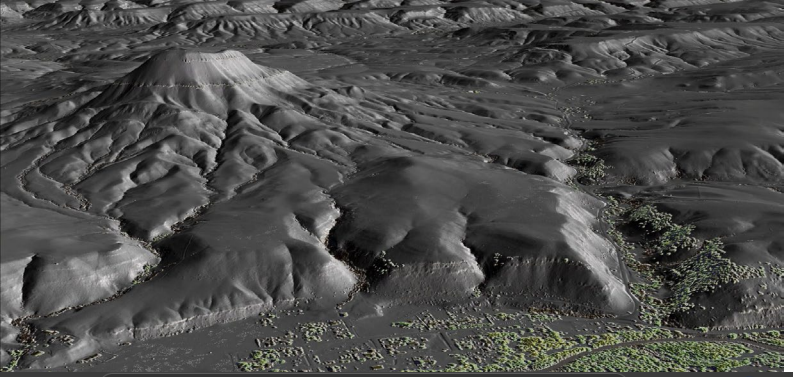
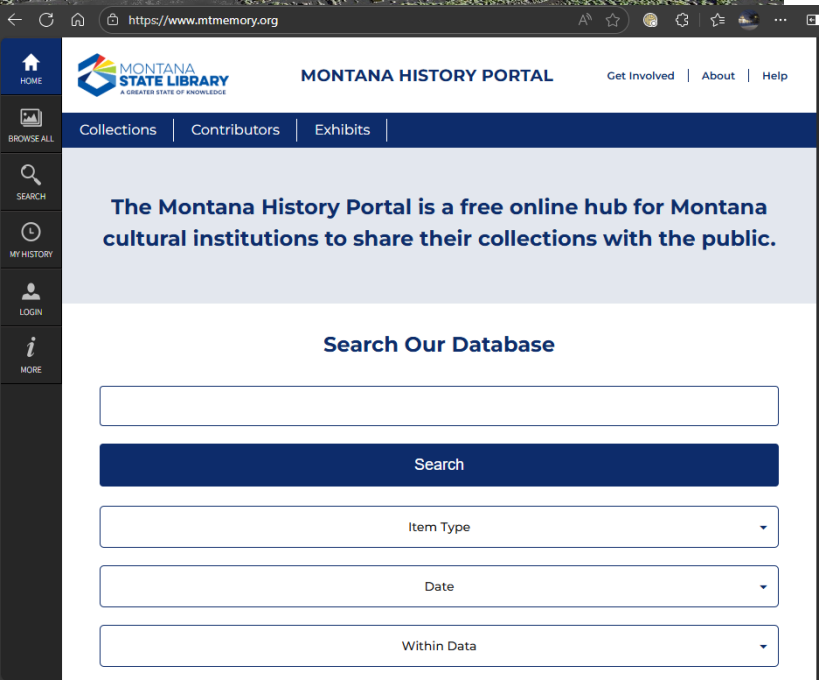
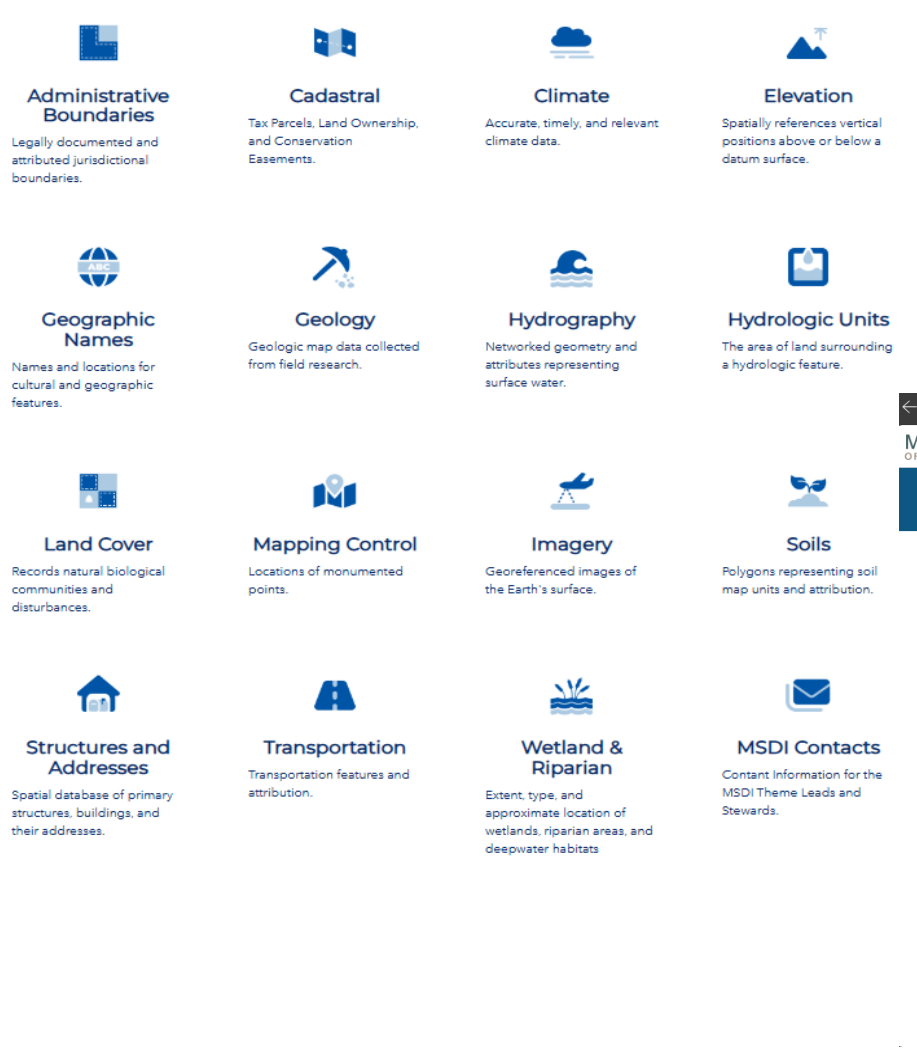
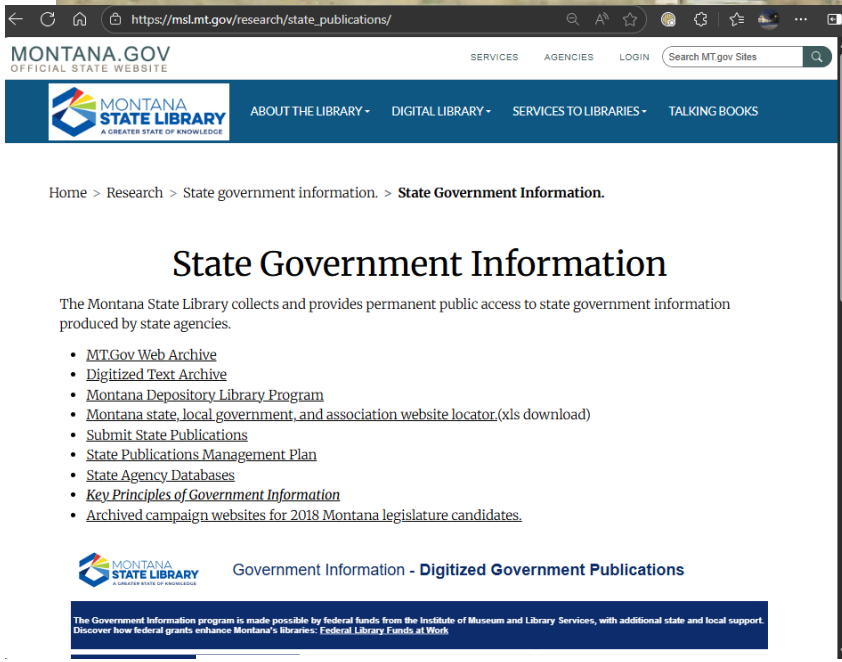










