



# Environment and Natural Resources Trust Fund (ENRTF) M.L. 2014 Work Plan

**Date of Report:** 12 February 2014  
**Date of Next Status Update Report:** 15 January 2015  
**Date of Work Plan Approval:**  
**Project Completion Date:** 30 June 2017  
**Does this submission include an amendment request?** NO

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**PROJECT TITLE: State Spring Inventory for Resource Management and Protection**

**Project Manager:** Jan Falteisek  
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**Location: Statewide**

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<b>Total ENRTF Project Budget:</b>	<b>ENRTF Appropriation:</b>	<b>\$200,000</b>
	<b>Amount Spent:</b>	<b>\$0</b>
	<b>Balance:</b>	<b>\$200,000</b>

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**Legal Citation:** M.L. 2014, Chp. 226, Sec. 2, Subd. 05b

**Appropriation Language:**

\$200,000 the second year is from the trust fund to the commissioner of natural resources to develop necessary protocols, processes, and definitions of springs along with limited field testing of inventory procedures in priority areas to enable a systematic inventory of springs statewide needed to maintain spring flows and protect groundwater-dependent resources. This appropriation is available until June 30, 2017, by which time the project must be completed and final products delivered.

## **I. PROJECT TITLE: State Spring Inventory for Resource Management and Protection**

### **II. PROJECT STATEMENT:**

Springs are critical resources in Minnesota and occur all across the state. They create coldwater (trout streams) and cool water fisheries, sustain base flow in streams, create unique ecological habitats, and help to maintain the integrity of aquatic systems against invasive species. In order to maintain spring flows and protect the groundwater-dependent resources that rely on springs, it is vital to inventory, assess, and monitor springs on a comprehensive, statewide basis. This need was recognized in the December 2008 document, "Managing for Water Sustainability: Report of the EQB Water Availability Project" from the Minnesota Environmental Quality Board which specifically recommends an inventory of the state's springs. A partial inventory exists for research purposes for southeastern Minnesota that is maintained in the Minnesota Karst Features Database (MN KFDB) at the Minnesota Geological Survey. The MN KFDB, although known to be incomplete, is heavily used for project planning by private industry, local governments and state agencies.

This project is in support of a statewide inventory of Minnesota's springs. This project will focus on the development of the protocols, processes, and database necessary to enable a statewide spring inventory. The database will be web-accessible to allow for the entry of spring data from existing sources such as topographic maps, DNR records, local governments, public land survey records, universities, state and federal agencies and local interest groups. Limited field testing of inventory procedures in priority areas will be done to test the protocols, processes, and database design. This project will also develop digital and field mapping methods for springs, including establishing site location and verification criteria, developing field data collection templates and standards. Pilot testing of digital and field methods will be done in selected areas of the state to assess cost-effectiveness of methods. The data acquired during this project will be made web-accessible for use by the MPCA, LGU's, DNR, industry and citizen groups as they identify impaired waters, evaluate TMDL requirements, and target lands for protection, restoration and enhancement. The protocols, methods, criteria and standards resulting from this project will be available to agencies and organizations to support completion of a statewide spring inventory.

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

**Project Status as of 15 January 2015**

**Project Status as of 15 August 2015**

**Project Status as of 15 January 2016**

**Project Status as of 15 August 2016**

**Project Status as of 15 January 2017**

**Project Status as of 15 August 2017**

**Overall Project Outcomes and Results:**

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

**ACTIVITY 1:** Spring Inventory Database Development and Data Management

**Description:** Develop the necessary protocols, processes, and database necessary to initiate a statewide spring inventory including limited field testing of protocols to ensure the viability and efficiency of the methods developed. Develop digital and field mapping methods, site verification criteria, field data collection templates,

and field data collection standards to allow for statewide user input of spring information. Limited pilot testing in selected areas of the state of the developed spring identification and site verification methods to assure efficient and cost effective inventory procedures.

