

M.L. 2011 Projects Completed in 2013-2014

M.L. 2011-12 Projects

MN Laws 2011, 1st Special Session, Chapter 2, Article 3, Section 2 (beginning July 1, 2011)

NOTE: Below are shore abstracts for projects funding during the 2011 Legislative Session and ending during 2013-2014. The final date of completion for these projects is listed at the end of the abstract. Final Reports for all completed projects are available at <http://www.lccmr.leg.mn/projects/2011-index.html> or by contacting the LCCMR office.

Subd. 03 Natural Resource Data and Information

- 03a Minnesota County Biological Survey
- 03c Completion of Statewide Digital Soil Survey
- 03e Golden Eagle Survey
- 03g Prairie Management for Wildlife and Bioenergy - Phase II - RESEARCH
- 03h Evaluation of Biomass Harvesting Impacts on Minnesota's Forests - RESEARCH
- 03i Change and Resilience in Boreal Forests in Northern Minnesota - RESEARCH
- 03k Strengthening Natural Resource Management with LiDAR Training
- 03l Measuring Conservation Practice Outcomes
- 03m Conservation-Based Approach for Assessing Public Drainage Benefits
- 03n Mississippi River Central Minnesota Conservation Planning
- 03o Saint Croix Basin Conservation Planning and Protection
- 03p Species of Concern; Investigations

Subd. 04 Land, Habitat, and Recreation

- 04a State Park and Recreation Area Operations and Improvements
- 04c Metropolitan Regional Park System Acquisition
- 04e Scientific and Natural Areas Acquisition and Restoration
- 04f LaSalle Lake State Recreation Area Acquisition
- 04h Native Prairie Stewardship and Native Prairie Bank Acquisition
- 04i Metropolitan Conservation Corridors (MeCC) - Phase VI
- 04j Habitat Conservation Partnership (HCP) - Phase VII
- 04k Natural and Scenic Area Acquisition Grants
- 04l Acceleration of Minnesota Conservation Assistance
- 04m Conservation Easement Stewardship and Enforcement Program - Phase II
- 04n Recovery of At-Risk Native Prairie Species
- 04o Understanding Threats, Genetic Diversity, and Conservation Options for Wild Rice - RESEARCH
- 04r Northeast Minnesota White Cedar Plant Community Restoration
- 04s Land and Water Conservation Account (LAWCON) Federal Reimbursement

Subd. 05 Water Resources

- 05a Itasca County Sensitive Lakeshore Identification
- 05b Trout Stream Springshed Mapping in Southeast Minnesota - Phase III
- 05c Mississippi River Water Quality Assessment - RESEARCH
- 05d Zumbro River Watershed Restoration Prioritization
- 05e Assessment of Minnesota River Antibiotic Concentrations - RESEARCH

Subd. 06 Aquatic and Terrestrial Invasive Species

- 06b Emerald Ash Borer Biocontrol Research and Implementation - RESEARCH

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Subd. 07 Renewable Energy and Air Quality

07 Supporting Community-Driven Sustainable Bioenergy Projects

Subd. 08 Environmental Education

08a Youth-Led Renewable Energy and Energy Conservation in West and Southwest Minnesota

08c Experiential Environmental Education for Urban Youth

Subd. 09 Emerging Issues

09b Chronic Wasting Disease and Animal Health

09c Aquatic Invasive Species

09d Reinvest in Minnesota Wetlands Reserve Acquisition and Restoration Program Partnership

Subd. 10 Administration and Contract Management

10a Legislative-Citizen Commission on Minnesota Resources (LCCMR)

10b Contract Administration

10c LCC Web Site

Subd. 03 Natural Resource Data and Information

Minnesota County Biological Survey

Subd. 03a \$2,250,000 TF

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Appropriation Language

\$1,125,000 the first year and \$1,125,000 the second year are from the trust fund to the commissioner of natural resources for continuation of the Minnesota county biological survey to provide a foundation for conserving biological diversity by systematically collecting, interpreting, and delivering data on plant and animal distribution and ecology, native plant communities, and functional landscapes.

PROJECT OVERVIEW

The Minnesota County Biological Survey (MCBS) is an ongoing effort begun in 1987 by the Minnesota Department of Natural Resources (DNR) that is systematically surveying, county-by-county, the state's natural habitats. The effort identifies significant natural areas and collects and interprets data on the status, distribution, and ecology of plants, animals, and native plant communities throughout the state. Through July 2011, surveys have been completed in 81 of Minnesota's 87 counties and have added nearly 17,000 new records of rare features to the DNR's information systems. MCBS data is used by all levels of government in natural resource planning and use decisions, including prioritization of protection of park lands and scientific and natural areas. This appropriation will permit continuation of the survey in Lake, St. Louis, Clearwater, and Beltrami counties and begin initial surveying in Koochiching and Lake of the Woods counties. Additionally one book will be published: a natural history guidebook of

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the Aspen Parkland-Red River Valley region of MN.

OVERALL PROJECT OUTCOME AND RESULTS

The need to protect and manage functional ecological systems, including ecological processes and component organisms continues to accelerate with increased demands for water and energy, continued habitat fragmentation, loss of species and genetic diversity, invasive species expansion, and changing environmental conditions.

Since 1987 the Minnesota County Biological Survey (MCBS) has systematically collected, interpreted and delivered baseline data on the distribution and ecology of plants, animals, native plant communities, and functional landscapes. These data help prioritize actions to conserve and manage Minnesota's ecological systems and critical components of biological diversity.

During this project period baseline surveys continued, focused largely in northern Minnesota (see map). One highlight was data collection in remote areas of the patterned peatlands that included three helicopter-assisted field surveys coordinated with other researchers to increase the knowledge of this ecological system and to continue long-term collaborative monitoring.

Another goal was to begin monitoring to measure the effectiveness of management and policy activities. For example, prairie vegetation and small white lady's slipper monitoring began in western Minnesota sites in response to ecological measures identified in the Minnesota Prairie Conservation Plan 2010.

MCBS also provided data and interpretation related to the DNR's forest certification goals and began monitoring activities in selected sites in the Aspen Parkland and in southeastern Minnesota.

Since July 2011 new records of 929 rare features were added to the Rare Features Database. Since 1987, MCBS has added a total of 20,018 new rare feature records. Statewide 10,192 MCBS sites of Biodiversity Significance and 63,232 polygons of native plant communities are now publically available on the DNR's Data Deli. Since 1987, MCBS has contributed 4,972 of the 9,467 Minnesota vegetation plot records in the DNR's Releve (vegetation plot) Database. Since 1987 botanists documented 1,194 rare aquatic plants during targeted aquatic plant surveys of 1,872 lakes.

PROJECT RESULTS USE AND DISSEMINATION<

Results and interpretation of data included web-delivery, technical assistance and publications that are identified in more detail in the final report.

For example, in 2013 MCBS reports of vegetation observed in 1836 lakes were added as a link in the Lakefinder application Native Orchids of Minnesota was published that included substantial new distributional information from survey botanists. Substantial progress was made on a book related to natural history sites in NW Minnesota based in part on MCBS work in that region.

Project completed: 6/30/2013

Completion of Statewide Digital Soil Survey

Subd. 03c \$500,000 TF

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Appropriation Language

\$250,000 the first year and \$250,000 the second year are from the trust fund to the Board of Water and Soil Resources to accelerate the completion of county soil survey mapping and Web-based data delivery. The soil surveys must be done on a cost-share basis with local and federal funds.

PROJECT OVERVIEW

The Minnesota Soil Survey is an ongoing effort by the Board of Water and Soil Resources (BWSR) in cooperation with the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) that is systematically collecting and mapping data pertaining to soil types and other soil properties in each county of the state. To date, surveys for nearly all counties in the state have been completed. Soils data is used by governments, farmers, and other businesses for a number of purposes from protection and restoration of soil, water, wetlands, and habitats to agricultural productivity and soil management to building construction. This appropriation will complete the mapping and digitization of soil surveys for Crow Wing, Koochiching, Lake, Cook, and Saint Louis counties.

OVERALL PROJECT OUTCOME AND RESULTS

This project, Completion of Statewide Digital Soil Survey, is the last in a series of projects to map and digitize all Minnesota soils. The Environment and Natural Resources Trust Fund (ENRTF) has supported the completion of a statewide soil survey since 1997. ENRTF's contribution of \$3.5 million over 17 years leveraged \$13.2 million from project partners including cooperating counties, the Natural Resource Conservation Service (NRCS), and the University of Minnesota.

Soil surveys contain information essential to the management of natural resources. Soil surveys provide a field-based scientific inventory of soil resources, including soil maps, data about the physical and chemical properties of soils, and information on the potentials and limitations of each soil. Farmers, landowners, builders, county assessors, and natural resource managers depend on soil survey information to conduct business and protect natural resources. This project extended soil maps and data to millions of acres previously lacking comprehensive soil surveys.

It is ideal to have 'seamless' soil data coverage regardless of land ownership (county, state, federal, or private). However, gaps exist in soil survey coverage due to these land ownership issues. This project focused on addressing portions of Minnesota with missing digital soils information; e.g., the Boundary Waters Canoe Area Wilderness, the Superior National Forest, and Crow Wing County. At the end of the final mapping phase (NRCS contributions extend to 2016) Pine County and the Grand Portage Reservation will be the only unmapped areas in Minnesota. NRCS intends to map Pine County in the future, funded entirely by the NRCS.

The mapping goal for the ENRTF funds was 400,000 acres. NRCS mapped over 2 million acres using ENRTF dollars and Federal funds. This included 207,546 acres in Crow Wing County; 470,000 in Lake and Cook Counties (outside Superior National Forest boundary); 793,725 acres in Lake, Cook, and St. Louis Counties (inside Superior National Forest boundary); and 600,000 in the Boundary Waters Canoe Area

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Wilderness.

All the spatial and tabular data collected during this project will be available on Web Soil Survey: www.websoilsurvey.sc.egov.usda.gov.

PROJECT RESULTS USE AND DISSEMINATION<

The data collected during the soil survey field investigations is available to the public via the Web Soil Survey website: www.websoilsurvey.sc.egov.usda.gov. The Web Soil Survey is the single authoritative source of up-to-date soils information for selecting sites for development, road building, pipeline corridors, and waste disposal; for pollution control; for minimizing risks to human life and property; and for wildlife management, wetlands identification, and soil or water conservation. The data collected during this project will be posted to Web Soil Survey in January 2015.

Project completed: 6/30/2014

Golden Eagle Survey

Subd. 03e \$60,000 TF

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Appropriation Language

\$30,000 the first year and \$30,000 the second year are from the trust fund to the commissioner of natural resources for an agreement with the National Eagle Center to increase the understanding of golden eagles in Minnesota through surveys and education. This appropriation is available until June 30, 2014, by which time the project must be completed and final products delivered.

PROJECT OVERVIEW

Not previously thought to be regular inhabitants of Minnesota, in recent years there have been reports of golden eagle sightings in most counties of the state, while recent surveys suggest there is now a regular wintering population in the bluffs of southeast Minnesota. This appropriation is being used to better understand the numbers, distribution, migration routes, and habitat needs of golden eagles in Minnesota. This information will inform natural resource management decisions and be used to educate landowners and the general public about golden eagles in the state.

OVERALL PROJECT OUTCOME AND RESULTS

The Golden Eagle Survey Project represents groundbreaking research on a bird that was previously not thought to be a regular inhabitant of Minnesota. Through field observations and telemetry, the Golden Eagle Survey Project is expanding the understanding of population, distribution, habitats, habitat use, migration routes, breeding areas, and management needs of the population of golden eagles that winter in Minnesota.

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Annual surveys coordinated by the Golden Eagle Survey Project have documented a regular migratory population using the bluffland subsection of the Paleozoic Plateau in southeast Minnesota in winter. During annual winter surveys in 2012-2014, an average of 36 golden eagles have been observed in Minnesota's blufflands.

Using satellite telemetry to track golden eagles, the Project is expanding the world's knowledge of the range, location of breeding territories, and migration routes of this previously unstudied population. One golden eagle, #46, was released in January 2011 with a GPS satellite-linked transmitter. The Project tracked #46 for more than 950 days, from his release in Wabasha County and his migrations to Nunavut, Canada and back to wintering range in southeast Minnesota. Data collected on golden eagle habitat use, preferred prey, and range will be used to ensure appropriate management and conservation action to protect critical wintering habitat for golden eagles in Minnesota.

Thousands of people have learned about the presence of golden eagles in Minnesota through the Golden Eagle Survey Project's outreach to landowners, wildlife managers and the general public. In programs at the National Eagle Center and throughout the state, the Golden Eagle Project increased awareness and understanding of golden eagles as regular winter inhabitants of the blufflands region. The Project's outreach to conservation professionals and the general public continues to broaden awareness of this unique species in Minnesota.

PROJECT RESULTS USE AND DISSEMINATION<

Golden Eagle Survey Project data are publicly available on the National Eagle Center's website. Since January, 2012, the National Eagle Center's website has seen nearly 30,000 unique visits to the Golden Eagle Survey Project information pages. Here visitors learn about the presence of golden eagles in Minnesota, view data and project maps, and learn how they can get involved in efforts to understand and conserve golden eagles in Minnesota. In addition, updates on golden eagle tracking are posted on social media outlets, reaching an audience of more than 10,000 followers.

Detailed data from field observations, Annual Wintering Golden Eagle Surveys, and telemetry are made available to researchers and others upon request. Thus far, we have shared this data with at least one utility seeking information on golden eagle migration and habitat use in siting transmission lines.

The Golden Eagle Survey Project has been regularly featured in regional news media throughout the Project's duration. An attached list highlights some of the regional news stories about the Golden Eagle Survey Project. Links to the story are provided where available. In 2013, the Golden Eagle Project shared in the US Forest Service's Wings Across America award for work as part of the Eastern Golden Eagle Working Group. In January 2014, Minnesota DNR's monthly magazine Conservation Volunteer featured a cover story about the Golden Eagle Survey Project's work and golden eagles in Minnesota.

Project completed: 6/30/2014

Prairie Management for Wildlife and Bioenergy - Phase II

Subd. 03g \$600,000 TF

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RESEARCH

Appropriation Language

\$300,000 the first year and \$300,000 the second year are from the trust fund to the Board of Regents of the University of Minnesota to research and evaluate methods of managing diverse working prairies for wildlife and renewable bioenergy production. This appropriation is available until June 30, 2014, by which time the project must be completed and final products delivered.

PROJECT OVERVIEW

Bioenergy, a form of renewable energy derived from biological sources such as wood or grasses, is becoming an important component of the energy production mix. As the demand for bioenergy feedstocks increases in Minnesota and elsewhere, land use changes could impact wildlife. However, with proper management strategies it is possible that bioenergy production could actually improve conditions for wildlife rather than make them worse. This appropriation is allowing scientists at the University of Minnesota to continue developing best management practices for working prairies that maximize biomass harvesting while also promoting wildlife conservation and associated habitat diversity. This project is part of a broad effort at the University aimed at figuring out how to sustain Minnesota resources while improving the rural economy and developing energy independence.

OVERALL PROJECT OUTCOME AND RESULTS

Many wildlife areas and conservation lands were formerly marginal agricultural fields that have been converted into rich habitats of grasses and flowering plants. That habitat traditionally required maintenance by prescribed burning. However, mowing can be more feasible and can provide future commodity incentives through a carbon-negative energy source.

Our prevailing question was how grassland areas could be harvested annually without upsetting their ability to support wildlife. We organized over 1,000 acres into 60 production-size, 20-acre plots spanning the temperature gradient in western Minnesota. The plots were harvested in prescribed intensities and patterns each fall from 2009-2012 after plants had senesced and migratory wildlife left. Each year, surveys of songbirds, gamebirds, small mammals, reptiles, amphibians, insects, and plants were conducted and bioenergy potential calculated.

Our results showed that bioenergy can be harvested sustainably without harming resident wildlife by following simple protocols developed during the project. Specifically, leaving unharvested refuges of 5-10 acres rotated annually in a 20-acre plot minimized significant impact on wildlife, and we recommend such refuges as best practices. Harvesting without any refuge negatively affected some wildlife, specifically prairie and meadow voles, a shrew, sedge wren, common yellow throat, clay-colored sparrow, swamp sparrow, waterfowl nesting, and potentially native bees. Deer mice, grasshopper sparrows, common grackles, spiders, flies and beetles increased with harvest. Plant cover and biomass did not change significantly during our harvesting tests. We cut and analyzed over 3,000 tons of biomass with yields ranging from 0.6-1.8 tons/acre and projected ethanol yields averaging 108-gallons/ton. Recommendations for best harvesting equipment are low weight-to-tire-width ratio, easily repaired, and readily cleaned between fields.

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The broad consensus among wildlife experts is that diverse ecosystems offer habitat that is superior for a spectrum of wildlife. The overall significance of this project is that it identified and tested better methods for maintaining such habitat on public and private grasslands of Minnesota.

PROJECT RESULTS USE AND DISSEMINATION<

During this six-year project the Environmental Trust Fund and other substantial federal and local funds have resulted in two graduate theses, 26 publications, posters and presentations, five outreach events and newspaper articles, nine symposia, a website, a publically available dataset carrying the raw data and metadata supporting our conclusions, and a draft Best-Management-Practices document.

That draft document has been formatted professionally for publication, with release scheduled this calendar year. Some managers in the Minnesota DNR have begun using harvesting as a grassland management tool on Wildlife Management Areas and through Cooperative Farm Agreements, and we expect that this can expand and become routine as project results, including the Best-Management-Practices document, are published and disseminated broadly.

Dissemination will be ongoing for some time, with new scientific papers in preparation and continuing presentations at conferences.

Project Publications:

- Best Management of Minnesota Native Grasslands for Wildlife and Ecosystem Services (PDF - 3.1 MB)
- Energy Potential of Biomass from Conservation Grasslands in Minnesota, USA (PDF - 0.7 MB)
- The Centinel Data Format: Reliably Communicating through Time and Place (PDF - 1.0 MB)
- Using the Centinel Data Format to Decouple Data Creation from Data Processing in Scientific Programs (PDF - 1.2 MB)
- Bioenergy from Reserve Prairies in Minnesota: Measuring Harvest and Monitoring Wildlife (PDF - 0.7 MB)
- Short-term harvesting of biomass from conservation grasslands maintains plant diversity (PDF - 0.3 MB)
- Bioenergy and Wildlife: Threats and Opportunities for Grassland Conservation (PDF - 0.5 MB)
- Managing Conservation Grasslands for Bioenergy and Wildlife (PDF - 6 MB)

Project completed: 6/30/2014

Evaluation of Biomass Harvesting Impacts on Minnesota's Forests

Subd. 03h \$350,000 TF

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RESEARCH

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Appropriation Language

\$175,000 the first year and \$175,000 the second year are from the trust fund to the Board of Regents of the University of Minnesota to assess the impacts biomass harvests for energy have on soil nutrients, native forest vegetation, invasive species spread, and long-term tree productivity within Minnesota's forests. This appropriation is available until June 30, 2014, by which time the project must be completed and final products delivered.

PROJECT OVERVIEW

Minnesota's forests are currently being viewed as potential feedstocks for the production of renewable energy. A primary concern about harvesting forest biomass to generate renewable energy is the long-term impacts these harvests will have on soil nutrients and long-term ecosystem production, such as forest growth, carbon storage, and wildlife habitat. With this appropriation, scientists at the University of Minnesota's Department of Forest Resources are evaluating the ecological impacts of forest biomass harvesting in northern Minnesota. Results from this effort will be used by the energy industry and forestry professionals in both the public and private sector to guide long-term management that maximizes harvesting without negatively impacting forest productivity and ecological integrity.

OVERALL PROJECT OUTCOME AND RESULTS

Minnesota's forests are currently being viewed as potential feedstocks for production of renewable energy. A primary concern about harvesting forest biomass to generate renewable energy is the long-term impacts these harvests will have on soil nutrients and long-term ecosystem productivity, particularly in forests growing on nutrient poor soils. This project was designed to increase our understanding of the ecological impacts of biomass harvesting through establishment of a network of research sites in forests on nutrient poor soils. Treatments representing various levels of biomass removal and live-tree retention were implemented at four large-scale (80 acre) research sites in Becker, Hubbard, and Wadena Counties and were used to evaluate the importance of post-harvest slash and live-tree retention in maintaining the resilience and sustainability of jack pine forests under different biomass harvesting regimes. Treatments included current site-level guidelines for slash retention to allow for evaluations of the effectiveness of this practice at reducing impacts on long-term soil nutrients and forest vegetation. Field measurements from these sites were used to model the long-term effects of repeated biomass removals on ecosystem productivity. Results from this project indicate that there is no difference in post-harvest slash levels between areas in which slash was retained to meet current site-level guidelines and in places in which whole trees were harvested (i.e., no slash deliberately retained). The overall levels of slash retention in these areas were half those found after similar treatments in aspen-dominated forests on nutrient rich sites, highlighting the potential for greater nutrient depletion following biomass harvesting on nutrient poor sites and suggest a need for refinement of site-level guidelines to increase retention levels for nutrient poor soils. Long-term field data and model results indicate that biomass harvests that retain less than 40% of available residues may result in lower soil carbon stocks after several harvest rotations.

PROJECT RESULTS USE AND DISSEMINATION<

The results of this project have been shared on numerous occasions with resource professionals, policy makers, citizens, and scientists over the past three years in efforts to inform forest conservation decisions regarding biomass harvesting impacts. These dissemination activities have included the development of a fact sheet for LCCMR members that was distributed on the LCCMR tour of Itasca State Park on July 18, 2013. In addition, an overview of the project and results were shared with private forest landowners through a University of Minnesota Extension Webinar to private forest landowners and

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county, state, and federal natural resource managers on December 9, 2013, as well as through a meeting of the Forest Operations and Planning Section of the Minnesota DNR Division of Forestry on January 8, 2014. Results were also presented at the Annual Meeting of the Ecological Society of America in Minneapolis, MN on August 5, 2013. Finally, results regarding the impact of different levels of post-harvest slash retention on soil nutrients have been discussed with members of the Minnesota Forest Resources Council and are being used to inform future guideline revisions. Publications resulting from this work are available for download from the Department of Forest Resources web site (www.forestry.umn.edu). Additional publications from this work that are currently in development will also be posted on this site and shared with LCCMR staff for dissemination.

