Wetlands and Riparian Mapping Framework Technical Meeting

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Why wetland and riparian mapping?

- Preliminary site assessment for the presence of wetlands
- Facility and transportation/corridor siting
- Conservation incentive programs
- NAWCA grants
- Tribal wetland protection ordinances
- Restoration planning
- Conservation area planning?
- Fisheries protection?
- Floodplain management?
- Water quality protection ?
- TMDLs and watershed plans?
- Watershed restoration?
- Plant and wildlife survey stratification

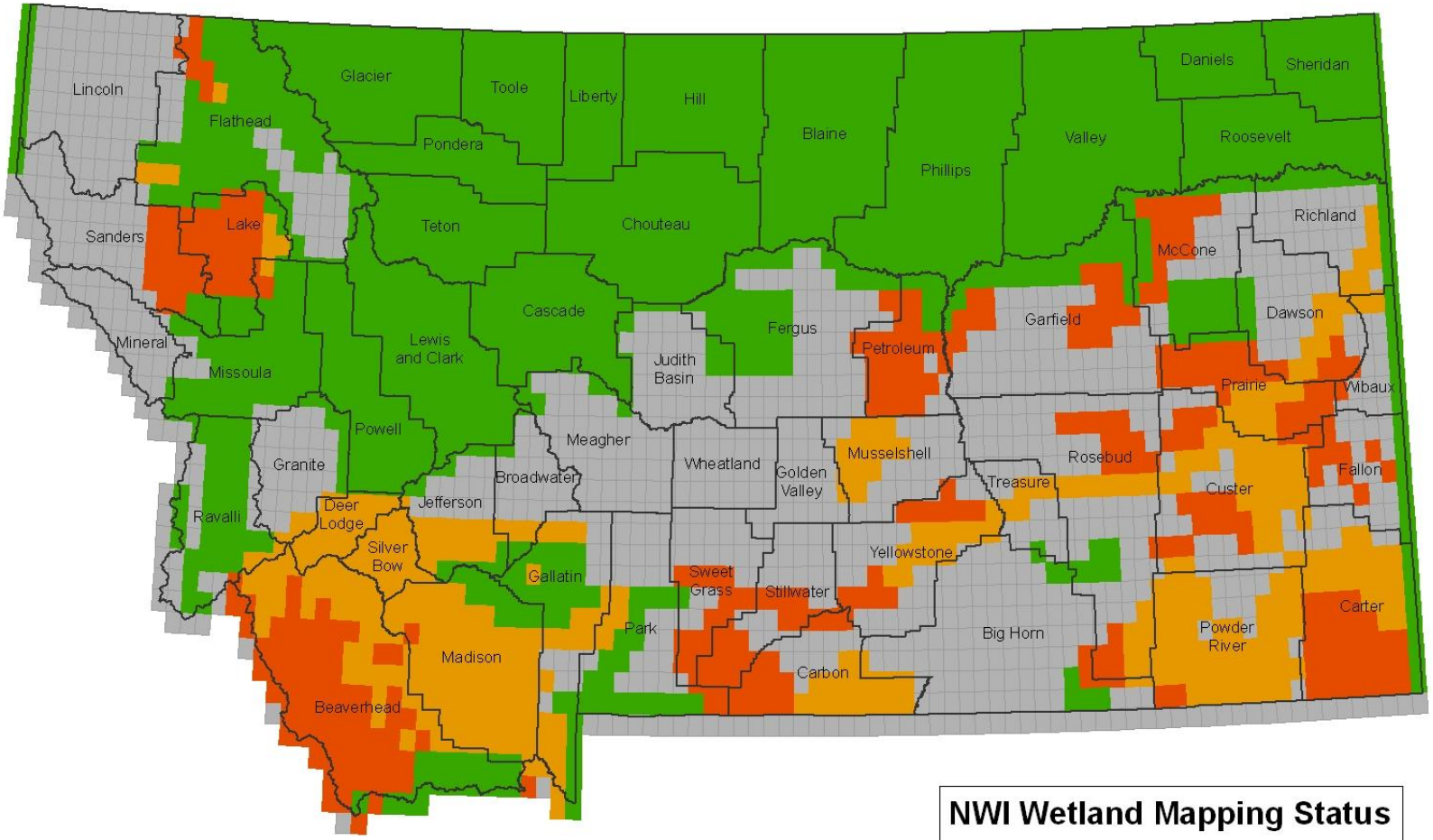
NWI - National Wetland Inventory

- The NWI was started in the 1970s with a mandate to provide a seamless map of all wetlands in the coterminous United States;
- In 1986, the Emergency Wetlands Resources Act required that these maps be available in digital format.
- As of 2008, digital maps of wetlands are only available for about 60% of the country.
- Montana is one of the states with incomplete mapping.
- To address this shortcoming, the MTNHP started the Montana Wetland and Riparian Mapping Center, with support from MT DEQ and the US EPA.
- Wetlands are one of thirteen framework layers in the Montana Spatial Data Infrastructure