**Summary Budget Information for Activity 1:**

**ENRTF Budget: \$ 200,000**  
**Amount Spent: \$ 0**  
**Balance: \$**

**Activity Completion Date:**

<b>Outcome*</b>	<b>Completion Date</b>	<b>Budget</b>
1. Develop statewide spring inventory protocols, processes, and database.	30 June 2016	\$90,000
2. Limited field testing of protocols and process methods.	30 June 2016	\$20,000
3. Develop digital and field mapping methods, site criteria, and data standards	30 June 2017	\$70,000
4. Limited pilot testing of field methods	30 June 2017	\$20,000

*\*\$15,572 of this activity is going towards DNR direct and necessary services. Explanation in section VI. Project Budget summary.*

**Activity Status as of 15 January 2015**

**Activity Status as of 15 August 2015**

**Activity Status as of 15 January 2016**

**Activity Status as of 15 August 2016**

**Activity Status as of 15 January 2017**

**Final Report Summary: 15 August 2017**

**V. DISSEMINATION:**

**Description:**

DNR news releases and web announcements will be used to provide publicity for the project. Local government groups, sporting groups, outdoor recreation groups and other state and federal agencies will be contacted for spring location information in selected areas.

**Status as of 15 January 2015**

**Status as of 15 August 2015**

**Status as of 15 January 2016**

**Status as of 15 August 2016**

**VI. PROJECT BUDGET SUMMARY:**

**A. ENRTF Budget Overview:**

Budget Category	\$ Amount	Explanation
Personnel:	\$ 158,607	Research Analyst Specialist: est. \$125,107 (1 unclassified @ 0.8 FTE year 1 (hire Aug or Sept) and 1 FTE for year 2); Hydrologist 3: est. \$33,500 (1 classified @ 0.15 FTE for two years)
Professional – Technical Contracts:	\$ 20,000	Minn. Geological Survey spring component of Karst Features Database -- est. \$10,000; MN.IT for database and specialty programming – est. \$10,000;
Direct and necessary services* --	\$15,572	
Equipment/Tools/Supplies:	\$2,150	Field data acquisition devices, such as tablets and GPS equipment; other necessary equipment for field protocol testing
Capital Expenditures over \$5,000:	\$	
Travel Expenses in MN:	\$3,671	Vehicle fleet charges est. \$2,621; lodging/meals est. \$1,050 for meetings with data holders or users, limited field testing of procedures and pilot testing of field mapping methods
<b>TOTAL ENRTF BUDGET:</b>	<b>\$200,000</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 is 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, database development and maintenance activity (Activity 1) with an associated cost of \$20,000 has not been assessed Direct and Necessary costs.”

**Explanation of Use of Classified Staff:**

Any classified position paid for with ENRTF funds will either be 1) backfilled with a new position or 2) the work previously done by this position will be delayed, eliminated, or completed by the start of the project.

There is one classified position currently working on a separate ENRTF project to be paid partially by this grant. Including the Hydrologist 3 in the project utilizes existing technical expertise in the subject matter to improve efficiency of the database design and the development of procedures and methods. A portion of the Hydrologist 3 time (0.15 FTE) will be paid by this grant and the remaining portion will be paid by Clean Water Fund or an amended ENRTF project, subject to approval.

**Explanation of Capital Expenditures Greater Than \$5,000: NA**

**Number of Full-time Equivalents (FTE) Directly Funded with this ENRTF Appropriation: 2.1**

**Number of Full-time Equivalents (FTE) Estimated to Be Funded through Contracts with this ENRTF Appropriation: estimated 0.3 FTE**

**B. Other Funds:**

Source of Funds*	\$ Amount Proposed	\$ Amount Spent	Use of Other Funds
<b>Non-state</b>			
	\$	\$	
<b>State</b>			
	\$	\$	
<b>TOTAL OTHER FUNDS:</b>	<b>\$</b>	<b>\$</b>	

\*no other funds are planned at this time.

**VII. PROJECT STRATEGY:**

**A. Project Partners:** The Minnesota Geological Survey will partner with the DNR to maintain the existing MN Karst Features Database (KFDB) as the repository for karst features and associated spring information as a research database primarily for the southeast Minnesota karst landscape. The State Spring Inventory Database development will be coordinated with the existence and continued use of the KFDB as a research database managed by the Minnesota Geological Survey.

