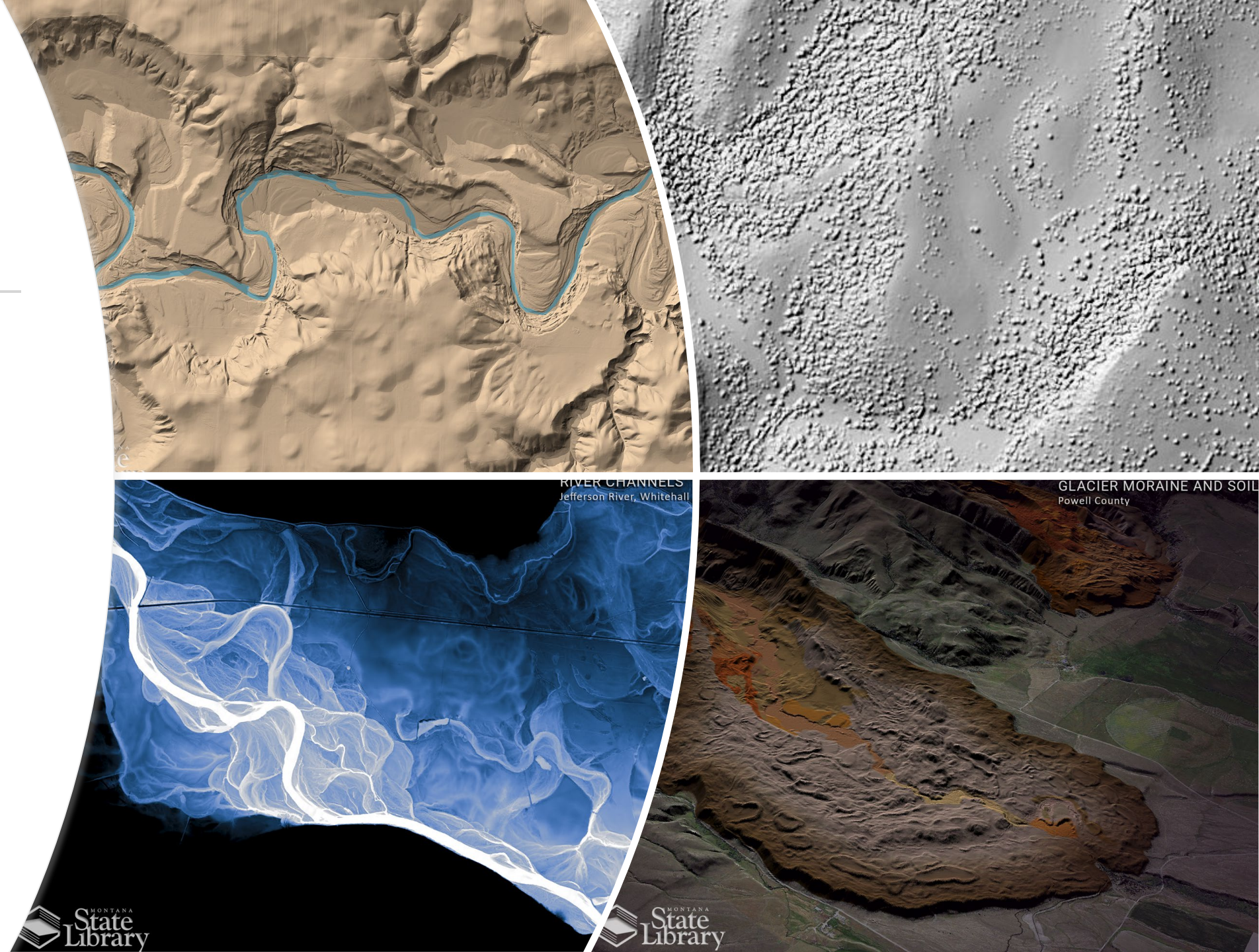
- **More lidar coming!** MT project recommended for funding FY2022 through the USGS 3D Elevation Program.
  - Yellow areas on map
  - 22,548 square miles will be flown with lidar

- Thank you to this year's lidar funding partners! Natural Resources Conservation Service (**NRCS**), Bureau of Land Management (**BLM**), United States Forest Service (**USFS**), United States Fish and Wildlife Service (**USFWS**).



MSDI Elevation

- **Core lidar-derived products available:**
  - Bare-earth Digital Elevation Model
  - Hillshade
  - Digital Surface Model
  - Intensity
  - Canopy Height Model
- LAS point cloud readily available by request
- 1-foot contours and building footprints available for some projects



Join the Montana Elevation Working Group

Federal, State, County, local, and private participants…all interested are welcome to join.

