

2016 Environment and Natural Resources Trust Fund Proposals Received - by Funding Priority Topic Area

In response to the 2016 Request for Proposal (RFP), due May 11, 2015, 186 proposals requesting a total of approximately \$131 million were received. This RFP process is for funding available beginning July 1, 2016. For that period, approximately \$44 million from the Environment and Natural Resources Trust Fund is currently expected to be available to recommend for project funding.

The LCCMR will be reviewing, evaluating, and ranking all proposals received. On September 16-17, 2015, the LCCMR is scheduled to select a subset of proposals to receive further consideration and to invite in to present before the Commission. Proposal presentations for those invited are scheduled to occur September 29-30 and October 1, 6, 7, and 8 - dates are as needed depending on the number of proposals selected to present to the Commission. Check the LCCMR schedule for the most up-to-date information on important process dates.

ENRTF ID #	Last Name	First Name	Proposal Title	Summary	Organization	\$ Requested
A. Foundational Natural Resource Data and Information (RECEIVED: 34 Proposals / Subtotal \$15,166,583)						
001-A	Kloiber	Steve	Completing the National Wetland Inventory Update for Minnesota	This project will update and field verify wetland inventory maps for all 19 remaining counties in central and northwestern Minnesota (20,668 mi ²), thereby completing the wetland inventory update for Minnesota.	MN DNR	\$1,644,270
002-A	Mulla	David	Minnesota Vegetative Buffer Assessment and Prioritization	A GIS assessment of riparian vegetative buffers in 70 agricultural counties in Minnesota using state of the art aerial imagery and prioritization of unprotected waters using LiDAR terrain analysis.	U of MN	\$170,421
003-A	Cariveau	Daniel	Data Driven Pollinator Conservation	Rigorous guidelines are lacking for designing and planning pollinator habitat. We will determine optimal placement of pollinator habitat, ideal plants for native bees, and assess bee pollination of rare plants.	U of MN	\$558,611
004-A	Wovcha	Daniel	A Statewide Monitoring Network for Minnesota's Changing Habitats	Design and launch a consolidated statewide network of permanent habitat monitoring sites in Minnesota's prairies, forests and wetlands to prioritize habitats for protection and management in a changing environment.	MN DNR	\$645,821
005-A	Boyd	Crystal	Wild Bee Surveys in Minnesotas Prairie-Forest Habitats	The DNRs Minnesota Biological Survey will expand its wild bee surveys into the prairie-forest border region. Public outreach activities include bee identification workshops and the state species list of bees.	MN DNR	\$707,364
006-A	Trembl	Melissa	Sentinel Lakes Monitoring and Data Synthesis	This project sustains intensive monitoring and multidisciplinary research on Minnesota's 25 Sentinel Lakes; data integration and synthesis will enhance understanding of how lakes respond to large-scale environmental stressors.	MN DNR	\$401,623

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007-A	Forester	James	Feasibility of Restoring Elk to Northeastern Minnesota	The University of Minnesota, Fond du Lac Band, and Rocky Mountain Elk Foundation will determine the habitat suitability and levels of public support necessary for restoring elk to Northeastern Minnesota.	U of MN	\$325,541
008-A	Ponder	Julia	Do Neonicotinoids Pose a Risk to Minnesotas Birds?	We propose to evaluate the potential risk to birds of neonicotinoid exposure using sharp-tailed grouse. Neonicotinoids are applied to agricultural seeds and are the most widely used pesticide worldwide.	U of MN	\$349,767
009-A	Runquist	Erik	Prairie Butterfly Conservation, Research and Breeding Phase 2	Minnesota Zoo and DNR, in collaboration with USFWS and others, are working to prevent the extinction of imperiled Minnesota prairie butterflies through breeding, research, field surveys, and potentially reintroduction.	Minnesota Zoo	\$990,042
010-A	Kennedy	Peter	Microbes at SNAs: Preservation of Minnesotas Biodiversity	We will create a foundational state-wide atlas and database linking microbial and plant biodiversity, which will significantly enhance our ability to understand, preserve, and manage Minnesota's diverse ecosystems.	U of MN	\$417,324
011-A	Ng	Gene-Hua (Crystal)	Assessing Vegetations Control on Minnesota's Groundwater	Plant response to climate affects groundwater, but current groundwater recharge maps omit this link. Proposed statewide assessment tool predicts vegetation growth and groundwater recharge impacts under climate and land-use change.	U of MN	\$212,964
012-A	Faltesek	Jan	State Spring Inventory for Resource Management - Phase 2	Springs are natural points of groundwater discharge. This project continues work to systematically inventory springs statewide to provide fundamental data needed to maintain spring flows and protect groundwater dependent resources.	MN DNR	\$518,499
013-A	Davros	Nicole	Insecticide Exposure Risk of Wildlife on Public Grasslands	We will investigate exposure risk of grassland wildlife to soybean aphid insecticides with known toxicity to birds and beneficial insects. Results will guide management of grasslands in Minnesota's farmland regions.	MN DNR	\$263,299

