National Wetlands Inventory: A Program Ahead of It's Time

GeoSpatialServices

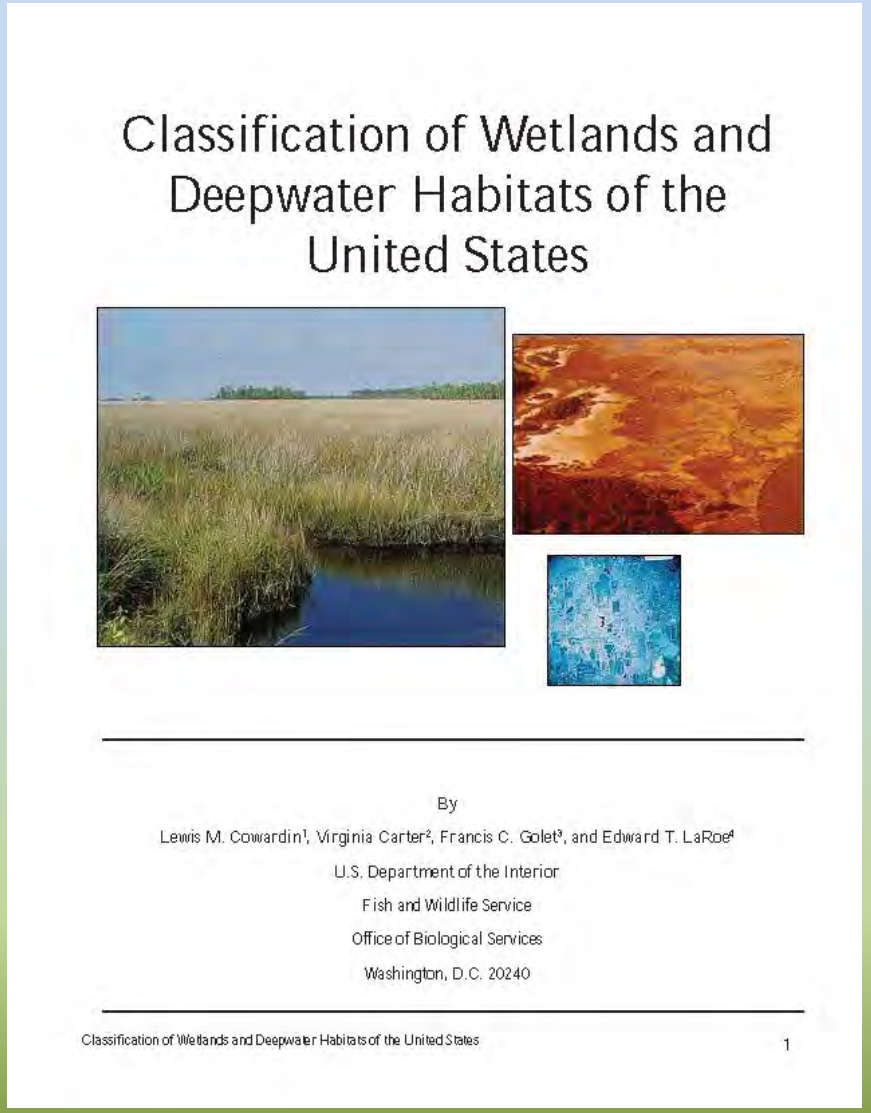
Saint Mary's University OF MINNESOTA

The Evolution of NWI Mapping and How It Has Changed Since Inception

Some Basic NWI Facts:

- Established in 1974
- Goal to create database on characteristics and extent of U.S. wetlands
  - Maps & Statistics
- In 1979, initiated national wetland trends study
- By 2013, produced digital wetland data for almost 100% of lower 48 states and over 40% of Alaska
- Five national trends reports produced to date
- National wetland geodatabase one of the largest spatial datasets in the world

Comprehensive Classification System



Classification of Wetlands and Deepwater Habitats of the United States

By

Lewis M. Cowardin[1], Virginia Carter[2], Francis C. Golet[3], and Edward T. LaRoe[4]

U.S. Department of the Interior

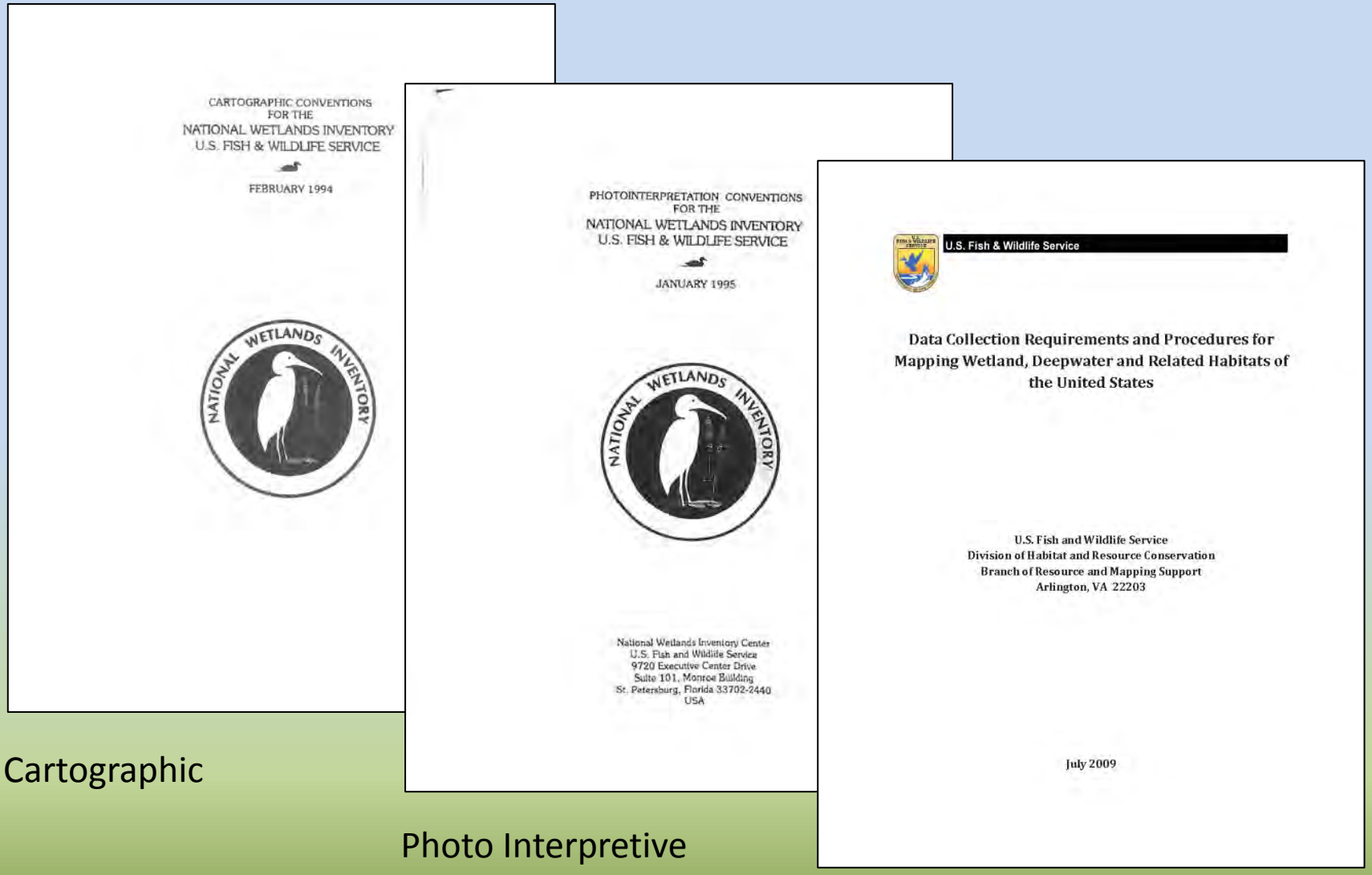
Fish and Wildlife Service

Office of Biological Services

Washington, D.C. 20240

NWI wetland delineation and classification is completed using one of the most comprehensive, scientifically based, recognized systems in the world.

