

## M.L. 2018 Projects

[MN Laws 2018, Chapter 214](#), Article 4, Section 2 (beginning July 1, 2018)

Visit [the LCCMR website](#) for the most up-to-date project information and reports

### Subd. 03 Foundational Natural Resource Data and Information

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#### County Geologic Atlases - Part A

Subd. 03a \$1,240,000 TF

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##### Appropriation Language

\$1,240,000 the second year is from the trust fund to the Board of Regents of the University of Minnesota, Minnesota Geological Survey, to continue producing county geologic atlases for the purpose of informed management of surface water and groundwater resources. This appropriation is to complete part A, which focuses on the properties and distribution of earth materials to define aquifer boundaries and the connection of aquifers to the land surface and surface water resources. This appropriation is available until June 30, 2022, by which time the project must be completed and final products delivered.

##### OVERALL PROJECT OUTCOME AND RESULTS

A Geologic Atlas provides the geologic framework of our state. It describes the materials and features at the land surface and extends all the way down to the bedrock surface. An atlas provides information useful for resource management and land-use planning. Each Atlas typically requires more than 7,000 person-hours of work. Some of that work is in the field: drilling test borings, examining, sampling, and describing outcrops. Much of the work follows after: interpreting field measurements, recognizing and formally naming geologic units described in well records, and making maps. The result is a detailed account of the distribution and properties of the rock and sediment that lie below the land surface. These materials, and their ability to store or transmit water, determine where we can find water, and how we can protect and make wise use of that water. This includes our lakes and rivers as well as groundwater.

As part of this 2018 award, we completed Kandiyohi County, started work in Cook, Yellow Medicine, Polk and Chippewa counties, and continued working in 11 other counties. We've described hundreds of outcrops, taken thousands of hand samples, and drilled nearly 30 continuous cores allowing us to sample rocks and sediment up to 325 ft deep.

We completed the equivalent of about 4 atlases with the ML 2018 funds, which were exhausted in one year of spending. This represents a higher number of atlases completed than our average of 5 atlases a year with all (CWF, DNR, and ENRTF) funds combined.

Continuing under the M.L 2019 award, atlases for Rock and Nobles counties will be complete within the next 3 months. Aitkin, St. Louis, Lake, and Steele counties should be finished within the next 12-18

months. The County Geologic Atlas program began in 1981 and continues with support of the Environment and Natural Resources Trust Fund as well as the Clean Water Fund, the Department of Natural Resources, and the U.S. Geological Survey. To date we have completed atlases for 43 counties, 23 are underway; and 21 have yet to be started. All of our mapping products and data are available in print or digital format.

### **PROJECT RESULTS USE AND DISSEMINATION**

Every atlas is produced in portable document format (PDF), as geographic information system files (GIS), and in printed form. The digital files are available as a DVD, and are also available from the University of Minnesota Digital Conservancy, and via link from the [MGS web page](#). Each project culminates with a meeting held in the project area to present the results to the county staff, and any other interested parties. At these meetings the products are described, access to the products is explained, and examples of applications of the products to common resource management situations are demonstrated. The products of subprojects in St. Louis and Lake counties are being released in digital form immediately following technical review. When all the subproject areas are complete county-wide compilations will be created and distributed digitally and in print. The printed copies are shared with the county, who in turn can distribute them to libraries, schools, townships, and other agencies. They are also distributed by the MGS map sales office. Products are also made available to earth science teachers and other educators for classroom exercises. Atlas products are also displayed and explained at educational events for SWCD staff and onsite sewage treatment system contractors.

Kandiyohi County Geologic Atlas is [available online](#) through the University of Minnesota Libraries Digital Conservancy. Interim products that will become the St. Louis and Lake County Atlases are also [available online](#). Completed atlas products have been posted to the MGS website and linked to the University's Digital Conservancy as noted above. PDF products as well as all of the related GIS data are available on these pages.

In addition, the MGS hosts an [Open Data Portal](#) on which many of our county geologic atlases are presented as "Story Maps" that allow for direct access of the data without any special software or interface.