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014-A	Kepler	Dennis	Enhancing Forest Inventory Using Multiple Remote Sensing Technologies	Develop a robust cost-saving methodology for an enhanced stand-based forest inventory, including attributes that relate to forest structure and habitat suitability, using LiDAR, high resolution imagery, and plot data.	MN DNR	\$1,053,638
015-A	Niemi	Gerald	Emerald Ash Borer and Black Ash: Wildlife Impacts	Project assesses impacts of emerald ash borer and adaptive management on wildlife diversity in black ash forests. Results will quantify impacts on wildlife diversity and develop recommendations for mitigation.	U of MN - Duluth NRRI	\$334,218
016-A	Hafs	Andrew	Improving Brook Trout Stream Habitat through Beaver Management	This project will quantify how beaver activity influences habitat quality for stream dwelling brook trout in NE MN to help improve current and future management in the region.	Bemidji State University	\$225,210
017-A	Moeller	David	Promoting Prairie Pollinators: Bee Diversity in Fragmented Prairies	We will conduct an unprecedented survey of bee pollinators in prairies. We will identify factors that prevent pollinator communities from persisting in native prairie fragments and establishing in restored prairies.	U of MN	\$598,569
018-A	Nieber	John	Minnesota: How Much Water? How is it Changing?	Accurate water storage estimates (groundwater, soil moisture, streams, lakes, wetlands) are essential to sustainable water management. We will integrate satellite monitoring with traditional ground-based measurements to improve water storage estimates.	U of MN	\$702,231
019-A	Montgomery	Rebecca	Prescribed Burning to Improve Management for Brushland Species	Brushlands provide critical habitat for >250 wildlife species. We compare effects of spring, summer and fall burns on brushland vegetation, providing much needed management guidelines for this key wildlife habitat.	U of MN	\$267,623
020-A	Lauer	Jack	Enhancing Understanding of the Minnesota River Ecosystem	This project will accelerate collection of baseline data to enhance understanding of the Minnesota River ecosystem, measure future impacts of an ever-changing climate and landscape, and guide future management efforts.	MN DNR	\$573,447
021-A	Reavie	Euan	Past and Future of Minnesota's Coldwater Fish Habitat	We will identify the causes of loss of coldwater fish in Minnesota's lakes, predict the future status of lake habitats, and make recommendations for preserving coldwater fish for the future.	U of MN - Duluth NRRI	\$670,335

