M.L. 2016 Projects

MN Laws 2016, Chapter 186, Section 2 (beginning July 1, 2016)

Subd. 04 Water Resources

Roseau Lake Watershed Targeted Water Quality Improvement
Subd. 04w $65,000 TF

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Appropriation Language
$65,000 the second year is from the trust fund to the commissioner of natural resources to develop targeted water quality improvements for the Roseau Lake watershed by coordinating with partner agencies to identify the top priority field scale best management and conservation practices to implement in the region.

OVERALL PROJECT OUTCOME AND RESULTS
The Roseau River Watershed District in collaboration with MN state agencies, local governments, and citizens is working to rehabilitate the Roseau Lake basin, which was substantially drained over 50 years ago. The outcomes and results of this project will be essential to strategically invest in water quality improvement projects that will ensure the long-term viability of the lake rehabilitation restoration project. This project resulted in development of a level 3 hydrologically conditioned digital elevation model (hDEM) for the U.S. portion of the watershed, a LiDAR-derived restorable wetland inventory, and complete set of Roseau River Watershed PTMApp data which is available on the Minnesota Board of Water and Soil Resource's PTMApp website and for PTMApp desktop use. The project identified and mapped the top 100 field scale best management and conservation practices to benefit water quality in the Roseau Lake. Output data from the PTMApp and the drained basin inventory has been provided to the Roseau County Soil and Water Conservation District and the Roseau River Watershed District in addition to a series of project implementation and effectiveness map. A Roseau River watershed PTMApp data-training workshop was held for project partners on May 30, 2018. Project partners are now using the data and maps to refine a targeted implementation plan for the Roseau Lake and the Roseau River watersheds. This foundational work has been essential for the Roseau River Watershed District to work with additional partners in Canada and expand the scope of this work to include the entire Roseau River watershed in the U.S. and Canada.

PROJECT RESULTS USE AND DISSEMINATION
This project resulted in the development of a level 3 hydrologically conditioned digital elevation model (hDEM) for the U.S. portion of the watershed, a LiDAR-derived restorable wetland inventory, a complete set of Roseau River Watershed PTMApp data, and a variety of maps to identify the Top 100 conservation and best management practices for water quality protection and improvement. The Roseau River watershed district has copies of all data, maps, and presentation associated with this work. The PTMApp data is also available on the Minnesota Board of Water and Soil Resource's PTMApp website. GIS tools needed to derive a restorable wetland inventory from LiDAR data were refined for this project and are also available from the Board of Water and Soil Resources.
A Roseau River watershed PTMApp data-training workshop was held for project partners on May 30, 2018. This foundational work has been essential for the Roseau River Watershed District to work with additional partners in Canada and expand the scope of the project to include the entire Roseau River watershed in the U.S. and Canada. These partners are now working with these data to further develop and refine and implementation strategy for the Roseau Lake Basin and for the entire watershed.

Project Completed: 06/30/2018
FINAL REPORT

Subd. 05 Environmental Education

Youth-Led Sustainability Projects in 50 Minnesota Communities - Phase III
Subd. 05c $400,000 TF

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Appropriation Language
$400,000 the second year is from the trust fund to the commissioner of natural resources for an agreement with Prairie Woods Environmental Learning Center to expand the Youth Energy Summit (YES!) program statewide to complete more than 200 new youth-led climate change mitigation and adaptation projects in over 50 Minnesota communities.

OVERALL PROJECT OUTCOME AND RESULTS
Our project goal was to engage Minnesota's youth in seeking sustainable solutions to today's environmental and economic challenges through hands-on learning. We accomplished this by:

- Supporting 34 youth-led YES! teams, with over 900 students, in 150 Minnesota communities
- Completing 264 youth-led energy conservation, renewable energy, waste reduction, prairie restoration, local food, climate change education, and water quality related projects
- Engaging 85 communities in climate science and other sustainability topics hosted by YES! students
- Providing 4 Fall Summit events and 26 regional workshops to increase student knowledge of sustainable best practices
- Leveraging the expertise and kindness of 19,000 volunteer hours including 7,000 hours of YES! student volunteer time
- Launching the first statewide YES! championship at the Minnesota Twin's Game (2 years)
- Rebranding of the YES! name to Youth Eco Solutions and upgrading our website (yesmn.org)

YES! staff worked with over 100 teachers and resource experts to engage Minnesota's youth in authentic learning through hands-on projects and community events. Pre and post assessment survey results indicate YES! was successful in impacting student behaviors:

- 20% reported an increase in turning off unneeded lights
- 20% reported an increase in their environmental awareness and were more likely to turn off electronics when not in use, use re-usable beverage containers and bags, and buy used instead of new
- 9% reported they recycled more

YES! students accomplishments benefited Minnesota communities in a variety of ways. Of the 264 completed projects, 25 were related to lake/prairie restorations, 26 improved energy efficiency, 69 involved waste reduction, and 83 additional projects from a range of categories including renewable energy, climate change, and local foods were completed, 61 environmental education events were held and 2,814 pounds of Christmas tree lights were recycled! As one YES! student said, "You can sit around and think about saving energy, or you can get out and do something about it. YES! lets us do something about it!"

Project Completed: 06/30/2018
FINAL REPORT

Wildlife and Habitat Conservation Education for Southwest Minnesota High Schools
Subd. 05e $147,000 TF

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Appropriation Language
$147,000 the second year is from the trust fund to the Minnesota Zoological Garden to engage high school students in critical prairie wildlife and habitat conservation projects by using the zoo's unique animal collections and state-of-the-art technology to deliver hands-on learning in 12 southwestern Minnesota high schools.

OVERALL PROJECT OUTCOME AND RESULTS
The Minnesota Zoo is currently addressing the decline of wildlife populations and tall grass prairie habitats in southwestern Minnesota by returning pure-bred bison herds to Blue Mounds State Park and protecting imperiled prairie butterflies. Complementing this work, the Zoo engaged students in prairie conservation projects in 12 southwestern Minnesota high schools in order to inspire wildlife conservation action and promote lifelong wildlife conservation interest. The Wildlife Champions project included specialized training for high school teachers to equip them to supervise and facilitate student-driven prairie wildlife conservation projects in their communities. Minnesota Zoo naturalists visited each school to deliver hands-on student workshops featuring live Zoo animal ambassadors to inspire students and equip them with the confidence, skills, and guidance required to begin designing local prairie conservation service projects. Projects included introducing fire to prairies, planting native flowers and grasses, protecting native pollinators, prairie land management, creating interpretive areas, protecting native mammals and birds, collecting seeds, and bee keeping. Schools were provided funds in order to procure conservation tools and supplies to implement their projects.

Students presented their projects at a final Wildlife Champions Expo event at the Minnesota Zoo and completed surveys regarding the impact the project had on their knowledge and attitudes towards prairies and conservation. Before beginning this project, 70% of students reported having no or very little knowledge of prairies and the conservation issues facing them. After completion, 86% of respondents reported having high levels of expertise and knowledge in this area. In addition, 76% of respondents reported that they thought that prairies were important and valuable to the Minnesota landscape, and 29% of reporting students said that they planned to work with prairies and prairie restoration in the future.

PROJECT RESULTS USE AND DISSEMINATION
Student prairie conservation projects were featured at the Minnesota Zoo's Wildlife Champions Expo event on May 17, 2017. Eighteen partner teachers and 368 partner high school students attended the event, presenting their work in a science-fair-like exhibition, and engaged with Zoo experts doing work in the field of prairie wildlife management.

Project Completed: 06/30/2018
FINAL REPORT

Wolf Management Education in the Classroom - Phase II
Subd. 05g $240,000 TF

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Appropriation Language
$240,000 the second year is from the trust fund to the commissioner of natural resources for an agreement with the International Wolf Center to expand the Wolves at Our Door classroom education program to assist students in understanding wolves and associated management issues.

OVERALL PROJECT OUTCOME AND RESULTS
This project was undertaken to provide engaging, unbiased programs about wolves to public school 2-12 grade classrooms, nature centers, state parks, public park summer programs, and state parks in Minnesota. International Wolf Center outreach specialists presented programs to help participants understand the complicated issues surrounding wolves and wolf management. Chasms divide people on all sides of the issues around wolves and wolf management- rural, urban and suburban communities; hunters and non-hunters, trappers and non-trappers, residents and non-residents of areas with wolf populations. Because of divided opinions and the repeated delisting and relisting of wolves from the Endangered Species List, this project was invaluable in educating the public. Programs were presented to individual school classrooms and several other venues throughout the state. They covered wolf biology, predator/prey dynamics, role of wolves in healthy ecosystems, myths and opinions of wolves, wolf management and importance in wildland habitat. The PowerPoint based programs included engaging video clips and photos. Students were also able to learn from handling artifacts such as wolf, deer and moose bones and pelts.