**Project Completed:** 6/30/2022

[FINAL REPORT](#)

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## **Develop a System to Assess Wildlife Health Threats in Minnesota**

### **Research Project**

**Subd. 03f \$280,000 TF**

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### **Appropriation Language**

\$280,000 the second year is from the trust fund to the Board of Regents of the University of Minnesota to develop a statewide information-management system that uses wildlife-rehabilitation data to identify emerging threats to wildlife health in Minnesota

## **OVERALL PROJECT OUTCOME AND RESULTS**

Identifying population health threats in wildlife over time and space is challenging, as data collection can be expensive and time-consuming. An alternative solution is to use existing primary care data from wildlife rehabilitation centers, which can act as sentinels. Establishing an information management and alert system to monitor wildlife health by merging databases of the two major wildlife rehabilitation centers of Minnesota. Use of the database to investigate environmental and land-use drivers of wildlife health.

The electronic databases of The Raptor Center and Wildlife Rehabilitation Center were merged into one database, which is set to be supported by the database server of the University of Minnesota. An online dashboard platform was created to facilitate visualization and descriptive analysis of the submissions. The dashboard is comprised of location maps and temporal graphs with the option to sort according to date range, species groups, location, clinical and diagnostic characteristics, resolution, and the circumstance that lead to the wildlife submissions, including entrapment and habitat destruction. Anomalies of submissions, i.e. more submissions from a specific area within a short span of time than expected, assessment was done using spatial scan statistics. This approach of anomaly detection may help clinicians to investigate, conduct surveillance, and be vigilant about emerging threats to wildlife health. While the anomaly detection is not featured in the online dashboard, the research provides a 'baseline' of expected seasonality and space-time patterns of submissions.

The project lead to increased collaboration between clinicians and researchers, and opportunity to use population statistics in their work. Understanding the species group-specific seasonality and space-time patterns of all species groups collectively provides a unique opportunity to monitor the population health trends, investigating drivers including environmental and land-use changes, and eventually informing Minnesotans to be in alert and take actions to improve wildlife health.

## **PROJECT RESULTS USE AND DISSEMINATION**

The online dashboard has been shared with both the centers and a virtual meeting participating researchers of the University of Minnesota, developers of Epi Interactive of New Zealand (collaborator), and the clinicians from the two wildlife rehabilitation centers was held in May, 2020 to demonstrate the functionality of the dashboard.

Three scientific manuscripts are in being prepared in relation to this project and they are intended to be submitted to peer-reviewed journals for publication: Dashboard development, Spatiotemporal patterns of wildlife health, and Monitoring West Nile virus in the metro area of Minnesota.

Dashboard development: The manuscript would describe the importance of using existing databases as a potential passive surveillance or sentinel system to recognize wildlife health threats. The details would include database merging process, geocoding options (recognizing the submission location based on the provided address or location description), and the steps in development of the dashboard.

Spatiotemporal patterns of wildlife health: The manuscript would describe time-series and spatiotemporal analytical methods that were used to determine seasonality of submissions and the 'expected' numbers of submissions. Moreover, the manuscript would describe a novel approach to detect space-time anomalies where multiple species groups were submitted from the same area within a short span of time compared to the expected 'baseline'. This method of detecting 'cluster submissions' also supports determining the key drivers led to submissions such as habitat-destruction. The manuscript would describe the method using a subset of data from both the centers and relevant examples of temporal patterns and 'cluster submissions'.

Monitoring West Nile virus in the metro area of Minnesota: The manuscript and the data analysis intends to demonstrate spatiotemporal patterns of West Nile virus (WNV) detected in mosquito, bird, animal, and human populations focusing on the seven-county metro area of Minnesota. This disease specific research project extends the proposed utility of existing wildlife rehabilitation data and bring other parallel databases together for the analysis. The collaborators who contribute with relevant data are Minnesota Department of Health (MDH) providing human data, Minnesota Board of Animal Health (MNBOAH) providing animals detected with WNV such as horses, and Minnesota Mosquito Control District (MMCD) providing the data relevant to mosquito surveillance. The research project is currently at the analytical stage.