Wetland Mapping Status

- With funding from the EPA, USFWS, BLM, USFS, USFWS, MTDOJ, MTDOA, MTFWP and PPL-MT we have mapped **581** 1:24k USGS Quads

National Wetland Inventory Wetland Mapping Status
October 2009



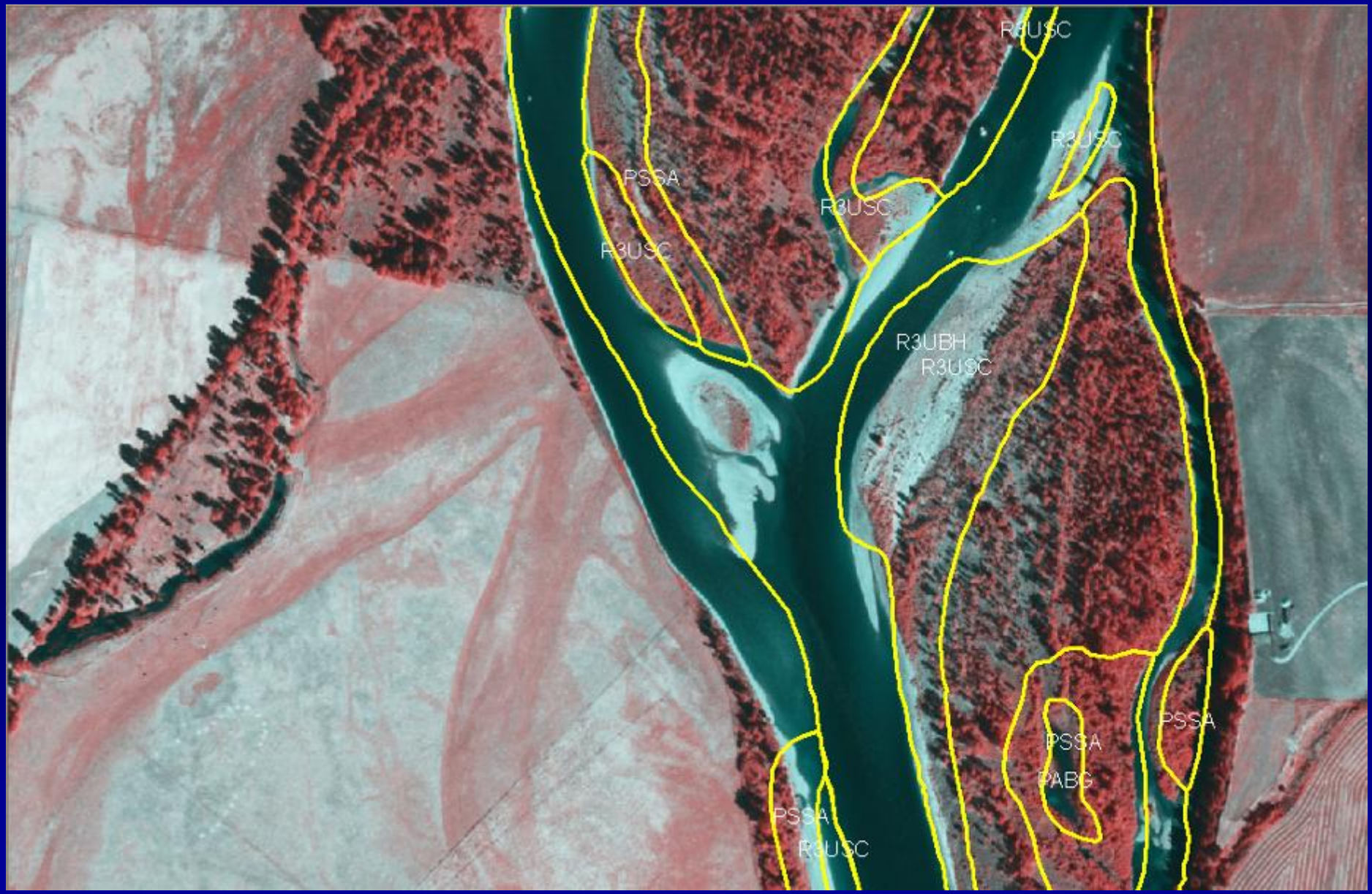
NWI Wetland Mapping Status

- Currently Available
- Completed from 2005 imagery
- Scheduled to Map

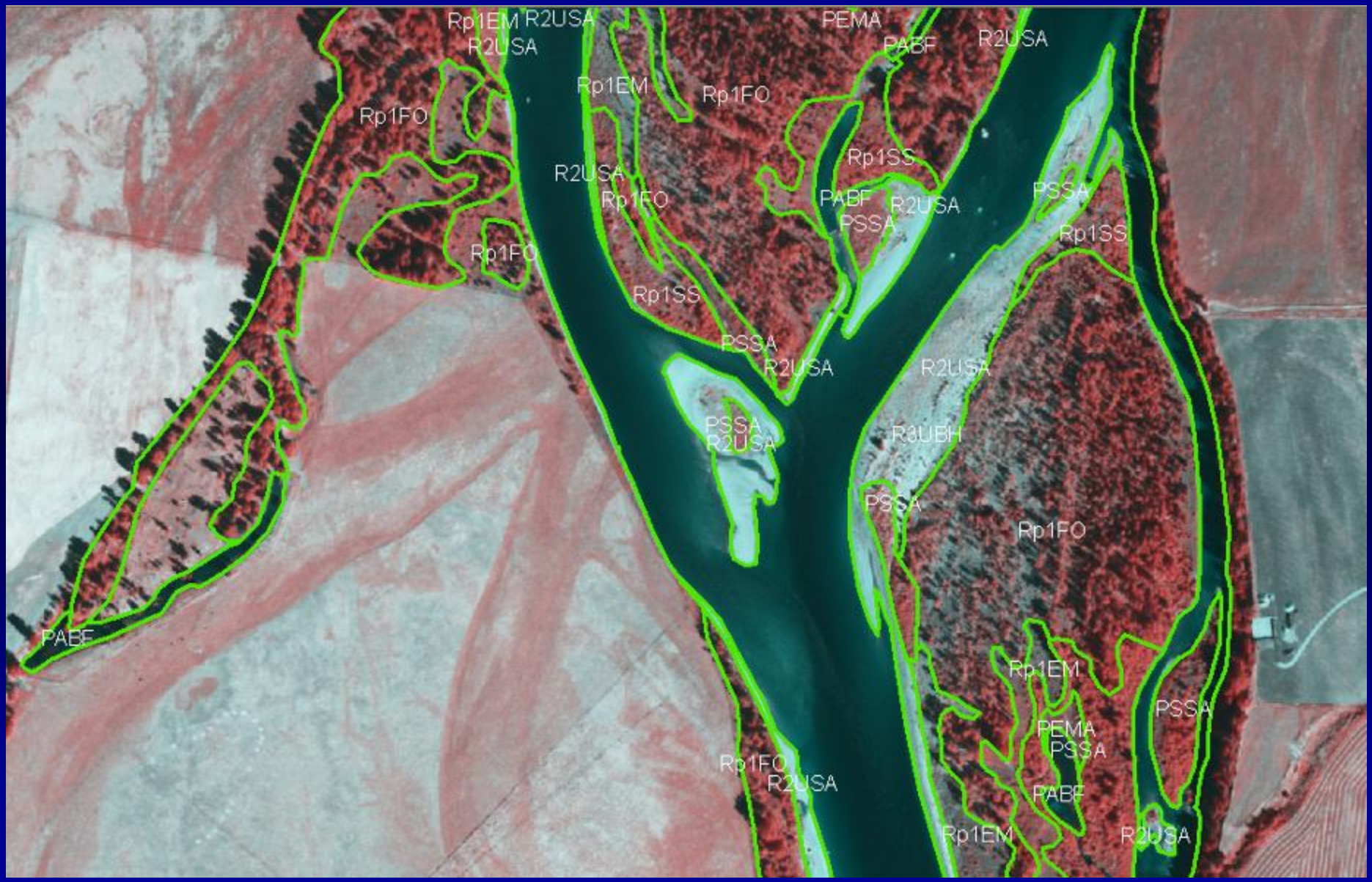
Old vs New NWI

- **ACCURACY:** The old NWI was inked on coarse scale aerial photographs then digitized, with very limited field checking; new NWI is based on 1meter resolution photos and an extensive foundation of ancillary GIS data, and has much more field checking.
- **DETAIL:** The old NWI mapped only wetlands, and used only the Cowardin classification system; the new NWI includes riparian areas as well, and incorporates an additional classification reflecting hydrogeomorphic attributes.