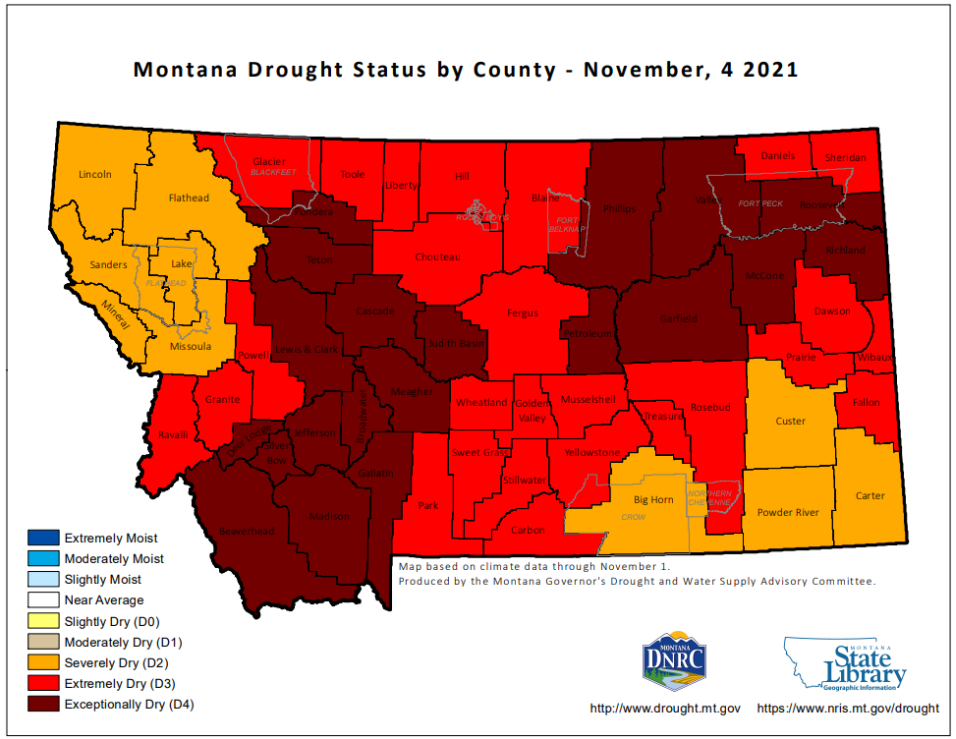
Annual Lidar Planning

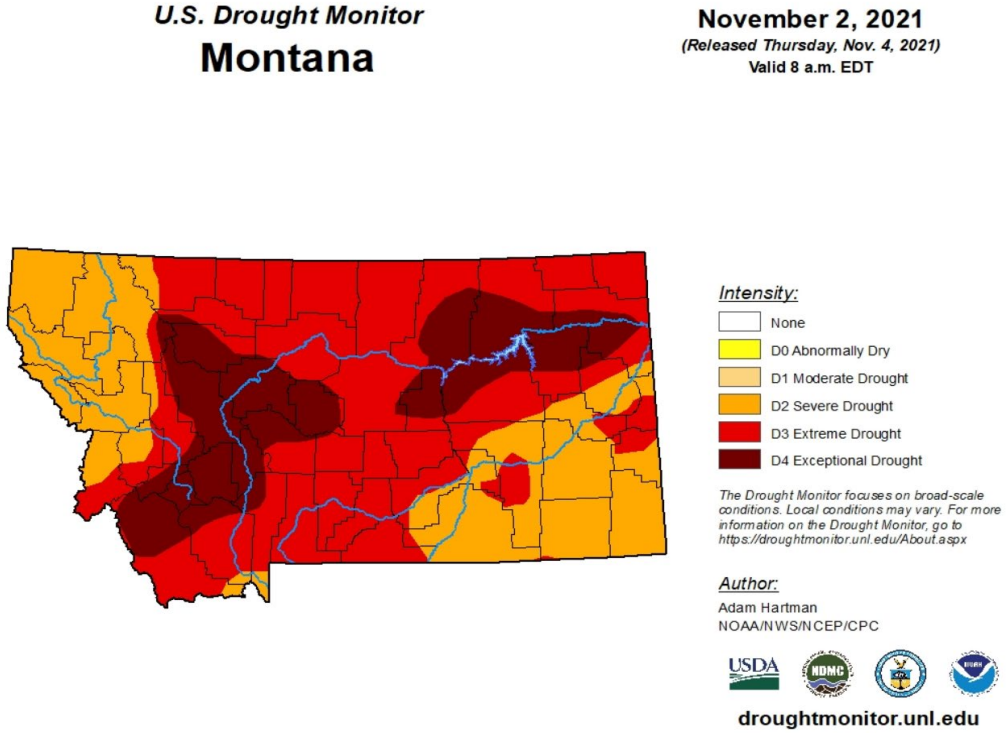
- **April-May** – Acquisition Planning Meeting, set priority areas of interest for Fall proposal
- **May-July –** Funding partner identification
- **Mid-August** – USGS 3DEP Public Webinar for Broad Area Announcement
- **September** – Proposal development
- **October** – Proposals Due

Lidar collection generally occurs in spring and fall (leaf-off) when there is no snow. Turnaround time can be 18-24 months.