Supported by Rigorous Conventions



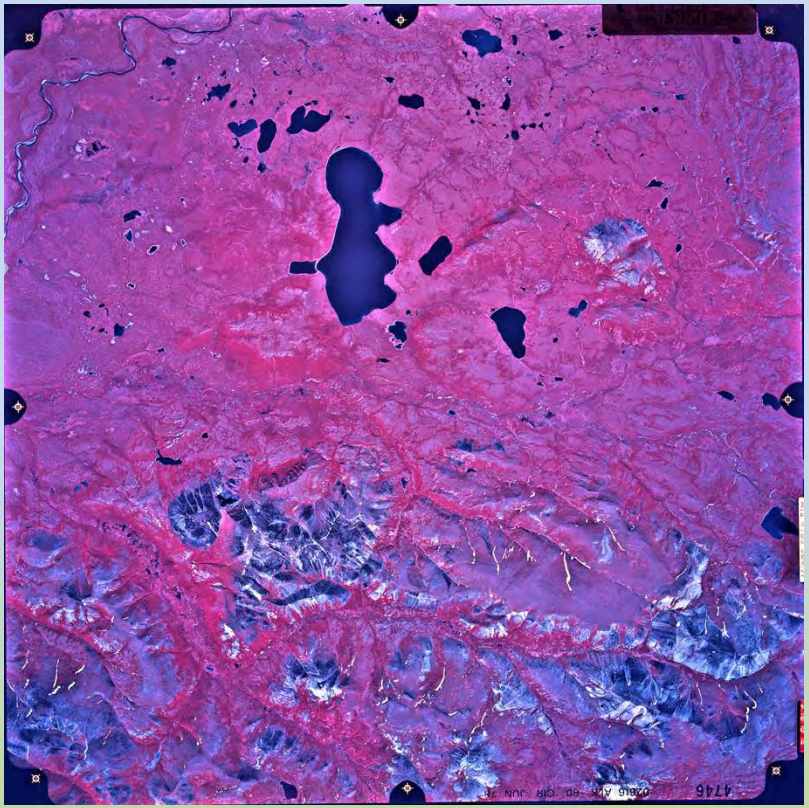
Cartographic

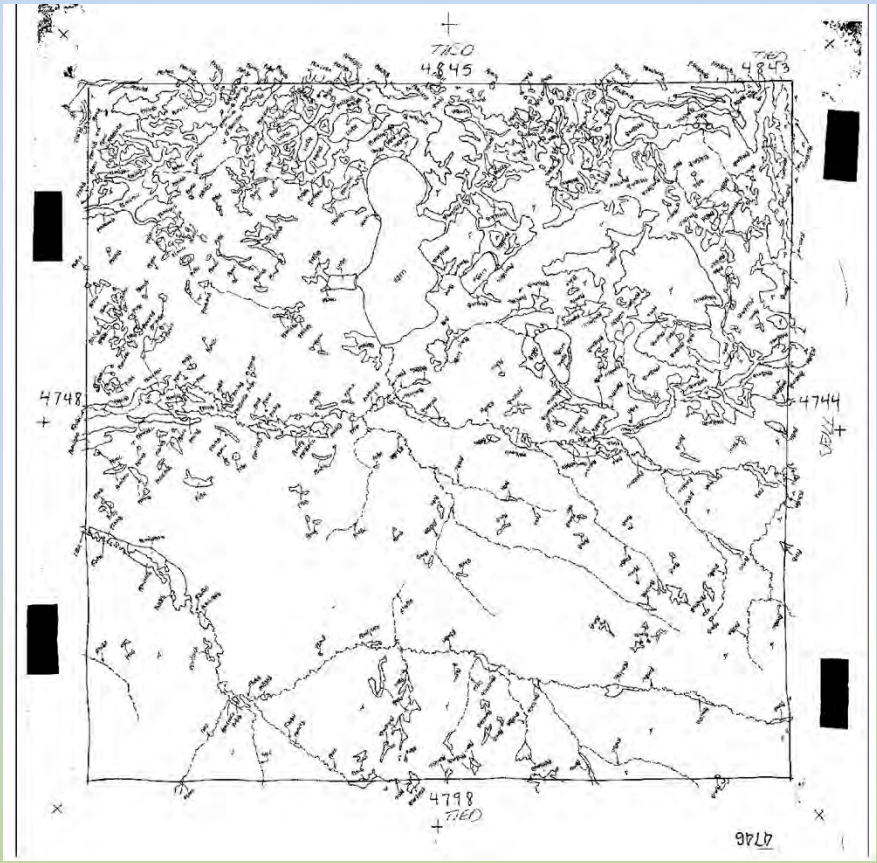
Photo Interpretive

Digital Data Collection

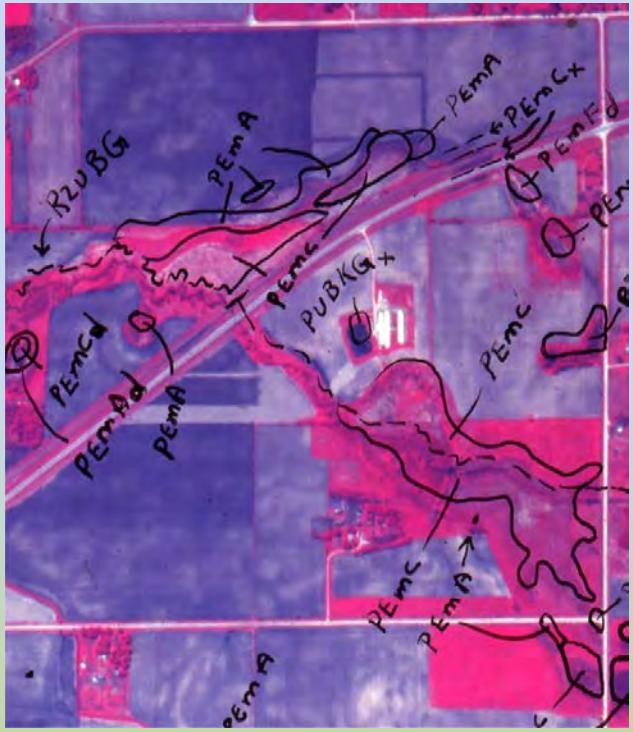
Traditional Mapping Processes

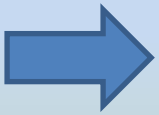
Traditional Mapping Processes

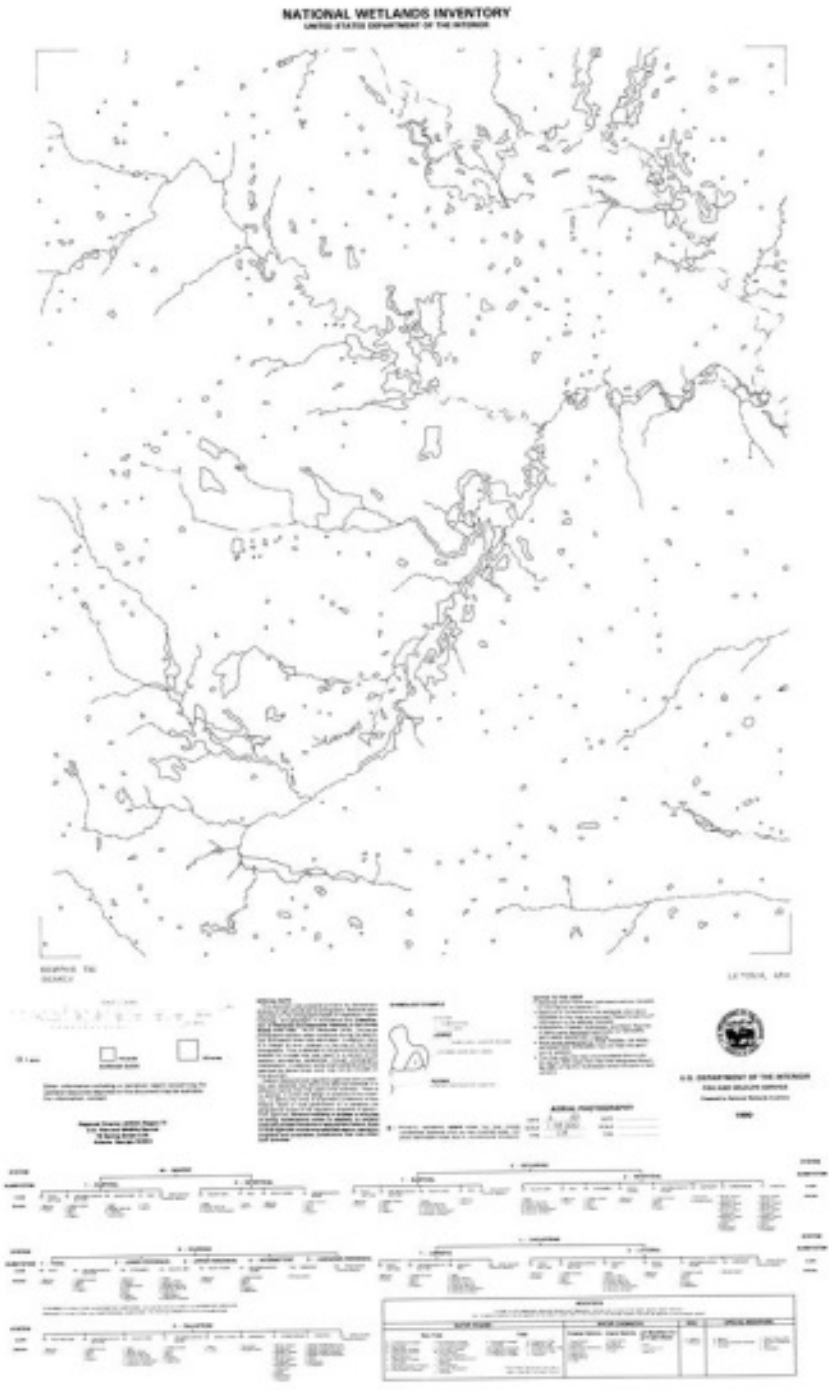




Traditional Final Product







User Comments

Current perceptions about the quality of existing NWI data:

"Wetlands were well mapped using available technology but are out of date"

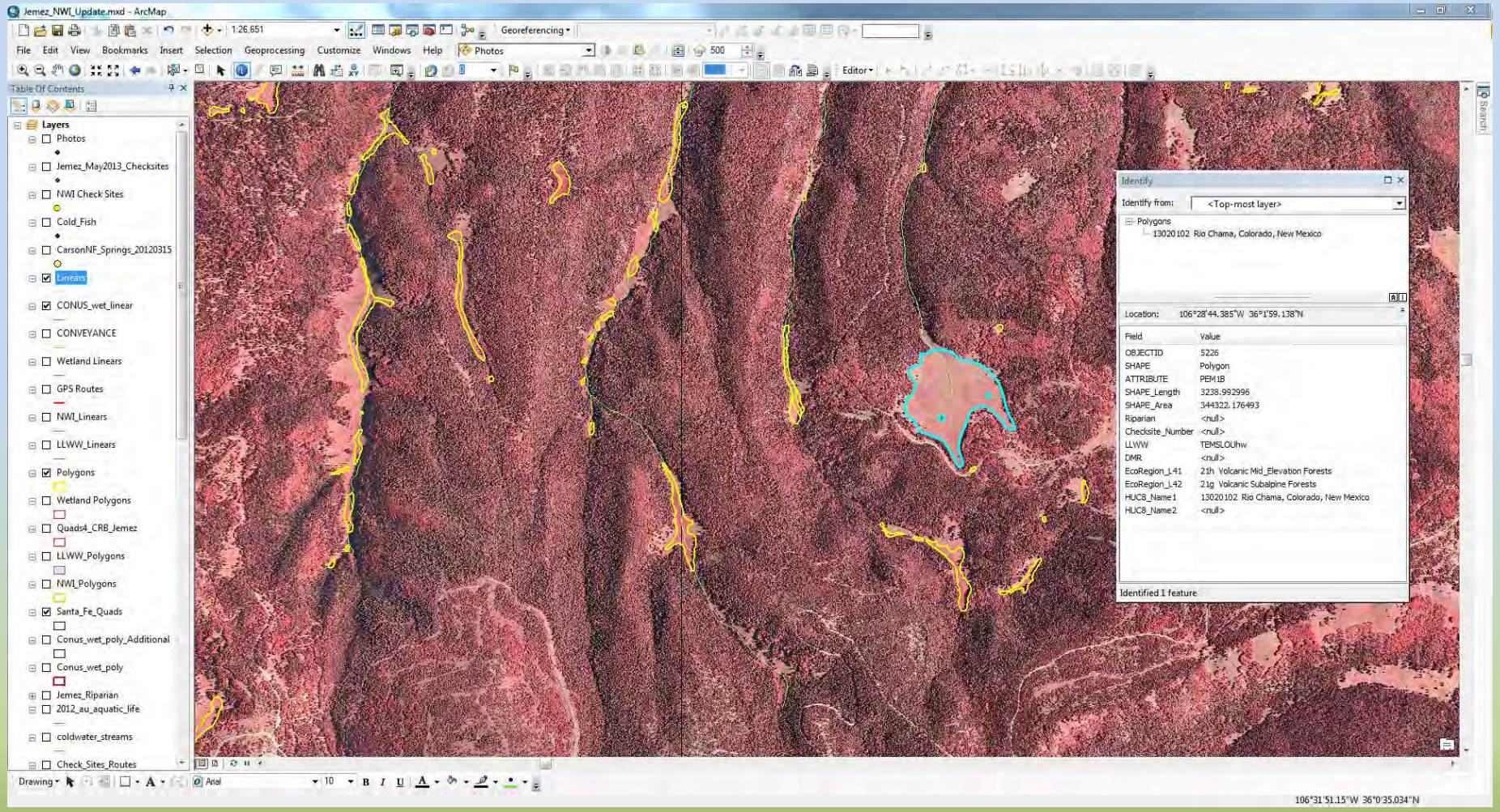
"Good data, but does not match more recent imagery"

"It's OK as a reconnaissance level data set.."

"Works at the landscape level but not appropriate for site level decisions"

"Well, it is better than nothing"

So What Has Changed?



NWI Today

So What Has Changed?

- GIS based spatial data
- Being produced in a fully digital environment
- Using a combination of traditional image interpretation augmented by new digital tools
- Supported by robust collateral datasets
- Validated by pre and post mapping field data
- Prepared to rigorous national data standards

So What Has Changed?

Some of the improvements that we will look at:

1. Level of mapping detail in new NWI
2. Incorporation of robust collateral data sources
3. Utility of new classification methodologies
4. New decision support tools
5. Additional descriptive attributes assigned to wetlands