Old Mapping (1980s)



New Mapping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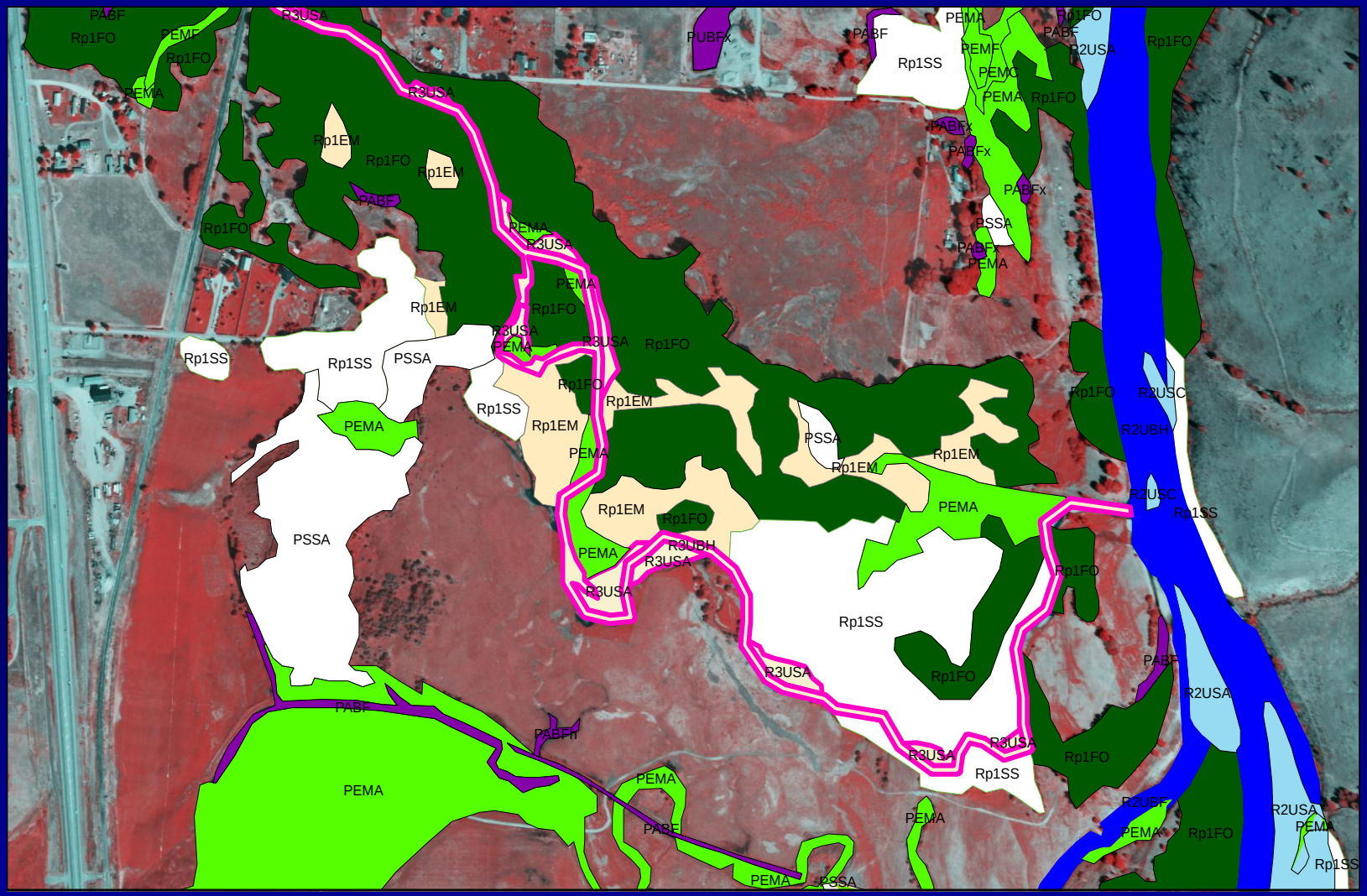
Old vs. new NWI: Detail



PEMB, PEMA, PSSA, PABF, R2USA, Rp1EM?

NWI Coding: What does it mean?