Montana drought monitoring

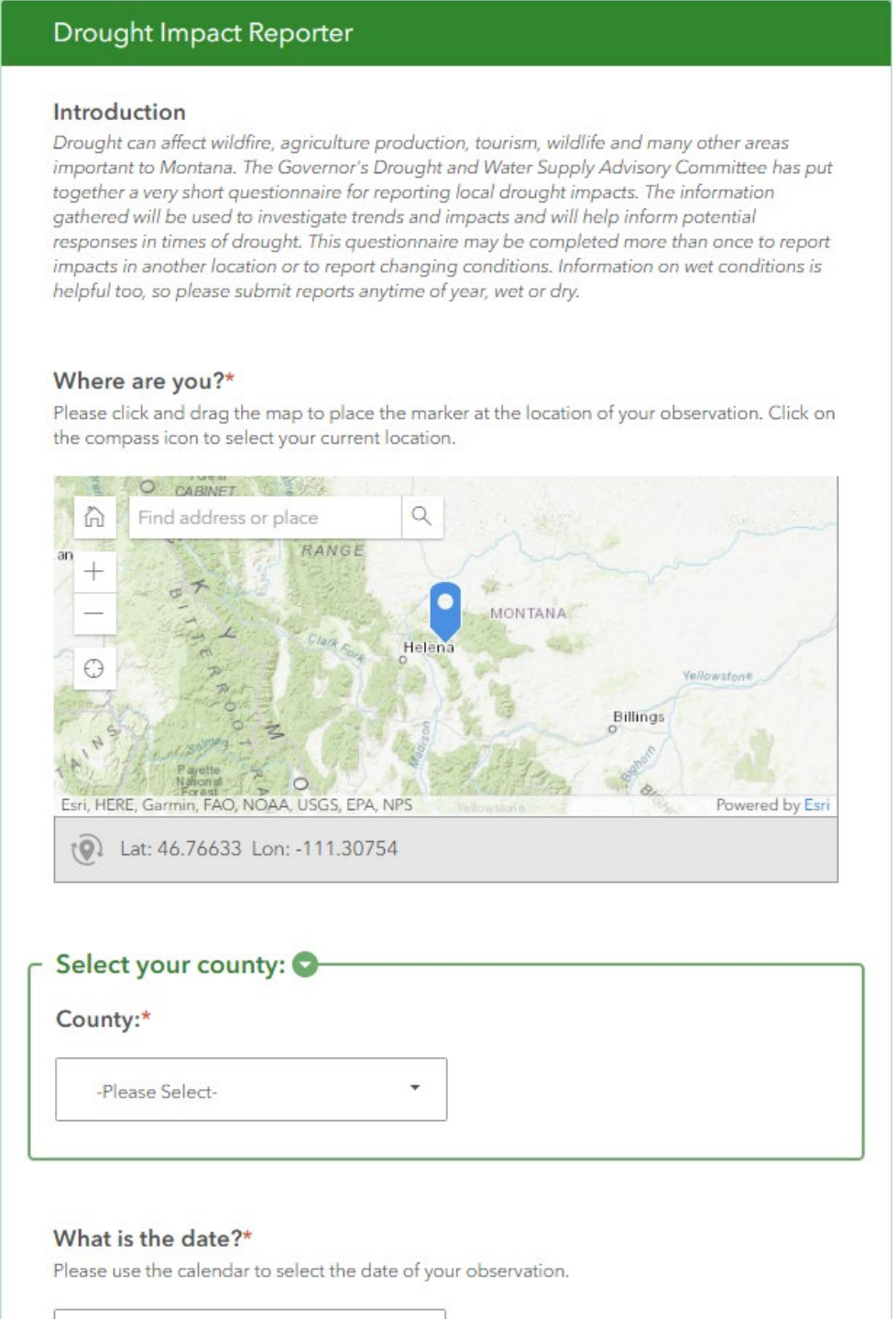
- Monthly, county-based drought map
- U.S Drought Monitor weekly map





Montana drought monitoring

- **Governor's Drought and Water Supply Advisory Committee led by Dept. of Natural Resources and Conservation (DNRC)**
- **Weekly coordination** with the U.S Drought Monitor
  - MT Drought Liaisons
    - DNRC, Michael Downey
    - State Library, Troy Blandford
    - Montana Climate Office, Zach Hoylman
    - Montana Climate Office, Kelsey Jensco
    - NOAA NWS, Arin Peters
  - MT recommendation for changes to the drought map are drafted Monday morning > general agreement is reached > recommendation is sent to USDM Author by Tuesday afternoon > new USDM map is published Thursday morning.
  - 40-50 people on listserv. Would like to have more eyes! Email one of the contacts above to be added to the listserv.
- **Monthly meetings** (Apr – Sept) to gather local input on drought impacts
- **Montana Drought Impact Reporter** – live, ongoing survey for reporting moisture conditions. Producers, field staff, Extension, Farms Service Agency, …open to anyone.