Project Publications:

- Fifteen-Year Patterns of Soil Carbon and Nitrogen Following Biomass Harvesting (PDF - 0.8 MB)
- Harvest residue removal and soil compaction impact forest productivity and recovery: Potential implications for bioenergy harvests (PDF - 1 MB)

Project completed: 6/30/2014

Change and Resilience in Boreal Forests in Northern Minnesota

Subd. 03i \$150,000 TF

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RESEARCH

Appropriation Language

\$75,000 the first year and \$75,000 the second year are from the trust fund to the Board of Regents of the University of Minnesota to assess the potential response of northern Minnesota's boreal forests to observed and predicted changes in climate conditions and develop related management guidelines and adaptation strategies. This appropriation is available until June 30, 2014, by which time the project must be completed and final products delivered.

PROJECT OVERVIEW

Boreal forests of spruce, fir, paper birch, aspen, and jack pine cover more than two million acres of northern Minnesota, including the Boundary Waters Canoe Area Wilderness. These forests are near the southern edge of their geographic range. With a warmer climate the health and productivity of these forests may be jeopardized by increased stresses such as heat, drought, fires, storms, and insect pests resulting in a much different forest ecosystem for northern Minnesota in the future. Scientists at the University of Minnesota's Department of Forest Resources are using this appropriation to evaluate how these forests are poised to respond to these changes and obtain the necessary data to guide forest management and planning efforts, such as determining practices that will help fend off threats from invasive species.

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OVERALL PROJECT OUTCOME AND RESULTS

This project addressed the stewardship of forests in Minnesota's most renowned and iconic natural area - the Boundary Waters Canoe Area Wilderness (BWCAW) - under a changing climate. Forests of the BWCAW are at the very southern edge of the boreal forest biome (cold adapted forests of spruce, fir, pine, birch and aspen), with temperate forest species (primarily red maple) from the south, as well as exotic invasive species poised to invade in a warming climate. The purpose of the study was to map these species and temperatures across the BWCAW to gain insight into change that may occur in the BWCAW as the climate warms. For this purpose, PhD student David Chaffin placed 106 temperature sensors across the landscape, which measured temperature hourly for two years, accompanied by 106 plots on which all tree species abundances were measured. Also, 100 transects totaling nearly 16 miles in length were placed across the landscape to sample for the presence of temperate tree species and invasive species. Results show that European earthworms are a common invasive group of species; about 70%, and 33% of the forests within the BWCAW are at minimal and high stages of invasion, respectively. Earthworm invasion is related to distances from campsites, portage trails and motorized lakes, but not to temperature. Summer (June, July and August) daily maximum temperatures show a west (warm) to east (cool) gradient of about 12-13 degrees F across the BWCAW. Red maple abundance was positively related to summer temperature, being highest in the west. The main synthesis from all of the data collected during the project is that boreal conifers like black spruce, balsam fir, and jack pine may find a cool-temperature refuge and persist in the eastern BWCAW, even in a very warm future climate, but would be co-dominant with expanding red maple populations. Earthworms will continue to expand and facilitate these changes in tree species composition.

PROJECT RESULTS USE AND DISSEMINATION<

The project was highlighted in presentations by project manager Frelich several prominent venues:

1. Minnesota Soil and Water Conservation Districts webinar (statewide audience of MSAWCD staff), October 2, 2013;
2. The National Extension Educators Workshop, Cloquet, MN October 29, 2013;
3. Minnesota Climate Change Adaptation Workshop, Science Museum of Minnesota November 7, 2013 (very broad audience including many land managers from throughout the state; this also resulted in coverage in the Star Tribune and Minnesota Public Radio);
4. Climate Science Workshop for Teachers, University of Minnesota St.Paul Campus, November 9, 2013;
5. discussions with state staff directors in offices of U.S. Senators Amy Klobuchar and Al Franken, December 11, 2013;
6. Citizens Climate Lobby (Training in climate impacts on northern forests for ca 120 people, Minneapolis, January 25, 2014);
7. Jackson Middle School (A science immersion school in Champlin, MN), Expert Day presentations and workshops with ca 50 students, January 29, 2014;
8. Osher Life Long Learning Institute, Coffman Union, University of Minnesota, Minneapolis, lecture to ca 40 retired faculty, February 28, 2014;
9. Minnesota Master Naturalist Annual Meeting Keynote to ca 150 people, May 16, 2014, Camp Friendship, MN; and
10. Climate change adaptation planning workshop for National Park Service staff at Voyageurs NP, July 30, 2014, also attended by U.S. Forest Service and other agency personnel.

Publication in the form of a PhD thesis (David Chaffin) and at least 3 peer-reviewed journal articles will follow within about 2 years.

Project completed: 6/30/2014

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Strengthening Natural Resource Management with LiDAR Training

Subd. 03k \$180,000 TF

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Appropriation Language

\$90,000 the first year and \$90,000 the second year are from the trust fund to the Board of Regents of the University of Minnesota to provide workshops and Web-based training and information on the use of LiDAR elevation data in planning for and managing natural resources.

PROJECT OVERVIEW

The State of Minnesota is using an optical remote sensing technology called LiDAR (Light Detection and Ranging) to procure high resolution digital elevation data for the entire state. Precision, efficacy, and cost efficiency of numerous types of natural resource management activities can be greatly enhanced by use of this data. Potential users include natural resource professionals at all levels of government and in the private sector. However, most potential users have not yet had experience using this type of data because it's a relatively new technology. Through this appropriation the University of Minnesota's Water Resources Center is developing and implementing a training program that will enable natural resource professionals throughout the state to effectively employ this data in a variety of different applications in natural resource evaluation, management, and protection.

OVERALL PROJECT OUTCOME AND RESULTS

The State of Minnesota, in 2013, completed acquisition of high resolution digital elevation data using LiDAR (Light Detection and Ranging). Full use of the data can greatly enhance natural resource management and protection, however, most natural resource managers did not have experience using this very dense data or its applications.

- The goal of the project was to enable natural resource managers with GIS skills to effectively use LiDAR data in restoring, protecting, and managing natural resources.
- The methods used were to develop six teaching modules focused on major application areas, deliver the modules as hands-on workshops in computer laboratories around the state, and then enhance the modules for web-based self-learning. An additional set of four webinars was delivered, recorded, and posted to the web to supplement the workshop modules. An on-line user Forum was established to provide answers to questions about using LiDAR data and its applications.
- The module subjects are Basics of LiDAR, Terrain Analysis, Hydrology Applications, Engineering Applications, Wetland Mapping, and Forestry Applications. The on-line materials for the modules include lectures and exercises in Powerpoint slide, text, and video formats.
- The module workshops were delivered in 34 sessions at eight locations across the state, with a total attendance of 558, (226 individuals in one or more modules).

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- Post-workshop surveys enabled workshop presenters to make adjustments to the workshop materials and presentations as the workshops progressed.
- The webinars addressed the use of hydrology tools recently developed in Minnesota, hydrology applications in the Red River Basin, and LiDAR for non-technical managers and staff. Total webinar participation was 437.
- The user Forum currently has 24 topic areas and 121 posts answering questions from technicians employing LiDAR data.

Post-workshop surveys indicated that participants increased field work efficiency and area covered, performed analyses not previously possible, better targeted practices and resources, and improved visualization of projects and communication with clients.

PROJECT RESULTS USE AND DISSEMINATION<

This was a training project, so advertising for and delivering the training (Activity 2) was a large part of dissemination of the project results. Announcements soliciting participants for the 34 workshop sessions and four webinars, and announcing the user Forum and on-line resources were distributed primarily as emails through organizations and associations of the target audience.

Information about the project has been presented at the 2012 Minnesota Water Conference, , the USDA 2012 National Land Grant/Sea Grant Water Conference, the 2011 and 2012 annual conferences of the Minnesota GIS/LIS Consortium, and the 2013 national meetings of the Soil and Water Conservation Society. We expect that use of the on-line project resources will extend well beyond Minnesota since other states have not yet developed LiDAR training programs.

Project completed: 6/30/2013

Measuring Conservation Practice Outcomes

Subd. 03I \$340,000 TF

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Appropriation Language

\$170,000 the first year and \$170,000 the second year are from the trust fund to the Board of Water and Soil Resources to improve measurement of impacts of conservation practices through refinement of existing and development of new pollution estimators and by providing local government training.

PROJECT OVERVIEW

Accounting for on the ground outcomes and measurable environmental benefits (e.g., pollution reduction) to the quality of soil, water, and habitat is an essential component of implementing conservation practices. Natural resource professionals use models and "estimators" to quantify these outcomes and benefits and guide future efforts. Over time, as conditions change and new information becomes available, estimators need to be revised or added to ensure outcomes and benefits are being

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accurately quantified. This appropriation is enabling the Minnesota Board of Soil and Water Resources to revise and create new estimators where needed, field verify the revised and new estimators, and provide local governments and other conservation professionals with training on how to use the revised and new estimators.

OVERALL PROJECT OUTCOME AND RESULTS

Accounting for on the ground outcomes and measureable environmental benefits to the quality of soil, water, and habitat is an essential component of implementing conservation projects. Local Government Units (LGUs), including Counties, Soil and Water Conservation Districts, and Watershed Districts, utilize pollution reduction estimators to quantify the outcomes of conservation projects. Board of Water and Soil Resources (BWSR) currently utilizes models or 'estimators' to measure the pollution reduction benefits of installed Best Management Practices (BMPs). Estimators quantify the outcomes of conservation practices in terms of reduced soil erosion, sediment and phosphorus reduction, carbon sequestered, etc. In order to improve the accounting of conservation practices and measurement of environmental benefits, existing estimators must be revised and new estimators developed.

Through a partnership with the University of Minnesota Department of Soil, Water and Climate, four new estimators were developed: Permanent Cover Erosion Reduction model, the Septic System Improvement Estimator, the Milkhouse Waste Practices Estimator, and the Hydrologic Soil Group - Knowledge Matrix tool. These estimators fill gaps where estimators did not exist previously. The existence of these estimators allows Local Government Units and other conservation partners to better quantify the environmental outcomes of conservation implementation. Training for LGUs and other conservation partners was conducted and made available in multiple formats (in-person, webinar, instructional videos). Many LGUs have already used the new estimators and we anticipate widespread adoption in the future.

Additional results include development of a framework to model and track movement of endocrine disrupting compounds and a data quality analysis of pollution reduction reporting. Three reports resulted from the work in the project. The reports are listed and briefly summarized below.

- **Modeling Soil Erosion with Caesium-137:** This report explains the process of modeling landscape-scale soil erosion and provides instructions on using the model to estimate long-term average erosion rates.
- **eLINK Data Quality Control Analysis:** This report provides an overview of the pollution reduction estimates in eLINK and recommends actions to improve data quality and completeness.
- **Endocrine Disrupting Chemical Retention Framework:** This report explains the behavior of endocrine disrupting compounds in the environment and provides a framework for measuring the movement and transport of such chemicals.

PROJECT RESULTS USE AND DISSEMINATION

The estimators are used by LGUs and conservation partners to quantify outcomes of installed Best Management Practices. The measured outcomes are collected in BWSR's eLINK database. The associated eLINK Data Quality Control Analysis report helps BWSR improve reporting of conservation project outcomes by recommending actions for improving education and outreach and developing internal mechanisms for quality control. Work completed by the University of Minnesota has gained interest amongst the broader scientific community and has been presented at international conferences. All reports, estimators and training materials developed during this project are available on the BWSR website: www.bwsr.state.mn.us.

Project Publications:

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- Modeling Soil Erosion with Caesium-137 (PDF - 1 MB)
- eLINK Data Quality Control Analysis (PDF - 0.6 MB)
- Endocrine Disrupting Chemical (EDC) Retention Framework (PDF - 0.7 MB)

Project completed: 6/30/2014

Conservation-Based Approach for Assessing Public Drainage Benefits

Subd. 03m \$150,000 TF

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Appropriation Language

\$75,000 the first year and \$75,000 the second year are from the trust fund to the Board of Water and Soil Resources to develop an alternative framework to assess drainage benefits on public systems to enhance water conservation. This appropriation is available until June 30, 2014, by which time the project must be completed and final products delivered.

PROJECT OVERVIEW

Artificial drainage exists in more than 25% of Minnesota. Runoff contributions from drained lands into these drainage systems contribute pollutants and degrade downstream water quality. Public drainage systems are funded by assessing costs to the lands benefitting from the systems. The current framework upon which these assessments are determined is based on maximizing crop production and does not account for overall water resources impacts, so there is no incentive for landowners to implement conservation practices that reduce runoff contributions to the drainage systems. The Minnesota Board of Soil and Water Resources is using this appropriation to develop and test an alternative framework for funding public drainage systems that would reduce costs to landowners if they implement conservation strategies that promote infiltration and reduce runoff.

OVERALL PROJECT OUTCOME AND RESULTS

Agricultural drainage provides an essential service to farmers and producers across the Midwest. However, maintenance and improvements of the drainage system are very costly. Landowners are charged via taxation based on the amount of benefits they receive from the drainage system. Currently in Minnesota benefits are determined by professional ditch viewers. Little guidance is provided to them by the drainage code and the process is highly laborious. Benefits are currently assigned per parcel based on discrete benefit classes. Professional judgment is an inherent component of the assessment. The main focus of this project is to investigate potential methods to improve on the current practices. The project was particularly interested in exploring the usefulness of geographic and hydrologic modeling software to automate the process, to objectively identify benefits, and to incorporate conservation practices in assessments.

Instead of using the current Minnesota method of discrete benefit classes, the project proposed a new

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method called the UM method based on drainage volume for each parcel. The UM method does not use professional judgment to assign benefit classes. The method does, however, require an estimate of the surface and subsurface drainage volume for each parcel.

Applying these alternative methodologies prior to manual, in field assessments will likely save time and money in the assessment process. Knowledge of the corresponding reductions in drainage depth volume and fraction of benefits per parcel can be utilized as part of the decision making process of applying conservation drainage practices within a watershed.

The product of the project was a report, *Conservation Based Approach for Assessing Public Drainage Benefits: Final Project Report*. It delineates methodologies used, obstacles overcome, and the basis for recommendations.

PROJECT RESULTS USE AND DISSEMINATION<

At present the information derived from this project will be used for decision making concerning potential future investigation into establishing of viewing practices outlined in the project report. This project was presented to the stakeholder Drainage Work Group (the instigator of the project) once to update the Work Group on its progress, and a second time to make the Work Group aware of the recommendations. No action has been taken by the Drainage Work Group in regard to the recommendations coming from this project.

Project Publication:

Conservation Based Approach for Assessing Public Drainage Benefits (PDF - 4 MB)

Project completed: 6/30/2014

Mississippi River Central Minnesota Conservation Planning

Subd. 03n \$175,000 TF

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Appropriation Language

\$87,000 the first year and \$88,000 the second year are from the trust fund to the commissioner of natural resources for an agreement with Stearns County Soil and Water Conservation District to develop and adopt river protection strategies in cooperation with local jurisdictions in the communities of the 26 miles of the Mississippi River between Benton and Stearns Counties. This appropriation must be matched by \$175,000 of nonstate cash or qualifying in-kind funds.

PROJECT OVERVIEW

From its headwaters to the Twin Cities, the Mississippi River has benefited from coordinated management plans and community efforts to protect its water quality and shoreland habitat - except for a 26-mile stretch in central Minnesota. Starting in St. Cloud and stretching north through Stearns and

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Benton counties, the stretch is governed by 11 different jurisdictions and the communities have no uniform land use controls to protect this shared resource despite population growth and development pressure threatening the health of the river. Stearns County Soil and Water Conservation District is using this appropriation to coordinate an effort between these 11 different local governments to develop and implement specific river protection policies and work with landowners along the river to implement shoreland management practices. Ultimately the effort aims to protect the water quality of the Mississippi River, reduce habitat fragmentation, and prioritize on-the-ground efforts.

OVERALL PROJECT OUTCOME AND RESULTS

From its Headwaters to the Twin Cities, the Mississippi River has benefited from coordinated management plans and community efforts to protect its water quality and shoreland habitat--except for 26-mile stretch in Central Minnesota. Starting in St. Cloud and stretching north through Stearns and Benton counties, this stretch is governed by 11 different jurisdictions (four cities, five townships and two counties). These communities presently have no uniform land use controls to protect the magnificent river they share. Significant population growth and development pressure and contributing upland pollution could significantly damage the health of the Mississippi River.

This project's goal was to restore and protect the natural resources of the Mississippi River and its tributaries, and reduce habitat fragmentation along its banks in central Minnesota. The project coordinated with local units of government to develop and implement specific river protection policies with limited success. Individual landowners were contacted to implement sound shoreland and upland management practices. Also, in conjunction with this project a portion of the Sauk watershed was selected as part of the USDA NRCS Mississippi River Basin Healthy Watersheds Initiative (MRBI) to reduce pollution entering the river and reducing downstream impacts. Over 50,000 acres had conservation practices planned or applied.

Local units of government were offered workshops and technical assistance to implement policies, such as adopting a Natural Resource Overlay District along the river. The City of Sartell was key receiver of this assistance. Also, a major Take a Day OFF (Outdoor Family Fun) event was held to increase the publics' awareness of this wonderful natural resource in their backyard. Over 1000 people attend this event annually.

The public policies and landowner practices implemented has resulted in a healthier Mississippi River today and for decades to come.

PROJECT RESULTS USE AND DISSEMINATION<

The Stearns County Soil and Water Conservation District website (www.stearnscountyswcd.net) was used to disseminate information. Other media forms included radio, newspaper, and Facebook were used to increase awareness of activities pertaining to this project.

Project completed: 6/30/2013

St. Croix Basin Conservation Planning and Protection

Subd. 03o \$175,000 TF

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Appropriation Language

\$60,000 the first year and \$60,000 the second year are from the trust fund to the commissioner of natural resources for an agreement with the St. Croix River Association to develop an interagency plan to identify and prioritize critical areas for project implementation to improve watershed health. This appropriation must be matched by \$120,000 of nonstate cash or qualifying in-kind funds. Up to \$10,000 may be retained by the Department of Natural Resources at the request of the St. Croix River Association to provide technical and mapping assistance. This appropriation is available until June 30, 2014, by which time the project must be completed and final products delivered.

PROJECT OVERVIEW

Portions of the St. Croix River Basin are now on the impaired waters list and rare landscapes, plants, and animal communities are increasingly threatened by development pressures. Up until now, conservation efforts in the St. Croix Basin have often been lacking focus and coordination between jurisdictions has been inadequate. Through this appropriation, the St. Croix River Association is establishing and coordinating a partnership effort between local, state, and federal government units and non-profits to develop a joint plan that will identify and prioritize areas for conservation implementation and guide efforts over time to improve overall watershed health in the St. Croix Basin.

OVERALL PROJECT OUTCOME AND RESULTS

Portions of the St. Croix River Basin are now on the impaired waters list and rare landscapes, plant, and animal communities are threatened by development pressures. Multi-jurisdictional conservation efforts are complex and often lack focus and coordination in the St. Croix Basin. This project was a means to streamline and focus conservation efforts on areas with the most critical need within the Basin. By linking local, state and federal governmental units, citizen-led non-profits, and design & technical expertise in an effective, well-coordinated partnership, this project set water quality, habitat, and recreational priorities; identified specific management practices in priority locations; and implemented on-the-ground projects to promote land and water stewardship to enhance and protect the very special place the St. Croix River Basin is to live, recreate, and work. The St. Croix Action Team, consisting of multiple partnerships throughout the Minnesota side of the St. Croix River Basin, worked diligently throughout the life of the project to produce a strategic prioritization of resources based on water quality, habitat, and recreation. The final products include:

- Identification of priority subwatersheds for resource management objectives in the St. Croix Basin (MN side) based on multiple benefits through an integrative modeling application.
- A protocol to assist in identifying Best Management Practices (BMPs) within priority subwatersheds.
- An expansive list of 188 BMP prescriptions for Chisago, Kanabec and Washington counties for water quality protection and habitat restoration.
- A cost benefit analysis of each practice to help determine the most cost effective management options for the benefit received from the practice.
- Six BMPs on the ground located in priority areas that demonstrate the use of an effective protocol and cost benefit analysis for resource protection and management.

This project was vital to create a well-coordinated procedure that identified areas of greatest resource concern and strategic, most cost-effective measures of protecting those resources.

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PROJECT RESULTS USE AND DISSEMINATION

As a part of this project, Chisago, Kanabec, and Washington counties each constructed a master list of priority conservation activities to use in their work plans, build future funding strategies, and perform outreach activities to landowners for implementation. Project information has been shared with additional Basin partners, including those across the river on the Wisconsin side, through the annual St. Croix Basin Conference, Basin Team meetings, and SCRA newsletters and website.

Project completed: 6/30/2014

Species of Concern; Investigations

Subd. 03p \$500,000 TF

Part A: Minnesota Common Loons and American White Pelicans (\$250,000)

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Part B: Minnesota Breeding Bird Atlas (\$250,000)

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Appropriation Language

\$500,000 the first year is from the trust fund to the commissioner of natural resources for investigating species of concern.

Part A: Minnesota Common Loons and American White Pelicans - PROJECT OVERVIEW

Over a three month period in 2010, approximately five million barrels of oil was spilled into the Gulf of Mexico causing extensive damage to marine and wildlife habitats and resulting in significant losses in fish and wildlife populations. A number of Minnesota's migratory bird species spend parts of their lives in the areas impacted by the spill and impacts on their populations in the state could become evident over time. Impacts could result from immediate losses of birds that were present at the time of the spill or from cumulative negative effects resulting from contamination of the food chain by petroleum chemicals and the dispersants used on the oil. The two Minnesota species that are potentially most vulnerable are the common loon and the American white pelican - some of their young would have been present in the Gulf at the time of the spill and their behavior and feeding patterns put them at greater risk of exposure to chemicals from the spill persisting in the environment. The Minnesota Department of

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Natural Resources is using this appropriation to determine whether or not common loon or American white pelican populations in Minnesota have been impacted by the Gulf oil spill. Besides population declines in the two species, other impacts that could occur as a result of chemical contamination in the food chain include changes in behavior, migratory abilities, reproductive success, or longevity. If a link is documented Minnesota may be eligible for remediation funds from the Federal Natural Resource Damage Assessment (NRDA) process currently underway, and those funds could be used to help restore the populations of these two species.