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022-A	Holdsworth	Andrew	Scientific Asset Management: Digital Preservation for Future Generations	This project will build the core infrastructure to store and organize DNRs scientific information assets into standard digital formats for easier search, retrieval, public access, and long-term preservation.	MN DNR	\$406,218
023-A	Tipping	Bob	Protecting Native Brook Trout: Temperature, Streamflow and Hydrogeology	Advances in temperature measurements using fiber optic cables (distributed temperature sensing) are used to evaluate links between southeastern Minnesota stream temperature, trout habitat and bedrock hydrogeology.	Minnesota Geological Survey	\$119,858
024-A	Smanski	Michael	Biogeographic Characterization of Antibiotics Produced in Minnesota Soils	Antibiotics produced by soil bacteria are an under-appreciated natural resource. We aim to systematically characterize the capacity of Minnesota soils to yield new antibiotics for biocontrol and clinical applications.	U of MN	\$171,858
025-A	Ditmer	Mark	Causes and Effects of Human-Related Stress on Mammals	Determine what human activities and developments cause stress in bears and their corresponding consequences. Work with the MN DNR to apply knowledge towards reducing stress in mammal species of concern.	U of MN	\$319,128
026-A	Niemi	Gerald	Tree Retention Following Harvest: Maximizing Benefits for Wildlife	Project assesses effectiveness of MFRC tree retention guidelines in sustaining Minnesota's wildlife populations. Results will quantify and evaluate impacts of leave tree configurations on bird, small mammal, and amphibian diversity.	U of MN - Duluth NRRRI	\$232,310
027-A	McGaugh	Suzanne	Wildlife Health and Reproduction Among Different Quality Habitats	We will determine if fragmented agricultural and urban grasslands/wetlands contribute a significant percentage of total reproductive output for a common bird in comparison to more contiguous habitat.	U of MN	\$484,000
028-A	Stanton	Daniel	Tracking Minnesota Plant Life Below Winter Snow	This project will combine automated measurements of conditions below snow and plant photosynthesis to develop a model of Minnesota plant activity during the winter.	U of MN	\$180,000
029-A	Casper	Gary	North Shore Wildlife Conservation Toolset	We will develop a Conservation Toolset allowing major North Shore landowners to implement high priority conservation actions for rare birds, amphibians and reptiles, including innovative new monitoring techniques.	Great Lakes Ecological Services, LLC	\$284,113

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030-A	Arnold	Todd	An Integrated Population Model for Minnesota Mallards	An integrated population model for Minnesota mallards that will synthesize survey, banding, and harvest data from all periods of the annual cycle to improve our understanding of mallard management.	U of MN	\$37,013
031-A	Mortensen	Steve	Habitat Use of Minnesotas Rarest Rodent	Project will assess northern bog lemming habitat use and connectivity in order to mitigate the deleterious effects of climate change on lemming populations.	Leech Lake Band of Ojibwe	\$90,062
032-A	MaKarrall	Rachel	Mobilizing Vital Insect Baseline Data for Northeast Minnesota	We will database the holdings of the University of Minnesota Duluth Insect Collection so that citizens and scientists can use the data to evaluate environmental changes and guide management decisions.	U of MN	\$210,757
033-A	Owen	Andrew	Measuring Access to Natural Resources and Recreation	This project will measure access to Minnesotas natural resources and recreation opportunities. The resulting data, maps, and reports will provide a detailed understanding of how access varies geographically and demographically.	U of MN	\$261,049
034-A	Hackett	Maureen	Protecting Minnesotas Livestock, Wildlife and Farmers	This project will provide a mechanism to educate and support farmers in using nonlethal methods for wolf-livestock conflicts. It will compare nonlethal to lethal to no interventions on wolf conflicts.	Howling For Wolves	\$739,400
B. Water Resources (RECEIVED: 55 Proposals / Subtotal \$23,681,203)						
035-B	Arnold	William	Neonicotinoid Insecticide Effects on Aquatic and Soil Communities	Neonicotinoid insecticide breakdown products produced in water and plant leaves will be identified and their toxicity to soil and aquatic species tested to allow informed use and management.	U of MN	\$412,000
036-B	Davis	Mike	Restoring Native Mussels for Cleaner Streams and Lakes	Native mussels are important to streams but have been lost. Clean up today allows for their return but is constrained by dams. Propagation and reintroduction will return mussels to streams.	MN DNR	\$744,798
037-B	Engstrom	Daniel	Tracking and Preventing Harmful Algal Blooms	Harmful algal blooms, which greatly reduce the ecological and recreational value of many Minnesota lakes, have been increasing in recent years. We will determine their root causes and target solutions.	Science Museum of Minnesota - St. Croix Research Station	\$764,300