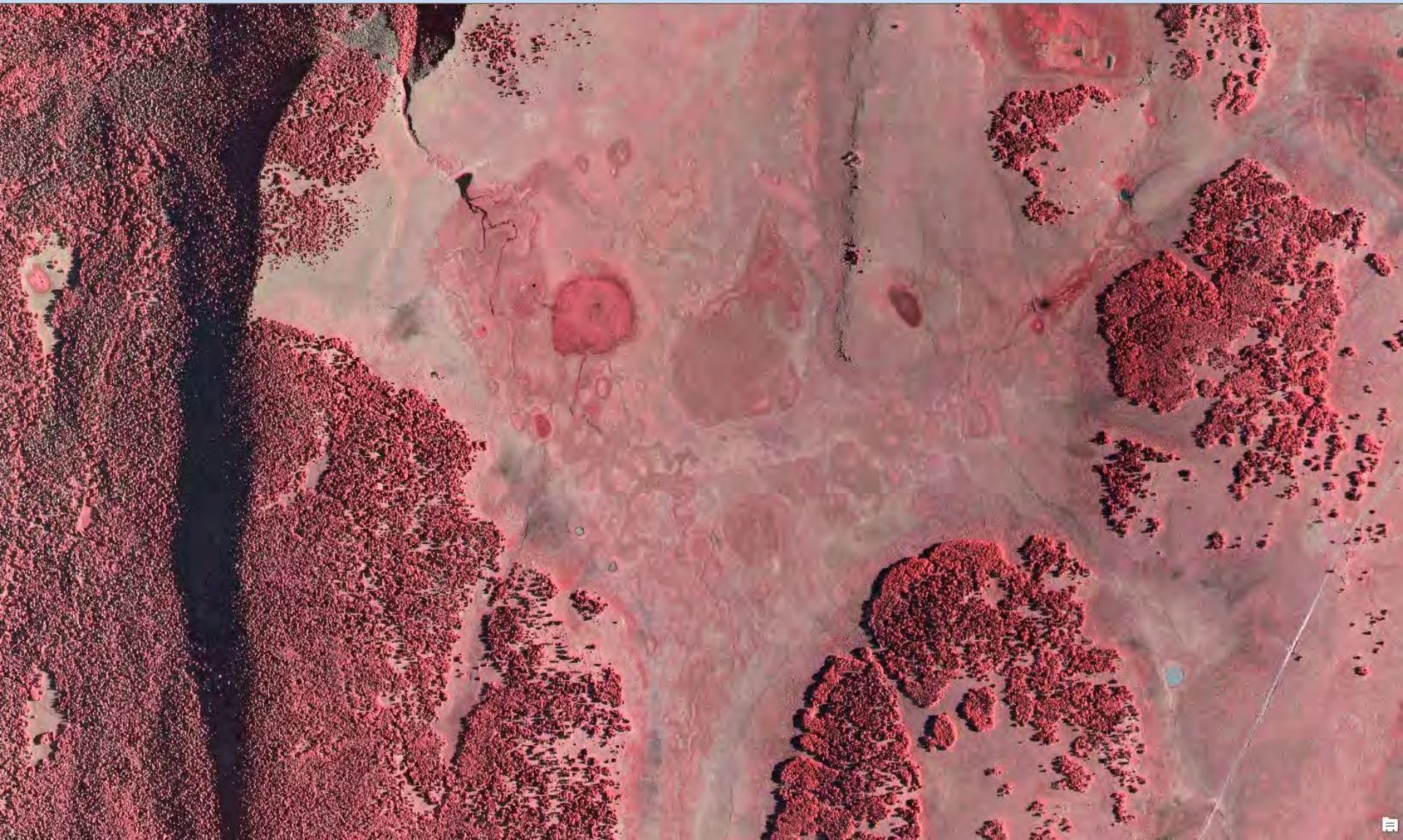
Level of Mapping Detail

FGDC National Wetland Mapping Standard:

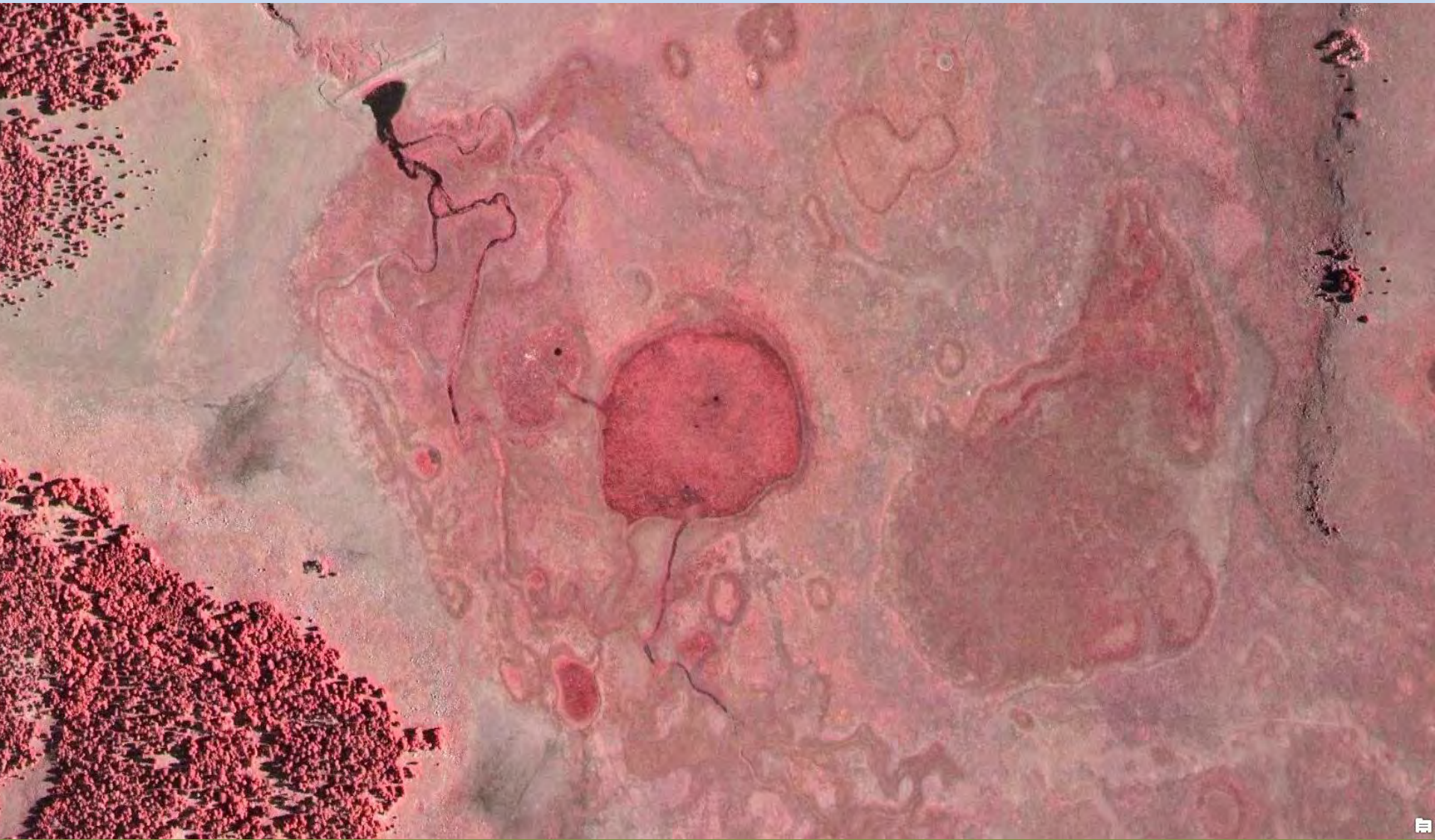
- Mapping (data capture) at scale of 1:12,000
- Wetlands to one ½ acre in size
- Feature accuracy wetland vs. upland: 98%
- Classification accuracy: 85%
- Spatial resolution of source imagery: 1 meter
- Horizontal accuracy: +/- 5 meters