Montana State Library - Digital Library Services

2026 Montana Natural Heritage Program Partners Meeting

10/08/2026

MONTANA STATE LIBRARY
A GREATER STATE OF KNOWLEDGE



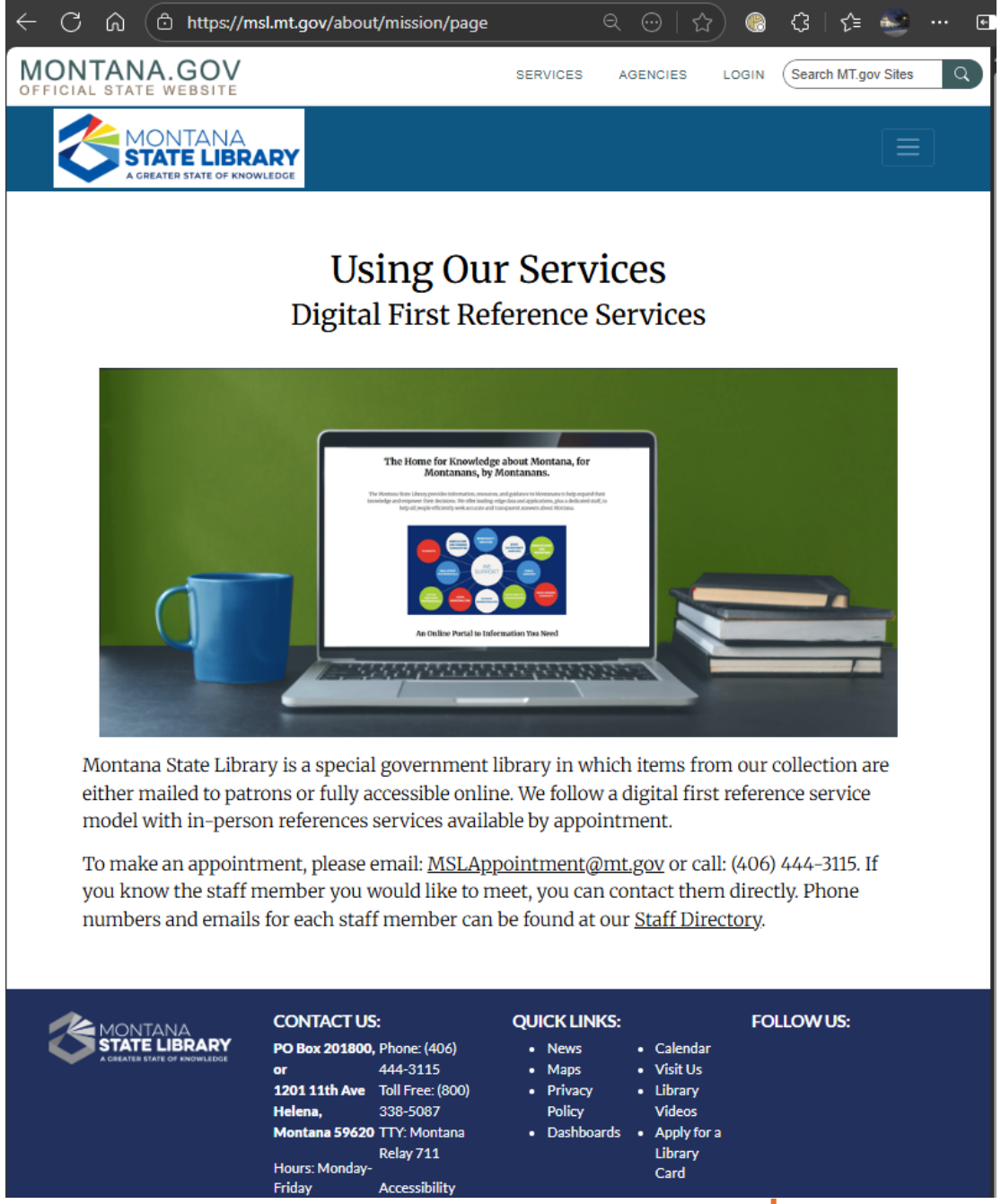


Agenda

- Digital Library Programs
- GIS Coordination in Montana
- Geospatial Data Highlights
  - Montana Spatial Data Infrastructure (MSDI)
  - Imagery
  - Lidar
  - Elevation-Derived Hydro
  - Montana State Realtime Network
- Wrap Up
- Questions

Digital Library Programs

- Montana Natural Heritage Program
- GIS Coordination
- Water Information System
- Land Information
- Government Information
- Montana History Portal
- Montana State Reference Network
- Research Resources



GIS Coordination in the State of Montana

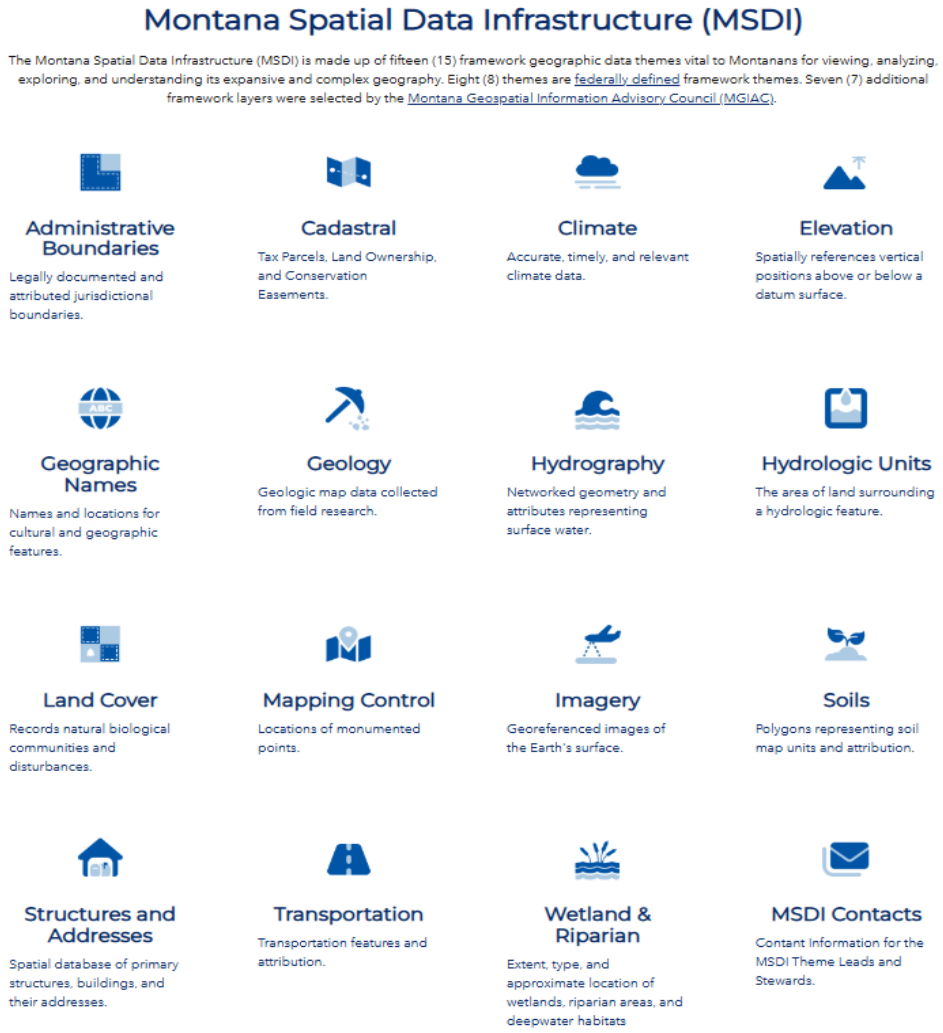
MONTANA STATE LIBRARY
GIS COORDINATION



Montana Geospatial Information Act (MGIA)

- State GIS Coordination
- Advisory Council
- **M**ontana **S**patial **D**ata **I**nfrastructure
- Grant Program
- Geospatial Information Plan
- GIS Coordination Strategic Plan

Montana Spatial Data Infrastructure



- Stewarding Agency
- Theme Lead
- Statewide Datasets
  - Downloadable
  - Web Services
  - Metadata
  - Applications
- Working Groups – open to all
- **Theme Plans**

https://msl.mt.gov/geoinfo/#MSDI

Working Groups - Get Involved!

Framework Theme	Steward	Lead	Theme Plans
Administrative Boundaries	Montana State Library	Meghan Burns	DRAFT - Administrative Boundaries Data Improvement Plan
Cadastral	Montana State Library	Jeff Hedstrom	DRAFT - MSDI Cadastral Theme Plan
Climate	University of Montana	Dr. Kelsey Jencso	-
Elevation	Montana State Library	Troy Blandford	DRAFT - Elevation Theme Plan
Geographic Names	Montana State Library	geoinfo@mt.gov	-
Geology	Montana Bureau of Mines & Geology	John Sanford	-
Hydrography	Montana State Library	Troy Blandford	DRAFT - Hydrography Theme Plan
Hydrologic Units	Natural Resources Conservation Service	Nathan Parry	-
Land Cover	Montana Natural Heritage Program	Jessica Mitchell	-
Mapping Control	Montana State Library	Bob Holliday	-
Imagery	Montana State Library	Erin Fashoway	-
Soils	Natural Resources Conservation Service	Nathan Parry	-
Structures & Addresses	Montana State Library	Michael Fashoway	DRAFT - MSDI Structures & Addresses Theme Plan
Transportation	Montana State Library	Michael Fashoway	-
Wetlands & Riparian	Montana Natural Heritage Program | Montana Department of Environmental Quality	Bryce Maxell | Steve Carpenedo	-

https://msl.mt.gov/geoinfo/data/msdi/ - Contact Theme Lead today!