**Project Completed:** 6/30/2020

**[FINAL REPORT](#)**

## **Subd. 05 Technical Assistance, Outreach, and Environmental Education**

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### **Prairie Sportsman Statewide Environmental Broadcasts and Videos**

**Subd. 05a \$300,000 TF**

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**Appropriation Language**

\$300,000 the second year is from the trust fund to the commissioner of natural resources for an agreement with Pioneer Public Television to provide outreach on outdoor recreation, conservation, and natural resource issues, including water quality, wildlife habitat, and invasive species, through a series of interrelated educational and training videos and statewide broadcast television programs.

**OVERALL PROJECT OUTCOME AND RESULTS**

Prairie Sportsman celebrates our love of the outdoors. As Minnesotans spend more time with digital media, this Pioneer PBS production uses screen time to promote connecting to our natural world through outdoor sports, recreation and environmental stewardship. It provides engaging environmental science education and ways for individuals, communities and organizations to restore and protect natural resources. Prairie Sportsman's reach is statewide, airing on all Minnesota PBS stations.

The 26 episodes produced by this project include 26 environmental, 26 outdoor lifestyle and 26 citizen action segments. Conservation topics include habitat restoration for pollinators, prairie chickens, ruffed grouse and native mussels and restoration of endangered species such as peregrine falcons, trumpeter swans, river otters and Dakota Skipper butterflies. Prairie Sportsman highlighted Dave Mech's wolf research, Carrol Henderson's long career as the first DNR Nongame Wildlife Research Supervisor and the Naamijig Dance Troupe tribute to long-time grouse researcher John Toepfer. Other topics include the perennial wheatgrass kernza, removal of Minnesota River and Red River basin dams to improve fish habitat, chronic wasting disease in deer, removing silt to restore shallow lakes, grazing bison to restore oak savanna, sturgeon tagging, employing sled dogs in U.S. Forest Service work and testing lake oxygen. Prairie Sportsman brought viewers to places like the International Wolf Center, Touch the Sky Prairie, Lost 40 SNA, Gopher Campfire Wildlife Sanctuary and the wild and scenic St. Croix River. A full episode

was dedicated to southeast Minnesota's Driftless Area, featuring trout streams, restored bluffs, timber rattlesnakes and Mystery Cave. The environmental segment "Pollinator Friendly Solar" was awarded an Upper Midwest Emmy and segments on the National Eagle Center's golden eagle studies and TUNE youth outdoor camp received nominations.

Pioneer PBS has invested ENRTF funds in content that inspires Minnesotans to connect with the outdoors and protect precious natural resources.

#### **PROJECT RESULTS USE AND DISSEMINATION**

Prairie Sportsman has statewide appeal and is aired on all Minnesota PBS stations, including Pioneer PBS (Granite Falls), Lakeland PBS (Bemidji and Brainerd), WDSE (Duluth), tpt (Twin Cities PBS) and KSMQ (Austin).

In addition, each episode's three video features are segmented and individually branded to stand alone. Full episodes and individual segments continue to be viewed online at prairiesportsman.org, Facebook and YouTube. The evergreen episodes are produced to have long-term educational value for schools, environmental learning centers, natural resource agencies, outdoor sports and recreation groups, civic organizations and individuals. After each season, complimentary DVDs are offered to all who participated in or helped with video features and, this year, Pioneer PBS received requests for almost 250 videos. The attached spreadsheets show all the episodes and segments produced in 2019 and 2020 and the people and organizations across Minnesota involved in creating these features.

The program's aggressive social media campaign brings awareness to each episode and individual segments that will draw people to view them online. Facebook has been the most successful social media platform for marketing Prairie Sportsman, with more than 4,000 dedicated followers. Instagram and Snapchat have also helped expand Prairie Sportsman's audience.

**Project Completed:** 6/30/2020

[FINAL REPORT](#)

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#### **Update International Wolf Center Exhibits**

**Subd. 05i \$1,000,000 TF**

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##### **Appropriation Language**

\$1,000,000 the second year is from the trust fund to the commissioner of natural resources for an agreement with the International Wolf Center to design, construct, and install new interactive educational exhibits to help Minnesotans understand coexistence with the state's wolf populations and ongoing wolf- management efforts.