OVERALL PROJECT OUTCOME AND RESULTS - PART A: Minnesota Common Loons and American White Pelicans

Concerns about impacts of the 2010 Deepwater Horizon oil spill on Minnesota loons and white pelicans led to the need for an assessment of the extent to which pelicans and loons were exposed to impacts by PAH (polycyclic aromatic hydrocarbons) petroleum contaminants, which are carcinogenic, mutagenic, and teratogenic, and DOSS (dioctyl sodium sulfosuccinate) contaminants that cause respiratory, nervous system, liver, kidney, and blood disorders, cancer, and hormone disruption.

A statewide pelican count in 2012 showed an increase of 16-19% since 2010 to a level of 22,000 nesting pairs. Pelican egg and bill knob analysis revealed that 58 of 99 pelican eggs had PAH. For bill knobs, 29 of 37 had PAH. DOSS was found in 27 of 48 eggs in 2011 but no DOSS was found in 2012. Fourteen of 37 bill knobs had DOSS. In Phase 2 of this project, pelican eggs will continue to be tested, and a statewide pelican survey in 2015 will include population trend analysis and determination of the ratio of young birds to adults as an indicator of reproductive success.

Loon research included satellite telemetry on 13 loons and geolocator research on 42 loons. This work revealed migration phenology and routes, wintering sites, diving behavior, and on the extent to which PAH and DOSS have been accumulated by loons.

Loon eggs (6 of 27), fat (5 of 29), blood (20 of 52), and feathers (5 of 35) had PAH present. PAH and DOSS contaminants picked up in the Gulf of Mexico could cause long-term sublethal effects. Phase 2 of this project will involve assessment of egg hatchability and chick survival. This information will be used to develop a federal NRDA court case to recover damages to Minnesota loons from the Deepwater Horizon oil spill. LCCMR-funded research (phase 2 and 3) will continue through 2017.

PROJECT RESULTS USE AND DISSEMINATION - PART A: Minnesota Common Loons and American White Pelicans

In summer of 2012 Ron Schara's photography team covered the capture and banding with geolocators the loons on Lake George in Anoka County. That story was featured on Minnesota Bound on September 1 and 7, 2013 on KARE-TV.

An article was published in the 2013 January-February issue of the Minnesota Conservation Volunteer magazine. Editor Kathleen Weflen devoted two pages of introduction to this study and reflecting concerns for protecting Minnesota's loons and water quality. The 12-page article "Flying with the Loons" by Adele Porter covered the work by Kevin Kenow and his staff from the US Geological Survey as they have studied Minnesota's loons over the past two years, and cited credits to the Environment and Natural Resources Trust Fund for financial support of this work.

Outdoor reporter Dennis Anderson accompanied the loon capture crew on July 16 and wrote an article in the Star Tribune on July 21, 2013, about this loon research project.

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We have received recent requests from the media for updates on this study, but we have been deferring response until we have a more comprehensive analysis of the project results. We are also reluctant to release too much information at this point because BP has hired a person from Maine to find out what we are doing in regard to the loon study. Subsequently, their lawyers may try to use that information to minimize concerns or effects on Minnesota loons and pelicans related to the future NRDAR settlement from BP to the State of Minnesota for damages to the state's loon and pelican population due to the Deepwater Horizon oil spill.

Part B: Minnesota Breeding Bird Atlas - PROJECT OVERVIEW

A state Breeding Bird Atlas is a comprehensive systematic field survey of the occurrence, distribution, diversity, and breeding status of bird species within the state. Atlases are used to set conservation priorities, develop conservation plans, and guide habitat protection and restoration efforts. Minnesota is one of only seven states in the country that has yet to complete a Breeding Bird Atlas. Audubon Minnesota will use this appropriation to complete the Minnesota Breeding Bird Atlas and create related publications, including a book and online atlas with distribution maps, breeding status, and historical species information.

OVERALL PROJECT OUTCOME AND RESULTS - PART B: Breeding Bird Atlas

The Minnesota Breeding Bird Atlas project represents the most detailed, comprehensive assessment of the breeding distribution of Minnesota's birds ever undertaken. It is a multi-partner project which included: Audubon Minnesota, MN DNR, U.S. Fish and Wildlife Service, Minnesota Ornithologists' Union, individuals from the University of Minnesota, and many others. Representatives from these organizations made up a Steering Committee which helped oversee and advise the project. All field data collection was completed in August 2013 with incidental reports from volunteers coming into the database through September. The project recorded 372,172 bird sightings during the 5-years from 2009 - 2013 all of which are in our database. These sightings report 250 species, 232 of which we consider confirmed breeders. Data was collected from each of the 2,339 priority blocks which represent every Township in Minnesota. Additional point count data was collected from 99.5% of the Townships in Minnesota. Following the completion of our field data collection we reviewed, and reformatted 24 external datasets representing 20,000 records which were added to the database. An extensive quality control program was applied to the data involving species experts, regional reviewers from around the state and a verification committee. The number of registered volunteers in the project totaled 1,144 and they reported driving over 100,000 miles and spending 33,000 hours of contributed effort, which is an underestimate of their contribution since our data relies on self-reporting and we know many volunteers did not report this information. Our website, mnbba.org, which allowed volunteers to report their findings, provide county and species maps and a searchable database continues to provide information to the public. Data analysis and results dissemination will occur over the next 2 - 3 years.

PROJECT RESULTS USE AND DISSEMINATION - PART B: Breeding Bird Atlas

Preliminary data has been available on the mnbba.org website since the first year of the project. This website provides general information on the project, its methodology, and purpose. Through it data on specific species can be queried and mapped. We will continue to use this url as we migrate data analysis and information to a new format over the next 2 years. We are developing plans to store the data in the Avian Knowledge Network. Publications using BBA data have included the Minnesota Conservation Volunteer and presentations at the Midwest Bird Conservation and Monitoring Network meetings, the Minnesota Chapter of the Wildlife Society, and the Minnesota Ornithologists' Union meetings.

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Project completed: 6/30/2014

Subd. 04 Land, Habitat, and Recreation

State Park and Recreation Area Operations and Improvements

Subd. 04a \$3,627,000 TF

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Appropriation Language

\$1,877,000 the first year and \$1,750,000 the second year are from the trust fund to the commissioner of natural resources for state park and recreation area operations and improvements, including activities directly related to and necessary for this appropriation. This appropriation is not subject to Minnesota Statutes, sections 116P.05, subdivision 2, paragraph (b), and 116P.09, subdivision 4.

PROJECT OVERVIEW

Minnesota's extensive state park and recreation area system, the second oldest in the country, is currently comprised of a total of 76 state parks and recreation areas scattered throughout the state. The state park system provides abundant recreational and educational opportunities for citizens while also preserving some of the state's most valued natural, scenic, and cultural resources. The Minnesota Department of Natural Resources is utilizing the appropriation to accelerate natural and cultural resource management in the parks through activities including invasive species control, habitat restoration and enhancement, and natural resource inventory and monitoring to ensure desired outcomes are being achieved.

Project due to be completed: 6/30/2014

Work Plan: Not required per exemption granted to DNR at their request in MN Laws 2011, 1st Special Session, Chp. 2, Art. 3, Sec. 2, Subd. 4(a).

Metropolitan Regional Park System Acquisition

Subd. 04c \$2,250,000 TF

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Appropriation Language

\$1,125,000 the first year and \$1,125,000 the second year are from the trust fund to the Metropolitan Council for grants for the acquisition of lands within the approved park unit boundaries of the metropolitan regional park system. This appropriation may not be used for the purchase of residential structures. A list of proposed fee title and easement acquisitions must be provided as part of the required work program. This appropriation must be matched by at least 40 percent of nonstate money and must be committed by December 31, 2011, or the appropriation cancels. This appropriation is available until June 30, 2014, at which time the project must be completed and final products delivered, unless an earlier date is specified in the work program.

PROJECT OVERVIEW

The Twin Cities area is host to a nationally renowned system of regional parks that provides numerous outdoor recreational opportunities for the public while preserving green space for wildlife habitat and other natural resource benefits. Through an existing grant program, the Metropolitan Council is using this appropriation to partner with local metropolitan communities to partially finance the acquisition of approximately 210 acres to be added to existing metropolitan regional parks. Priority will be given to lands with shoreland, lands that provide important natural resource connections, and lands containing unique natural resources.

OVERALL PROJECT OUTCOME AND RESULTS

The \$2,226,288 of the appropriation leveraged \$4,074,980 of other funds to acquire 291.7 acres for the Metropolitan Regional Park System as follows:

- 18 acres of wetlands and shoreline of Rice Creek as part of 85 acres acquired for Rice Creek Chain of Lakes Park Reserve by Anoka County Parks Department.
- 2.6 acres including shoreline of Big Marine Lake for Big Marine Lake Park Reserve by Washington County Parks Department.
- 19.3 acres including shoreline of Lake Waconia for Lake Waconia Regional Park by Carver County Parks Department.
- 45.1 acres as part of a 106 acre acquisition of prairie/grassland, tamarack fen and 6 acre pond for Kingswood Special Recreation Feature by Three Rivers Park District in Hennepin County.
- 148.7 acres of hardwood forest and wetlands for Doyle-Kennefick Regional Park by Scott County Parks Department.
- 58 acres of Minnesota River floodplain and upland prairie/forest as part of a 236 acre acquisition for Blakely Bluffs Park Reserve by Scott County Parks Department.

PROJECT RESULTS USE AND DISSEMINATION<

Requests for Park Acquisition Opportunity grants are reviewed and considered by the Metropolitan Parks and Open Space Commission and Metropolitan Council. The Metropolitan Council posts these requests and staff analysis of the requests as part of agenda packets for applicable meetings on the Metropolitan Council's website: www.metrocouncil.org

Project completed: 6/30/2014

Scientific and Natural Areas Acquisition and Restoration

Subd. 04e \$1,640,000 TF

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M.L. 2011 Projects Completed in 2013-2014

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Appropriation Language

\$820,000 the first year and \$820,000 the second year are from the trust fund to the commissioner of natural resources to acquire lands with high-quality native plant communities and rare features to be established as scientific and natural areas as provided in Minnesota Statutes, section 86A.05, subdivision 5, restore parts of scientific and natural areas, and provide technical assistance and outreach. A list of proposed acquisitions must be provided as part of the required work program. Land acquired with this appropriation must be sufficiently improved to meet at least minimum management standards, as determined by the commissioner of natural resources. This appropriation is available until June 30, 2014, by which time the project must be completed and final products delivered.

PROJECT OVERVIEW

Minnesota's Scientific and Natural Areas (SNA) Program is an effort to preserve and perpetuate the state's ecological diversity and ensure that no single rare feature is lost from any region of the state. This includes landforms, fossil remains, plant and animal communities, rare and endangered species, and other unique biotic or geological features. These sites play an important role in scientific study, public education, and outdoor recreation. The Minnesota Department of Natural Resources is using this appropriation to conduct restoration activities on approximately 1,800 acres in existing SNAs, to acquire an additional 80 acres to be added to the SNA system, and to increase citizen and student knowledge and skills pertaining to ecological restoration and biodiversity conservation through engagement with SNAs.

OVERALL PROJECT OUTCOME AND RESULTS

The biologically significant 900-acre Badoura Jack Pine Forest SNA was acquired in part through appropriation. Twenty-two conservation easement baseline property reports at 11 SNAs are completed. The SNA Strategic Land Protection Plan has been completed which prioritizes places of ecological importance for protection as SNAs and by partners.

Habitat restoration and enhancement actions are increasing the quality of habitat on SNAs through achieving: restoration of about 30 acres at 4 SNAs; woody invasive species control on 610 acres at 19 SNAs, herbaceous invasive species treatment on 487 acres at 33 SNAs, and installation of invasives control bootbrush kiosks at 6 SNAs; about 36 miles of burn breaks at 21 SNAs and completion of 1,190 acres of prescribed burns at 25 SNAs; and site development work (e.g. entry and boundary signs, new gates, and site cleanup) at 35 SNAs. Conservation Corps Minnesota was involved in 51 of these projects. Substantial monitoring was completed of pollinators at 10 SNAs, of snakes at 1 SNA, and of native plant communities at 2 SNAs.

The public's and youth involvement in SNAs and their knowledge and skills about biodiversity conservation has significantly increased through the SNA Outreach Initiative started through this appropriation. About 188 SNA events were held with 2,745 participants and 124 volunteer site stewards have committed to help care for SNAs. A broad range of communications tools have engaged people in

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sharing information about SNAs. Electronic communications achievements include: a new quarterly electronic newsletter with over 2600 subscribers and a significantly improved new SNA webpage. Print communications created and distributed include: a statewide map with location and directions to SNAs, a new North Shore SNA guide, 3 series of pocket cards, and site-specific factsheets.

PROJECT RESULTS USE AND DISSEMINATION

Dissemination is primarily achieved through the upgraded SNA webpage on the DNR website: <http://www.mndnr.gov/snas>. The SNA Strategic Land Protection Plan is also disseminated through this website: <http://www.dnr.state.mn.us/eco/sna/plan.html>. All volunteer events are listed at the webpage. Volunteer site stewards submit periodic reports via a generic SNA email address sna.dnr@state.mn.us created through this appropriation for a broad variety of constituent communications. Through this appropriation, the quarterly electronic Nature Notes newsletter was initiated and 8 of 10 issues were emailed through govdelivery - with over 2600 current subscribers.

A statewide color map locating all SNAs (with directions to all sites and ENRTF acknowledgement on the back) has been designed, 5000 copies printed, and nearly all copies distributed through the DNR Information Center, at DNR region and area offices and state parks, at the State Fair, and through SNA event co-sponsors - with primary emphasis on facilities/organizations that are near SNAs and are cooperating on sponsoring SNA events. A color poster-booklet on "The Ten Best Places of the North Shore: A Visitor's Guide to North Shore Scientific and Natural Areas" was printed and distributed through a combination of this appropriation and federal Coastal Zone Management funding. Each year series of new business card-size "pocket cards" each featuring 1 SNA (and incorporating a QR code through which a smart phone with camera can directly connect to the SNA web) have been printed and almost all cards for the 32 SNAs produced to date have been distributed through the State Fair, DNR Info Center, and many DNR events.

Project Publication:

Scientific and Natural Area (SNA) Strategic Land Protection Plan (PDF - 2.9 MB)

Project completed: 6/30/2014

LaSalle Lake State Recreation Area Acquisition

Subd. 04f \$2,000,000 \$1,000,000 [Amended in ML 2012] TF

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Appropriation Language

\$1,000,000 the first year and \$1,000,000 the second year are is [Amended in ML 2012] from the trust fund to the commissioner of natural resources for an agreement with The Trust for Public Land to acquire approximately 190 acres to be designated as a state recreation area as provided in Minnesota Statutes, section 86A.05, subdivision 3, on LaSalle Lake adjacent to the upper Mississippi River. If this

M.L. 2011 Projects Completed in 2013-2014

acquisition is not completed by July 15, 2012, then the appropriation is available to the Department of Natural Resources for other state park and recreation area acquisitions on the priority list. Up to \$10,000 may be retained by the Department of Natural Resources at the request of The Trust for Public Land for transaction costs, associated professional services, and restoration needs.

PROJECT OVERVIEW

LaSalle Lake, a 211 acre lake in northwestern Hubbard County, is the second deepest lake in the state at 213 feet. It is surrounded by thousands of acres of natural areas that include rare species, high-quality forest and wetlands, coldwater stream, and portions of the Upper Mississippi River. In partnership with the Minnesota Department of Natural Resources, the Trust for Public Land is coordinating a multi-phase effort to permanently protect a total of 980 acres surrounding LaSalle Lake for the creation of LaSalle State Recreation Area, making the area available for public enjoyment for generations to come. This appropriation is being used to purchase a 190 acre portion of the total acreage that includes some of the highest quality habitat and biodiversity as identified by the Minnesota County Biological Survey.

OVERALL PROJECT OUTCOME AND RESULTS

On October 27, 2011, The Trust for Public Land acquired 721 acres on La Salle Lake in Hubbard County and immediately conveyed the property to the DNR. Funding for approximately 94 of these acres was provided by the Environment and Natural Resources Trust Fund. Combined with 269 acres previously acquired on December 22, 2010, the land now forms the new La Salle Lake State Recreation Area. Funding for the acquisition of this property was as follows:

Funding Source	Allocated Acreage	Amount
Environment and Natural Resources Trust Fund	94	\$990,000
Environment and Natural Resources Trust Fund	528	\$5,547,000
Parks and Trails Fund	99	\$1,953,000
TOTAL		
(purchase price and appraised value)	721	\$8,490,000

In addition to the land acquisition capital noted above, the following amounts were appropriated for DNR land acquisition costs, initial site development and restoration: Environment and Natural Resources Trust Fund \$10,000; Outdoor Heritage Fund \$85,000; and Parks and Trails Fund \$147,000. The DNR has used these funds to conduct a number of activities on the site including restoration of areas to native species, invasive species control, trail system establishment, fencing removal, and reforestation of areas damaged by a major blowdown in 2012.

Protection of the La Salle Lake property was a high priority for multiple stakeholders. It was the number one priority for the DNR Northwest Region in 2010-2011, which had sought to protect it for over a decade. The acquisition also enjoyed strong local support including unanimous approval from the Hubbard County Board. Numerous organizations and individuals provided letters of support including: the Park Rapids Area Chamber of Commerce, the Hubbard County Coalition of Lake Associations (COLA), the Minnesota Deer Hunters Association, Trout Unlimited, and the Audubon Society.

Acquisition of the La Salle Lake property successfully seized a rare opportunity to protect a large area of habitat of regional and statewide significance that includes the entirety of Minnesota's second deepest

M.L. 2011 Projects Completed in 2013-2014

lake, a coldwater stream, high-quality forest and wetlands, and over a half mile of Mississippi River shoreline. The property is ranked as having Outstanding Biodiversity Significance by the Minnesota County Biological Survey (MCBS). It also provides excellent recreational opportunities for hunting, fishing, hiking, camping and wildlife observation. The acquisition furthers the goals of multiple state conservation plans and connects large parcels of land already in public ownership preventing forest fragmentation and guaranteeing wildlife large landscapes in which to roam. This unique and important habitat was at risk of development and was listed for sale until The Trust for Public Land obtained an option to purchase the property and ultimately conveyed it to the DNR for permanent stewardship.

PROJECT RESULTS USE AND DISSEMINATION<

Information about this project has been widely disseminated in a variety of ways. The Trust for Public Land has publicized it on its website, <http://www.tpl.org/what-we-do/where-we-work/minnesota/la-salle-lake.html>, in broadcast emails to its list serve members, and in other Trust for Public Land publications. The DNR issued a press release on the acquisition, which many news providers covered including the Pioneer Press, MPR, the Park Rapids Enterprise and a number of other papers through the AP wire. Television coverage was provided by Channel 9 TV and Channel 11 TV. The DNR further did a story on this project in its Conservation Volunteer magazine, and has a great deal of information about it on its website. See the following link: http://www.dnr.state.mn.us/state_parks/la_salle_lake/index.html

Project completed: 6/30/2014

Native Prairie Stewardship and Native Prairie Bank Acquisition

Subd. 04h \$1,000,000 TF

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Appropriation Language

\$500,000 the first year and \$500,000 the second year are from the trust fund to the commissioner of natural resources to acquire native prairie bank easements, prepare baseline property assessments, restore and enhance native prairie sites, and provide technical assistance to landowners. This appropriation is available until June 30, 2014, by which time the project must be completed and final products delivered.

PROJECT OVERVIEW

Prior to European settlement more than 18 million acres of prairie covered Minnesota. Today less than 1% of that native prairie remains, and about half of those remaining acres are in private landownership without any formal protection currently in place. Through this appropriation the Minnesota Department of Natural Resources will work with private landowners of high quality native prairie sites to protect remaining native prairie using a variety of tools. Approximately 200 acres are expected to be permanently protected through Native Prairie Bank conservation easements. A variety of restoration and enhancement activities will be implemented on a total of about 900 acres. Additionally, education

M.L. 2011 Projects Completed in 2013-2014

and technical assistance will be provided to interested landowners to help them improve the management and stewardship of native prairie sites they own.

OVERALL PROJECT OUTCOME AND RESULTS

A total of 183 acres of native prairie was enrolled in the Native Prairie Bank easement program and permanently protected. The newly acquired easements included 6 easements in the Counties of Redwood, Brown, Pope, Traverse, Swift, and Renville. In total, 22 baseline property reports were written, including 6 baselines for the newly acquired easements. In addition to baseline reports, 22 existing Native Prairie Bank easements were monitored and data entered into the DNR's Conservation Easement Monitoring database.

SNA prairie specialists have completed 20 prescribed burns for 1,268 acres, 1 prairie reconstruction on 17 acres, and 61 invasive species control projects on 813 acres. 50 of these 82 projects involved Conservation Corps of Minnesota (CCM) crews. Boundary signing has been completed on the 6 NPB easements acquired with this appropriation. As part of the SNA Program's adaptive management efforts, management practices at 5 NPB sites were evaluated to determine if initial objectives were met.

SNA staff participated in 6 different events aimed at getting prairie stewardship information to landowners. Both SNA field specialists and acquisition staff engaged 76 different priority prairie landowners to discuss prairie protection and management options for their property. Over 290 landowners who potentially meet eligibility for Prairie Tax Exemption received mailings with Prairie Tax Exemption application forms. These mailings resulted in the certification of 204 new applications and the enrollment or re-enrollment of 6,936 acres in Prairie Tax Exemption. With the assistance of professional consultants, 20 landowners have received comprehensive Prairie Stewardship plans.

PROJECT RESULTS USE AND DISSEMINATION<

As part of the landowner outreach efforts in project activities 1 and 3, the Native Prairie Bank brochure was updated and re-printed. The new Native Prairie Bank brochure is being made available at public events that target prairie landowners. Over 290 letters were mailed to native prairie landowners informing them of their potential eligibility to participate in the Prairie Tax Exemption Program. Local Technical Teams (LTT's) have been forming in southern and western MN in an effort to coordinate implementation of the MN Prairie Plan (include SWCD, NRCS, USFWS, TNC, BWSR). SNA Prairie Specialists have been working with these LTT's to ensure landowners approached directly by these LTT's are made aware of their prairie stewardship options available through the SNA Program. In total, SNA field specialists have proactively engaged 76 different priority prairie landowners to discuss prairie protection and management options for their property, as well as provide native prairie stewardship information at 6 public events.