Collaboration: MSDI Working Groups

- Develop Standards for Imagery Data
- Create an Inventory of Existing Data
- Understand Business Uses and Critical Activities
- Explore Cost Efficiencies of Shared Resources
- Develop MSDI Imagery Plan



Imagery Working Group Example

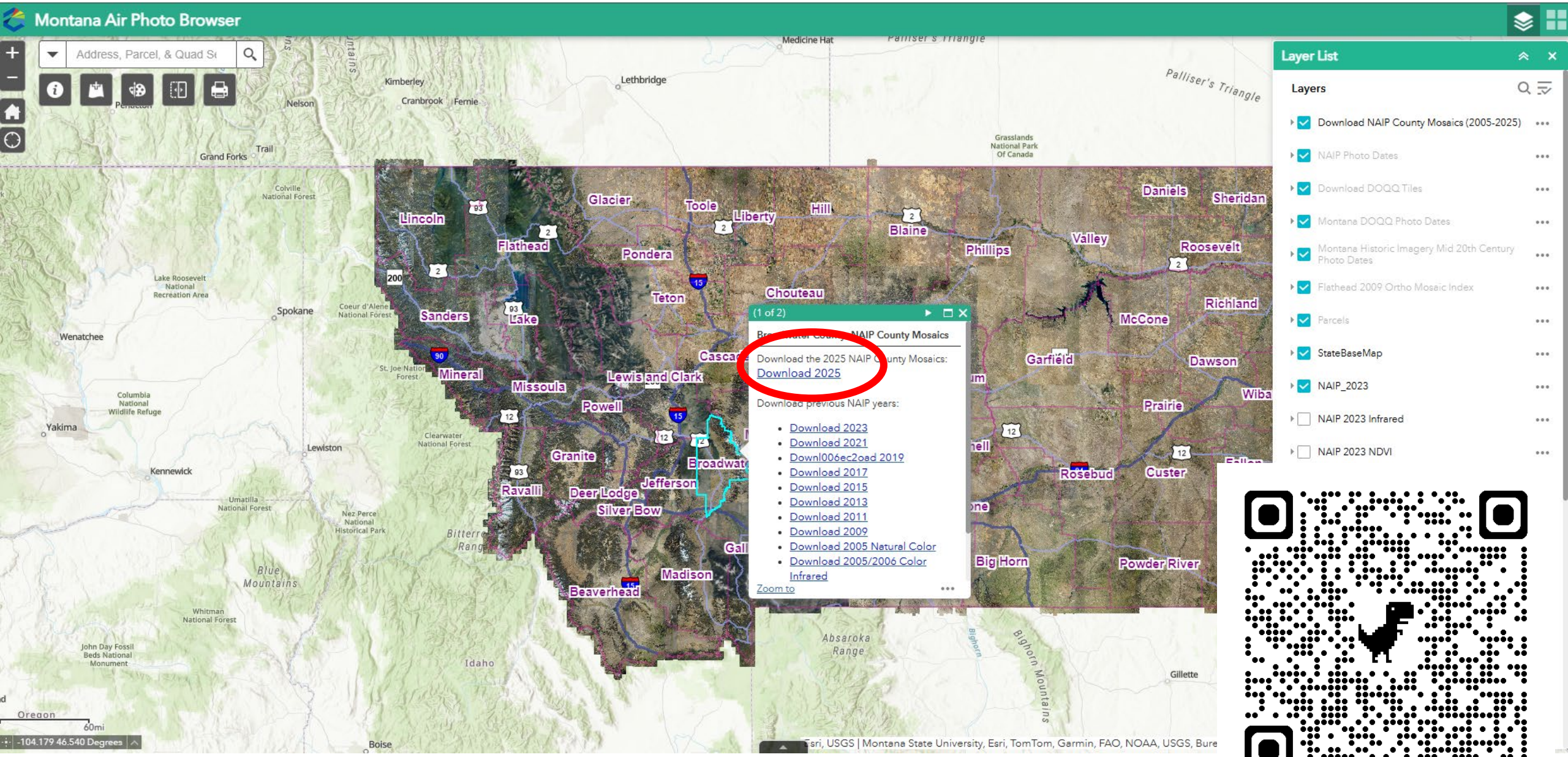
Imagery



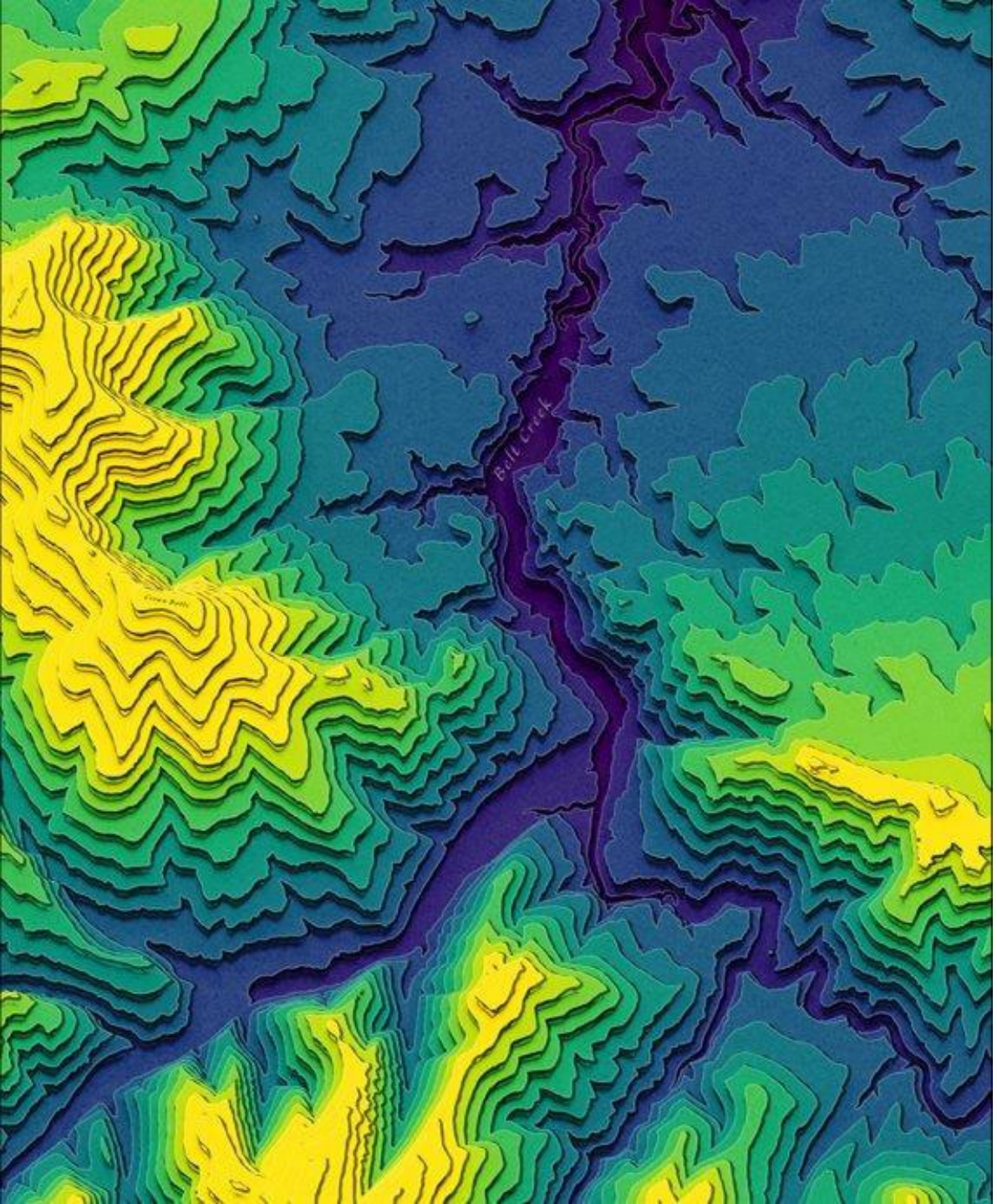


Imagery

- MT statewide imagery is **NAIP**
  - Ten NAIP collections since 2005 (approx. every 2 years)
- NAIP **2025** collected
  - at 30 cm resolution in MT!
  - County mosaics **now available**
  - Provisional web services **now available**
- Other ad hoc collections
- MSDI Aerial Photo Info


