25 Project Highlights for the 25TH Anniversary of MN's Environment and Natural Resources Trust Fund (ENRTF)

1. Protecting Minnesota's Pollinators

Since 2010 the ENRTF has been supporting a variety of initiatives aimed at improving understanding and responding to population declines in pollinators in Minnesota and throughout the country. Highlights include:

- Research on impacts of neonicotinoid insecticides on bees and other pollinators;
- Development and assessment of practices to improve pollinator habitat;
- Surveys documenting the diversity and distribution of bees and other pollinators;
- Conservation breeding of endangered and threatened pollinator species;
- Education and outreach efforts, including launch of a new pollinator education center at the Minnesota Landscape Arboretum.

2. Minnesota Wildlife Benefitting from Habitat Corridors Partnership

Between 2001-2014 the ENRTF supported one of the most successful natural resources efforts in Minnesota History, the Habitat Conservation Partnership. 15 partner organizations coordinated efforts protecting, restoring, and enhancing fragmented landscapes and connecting high quality habitat on over 179,000 acres throughout greater Minnesota, including over 104,000 acres restored or enhanced, over 60,000 acres enrolled in voluntary conservation easements, and over 14,000 acres purchased for permanent protection and now open to the public.

3. Protecting Minnesota From Invasive Species

Since 1991 the ENRTF has been supporting a variety of efforts aimed at the detection, control, management, and eradication of aquatic and terrestrial invasive species throughout Minnesota. Recently this meant helping to establish both the Aquatic Invasive Species Research Center and the Invasive Terrestrial Plants and Pests Center at the University of Minnesota in order to support long-term, coordinated research efforts for the state. Additionally, other efforts through the years have focused on purple loosestrife, emerald ash borer, Eurasian watermilfoil, garlic mustard, and common carp.

4. Engaging Minnesota Students and Families with the Mississippi River

Since 2010 the ENRTF has been supporting the Urban Wilderness Canoe Adventures program led by Wilderness Inquiry in partnership with state and federal agencies, non-profits, and local school districts. The program provides unique place-based, hands-on environmental education and recreational experiences that engage disadvantaged youth and families directly with the Mississippi River through hiking, canoeing, fishing, aquatic sampling, camping, and conservation-related summer employment. To date, over 70,000 students, teachers, and families have been served by the program in the greater Twin Cities metropolitan area and the program is now expanding to greater Minnesota.

5. Impacts of Deepwater Horizon Oil Spill on Minnesota's Loons and Pelicans

Since 2011 the ENRTF has been supporting research to determine whether populations of two of Minnesota's migratory bird species, specifically common loons and white pelicans, have been impacted by the 2001 Deepwater Horizon oil spill in the Gulf of Mexico. Contamination from petroleum chemicals and the dispersants used on the oil have the potential to create short and long term population declines causing changes in behavior, migratory abilities, reproductive success, and longevity. If a link is documented, Minnesota may be eligible for remediation settlement funds from the Federal Natural Resource Damage Assessment process currently underway, and those funds could be used to help restore populations of these two species in the state.

For more information on these Environment and Natural Resources Trust Fund projects and others, visit: www.lccmr.leg.mn

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6. Minnesota Biological Survey

Since 1991 the ENRTF has been funding the Minnesota Biological Survey, a systematic, county-by-county survey of the state's natural habitats to identify significant natural areas and collect data on the status, distribution, and ecology of rare plants, rare animals, native plant communities, and functional landscapes throughout the state. To date over 20,000 records of rare features have been recorded and the effort is nearing completion as surveys are underway in the last three remaining counties. This information is used to guide natural resource management and decision-making throughout the state.

7. Minnesota State Parks and Recreation Areas

Since 1991 the ENRTF has been providing support to expand, manage, and develop Minnesota's State Park System, which permanently protects and provides public access to some of Minnesota's most diverse, unique, and pristine natural landscapes. More than half of Minnesota's current 75 state parks and state recreation areas have benefitted from ENRTF investment in some form. Some highlights include Tettegouche State Park in Lake County, Big Bog State Recreation Area in Beltrami County, Whitewater State Park in Winona County, Interstate State Park in Chisago County, Minneopa State Park in Blue Earth County, and Itasca State Park in Becker, Clearwater, and Hubbard Counties.

8. Minnesota State Trails

Since 1991 the ENRTF has been providing support to expand and develop Minnesota's State Trail System, which provides multi-use public recreation opportunities to experience Minnesota's diverse and unique landscapes. More than half of Minnesota's current 25 state trails have benefitted from ENRTF investment. Some highlights include the Gitchi-Gami State Trail in northeastern Minnesota, Gateway State Trail and Brown's Creek State Trail near the Twin Cities, Paul Bunyan State Trail in northern Minnesota, Casey Jones State Trail in southwestern Minnesota, Glacial Lakes State Trail in central Minnesota, and Root River State Trail in southeastern Minnesota.