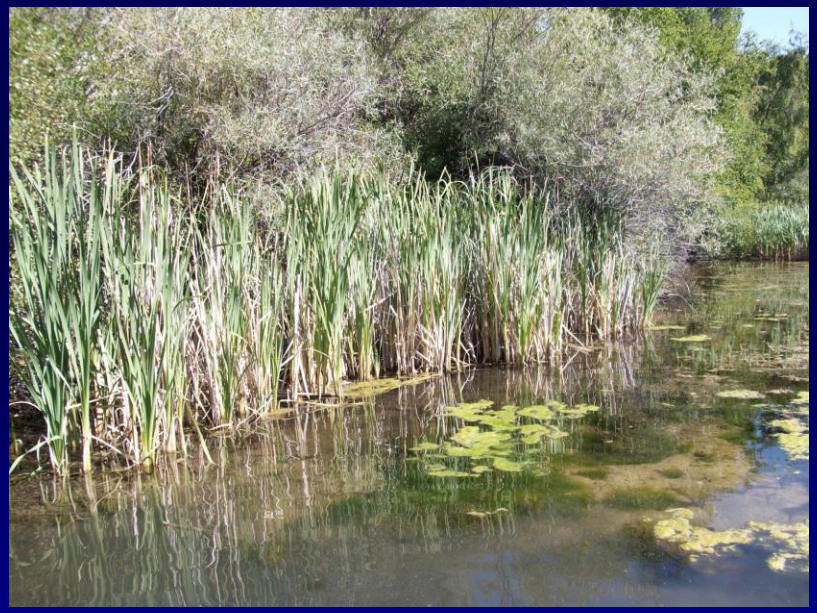
- NWI uses three classes of wetlands: ***P***alustrine, ***R***iverine, and ***L***acustrine. All riparian systems are *Rp*.
- Some have subclasses: R3 is Riverine Upper Perennial; R2 is Riverine Lower Perennial
- The middle letters describe the vegetation: ***Em***ergent, or ***S***hrub-***S***crub, or ***A***quatic ***B***ed
- The last letters describe the water regime: A is temporarily flooded, B is saturated, C is seasonally flooded, F is semipermanently flooded, etc.

HGM defined

- Hydrogeomorphic Code includes:
  - Waterbody
  - Landform
  - Flowpath
- Based on geomorphic setting, water source, and hydrodynamics
- Describes position on landscape
- Links wetland type with wetland function

Wetlands perform various functions

-water storage
-stream flow maintenance
-groundwater recharge
-nutrient cycling
-sediment retention
-shoreline stabilization
-terrestrial and aquatic habitat
-flood mitigation
-native plant community maintenance



Where is NWI data available now?

- The USFWS has 1980s era-maps, plus some recent maps (the Bitterroot Valley) on its website at http://www.fws.gov/nwi/
  - Download as geodatabase
  - Available as Web Mapping Service
  - View and Download with Wetlands Online Mapper
  - View in Google Earth
  - maps do not include riparian mapping
- Available from NRIS at http://nris.mt.gov.
  - 1980s mapping and some new mapping

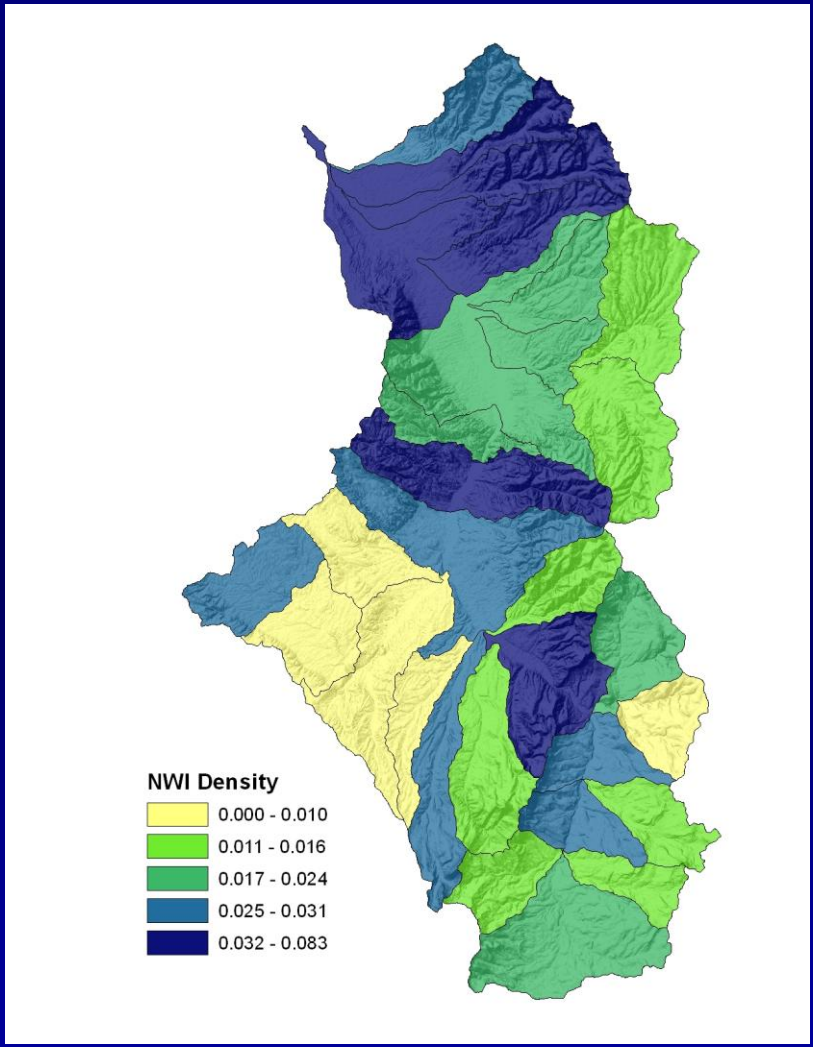
NWI availability in the future?