Montana Air Photo Browser
Address, Parcel, & Quad Se
Layer List
Layers
Download NAIP County Mosaics (2005-2025)
NAIP Photo Dates
Download DOQQ Tiles
Montana DOQQ Photo Dates
Montana Historic Imagery Mid 20th Century Photo Dates
Flathead 2009 Ortho Mosaic Index
Parcels
StateBaseMap
NAIP_2023
NAIP 2023 Infrared
NAIP 2023 NDVI
(1 of 2)
NAIP County Mosaics
Download the 2025 NAIP County Mosaics:
Download 2025
Download previous NAIP years:
Download 2023
Download 2021
Download 2019
Download 2017
Download 2015
Download 2013
Download 2011
Download 2009
Download 2005 Natural Color
Download 2005/2006 Color Infrared
Zoom to
Medicine Hat
Lethbridge
Kimberley
Cranbrook
Fernie
Nelson
Grand Forks
Trail
Grasslands National Park Of Canada
Colville National Forest
Lake Roosevelt National Recreation Area
Spokane
Coeur d'Alene National Forest
Wenatchee
Yakima
Columbia National Wildlife Refuge
Lewiston
Kennewick
Umatilla National Forest
Nez Perce National Historical Park
Clearwater National Forest
St. Joe National Forest
Whitman National Forest
John Day Fossil Beds National Monument
Blue Mountains
Idaho
Oregon
Boise
Absaroka Range
Bighorn Mountains
Gillette
Lincoln
Flathead
Glacier
Toole
Liberty
Hill
Blaine
Phillips
Valley
Daniels
Sheridan
Roosevelt
Richland
McCone
Garfield
Dawson
Prairie
Wibaux
Rosebud
Custer
Powder River
Big Horn
Pondera
Teton
Chouteau
Sanders
Lake
Mineral
Missoula
Lewis and Clark
Powell
Granite
Broadwater
Jefferson
Ravalli
Deer Lodge
Silver Bow
Madison
Beaverhead
Esri, USGS | Montana State University, Esri, TomTom, Garmin, FAO, NOAA, USGS, Bure
-104.179 46.540 Degrees

Elevation - Lidar

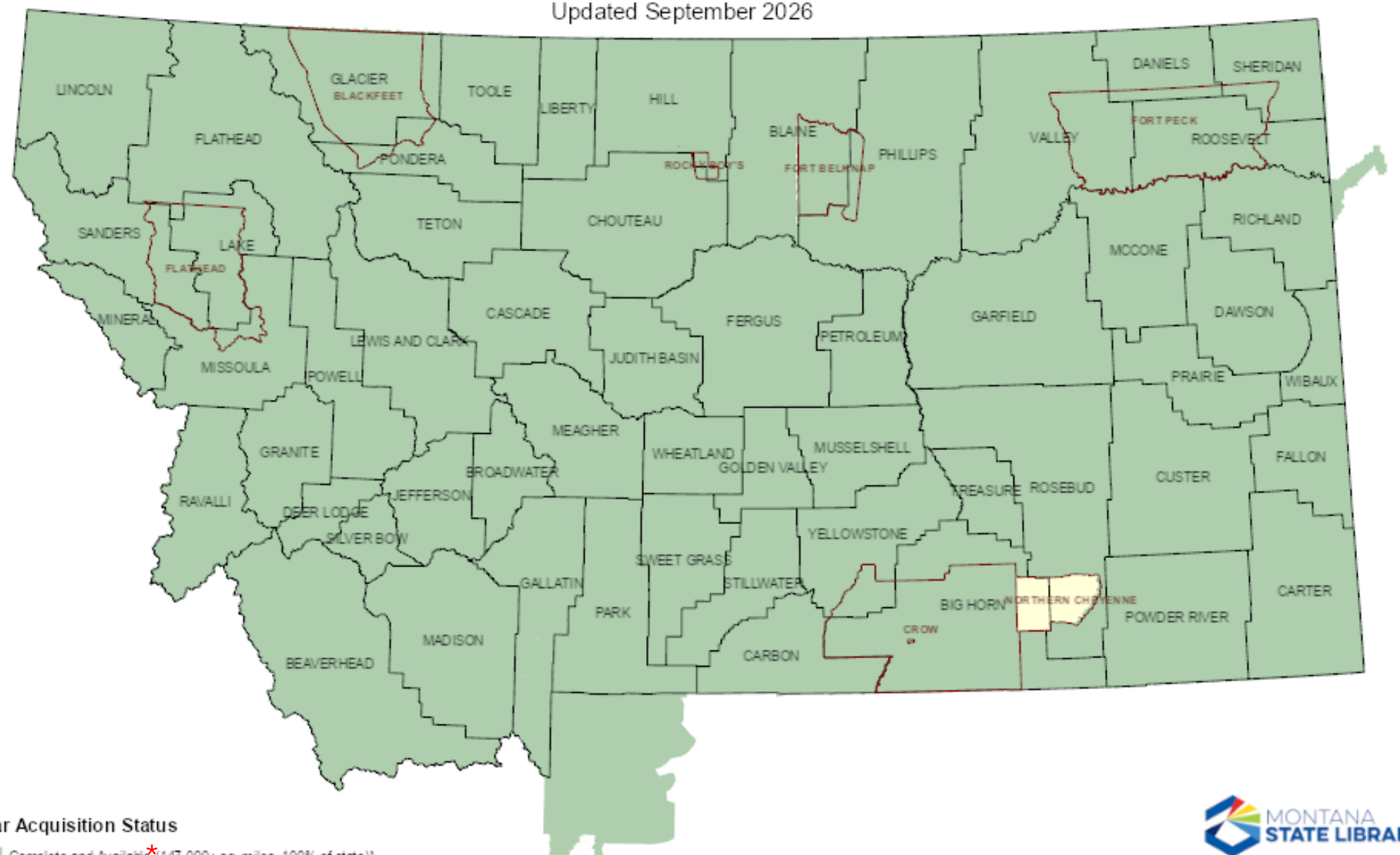


LiDAR (Elevation Data)

- MSL serves in a coordination role finding partners to acquire lidar through the **USGS 3D Elevation Program (3DEP)**.
- Kicked off in 2019
- From meters (current) to centimeters (future) accuracy
- Ubiquitous access

Montana Lidar Inventory

Updated September 2026



Lidar Acquisition Status

Complete and Available* (147,000+ sq. miles, 100% of state)*

Planned

*Includes overlapping projects and Yellowstone National Park

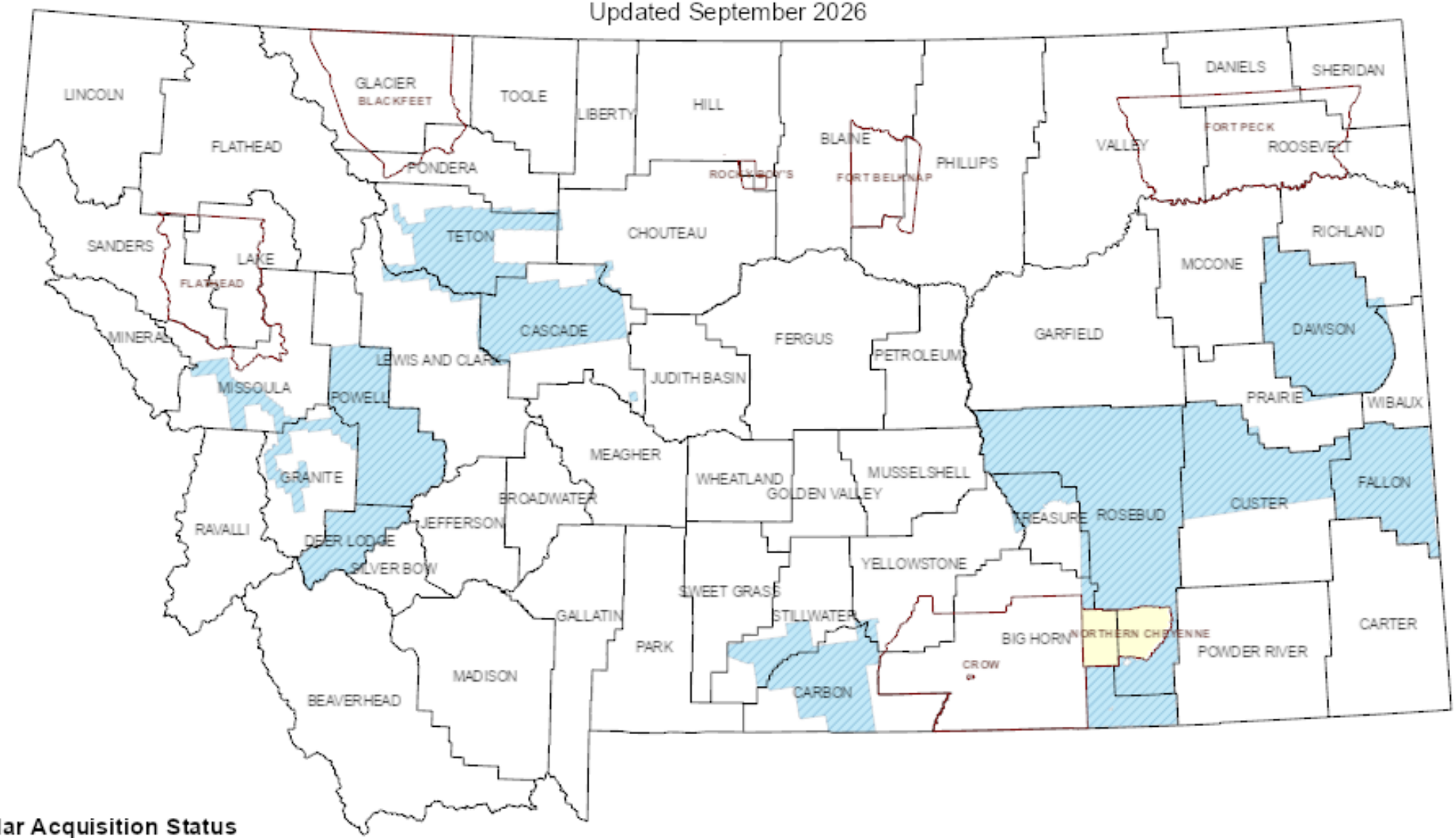
*Fort Peck and Fort Belknap lidar must be requested directly from Tribe