Original Delineation Scale 1:65,000

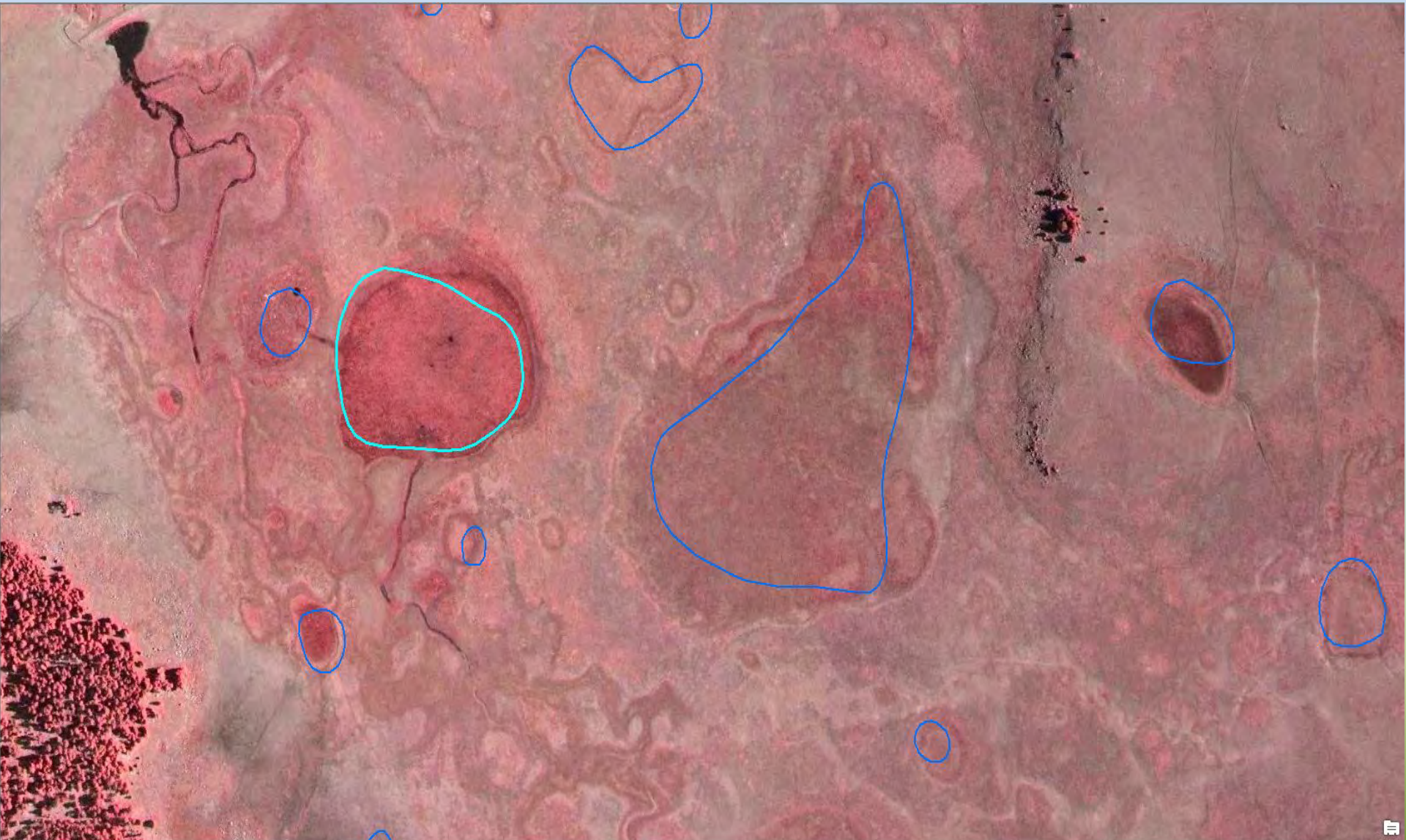
FGDC Scale – 1:12,000



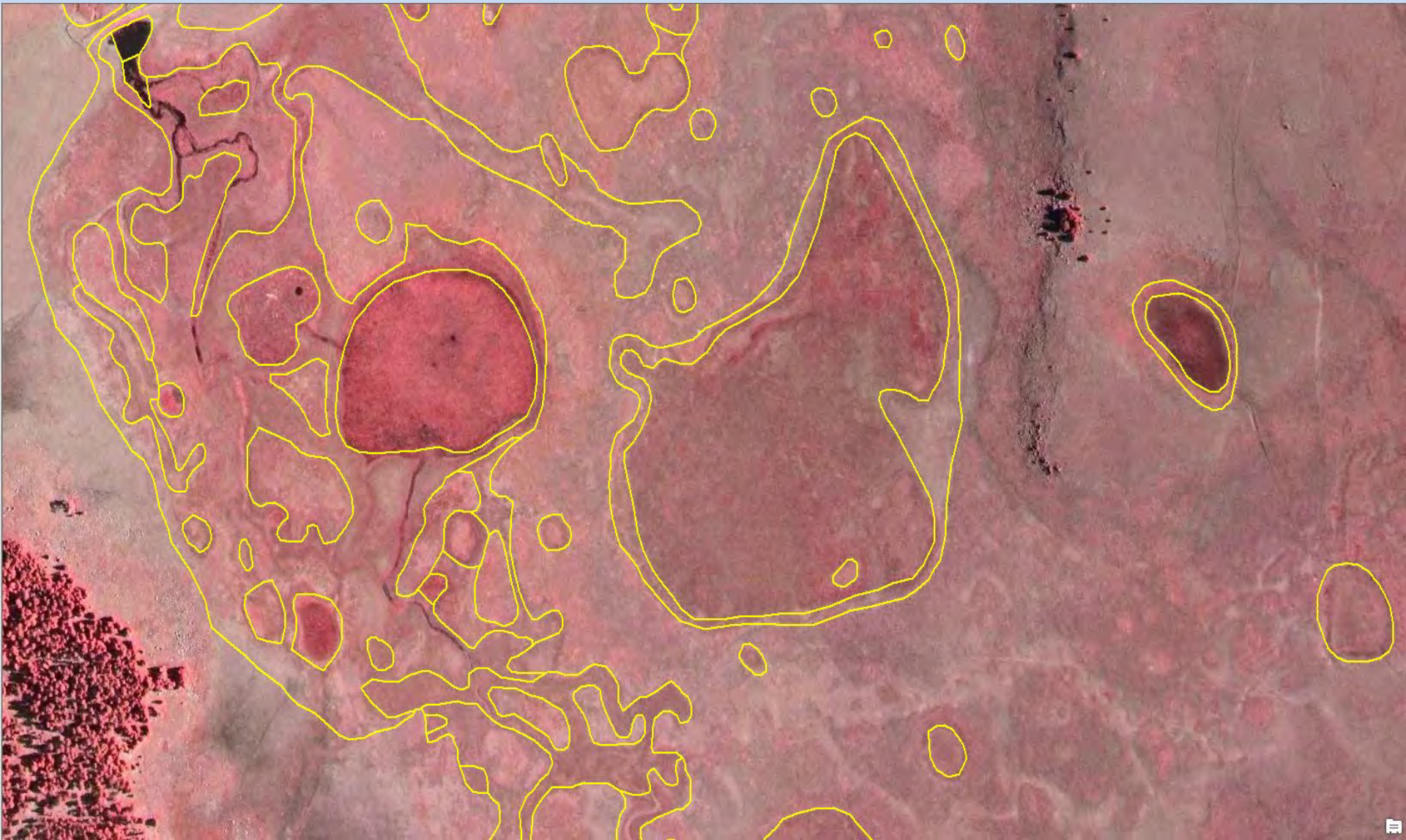
Actual Delineation Scale 1:5,000



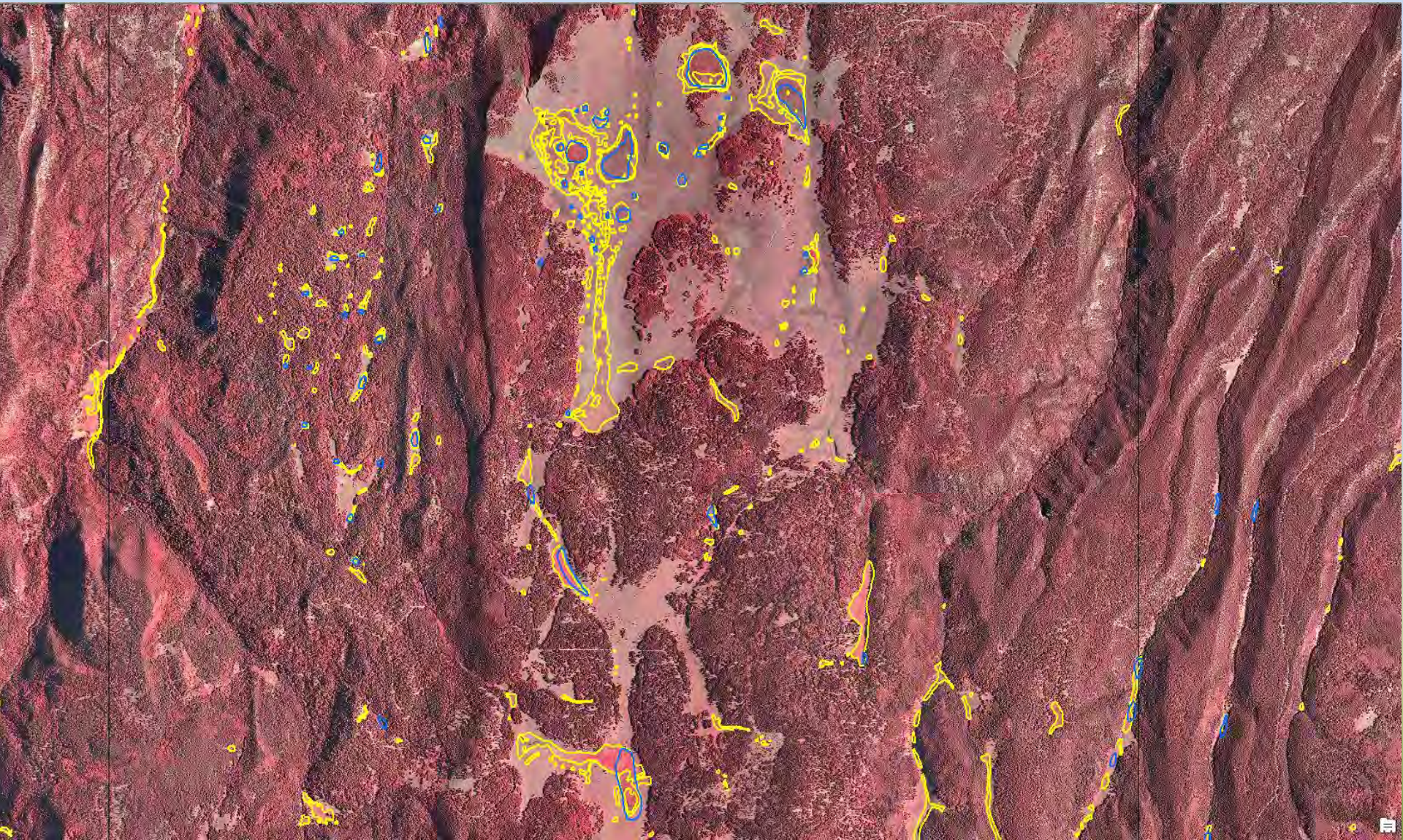
Original 1984 NWI Mapping



2014 NWI Mapping

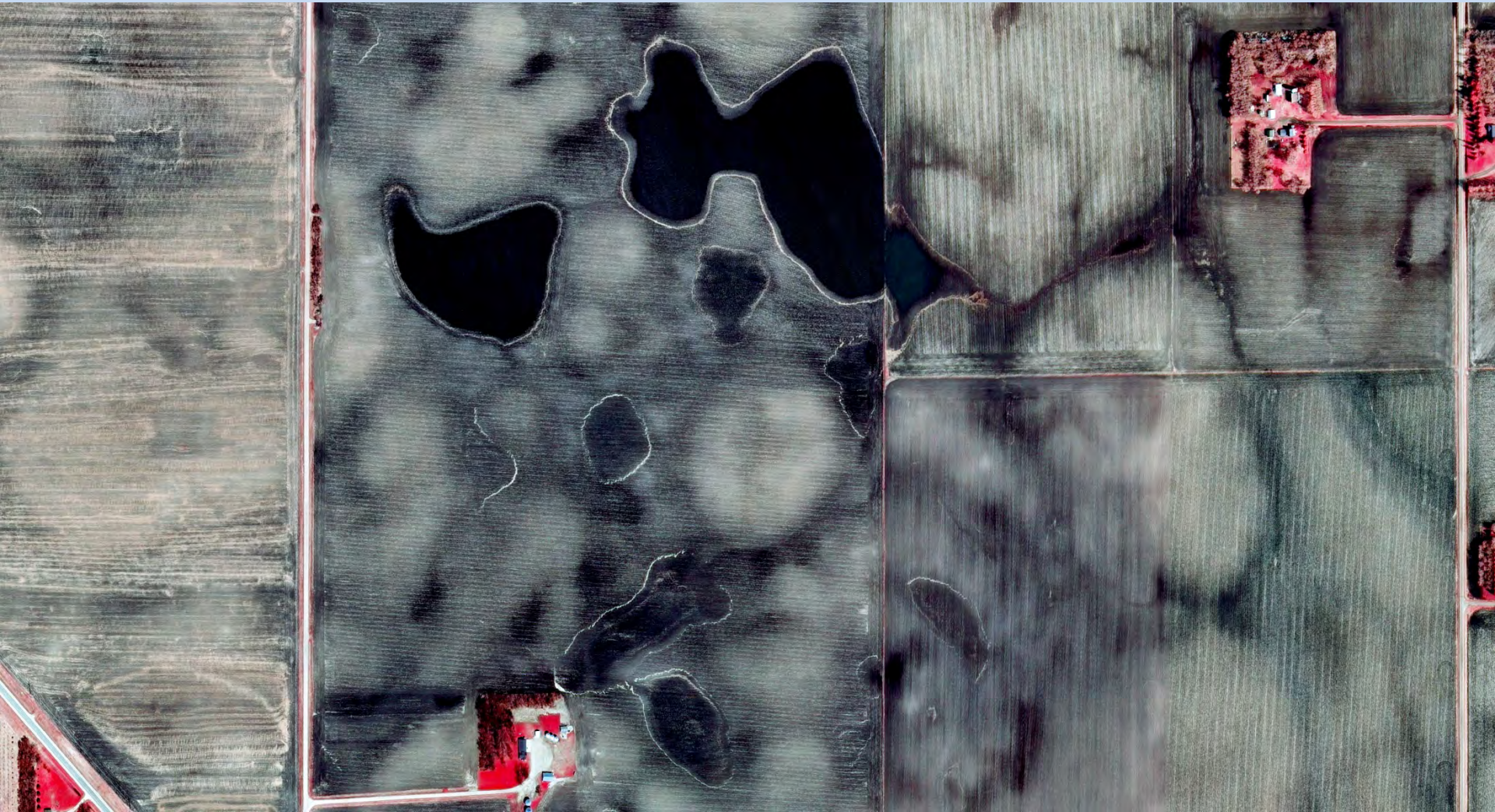


Overview – Old vs. New



Validation Field Work

Availability of Collateral Data
MN NWI Update



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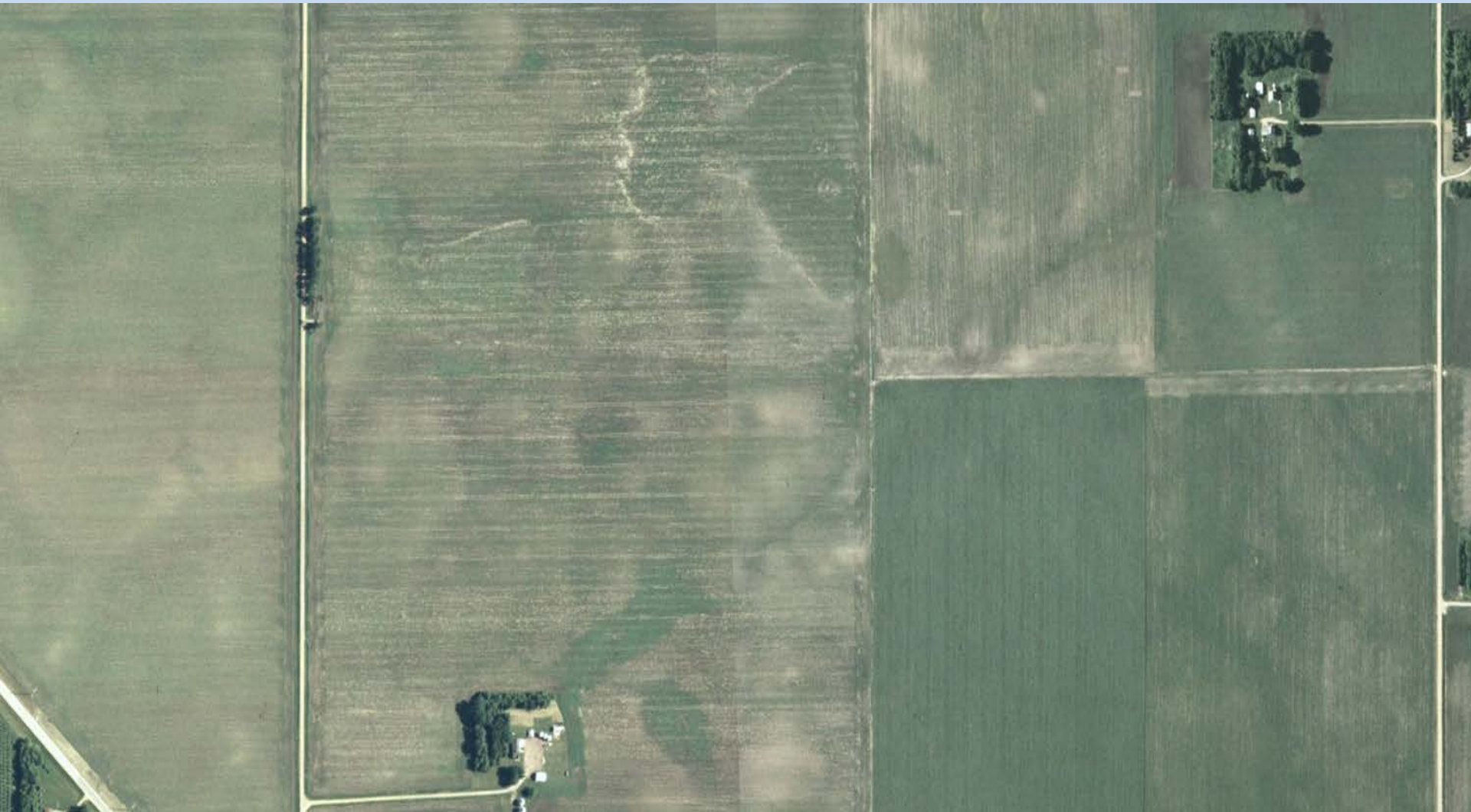