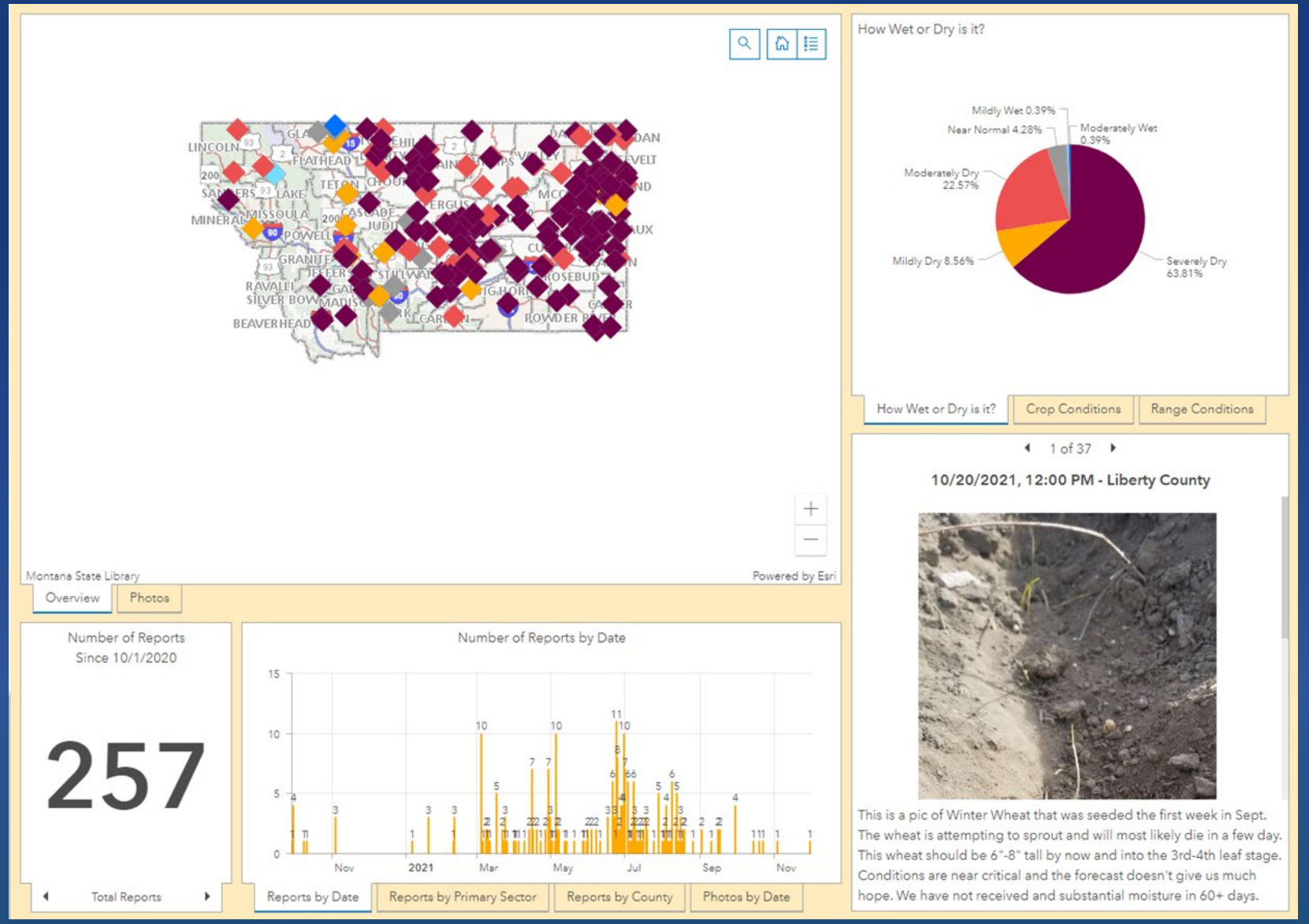


MT Drought Impact Reporter

- Report on moisture conditions in your area with a simple questionnaire
  - Anyone can submit a report
- Released July 2017
  - Live/ongoing, retake as conditions change, good or bad
- 200+ reports received in Water Year 2021
- **Submit reports:**
  https://nris.mt.gov/droughtsurvey

View Drought Impact Reports:

https://nris.mt.gov/droughtimpacts



Thanks!

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