MONTANA STATE LIBRARY

Map updated September, 2026
Map number: 19MT0010
https://msl.mt.gov/gis/lidarinventory

Montana Lidar Inventory

Updated September 2026



Lidar Acquisition Status

- In Progress (20,000 sq. miles)*
- In Progress (Reacquire)
- Planned

*Includes overlapping projects and Yellowstone National Park

MONTANA STATE LIBRARY

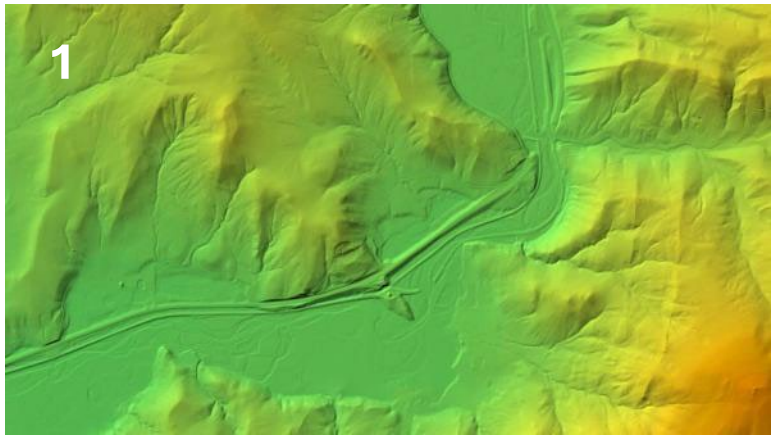
Map updated September, 2026
Map number: 19MT0010
https://msl.mt.gov/gis/lidarinventory

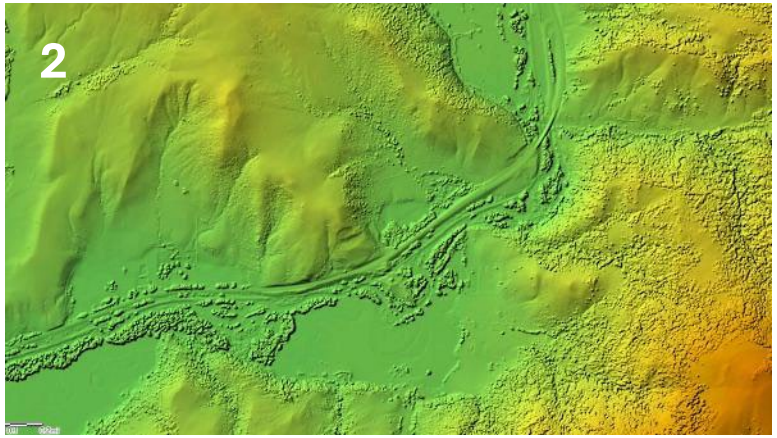
What is available?

Core Products (1 meter resolution)

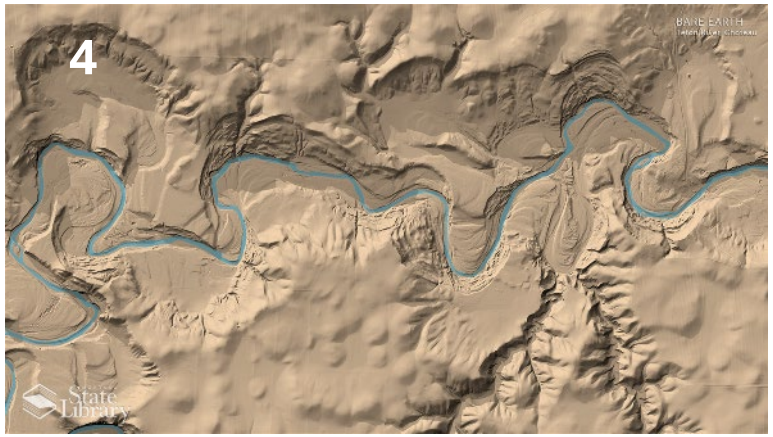
1. Bare-earth Digital Elevation Model
2. Digital Surface Model
3. Canopy Height Model
4. Hillshade
5. Intensity image

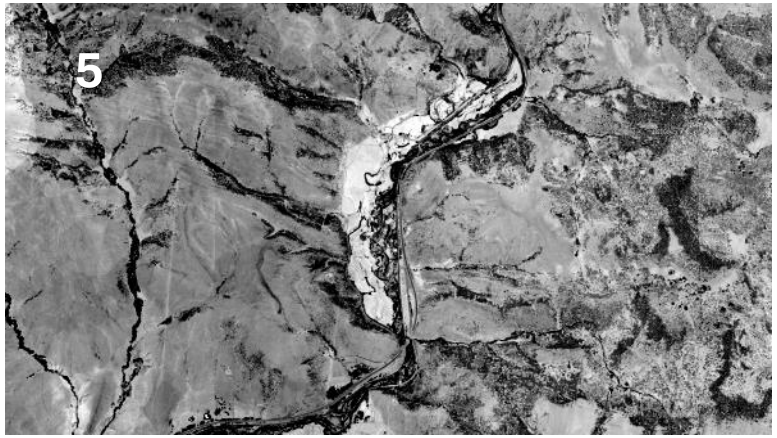
1-foot contours coming!



