



# Environment and Natural Resources Trust Fund (ENRTF) M.L. 2015 Work Plan

**Date of Report:** October 15, 2014

**Date of Next Status Update Report:** January 31, 2016

**Date of Work Plan Approval:**

**Project Completion Date:** June 30, 2018

**Does this submission include an amendment request?** No

**PROJECT TITLE:** Updating the National Wetland Inventory for Minnesota – Phase V

**Project Manager:** Steve Kloiber

**Organization:** Minnesota DNR

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**Web Address:** [http://www.dnr.state.mn.us/eco/wetlands/nwi\\_proj.html](http://www.dnr.state.mn.us/eco/wetlands/nwi_proj.html)

**Location:** Fifteen counties in Central Minnesota: Aitkin, Beltrami, Benton, Carlton, Cass, Crow Wing, Hubbard, Itasca, Kanabec, Mille Lacs, Morrison, Pine, Stearns, Todd, Wadena

**Total ENRTF Project Budget:**

**ENRTF Appropriation:** \$1,500,000

**Amount Spent:** \$0

**Balance:** \$1,500,000

**Legal Citation:** M.L. 2015, Chp. xx, Sec. xx, Subd. xx

**Appropriation Language:**

\$1,500,000 the first year is from the trust fund to the commissioner of natural resources to continue the update and enhancement of wetland inventory maps for Minnesota. This appropriation is available until June 30, 2018, by which time the project must be completed and final products delivered.

**I. PROJECT TITLE:** Updating the National Wetland Inventory for Minnesota – Phase V

**II. PROJECT STATEMENT:**

Over the past 100 years, about half of Minnesota’s original 22 million acres of wetlands have been drained or filled. Some regions of the State have lost more than 90 percent of their original wetlands. Urban development, agricultural drainage, mining, road construction, and utility projects result in additional losses each year. The function and quality of remaining wetlands are often impaired. Updating the NWI is a key component of the State’s strategy to monitor and assess wetlands in support of efforts to assure healthy wetlands and clean water for Minnesota.

- NWI is the only comprehensive inventory of wetlands for Minnesota. To protect wetlands, we need to know how many wetland acres we have and where they are. We can’t manage what we don’t measure. Unfortunately, the current NWI is inaccurate in many places because it is 25-30 years out-of-date and some of the original imagery used was relatively coarse scale.
- NWI is an important screening tool for land use planning and for identifying potential wetland impacts. State, regional and local agencies use the NWI for making land use decisions, including planning for transportation and utility services. Wetland programs such as Minnesota’s Wetland Conservation Act and the US Army Corps’ Clean Water Act Permit Program rely on the NWI as the initial resource for identifying potential impacts of proposed projects. Having accurate maps upfront prevents problems later on; saving time and money for permit applicants and wetland program managers as well as preventing wetland impacts.
- NWI is useful for strategic wetland restoration planning. Funds for wetland restoration are limited; therefore, it is important to get the most benefit possible for our restoration dollars. Wetland maps provide useful information for strategic wetland restoration planning. The NWI includes information about partly drained and ditched wetlands that may be potential wetland restoration opportunities. In addition, the updated NWI will provide enhanced attributes to support assessment of wetland function. The updated and enhanced NWI will also help target wetland restoration in a way that complements the functions and values of existing wetlands.

This is the fifth phase of a six-phase project to update the National Wetland Inventory (NWI) maps for Minnesota using modern, high-resolution imagery and elevation data. This project phase will: 1) update NWI maps for 1,588 USGS quarter quadrangles of 15 counties in central Minnesota (see attached map). The data required for updating the NWI maps in this proposal was already acquired through a previously funded project phase. High-resolution elevation data (LIDAR) were also acquired through a separate project. Wetland maps and aerial imagery will be produced by contractors under the supervision of the DNR. All wetland map data and aerial imagery will be available free of charge to the public.