**B. Project Impact and Long-term Strategy:**

Springs are natural features that return groundwater to surface waters. The groundwater that discharges from springs is critical for maintaining surface stream flow in Minnesota’s streams and rivers. The quantity and quality of that water has a direct impact on surface water ecosystems and human use of those rivers and streams. This information is critical for Total Maximum Daily Load (TMDL) implementation strategies, impaired waters remediation, trout stream management, ground water protection and allocation issues, and local land and water management decisions. The state spring inventory is part of a long-term continuing need to identify, assess, and monitor all parts of the hydrologic cycle so that observed or projected hydrologic system response to change, whether climatic or anthropogenic, can be accurately interpreted.

The long-term strategy is to conduct the inventory, establish the Spring Inventory at DNR as an ongoing hydrologic cycle database on the same basis as the existing DNR stream gaging, groundwater level monitoring, climatology, and related hydrologic cycle databases.

**C. Spending History:**

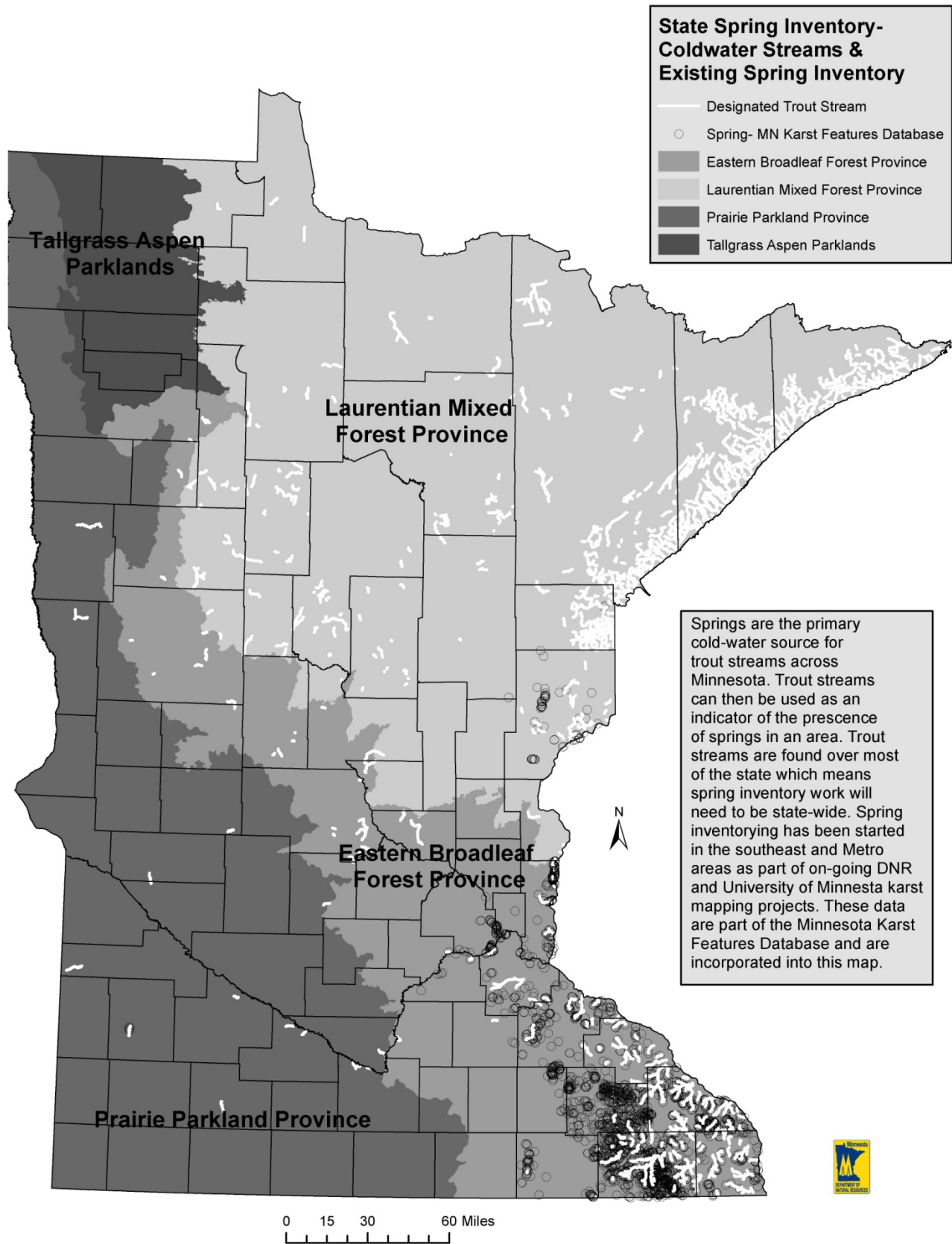
Spring inventory work has been an on-going task in southeast Minnesota for over fifty years. Various groups including private citizens, DNR, U of M, USGS and a multitude of local governments have located springs. Much of this spring information is included within the existing Karst Features Database for southeast MN. In terms of the three ENRTF-supported Springshed Mapping projects, spring inventory has been an integral part of each project