- MTNHP will be making the new NWI maps with riparian mapping available as areas are completed
- Ideas for serving the data include:
  - Web Mapping Application similar to tracker
  - Web Mapping Service
  - Downloadable georeferenced maps
  - Web report with Wetland Profile

What is a Wetland Profile?

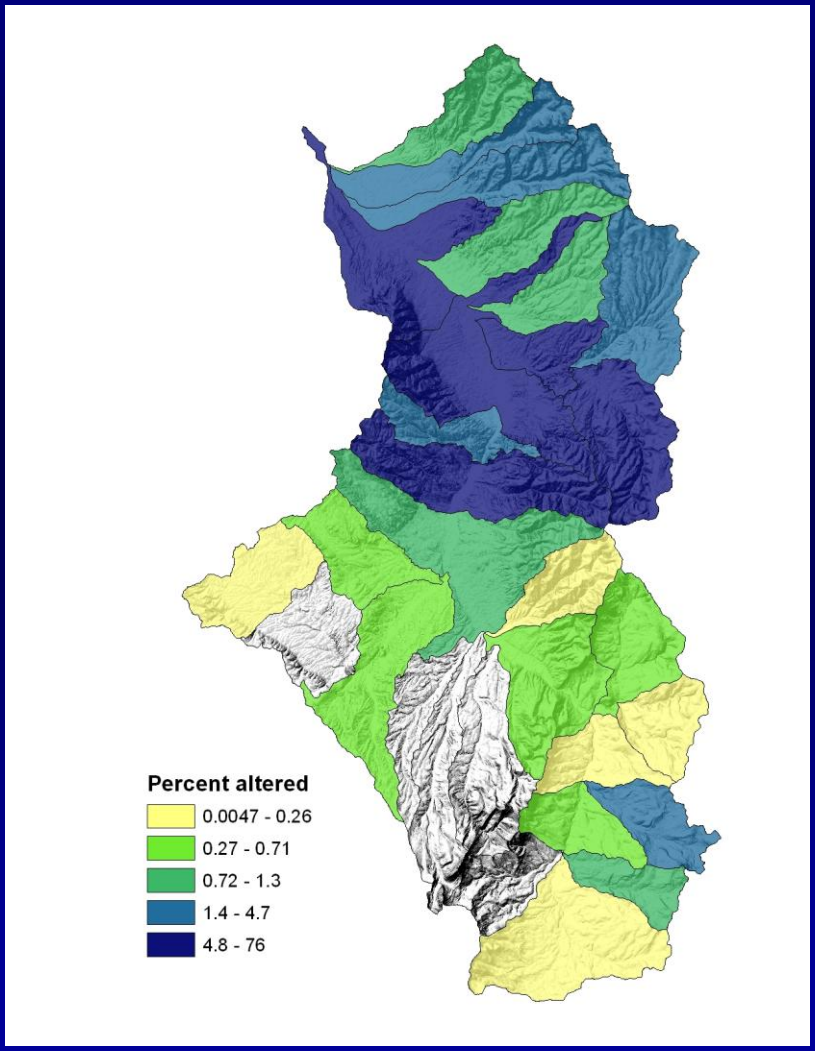
- Wetland landscape profiling describe the types, abundance and distribution of wetlands across a defined area
- It offers a rapid characterization of function and condition in a given subbasin or watershed, and help pinpoint management needs, including mitigation planning and conservation