**III. OVERALL PROJECT STATUS UPDATES:**

**Project Status as of January 31, 2016:**

**Project Status as of July 31, 2016:**

**Project Status as of January 31, 2017:**

**Project Status as of July 31, 2017:**

**Project Status as of January 31, 2018:**

**Overall Project Outcomes and Results:**

**IV. PROJECT ACTIVITIES AND OUTCOMES:**

**ACTIVITY 1:** Updated Wetland Maps for Central Minnesota

**Description:**

Produce updated wetland maps for 1,588 USGS quarter quadrangles (20,314 miles<sup>2</sup>) for 15 counties in central MN (see attached map). The map production will be conducted by contractors under the supervision of the DNR and will be based on recommendations for wetland mapping methods developed by the University of Minnesota (UMN) through a previous phase of this project. This work will consist of digital photo-interpretation, topographic analysis of LiDAR data, and analysis of ancillary data such as soils maps and forest inventory maps, as well as quality control review. The project will require substantial input data and generate a large dataset. Secure, reliable data storage and back up will be provided by MN.IT. Completed digital map data will be available to the public through several websites, including the DNR and the U.S. Fish and Wildlife Service.

**Summary Budget Information for Activity 1:**

**ENRTF Budget: \$ 1,380,000**  
**Amount Spent: \$ 0**  
**Balance: \$ 1,380,000**

<b>Outcome</b>	<b>Completion Date</b>
1. Draft wetland maps for 15 counties	April 2017
2. Quality control review of draft data	July 2017
3. Final updated NWI data for 15 counties	January 2018
4. Data management and distribution	April 2018

**Activity Status as of January 31, 2016:**

**Activity Status as of July 31, 2016:**

**Activity Status as of January 31, 2017:**

**Activity Status as of July 31, 2017:**

**Activity Status as of January 31, 2018:**

**Final Report Summary:**

**ACTIVITY 2:** Field Data Acquisition for Northwestern Minnesota

**Description:** Data acquisition will include a field-based assessment of wetland type for 400 to 500 sites chosen using a stratified random selection process. This task will complete the field data acquisition component for the statewide update of the NWI. The field data will be used to assess the accuracy of the wetland maps developed from remote sensing data. To maintain the independence of the field data, the field data acquisition will be managed by the U MN, Remote Sensing and Geospatial Analysis Laboratory and the data will not be shared with the mapping contractor.

**Summary Budget Information for Activity 1:**

**ENRTF Budget: \$ 120,000**  
**Amount Spent: \$ 0**  
**Balance: \$ 120,000**

<b>Outcome</b>	<b>Completion Date</b>
1. Field data acquisition for 17 counties in northwestern MN	December 2016

**Activity Status as of January 31, 2016:**

**Activity Status as of July 31, 2016:**

**Activity Status as of January 31, 2017:**

**Activity Status as of July 31, 2017:**

**Activity Status as of January 31, 2018:**

**Final Report Summary:**

**V. DISSEMINATION:**

**Description:**

Wetland maps and related data developed by this project will be disseminated through web-based data distribution hubs and online viewing through web mapping applications. The primary data access website for the State of Minnesota is the [Minnesota Geospatial Commons](#). The primary online mapping application for viewing the data will be [Minnesota NWI Viewer](#). Furthermore, the data are likely to be picked up and served by other sites and applications beyond the ones listed here. Publicity for this effort will include presentations at professional conferences as well as publication in selected newsletters and journals. Conference presentations will include at least two of the following venues; the Minnesota Water Resources Conference, the Minnesota GIS/LIS Conference, the Annual Minnesota Wetlands Conference, and the Conference of the Minnesota Association of Watershed Districts.

**Status as of January 31, 2016:**

**Status as of July 31, 2016:**

**Status as of January 31, 2017:**

**Status as of July 31, 2017:**

**Status as of January 31, 2018:**

**Final Report Summary:**

**VI. PROJECT BUDGET SUMMARY:**

**A. ENRTF Budget Overview:**

<b>Budget Category</b>	<b>\$ Amount</b>	<b>Overview Explanation</b>
Professional/Technical/Service Contracts:	\$ 1,430,718	(1) MNIT project manager at 0.65 FTE for 2-years; (\$220,000) (2) A service level agreement with DNR Resource Assessment Office for data processing, field work, quality assurance, and other support; (\$177,000) (3) A joint powers agreement with the University of Minnesota for field data collection; (\$100,000) (4) A service level agreement with MN.IT for providing data management services and support for data distribution and web mapping; (\$23,000)