Project completed: 6/30/2014

Metropolitan Conservation Corridors (MeCC) - Phase VI

Subd. 04i \$3,475,000 TF

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Appropriation Language

\$1,737,000 the first year and \$1,738,000 the second year are from the trust fund to the commissioner of natural resources for the acceleration of agency programs and cooperative agreements. Of this appropriation, \$150,000 the first year and \$150,000 the second year are to the commissioner of natural resources for agency programs and \$3,175,000 is for the agreements as follows: \$100,000 the first year and \$100,000 the second year with Friends of the Mississippi River; \$517,000 the first year and \$518,000 the second year with Dakota County; \$200,000 the first year and \$200,000 the second year with Great River Greening; \$220,000 the first year and \$220,000 the second year with Minnesota Land Trust; \$300,000 the first year and \$300,000 the second year with Minnesota Valley National Wildlife Refuge Trust, Inc.; and \$250,000 the first year and \$250,000 the second year with The Trust for Public Land for planning, restoring, and protecting priority natural areas in the metropolitan area, as defined under Minnesota Statutes, section 473.121, subdivision 2, and portions of the surrounding counties, through contracted services, technical assistance, conservation easements, and fee title acquisition. Land acquired with this appropriation must be sufficiently improved to meet at least minimum management standards, as determined by the commissioner of natural resources. Expenditures are limited to the identified project corridor areas as defined in the work program. This appropriation may not be used for the purchase of habitable residential structures, unless expressly approved in the work program. All conservation easements must be perpetual and have a natural resource management plan. Any land acquired in fee title by the commissioner of natural resources with money from this appropriation must be designated as an outdoor recreation unit under Minnesota Statutes, section 86A.07. The commissioner may similarly designate any lands acquired in less than fee title. A list of proposed restorations and fee title and easement acquisitions must be provided as part of the required work program. An entity that acquires a conservation easement with appropriations from the trust fund must have a long-term stewardship plan for the easement and a fund established for monitoring and enforcing the agreement. Money appropriated from the trust fund for easement acquisition may be used to establish a monitoring, management, and enforcement fund as approved in the work program. An annual financial report is required for any monitoring, management, and enforcement fund established, including expenditures from the fund. This appropriation is available until June 30, 2014, by which time the project must be completed and final products delivered.

Overall PROJECT OVERVIEW

Though many parts of the Twin Cities metropolitan area are urbanized, there are also large areas of natural lands that continue to serve as important habitat for fish, wildlife, and plant communities. However, pressure on these remaining lands continues to intensify as population and development pressures increase. This appropriation represents the sixth phase of an ongoing effort by a partnership of state and non-profit organizations, called the Metro Conservation Corridors (MeCC) partnership, to conduct strategic and coordinated land protection, restoration, and enhancement activities that build connections between remaining natural areas and ensures their benefits are available for future generations. This phase involves seven partners and is expected to result in the permanent protection of more than 600 acres and the restoration and enhancement of more than 750 acres.

Individual Partner PROJECT OVERVIEWS

- *1.1/1.2 - MeCC VI - Coordination, Mapping & Outreach & Mapping and Database Work - Minnesota Land Trust (\$40,000)*

M.L. 2011 Projects Completed in 2013-2014

The Minnesota Land Trust provides coordination, mapping, and data management for the Metropolitan Conservation Corridors partnership. Funds are being used to coordinate the partnership, guide strategic outreach and implementation efforts, manage project data, and provide reporting and mapping of accomplishments.

- *2.1 - MeCC VI - Restore and Enhance Significant Watershed Habitat - Friends of the Mississippi River (\$200,000)*

Friends of the Mississippi is using this appropriation to restore and enhance approximately 163 acres of permanently protected prairie and forest lands in Dakota, Washington, Ramsey, and Hennepin counties in order increase the amount of high quality habitat within designated conservation corridors. Specific activities will include updating management plans, soil preparation, prescribed burning, native vegetation installation, woody encroachment removal, and invasive species control.

- *2.3 - MeCC VI - Restoring Our Lands and Waters - Great River Greening (\$400,000)*

These funds will enable Great River Greening to restore approximately 121 acres of permanently protected forests, savanna, prairie, and wetland habitat and 0.18 miles of shoreland habitat while engaging hundreds of volunteers in the stewardship of the Metropolitan area's remaining natural areas. Specific activities include invasive species control, seeding/planting, prescribed burning, and other associated activities.

- *2.6/3.3 - MeCC VI - Priority Expansion and Restoration MN Valley NW Refuge - Minnesota Valley National Wildlife Refuge Trust Inc. (\$600,000)*

The Minnesota Valley National Wildlife Refuge Trust is using this appropriation to purchase a total of approximately 125 acres of land to expand the Minnesota Valley National Wildlife Refuge and to restore and enhance approximately 405 acres of oak savanna and remnant native prairie communities within the refuge. Many benefits are anticipated from this project, including improved habitat connectivity, protection of native species, improved water quality in the Minnesota River, and increased public access to natural lands for activities such as hiking, hunting, and fishing.

- *2.7/3.7 - MeCC VI - Dakota County Riparian and Lakeshore Protection - Dakota County (\$1,035,000)*

Through this appropriation Dakota County plans to permanently protect approximately 287 acres along rivers, including the Vermillion and Cannon Rivers, by securing conservation easements from willing landowners. For all acres protected, natural resource management plans will be prepared to ensure their long term stewardship. Additionally, restoration and enhancement activities are expected to occur on approximately 75 acres.

- *3.1 - MeCC VI - TPL's Critical Land Protection Program - Trust for Public Land (\$500,000)*

The Trust for Public Land is using this appropriation to purchase approximately 30 acres of land and 0.3 miles of shoreline with high ecological value and then convey the land to state or local governments for long-term stewardship and protection. Lands being considered for permanent protection in this round of funding include areas around the Rum River and Rice Creek in Anoka County, Lindstrom Natural Area in Chisago County, Savage Fen Scientific and Natural Area and Pike Lake in Scott County, and St. Croix/Fraconia-Scandia Scientific and Natural Area in Washington County.

- *3.2 - MeCC VI - Protect Significant Habitat by Acquiring Conservation Easements - Minnesota Land Trust (\$400,000)*

With this appropriation, the Minnesota Land Trust plans to protect 150 acres of high quality forest, prairie, or wetland habitat by securing permanent conservation easements and dedicating funds for their perpetual monitoring, management, and enforcement. Lands being

M.L. 2011 Projects Completed in 2013-2014

considered for permanent protection in this round of funding are located in Anoka, Carver, Goodhue, Hennepin, Isanti, Washington, and Wright counties.

- **3.5 - MeCC VI - Aquatic Management Area Acquisition - MN DNR (\$300,000)**
The Minnesota Department of Natural Resources is using this appropriation to purchase 35 acres, with 0.6 miles of shoreline, along the Vermillion River in Dakota County to be managed as Aquatic Management Areas. Priority will be given to lands that have a high risk of development, provide protection to shoreline and riparian zones, and allow access for anglers and habitat improvement projects.

Project due to be completed: 6/30/2015 [Extended in M.L. 2014, Chapter 226]

Individual Partner Work Plans:

- **1.1/1.2 - MeCC VI - Coordination, Mapping & Outreach & Mapping and Database Work - MLT (\$40,000)**
- **2.1 - MeCC VI - Restore and Enhance Significant Watershed Habitat - Friends of the Mississippi River (\$200,000): PROJECT COMPLETED - SEE FINAL REPORT**
- **2.3 - MeCC VI - Restoring Our Lands and Waters - Great River Greening (\$400,000)**
- **2.6/3.3 - MeCC VI - Priority Expansion and Restoration MN Valley NW Refuge - Minnesota Valley National Wildlife Refuge Trust Inc. (\$600,000)**
- **2.7/3.7 - MeCC VI - Dakota County Riparian and Lakeshore Protection - Dakota County (\$1,035,000)**
- **3.1 - MeCC VI - TPL's Critical Land Protection Program - The Trust for Public Land (\$500,000)**
- **3.2 - MeCC VI - Protect Significant Habitat by Acquiring Conservation Easements - Minnesota Land Trust (\$400,000)**
- **3.5 - MeCC VI - Aquatic Management Area Acquisition - MN DNR (\$300,000): PROJECT COMPLETED - SEE FINAL REPORT**

ABSTRACTS AND FINAL REPORTS OF INDIVIDUAL PARTNER PROJECTS (Click project # to go to listing for that project)

- **2.1 - MeCC VI - Restore and Enhance Significant Watershed Habitat - Friends of the Mississippi River (\$200,000)**
- **3.5 - MeCC VI - Aquatic Management Area Acquisition - MN DNR (\$300,000)**

2.1 FINAL REPORT - MeCC VI - Restore and Enhance Significant Watershed Habitat - Friends of the Mississippi River (\$200,000)

Project Outcome and Results

High quality habitat within the Metro area is important for both resident and migratory species. The Metro Conservation Corridors partnership is working to establish a system of habitat corridors that also provide open space and water quality benefits for the residents of the area. One goal of this project was to increase the amount of high quality habitat within designated conservation corridors. During this project, FMR installed 86 acres of prairie, besting the projected amount by 31 acres. This prairie restoration took place at the Emrick property, Gores Pool WMA, Heritage Village Park, Pine Bend Bluffs SNA, and Mississippi River Gorge sites. FMR conducted woodland restoration activities on 2 acres at Mounds Park and Heritage Village Park, falling short by 3 acres of the proposed goal. Uncommon flooding at Gores Pool WMA prevented woodland restoration at the site. Activities associated with this restoration included updating management plans, soil preparation, seed/plant installation, mowing, and weed control. These additional acres of natural communities will provide critical habitat for many species that rely on prairie and woodland, some of which are rare or in decline.

M.L. 2011 Projects Completed in 2013-2014

A second goal was to enhance the quality of existing habitat areas. We conducted enhancement activities, mostly exotic invasive plant control and burning, on 275.8 acres, exceeding the number of acres committed to in the work program by 172.8.

The third goal achieved was to develop a list of potential future restoration and acquisition projects within the corridors by reaching out to 27 landowners. This outreach has led to meetings and site visits with landowners interested in learning more about the natural resources on their property. In other cases, the follow up contact is still taking place. This outreach centered around existing conservation areas, including Gores Pool Wildlife Management Area, Mississippi River riparian area, Sand Coulee SNA, Pine Bend Bluffs Natural Area & the Vermillion River.

PROJECT RESULTS USE AND DISSEMINATION

FMR organizes many tours and stewardship events at the sites where we conduct restoration activities. We share information about this project with the participants of these events. FMR also occasionally publishes articles in its paper and electronic newsletters regarding restoration projects that it is involved in.

Project completed: 6/30/2014

3.5 FINAL REPORT - MeCC VI - Aquatic Management Area Acquisition - MN DNR (\$300,000)

Project Outcome and Results

This appropriation provided funding to acquire land in fee title within the Metro Conservation Corridors Partnership (MeCC) areas. It focused on habitat linkage projects along the Vermillion River in southern Dakota County that have the following characteristics: high risk of development, angler access, environmental protection of the shoreline and riparian zone, and access for DNR personnel and constituent cooperators to do habitat improvement projects. Parcels acquired will be managed as Aquatic Management Areas (AMA). This funding also supported the finalization of three parcels acquired with a previous MeCC appropriation, but for which professional services bills were still needed. A total of \$8,080 was spent on completion of the three previously acquired parcels. The remaining \$292,000 was spent on acquisition of two additional parcels for the Vermillion River AMA. These two parcels closed in late 2013 and added 114 acres of land which provide permanent protection and public hunting, fishing, and trapping along almost 11,000 feet of stream. The AMA now consists of 450 acres and 27,650 feet (over 5 miles) of stream. The Vermillion River is known for production of large brown trout and is a popular angler destination. The acquisition of these two parcels relied on other public funding in addition to this appropriation. Dakota County contributed \$40,000 and another \$108,600 came largely from a 2011 Outdoor Heritage Fund appropriation to DNR. Both of the new sites have been surveyed and the boundaries posted in time for the 2014 trout opener. Costs for boundary posting and other initial development were paid from other DNR budgets.

PROJECT RESULTS USE AND DISSEMINATION

A press release announcing the two new parcels was issued in early April 2014:

<http://news.dnr.state.mn.us/2014/04/08/dnr-adds-2-miles-metro-trout-fishing-opportunities-along-vermillion-2/>. The story was picked up by at least two local media outlets - CBS Minnesota (<http://minnesota.cbslocal.com/2014/04/09/dnr-expands-trout-fishing-along-vermillion-river/>) and Pioneer Press (<http://blogs.twincities.com/outdoors/2014/04/10/minnesota-stream-trout-fishing-new-vermillion-river-properties-acquired/>). In addition to this news release and subsequent stories, information about these and other AMA recreation opportunities is published on the DNR Recreation Compass (<http://www.dnr.state.mn.us/maps/compass.html>) on DNR's website at

M.L. 2011 Projects Completed in 2013-2014

<http://www.dnr.state.mn.us>.

Project completed: 6/30/2014

Habitat Conservation Partnership (HCP) - Phase VII

Subd. 04j \$3,475,000 TF

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Appropriation Language

\$1,737,000 the first year and \$1,738,000 the second year are from the trust fund to the commissioner of natural resources for the acceleration of agency programs and cooperative agreements. Of this appropriation, \$125,000 the first year and \$125,000 the second year are to the commissioner of natural resources for agency programs and \$3,225,000 is for agreements as follows: \$637,000 the first year and \$638,000 the second year with Ducks Unlimited, Inc.; \$38,000 the first year and \$37,000 the second year with Friends of Detroit Lakes Wetland Management District; \$25,000 the first year and \$25,000 the second year with Leech Lake Band of Ojibwe; \$225,000 the first year and \$225,000 the second year with Minnesota Land Trust; \$200,000 the first year and \$200,000 the second year with Minnesota Valley National Wildlife Refuge Trust, Inc.; \$242,000 the first year and \$243,000 the second year with Pheasants Forever, Inc.; and \$245,000 the first year and \$245,000 the second year with The Trust for Public Land to plan, restore, and acquire fragmented landscape corridors that connect areas of quality habitat to sustain fish, wildlife, and plants. The United States Department of Agriculture, Natural Resources Conservation Service, is an authorized cooperating partner in the appropriation. Expenditures are limited to the project corridor areas as defined in the work program. Land acquired with this appropriation must be sufficiently improved to meet at least minimum habitat and facility management standards, as determined by the commissioner of natural resources. This appropriation may not be used for the purchase of habitable residential structures, unless expressly approved in the work program. All conservation easements must be perpetual and have a natural resource management plan. Any land acquired in fee title by the commissioner of natural resources with money from this appropriation must be designated as an outdoor recreation unit under Minnesota Statutes, section 86A.07. The commissioner may similarly designate any lands acquired in less than fee title. A list of proposed restorations and fee title and easement acquisitions must be provided as part of the required work program. An entity who acquires a conservation easement with appropriations from the trust fund must have a long-term stewardship plan for the easement and a fund established for monitoring and enforcing the agreement. Money appropriated from the trust fund for easement acquisition may be used to establish a monitoring, management, and enforcement fund as approved in the work program. An annual financial report is required for any monitoring, management, and enforcement fund established, including expenditures from the fund. This appropriation is available until June 30, 2014, by which time the project must be completed and final products delivered.

Overall PROJECT OVERVIEW

M.L. 2011 Projects Completed in 2013-2014

With continued land use changes in Minnesota, areas that once served as important areas for fish, wildlife, and plant habitat have become fragmented and disconnected resulting in adverse impacts on these ecological communities. Strategic and coordinated efforts in protection, restoration, and enhancement of lands throughout Minnesota can create land and water corridors that reconnect remaining habitat areas and reverse some of the adverse impacts. This appropriation represents the seventh phase of an ongoing effort by a partnership of state, federal, and non-profit organizations, called the Habitat Corridors Partnership (HCP), to do such strategic and coordinated land protection, restoration, and enhancement. Earlier phases of this project have resulted in the protection, restoration, or enhancement of more than 100,000 acres throughout the state. Many of these projects matched Trust Fund money with non-state funds, stretching these dollars to provide a greater benefit to the state. This phase involves eight partners and is expected to result in the permanent protection of approximately 1,100 acres and restoration or enhancement of more than 630 acres. Projects from the individual partners are listed below.

Individual Partner PROJECT OVERVIEWS

- *1a - HCP VII - Coordination, Mapping & Data Management - Pheasants Forever Inc. (\$51,000)*
Pheasants Forever provides coordination, mapping, and data management for the Habitat Corridors Partnership. Funds are being used to coordinate the partnership, guide strategic outreach and implementation efforts, manage project data, and provide reporting and mapping of accomplishments.
- *2e - HCP VII - Wild Rice/Waterfowl Habitat: Enhancement and Long-term Monitoring (2e) - Leech Lake Band of Ojibwe (\$50,000)*
The Leech Lake Band of Ojibwe is working within the Leech Lake Reservation boundaries to address loss and degradation of aquatic habitat for wild rice and waterfowl. Efforts will include regulating water levels on shallow lakes by controlling beaver activity and conducting periodic water level draw-downs, reseeding of approximately 200 acres of wild rice, and implementing adaptive management based on analysis of wild rice productivity.
- *2g - HCP VII - Restoration & Management - Wildlife Management Areas - MN DNR (\$30,000)*
An estimated 200 acres of lands acquired through this phase of the Habitat Corridors Partnership are expected to be transferred to the state for designation as Wildlife Management Areas (WMA). The Minnesota Department of Natural Resources is using these funds to conduct habitat restoration on these new WMA lands, as well as develop the infrastructure necessary for public access to them.
- *2h - HCP VII - Restoration & Management - DNR Fisheries - MN DNR (\$200,000)*
The Minnesota Department of Natural Resources is coordinating efforts to improve habitat for aquatic species and protect water quality on lakes, streams, and their surrounding sensitive shorelands. A total of up to 3.5 miles or 35 acres of water bodies in Kandiyohi, Otter Tail, Rice, or Stevens Counties are expected to benefit from restoration activities including installation of aeration systems, development of spawning areas, installation of native vegetation, and stabilization of stream banks.
- *2o - HCP VII - Prairie Pothole Restoration on Waterfowl Areas - Friends of the Detroit Lakes Wetland Management District (\$75,000)*
Friends of the Detroit Lakes Wetland Management District is using these funds to restore approximately 50 acres of prairie pothole wetlands in Clay and Becker Counties. Efforts aim to create wildlife habitat for waterfowl and other species and reduce downstream flooding of the Red River Valley by increasing the capacity of the land to hold and store water from spring runoff and severe storms.

M.L. 2011 Projects Completed in 2013-2014

- *3a - HCP VII - Shoreland Protection Program - Minnesota Land Trust (\$450,000)*
With this appropriation, the Minnesota Land Trust plans to protect approximately 500 acres of critical shoreline habitat along Minnesota's lakes, wetlands, rivers, and streams by securing permanent conservation easements and dedicating funds for their perpetual monitoring, management, and enforcement. Lands being considered for permanent protection in this round of funding are located in Becker, Beltrami, Blue Earth, Itasca, Kandiyohi, Lac Qui Parle, Le Sueur, Otter Tail, Pope, and Wabasha counties.
- *3c - HCP VII - Shallow Lake Conservation Easements - Ducks Unlimited Inc. (\$500,000)*
This appropriation is enabling Ducks Unlimited to help state and federal wildlife conservation agencies protect and restore shallow lakes for waterfowl. Conservation easements will be acquired on approximately 150 acres of privately owned shoreland and up to 60 acres of lands previously converted for cropping will be restored back to wildlife habitat. Lands being considered for permanent protection in this round of funding are located in Beltrami, Douglas, Freeborn, Grant, Meeker, Pope, Stearns, Swift, and Wright counties.
- *3d - HCP VII - Wetlands Reserve Program - Ducks Unlimited Inc. and USDA NRCS (775,000)*
The U.S. Department of Agriculture and Ducks Unlimited are working together to provide technical assistance to landowners that that will result in the protection of approximately 2,500 acres of prairies and wetlands in southern and western Minnesota. As a result of this appropriation, an estimated \$4 million of additional funding for conservation is anticipated to be provided in match by the federal Wetland Reserve Program.
- *4a - HCP VII - WMA/WPA Acquisition beyond Boundaries - Pheasants Forever Inc. (\$434,000)*
These funds are enabling Pheasants Forever to acquire in fee title approximately 86 acres of habitat along the borders of existing Wildlife Management Areas (WMA) or Waterfowl Production Areas (WPA) in LeSueur, Lincoln, or Rice counties and convey the lands to a public agency for long term stewardship and protection. These strategic acquisitions will leverage and expand the existing habitat, water quality, and recreation benefits already provided by existing protected lands.
- *4c - HCP VII - TPLs Critical Lands Protection Program - Trust for Public Land (\$490,000)*
The Trust for Public Land is using this appropriation to acquire in fee title approximately 44 acres of high quality habitat and convey it the Minnesota Department of Natural Resources for long-term stewardship and protection. Priority will be given to shoreland and other lands that provide natural buffers to water resources. Lands being considered for permanent protection in this round of funding are located in Hubbard, Kandiyohi, LeSueur, and Rice counties.
- *4h - HCP VII - Priority Acquisition, MN Valley Wetland Management District - Minnesota Valley National Wildlife Refuge Trust Inc. (\$400,000)*
The Minnesota Valley National Wildlife Refuge Trust is using this appropriation to purchase a total of approximately 80 acres of high quality grasslands and wetlands in Blue Earth or Le Sueur County to be managed as a federal Waterfowl Production Area (WPA) in the Minnesota Valley Wetland Management District.
- *4i - HCP VII - Habitat Acquisition - DNR Professional Services - MN DNR (\$20,000)*
An estimated 400 acres acquired by other Habitat Corridors Partnership (HCP) partners is expected to be transferred to the DNR for long-term management during this phase of the partnership. The Minnesota Department of Natural Resources (DNR) is using these funds to cover professional services costs associated with these property transfers.