and is embedded in the process of dye trace design and springshed characterization. As part of the Springshed Mapping projects, DNR staff estimate they spent approximately 10% of their time on spring inventory while U of M staff estimate they spent approximately 5%. With a total ENRTF allocation of \$1,270,000 for the three phases of the projects, those percentages result in an estimated \$93,250 spent on spring inventory tasks. The spring information collected as part of the Springshed Mapping work has been incorporated into the Karst Features Database.

<b>Funding Source</b>	<b>M.L. 2007 Springshed mapping funding (inventory)</b>	<b>M.L. 2009 Springshed mapping funding (inventory)</b>	<b>M.L. 2011 Springshed mapping funding (inventory)</b>	<b>Total Project funding (inventory)</b>
ENRTF to DNR	\$125,000 (\$12,500)	\$250,00 (\$25,000)	\$220,000 (\$22,000)	\$595,000 (\$59,500)
ENRTF to UM	\$145,000 (\$7,250)	\$250,000 (\$12,500)	\$280,000 (\$14,000)	\$675,000 (\$33,750)
Total	\$270,000 (\$19,750)	\$500,000 (\$37,500)	\$500,000 (\$36,000)	\$1,270,000 (\$93,250)

**VIII. ACQUISITION/RESTORATION LIST: N/A**

IX. VISUAL ELEMENT or MAP(S): See inserted map below of existing spring inventory.




**X. ACQUISITION/RESTORATION REQUIREMENTS WORKSHEET: N/A**

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

**XII. REPORTING REQUIREMENTS:**

Periodic work plan status update reports will be submitted no later than 15 January 2015, 15 August 2015, 15 January 2016, 15 August 2016 and 15 January 2017. A final report and associated products will be submitted between June 20 and August 15, 2017.



<b>Environment and Natural Resources Trust Fund</b>					
<b>M.L. 2014 Project Budget</b>					
<b>Project Title:</b> State Spring Inventory for Resource Management and Protection					
<b>Legal Citation:</b> M.L. 2014, Chp. 226, Sec. 2, Subd. 05b					
<b>Project Manager:</b> Jan Falteisek					
<b>Organization:</b> Minnesota Department of Natural Resources					
<b>M.L. 2014 ENRTF Appropriation:</b> \$ 200,000					
<b>Project Length and Completion Date:</b> 3 Years, June 30, 2017					
<b>Date of Report:</b> <i>Fill in the date of report submission</i>					
					