		(5) A competitive bid contract for wetland mapping services. (\$910,718)
Equipment/Tools/Supplies:	\$ 2,000	Software maintenance for specialized geospatial software used for quality control.
Travel Expenses in MN:	\$ 5,000	In-state mileage, lodging and travel expenses for project coordination, field reconnaissance, and outreach meetings.
Other: DNR Direct and Necessary Support*	\$ 62,282	DNR's direct and necessary business services required to support this proposal
<b>TOTAL ENRTF BUDGET:</b>		<b>\$ 1,500,000</b>

\* Direct and Necessary expenses include both Department Support Services (Human Resources, IT Support, Safety, Financial Support, Communications Support, Planning Support, and Procurement Support) and Division Support Services. Department Support Services are described in the agency Service Level Agreement, and billed internally to divisions based on rates that have been developed for each area of service. These services are directly related to and necessary for the appropriation. Department leadership services (Commissioner's Office and Regional Directors) are not assessed. Division Support Services include costs associated with Division business offices and clerical support. Those elements of individual projects that put little or no demand on support services such as large single-source contracts, large land acquisitions, and funds that are passed-thru to other entities are not assessed Direct and Necessary costs for those activities. For this work plan, single source contract activity with an associated cost of \$520,000 has not been assessed Direct and Necessary costs. In addition to itemized costs captured in our proposal budget, direct and necessary costs cover HR Support (\$0), Safety Support (\$0), Financial Support (\$11,930), Communication Support (\$1,141), IT Support (\$0), Planning Support (\$704), Procurement Support (\$235), and division and regional program management (\$48,272) that are necessary to accomplishing funded programs/projects.

**Explanation of Use of Classified Staff:** NA The DNR contracts for project management services for this project through MN.IT Services. The MN.IT project manager was originally hired as an unclassified DNR employee. This position was reorganized to MN.IT Services under a statewide consolidation of IT services and is now proposed to be changed to a classified employee. This position has been funded by the ENRTF program for 0.65 FTE. There is currently no other source of funding for managing the NWI project and once the project is complete the agency will secure other funds to continue funding this position.

**Explanation of Capital Expenditures Greater Than \$5,000:** N/A

**Number of Full-time Equivalent (FTE) Directly Funded with this ENRTF Appropriation:** 0.65 FTE for 2-years (1.3 FTE) through a service level agreement with MNIT

**Number of Full-time Equivalent (FTE) Estimated to Be Funded through Contracts with this ENRTF Appropriation:** 7 FTE for two years (14 FTE)

**B. Other Funds:**

Source of Funds	\$ Amount Proposed	\$ Amount Spent	Use of Other Funds
<b>Non-state</b>			
	\$0	\$0	
<b>State</b>			
In-Kind Contribution from Wetland Program Coordinator	\$10,000	\$0	Project Coordination and Planning
<b>TOTAL OTHER FUNDS:</b>	<b>\$10,000</b>	<b>\$0</b>	

\* Significant matching fund have been used in past phases (see funding history); however, these funds are usually not identified until after the work phase has been initiated.

**VII. PROJECT STRATEGY:**

**A. Project Partners:** Partners providing in-kind services for this project include the Minnesota Department of Natural Resources, the Minnesota Pollution Control Agency, the Minnesota Board of Water and Soil Resources, the U.S. Fish and Wildlife Service, and the Minnesota Dept. of Administration's Geographic Information Office.

**B. Project Impact and Long-term Strategy:** This is the fifth phase of a multi-phase project to update the NWI for the entire state of Minnesota. The estimated total budget for the project is \$7.5 million. With this appropriation, the total amount received from ENTRF to date will be \$5,650,000 (75% of the total estimated cost). Upon completion of this phase, our progress will be 100% completion for imagery and field data acquisition and approximately 75% completion for wetland mapping.