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038-B	Hondzo	Miki	Increasing Harmful Algal Blooms in Minnesota Lakes	Using field and laboratory measurements we will provide state agencies with a predictive model for harmful algal blooms, and communities with a web-based interface for monitoring algae in Minnesota lakes.	U of MN - St. Anthony Falls Laboratory	\$395,249
039-B	Hozalski	Raymond	Is Minnesotas Groundwater Safe to Drink?	Groundwater is used by more than 90% of Minnesotas public water systems, serving more than 75% of the population. This project will determine the microbiological quality of Minnesotas groundwater resources.	U of MN	\$299,829
040-B	LaPara	Timothy	Quantifying Bacteria for Better Wastewater Treatment Process Control	This project will characterize and quantify the nutrient-removing microorganisms used for municipal wastewater treatment to help provide better process control, as needed to meet future regulations.	U of MN	\$398,592
041-B	Abbas	Abdenour	Sponge Technology to Remove Mercury from Wastewater/Surface Waters	We propose an efficient and cost-effective sponge technology to remove mercury from wastewater and surface waters, and improve water quality and aquatic life in Minnesota.	U of MN	\$146,609
042-B	McLennan	Helen	Morrison County Performance Drainage and Hydrology Management	Morrison County will conduct an assessment of drainage infrastructure; develop hydrology restoration priorities and a county-wide performance drainage ordinance to stem the negative impacts of rapid land use changes that impact hydrology.	Morrison SWCD	\$261,000
043-B	Romero-Vargas Castrillón	Santiago	Membrane-Based Process for Decentralized Drinking Water Production	We will develop a low-energy, membrane-based process to produce drinking water from untreated surface waters polluted with contaminants of emerging concern (e.g., pesticides and pharmaceuticals), and heavy metals.	U of MN	\$191,304
044-B	Gulliver	John	Salt Impacts to Minnesota Lakes, Rivers and Groundwater	This project will quantify the current water softening salt loads in Minnesota, assess alternative softening materials and methods and quantify the transport of de-icing and softening salt through the soil.	U of MN	\$497,276

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045-B	Finlay	Jacques	Assessing Wetland Restorations for Improved Water Quality	We will quantify the environmental benefits of sediment removal and native plant communities in wetland restorations by measuring reductions in nitrogen and phosphorus delivery to groundwater and surface water.	U of MN	\$420,000
046-B	Bond	Daniel	Reducing Salt and Metal Removal Costs with Microbes	To use recently discovered microbes from Minnesotas Soudan Iron Mine to reduce the cost of removing salts and metals from subsurface and aquatic water resources.	U of MN	\$596,599
047-B	Finlay	Jacques	Innovative Assessment of Minnesotas Surface Waters from Space	This project advances statewide assessment of water quality using new satellite sensors to measure major water quality indicators in Minnesota's 10,000 lakes and rivers at high frequency and low cost.	U of MN	\$458,000
048-B	LaPara	Timothy	Triclosan Impacts on Wastewater Treatment - Phase 2	This project will quantify benefits (reduced antibiotic resistance and triclosan/dioxin loads to the environment) and costs (increased usage of alternative antibacterials) of Minnesotas pending ban of triclosan in cleaning agents.	U of MN	\$399,063
049-B	Runkel	Anthony	Understanding Bedrock Fracture Flow to Improve Groundwater Quality	We will use new techniques of borehole testing and rock fracture mapping in the Twin Cities to achieve a better understanding of groundwater flow through fractured bedrock, improving groundwater management.	Minnesota Geological Survey	\$183,627
050-B	Bumgarner	Johnathan	Protecting Drinking Water Aquifers-Phase 2	Building on an ongoing study, two additional sites are needed to measure infiltration variability through clay confining units. The complete study will provide information to protect important drinking water aquifers.	U. S. Geological Survey	\$433,400
051-B	Cui	Tianhong	Tiny Cheap Sensors for Pollutants Monitoring in Waters	This project is to develop very tiny, cheap, fast, sensitive sensors and wireless sensor networks, a new approach for pollutants continuous monitoring in lakes and rivers in Minnesota.	U of MN	\$508,878