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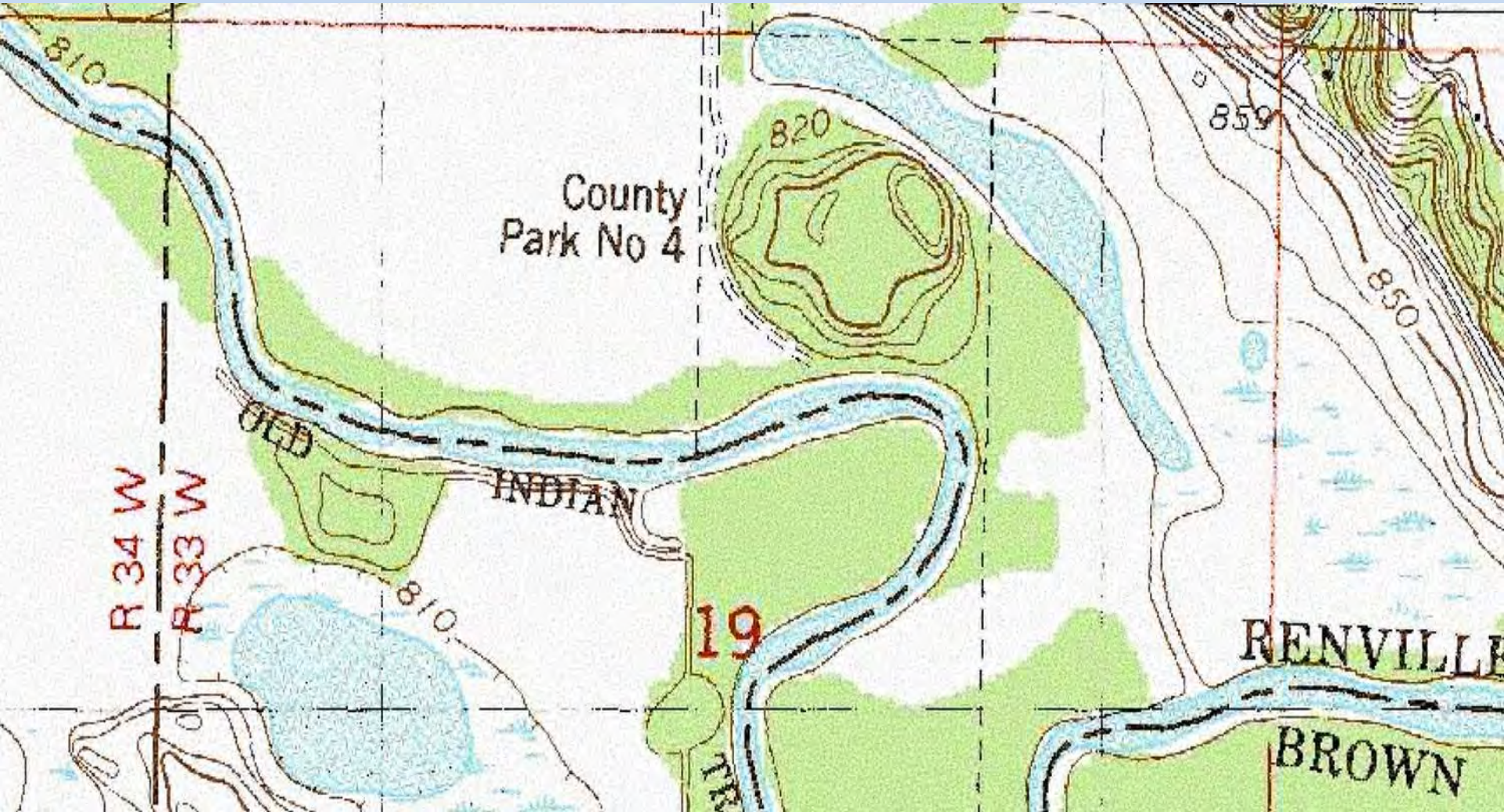

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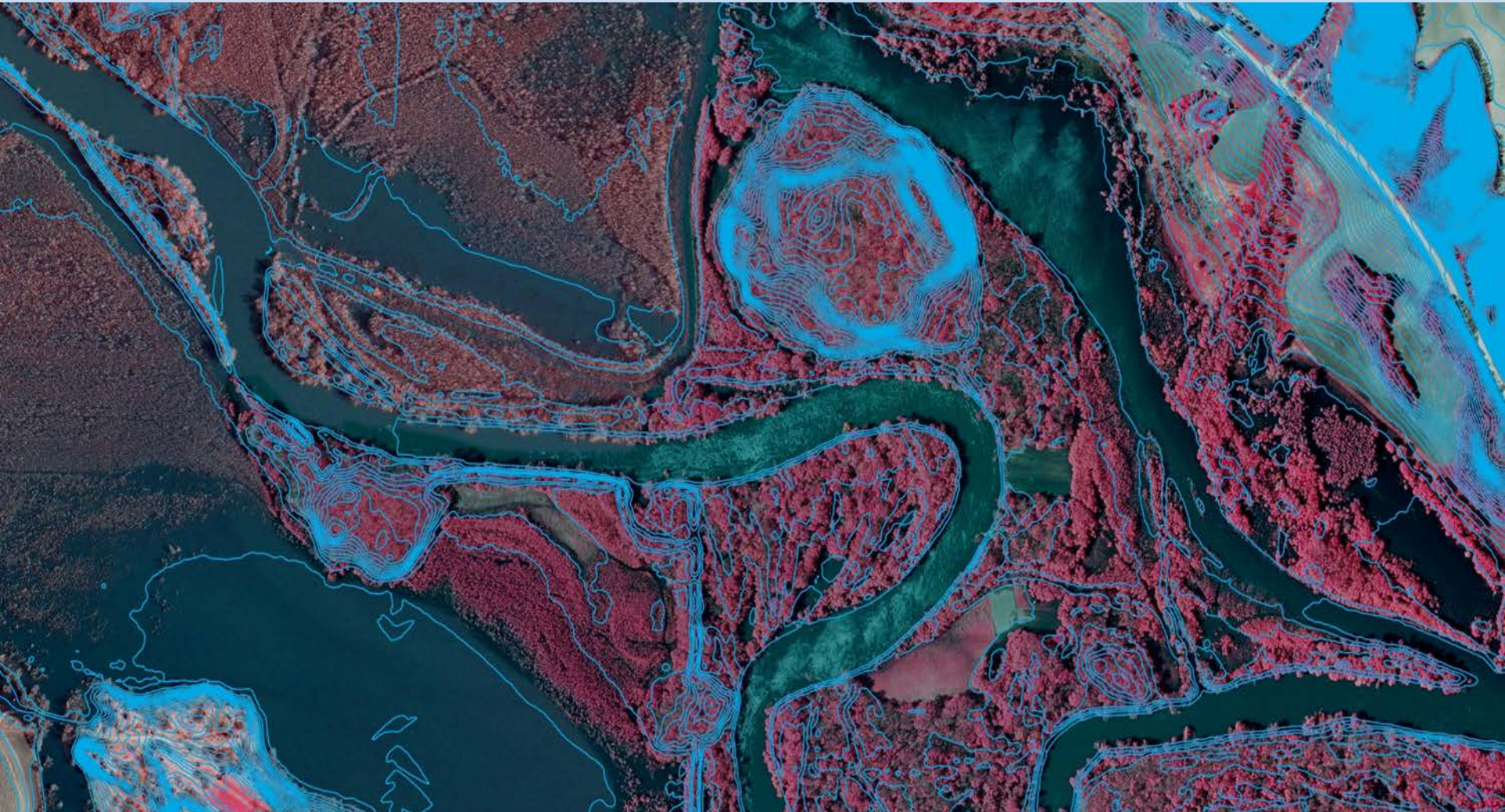

Availability of Collateral Data: New Mexico NWI Update

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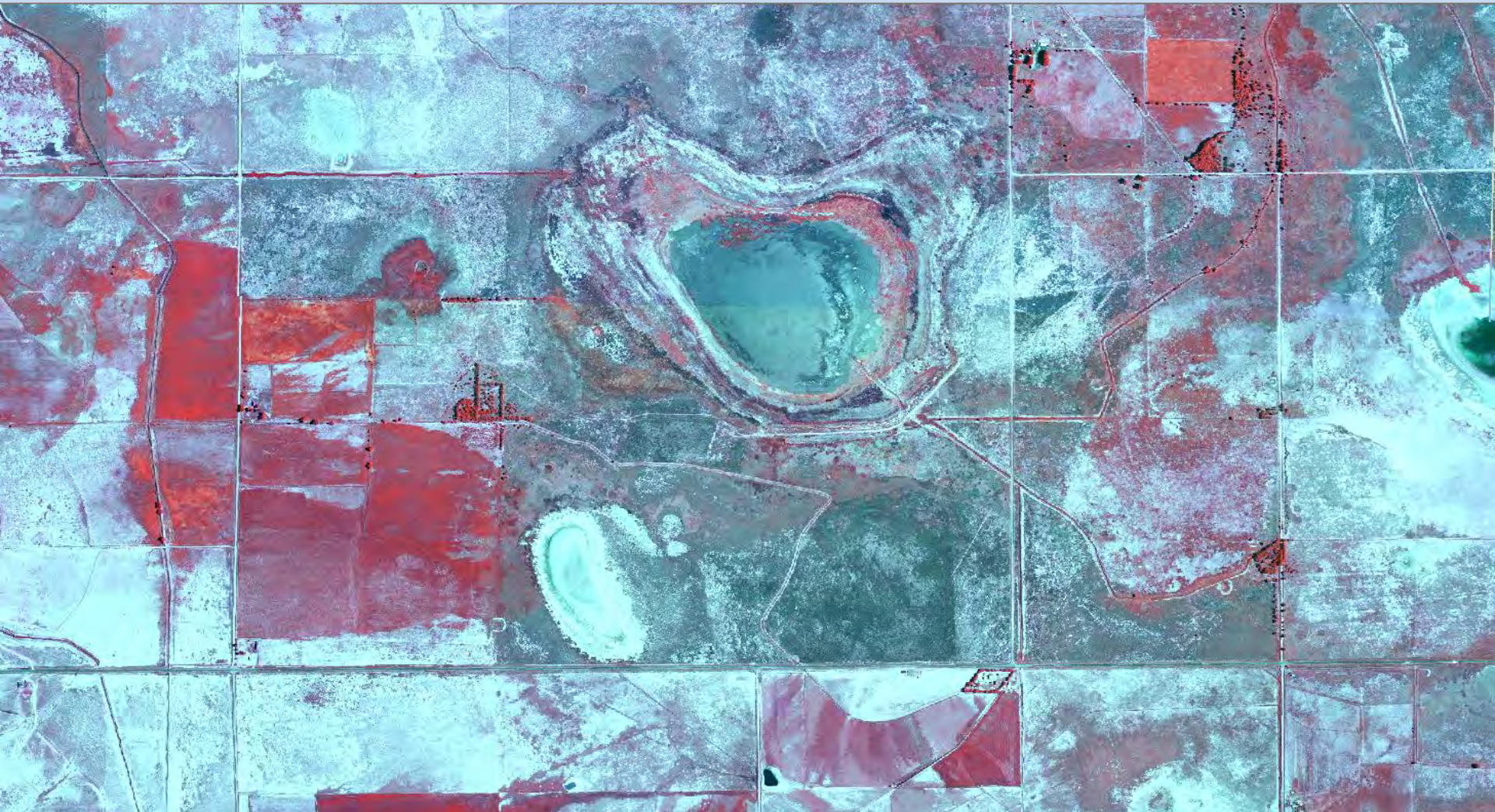