9. Research to Protect and Improve Minnesota's Water Quality

Since 1991 the ENRTF has supported numerous research initiatives aimed at protecting and improving the water quality of Minnesota's lakes, rivers, and streams. Highlights include:

- Development of technologies to treat or eliminate antibiotic-resistant bacteria, hormones, and pharmaceutical compounds from wastewater.
- Evaluation of the sources of contaminants of emerging concern and their impacts on aquatic ecosystems.
- Assessment of the impacts of agricultural practices on erosion, nutrient flow, and sediment flow.
- Investigation of the sources, bioavailability, and mitigation options for mercury in aquatic ecosystems.

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10. Minnesota: A History of the Land

Between 1999-2004 the ENRTF provided support for a prominent environmental education effort in the form of an award-winning PBS documentary series called *Minnesota: A History of the Land* that chronicled how Minnesota's landscapes and environment have changed from the time of glaciers to present day impacts such as forestry, agriculture, and urban sprawl. The documentary series was supplemented by educational materials and outreach efforts to schools and public audiences around the state. To date the series has been viewed by over one million people and is used by over half of all K-12 school districts for classroom instruction about Minnesota's environment.

11. Minnesota County Geologic Atlas

Since 1991 the ENRTF has been funding the Minnesota County Geologic Atlas Program, a systematic, county-by-county effort that collects and interprets information on the geology of Minnesota to define and map groundwater resources and the connections between groundwater and surface waters and understand the pollution sensitivity of groundwater. Geologic atlases are essential to the sound and sustainable management and protection of Minnesota's water resources. Presently 37% of the state has been completed and the effort is on target to be completed statewide within the next 15 years.

12. Minnesota Scientific and Natural Areas

Since 1991 the ENRTF has been a major supporter of Minnesota's Scientific and Natural Areas Program, an effort to preserve and perpetuate the state's ecological diversity and ensure no single rare feature is lost from any region of the state, including landforms, fossil remains, plant and animal communities, rare and endangered species, and other unique biotic or geological features. Over half of Minnesota's current 139 scientific and natural areas have been permanently protected, restored, or managed through ENRTF support. Some highlights include Prairie Coteau in Pipestone County, Lost 40 in Itasca County, Pembina Trail Preserve in Polk County, Morton Outcrops in Renville County, Seminary Fen in Carver County, and Kellogg-Weaver Dunes in Wabasha County.

13. Minnesota Wildlife Benefitting from Metro Conservation Corridors partnership

Since 2003 the ENRTF has been supporting the Metro Conservation Corridors Partnership, a coordinated effort that has involved 13 different organizations in protecting, restoring, and enhancing remaining high quality natural lands in the greater Twin Cities metropolitan area. So far the effort has benefitting more than 20,000 acres and 37 miles of shoreline, including over 11,000 acres permanently protected through purchase or conservation easement and over 9,000 acres restored or enhanced.

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14. National Wetlands Inventory for Minnesota

Since 2008 the ENRTF has been supporting an update of the National Wetlands Inventory for Minnesota to help support efforts aimed at ensuring healthy wetlands and clean water for the state. The National Wetlands Inventory is an important tool used by both the public and private sector for wetland management, land management, conservation planning, and more. The previous inventory is more than 30 years out of date and significant impacts from urban development, agriculture, mining, road construction, and utility project have occurred since. The update of the inventory for the entire state is expected to be completed by approximately 2020.

15. Minnesota's Metropolitan Regional Parks

Since 1993 the ENRTF has been providing support to expand, manage, and develop the Twin Cities Metropolitan Regional Park and Trail System. The Twin Cities is host to a nationally renowned system consisting of 51 parks and park reserves containing more than 54,000 acres and 300 miles of interconnected trails that provide outdoor recreation while preserving green space for wildlife habitat and other natural resource benefits. Some highlights of regional parks that have benefitted from ENRTF investment including Minneapolis Chain of Lakes Regional Park in Hennepin County, Doyle-Kennefick Regional Park in Scott County, Como Regional Park in Ramsey County, Lebanon Hills Regional Park in Dakota County, and Rice Creek Chain of Lakes Regional Park in Anoka County.

16. Minnesota Soil Survey

Between 1997-2014 the ENRTF provided funding that helped complete the Minnesota Statewide Soil Survey, which systematically collected and mapped data pertaining to soil types and soil properties for each county in the state. This information is used by governments, farmers, and other businesses for purposes including protection and restoration of soil, water, wetlands, and habitat; agricultural productivity and soil management; and building construction.

17. Research of Unique Organisms in Minnesota's Soudan Underground Mine

Since 2010 the ENRTF has been supporting research efforts studying unique microorganisms never before characterized by science that were discovered bubbling out of abandoned drill holes a half mile underground in an inactive iron mine that is now part of a state park in northern Minnesota. The organisms are of interest because they thrive in an extreme environment of a very salty brine high in dissolved metals and devoid of oxygen. Research has so far uncovered potential applications of using the microorganisms for bioremediation of mine waters, bioenergy production, and development of a biocontrol for white nose syndrome, a disease that is decimating bat populations around the country.

