



# Environment and Natural Resources Trust Fund (ENRTF)

## M.L. 2016 Work Plan

**Date of Report:** May 29, 2016

**Date of Next Status Update Report:** January 31, 2017

**Date of Work Plan Approval:** June 7, 2016

**Project Completion Date:** June 30, 2019

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

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**PROJECT TITLE:** Completing National Wetland Inventory Update for Minnesota

**Project Manager:** Steve Kloiber

**Organization:** Minnesota DNR

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**Location:** Nineteen counties in northwestern Minnesota: Pope, Stevens, Traverse, Grant, Douglas, Otter Tail, Wilkin, Clay, Becker, Clearwater, Mahnommen, Norman, Polk, Red Lake, Pennington, Marshall, Kittson, Roseau, Lake of the Woods.

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**Total ENRTF Project Budget:**

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

**Amount Spent:** \$0

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

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**Legal Citation:** M.L. 2016, Chp. 186, Sec. 2, Subd. 03e

**Appropriation Language:**

\$1,500,000 the second year is from the trust fund to the commissioner of natural resources to complete the update and enhancement of wetland inventory maps for counties in central and northwestern Minnesota. This appropriation is available until June 30, 2019, by which time the project must be completed and final products delivered.

## **I. PROJECT TITLE: Completing the National Wetland Inventory Update for Minnesota**

### **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 have lost more than 90 percent of their original wetlands. The function and quality of remaining wetlands are often impaired. Updating the National Wetland Inventory (NWI) is a key component of a strategy to monitor and assess wetlands to ensure healthy watersheds 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. Unfortunately, the original NWI is 30 years out-of-date and not very accurate in many locations, partly due to its age and partly due to the limitations of the mapping technology at the time it was produced.
- NWI is an important screening tool for land use planning and for evaluating potential wetland impacts. Having accurate wetland inventory data is critical for state, regional, and local agencies when evaluating the potential impact of proposed projects and striving to preserve the integrity of our remaining wetlands. 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 evaluating these impacts. 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 wetland restoration and conservation planning. The NWI includes information about wetlands that helps identify potential restoration opportunities such as partially drained wetlands. In addition, the updated NWI will provide enhanced attributes to support assessment of wetland functions like flood storage capability, water quality protection, and wildlife habitat. Information on which wetlands are providing what benefits helps conservation professionals make better decisions about where to use restoration funding.

This project phase will:

- Complete the update NWI maps for the remaining 19 counties in northwestern Minnesota (20,700 mi<sup>2</sup>)
- Conduct a pilot demonstration using the updated NWI to assess wetland function and develop a report

Through previous project phases, we have already acquired statewide high-resolution (0.5 meter & 1-foot) aerial imagery. Wetland maps will be produced by contractors under the supervision of the DNR. All wetland map data will be available free of charge to the public.

### **III. OVERALL PROJECT STATUS UPDATES:**

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

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

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

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

**Project Status as of January 31, 2019:**

**Overall Project Outcomes and Results:**

### **IV. PROJECT ACTIVITIES AND OUTCOMES:**

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

**Description:**

Produce updated wetland maps for 1,634 USGS quarter quadrangles (20,700 miles<sup>2</sup>) for the remaining 19 counties in northwestern 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) and refined through previous phases. 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: \$ 1,223,800**  
**Amount Spent: \$ 0**  
**Balance: \$ 1,223,800**

<b>Outcome</b>	<b>Completion Date</b>
<b>1. Draft wetland maps for 19 counties</b>	September 2018
<b>2. Quality control review of draft data</b>	January 2019
<b>3. Finalized updated NWI data for 19 counties</b>	April 2019

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

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

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

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

**Activity Status as of January 31, 2019:**

**Final Report Summary:**

**ACTIVITY 2: Wetland Functional Assessment Demonstration & Training for Data Users**

**Description:**

The updated NWI data are not only more current and spatially accurate than the original NWI, but they also include new attributes such as the hydro-geomorphic classification (HGM). These enhancements were included based on stakeholder requests and are intended to support wetland functional assessment. This activity includes a pilot demonstration to be conducted by the St. Croix Watershed Research Station (of the Science Museum of Minnesota) using the updated and enhanced National Wetland Inventory to assess the ecological functions of wetlands within a selected watershed in southern Minnesota. Various metrics will be derived from a combination of both the updated NWI data and lidar data, including, but not limited to; wetland surface area, mean depth, volume, watershed area, ratio of wetland area to watershed area, and ratio of wetland volume to watershed area. These metrics will be calculated for each wetland and summarized by HGM class. Correlations between these metrics and wetland hydrologic function will be developed through a combination of statistical analyses, modeling, and literature review. The procedures used for this analysis will be documented and presented to serve as guidance to natural resource managers for applications including flood analysis, water quality improvement, and wildlife habitat suitability assessment. This information will be disseminated through a combination of presentations and workshops.