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052-B	Olker	Jennifer	Perfluorochemical Contamination Effects on Amphibians and Wetland Ecosystems	Chemical contamination puts aquatic ecosystems at risk. We will measure perfluorochemical contamination in wetlands and effects on frog survival/ development to identify risks to declining amphibian populations and wetland ecosystems.	U of MN - Duluth NRRRI	\$250,954
053-B	Wammer	Kristine	Eliminating Contaminants to Protect Endangered Native Fish/Mussels	Tonalide and galaxolide are two of the most commonly detected wastewater contaminants. UV-treatment will be evaluated to remove these suspected endocrine disruptors and reduce toxicity to native fish and mussels.	University of St. Thomas	\$287,448
054-B	Behrens	Sebastian	Engineered Biofilter for Sulfate Removal from Mine Waters	This project will develop an efficient, low-cost, biomass-derived adsorbent material used in bioactive filters to clean mining impacted waters from sulfate and metals for the protection of Minnesota's water resources.	U of MN	\$439,817
055-B	Ishii	Satoshi	Novel Algae Bioreactors for Nitrogen and Phosphorus Removal	Novel algae bioreactors will be developed to reduce nitrogen and phosphorus concentrations in agricultural runoff water. The reactors will be installed and operated in the fields to improve water quality.	U of MN	\$350,000
056-B	Sleeper	Faye	On-Farm Prairie Filter Strips: Optimizing Water Quality Benefits	Establish a research and demonstration program to evaluate on-farm prairie filter strips – an innovative variation of buffer strips that economically and strategically protects water quality.	U of MN - Water Resources Center	\$340,552
057-B	Elias	Mikael	Innovative Methods for the Removal of Trace Phosphate	Phosphate is an environmental pollutant, including at trace levels. Current methods for removal are limited, and we proposed an innovative technology to capture efficiently, cost-effectively trace P from waste waters.	U of MN	\$345,405
058-B	Griffis	Timothy	Forest to Potatoes Conversion and Sustainable Water Use	We will measured and model threats to water quantity and quality under forest to potato conversion in north-central Minnesota, and distribute tools useful to stakeholders for sustainable water resource management.	U of MN	\$286,658
059-B	Johnson	Gregory	Evaluate and Quantify Streamflow Changes Affecting Aquatic Life	The project will evaluate the impacts of hydrologic modification on fish and macroinvertebrate communities in rivers and streams using Minnesota streamflow and biological monitoring data.	MPCA	\$300,000

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060-B	Kyser	Scott	Sulfate/Wild-Rice Municipal Wastewater Treatment Plant Alternative Analysis	Analyze alternatives for improved treatment of sulfate and salty parameters at municipal wastewater plants. This analysis will inform implementation of the wild rice and sulfate and other water quality standards.	MPCA	\$180,000
061-B	Sterner	Robert	Vanishing Winter: Effects on Lakes Small to Large	Climate-driven declining ice cover on Minnesota lakes from small to large will be studied using state of the art science tools and public involvement.	U of MN - Large Lakes Observatory	\$600,000
062-B	Barney	Brett	Modular Biological Phosphorus Recapture for Field Application	This project aims to remove excess phosphorus from impaired waters through the use of an algal biofilm bioreactor, and to utilize the resulting algal cells as a suitable compost.	U of MN	\$618,565
063-B	Dutcher	Cari	On-Site Removal of Metal-Sulfide Particles from Mining Waters	This project will develop a clean real-time sensing and on-site chemical treatment technology for the removal of metal sulfide contaminants from Minnesota waters impacted by copper-nickel-sulfide mining.	U of MN	\$497,758
064-B	Nannenga	Katy	Vegetated Filter Strips as Optimized Water Purification Systems	Plant-soil amendments will be evaluated to determine which combination creates a soil microbial community in vegetated filter strips that enhances the loss of nitrates, sediments, polycyclic aromatic hydrocarbons, and nanoparticles.	U of MN	\$278,744
065-B	McGuire	Jennifer	Evaluating Oils Toxic Effects on Water Resources	Evaluate the toxicology of natural waters impacted by crude oil spills using innovative high-throughput, high-content biological assays together with current and historical water chemistry data to evaluate health hazards.	University of St. Thomas	\$346,470
066-B	Mott	Henry	Virtual Bioreactor for Improving Treatment of Minnesotas Wastewaters	A virtual bioreactor, to accurately simulate activated sludge wastewater treatment processes, will be created. Engineers will use this powerful tool to optimize treatment plant performance and improve Minnesota's water quality.	U of MN	\$536,916
067-B	Baker	Lawrence	Reducing Municipal Sulfate Discharges to Wild Rice Waters	A new wild rice sulfate standard might require cities to reduce sulfate discharges. Engineered treatment is expensive. This project would create a tool for cities to examine alternative techniques.	U of MN	\$244,181