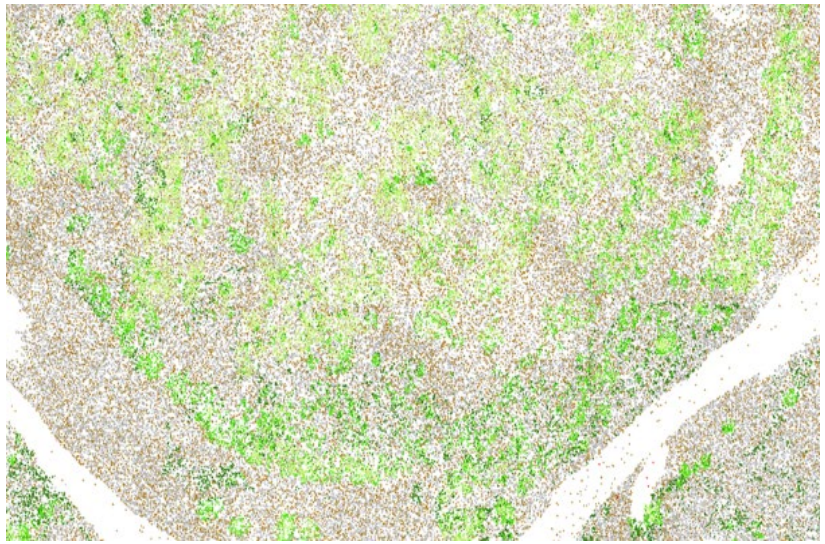








Point Cloud



Water breaklines



Contours



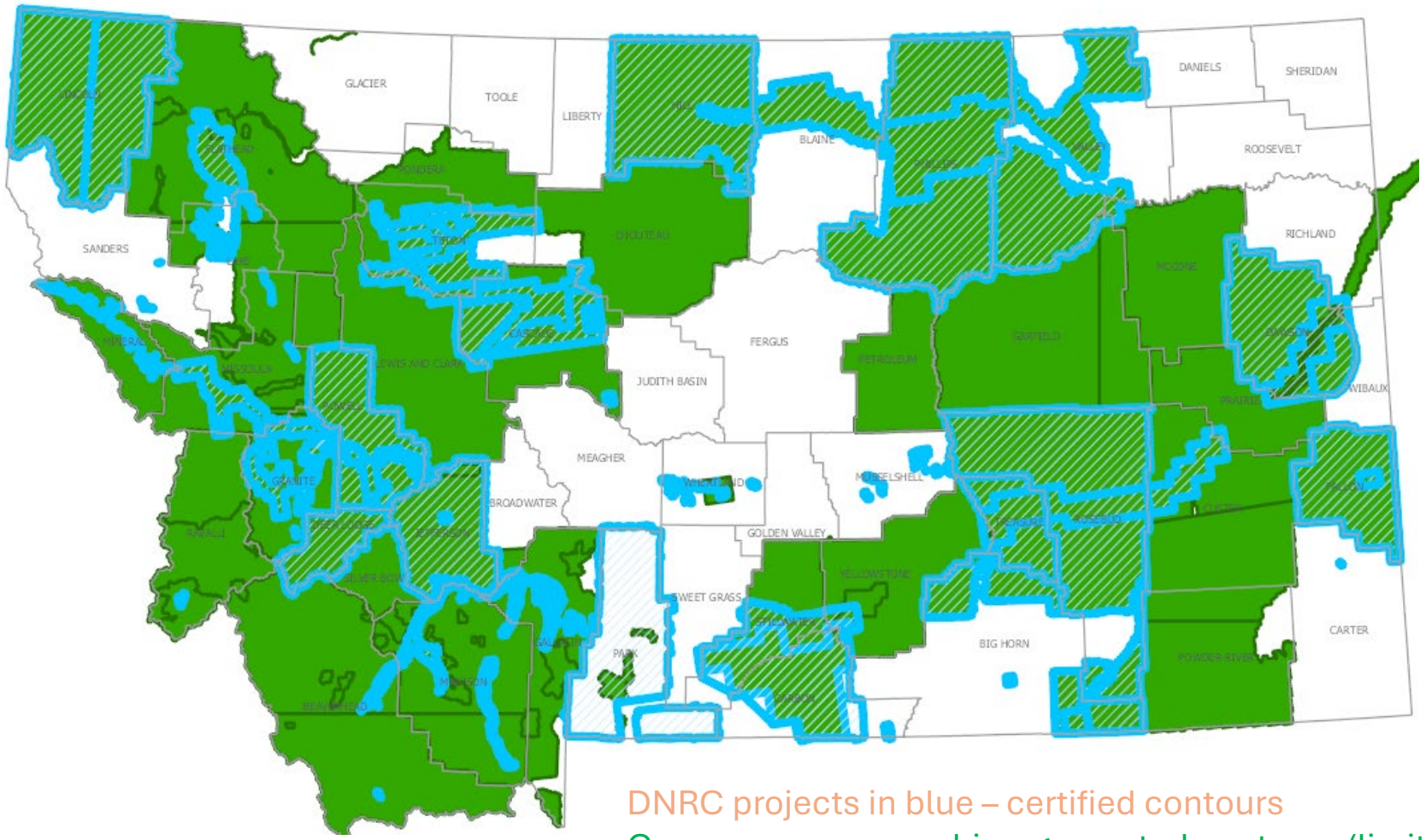
Reports and metadata

LocationData	11/3/2020 9:48 AM	File folder
Metadata	6/23/2020 1:28 PM	File folder
Mosaics	9/27/2021 2:11 PM	File folder
PointCloudData	7/21/2021 9:48 PM	File folder
Quads	10/5/2021 4:38 PM	File folder

Building footprints



1-foot Contour Availability



Best practice

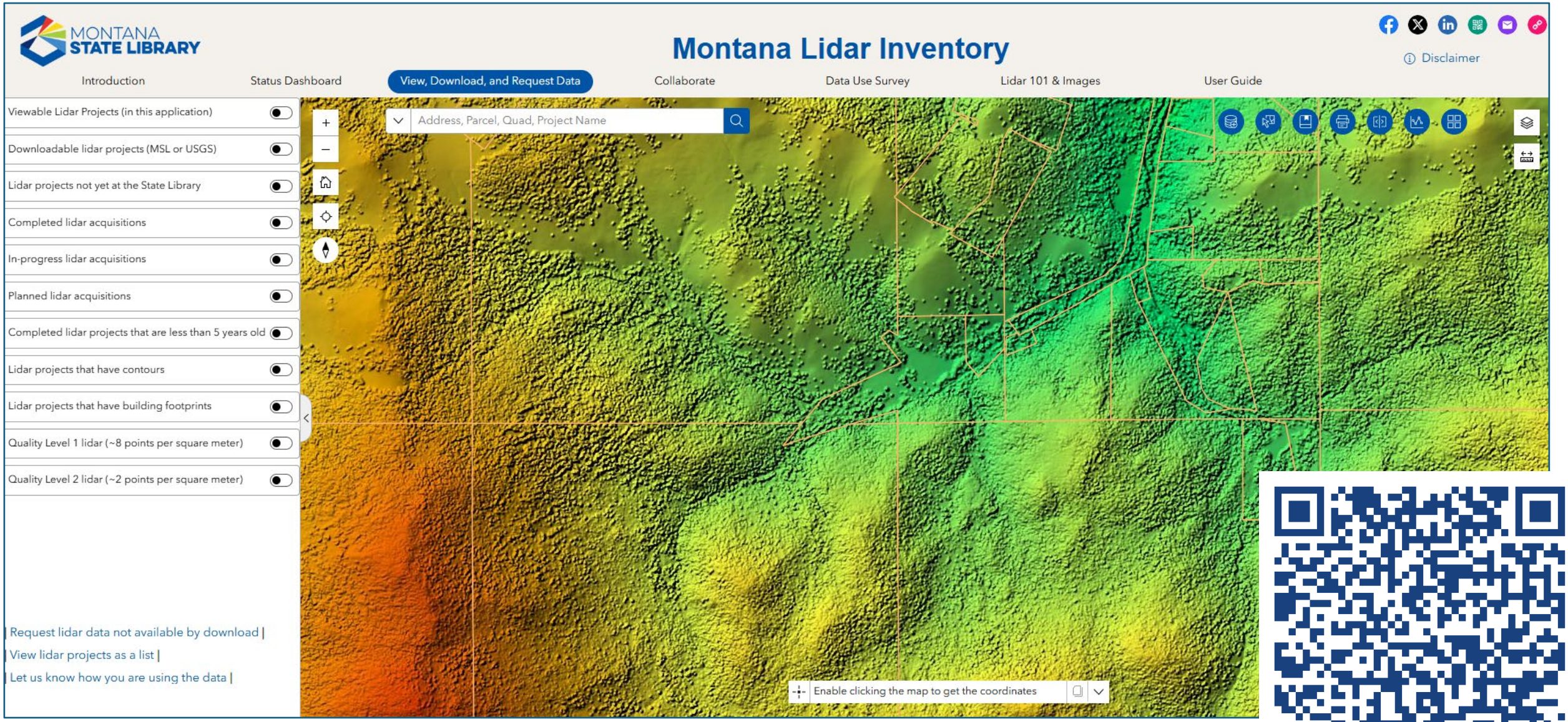
Use contours for visual purpose only

+/- 1 foot

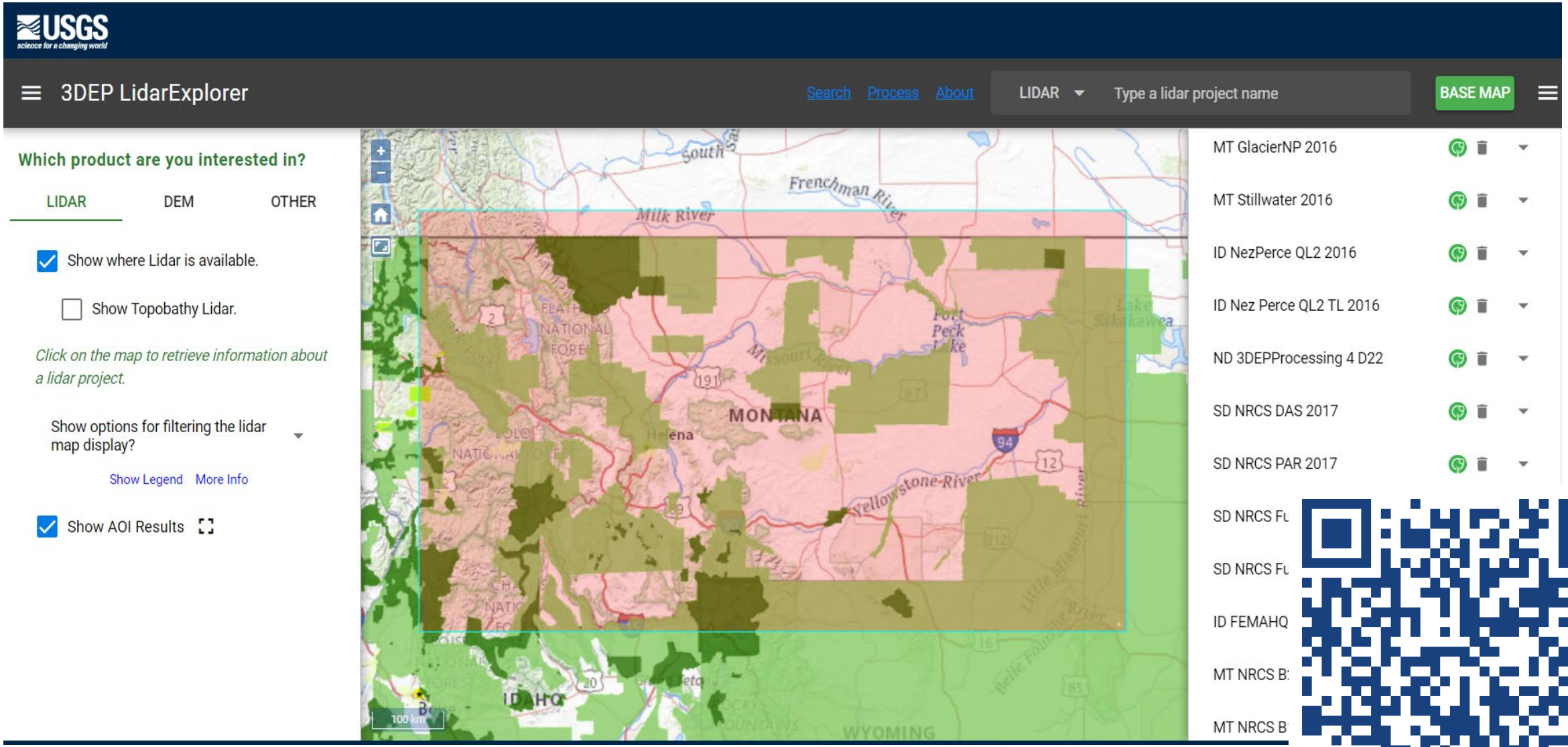
DNRC projects in blue – certified contours