**Summary Budget Information for Activity 2:**

**ENRTF Budget: \$ 276,200**  
**Amount Spent: \$ 0**

Balance: \$ 276,200

Outcome	Completion Date
1. Conduct a pilot test using the new NWI data to assess wetland functions	July 2018
2. Publish a report on the procedures and results from the pilot test	October 2018
3. Present procedures and results from pilot test at four conferences or workshops	November 2018

Activity Status as of January 31, 2017:

Activity Status as of July 31, 2017:

Activity Status as of January 31, 2018:

Activity Status as of July 31, 2018:

Activity Status as of January 31, 2019:

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, 2017:

Status as of July 31, 2017:

Status as of January 31, 2018:

Status as of July 31, 2018:

Status as of January 31, 2019:

Final Report Summary:

#### VI. PROJECT BUDGET SUMMARY:

##### A. ENRTF Budget Overview:

Budget Category	\$ Amount	Overview Explanation
Professional/Technical/Service Contracts:	\$ 1,482,000	(1) MNIT project manager at 0.65 FTE for 2-years; (\$200,000) (2) A service level agreement with DNR Resource Assessment Office for data

		processing, field work, quality assurance, and other support; (\$177,000) (3) A sole source contract with the St. Croix Watershed Research Station for a wetland functional assessment demo; (\$225,000) (4) A competitive bid contract for wetland mapping services; (\$880,000)
Equipment/Tools/Supplies:	\$ 2,002	
Travel Expenses in MN:	\$ 3,600	
Other: DNR Direct and Necessary Support*	\$ 12,398	
<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). 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 \$602,000 has not been assessed Direct and Necessary costs. In addition, itemized costs captured in our proposal budget include Departmental Financial Support (\$12,398) that is necessary to accomplishing funded programs/projects.

**Explanation of Use of Classified Staff:** 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 a classified employee. The project management responsibilities of this position have been funded by the ENRTF program at a rate of 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 and re-assign this position to other responsibilities.

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

**Number of Full-time Equivalents (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 Equivalents (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 DNR wetland program coordinator	\$10,000	\$	Project coordination and planning
<b>TOTAL OTHER FUNDS:</b>	<b>\$10,000</b>	<b>\$</b>	

**VII. PROJECT STRATEGY:**

**A. Project Partners:** The St. Croix Watershed Research Station (SCWRS) is a partner on this project with responsibility for conducting the wetland functional assessment demonstration using the updated NWI data. An

amount of \$250,000 from this grant will be directed to the SCWRS for this effort. In addition, other state and federal agency partners support this project in a variety of capacities. These partners 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 sixth phase of a multi-phase project to update the NWI for the entire state of Minnesota. The original estimated total budget for the project is \$7.5 million. With this appropriation, the total amount received from ENTRF to date will be \$7,150,000. Upon completion of this phase, our progress will be 100% completion for all tasks.