Wetland Landscape Profile: Distribution of wetlands



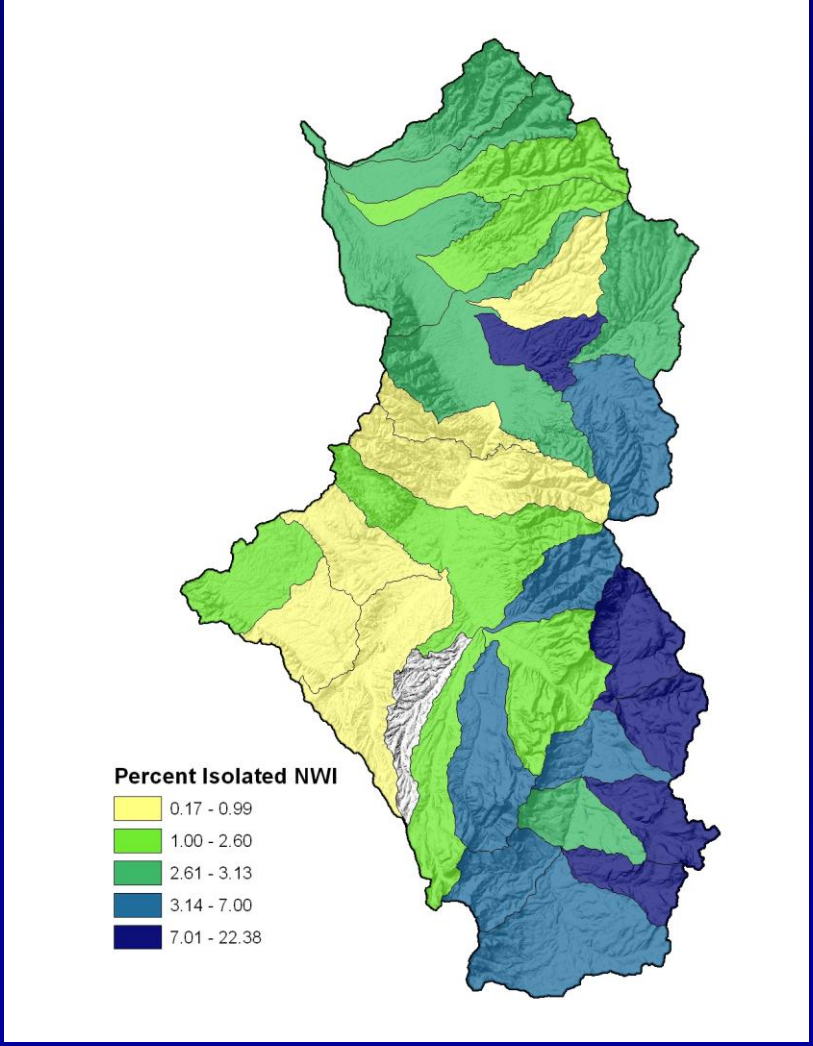
- This profile of the Ruby River subbasin shows the density of wetlands in a given subwatershed (6th code hydrologic units) .

Wetland Landscape Profile: Altered wetlands



- This profile of the Ruby River subbasin shows the percent of wetlands in a given subwatershed (6th code hydrologic units) that have been diked, dammed, ditched or excavated.

Wetland Landscape Profile: Percent of isolated wetlands



- This profile of the Ruby River subbasin shows the percent of wetlands in a given subwatershed (6th code hydrologic units) that are geographically isolated.