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068-B	Sadowsky	Michael	Minnesota Resources to Remove Pollutants and Enhance Crop Production	We will use reed-sedge peat, a Minnesota natural resource, to prevent nitrogen and phosphorus run-off from agricultural drainage and use the recovered peat as a fertilizer for enhanced crop production.	U of MN	\$505,833
069-B	Yoo	Kyungsoo	Impacts of Invasive Earthworms on Water Quality in Minnesota	This study determine how invasive earthworms affect movements of sediment, pollutants, and nutrients from land to wetlands or other water bodies. The scientific findings will inform water resource managers.	U of MN	\$406,110
070-B	Nater	Ed	Predicting Climate Change Effects on Mercury in Peatlands	We seek to determine the effects of increased temperatures on release of mercury from Minnesota peatlands, which could greatly exacerbate existing human health problems associated with the consumption of fish.	U of MN	\$643,088
071-B	Baker	Lawrence	Reducing Early Spring Nutrient Inputs to Agricultural Streams	This project will determine the importance of early spring nutrient inputs to agricultural streams, and evaluate alternative best management practices to reduce these inputs.	U of MN	\$482,563
072-B	Ryun	Deb	St. Croix Harmful Algae Prediction and Alert System	Partnerships will develop a harmful algae bloom prediction and public alert system to better protect human health and the water quality of the St. Croix River.	St. Croix River Association	\$312,280
073-B	Wackett	Lawrence	Removal of Nitrates from Minnesota Waters	We will develop, demonstrate, and disseminate a simple, effective and inexpensive technology to remove nitrates from drinking water, a major problem in Minnesota today.	U of MN	\$198,256
074-B	Wickert	Andrew	Automated Lake and Groundwater Measurements	Real-time monitoring of Minnesotas lake-level and groundwater responses to climate and land-use change with new, automated, "smart" sensor technologies; expanding and improving upon volunteer lake-level network; mapping lake contamination susceptibility.	U of MN	\$368,194
075-B	Pagliari	Paulo	Understanding the Role Sediment plays on Lake Eutrophication	The long-term strategy of this project is to use data collected from this initial phase to design potential remediation strategies that could be used to clean eutrophic Minnesota lakes.	U of MN	\$345,207

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076-B	Zhang	Kechun	Production of Value-Added Materials from Wastewater	We will develop an algae-based approach to water treatment, and employ synthetic biology tools to produce value-added products.	U of MN	\$946,431
077-B	Biske	Richard	Prioritizing Threats and Actions in the Mississippi Headwaters	This project will guide the use of private and public resources necessary to implement conservation activities that are cost effective and represent positive return on investment to the public, private industry and local communities.	The Nature Conservancy	\$396,000
078-B	Davenport	Mae	Riparian Buffer Optimization: Modeling Determinants of Buffer Adoption	This project will create a statewide riparian buffer optimization tool (RiBOT) to examine riparian lands that are ecologically, economically and socially suitable for buffers by modeling geospatial and survey data.	U of MN	\$390,093
079-B	Shen	Lian	Development of Models for Oil Spill Trajectory Prediction	We propose to develop a computer simulation tool for oil slick trajectory prediction in lakes, for Minnesota to be better prepared for hazardous water contamination events such as oil spill.	U of MN	\$300,000
080-B	Zimmer	Kyle	Mitigating Nitrogen to Protect Aquatic and Human Life	We will determine if nitrogen in water can be reduced by increasing plant abundance in shallow lakes, and assess whether nitrate-nitrogen is an endocrine disruptor for aquatic organisms.	University of St Thomas	\$461,000
081-B	Ferrington	Leonard	Variable Winter Thermal Regimes and Managing Trout Streams	We will develop predictive models relating to thermal regimes in trout streams during winter, will refine new molecular techniques to identify trout winter diets, and develop outreach and communication programs.	U of MN	\$641,907
082-B	Gerber	Darrell	Hydrologic Trends: Identify, Manage and Adapt	Identify watershed most impacted by altered hydrology and evaluate an array of scenarios to restore hydrology for cost, compatibility, and effectiveness.	Freshwater Society	\$682,000
083-B	Musser	Kimberly	Integrating Targeted Watershed Planning Tools with Citizen Involvement	To demonstrate targeted subwatershed conservation planning and innovative citizen engagement to facilitate improvements in one of the most degraded watersheds in the state.	Mankato State University - Water Resources Center	\$169,108
084-B	Simcik	Matt	Mercury in Minnesota Ducks, Potential for Consumption Advisories	There is potential that ducks reared in mercury-contaminated areas of Minnesota are contaminated. We propose to determine the extent of contamination, and suggest the appropriateness of consumption advisories for Minnesotans.	U of MN	\$358,403