Green areas are machine-generated contours (limited review)

Where to get lidar data?



USGS National Map – LidarExplorer



Comparison – When to use each app?

MSL – Montana Lidar Inventory

- Download full-project mosaics (~countywide) - geotiff
- Download by 24K quadrangle - geotiff
- State-led collections
- LAZ/LAS by request only
- Additional derived products:
  - DSMs, canopy height, hillshade, and bare-earth
  - Building footprints and contours (where available)
  - Additional point cloud classification (some areas)
- Older lidar projects (>6 years)
- Data that have not yet been accepted by USGS 3DEP

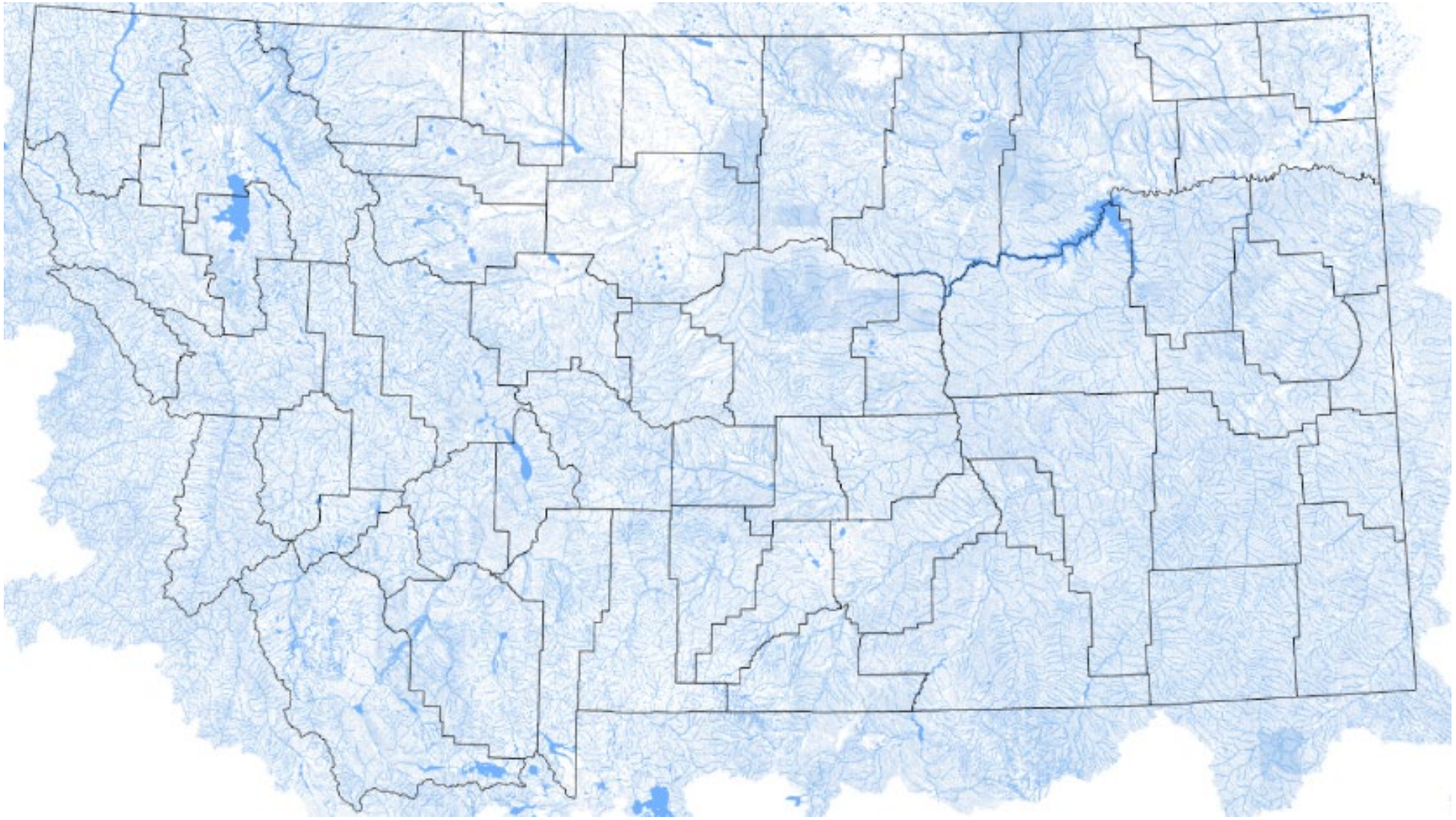
USGS – National Map

- Download tiles (~1km by 1km tiles)
- USGS-led collections, State contributed data pending
- Newest of new data releases (work units)
- Download LAZ
- Lidar outside of Montana
- Primary focus is bare-earth
- Only lidar that meets USGS 3DEP Specifications*

Hydrography

MSDI Hydrography

Mapping Montana's rivers, streams, canals, lakes and other waterbodies



National Hydrography Dataset (NHD)



Elevation (lidar)-Derived Hydrography

- The National Hydrography Dataset and Watershed Boundary Dataset are frozen (no more updates)

- Elevation-derived hydrography is coming

  -USGS 3D Hydrography Program (3DHP)

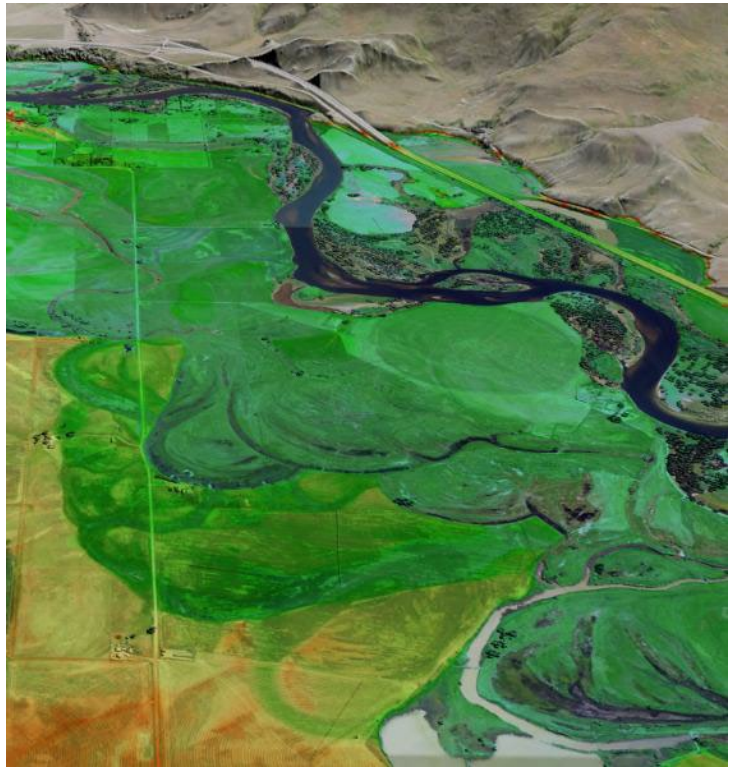
- Seeking funding partners!