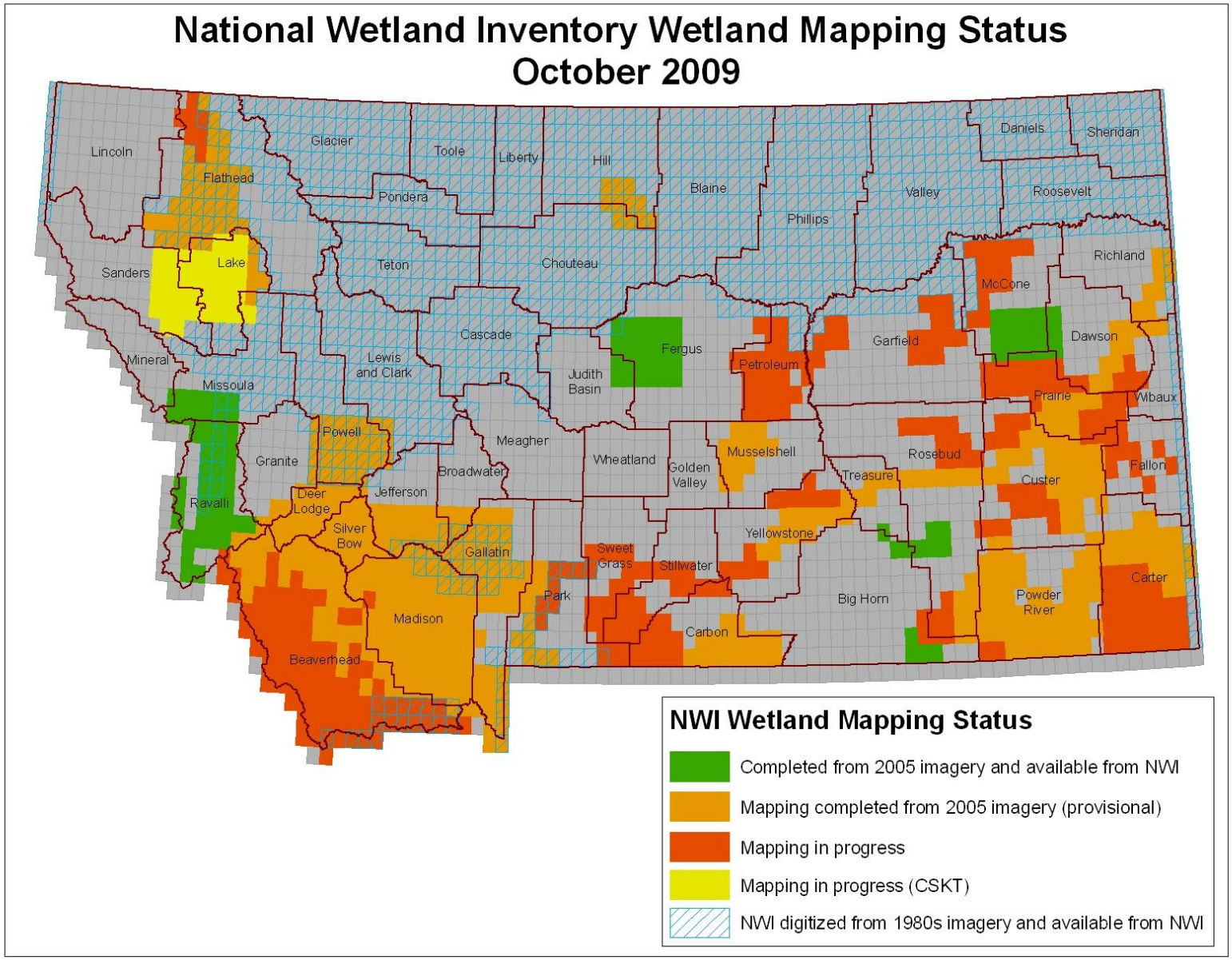
Linking wetland location with condition

- DEQ's Strategic Direction #3: Mapping, Assessment, and Monitoring
- MTNHP is using wetland mapping in a rotating basin assessment strategy
  - Randomly select wetlands to conduct Level 1, 2, and 3 assessments
  - Level 1 is a GIS-based landscape scale condition assessment
  - Level 2 and 3 are field-based assessments

Rotating Basin Wetland Assessments

- Conducted first assessment in Milk-Marias basins this summer 2009 using historic NWI wetland mapping
- Finishing wetland mapping in SW Montana and will conduct second rotating basin assessment in 2010
- Completing mapping in SE Montana in preparation for a third rotating basin assessment in 2011

What if my area isn't mapped or scheduled for mapping?



Several options for commissioning maps

- Geospatial Services of St. Mary's University of Minnesota will digitize 1980s era maps for $400-$500 a quad;
- The MTNHP will enter into mapping contracts for new maps based on new imagery; we can also create maps of valley bottoms and can make Zone A floodplain maps if H & H data is available.
- Private GIS consultants can use the same methods to interpret the same imagery, and can submit them to the NWI for approval.

Funding resources for NWI Maps

- The US EPA's Wetland Program Development Grants will not fund mapping as such, but will fund mapping in support of other watershed and wetland program building;

- Wetlands are one of thirteen GIS themes in the Montana Spatial Data Infrastructure, and funds to support wetland mapping are available to counties and conservation districts through the annual Montana Land Cover Information Act grant competition;

- Federal and state agencies, private corporations, and non-profits have formed partnerships to get large areas mapped.

Next Steps?

- How can we make the NWI layer more accessible and useful?
- What information do we need to provide for better understanding?
- How should we package the data?

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