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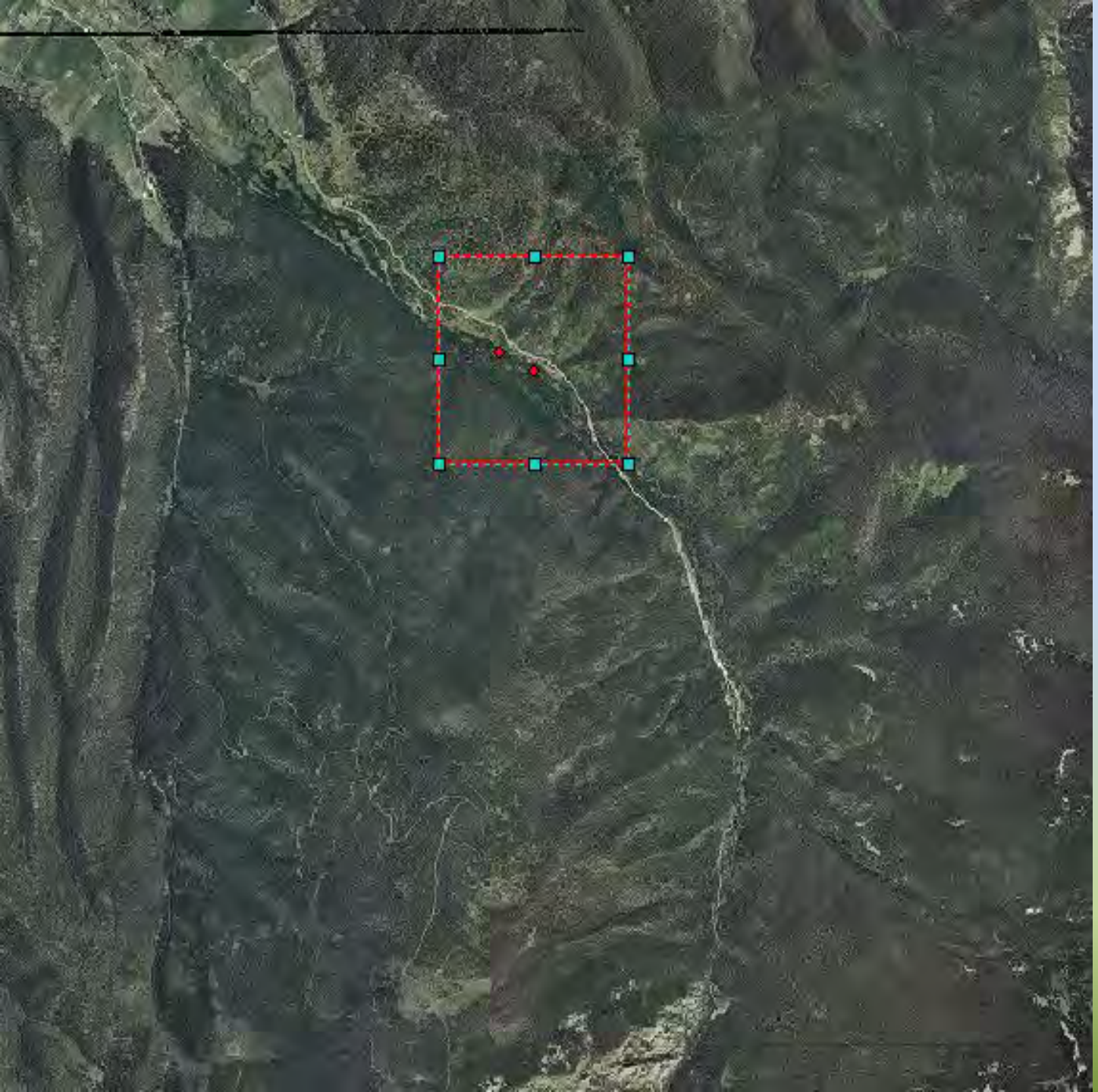

Additional Digital Tools New Mexico NWI

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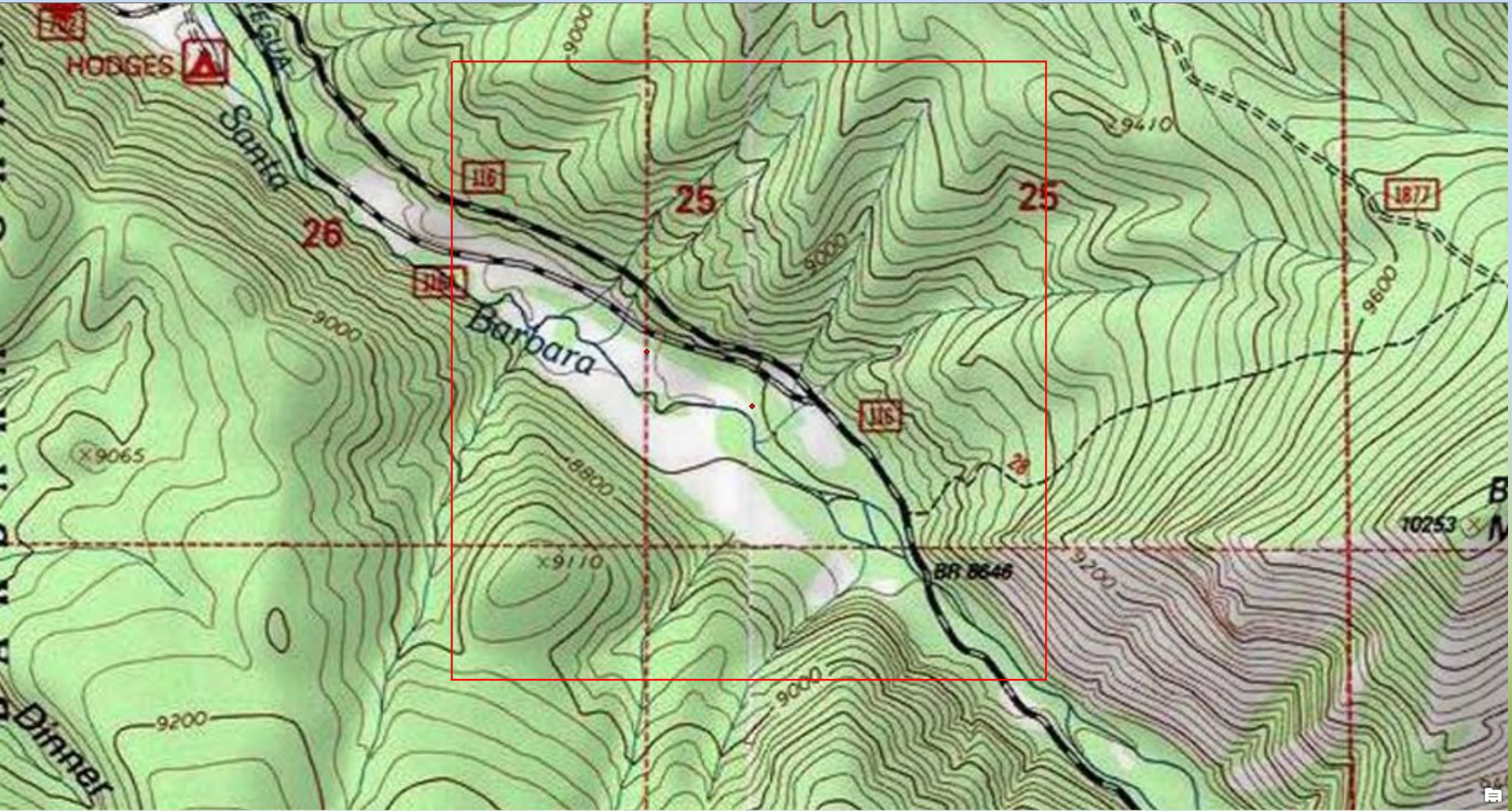

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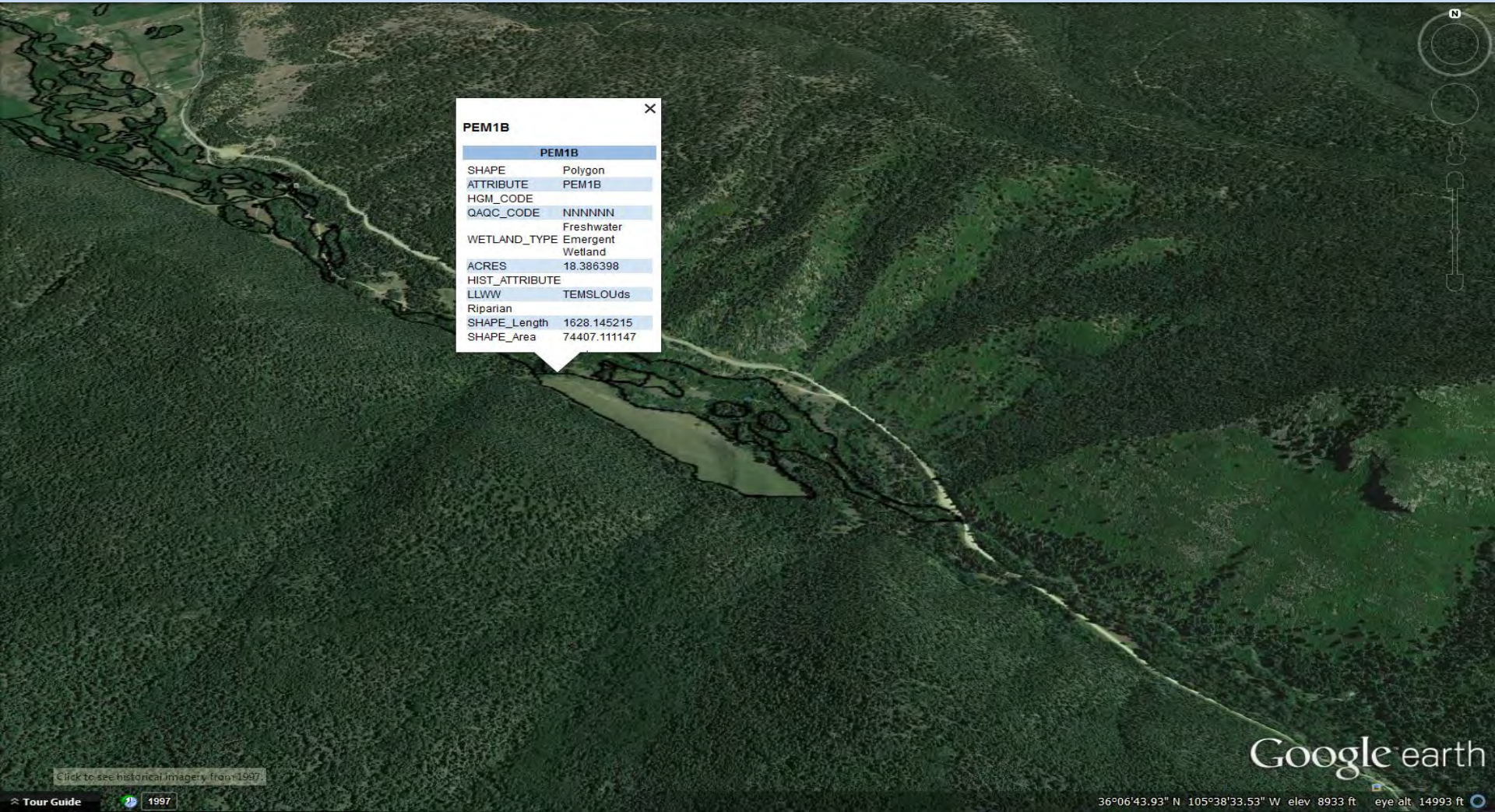
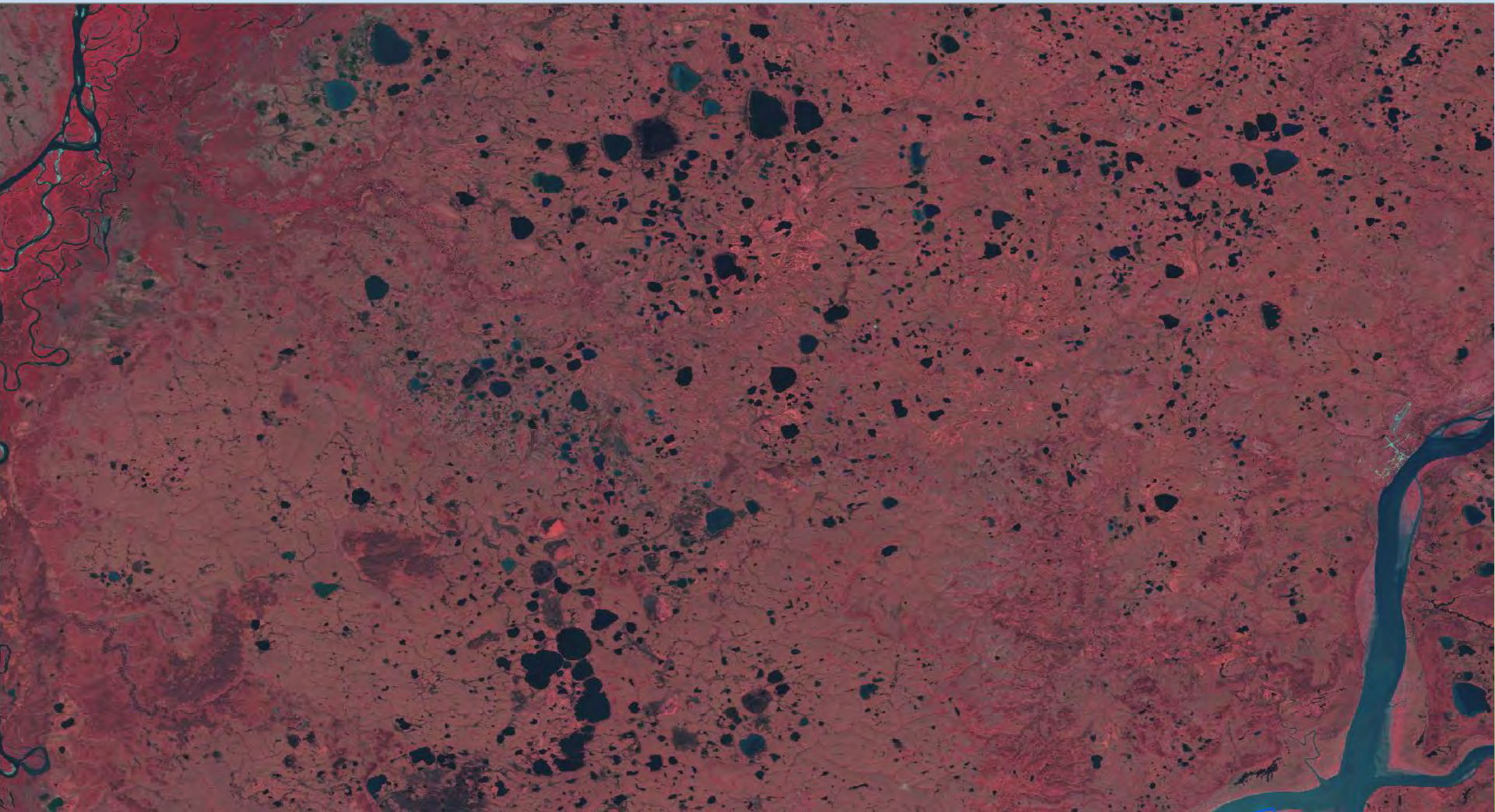