High-accuracy elevation data (LiDAR) informs stream mapping

Topography and water shape each other

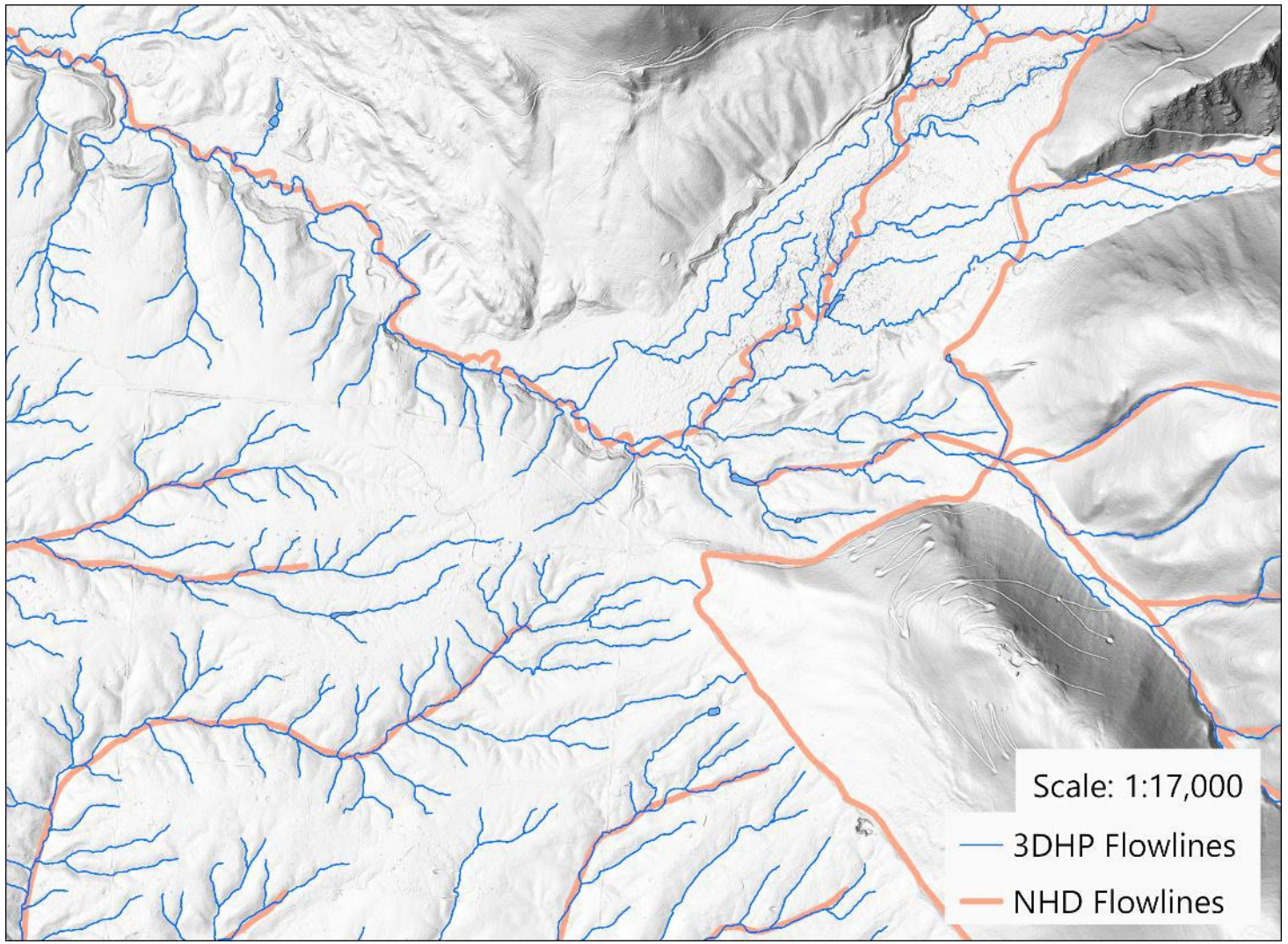






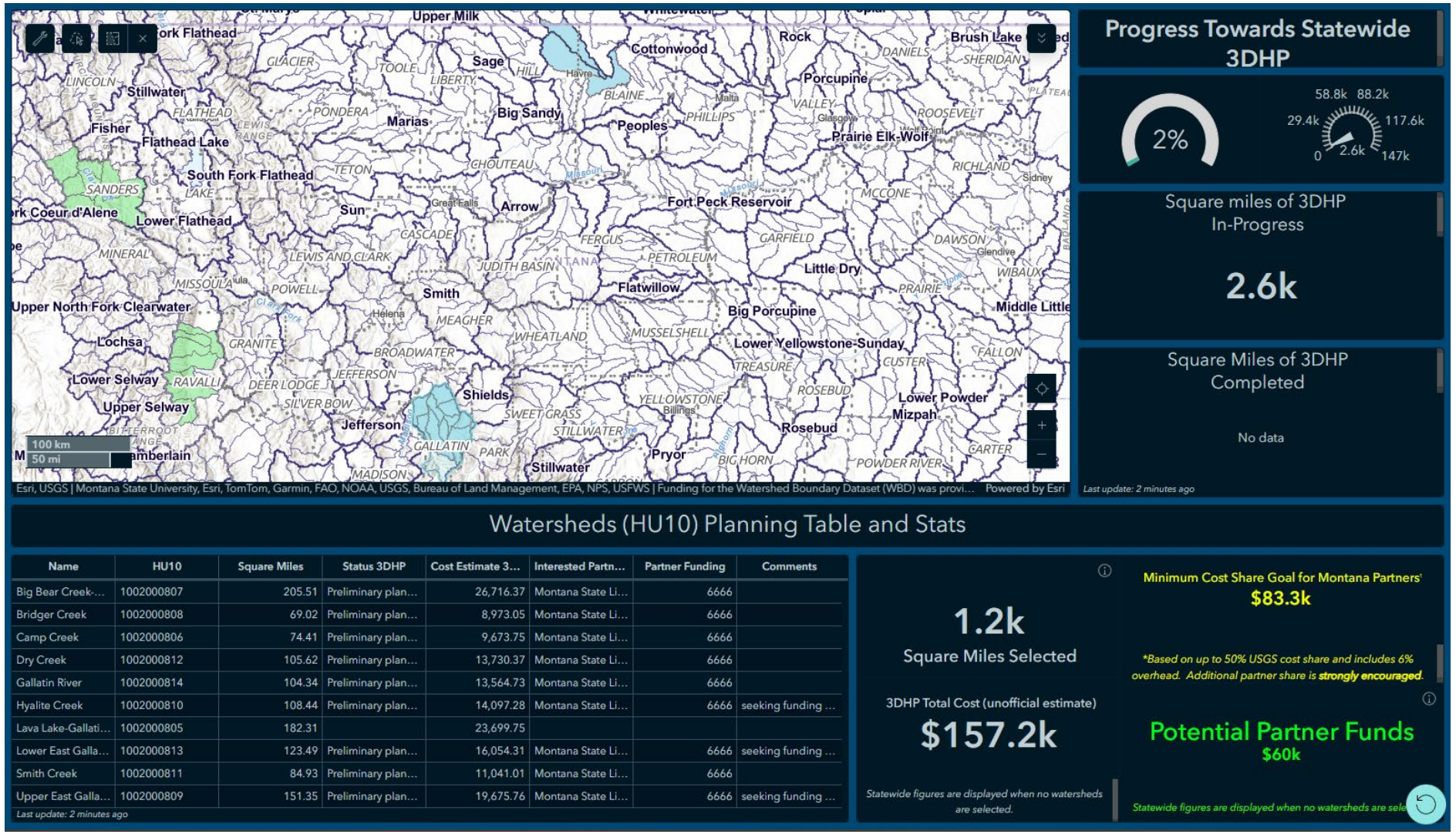
Water flows downhill > Align hydrography with elevation data

NHD & EDH comparison - Montana



Swamp Creek in the Lower Noxon Reservoir HU-10, Sanders County, MT

Montana's 3DHP Planning Dashboard



Key Take Aways

- MSL is the coordinating body for MSDI Data.
- Partnership is necessary for MSDI Data Layers.
- Lidar for Montana is here. Come and get it!
- The hydrography dataset is being modernized using lidar.
- Montana State Reference Network (MTSRN) is used for real-time, high-accuracy GPS positioning and benefits many partners.

MSDI Working Groups are open to anyone interested

Welcome to join future meetings!

MSL Email Updates

Bios

Erin Fashoway, Montana GIS Coordinator

Mini Bio

- Spatial Data Infrastructure
- Transportation
- College Instructor
- Water & Sewer



Troy Blandford, Water Information System Manager

Mini Bio

- LiDAR
- Water Information
- GIS & Remote Sensing
- Env. Science/Biology



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Thank You

Please reach out with your questions:

Erin Fashoway – efashoway@mt.gov
Troy Blandford – tblandford@mt.gov

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