ABSTRACTS AND FINAL REPORTS OF INDIVIDUAL PARTNER PROJECTS (Click project # to go to listing for that project)

- **1a** - HCP VII - Coordination, Mapping & Data Management - Pheasants Forever Inc (\$51,000)

M.L. 2011 Projects Completed in 2013-2014

- **2e** - HCP VII - Wild Rice/Waterfowl Habitat: Enhancement and Long-term Monitoring (2e) - Leech Lake Band of Ojibwe (\$50,000)
- **2g** - HCP VII - Restoration & Management - Wildlife Management Areas - MN DNR (\$30,000)
- **2h** - HCP VII - Restoration & Management - DNR Fisheries - MN DNR (\$200,000)
- **2o** - HCP VII - Prairie Pothole Restoration on Waterfowl Areas - Friends of the Detroit Lakes Wetland Management District (\$75,000)
- **3a** - HCP VII - Shoreland Protection Program - Minnesota Land Trust (\$450,000)
- **3c** - HCP VII - Shallow Lake Conservation Easements - Ducks Unlimited Inc. (\$500,000)
- **3d** - HCP VII - Wetlands Reserve Program - Ducks Unlimited Inc. and USDA NRCS (775,000)
- **4a** - HCP VII - WMA/WPA Acquisition beyond Boundaries - Pheasants Forever Inc Inc. (\$434,000)
- **4c** - HCP VII - TPLs Critical Lands Protection Program - The Trust for Public Land (\$490,000)
- **4h** - HCP VII - Priority Acquisition, MN Valley Wetland Management District - Minnesota Valley National Wildlife Refuge Trust Inc. (\$400,000)
- **4i** - HCP VII - Habitat Acquisition - DNR Professional Services - MN DNR(\$20,000)

1a FINAL REPORT - HCP VII - Coordination, Mapping & Data Management - Pheasants Forever Inc (\$51,000)

OVERALL PROJECT OUTCOME AND RESULTS

The coordination, mapping, and data management work plan provided for the timely, consistent, and accurate reporting of all Habitat Conservation Partnership accomplishments and expenditures during the project period. Duties the project coordinator included: coordinating partners, projects and cultivating partnerships; managing project data and contracting/coordinating mapping services; soliciting and compiling partner information and providing reports to LCCMR and partners; scheduling, coordinating, and chairing meetings & providing meeting minutes; coordinating public relations outreach to media; serving as primary contact for LCCMR; facilitating executive & full committee meetings and coordinating subcommittee meetings; and managing contract for administration and mapping components of the partnership.

With this being the end of the formal Habitat Conservation Partnership, contracted mapping and website services were completed in November of 2013. This resulted in fewer ENRTF funds being required under this result, expending \$16,503 of the budgeted \$25,000. Additionally, as the partnership was winding down, less personnel time was required to conduct coordination among partners and projects, thus fewer ENRTF funds than anticipated were expended to provide the essential partnership coordination function. This work plan expended \$1,286 of the budgeted \$26,000 to coordinate the partnership. In total, this work plan turns back \$33,211 to the ENRTF as the funds were not necessary for the completion of this work plan.

PROJECT RESULTS USE AND DISSEMINATION

Please refer to individual partner final work plan reports for the accomplishments.

Project completed: 6/30/2014

2e FINAL REPORT - HCP VII - Wild Rice/Waterfowl Habitat: Enhancement and Long-term Monitoring - Leech Lake Band of Ojibwe (\$50,000)

OVERALL PROJECT OUTCOME AND RESULTS

The purpose of this project was to collect data on selected wild rice beds located on the Leech Lake Reservation and, using GIS, develop a method of quantifying the abundance from aerial photographs. Data collected from this work was then compared to fall waterfowl abundance data collected by the MN

M.L. 2011 Projects Completed in 2013-2014

DNR to determine if a correlation existed. We were able to develop the methodology for quantifying rice abundance from high resolution photographs into some broad categories, but were unable to statistically correlate this with fall duck abundance. Either the rice quantification methods or waterfowl counts are not refined enough to make a statistically valid determination or, more likely, waterfowl will still make use of rice even if it is not abundant, provided it contains sufficient cover. Even though we were unable to make a correlation between rice abundance and fall waterfowl numbers the methodology developed for quantifying rice from aerial photographs will be valuable to us and other managers in the future.

This project also had two smaller components. The first was to manage, maintain, and enhance some of the waterfowl impoundments and other waters that are located on the Leech Lake Reservation. Over the period of this grant we focused on five impoundments and other waterways to enhance these areas for waterfowl and other species that utilize these habitats. On impoundments water levels were managed and dike and control structures were repaired and maintained. Beaver plugging is an ongoing problem on many of these waterways so dam material was removed as needed, Clemson Levelers were installed, and in some cases beaver removal was utilized to reduce the problem.

A second aspect of this project was to enhance waterfowl food supply by planting wild rice. Wild rice has been degraded in some locations due to inappropriate water levels, damage from wind storms, and human activities. Two hundred acres of Natures Lake was reseeded with rice under this grant in an effort to reestablish rice in areas where it had historically occurred.

PROJECT RESULTS USE AND DISSEMINATION

The methodology and techniques used to quantify wild rice beds from aerial photographs will be available to other resource managers if they would like to use them to evaluate their rice beds.

Project Publication:

Comparison of Wild Rice Data and Waterfowl Surveys (PDF - 0.7 MB)

Project completed: 6/30/2014

2g FINAL REPORT - HCP VII - Restoration & Management - Wildlife Management Areas - MN DNR (\$30,000)

OVERALL PROJECT OUTCOME AND RESULTS

Department of Natural Resources (DNR), Wildlife Management Areas (WMAs) are part of Minnesota's outdoor recreation system and are established to protect those lands and waters that have a high potential for wildlife production, public hunting, trapping, fishing, and other compatible recreational uses. DNR Section of Wildlife administers and manages habitat restoration and development of infrastructure necessary for public access on lands acquired by partners for State WMAs. Habitat restoration and infrastructure development of new WMAs needs to be tied to the proposed land acquisition efforts of the Habitat Conservation Partnership (HCP). This project funding component (2g) ensured that the DNR had funding available to complete necessary initial site development and habitat restoration for newly acquired lands when they are transferred from the partner organizations to the DNR for long term management. Adequate funding ensures that newly acquired lands can be entered into the WMA system on a timely basis.

Funding from this HCP project (2g) provided for the demolition of several dilapidated buildings along with site cleanup and rehabilitation at the newly acquired Dora Lake WMA in Le Sueur County. Removal

M.L. 2011 Projects Completed in 2013-2014

of the farmstead buildings and debris at Dora Lake was an important first step in providing wildlife habitat and making the unit safe for public users. Two newly acquired WMA parcels, Rice Lake WMA in Faribault County and Sanborn Lake WMA in Le Sueur County received professional boundary surveys in preparation for posting and public use.

PROJECT RESULTS USE AND DISSEMINATION

Outcomes from this HCP project (2g) will directly benefit public use of three newly acquired WMA properties. Safe and clearly signed WMA properties are a visible indicator of Environment and Natural Resources Trust Fund accomplishments on the landscape.

Project completed: 6/30/2014

2h FINAL REPORT - HCP VII - Restoration & Management - MN DNR (\$200,000)

OVERALL PROJECT OUTCOME AND RESULTS

Efforts completed under this project consisted of improving water quality and fish/wildlife habitat by installing aeration systems in two waterbodies (Loon and Swansen Lakes in Waseca and Kandiyohi cos), creating and restoring a wetland (Horseshoe Lake in LeSueur Co.), stream improvement to reduce erosion (Hawk Creek in Kandiyohi Co.), and putting in a carp barrier (Diamond/Hubbard Lake in Kandiyohi Co). A total of 2,521 acres or 21 miles of shoreline were modified during this phase to create better fishing. Citizens of the state of Minnesota benefit from these projects by having a better fish community structure that is sustainable by natural reproduction. This then creates better fishing and recreation available in high priority waterbodies in the SW portion of the state. All of the projects were completed by June 30, 2014.

PROJECT RESULTS USE AND DISSEMINATION

As projects were completed the Department had press releases that were sent out to the local media. We also had an open house/tour for the local public who wished to visit those projects.

Project completed: 6/30/2014

2o FINAL REPORT - HCP VII - Prairie Pothole Restoration on Waterfowl Areas - Friends of the Detroit Lakes Wetland Management District (\$75,000)

OVERALL PROJECT OUTCOME AND RESULTS

This project restored 31 wetlands on Lake Park Waterfowl Production Area in Becker County, Minnesota, ranging in size from 0.1 to 0.7 acres. A total of 6 acres of wetlands were restored. In the fall of 2012, the wetlands were restored by Subsurface, a local contractor. Any ditches leading from the wetlands were completely filled and any remaining fill was spread on the surrounding uplands in an effort to mimic the original topography of the site. Volunteers and Friends members hand harvested wildflower seed from nearby WPAs. USFWS staff, working with local contractors, harvested an additional 16,000 pounds of seed, also from native prairies in the area. USFWS staff seeded the bare dirt at these sites in March of 2013.

While these acres seem small, these small, Type I wetlands are the most impacted in western Minnesota's agricultural landscape. They are important for wildlife for two reasons. These small wetlands tend to melt before larger wetlands and lakes in the spring, providing habitat for the earliest arriving wetland dependent species. Second, many studies have shown that these small wetlands have some of the highest densities of invertebrates in the water. These inverts are a critical resource, especially because of their high protein content, for females trying to lay eggs early in the growing

M.L. 2011 Projects Completed in 2013-2014

season.

PROJECT RESULTS USE AND DISSEMINATION

Final Habitat work from this grant will be publicized through the USFWS' Field Notes Website and its Great Lakes-Big Rivers Regional website at <http://midwest.fws.gov>.

Project completed: 6/30/2014

3a FINAL REPORT - HCP VII - Shoreland Protection Program - Minnesota Land Trust (\$450,000)

OVERALL PROJECT OUTCOME AND RESULTS

In the seventh phase of our Shorelands Protection project, the Minnesota Land Trust continued to work with landowners to secure permanent conservation easements on quality habitat along or containing critical riparian lands. We initiated or continued contact with more than 30 landowners and completed eight conservation easements. Collectively, these easements preserve approximately 700 acres of land - exceeding our original goal of 400 to 600 acres - and protect nearly 34,172 linear feet of fragile shoreline. Highlights from the eight completed projects include:

- One donated easement over 30 acres in Kandiyohi County that protected over 2,600 feet of natural shoreline along the Middle Fork of the Crow River.
- A complex of five easements surrounding five lakes in Becker County that protected approximately 474 acres and over 3 miles of undeveloped shoreline. Four of the five easements were donated to the Land Trust.
- One donated easement in Otter Tail County that protected 48 acres and over 2,900 feet of shoreline along Blanche Lake, immediately adjacent to Glendalough State Park.
- Another donated easement that protected 145 acres of forest and wetlands in Beltrami County and preserved almost two miles of shoreline along Black Lake and Three Island Lake.

Overall, this phase of the grant program protected 269 acres of forest, 183 acres of wetlands, and over 6 miles of undeveloped shoreline.

All eight projects met the following selection criteria:

1. Habitat: quality and quantity of existing habitat on site; protects riparian areas and buffers water resources
2. Context: proximity and relationship to other protected lands
3. Opportunity: cost-benefit ratio: landowners willingness and readiness to participate now
4. Other Benefits: meeting multiple objectives, including visual and physical access, forestry goals, water quality, etc.

Additionally, the Land Trust prepared baseline property reports for each easement, detailing the condition of the property for future monitoring and enforcement. To fund this required perpetual obligation, the Land Trust dedicated funds to its segregated Stewardship and Enforcement Fund for several completed projects. For these projects, we estimated the anticipated annual expenses of each project and the investment needed to generate annual income sufficient to cover these expenses in perpetuity - all in accordance with our internal policies and procedures as approved by LCCMR. We will report to LCCMR annually on the status of the Stewardship and Enforcement Fund and the easements acquired with funds from this grant.

All but one of the eight easements completed under this grant were entirely donated. The value is known for only two of the donated easements, which together total \$204,000 in appraised donated value under this grant. The Land Trust purchased one of the Fischer Lakes easements for the appraised value of \$170,000. The cost to the State of Minnesota to complete the eight projects completed under this phase of the grant was just under \$600 per acre.

M.L. 2011 Projects Completed in 2013-2014

Cumulatively, across all phases of the HCP program, the Land Trust has completed 89 conservation easements, protecting 8,245 acres of critical habitat and more than 258,000 feet of shoreline, at a cost to the State of approximately \$320 per acre.

The Land Trust's work on this project continues to demonstrate the cost effectiveness of working with conservation easements to protect natural and scenic resources along Minnesota's lakes, rivers, and streams, as the cost to the State was well below the cost to purchase land along our increasingly threatened shorelines. This grant continued to generate interest among landowners, and therefore, ongoing funding will be important to sustained success. Additionally, our experiences during this phase of the grant indicate that funds to purchase easements will be necessary in the future as work becomes more targeted, selective, and focused on building complexes of protected land.

PROJECT RESULTS USE AND DISSEMINATION

The Land Trust disseminated information about the specific land protection projects completed under this grant through our newsletter, email updates, web site, and press releases. The Land Trust also shared information about conservation easements generally and our experience with our partner organizations, other easement holders, local communities, as well as policy makers including members of the LCCMR and LSOHC.

Project completed: 6/30/2014

3c FINAL REPORT - HCP VII - Shallow Lake Conservation Easements - Ducks Unlimited, Inc. (\$500,000) *OVERALL PROJECT OUTCOME AND RESULTS*

Shallow lakes represent the core of Minnesota's remaining waterfowl habitat. Shallow lakes are defined by the Minnesota Department of Natural Resources (DNR) as basins 50 acres or larger with maximum depth of 15 feet or less. To help protect shallow lakes of importance to waterfowl, Ducks Unlimited (DU) works with private landowners to limit future subdivision and development of shoreland around shallow lakes by securing permanent DU conservation easements, and restores agricultural lands back to habitat where possible.

Through this grant, DU conducted landowner outreach to promote conservation easements to private landowners on select shallow lakes of importance to waterfowl, and offered to purchase or accept donated permanent conservation easements on shallow lakes DU has prioritized for shoreland protection. These included Lake Christina in Douglas County, Fish Lake in Stearns County, Cedar Lake in Meeker County, and Geneva Lake in Freeborn County. This effort addresses the goal of protecting lands adjacent to shallow lakes as outlined in the Legislative-Citizen Commission on Minnesota Resources' "Six-Year Strategic Plan for the Environment and Natural Resources Trust Fund" and in the Minnesota DNR's "Duck Recovery Plan".

DU attempted to work with 12 landowners on these lakes to secure conservation easements. Most were either non-responsive or declined to consider conservation easements for various reasons, and none were willing to consider donating easements due to the impact on the value of their land. Five landowners agreed to consider selling conservation easements, and easements were appraised. Three of these landowners declined to proceed, whereas two ultimately agreed to sell conservation easements. DU subsequently closed two purchased conservation easements permanently protecting 33 acres on Cedar Lake in Meeker County and 70 acres on Lake Christina in Douglas County. Of these 103.8 acres, 53 acres on Lake Christina were restored and the remaining 48 acres were intact natural habitats.

M.L. 2011 Projects Completed in 2013-2014

PROJECT RESULTS USE AND DISSEMINATION

Conservation easement land protection deals involve private landowners, and publicity of those legal arrangements is a sensitive issue. DU will report accomplishments through the LCCMR website and in DU publications such as our Living Lakes Initiative progress reports.

Project completed: 6/30/2014

3d FINAL REPORT - HCP VII - Wetlands Reserve Program - Ducks Unlimited, Inc. and USDA Natural Resource Conservation Services (\$775,000)

OVERALL PROJECT OUTCOME AND RESULTS

Most of Minnesota's prairie wetlands and nearly all of our native prairie grasslands have been converted to agriculture or other uses. Restoring and protecting restored native prairie and prairie wetland complexes is a priority for the state as outlined in Minnesota's Prairie Conservation Plan. The federal Wetlands Reserve Program (WRP) administered by the USDA's Natural Resources Conservation Service (NRCS) is an important voluntary conservation easement program available to landowners to restore and protect prairie wetland complexes on private land. The objective of the WRP is to restore and protect wetlands and adjacent upland habitats to benefit migratory birds and other wildlife, and improve water quality.

To accelerate the WRP in Minnesota, Ducks Unlimited (DU) partnered with the USDA's NRCS to provide technical assistance through eight grant-funded wetland restoration specialist consultants contracted to help NRCS promote and secure new WRP applications and plan and implement restorations on WRP easements secured in previous years. In addition, DU provided engineering services to assist NRCS with survey and preliminary design of two larger wetland restorations requiring complex water control structures to restore wetland hydrology.

Through this grant, DU consultant specialists promoted WRP to 955 private landowners, secured/completed/submitted 83 WRP applications, developed or modified 174 WRP conservation plans to guide restoration of WRP easements, designed 15 water control structures for wetland restorations, and helped restore 192 wetlands on WRP easements. In addition, Ducks Unlimited wetland engineers also completed a preliminary engineering report for the large 4,000-acre Crooked Lake restoration project in Douglas County to help inform and guide future landowner outreach efforts, and completed engineering design plans for restoration of the 100-acre Rasmus Lake wetland project in Kandiyohi County. This technical assistance helped NRCS close 36 new WRP easements at a federal cost of \$3,985,375 that protects 3,130 acres in Minnesota during this grant period.

PROJECT RESULTS USE AND DISSEMINATION

Ducks Unlimited consultants promoted the WRP through SWCD newsletters, articles in local newspapers, and in an article written by DU volunteers in the spring 2013 DU state newsletter Cattails. Two DU consultants also gave a PowerPoint slide presentation on the WRP partnership with NRCS at the February 2012 DU state convention.

Project completed: 6/30/2014

4a FINAL REPORT - HCP VII - WMA/WPA Acquisition beyond Boundaries - Pheasants Forever Inc (\$434,000)

OVERALL PROJECT OUTCOME AND RESULTS

M.L. 2011 Projects Completed in 2013-2014

The objective of this work plan was to maximize benefits of fee-title acquisition by acquiring parcels where the footprint of the strategic acquisition is larger than the acquisition boundary itself. For example, the acquisition of a 40-acre WMA addition that allows for the restoration of an 80-acre drained wetland would bring benefits beyond the subject property boundary. This work plan set forth to protect and restore 141-acres of priority wildlife habitat (86 acres with ENRTF funds and 55 acres with non-state matching funds) falling within the project boundaries outlined by HCP. Despite numerous attempts, we were unsuccessful in fulfilling the requirements of this work plan. Some quality projects fell through due to unwilling sellers (e.g. Minnkota WMA Addition). Other projects considered under this work plan were completed using other funding mechanisms due to the high price tag. After consulting and coming to concurrence with LCCMR staff (please see the November 30, 2013 work plan update), it was decided that we not partially fund projects under this work plan with multiple state funding sources (e.g. Outdoor Heritage Fund). Thus, Pheasants Forever is returning the full \$434,000 appropriated to this work plan back to the ENRTF to be used for other worthy projects.

PROJECT RESULTS USE AND DISSEMINATION

There are no results under this work plan to disseminate.

Project completed: 6/30/2014

4c FINAL REPORT - HCP VII - TPLs Critical Lands Protection Program - The Trust for Public Land (\$490,000)

OVERALL PROJECT OUTCOME AND RESULTS

On June 16, 2013 The Trust for Public Land (TPL) acquired 120 acres of high quality habitat on Upper Cullen Lake in Crow Wing County, containing over 2,700 feet of lakeshore and 1,000 feet of a designated trout stream. TPL immediately conveyed the land to Crow Wing County, who added the land to its adjacent Memorial Forest and will manage the land for public hunting, fishing, and hiking.

The \$610,000 in total funding for the acquisition of the 120 acres of this property was as follows: land value donations for 24 acres valued at \$120,000 and Environment and Natural Resources Trust Fund for 96 acres at \$490,000.

The land protected has high biodiversity significance according to Minnesota County Biological Survey. It provides critical habitat for a variety of species, including many of those in greatest conservation need including Bald Eagles and Blandings Turtles. It also is less than a mile from critical habitat for the Least Darter, the Red Shouldered Hawk, and Colonial Waterbird nesting areas. Protection of this land has been a priority of DNR for many years, as well as a priority to the Brainerd Lakes Area Conservation Collaborative Framework for Conservation and Recreation Planning.

Conservation of the Upper Cullen property not only protected high quality habitat that was threatened with development, but it has also enabled connections with existing public land, provided public lake access and recreation opportunities, and prevented forest fragmentation.

PROJECT RESULTS USE AND DISSEMINATION

Several local papers covered the acquisition of the Upper Cullen Lake land:

<http://pineandlakes.com/echo-news/2013-08-06/natural-area-on-upper-cullen-lake-protected>;

<http://www.cullenlakes.org/ccfall13.html>. Information about this acquisition is posted on TPL's website: www.tpl.org. Information about the Upper Cullen protection effort has also been disseminated through its network of supporters which include: Cullen Lakes Association, Leech Lake Area Watershed

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Foundation, Crow Wing Lakes and River Association, Anglers for Habitat, Trout Unlimited, Crow Wing County, Pelican Township, and the MN Department of Natural Resources.

Project completed: 6/30/2014

4h FINAL REPORT - HCP VII - Priority Acquisition, MN Valley Wetland Management District - Minnesota Valley National Wildlife Refuge Trust Inc. (\$400,000)

OVERALL PROJECT OUTCOME AND RESULTS

The MN Valley Trust acquired fee title to 78.96 acres to expand the Howard Farm Waterfowl Production Area (WPA) in Blue Earth County. The ENRTF grant acquired 45.98 acres and other, non-state private funds acquired the remaining 32.98 acres.

This tract is now an integral part of a 600+ acre complex called the Howard Farm WPA of the USFWS / Minnesota Valley Wetland Management District. The acquired property includes degraded prairie and wetland habitat that was drained so that it could be farmed.

Plans for this now-retired cropland include restoration of 62 acres of upland and 18 acres of wetland habitat that will be able to store up to 15 million gallons of water. The prairie seed mix will include the maximum diversity of plant species to benefit waterfowl, grassland birds, and pollinators.