**C. Funding History:**

<b>Funding Source and Use of Funds</b>	<b>Funding Timeframe</b>	<b>\$ Amount</b>
ENRTF – Imagery, Methods, Standards	FY09-11	\$550,000
ENRTF – Imagery, Wetland Mapping (east-central), Methods	FY11-14	\$1,100,000
ENRTF – Imagery, Wetlands Mapping (southern)	FY13-15	\$1,500,000
ENRTF – Imagery, Wetlands Mapping (northeast)	FY14-16	\$1,000,000
USGS/NGA – Imagery	FY10	\$25,000
St. Louis County – Imagery	FY10	\$24,999
MPCA Clean Water Legacy – Imagery	FY10	\$111,000
DNR – Heritage Enhancement Fund – Imagery	FY10	\$181,064
DNR/NOAA – Coastal Zone Program – Imagery	FY10	\$24,227
USGS/NGA – Imagery	FY11	\$75,000
Metropolitan Council – Imagery	FY11	\$65,750
Metropolitan Mosquito Control District – Imagery	FY11	\$7,000
McLeod County – Imagery	FY12	\$24,000
Sibley County – Imagery	FY12	\$29,000
Murray County – Imagery	FY12	\$35,000
US Fish and Wildlife Service – Wetland Mapping (North Shore)	FY13-14	\$75,000
Carlton County – Imagery	FY14	\$23,475
Camp Ripley – Imagery	FY14	\$8,898
Itasca County – Imagery	FY14	\$86,841
Clay County – Imagery	FY14	\$31,091
Wilkin County – Imagery	FY14	\$23,266
Mille Lacs County – Imagery	FY14	\$13,769
White Earth Reservation – Imagery	FY14	\$34,231
Fond du Lac Reservation – Imagery	FY14	\$3,000
Beltrami County – Imagery	FY15	\$54,499
Polk County – Imagery	FY15	\$59,863