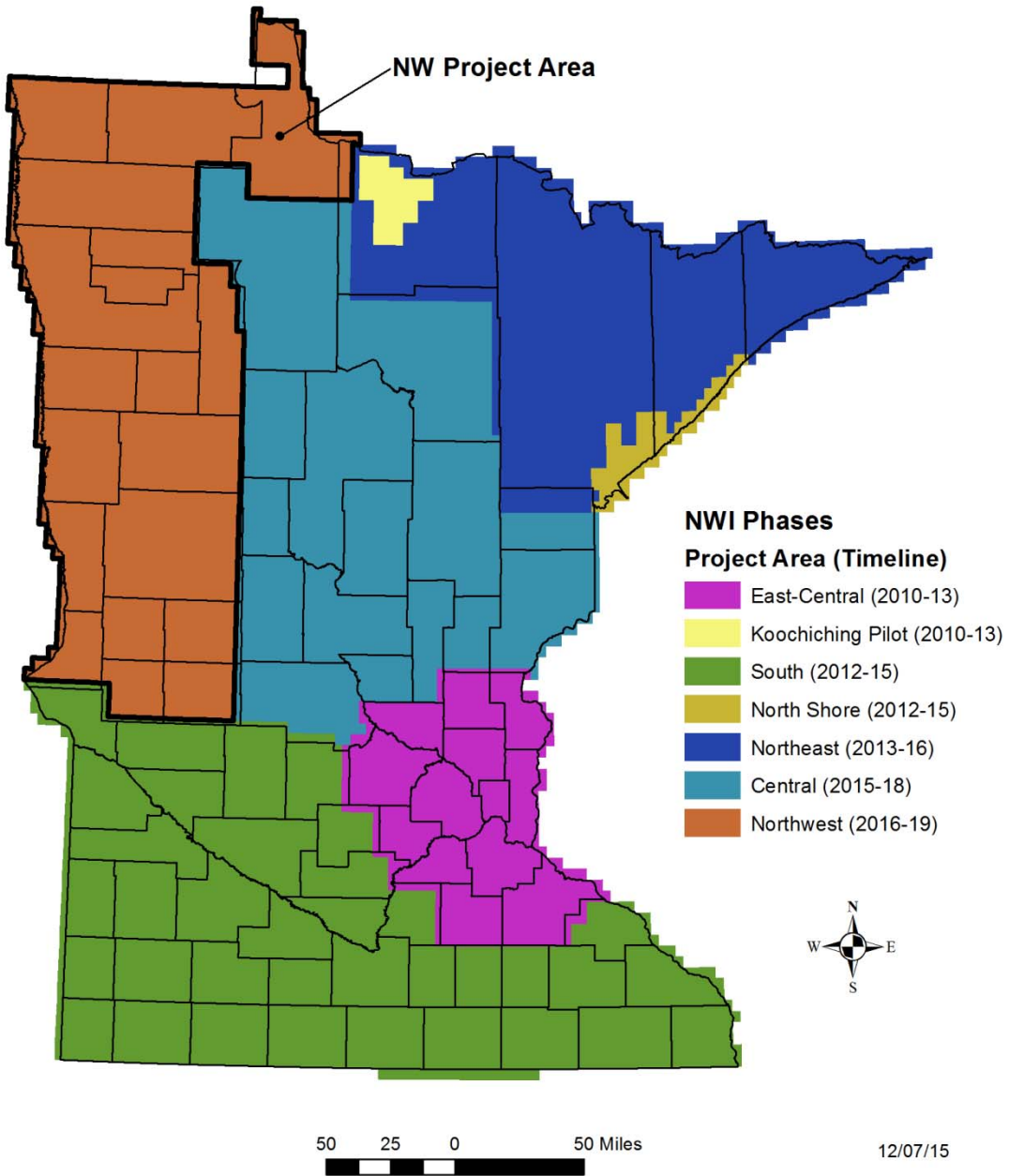
**C. Funding History:**

Funding Source and Use of Funds	Funding Timeframe	\$ Amount
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
ENRTF – Imagery, Wetlands Mapping (central)	FY16-18	\$1,500,000
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):**

# NWI Production Status - Northwest Project Area



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

**XI. REPORTING REQUIREMENTS:**

Periodic work plan status update reports will be submitted no later than January 31, 2017, July 31, 2017, January 31, 2018, July 31, 2018 and January 31, 2019. A final report and associated products will be submitted between June 30 and August 15, 2019.

**Environment and Natural Resources Trust Fund  
M.L. 2016 Project Budget**



**Project Title:** Completing National Wetland Inventory Update for Minnesota

**Legal Citation:** M.L. 2016, Chp. 186, Sec. 2, Subd. 03e

**Project Manager:** Steve Kloiber

**Organization:** Minnesota DNR

**M.L. 2016 ENRTF Appropriation:** \$ 1,500,000

**Project Length and Completion Date:** 3 Years, June 30, 2019

**Date of Report:** May 29, 2016

<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>Updating Wetland Maps</i>			<i>Functional Assessment Demo</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>	\$150,000	\$0	\$150,000	\$50,000		\$50,000	\$200,000	\$200,000
<i>Contract for Wetland Mapping Service - TBD through competitive bid contract</i>	\$880,000	\$0	\$880,000				\$880,000	\$880,000
<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>Sole Source Contract with St. Croix Watershed Research Station for wetland functional assessment demo&amp; outreach</i>				\$225,000	\$0	\$225,000	\$225,000	\$225,000
<b>Equipment/Tools/Supplies</b>								
<i>Software maintenance for quality control review</i>	\$2,002	\$0	\$2,002				\$2,002	\$2,002
<b>Travel expenses in Minnesota</b>								
<i>In-state mileage, lodging and travel expenses for project coordination, field reconnaissance, and outreach meetings.</i>	\$2,400	\$0	\$2,400	\$1,200	\$0	\$1,200	\$3,600	\$3,600
<b>Other</b>								
<i>DNR's direct and necessary costs cover HR Support (\$0), Safety Support (\$0), Financial Support (\$12,398), Communication Support (\$0), IT Support (\$0), Planning Support (\$0), Procurement Support (\$0), and division and regional program management (\$0) that are necessary to accomplishing funded programs/projects.</i>	\$12,398	\$0	\$12,398				\$12,398	\$12,398
<b>COLUMN TOTAL</b>	\$1,223,800	\$0	\$1,223,800	\$276,200	\$0	\$276,200	\$1,500,000	\$1,500,000