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18. Restoring Minnesota's Trout Streams

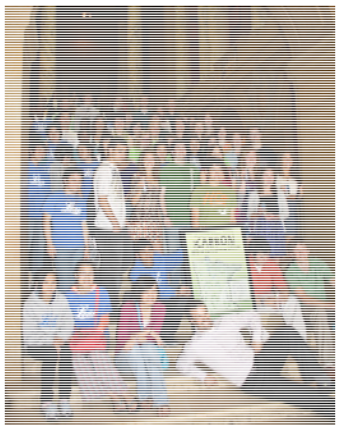
Since 2007 the ENRTF has been supporting the restoration of trout streams in southeastern Minnesota through on-the-ground restorations and outreach and technical assistance to increase the capacity of local conservation efforts to implement future projects. To date these efforts have directly improved more than five miles of streams to better support habitat for trout and other species, and dozens of outreach and technical assistance efforts have been conducted involving over one thousand conservation professionals and volunteers.

19. Local Initiatives Grants for Minnesota Communities

Since 1991 the ENRTF has enabled a variety of grant programs to support local and community initiatives throughout the state. The goal of these programs is to foster intergovernmental and public/private partnerships by providing matching grants to private organizations and local governments for "on the ground" environmental and conservation projects. Funded projects have occurred in every county of the state and have included a variety of different efforts in the areas of clean water, outdoor recreation, habitat protection, habitat restoration, environmental education, and local and regional parks and trails.

20. Minnesota Breeding Bird Atlas

Since 2008 the ENRTF has been supporting the creation of a Breeding Bird Atlas for Minnesota to provide a comprehensive systematic field survey of the occurrence, distribution, diversity, and breeding status of bird species within every region of the state. Minnesota is one of only seven states in the country that has yet to complete a Breeding Bird Atlas, which are an important tool for setting conservation priorities, developing conservation plans, and guiding habitat protection, restoration, and management efforts. Nearly 1,000 volunteers have contributed to this effort, providing over 350,000 observations documenting approximately 250 bird species in the state. The Minnesota Breeding Bird Atlas is expected to be completed by June, 2017.



21. Engaging Minnesota Youth in Energy Conservation and Renewable Energy

Since 2008 the ENRTF has been supporting environmental education efforts aimed at engaging youth in adoption and implementation of energy conservation and renewable energy projects in their schools and communities. This includes the two award winning programs Schools Cutting Carbon and Youth Energy Summit (YES!). Together these initiatives alone have so far directly involved nearly 10,000 students in the implementation of over 500 projects at approximately 200 middle schools, high schools, and colleges around the state while engaging or impacting an additional 200,000 students, community members, and local businesses.

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22. Understanding Minnesota's Lake Superior

Since 1997 the ENRTF has been supporting a variety of ongoing research initiatives to improve our understanding of the condition, functioning, and processes of Lake Superior, the largest freshwater lake in the world and one of Minnesota's most unique and treasured natural resources. Highlights include:

- Acquisition and modification of the Blue Heron research vessel for the Large Lakes Observatory at the University of Minnesota—Duluth.
- Collection of baseline data on aquatic communities, nutrient chemistry, temperature, and currents in the lake.
- Monitoring and evaluation of recent significant changes in the lake, including water temperatures, decreasing ice cover, increasing nutrient loads, decreasing biological productivity, increasing invasive species, and changes in species abundance and distribution.

23. Minnesota Conservation Apprentice Academy

Since 2010 the ENRTF has been supporting the Minnesota Conservation Apprenticeship Academy, a unique program working to prepare Minnesota's next generation of conservation professionals to meet tomorrow's natural resource challenges. Many of the state's most experienced conservation practitioners are nearing retirement and so this program pairs college students with these practitioners so that their practical knowledge, skills, and experience can be transferred to this next generation. To date nearly 150 students participating in this program have been placed in conservation districts located throughout the state and 96% of all past participants who have completed the program have indicated that they are currently employed or continuing their education in the natural resources field.

24. Clean, Renewable Energy for Minnesota's Future

Since 1997 the ENRTF has been supporting a variety of renewable energy research initiatives to develop technologies able to produce energy in a cleaner and more sustainable manner. Highlights include:

- Development, testing, and demonstration of a variety of technologies that utilize nutrients and waste products in wastewater to generate biofuel products.
- Development, testing, and demonstration of a system that uses wind energy to generate nitrogen fertilizer and uses hydrogen to store wind energy for electrical energy generation.
- Development and testing of a new method for producing solar cells that is faster and more energy efficient while using more common and less toxic materials in the production.

25. Improved Public Access to Minnesota Waters

Since 1993 the ENRTF has provided support to improve public access to lakes and rivers statewide through the acquisition, development, and construction of public boat accesses, fishing piers, and shore fishing stations. Every county in the state has benefitted from this program, which has provided over 120 fishing piers, over 30 shore fishing stations, and over 40 public boat access sites, including the Gray's Bay Public Water Access on Lake Minnetonka – the largest boat access in the state.

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