#### **OVERALL PROJECT OUTCOME AND RESULTS**

Since 1993, over one million people have learned about wolves at the International Wolf Center's interpretive center in Ely. The Center's old exhibit was created in the early 1980's, its purpose was to promote species survival. Although beautifully and professionally created, the success of wolf recovery

over the past three decades in Minnesota has resulted in it becoming outdated. Display materials were made with a high-quality printing process on permanent materials, making it cost-prohibitive to update exhibit displays.

The New Exhibit has three main components: 1) History of Wolves 2) Science of Wolves: Their Biology and Role in Nature as an Apex Predator and 3) Co-Existence with Wolves: The Need for Wolf Management. The exhibit is equipped with interactive state of the art technology to optimize the learning experience. A “Howling Room” sound chamber simulates an outdoor experience where visitors will learn how to communicate with packs. Through immersive experiences, visitors will learn about the complicated issues in Minnesota surrounding human interactions with wolves.

The exhibit, known as Discover Wolves! informally opened to the public beginning on Friday, May 10th. The official, large public grand opening celebration occurred on Friday, June 28th. The finished Discover Wolves! exhibit will teach tens of thousands of Minnesotans and people around the world who visit the interpretive center the facts about wolf biology, management and recovery.

### **PROJECT RESULTS USE AND DISSEMINATION**

Updates about the progress of the new exhibit were shared each month on the International Wolf Center’s social media platforms and through electronic mailings. In April, Executive Director Rob Schultz appeared before the Ely City Council and gave an update on the progress of the new exhibit. Updates of the progress of the exhibit preparations were shared with news media throughout the spring months, and the Center received publicity in regard to the new exhibit upon completion of its installation in May.

An article giving updates about the new exhibit was published in International Wolf Magazine in mid-May. Additional items planned include news releases being prepared that highlight the grand opening celebration, as well as a final article about the completion of the new exhibit that will appear in International Wolf Magazine in mid-August.

**Project Completed:** 6/30/2020

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## **Subd. 09 Land Acquisition, Habitat, and Recreation**

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### **Harmony State Trail Extension Land Acquisition**

**Subd. 09c \$235,000 TF**

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#### **Appropriation Language**

\$235,000 the second year is from the trust fund to the commissioner of natural resources for an agreement with the city of Harmony to acquire fee title of about 16 parcels to allow for the approximate six-mile extension of the legislatively authorized state trail from Harmony south to the Iowa state border with a spur to Niagara Cave. The land must be transferred to the state after it has been purchased.

### **OVERALL PROJECT OUTCOME AND RESULTS**

Originally conceived as a part of the Governor’s Design Team project in 1989, the extension south to the Iowa border and Niagara Cave was the next segment to be constructed of the Harmony-Preston Valley State Trail. Since the completion of the existing segment in the mid-90s, local volunteers worked with landowners to extend the trail south from Harmony to the major tourist attraction, Niagara Cave, and the Iowa border where the trail system from northeast Iowa will connect to create an interstate trail system.

Local volunteers secured option contracts on 16 parcels to secure the land corridor necessary for the approximately 6-mile trail. The options were set to expire on December 31, 2019. LCCMR funding was secured in 2018 to provide a funding source to exercise the options and purchase fee title what ended up being portions of 20 parcels. This acquired land will be donated to the Minnesota Department of Natural Resources per the authorizing legislation.

This funding provided in this project will allow for the construction of the state trail extension, which is to be completed in 2021. Once completed, this project will provide a recreational opportunity to regional residents and visitors from both in and outside of Minnesota; promoting outdoor recreation, health, and enjoyment of southeastern Minnesota natural resources.

#### **PROJECT RESULTS USE AND DISSEMINATION**

No materials were created to promote or disseminate information about this project as it was purely related to land acquisition.

This project was mentioned in local media reports including newspapers and television news. All reports mentioned that funding was made possible through a grant from LCCMR and the Harmony Area Community Foundation. “Funding provided by” signage utilizing the trust fund logo will be placed on the bike trail route.