This project will increase habitat quality and nest success for resident and migratory grassland birds, waterfowl, wading birds, resident species, and pollinators. It also will improve water quality to nearby Loon Lake, Lake Crystal, and the Watonwan and Minnesota Rivers through filtration and storage, and will increase wildlife-dependent recreational opportunities for the public.

To meet the 1:1 leverage obligation of its work plan, the MN Valley Trust also completed the following during the project period using other private, non-state funds:

- Acquired fee title to 17.39 acres for the Perch Lake WPA on the north end of this state-designated shallow lake that provides critical resting habitat for migrating waterfowl. Habitat work will include retiring the cropland and field road, restoring both to prairie grassland, and removing a shed cabin from the lakeshore.
- Acquired fee title to 160 acres to expand the Lincoln WPA. The tract includes a 152-acre CREP easement and an 8-acre building site. Habitat work will include restoring the building site to native prairie, enhancing 15 wetland acres, restoring 11 wetlands not previously restored, inter-seeding 152 acres with a diverse mix of prairie forbs and applying prescribed fire.

PROJECT RESULTS USE AND DISSEMINATION

Minnesota Valley Trust will announce the projects via news releases and the Trust website as habitat restoration work gets underway. Once habitat work is complete, the lands will be opened by the USFWS for the public's use for wildlife-dependent recreation.

Project completed: 6/30/2014

4i FINAL REPORT - HCP VII - Habitat Acquisition - DNR Professional Services - MN DNR (\$20,000)

OVERALL PROJECT OUTCOME AND RESULTS

The purpose of this funding was to help cover the cost of professional services related to transfer of Wildlife Management Area (WMA) property to the DNR from Habitat Conservation Partnership (HCP) partners. Several HCP partners have received funding for WMA acquisition. The process of conveying

M.L. 2011 Projects Completed in 2013-2014

title to this land from partner to DNR results in direct costs to DNR for things such as staff time for DNR Division of Lands and Minerals and the Attorney General's Office, survey costs, recording fees, abstracting fees, property taxes, and deed taxes. These costs can be considerable and often create strain on other DNR budgets. This funding has supported the conveyance of thirteen WMA parcels from three HCP partners. These thirteen parcels added over 840 acres to the WMA system to be permanently protected and open to public hunting, fishing, and trapping. Although this was a 36-month (FY12 to FY14) appropriation, it was largely spent in the first 18 months. Therefore most of the FY13 and FY14 costs for conveyance of these lands have been paid from other DNR budgets. For these 13 properties approximately \$21,500 has come from those other budgets. This illustrates that the costs associated with conveying land acquired by partners are protracted and do not end once the land is acquired. Appropriations that fund acquisition of land to be conveyed to DNR need to adequately budget for associated costs. This will ensure that newly acquired lands can be entered into DNR's Outdoor Recreation System in a timely manner, and that other DNR budgets do not bear the brunt of such costs.

PROJECT RESULTS USE AND DISSEMINATION

Acquired parcels are found on the DNR Recreation Compass and on DNR's website at www.mndnr.gov. In addition, HCP partners may have published news releases, articles, or other documents regarding these parcels. It was not the intent of this appropriation to fund or orchestrate dissemination. Dissemination was a function of the funding provided to the HCP partners that acquired and reported upon the land.

Project completed: 6/30/2014

Natural and Scenic Area Acquisition Grants

Subd. 04k \$1,000,000 TF

Ronald Potter

MN DNR

500 Lafayette Rd, Box 52
St Paul, MN 55155

Phone: (651) 259-5632

Email: ronald.potter@state.mn.us

Web: http://www.dnr.state.mn.us/grants/land/natural_scenic_area_grants.html

Appropriation Language

\$500,000 the first year and \$500,000 the second year are from the trust fund to the commissioner of natural resources to provide matching grants to local governments for acquisition of natural and scenic areas, as provided in Minnesota Statutes, section 85.019, subdivision 4a. This appropriation is available until June 30, 2014, by which time the project must be completed and final products delivered.

PROJECT OVERVIEW

The Natural and Scenic Area Grant Program is a competitive, matching grant program that partners the state with local communities to help them acquire and permanently protect natural and scenic resources that do not qualify for state designation but have important local or regional significance. Natural and scenic areas provide for public use, protection of species and natural communities, appreciation of scenic vistas, and scientific and educational opportunities. This appropriation will allow the Minnesota Department of Natural Resources to provide up to six matching grants to cities, counties,

M.L. 2011 Projects Completed in 2013-2014

townships, or school districts for acquisition of approximately 150 acres of new or expanded natural and scenic areas.

OVERALL PROJECT OUTCOME AND RESULTS

The overall aim of this project is to ensure protection of natural and scenic resources by helping and encouraging local governments to acquire and protect land for appropriate public use, protection of natural communities, appreciation of scenic vistas, and scientific and environmental education purposes. This is achieved through competitive, matching grants through the Natural and Scenic Area Grant Program that provides financial incentive and ensures the land and natural resources are retained for public use in perpetuity. The primary results of the project were:

- Six grants totaling \$975,000 resulted in the acquisition of 166.9 acres of natural and scenic areas. All grants were matched by local dollars of at least \$975,000.
- Grants included Blue Earth County, acquisition of 41 acres adjacent to the Red Jacket Trail that includes wooded hillsides, meadows and a meandering creek that flows into the LeSueur River; the City of Brainerd, acquisition of 37 acres along the Mississippi River with 1,300 feet of shoreline to provide opportunities for low impact nature based outdoor recreation; the City of Elk River, acquisition of 22.6 acres of historic and scenic property with over 3,300 feet of natural, largely untouched shoreline at the confluence of the Mississippi and Elk Rivers; two grants to the City of Maplewood, acquisition of 48 acres of land that contains rolling hills, bluff top and steep slopes and views from the bluff tops look out over the Mississippi River Valley and Fish Creek; and the City of Prior Lake, acquisition of 18 acres with approximately 1,545 feet of lakeshore and 100 feet of shoreline on Prior Creek.
- Project administration for the program was completed for \$25,000. Two application cycles were completed, applications reviewed and site visits were completed. Active projects were monitored, financial review completed, projects closed out, and initial land acquisition reports filed. A total of 419 hours were spent administering the project over three years.

PROJECT RESULTS USE AND DISSEMINATION<

Information about these natural and scenic areas has been added to the DNR website, under the Natural and Scenic Area Program, click on recent grants.

Project completed: 6/30/2014

Acceleration of Minnesota Conservation Assistance

Subd. 04I \$625,000 TF

Tabor Hoek

Board of Water and Soil Resources
520 Lafayette Rd N
St Paul, MN 55155

Phone: (507) 537-7260

Email: tabor.hoek@state.mn.us

Web: <http://www.bwsr.state.mn.us>

Appropriation Language

\$313,000 the first year and \$312,000 the second year are from the trust fund to the Board of Water and Soil Resources to provide grants to soil and water conservation districts to provide technical assistance

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to secure enrollment and retention of private lands in federal and state programs for conservation.

PROJECT OVERVIEW

Enrollment of private lands in conservation programs can provide important natural resource and other public benefits by taking the lands out of production so that they can provide various wildlife and ecological benefits. This appropriation is enabling the Minnesota Board of Soil and Water Resources to provide grants to local soil and water conservation districts for employment of technical staff to assist private landowners in implementing conservation programs. This effort is expected to assist with the enrollment, retention, and management of 30,000 private acres of grasslands, wetlands, and forests in federal and state conservation programs, particularly in areas expected to lose enrollments in the Conservation Reserve Program (CRP).

OVERALL PROJECT OUTCOME AND RESULTS

This project accelerates the implementation of conservation programs on private lands. Numerous programs and funding sources exist or are being developed to implement conservation practices on private lands. This project provides the one on one link with landowners to identify programs and see them to completion. Accelerated staffing was accomplished by contracting with Soil and Water Conservation Districts (SWCD) who have a local connection with landowners. Experience has shown this level of service is required as programs are complex and competing land use changes are pulling in the opposite direction. Landowners have no shortage of options in managing their land. Assuring sound conservation practices that benefit water quality and wildlife habitat are part of that plan is a fundamental goal of this project. As Minnesota's agricultural landscape continues to change with even fewer grassland and wetland acres resulting from the expiration of CRP contracts it is ever more important that we slow this progression and work to retain the most critical areas with renewed contracts or easements. This project has paid to directly employ 10 full time equivalent positions within SWCD offices. In addition, this project leverages an added 9 positions funded by other sources from DNR, BWSR and SWCD's. Work affecting more than 54,000ac. was accomplished by this project, greatly exceeding the original goal of 30,000ac. This includes 10,300 acres of riparian protection, 10,000 acres of wetland restoration Projects, 23,100 acres of grassland protection, 11,900 acres of grassland management.

PROJECT RESULTS USE AND DISSEMINATION

Data is collected on staff time spent, acres impacted and landowners contacted on a quarterly basis and is available to the project partners and participants. The overall status of conservation programs in MN is available at www.bwsr.state.mn.us/easements/coenrol.xls.

Project completed: 6/30/2013

Conservation Easement Stewardship and Enforcement Program - Phase II

Subd. 04m \$500,000 TF

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M.L. 2011 Projects Completed in 2013-2014

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Appropriation Language

\$250,000 the first year and \$250,000 the second year are from the trust fund to the commissioner of natural resources to accelerate the implementation of the Phase I Conservation Easement Stewardship Plan being developed with an appropriation from Laws 2008, chapter 367, section 2, subdivision 5, paragraph (h).

PROJECT OVERVIEW

The purchase of conservation easements - restrictions on land use that protect natural features while keeping land in private ownership - has proven to be an effective means to protect land at a far lower initial cost than full state ownership. However, once an easement is purchased there are ongoing stewardship, monitoring, and enforcement responsibilities necessary to ensure the terms of the agreement between the easement holder and the landowner are met. An earlier effort funded by the Environment and Natural Resources Trust Fund in 2008 allowed the Minnesota Department of Natural Resources (DNR) to develop a central inventory and management system of the conservation easements held by the DNR, along with a plan for how the DNR's conservation easements would be administered into the future. This appropriation is allowing the DNR to continue and accelerate the implementation of the previously developed plan.

OVERALL PROJECT OUTCOME AND RESULTS

The Conservation Easement Stewardship and Enforcement Program Plan (Phase I) project inventoried DNR-held conservation easements, developed tools to identify fee owners of those easements and developed a prototype application to monitor those easements. The Phase II project intent was to expand on the foundation laid during Phase I. Project goals were to:

- Monitor, collect baseline data, and create baseline reports for 180 conservation easements;
- Enhance a set of tools to be utilized to perform stewardship activities that leverage the new DNR land records system;
- Develop a training program and to present it to groups within DNR that administer the easements;
- Develop enforcement protocols;
- Identify all fee owners and to develop a process for updating fee ownership information.

Project outcomes and results included:

- Monitoring and collecting baseline data on 378 easements with 1,171 landowners;
- Preparation of 237 baseline reports;
- Development and enhancement of computer applications that support conservation easement stewardship by storing site visit data and managing approval workflows;
- Development of training program materials, including a manual with comprehensive instructions about using computer tools developed in Phase II to perform stewardship activities;
- Conducting training sessions at 13 DNR locations;
- Development of DNR Operational Order #128, which details the elements of effective conservation easement stewardship, including enforcement protocols and how they are to be implemented in the DNR.

The Phase I project provided the strategic direction of what a stewardship program should include. Phase II went on to monitor and create baseline reports for the above 237 easements and in so doing, provided the DNR with a proven set of tools and a field-tested stewardship process that will provide consistent guidance to all DNR divisions that administer conservation easements and preserve the conservation value of the lands they protect for the citizens of the state of Minnesota.

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PROJECT RESULTS USE AND DISSEMINATION<

At present the information derived from this project will be used for decision making concerning potential future investigation into establishing of viewing practices outlined in the project report. This project was presented to the stakeholder Drainage Work Group (the instigator of the project) once to update the Work Group on its progress, and a second time to make the Work Group aware of the recommendations. No action has been taken by the Drainage Work Group in regard to the recommendations coming from this project.

Project Publication:

Conservation Easement Stewardship and Enforcement Program, Phase II - Supplemental Final Report (PDF - 36.1 MB)

Project completed: 6/30/2014

Recovery of At-Risk Native Prairie Species

Subd. 04n \$147,000 TF

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Appropriation Language

\$73,000 the first year and \$74,000 the second year are from the trust fund to the Board of Water and Soil Resources for an agreement with the Martin County Soil and Water Conservation District to collect, propagate, and plant declining, at-risk native species on protected habitat and to enhance private market sources for local ecotype native seed. This appropriation is available until June 30, 2014, by which time the project must be completed and final products delivered.

PROJECT OVERVIEW

With less than 1% of the original native prairie remaining in the state, many locally-adapted prairie species are in decline and at-risk of being lost due to continued habitat fragmentation and land conversion. This poses challenges to efforts to preserve these species because seed sources for these plants are therefore also becoming fewer. Using this appropriation the Martin County Soil and Water Conservation District aims to help reverse this trend. Through partnerships with local seed growers and nurseries they will collect, propagate, and plant these declining and at-risk, locally-adapted plant species on protected habitat as part of restoration efforts in order to encourage and increase their presence on the landscape.

OVERALL PROJECT OUTCOME AND RESULTS

The project focus was to accelerate the local ecotype seed availability of declining species for use on restoration projects. This project was undertaken in large part because 90 of the 238 species documented so far in Martin County by the Minnesota County Biological Survey of 2009 are considered to be at-risk. Native seeds were collected from 118 species off 33 different sites and we monitored

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additional prairie remnants. This project protected remaining native populations and expanded populations to new sites, enhancing environmental conditions and improving habitat diversity for wildlife.

This project continuously proved to be a great educational opportunity. Each fall, area high school students were taught native plant species and assisted in native seed collection. High school athletic groups also volunteered with native seed collection. Over 250 people have been reached through one-on-one interactions. We have also heard repeatedly from these individuals that once they learn a little about native plant species, they continue to learn more independently and share the knowledge they have gained with others. We also educated landowners and students about identifying and distinguishing between native and invasive species. We have also gained a number of new volunteers.

Native seeds were planted on 22 protected sites. Sites that had been previously planted were monitored. Photographs were taken to document both the native stands and progress on the planted areas. A local conservation organization, Fox Lake Conservation League, provided land for plant propagation. From this site, we were able to propagate a variety of species, including Butterfly weed, Prairie phlox, Cream wild indigo, and others.

We also monitored the populations of Tuberous Indian plantain, Sullivant's milkweed, Small white lady slipper, Showy milkweed, Prairie bush clover and Eared false foxglove. Two additional Small white lady slipper populations were discovered during this project, bringing the total to three locations in Martin County. Martin SWCD visited and inventoried numerous sites with MCIA to source verify native stands and document populations on sites that will be planted.

Overall, this project greatly increased local ecotype native plant materials and increased the knowledge Minnesotans have of their environment.

PROJECT RESULTS USE AND DISSEMINATION

Information from this project was discussed numerous times during the Martin SWCD weekly radio program. "Recovery of At-Risk Native Prairie Species" was written about six times in the county-wide Conservation Update. This project was also discussed repeatedly with area students, local conservation organizations, and other Soil and Water Conservation Districts. First Rite of Spring events were also held where local residents are invited to look at the first Pasque flowers and other early spring plant species. One-on-one interactions with local citizens also proved to be a very effective way to share information learned from this project. We also gained new volunteers who were interested in learning more about native plant species.

Project completed: 6/30/2014

Understanding Threats, Genetic Diversity, and Conservation Options for Wild Rice

Subd. 04o \$195,000 TF

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M.L. 2011 Projects Completed in 2013-2014

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RESEARCH

Appropriation Language

\$97,000 the first year and \$98,000 the second year are from the trust fund to the Board of Regents of the University of Minnesota to research the genetic diversity of wild rice population throughout Minnesota for use in related conservation and restoration efforts. This appropriation is contingent upon demonstration of review and cooperation with the Native American tribal nations in Minnesota. Equipment purchased with this appropriation must be available for future publicly funded projects at no charge except for typical operating expenses. This appropriation is available until June 30, 2014, by which time the project must be completed and final products delivered.

PROJECT OVERVIEW

The ecological, economic, and cultural and historical values embodied by wild rice is said to be unmatched by any other native plant species in Minnesota. However, naturally occurring wild rice in the state now faces a multitude of threats, such as loss of habitat from development, competition from invasive species, impacts from mining and other industrial activity, and hydrologic changes in lakes, rivers, and streams. It is recognized that to preserve wild rice in Minnesota it is critical to maintain its genetic diversity, yet knowledge of genetic diversity in wild rice is limited. Scientists at the University of Minnesota's Department of Plant Biology are using this appropriation to study the genetic diversity of wild rice in Minnesota in order to enhance options and inform best practices for wild rice protection and restoration.

OVERALL PROJECT OUTCOME AND RESULTS

Wild rice (*Zizania palustris* L.) was studied using DNA-based single sequence repeats and the tools of bioinformatics to determine the genetic diversity of wild rice among 70 populations across the state of Minnesota. This study had two objectives: 1) to document genetic diversity of wild rice populations; and 2) assess the usefulness of genetic information for the conservation of this important wild species in Minnesota. Results showed that genetic diversity of the populations in Minnesota is relatively high with a range of 0.37 to 0.73 in heterozygosity and a mean of 0.54. Heterozygosity can range between 0.0 to 1.0 indicating that genetic diversity among wild rice populations is reasonably high. This also means that many populations are quite unique from a genetic standpoint. Two genetic phylograms are presented. These are figures that illustrate the genetic relationships among the populations using two different genetic models. Examples are given to illustrate how genetics may be used when restoring or rebuilding populations of wild rice.

PROJECT RESULTS USE AND DISSEMINATION

This project will be disseminated via a website report and via seminars and presentations both nationally and regionally. The data will be useful to resource managers across the state who are managing populations of wild rice. The genetics of wild rice in Minnesota has not been explored in detail, thus resource managers will now have another tool to use when making decisions about restoration of wild rice populations. The results will be published in a nationally recognized peer reviewed journal.

Project completed: 6/30/2014

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Northeast Minnesota White Cedar Plant Community Restoration

Subd. 04r \$250,000 TF

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Appropriation Language

\$125,000 for the first year and \$125,000 the second year are from the trust fund to the Board of Water and Soil Resources to assess the decline of northern white cedar plant communities in northeast Minnesota, prioritize cedar sites for restoration, and provide cedar restoration training to local units of government.

PROJECT OVERVIEW

Northern white cedar wetland plant communities provide a number of specialized habitat functions, including winter refuge for deer and other wildlife, thermal buffering for brook trout streams, and critical habitat for songbirds and other unique wildlife such as martens and fishers. However, these plant communities have been declining in Minnesota for decades mostly as a result of development impacts. The Minnesota Board of Water and Soil Resources is using this appropriation to try to improve the quantity and quality of white cedar wetland plant communities in Minnesota. Efforts will include assessing existing white cedar communities to prioritize sites for restoration and then providing training and demonstration of restoration and re-vegetation techniques for local natural resource managers.

OVERALL PROJECT OUTCOME AND RESULTS

Project Background: Northern white cedar (*Thuja occidentalis*) has been declining in Minnesota for decades. White cedar provides ecologically diverse plant communities and critical wildlife habitat and wetland functions.

Project Goals:

1. Reverse decline of white cedar plant communities in Minnesota.
2. Improve quantity and quality of white cedar plant communities.

Methods: Board of Water and Soil Resources (BWSR) established seven experimental white cedar restorations and reference sites in Beltrami, Koochiching, St. Louis, and Lake Counties. Experimental treatments were designed by Dr. Rod Chimner and evaluated use of cedar seedlings, transplants, seeding and natural regeneration. Protection from browsing by wildlife was by rigid tree protectors and wire mesh enclosures. (See attached technical Report).

Results:

Evaluation/Prioritization of White Cedar Restoration Sites:

Goal: Evaluate 100 white cedar sites for restoration/preservation.

Results: 132 sites were evaluated in Aitkin, Koochiching, Itasca, St. Louis, Lake, Cook and Beltrami Counties.

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Establishment of Demonstration Sites:

Goal: 400 acres restored/preserved.

Results: 7 sites (485 acres) established in Beltrami, Koochiching, St. Louis and Lake County. Groundwater monitoring wells installed.

Training Resource Managers

Goal: Train 30 land managers.

Results: Two training sessions with 66 trained.

Project Findings:

1. Many white cedar swamps are degraded and need restoration.
2. Major disturbances were roads, ditches and herbivory.
3. Most harvested cedar sites have not regenerated back to cedar, but were replaced by tag alder/balsam fir/red maple.
4. Largest single factor affecting cedar survival was hydrological conditions.
5. Site level hydrological conditions altered by roads may end up explaining tree growth and mortality.

Project Significance: Northern White cedar provides unique wetland functions including:

- Thermal winter cover for white tailed deer.
- Critical habitat for pine marten, bear, fisher, songbirds.
- Provides thermal buffering for cold water fisheries (brook trout streams).

Project completed: 6/30/2014

Land and Water Conservation Account (LAWCON) Federal Reimbursement

Subd. 04s \$750,000 LAWCON

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Appropriation Language

\$750,000 is from the state land and water conservation account (LAWCON) in the natural resources fund to the commissioner of natural resources for priorities established by the commissioner for eligible state projects and administrative and planning activities consistent with Minnesota Statutes, section 116P.14, and the federal Land and Water Conservation Fund Act. This appropriation is available until June 30, 2014, by which time the project must be completed and final products delivered.

PROJECT OVERVIEW

Through the Land and Water Conservation Fund (LAWCON) the Federal government designates a portion of receipts from offshore oil and gas leases to be provided to state and local governments to fund conservation and outdoor recreation efforts. The Minnesota Department of Natural Resources is using this appropriation to support costs required to maintain eligibility for future LAWCON funding and

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for acquisition, development, and redevelopment of parks and recreation areas in the state.

Project due to be completed: 6/30/2014

Work Plan: Not required per change in statute in MN Laws 2011, 1st Special Session, Chp. 2, Art. 4, Sec. 23 and repeal of statute in MN Laws 2011, 1st Special Session, Chp. 2, Art. 4, Sec. 36.