**VIII. FEE TITLE ACQUISITION/CONSERVATION EASEMENT/RESTORATION REQUIREMENTS: N/A**

**IX. VISUAL COMPONENT or MAP(S): SEE MAP ATTACHMENT**

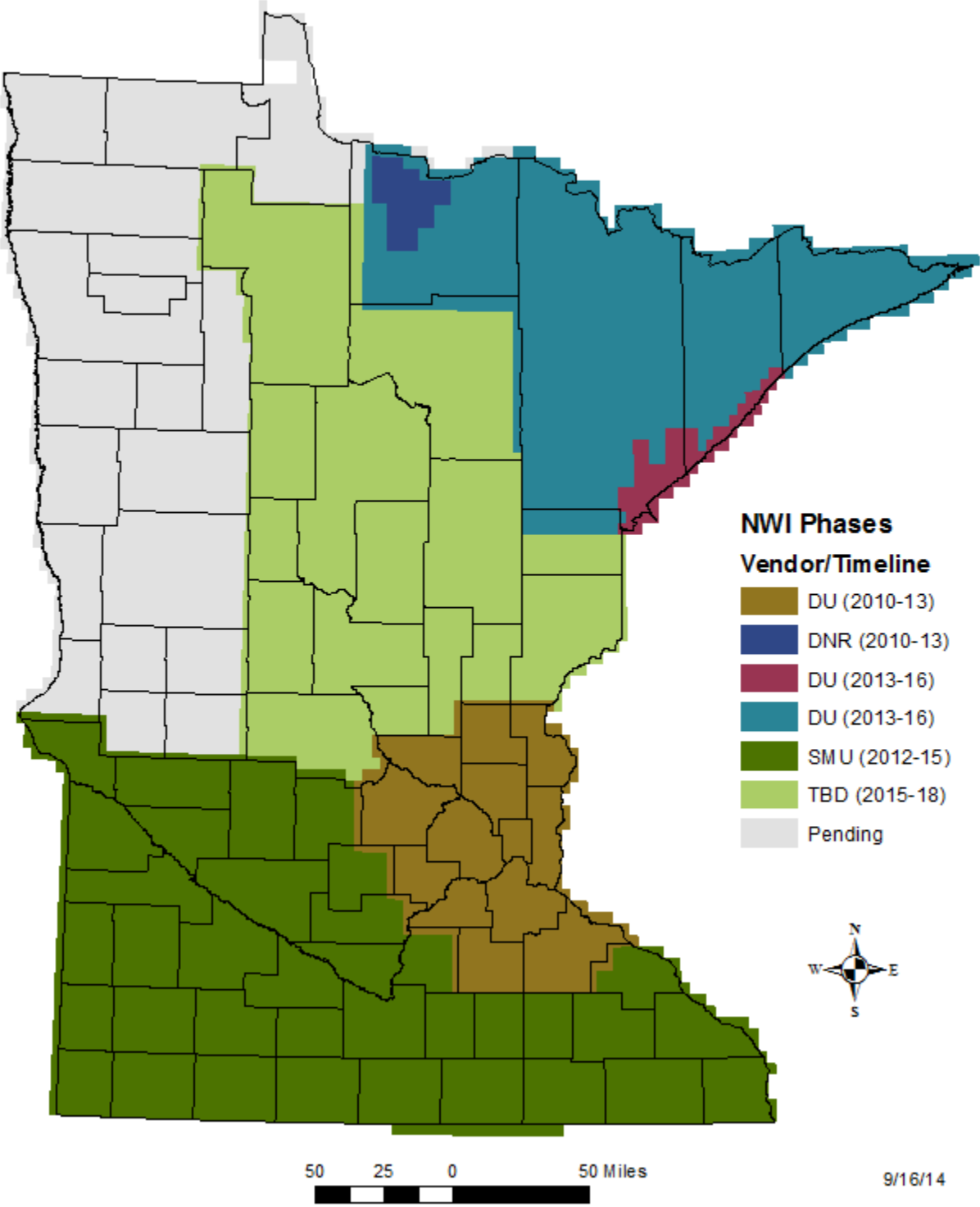
**X. RESEARCH ADDENDUM: N/A**

**XI. REPORTING REQUIREMENTS:**

Periodic work plan status update reports will be submitted no later than January 31, 2016, July 31, 2016, January 31, 2017, July 31, 2017 and January 31, 2018. A final report and associated products will be submitted between June 30 and August 15, 2018.

**MAP ATTACHMENT**

**NWI Production Status**



The map production area for this grant (central Minnesota) is shown in the light green color.





**Environment and Natural Resources Trust Fund**  
**M.L. 2015 Project Budget**

**Project Title:** *Updating the National Wetland Inventory for Minnesota – Phase V*  
**Legal Citation:** *Fill in your project's legal citation from the appropriation language - this will occur after the 2015 legislative session.*  
**Project Manager:** *Steve Kloiber*  
**Organization:** *Minnesota DNR*  
**M.L. 2015 ENRTF Appropriation:** *\$ 1,500,000*  
**Project Length and Completion Date:** *3 Years; June 30, 2018*  
**Date of Report:** *September 30, 2014*

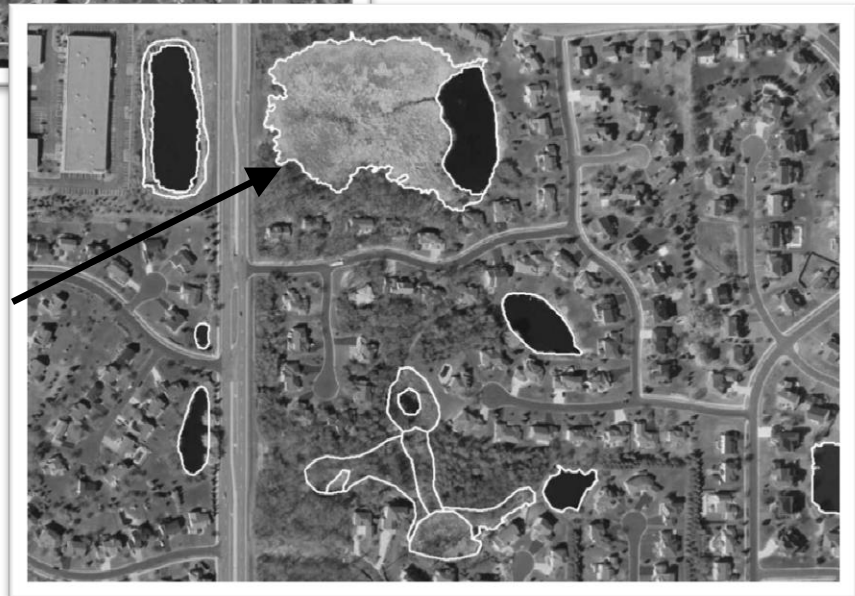
<b>ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET</b>	<b>Activity 1 Budget</b>	<b>Amount Spent</b>	<b>Activity 1 Balance</b>	<b>Activity 2 Budget</b>	<b>Amount Spent</b>	<b>Activity 2 Balance</b>	<b>TOTAL BUDGET</b>	<b>TOTAL BALANCE</b>
<b>BUDGET ITEM</b>	<i>Updaing Wetland Maps</i>			<i>Field Data Acquisition</i>				
<b>Professional/Technical/Service Contracts</b>								
<i>Project Manager; Service Level Agreement with MNIT for 0.65FTE for 2 years (78% salary, 22% benefits)</i>	\$200,000	\$0	\$200,000	\$20,000	\$0	\$20,000	\$220,000	\$220,000
<i>Contract for Wetland Mapping Service - TBD through competitive bid contract</i>	\$910,718	\$0	\$910,718				\$910,718	\$910,718
<i>Service Level Agreement with DNR Resource Assessment Office for data processing and quality assurance support</i>	\$177,000	\$0	\$177,000				\$177,000	\$177,000
<i>Service Level Agreement with MN.IT for data management, distribution, and web services</i>	\$23,000	\$0	\$23,000				\$23,000	\$23,000
<i>Joint Powers Agreement with University of Minnesota for field data acquisition</i>				\$100,000	\$0	\$100,000	\$100,000	\$100,000
<b>Equipment/Tools/Supplies</b>								
<i>Software maintenance for quality control review</i>	\$2,000	\$0	\$2,000				\$2,000	\$2,000
<b>Travel expenses in Minnesota</b>								
<i>In-state mileage, lodging and travel expenses for project coordination, field reconnaissance, and outreach meetings.</i>	\$5,000	\$0	\$5,000				\$5,000	\$5,000
<b>Other</b>								
<i>DNR's direct and necessary costs cover HR Support (\$0), Safety Support (\$0), Financial Support (\$11,930), Communication Support (\$1,141), IT Support (\$0), Planning Support (\$704), Procurement Support (\$235), and division and regional program management (\$48,272) that are necessary to accomplishing funded programs/projects.</i>	\$62,282	\$0	\$62,282				\$62,282	\$62,282
<b>COLUMN TOTAL</b>	<b>\$1,380,000</b>	<b>\$0</b>	<b>\$1,380,000</b>	<b>\$120,000</b>	<b>\$0</b>	<b>\$120,000</b>	<b>\$1,500,000</b>	<b>\$1,500,000</b>