New Classification Techniques
Alaska NWI



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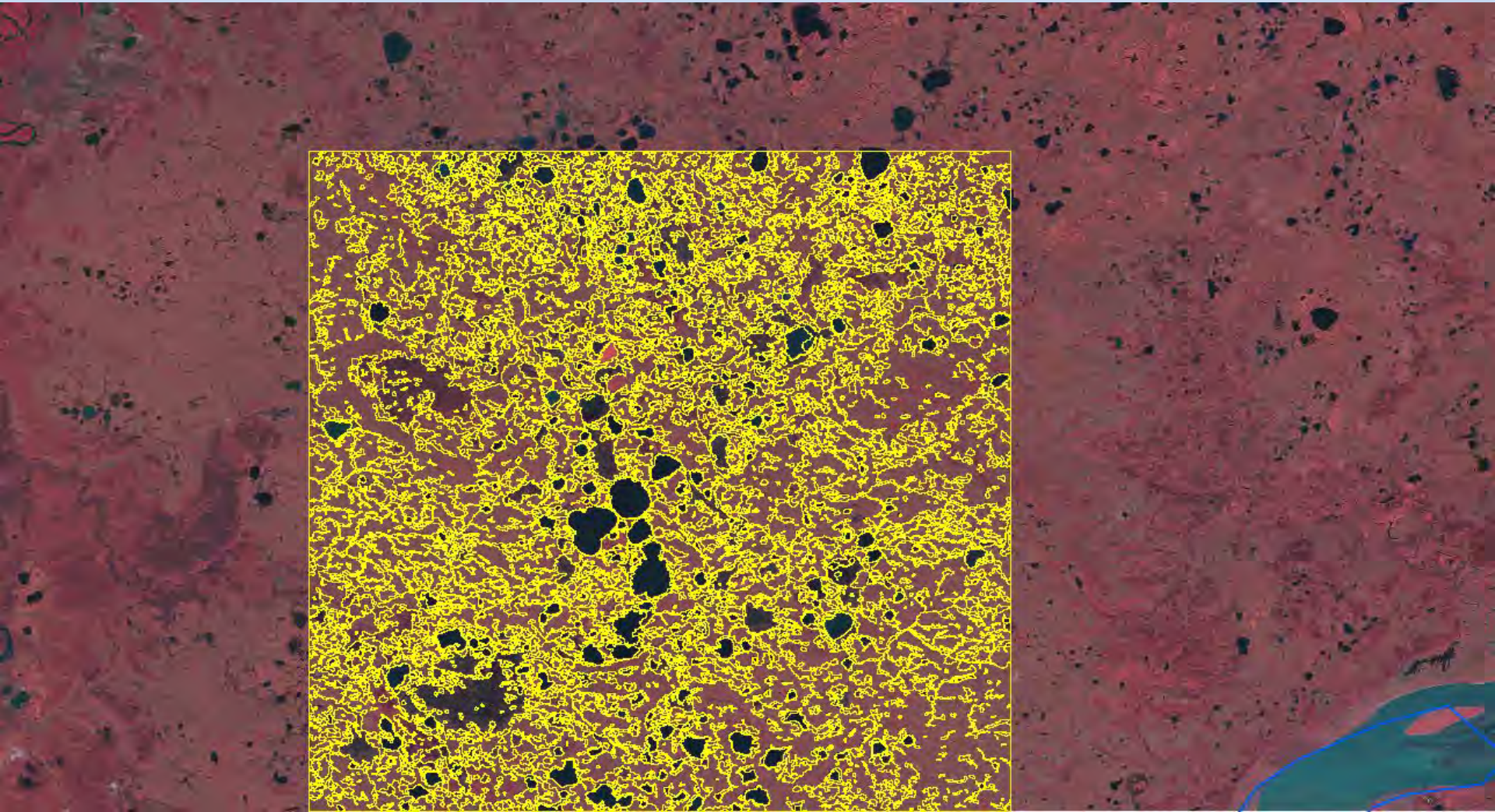

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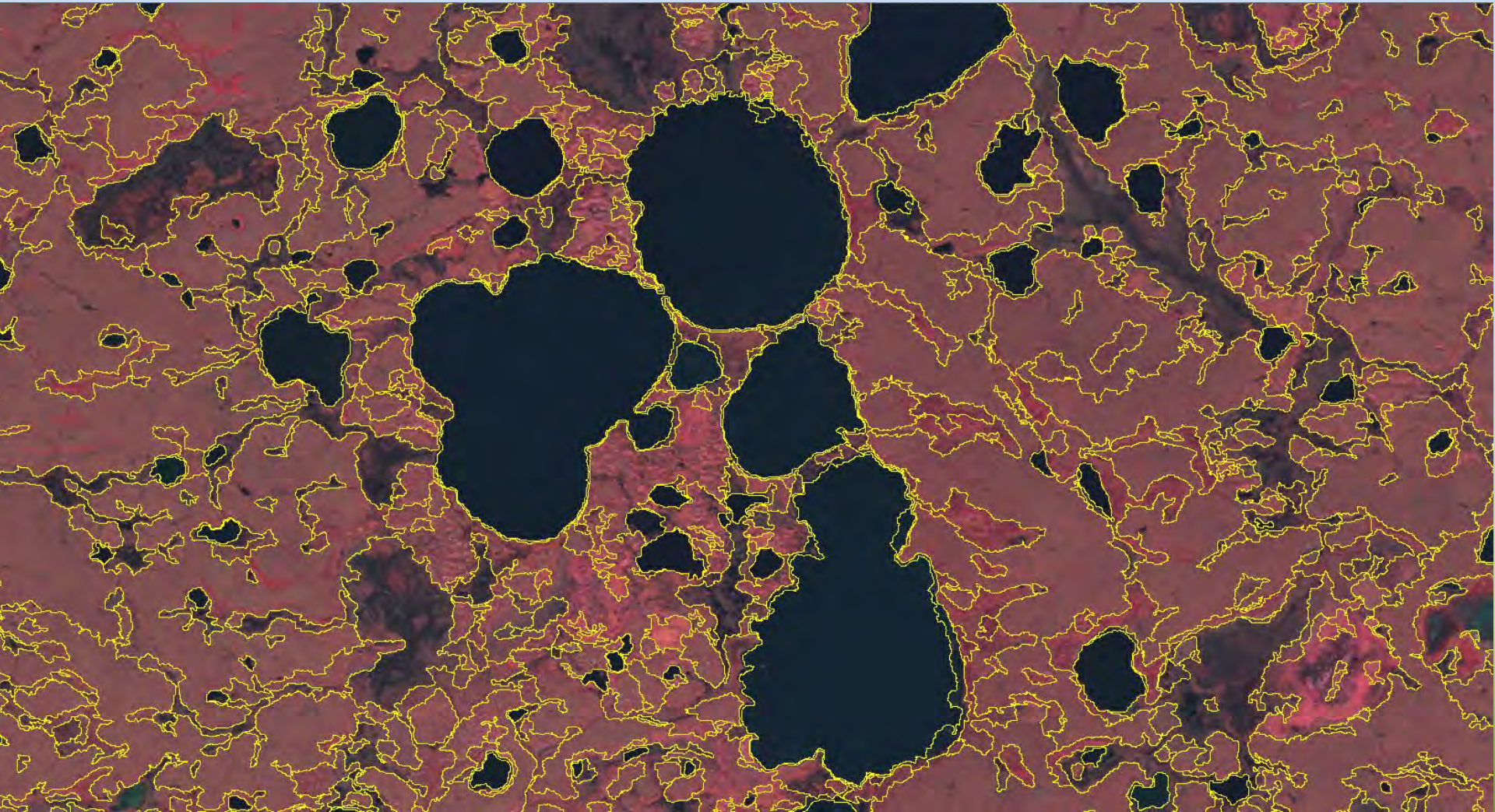