Subd. 05 Water Resources

Itasca County Sensitive Lakeshore Identification

Subd. 05a \$160,000 TF

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Appropriation Language

\$80,000 the first year and \$80,000 the second year are from the trust fund to the commissioner of natural resources for an agreement with Itasca County Soil and Water Conservation District to identify sensitive lakeshore and restorable shoreline in Itasca County. Up to \$130,000 may be retained by the Department of Natural Resources at the request of Itasca County to provide technical assistance.

PROJECT OVERVIEW

Poorly planned development along lakeshores negatively impacts lake ecosystems by degrading water quality and fish and wildlife habitat. Given the increased demand for shoreland property, protection of the most ecologically sensitive shorelands is critical. The Itasca County Soil and Water Conservation District is using this appropriation to assess shorelands on high priority lakes in the county to identify the most ecologically sensitive lakeshore as a means of guiding and prioritizing future conservation efforts.

OVERALL PROJECT OUTCOME AND RESULTS

The impetus for this project was the need to better protect and manage functional lake ecosystems in Minnesota. There is widespread concern about the consequences of poorly planned development on water quality and fish and wildlife habitat. Given the increased demands for water and shoreland, continued habitat fragmentation and loss of species diversity, protection of sensitive lakeshores is critical.

Data on the distribution and ecology of rare plants and animals, native plant communities, and vulnerable lakeshores are needed to prioritize actions to conserve and manage lake ecosystems. As Minnesota assesses the status of its natural resources, develops plans for priority resources, and invests millions of dollars in resource protection efforts, information that helps target conservation decisions along lakeshores will be vital. This project delivered information specifically for that need. The project identified priority areas in Itasca County for shoreland reclassification and potential purchase or conservation easement, as well as provided interpretive products to shoreland property owners and

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state and local governments.

Sensitive lakeshore assessments were completed on 51 Itasca County lakes. In total, 170 miles of shoreline and nearly 32,000 acres of shoreland were identified as highly sensitive lakeshore. Project partners conducted Sensitive Shoreline presentations to the Itasca Coalition of Lake Associations and individual Lake Associations. The project completed approximately 200 onsite shoreland property evaluations, and for those property owners it provided technical guidance/services for re-establishment of native vegetative buffers and shoreline erosion stabilization projects. Shoreline activities were also reviewed for ordinance compliance. The Itasca County Comprehensive Land Use Plan was updated to advance proactive protection of sensitive lakeshores, and information was developed that will be considered as the Itasca County Zoning Ordinances are updated.

PROJECT RESULTS USE AND DISSEMINATION

Information from this study was presented to several Lake Associations of targeted lakes and the information was made available on the Itasca SWCD and DNR's websites. Itasca SWCD will use this information Itasca County will take the information under consideration in prioritizing future activities on targeted lakes and as they commence their next zoning ordinance update planned for 2015 and for any future planned development or requested variances on identified sensitive shorelines.

Project completed: 6/30/2014

Trout Stream Springshed Mapping in Southeast Minnesota - Phase III

Subd. 05b \$500,000 TF

Part 1 (\$220,000)

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Part 2 (\$280,000)

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Appropriation Language

\$250,000 the first year and \$250,000 the second year are from the trust fund to continue to identify and delineate water supply areas and springsheds for springs serving as cold water sources for trout streams and to assess the impacts from development and water appropriations. Of this appropriation, \$140,000 each year is to the Board of Regents of the University of Minnesota and \$110,000 each year is to the commissioner of natural resources.

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PROJECT OVERVIEW

Native trout require clean, cold water that usually originates from springs. However the groundwater springs feeding the 173 designated trout streams in southeastern Minnesota are under increasing pressure from current and expected changes in land use and increased groundwater withdrawals for domestic, agricultural, and industrial use. This joint effort by the University of Minnesota and the Minnesota Department of Natural Resources is working to identify and map the springs and the areas that feed them in order to understand how these springsheds might be affected by development and increased water use and determine what can be done to protect and restore their water quality.

OVERALL PROJECT OUTCOME AND RESULTS

Trout streams depend on a steady supply of clean, cold water which comes from groundwater springs. These trout springs are under increasing pressure from changing land use, climate change, and groundwater withdrawals for domestic use, mining, agriculture, and energy production. Delineation of the recharge areas or springsheds of trout springs using dye tracing is a necessary first step in the conservation and protection of the trout stream coldwater supplies. This project focused on delineating groundwater springsheds both in the Galena Group limestone karst areas of Fillmore and Olmsted counties, where this work has been done for over 30 years, and in the Cambrian St. Lawrence Formation and Tunnel City Group bedrock across southeast Minnesota. Prior to this project, no springsheds had been delineated in the St. Lawrence or Tunnel City bedrock units. We demonstrated that springs discharging from these units receive surface water recharge from sinking streams and that this recharge moves hundreds of feet per day through the bedrock. This has rewritten our understanding of the hydrology of southeast Minnesota and has demonstrated that these springs, which we formerly believed to be well-protected from land surface activities, are much more vulnerable than we previously realized. Overall, during this project we mapped 41 groundwater springsheds (delineated by dye tracing) and 54 surface water springsheds (surface watersheds sending water to a point where it sinks underground into a groundwater springshed). Twelve of the groundwater springsheds and sixteen of the surface water springsheds are in the St. Lawrence Formation and Tunnel City Group. The groundwater springshed delineated areas total 50,708 acres and the surface water delineated areas total 124,447 acres. Prior to this project there was a total of 54,091 acres of both springshed types delineated. Springsheds were delineated in Dakota, Dodge, Fillmore, Goodhue, Houston, Mower, Olmsted, Wabasha and Winona counties.

PROJECT RESULTS USE AND DISSEMINATION

Information from this project was widely disseminated. A map of the delineated springsheds and a document on Spring Assessment Protocols were produced and submitted to the LCCMR and will be published by the Minnesota Geological Survey. The springshed coverage is being used by state and local governments to target areas for conservation efforts and for Clean Water Fund project ranking. The springshed mapping will be used by the DNR for Silica Sand Mining Trout Stream Setback permitting and in Water Appropriation permit review.

Project information was presented to numerous groups including the SE MN Water Resources Board, Root River Technical Advisor Group, Fillmore County Local Water Planning committee, Southeast Minnesota County and State Feedlot officers, Midwest Federal Agency Senior Managers, and at Silica Sand mining forums in Red Wing, Lewiston, La Crescent, and Winona. On the ground information was presented during tours of the southeast; groups that went "on tour" include Minnesota Groundwater Association, MPCA/DNR field staff, SE Minnesota water advocacy groups, Geological Society of America, Minnesota Association of Professional Soil Scientists, and state and federal agency staff from Minnesota,

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Iowa, and Wisconsin.

A paper on the St. Lawrence tracing work has been published in the journal Carbonates and Evaporites. The springshed mapping work was the subject of two stories on Minnesota Public Radio. Project results were presented at numerous scientific meetings including the 11th and 12th Multidisciplinary Conference on Sinkholes and the Environmental and Engineering Aspects of Karst, the Minnesota Groundwater Association, the Midwest Groundwater Conference, the Geological Society of America, The Driftless area Symposium, and at a Winona State University Geology Department seminar.

Project Publication:

Springshed Assessment Methods for Paleozoic Bedrock Springs of Southeastern Minnesota (PDF - 5.6 MB)

Project completed: 6/30/2014

Mississippi River Water Quality Assessment

Subd. 05c \$557,000 TF

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RESEARCH

Appropriation Language

\$278,000 the first year and \$279,000 the second year are from the trust fund to the Board of Regents of the University of Minnesota to assess water quality in the Mississippi River using DNA sequencing approaches and chemical analyses. The assessments shall be incorporated into a Web-based educational tool for use in classrooms and public exhibits. This appropriation is available until June 30, 2014, by which time the project must be completed and final products delivered.

PROJECT OVERVIEW

Minnesota contains the headwaters of the Mississippi River, one of the largest and most important waterways in the world. A vital force in all life processes, microorganisms play a major role in the river's water quality through the biological and chemical processing they provide and as indicators of how human activity is impacting water quality. However, relatively little is actually known about as much as 99% of the microorganisms present in the river. Improved understanding of these microorganisms and the effects they have on water quality will greatly enhance efforts by federal, state, and local agencies to maintain and improve the Mississippi River's water quality. Scientists at the University of Minnesota are using this appropriation to use DNA sequencing and chemical analysis technologies to capture for the first time a more complete picture of the diversity and function of microorganisms in the river and how they influence water quality. As part of this effort, hands-on student and teacher participation and public engagement through educational exhibits will help improve public understanding of the

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importance of the river and water quality.

OVERALL PROJECT OUTCOME AND RESULTS

A metagenomics-based sequencing approach was utilized to characterize the bacterial community at sites along the Mississippi River in Minnesota to understand how these communities were influenced by or indicative of water quality. Results of this study revealed that the bacterial community throughout the river primarily consisted of a small number of highly abundant species that comprise a "core microbial community" that was stable both in terms of community membership and inferred functional traits. Variation in community membership and species abundances were primarily influenced by physicochemical parameters (e.g. pH and temperature) rather than spatial distance, and a reproducible community structure occurred annually toward the late summer. Furthermore, specific bacterial orders were related to chemical concentrations that co-varied with surrounding land use, suggesting that increases in abundance of these orders may be indicative of specific types of contamination throughout the river. Therefore, assessment of the total bacterial community provides more information about water quality and contamination sources than could be previously gleaned from traditional enumeration of indicator bacteria like *Escherichia coli*. In addition to these findings, construction of fosmid libraries to assess resistance of the bacterial community to antibiotics and heavy metals revealed that levels of resistance to both were low throughout the river. Municipal wastewater treatment was not associated with increased antibiotic resistance, but proximity to agricultural wastewater increased the frequency of resistance to the antibiotics kanamycin and ampicillin. Furthermore, the resistances to the heavy metals Cd and Cr were significantly elevated in primarily developed (urban) areas. These results indicate the influence of anthropogenic contaminants on the distribution of functional traits throughout the river. Results of this project as well as dissemination of these results are further discussed in an attached Final Report.

PROJECT RESULTS USE AND DISSEMINATION

Results of this study have been presented at national meetings of the American Society for Microbiology and submitted to peer-reviewed scientific journals for publication. In addition, exhibits have been prepared at the Bell Museum, the Science Museum of Minnesota, and Itasca State Park to inform the general community about the findings of this study. Summer workshops were also held in order to disseminate details of the methodology used in this study to high school teachers.

Project completed: 6/30/2014

Zumbro River Watershed Restoration Prioritization

Subd. 05d \$150,000 TF

Lawrence Svien

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Appropriation Language

\$75,000 the first year and \$75,000 the second year are from the trust fund to the commissioner of

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natural resources for an agreement with the Zumbro Watershed Partnership, Inc. to identify sources of erosion and runoff in the Zumbro River Watershed in order to prioritize restoration and protection projects.

PROJECT OVERVIEW

Within the Zumbro River Watershed of southeast Minnesota, studies suggest that small areas of the landscape contribute disproportionately to nonpoint source pollution. However, because a coordinated, watershed-wide approach to prioritizing and implementing conservation practices in the watershed does not currently exist, conservation practices are being implemented opportunistically and not necessarily where they might have the greatest impact. Through this appropriation the Zumbro Watershed Partnership is coordinating a planning and prioritization effort that will guide future implementation of restoration and protection practices in order to maximize water quality benefits and ensure the most effective use of resources.

OVERALL PROJECT OUTCOME AND RESULTS

This project identified and prioritized areas in the Zumbro River Watershed that were determined critical for restoring and protecting water quality. Studies suggested that small areas of the landscape contribute disproportionately to nonpoint source pollution. So implementation of conservation projects that focus on those areas will maximize water quality benefits and ensure efficient use of resources.

Using tools like Light Detection and Ranging (LiDAR) data and other Geographic Information System (GIS) data sets, candidate sites were identified and ranked as critical areas of soil erosion and surface runoff in the watershed. In addition, in-field assessment techniques were developed and documented to further evaluate these source locations.

By the conclusion of the project a number of different methods to determine priorities of those critical areas were identified by local partners. They felt that using only one method to rank and sort the sites was not a good use of the dataset. The partners wanted to be able to sort and parse the results in a number of different ways according to both resource issues and impairments present. It was not always going to be similar for each sub-watershed. In the end the final selection of sites then became approximately 205 sites with resource attribution. This would allow a number of different ways of sorting and prioritizing.

By combining the identified sites and in-field assessment techniques a set of protocols were established to determine the most appropriate BMPs needed to restore the sites to sustainable levels.

A training session was provided to SWCD and County Staff's. A Digital Terrain Analysis Manual was published and is currently posted on the Zumbro Watershed Partnership website. This will be a guide to local partners in the watershed that along with the provided data sets, allows them to create their own priority sites data.

PROJECT RESULTS USE AND DISSEMINATION

The datasets were used to identify priority sub watersheds within the Zumbro. These sub watersheds were prioritized in the recently revised Zumbro Watershed Comprehensive Plan. In addition, the MN Board of Water and Soil Resources issued a request for information for the Targeted Watershed Demonstration Grant. This project was instrumental in identifying and defining the priority sub-watersheds that contained the most critical sites. In addition the in-field assessment and the BMP matrix allowed us to identify the most appropriate BMPs necessary to treat the sites. With BMPs identified,

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typical cost helped estimate project cost and the amount and type of public assistance needed at \$1.6 M. The type and quality of the data from this project application also helped secure additional commitments from USDA NRCS for \$750,000 in EQIP funding.

The data continues to be used by county water planners in the development and revisions of County Water Plans. The GIS data sets are currently posted on an ftp site maintained by Barr Engineering. All county water planners and SWCD staff have access to the site. Because of the sensitive nature of the data access is limited to those staff persons at this time.

Project information was disseminated to project partners on an ongoing basis (usually quarterly to semi-annually) through meetings and presentations arranged by Zumbro Watershed Partnership in Rochester. In addition, individual meetings were held with the SWCD and NRCS staff in the Olmsted, Dodge, Wabasha and Goodhue County offices to convey our findings and solicit feedback on the development of guidance for assessing BMP suitability for various sites, based on agroecoregion location and site characteristics. A similar meeting was held with Rochester staff to discuss BMP priorities for urban and suburban applications. The digital terrain analysis manual content was disseminated to the project partners through a training session in Rochester.

The Zumbro Watershed Partnership project partners were trained in the protocols provided in the digital terrain analysis manual so they can apply this process in the future for identifying critical source areas at alternatives scales, and/or as new information becomes available they can monitor changing conditions to update the list of priority projects as necessary. Work relating to the project has been published in two manuals and the critical source areas identified throughout the watershed during the project have been stored in a GIS database, along with the background data used in the decision-making, for shared use by the project partners.

Project Publications:

- Zumbro River Watershed Restoration Prioritization: Digital Terrain Analysis Manual (PDF - 5 MB)
- Zumbro River Watershed Restoration Prioritization: Field Assessment Manual (PDF - 1.4 MB)

Project completed: 6/30/2014

Assessment of Minnesota River Antibiotic Concentrations

Subd. 05e \$190,000 TF

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RESEARCH

Appropriation Language

\$95,000 the first year and \$95,000 the second year are from the trust fund to the commissioner of

M.L. 2011 Projects Completed in 2013-2014

natural resources for an agreement with Saint Thomas University in cooperation with Gustavus Adolphus College and the University of Minnesota to measure antibiotic concentrations and antibiotic resistance levels at sites on the Minnesota River.

PROJECT OVERVIEW

The occurrences of contaminants including antibiotics, other pharmaceuticals, and personal care products in the environment have gained increasing attention in recent years because of their potential health and ecological impacts. However, serious gaps remain in our understanding of these contaminants and the significance of the threats they may pose. Through this appropriation scientists at the University of St. Thomas, Gustavus Adolphus College, and the University of Minnesota are cooperating to focus specifically on the threats posed by antibiotics to understand which antibiotics are of the most concern - for example, because of their potential to increase antibiotic resistance - and to delineate their urban and rural sources. Findings will help develop strategies to manage threats and minimize future impacts posed by antibiotics to human and ecological health.

OVERALL PROJECT OUTCOME AND RESULTS

While the presence of antibiotics in surface waters has received attention due to concerns about health or ecological impacts, major gaps still remain in our understanding of the scope and significance of this potential problem. The goal of this study was to address the question of whether human or agricultural sources of antibiotics and antibiotic resistant bacteria may be the most significant in surface waters impacted by both. We focused on drainage ditches that receive farm runoff and municipal wastewater treatment plant effluents as possible sources for a portion of the Minnesota River in Southern Minnesota.

We studied four major classes of antibiotics used in agriculture (for veterinary purposes or as growth promoters) as well as in human medicine. We conducted 12 sampling campaigns over a 28-month period from 2011 - 2013, a time period that included extremely wet and dry seasons and therefore highly variable water levels. We collected samples from two agricultural drainage ditches, two municipal wastewater treatment plants, four locations in the river (upstream of both treatment plants, between the two plants, at the outfall of the second plant, and downstream of both plants), and from a nearby reference creek site. For collected samples we quantified six antibiotic resistance genes, susceptibility of cultivable bacteria to four antibiotics, and concentrations of six antibiotics.

The highest levels of antibiotics and antibiotic resistance were consistently associated with the municipal wastewater treatment plant samples. In addition, tetracycline-resistant bacteria isolated from wastewater treatment plants were found to be much more likely (103 out of 124 isolates) than tetracycline-resistant bacteria isolated from the river (0 out of 148 isolates) to have an integron, a mobile genetic element that can be associated with multiple-antibiotic resistance. These findings suggest human sources are much more significant than agricultural sources for this portion of the Minnesota River.

PROJECT RESULTS USE AND DISSEMINATION

The students who have been involved in this project have made multiple poster presentations in local venues on their work over the course of the project. In addition, the results have been disseminated via multiple poster and oral presentations at professional conferences. It is also anticipated that manuscripts currently in preparation will result in two peer-reviewed publications in scientific journals.

Project completed: 6/30/2014

Subd. 06 Aquatic and Terrestrial Invasive Species

Emerald Ash Borer Biocontrol Research and Implementation

Subd. 06b \$500,000 TF

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RESEARCH

Appropriation Language

\$250,000 the first year and \$250,000 the second year are from the trust fund to the commissioner of agriculture to assess a biocontrol method for suppressing emerald ash borers by testing bioagent winter survival potential, developing release and monitoring methods, and piloting implementation of emerald ash borer biocontrol. This appropriation is available until June 30, 2014, by which time the project must be completed and final products delivered.

PROJECT OVERVIEW

The Emerald Ash Borer (EAB) is an invasive insect that has been decimating ash trees throughout the Great Lake states and is currently advancing into Minnesota where it threatens the nearly 1 billion ash trees that occur throughout the state - the second most in any state. Loss of these trees would devastate ecosystems throughout Minnesota and have major economic impacts for the forest products industry as well as through the costs associated with treatment, removal, and replacement of lost trees. Biological control - the use of a natural enemy of a species from its native habitat to help with control of that species - is currently the only promising long-term management strategy for EAB. The Minnesota Department of Agriculture is using this appropriation to pilot and assess the effectiveness of a biocontrol method for EAB in Minnesota that involves the use of three types of tiny, stingless wasps that are parasitoids of EAB.

OVERALL PROJECT OUTCOME AND RESULTS

We made great progress with the biological control for emerald ash borer (EAB) in Phase 1 of this project. We simultaneously released wasps that parasitize EAB while we studied them. EAB can kill ash trees quickly (within 6 years). We have responded rapidly to EAB finds so that we might avoid large numbers of EAB over extensive areas, a situation that would be difficult to manage effectively. At the same time, we studied the parasitoid wasps to understand their cold tolerance and dispersal capability. Our studies improved our implementation strategies.

Over 127,000 parasitoid wasps were released at 21 sites in the Twin Cities and southeastern Minnesota. Recovery of immature parasitoids in the field demonstrated that these agents are dispersing then finding and parasitizing EAB. We will continue releases in Phase 2. Research efforts demonstrated that the egg parasitoid, *Oobius agrili*, is the most cold tolerant and the larval parasitoid, *Tetrastichus*

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planipennisi, is the least cold tolerant. Therefore, we began releasing *T. planipennisi* earlier in the season to allow multiple generations to build a population sufficient to withstand anticipated cold induced mortality losses. We learned that *T. planipennisi* is capable of dispersing almost 5 miles within 24 hours but that most will fly 3/4 miles in 24 hours. Therefore, we began releasing *T. planipennisi* over a large area at a release site rather than at a central cluster to enable faster *T. planipennisi* dispersal. Research efforts trained a total of six graduate students, five undergraduate students, and three technicians in whole or in part on these projects.

We will continue a study of ash health, EAB, and parasitoid wasps in the Twin Cities area where EAB was first found in 2009. To date, ash mortality within the study area has been substantially lower than anticipated.

PROJECT RESULTS USE AND DISSEMINATION

Information about this project has been and will continue to be disseminated to the public, land managers and researchers. Media releases (3) and social media were utilized to inform the public of major developments. There were 15 scientific presentations to researchers and land managers. Additional training presentations (24) were given to the public, professional land managers, and tree care professionals at many venues. Outreach at public events (20) helped us to connect with people about our activities. Two research papers on parasitoid cold tolerance were published. An additional two papers on parasitoid dispersal are anticipated. In addition, we participate in the EAB Forum, a multi-agency/organization venue for discussing EAB management. We maintain a website www.mda.state.mn.us/plants/pestmanagement/eab/eabbiocontrol.aspx with project information.

Project Publications:

- Cold tolerance of Chinese emerald ash borer parasitoids: *Spathius agrili* Yang (Hymenoptera: Braconidae), *Tetrastichus planipennisi* Yang (Hymenoptera: Eulophidae), and *Oobius agrili* Zhang and Huang (Hymenoptera: Encyrtidae) (PDF - 1.9 MB)
- Thermocouple Design for Measuring Temperatures of Small Insects (PDF - 2 MB)

Project completed: 6/30/2014

Subd. 07 Renewable Energy

Supporting Community-Driven Sustainable Bioenergy Projects

Subd. 07 \$150,000 TF

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Appropriation Language

\$75,000 the first year and \$75,000 the second year are from the trust fund to the commissioner of natural resources for an agreement with Dovetail Partners, Inc. in cooperation with the University of

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Minnesota to assess feasibility, impacts, and management needs of community-scale forest bioenergy systems through pilot studies in Ely and Cook County and to disseminate findings to inform related efforts in other communities.