Participants in 2-6 grades were surveyed pre-and post-program using clicker survey technology to collect data on the attitudes of participants as well as their knowledge of wolves and wolf issues. Survey data showed an increase in knowledge of wolf facts and understanding of issues between wolves and humans. In 7-12 grade, students wrote short essays on various topics covered in the program to demonstrate how the program expanded their knowledge of the facts about wolves and discuss how humans can coexist with wolves more effectively. Over the course of the grant 1,513 programs were given to 37,166 participants. This included 52 counties, 124 school districts, and 232 schools.

PROJECT RESULTS USE AND DISSEMINATION
A copy of the primary PowerPoint is included with the final report. In addition, copies of the booklets participants were provided to take home after the program are included. In the last year, a short video was created to be shown to 7-12 grade classes to cover the wolf biology portions to be watched before of the program to allow more time during the program with limited class times at higher grade levels.

Information on the results of the project will be available on the International Wolf Center Website at www.wolf.org and will be presented at the upcoming International Wolf Symposium in October 2018.

Project Completed: 06/30/2018
FINAL REPORT

Promoting Water Quality Stewardship through Student Mentoring and River Monitoring
Subd. 05i $39,000 TF

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Appropriation Language
$39,000 the second year is from the trust fund to the commissioner of natural resources for an agreement with Southwest Minnesota State University to partner with area schools to deliver inquiry-based, hands-on learning and mentoring on water quality stewardship between university agriculture students and high school and middle school students.

OVERALL PROJECT OUTCOME AND RESULTS
In southwest Minnesota, over 80% of a typical watershed is used for agriculture which impacts stream water quality. Area citizens must be engaged in water quality efforts if progress is to be made in protecting local waterways. An ENRTF grant facilitated a partnership between Southwest Minnesota State University (SMSU), area public schools, and state agencies. SMSU agricultural undergraduates served as mentors to high school and middle school students while promoting stewardship of clean waters through river monitoring. Agricultural education undergraduates took a semester long course that taught water quality content and mentoring techniques. Students then traveled to public schools where they mentored 10th grade and 7th grade students in hands-on experience with test kits and meters. All students then traveled to the Redwood River to monitor ten parameters at three sites. A total of 644 students were involved in the project. Pre-post content quizzes showed significantly improved water conservation knowledge at all grade levels. A water conservation attitude scale indicated that after participating in the program, 100% of students at all grade levels agreed that water conservation is important. A civic engagement scale administered at the end of the semester indicated that students felt a responsibility to help conserve and improve water quality in their communities. Civic engagement and stewardship scale scores were also significantly higher for students at all three grade levels compared to control groups not involved in the project. Our results indicate that through these hands-on experiences, agricultural education students gained both content knowledge and a sense of civic responsibility and were able to successfully pass this information on to younger students. Educating agriculture students and engaging them in conservation and monitoring efforts will bridge the perceived conflict between agriculture production and water conservation efforts, while collecting useful water quality data for the state.

PROJECT RESULTS USE AND DISSEMINATION
The project is described in detail on the SMSU website (https://www.smsu.edu/academics/programs/environmentalscience/redwood-river-monitoring-project.html) and includes information about the sampling sites, the parameters measured and acknowledgement of the funding sources. It also displays graphs of all the data from the beginning of the project in 2004 to present for each of the 10 parameters. One useful result of this project is the development of Civic Engagement and Stewardship scales that were used for evaluation of water conservation attitudes in the experimental group versus the controls (students not involved in the project). These are available for use with any future projects aiming to assess these values. Fall 2017, this project was highlighted on the DNR Website and in packets of information provided to the media as part of the Governor's Pheasant Opener which was held in Marshall on Oct. 14, 2017. An article appeared in the local newspaper, the Marshall Independent at that time. Several professional presentations were produced - an extended abstract was published and a poster presentation was given at the 2017 North Central Regional Conference of the American Association for Agricultural Education (AAAE) on Sept. 21-23, 2017 in Ames, Iowa, and an hour-long interactive

session was presented at the Minnesota Science Teachers' Association Conference (MnCOSE) in St. Cloud, MN on November 10, 2017. In December of 2017 the SMSU alumni magazine, SMSU Focus, had a cover story about this project titled "Taking Water Testing to a Whole New Level". Another extended abstract was published and another poster presentation was given at the 2018 American Association for Agricultural Education (AAAE) National Conference on May 14-18 in Charleston, South Carolina. A video was also created by Alex Peterson at Studio 1-Marshall Community Access TV from footage taken on Oct. 13, 2017 at the middle sampling site, near the 7th Street Bridge. The video is accessible through One Drive at https://1drv.ms/v/s!AnulpG6ag3kyiUUopAdfu1VpHxqZ.