# The National Wetland Inventory Update for Minnesota

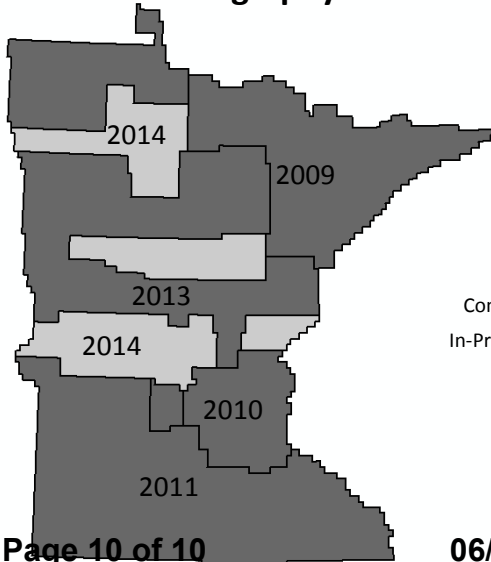


Old inaccurate wetland boundaries on 2010 image

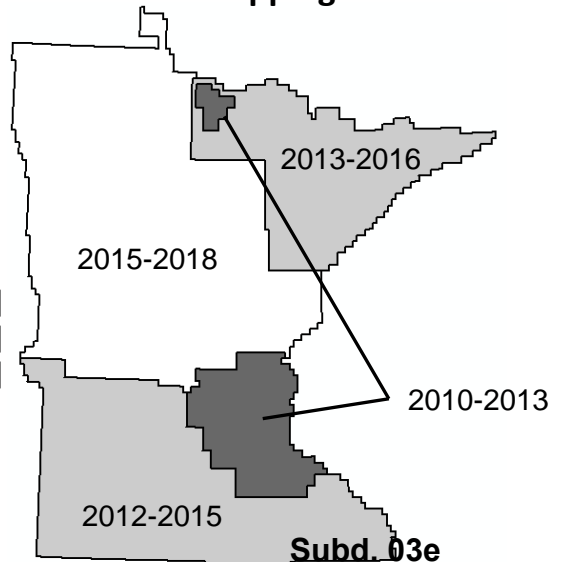
New accurate wetland boundaries on 2010 image





## Aerial Photography Status



## Wetland Mapping Status



Complete   
In-Progress   
Future 