PROJECT OVERVIEW

Small scale community bioenergy systems hold significant promise for increasing energy security, reducing carbon emissions, and contributing to local economies. These types of systems rely on materials such as wood and grasses sourced from the surrounding area as fuel sources for local energy production. However, many questions still remain about how to effectively and sustainably implement these types of community bioenergy systems. Dovetail Partners is piloting an effort with the City of Ely and Cook County to develop the information and tools necessary for communities to assess the viability of these types of energy systems based on the resources available within their own regions.

OVERALL PROJECT OUTCOME AND RESULTS

This project helps guide development of sustainable community-scale forest bioenergy programs in Northeast Minnesota and provides examples from the region to assist communities statewide considering similar projects. Locally produced, community-based renewable energy systems hold significant promise for increasing energy security, reducing carbon emissions, and contributing to local economies. The goals of this project were to develop and share information and tools that address key questions about the viability of community bioenergy systems. During the first phase, existing models and planning tools were adapted to evaluate feasibility, impacts, and management needs for community-scale and other small bioenergy applications being proposed in Ely and Cook County. During the second phase of the project, the information and tools developed in Ely and Cook County were shared with communities, land managers, policymakers, investors, and others interested in the long-term prospects and viability of locally produced bioenergy. The results of the project indicate that there are abundant potential biomass supplies that could meet the needs of the community-scaled biomass energy projects being considered. The financial analysis illustrates that a number of the projects being considered have reasonable potential payback periods and other positive indications of financial feasibility. The environmental review reports summarize major considerations that were identified in interviews with local stakeholders and provide information about the mitigations that are in place to manage risk (e.g., Minnesota's use of biomass harvesting guidelines, third-party forest certification and ecological monitoring). At this time, the community of Ely is considering options for moving forward with a biomass system or systems that could serve the community college, hospital, school and/or other facilities. The community of Grand Marais has completed additional engineering analysis for a potential district heating system that could serve a number of public buildings and private businesses that represent the major potential customers for the system.

PROJECT RESULTS USE AND DISSEMINATION<

The study team has prepared and made publicly available the final reports and fact sheets from the project that address the estimates of available fuel supplies for biomass facilities in Ely and Cook County and evaluations of potential environmental impacts and available mitigations. An additional report, "Community-Driven Biomass Energy Opportunities - A Northern Minnesota Case Study" has been prepared and made publicly available. The report highlights the findings from the projects and also describes the approach and community-driven structure of the project, conclusions and recommendations that can assist other communities facing similar questions and decisions about renewable energy. The fact sheets, complete reports and the executive summary report are available at the project website (<http://www.dovetailinc.org/content/lccmr-supporting-community-driven-sustainable-bioenergy-projects>). Community meetings were held in Grand Marais and Ely throughout

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the project to engage community input and present project findings to community members. Presentations about the project have been made to the Minnesota Forest Resources Council, Minnesota Forest Resources Partnership, and attendees of the Heating the Midwest Conference held in Carlton, Minnesota. Project information, products and results have been shared through the webpages that have been maintained throughout the project. These pages have shared the fact sheets, reports, and materials distributed at public meetings (e.g., presentation slides). News releases have also been distributed during the project, including radio interviews and newspaper articles in Ely and Grand Marais as well as statewide media engagement (e.g., Midwest Energy News). The activities of the project also included meetings with diverse partner groups, including staff of CERTs, landowner and land managers, loggers and forest product industry representatives, environmental and conservation organizations, local residents and other Minnesota citizens.

Project Publications:

- Executive Summary - Supporting Community-Driven Sustainable Bioenergy Projects (PDF - 1 MB)
- Community-Driven Biomass Energy Opportunities: A Northern Minnesota Case Study (PDF - 2.9 MB)
- Pre-Feasibility Financial and Wood Supply Analysis for Biomass District Heating in Ely and Cook County, MN (PDF - 15.3 MB)
- Local Environmental Considerations Associated with Potential Biomass Energy Projects in Cook County and Ely, Minnesota (PDF - 1.4 MB)
- Life Cycle Impacts of Heating with Wood in Scenarios Ranging from Home and Institutional Heating to Community Scale District Heating Systems (PDF - 4.2 MB)
- Local Biomass Supply Chain Logistics and Concerns (PDF - .2 MB)

Project completed: 6/30/2013

Subd. 08 Environmental Education

Youth-Led Renewable Energy and Energy Conservation in West and Southwest Minnesota

Subd. 08a \$246,000 TF

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Appropriation Language

\$123,000 the first year and \$123,000 the second year are from the trust fund to the commissioner of natural resources for an agreement with Prairie Woods Environmental Learning Center to initiate youth-led renewable energy and conservation projects in over 30 communities in west central and southwest Minnesota.

PROJECT OVERVIEW

Adoption of renewable energy technologies and energy conservation practices can contribute in a

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variety of ways to the environmental and economic health of rural Minnesota communities through costs savings and emissions reductions. Engaging and coaching students as the leaders in the process of implementing such practices provides the added benefit of increasing knowledge, teaching about potential career paths, and developing leadership experience. Using this appropriation the Prairie Woods Environmental Learning Center and its partners are expanding an existing program called the Youth Energy Summit (YES!) to implement additional youth-led renewable energy and energy conservation projects in over 30 communities in west central and southwestern Minnesota. These projects will be driven by collaboration between students, community members, and local businesses and organizations.

OVERALL PROJECT OUTCOME AND RESULTS

The Youth Energy Summit (YES!) project was designed to mobilize teams of youth to address critical environmental issues and emerging opportunities related to climate change and renewable energy in Greater Minnesota. The YES! program impacts includes:

1. 38 YES! Teams completed over 300 youth-led energy conservation and renewable energy projects during July 1, 2011- June 30, 2014.
2. 1,134 students in grades 7-12 worked with local community leaders, businesses, schools, public utilities, waste haulers, and other partners.
3. Over 44,380 students and 48,376 community members engaged in efforts to decrease waste and increase energy efficiency.

YES! teams leveraged over \$625,000 in local support of projects which included: installing over 40 hydration stations, building three solar powered cold-weather greenhouses, installing waste oil recycling stations, designing and building solar boats and vehicles, improving recycling systems, reducing school energy bills, increasing recycling rates, implementing composting of school waste, promoting environmental stewardship through educational events, and more (please see www.youthenergysummit.org for project specifics).

YES! teams were guided by local coaches & mentors as well as regional YES! Coordinators who conducted 3 annual fall summits, 15 winter workshops tailored to meet the needs and interests of teams, and annual spring judging events. YES! Coordinators and team coaches helped students to organize more than 70 events such as "Green Week" and "Energy Expos" promoting sustainable practices in their communities.

The YES! project demonstrates that young people in Minnesota are ready, willing, and able to assume leadership roles and take action to address environmental issues and opportunities affecting our state and the world. YES! is a program of Prairie Woods Environmental Learning Center in partnership with Southwest Initiative Foundation and many local and regional supporters. The YES! program will be expanded to 40 teams during 2014-2016 in partnership with Laurentian Environmental Center and other regional partners.

PROJECT RESULTS USE AND DISSEMINATION

Information on YES! projects are regularly highlighted through the YES! website (www.youthenergysummit.org), blog posts, and Facebook updates. The YES! website received well over 45,000 page views from July 1, 2012 to June 30, 2014, with 65 % of these viewers being new to the site. Local media frequently print stories on YES! team accomplishments; the Warbler, a PWELC newsletter reaching 1,400 people, goes out 3 times a year and commits a page of each publication to YES!; furthermore, the YES! e-newsletter goes out 4 times a year.

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Several communications and outreach activities have been done in relation to this Youth-Led project including three (3) Community Meetings, which brought together stakeholders to celebrate the team's successes and to evaluate the program for future improvements. These meetings served to both raise awareness of YES! teams in local communities and to highlight their good work. The program's funding partners are regularly updated on projects and show their support through continued funding and volunteer time. Coordinators submit Press Releases to local and regional outlets for Spring Award winners and other important stories.

YES! staff have presented at MN S.T.E.M. Network (2013), CERTs (2012), and Minnesota Association of Environmental Educators (2013) conferences. During YES! events, techniques such as S.M.A.R.T. goals have been developed and shared with the students and students have taken that information back to their Team to successfully plan and implement projects. Other types of techniques developed for use by Teams include; "How to Connect with Community Leaders," "Energy and You," "Benchmarking Your Projects," and Effective Meeting Strategies."

Of special note, YES! won the 2013 Minnesota Environmental Initiative Award and the Royalton YES! team won the state-wide 2014 "Red Wagon" award from the Minnesota Alliance with Youth!

Project completed: 6/30/2014

Experiential Environmental Education for Urban Youth

Subd. 08c \$200,000 TF

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Appropriation Language

\$200,000 the first year is from the trust fund to the commissioner of natural resources for an agreement with Hennepin County in cooperation with community partners to initiate new environmental education programs targeting inner-city youth that provide hands-on, experiential outdoor learning opportunities. This appropriation is available until June 30, 2014, by which time the project must be completed and final products delivered.

PROJECT OVERVIEW

Many inner-city youth receive little, if any, exposure to outdoor and environmental education. This lack of exposure has implications for children's health as well as their knowledge about science, the environment, and the world. In the long term this also impacts the broad public awareness and understanding necessary to ensure long-term protection and stewardship of our environment and natural resources. Hennepin County is using this appropriation to develop a new program called UrbanWatch that will aim to provide hands-on, experiential outdoor learning experiences to inner-city students in North Minneapolis in order to increase their knowledge and skills relating to ecology, agriculture, water resources, and biological diversity.

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OVERALL PROJECT OUTCOME AND RESULTS

In 2011, Hennepin County Environmental Services was awarded \$200,000 from the Environment and Natural Resources Trust Fund for the UrbanWatch program. The goal of this program was to implement outdoor experiential environmental education in Minneapolis schools and communities that have traditionally been lacking in environmental programs. UrbanWatch brought a collective of proven curricula, activities, and tools to empower teachers and at-risk students to explore, monitor, and protect environmental resources.

The county partnered with five community organizations - Beez Kneez, Environmental Justice Advocates of Minnesota, Minnesota Internship Center High School, Phyllis Wheatley Community Center, and the Renewables Research and Policy Institute - to provide hands-on outdoor environmental activities to youth living in the near north side of Minneapolis.

The county partnered with the University of Minnesota Extension and the Beez Kneez to host the "Schoolyard Garden Sustainability and Support Teacher Workshop" held in March 2014. Working in conjunction with STEM coordinators and the Farm to School coordinator from Minneapolis Public Schools, the workshop provided curriculum instruction and educational resources to educators on how to maximize the potential of schoolyard gardens within the classroom.

The program increased youth's knowledge and skills regarding ecology, agriculture, water resources, and biological diversity in their own neighborhoods. These experiences equipped students and community members with the information necessary for healthier communities, a greater sense of stewardship, and increased appreciation for their natural world.

PROJECT RESULTS USE AND DISSEMINATION

- More than five hundred and fifty youth have been directly engaged.
- More than twenty organizations, schools, businesses, and faith communities partnered in this program.
- Eight gardens established.
- Two beehives established.
- Two public art installations completed.
- One toolshed built using compressed earth block construction.
- Two aquaponics labs established in schools.
- 7 Master gardeners paired with schools and their gardens.
- Pollinator curriculum written and published for grades K-12.
- 25 unique classes and outings implemented for youth.
- More than 10 newsletters distributed highlighting program successes.
- More than 30 presentations to students, staff, and community members developed and given.
- Resources for 30 teachers/schools established for garden classrooms.
- 14 Teachers attended garden workshop.
- 465 students reached through workshop, 3140-7340 youth hours spent in gardens spring 2014.

Project completed: 6/30/2014

Subd. 09 Emerging Issues

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Chronic Wasting Disease and Animal Health

Subd. 09b \$1,200,000 TF

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Appropriation Language

\$600,000 the first year and \$600,000 the second year are from the trust fund to the commissioner of natural resources to address chronic wasting disease and accelerate wildlife health programs, including activities directly related to and necessary for this appropriation.

PROJECT OVERVIEW

Chronic Wasting Disease (CWD) is a disease found in North American deer, moose, and elk that affects the animal's brain and nervous system and is ultimately fatal to the animals that contract it. A deer harvested in southeastern Minnesota during the 2010 hunting season was found to have the disease - the first time CWD has been found in a wild deer in Minnesota. Subsequent surveillance and testing has found no other such cases of CWD. However, the single finding has prompted accelerated efforts to contain and manage its potential spread due to the serious management problems and other implications posed by CWD were it to become widespread in the state. The Minnesota Department of Natural Resources is using this appropriation to accelerate its CWD management and response plans and efforts.

Project due to be completed: 6/30/2014

Work Plan: Not required per exemption granted to DNR at their request in MN Laws 2011, 1st Special Session, Chp. 2, Art. 3, Sec. 2, Subd. 9(e).

Aquatic Invasive Species

Subd. 09c \$5,690,000 \$4,690,000 TF [Amended in ML 2012]

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Appropriation Language

\$2,177,000 the first year and \$3,513,000 \$2,513,000 [Amended in ML 2012] the second year are from the trust fund to the commissioner of natural resources to accelerate aquatic invasive species programs,

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including the development and implementation of best management practices for public water access facilities to implement aquatic invasive species prevention strategies, including activities directly related to and necessary for this appropriation. \$50,000 is for a grant to develop and produce a documentary identifying the challenges presented by aquatic invasive species. The documentary shall be available to the Department of Natural Resources to distribute to watercraft license purchasers and the general public through online and other media.

PROJECT OVERVIEW

Invasive species are species that are not native to Minnesota and cause economic or environmental harm or harm to human health. Minnesota's waters are threatened by a number of aquatic invasive species including zebra mussels, Eurasian watermilfoil, common carp, and an emerging threat of Asian carp. This appropriation is allowing the Minnesota Department of Natural Resources to accelerate a variety of efforts throughout the state aimed at managing and helping to prevent the spread of aquatic invasive species.

Project due to be completed: 6/30/2014

Work Plan: Not required per exemption granted to DNR at their request in MN Laws 2011, 1st Special Session, Chp. 2, Art. 3, Sec. 2, Subd. 9(e).

Reinvest in Minnesota Wetlands Reserve Acquisition and Restoration Program Partnership

Subd. 09d \$1,645,000 TF

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Appropriation Language

\$1,645,000 the first year is to the Board of Water and Soil Resources to acquire permanent conservation easements and restore wetlands and associated upland habitat in cooperation with the United States Department of Agriculture Wetlands Reserve Program. A list of proposed land acquisitions must be provided as part of the required work program.

PROJECT OVERVIEW

The Reinvest in Minnesota (RIM) Wetlands Reserve Program restores wetlands and grasslands through the purchase of permanent conservation easements on privately owned land. The easements limit future land use and put conservation plans in place for future management. The Minnesota Board of Soil and Water Resources is using this appropriation to accelerate the RIM Wetlands Reserve Program resulting in additional permanently protected wetlands and grasslands throughout the state.

OVERALL PROJECT OUTCOME AND RESULTS

The Reinvest in Minnesota (RIM) - Wetlands Reserve Program (WRP) partnership is a local-state-federal partnership delivered locally by the Natural Resources Conservation Service (NRCS), the Board of Water

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and Soil Resources (BWSR), and county Soil and Water Conservation Districts (SWCDs). The goal of the RIM-WRP partnership is to protect land with perpetual conservation easements and restore high quality wetlands and native grassland in order to maximize wetland functions and values and optimize wildlife habitat. For this particular project, ENTRF funds were used to secure permanent conservation easements via the RIM-WRP partnership as part of a larger effort to protect and restore the drained Crooked Lake basin in Douglas County, MN.

The Crooked Lake Restoration project is a multi-partner project that aims to restore the drained shallow lake bed, which prior to its drainage in the early 1900s was home to diverse populations of aquatic invertebrates and provided thousands of acres of critical wildlife habitat. Project outcomes include reduced nutrient loading and sedimentation to nearby (impaired) Lake Osakis and improved water quality throughout the Sauk River watershed. The Crooked Lake restoration project was deemed a Federal priority in 2011 by USDA under the Mississippi River Basin Initiative (MRBI). Led by both the Douglas Soil and Water Conservation District (SWCD) and the Sauk River Watershed District and with the cooperation of USDA NRCS, BWSR, Ducks Unlimited, and many other local, state, and federal partners, the Crooked Lake Project evolved over the past decade.

Primary goals to restore this shallow lake for wildlife and water quality purposes have been at the forefront. The proposed pool elevation (1334.0'), along with adjacent upland makes up the project boundary. Scoring criteria was developed that had the highest priority applications being those located within the pool and secondary priority was then directed at the associated adjacent land to the pool.

ENTRF funds were used to protect 630.7 acres with perpetual conservation easements on which 586 acres of wetlands and 45 acres of associated upland/grassland will be restored, providing multiple ecological and wildlife benefits and assisting with local water quality goals.

PROJECT RESULTS USE AND DISSEMINATION

Public outreach for this project was conducted at the local level by Douglas SWCD, local NRCS staff, and other program partners. SWCD staff held public meetings to raise awareness of this project and to educate landowners about the public and ecological benefits of restoring the drained lake bed. SWCD staff also met with landowners in the project area one-on-one to discuss the options/benefits of enrolling in either the RIM-WRP or WREP conservation easement options available in the project area.

More information about the RIM-WRP program can be found online at <http://www.bwsr.state.mn.us/easements/RIM-WRP/>.

The ENTRF funded RIM-WRP easements (as with all RIM and RIM-WRP easements) can be viewed by the public via the BWSR webmap located at <http://maps.bwsr.state.mn.us/rimonline/>.

Project completed: 6/30/2014

Subd. 10 Administration and Contract Management

Legislative-Citizen Commission on Minnesota Resources (LCCMR)

Subd. 10a \$946,000 TF

Susan Thornton

Legislative-Citizen Commission on Minnesota Resources

M.L. 2011 Projects Completed in 2013-2014

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Appropriation Language

\$473,000 the first year and \$473,000 the second year are from the trust fund to the LCCMR for administration as provided in Minnesota Statutes, section 116P.09, subdivision 5.

PROJECT OVERVIEW

Per M.S. 116P.09, up to 4% of the amount available for appropriation from the Environment and Natural Resources Trust Fund (ENRTF) for a biennium is available for expenses related to LCCMR administration. These expenses include the LCCMR's project selection and approval process and its ongoing oversight of projects funded by the ENRTF, including both new projects funded during the biennium and existing projects funded in previous bienniums. Historically, LCCMR has always used less than 3% of available funds for administration. This appropriation, which represents 1.86% of the amount available for the biennium, funds LCCMR administration expenses for FY 2012-13.

Project due to be completed: 6/30/2013

Contract Administration

Subd. 10b \$175,000 TF

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Appropriation Language

\$88,000 the first year and \$87,000 the second year are from the trust fund to the commissioner of natural resources for expenses incurred for contract fiscal services for the agreements specified in this section. The commissioner shall provide documentation to the Legislative-Citizen Commission on Minnesota Resources on the expenditure of these funds. This appropriation is available until June 30, 2014.

PROJECT OVERVIEW

Appropriations to non-state entities must be made through a formal contract with a state entity that manages all of the funds for the project on a reimbursement basis. This appropriation to Minnesota's Department of Natural Resources (DNR) funds the expenses incurred by the DNR in contracting, contract management, and expense re-imbursement for most of the Environment and Natural Resources Trust Fund appropriations made to non-state entities, including both new projects funded during the biennium and existing projects funded in previous bienniums.

M.L. 2011 Projects Completed in 2013-2014

OVERALL PROJECT OUTCOME AND RESULTS

This appropriation, in conjunction with Outdoor Heritage Fund appropriations, was used to support the contract management program, which ensured ENRTF funds were expended in compliance with state law, session law, approved work plans, and Office of Grants Management grants policies.

Services provided under this appropriation included the following:

- Contract Management Services
 - Prepared grant agreements and amendments
 - Encumbered/Unencumbered Funds
 - Executed Use of Funds Agreements
 - Advanced funds for land acquisition (if approved)
 - Communicated regularly with LCCMR staff and grant recipients
 - Contract management documentation, including file management
- Training and Communications
 - Trained recipients on state grant requirements
 - Worked with recipients to ensure grantees understood the state's reimbursement procedures and requirements
 - Provided ongoing technical assistance/guidance to recipients
- Reimbursement Services
 - Reviewed reimbursement requests
 - Arranged for prompt payment once expenses were verified eligible for reimbursement
 - Detailed accounting by pass-through appropriation for each grant recipient
- Fiscal, Audit, and Close-out Services
 - Financial reconciliation
 - Financial reporting
 - Contract management reporting (fund balance/expenditures)
 - Examined or audited records of recipients
 - Worked with recipients to successful close out of grants
 - Worked closely with and responded to requests from the Office of the Legislative Auditor

In support of the above services to appropriation recipients, many contract management projects were completed:

- Two grantee surveys completed,
- Migration to a newly designed database,
- DNR, Admin, LCCMR, and LSOHC pass-through contract administration roles, processes, and guidelines finalized,
- Joint DNR/LCCMR/LSOHC orientation for appropriation recipients held,
- New DNR Grants Management Policy approved, including a financial Grants Monitoring Procedure.

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, and phone.

In addition, two new communication tools were added: a website that includes many appropriation recipient resources and frequently asked questions and a quarterly electronic newsletter, The DNR

M.L. 2011 Projects Completed in 2013-2014

Grants Journal was established in January 2013 in order to provide another quick and effective way to communicate information to appropriation recipients. Prior issues of the DNR Grants Journal are archived on the Training page of the DNR pass-through administration website.

Project completed: 6/30/2014

LCC Web Site

Subd. 10c \$3,000 TF

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Appropriation Language

\$3,000 in the first year is appropriated to the Legislative Coordinating Commission for the Web site required in Minnesota Statutes, section 3.303, subdivision 10.

PROJECT OVERVIEW

A website called "Minnesota's Legacy" was created by the Minnesota Legislature to help citizens monitor how dollars from the Legacy Amendment and the Environment and Natural Resources Trust Fund are being invested in the state. This appropriation is being used by the Legislative Coordinating Commission to assist with the administration of the website.

Project due to be completed: 6/30/2013