Project Completed: 06/30/2018
FINAL REPORT

Subd. 07 Air Quality, Climate Change, and Renewable Energy

Community Solar Garden Installation
Subd. 07a $490,000 TF

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Appropriation Language
$490,000 the second year is from the trust fund to the commissioner of natural resources for an agreement with Rural Renewable Energy Alliance to install a 200-kilowatt community solar garden to provide for electrical distribution in Cass, Beltrami, Hubbard, and Itasca Counties, to assist households in the Minnesota low-income housing energy assistance program in meeting electrical energy needs and serve as a model for low-income energy assistance elsewhere in the state. This appropriation is not subject to Minnesota Statutes, section 116P.10.

OVERALL PROJECT OUTCOME AND RESULTS
This project installed a community solar garden to provide for electrical distribution in Cass, Beltrami, Hubbard, and Itasca Counties, to assist households in the Leech Lake Band of Ojibwe low-income home energy assistance program in meeting electrical energy needs and serve as a model for low-income energy assistance elsewhere in the state. Beneficiaries are to be residents of the Leech Lake Band of Ojibwe Reservation.

Low-income households devote a significantly greater percentage of their income to home energy than the average household. Currently, energy assistance programs offer temporary relief but don't provide a long-term solution to low-income energy poverty, and depend on imported fossil fuels. Utilizing Minnesota solar energy to meet this need is innovative and desirable in preserving Minnesota's valuable natural resources.

This project responds to the growing natural resource impacts of using imported, fossil fuels to supply Minnesota's low-income energy needs. The community solar system help increase the state's annual renewable energy production, and offsetting an estimated 217 tons of carbon dioxide emissions. This project has reduced carbon emissions to help slow climate change, increasing utilization of local power generation, improve energy security and affordability, and create low-income access to renewable energy.

This project successfully installed 217.58kW of solar energy that is producing 281,420kWh annually, enough to completely power 27 Minnesota homes. The systems will serve low-income Leech Lake families for the next 30

years. This was celebrated as the first community solar installation on Tribal lands in the country, and is providing inspiration to individuals around the nation seeking to deploy solar energy for the benefit of low-income people.

PROJECT RESULTS USE AND DISSEMINATION
As a central feature of the Rural Renewable Energy Alliance's efforts to increase access to solar energy for low-income households as a means of permanently addressing energy poverty, the results of this project have been disseminated at the national level. Presentations specifically about this project have been given at the following national events: National Energy Utility Affordability Conference (NEUAC), Clean Energy States Alliance webinar (CESA), American Solar Energy Society – US Department of Energy – Solar in Your Community Challenge conference. The project has further been presented at the following regional events: Connecting Low Income Communities to Efficiency and Renewable Sources meeting, Clean Energy Resource Teams Conference, RE-AMP Network Conference, Northern New England Community Action Conference, Minnesota Department of Commerce presentations, Great Plains Institute presentations, and at two Midwest Renewable Energy Fair. Reports resulting from this project have been disseminated at all the above venues, as well as being available through our website https://www.rreal.org/cs4ca , and Facebook page https://www.facebook.com/pg/ruralrenewableenergyalliance/photos/?tab=album&album_id=10154750786849241

Project Completed: 06/30/2018
FINAL REPORT

Subd. 10 Administration

Contract Agreement Reimbursement
Subd. 10a $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 contract agreement reimbursement for the agreements specified in this section. The commissioner shall provide documentation to the Legislative-Citizen Commission on Minnesota Resources on the expenditure of

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 67 grants active in FY 2017. In FY 2018, the Grants Unit managed 71 active grants. Between 7/1/2016 when the services began and 06/30/2018 when they ended, the DNR Grants Unit:

- Made 359 reimbursements to grantees totaling $13,053,825.58
- Prepared and executed 21 ML 2017 grant agreements
- Published 6 editions of the quarterly newsletter for all grantees
- Billed 350 hours at the FY 2017 professional services rate of $63.00/hr

- Billed 1,534 hours at the FY 2018 professional services rate of $63.00/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: 06/30/2018
FINAL REPORT