**Project Completed:** 6/30/2020

**[FINAL REPORT](#)**

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### **Enhancement Plan for Superior Hiking Trail**

**Subd. 09f \$100,000 TF**

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#### **Appropriation Language**

\$100,000 the second year is from the trust fund to the commissioner of natural resources for an agreement with the Superior Hiking Trail Association to evaluate improvements to the 310-mile-long Superior Hiking Trail including routing, safety, water management, maintenance, and other environmental, recreational, and design issues and to develop an interactive trail-management system to capture efficiencies and best management practices.

#### **OVERALL PROJECT OUTCOME AND RESULTS**

This LCCMR grant allowed SHTA to conduct assessments by professional trail builders and ecologists, focusing on the most worn-out sections of the Trail. The grant also allowed us to build a trail database – a repository for all relevant documents of the SHT and a place to catalog work projects.

All users of the SHT will benefit from a better built and more resilient Superior Hiking Trail. Their experience should be more pleasant and safer. The SHT is a Minnesota recreational icon; everyone is rooting for its continued existence and good health.

Our database is in use almost daily; it was not intended for dissemination or use outside the SHTA. The trail assessments were heavily scrutinized internally and shared with the affected resource professionals. The educational videos are online for the public. The volunteer manual, once finalized, will serve hundreds of SHTA volunteers and set a new standard for trail maintenance.

#### **PROJECT RESULTS USE AND DISSEMINATION**

We generally don't make the assessment reports public, but we do provide them to people who ask for them. We certainly supply the state park officials with these assessments.

The videos we produced are on the internet for the world to see. The volunteer trail maintenance manual will be distributed to the hundreds of volunteers who put in time on the SHT. The videos and the manual contain/will contain the requisite language explaining the support of the ENRTF grant.

**Project Completed:** 6/30/2020

[FINAL REPORT](#)

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### **Protecting Mississippi River Headwaters Lands through Local, State, and Federal Partnership**

**Subd. 09g \$700,000 TF**

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#### **Appropriation Language**

\$700,000 the second year is from the trust fund to the commissioner of natural resources for an agreement with the city of Baxter, in cooperation with Brainerd Public Schools and the Camp Ripley Sentinel Landscape Program, to acquire about 200 acres of forested land on the upper Mississippi River adjacent to Mississippi River Overlook Park for multiple public benefits, including being an outdoor classroom for local schools. To be eligible for reimbursement, costs for real estate transactions must be specific to this acquisition and documented as required in subdivision 15, paragraph (k).

**Project due to be completed:** 6/30/2020

[Work Plan](#)

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### **Subd. 12 Contract Agreement Reimbursement**

#### **Contract Agreement Reimbursement**

**Subd. 12 \$135,000 TF**



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**Appropriation Language**

\$135,000 the second year is from the trust fund to the commissioner of natural resources, at the direction of the Legislative-Citizen Commission on Minnesota Resources, for expenses incurred for preparing and administering contracts for the agreements specified in this section. The commissioner must provide documentation to the Legislative-Citizen Commission on Minnesota Resources on the expenditure of these funds.

**OVERALL PROJECT OUTCOME AND RESULTS**

This appropriation was used to support the ENRTF contract management program, which ensured that ENRTF grantees expended grant funds in compliance with state law, session law, approved work plans, and Office of Grants Management grants policies.

The DNR Grants Unit managed 71 grants active in FY 2019. In FY 2020, the Grants Unit managed 72 active grants.

Between 1/1/2019 when billing began and 06/30/2020 when it ended, the DNR Grants Unit:

- Made 194 reimbursements to grantees totaling \$7,702,401
- Finished executing 25 ML 2019 grant agreements
- Prepared 18 grant amendments for ENRTF grants extended due to COVID, including implementation of electronic signature process
- Billed 1,167 hours at the FY 2020 professional services rate of \$66.00/hr and 906 at the FY2019 rate of \$64/hr
- Monitored all grants in compliance with Office of Grants Management policies.

**PROJECT RESULTS USE AND DISSEMINATION**

Project personnel were in frequent contact with appropriation recipients and LCCMR staff. Information was disseminated through manuals, training sessions, orientations, meetings, memos, letters, emails, newsletter, and phone.

**Project Completed:** 6/30/2020

**[FINAL REPORT](#)**