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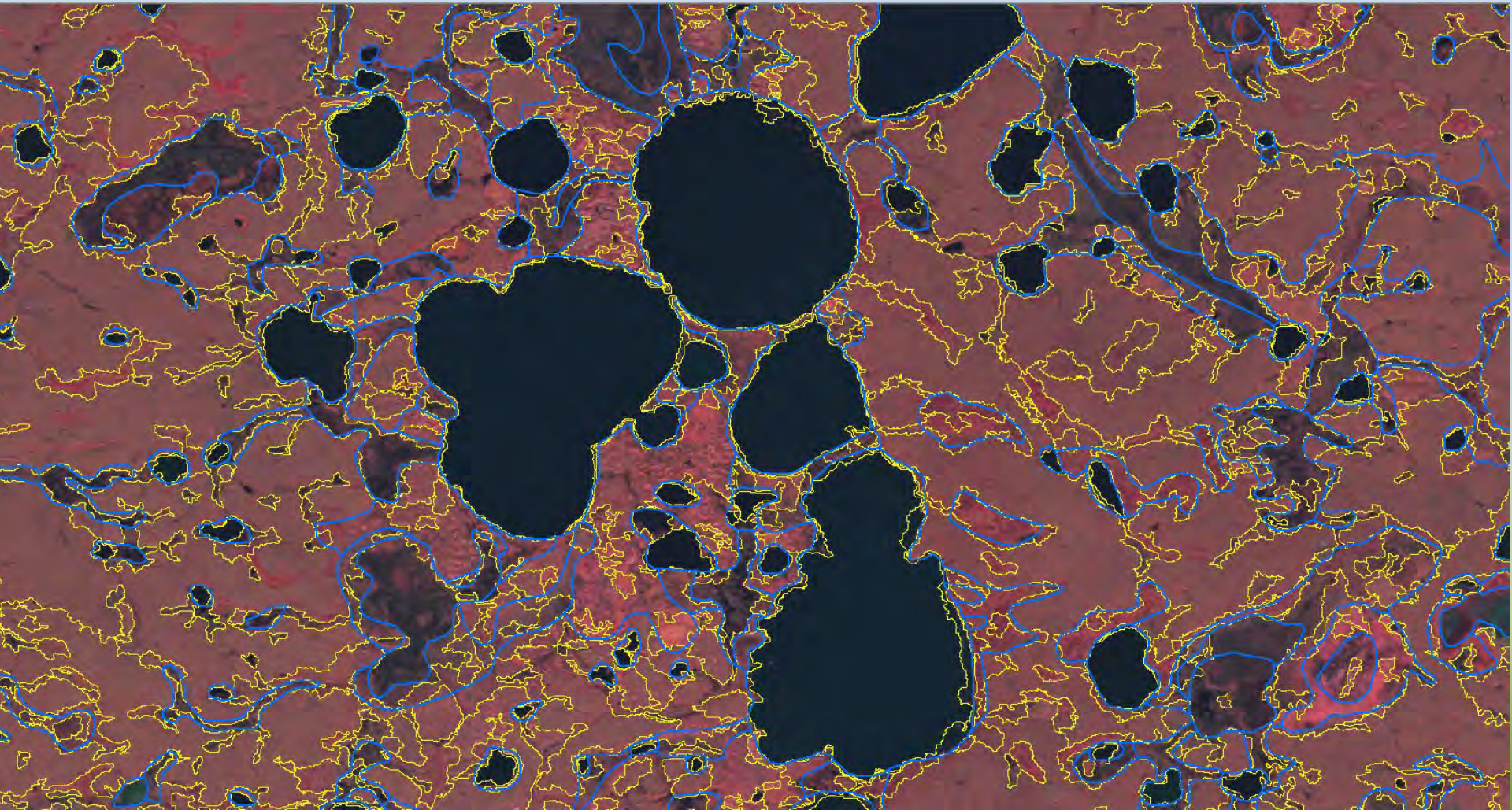

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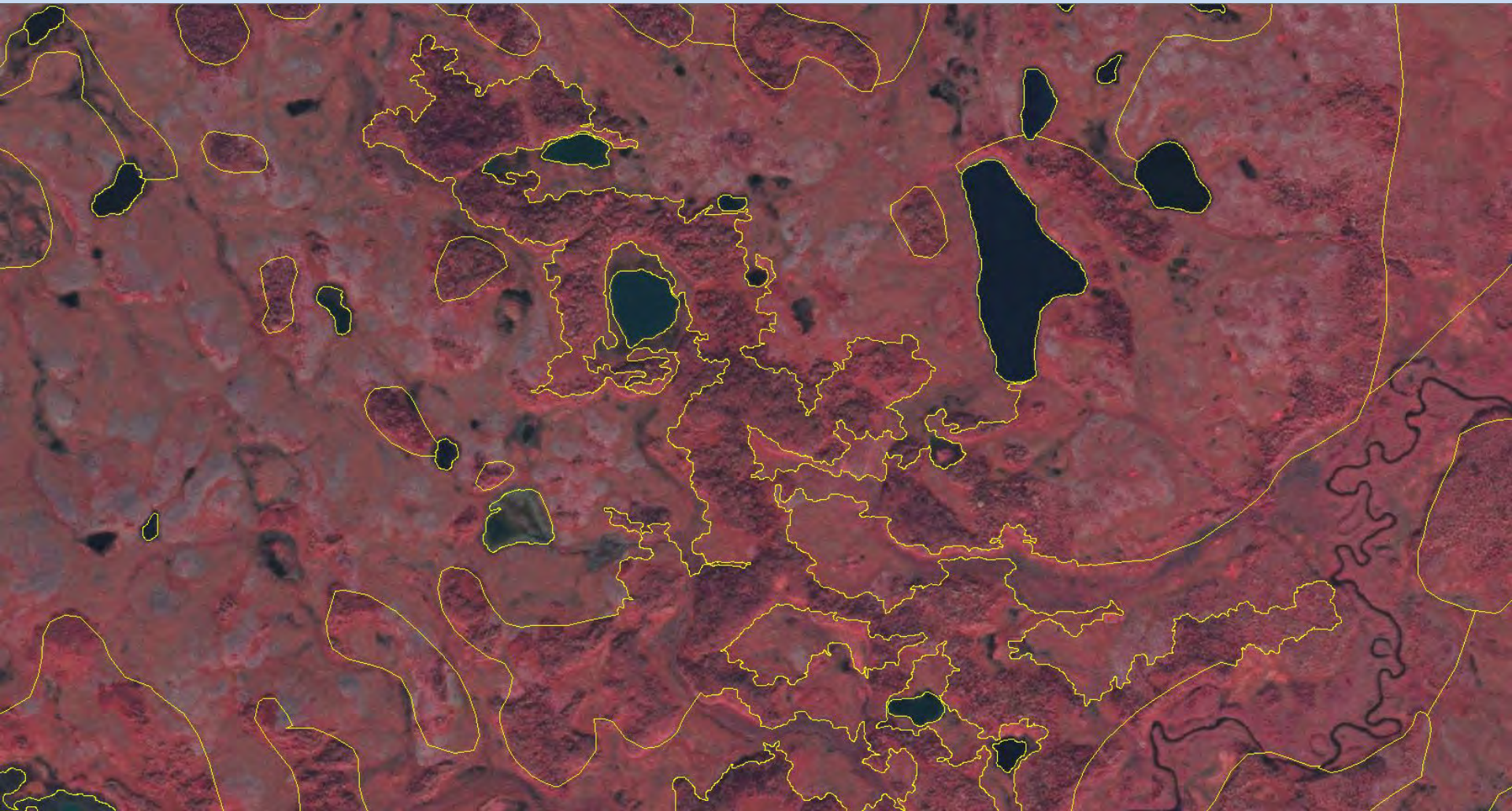
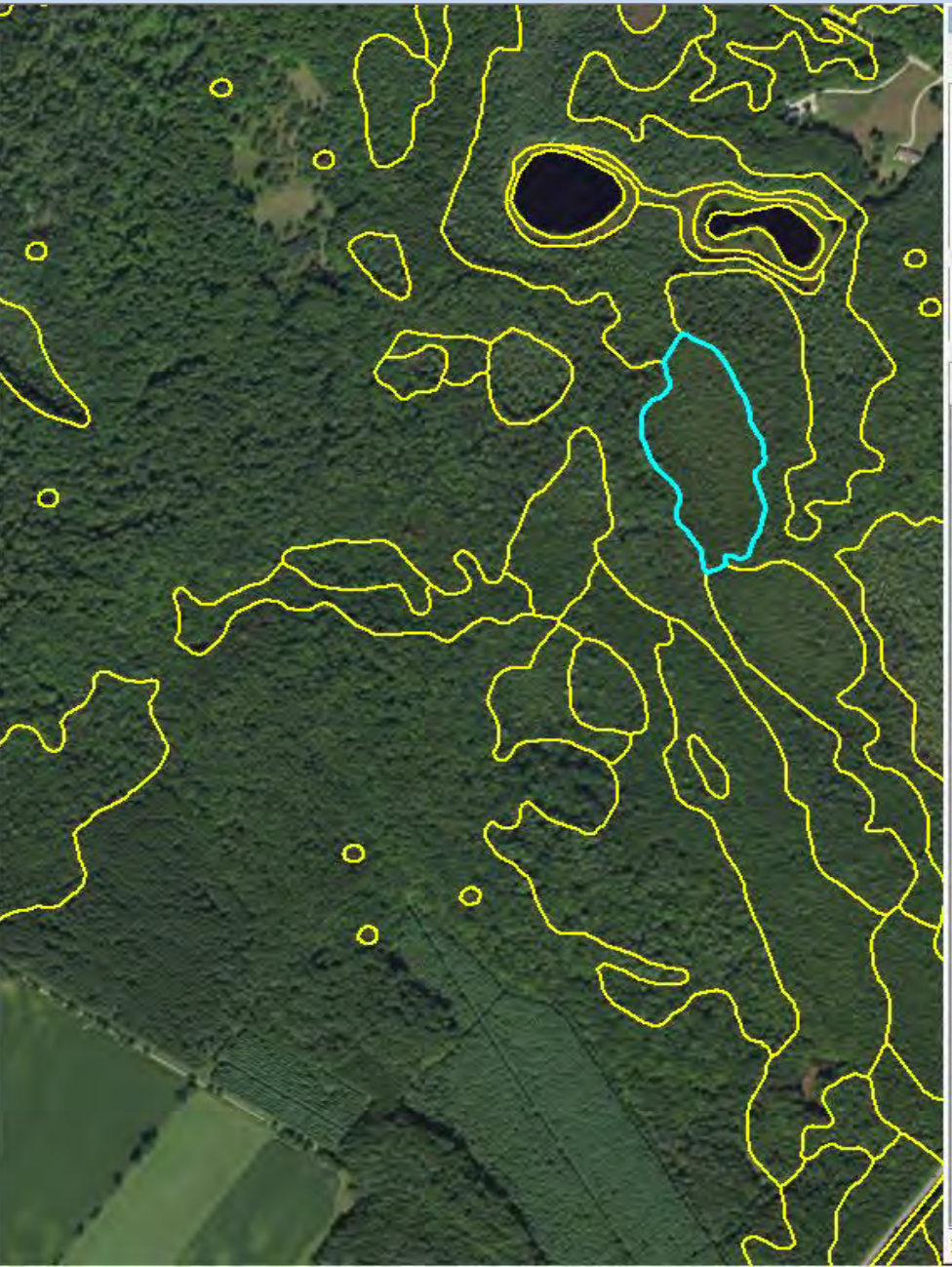


New Classification Techniques
Alaska NWI

Additional Database Attribution New Mexico NWI

Additional Database Attribution
Wisconsin NWI



Identify

Identify from: <Top-most layer>

NWI_Plus_WetlandFunctionalCorrelation
PFO4B

Location: 4,450,701.471 1,813,946.376 Meters

Field	Value
ACRES	7.320677
Shape_Leng	788.663164
Perimeter	788.386004
Area	45919968.392314
Hectares	2.962573
LLWW	TEFLOUhw
Poten_Culv	<null>
Comments	<null>
small_wetland_type	<null>
NWI_System	P
NWI_Subsystem	<null>
NWI_Class	FO
NWI_Class2	<null>
NWI_SubClass	4
NWI_SubClass2	<null>
NWI_Regime	B
NWI_Modifier	<null>
Parser_Flag	<null>
Parser_Details	<null>
Pot_Cedar	1
WWI_SpecialMod	<null>
Addtnl_desc	<null>
Surface Water Detention	Moderate
Surface Water Maintenance	High
Nutrient Transformation	Moderate
Sediment/Particle Retention	<null>
Carbon Sequestration	Moderate
Shoreline Stabilization	Moderate
Fish Habitat	<null>
General Wildlife Habitat	High
Shape_Length	788.386004
Shape_Area	29625.726808

Identified 1 feature

Summary

1. Fully digital environment cost effective and flexible
2. Minimum polygon size down to 1/10 acre
3. Cover large land areas quickly and in detail
4. Additional attributes contribute to wetland functional assessment, watershed planning, stakeholder engagement
5. Increased classification and delineation accuracy means more utility in the final product for a variety of applications.
6. Continuity with EPA Level 1, 2 and 3 Assessment

Questions?

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