<b>ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET</b>					
	<b>Activity 1 Budget</b>	<b>Amount Spent</b>	<b>Activity 1 Balance</b>	<b>TOTAL BUDGET</b>	<b>TOTAL BALANCE</b>
<b>BUDGET ITEM</b>	<i>State Spring Inventory Database Development and Data Management</i>				
<b>Personnel (Wages and Benefits)</b>	\$158,607	\$0	\$158,607	\$158,607	\$158,607
two positions, total 2.1 FTE for direct project activities					
<i>Hydrologist 3: est. \$33,500 (1 classified @ 0.15 FTE for two years), 64% salary, 36% benefits</i>					
<i>Research Analysis Specialist: est. \$125,107 (1 unclassified @ 0.8 FTE for year 1 (hire Aug or Sept) and 1 FTE for year 2), 75% salary, 25% benefits</i>					
<b>Professional/Technical/Service Contracts</b>					
Support for spring component of Karst Features Database. Minnesota Geological Survey	\$10,000	\$0	\$10,000	\$10,000	\$10,000
Database design and specialty programming services. MN.IT service level agreement	\$10,000	\$0	\$10,000	\$10,000	\$10,000
Direct and Necessary Services for the Appropriation	\$15,572	\$0	\$15,572	\$15,572	\$15,572
<b>Equipment/Tools/Supplies</b>					
Data acquisition field equipment to develop and test field procedures: field data tablets, GPS equipment, misc. tools and supplies for field data collection and equipment maintenance.	\$2,150	\$0	\$2,150	\$2,150	\$2,150
<b>Travel expenses in Minnesota</b>					
Fleet charges for cars, trucks, minivans, est. \$2,621; lodging, meals, mileage as per state contracts, est. \$1,050	\$3,671	\$0	\$3,671	\$3,671	\$3,671
<b>COLUMN TOTAL</b>	<b>\$200,000</b>	<b>\$0</b>	<b>\$200,000</b>	<b>\$200,000</b>	<b>\$200,000</b>

### DNR Direct & Necessary Cost Calculator DRAFT 1-10-14

*Fill in yellow cells to calculate services your program needs. All other cells are formulaic and locked.*

Division: EWR

Project Title: State Spring Inventory for Resource Management and Protection

LCCMR Request (before D&N)	Fee Title or Easement Acquisition	Pass-through Grants	Single-source Contract	All Other Costs	Metric	Metric Value	Number of Units	Total D&N
\$ 200,000	\$ -	\$ -	\$ 20,000	\$ 164,428	<b>People Support</b>	FTE	2.1	\$ 2,785
					<b>Safety Support</b>	FTE	2.1	\$ 689
					<b>Financial Support</b>	All Other Costs	\$164,428	\$ 2,138
					<b>Communication Support</b>	Altmnts	1	\$ 1,141
					<b>IT Support</b>	IT User ID	2.1	\$ 4,773
					<b>Planning Support</b>	Altmnts	1	\$ 704
					<b>Procurement Support</b>	Altmnts	1	\$ 235
					<b>Division Direct (project)</b>	Cost/dollar (.0189)	0.0189	\$3,108
					<b>Division Direct (program)</b>	Cost/dollar (.0463)		\$0
					<b>Total Direct &amp; Necessary:</b>	\$		<b>15,572</b>
					<b>Costs before Direct and Necessary:</b>	\$		184,428
					<b>Total Project Costs:</b>	\$		<b>200,000</b>

Position Title	Staff Funded by Program/Project				FTE-Year Units	User ID-Year Units
	FTE's Funded	Years	User ID's Needed	Years		
Research Analyst	0.8	1	0.8	1	0.8	0.8
Research Analyst	1	1	1	1	1	1
Hydrologist 3	0.15	2	0.15	2	0.3	0.3
					0	0
					0	0
					0	0
					0	0
<b>SUM:</b>					<b>2.1</b>	<b>2.1</b>

**Notes on calculations**

- People Support: FY14 HR Budget/2012-13 March/March FTE
- Safety Support: FY14 Safety Budget/2012-13 March/March FTE
- Financial Support: Source: FY14 OMBS Budget/FY13 Approp & Dedicated Revenue Budget
- Communication Support: FY14 OCO Budget/2013 Allotments
- Computer Support: FY14-15 MN.IT Services @ DNR SLA Budget (Governance Subtotal + IT Server Initiative/2012-13 March/March FTE)
- Planning Services: FY14 Planning Budget/2013 Allotments
- Procurement Support: FY14 Procurement Budget/2013 Allotments
- Division Support: Cost/dollar (from D&N Cost Analysis)