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085-B	Zanko	Lawrence	Characterization of Glacial Lake Clay for Mitigative Uses	Characterize glacial lake clay from the western Lake Superior watershed to assess its potential as a low-permeability geotechnical material for Superfund/brownfield site restoration/redevelopment projects and for sulfide-bearing stockpile mitigation applications.	U of MN - Duluth NRRI	\$363,925
086-B	Moore	Seth	Emerging Chemical Detection in Animals and the Environment	This project aims to determine levels of emerging and unregulated pollutants, termed micropollutants, in subsistence species and the environment in and around the Grand Portage Indian Reservation, Cook County, Minnesota.	Grand Portage Band of Lake Superior Chippewa	\$834,878
087-B	Wallerstedt	Jamie	Integrated Water Management for Hugo, Lino Lakes, Rosemount	Research and develop Integrated Water Management Plans for the Cities of Hugo, Lino Lakes, and Rosemount by evaluating water reuse pilot studies, groundwater modeling, economic implications, and emerging regulations.	City of Hugo, Lino Lakes, and Rosemount	\$698,700
088-B	Corcoran	Brian	Surface Water Bacterial Treatment System Pilot Project	Reduce bacteria and nutrient loads to Vadnais Lake, a drinking water supply reservoir, through implementation of a subsurface constructed wetland and its viability as a BMP for statewide use.	Vadnais Lake Area Water Management Organization	\$991,600
089-B	Tedrow	ONiell	Shagawa Lake Contaminants of Interest: Source, Fate, Movement	This proposed project will augment an existing USGS database, provide a comprehensive contaminant of interest characterization of a vital local water resource, and provide unique student research and project experiences.	Vermilion Community College	\$171,635
C. Environmental Education (RECEIVED: 31 Proposals / Subtotal \$8,599,103)						
090-C	Gieseke	Jenny	Minnesota Conservation Apprentice Academy	This program builds upon previous success, placing 30 students as interns in SWCD offices state-wide each year for two years, facilitating knowledge sharing between experienced professionals and students.	Board of Water and Soil Resources	\$433,000
091-C	Kerber	Amy Kay	Improving Outdoor Classrooms for Education and Recreation	This new approach to outdoor classroom management will increase school-based environmental education, create healthy and safe spaces to learn outdoors, and reach 43,000 students and 2,200 teachers statewide.	MN DNR	\$766,563

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092-C	Foster	Shelli-Kae	Youth-Led Energy Action Projects in 50 Minnesota Communities	Youth Energy Summit (YES!) expands state-wide to complete over 200 new youth-led climate change mitigation and adaptation projects in over 50 Minnesota communities, culminating in a state-wide competition.	Prairie Woods Environmental Learning Center	\$450,500
093-C	Ponder	Julia	Hunters Choice: Alternative Ammunition	We will provide hunters with information on alternative hunting ammunition options and promote voluntary choice to use nontoxic ammunition and protect Minnesota's wildlife.	U of MN	\$133,054
094-C	Peterson	Teresa	Standards-Based Dakota Indian Land Curriculum for 1,250 Students	Improve the capacity of 1,250 students to be better stewards of the land in Minnesota by learning about Dakota Indian values and environmental principles through a standards-based experiential multi-media curriculum.	Dakota Wicohan	\$197,104
095-C	Storck	Julie	Environmental Education Best Practices Review	Environmental Education Best Practices Review will analyze Minnesotas investment in connecting youth to public lands and natural resources. Researchers will evaluate environmental education effectiveness and recommend best practices.	Wilderness Inquiry	\$80,000
096-C	Strecker	Carol	Creating Southwest Minnesota High School Student Wildlife Champions	The Zoo will engage high school students in critical prairie conservation projects by using its unique animal collection and state-of-the-art technology to deliver hands-on learning in 12 southwestern Minnesota schools.	Minnesota Zoo	\$147,400
097-C	Geissler	John	Outdoor Learning Engages Youth: A Model Collaborative	Improve youth environmental literacy, academic achievement, connection to place, and stewardship of our treasured natural resources in the Lake Superior basin through a model collaborative of strong community partners.	U of MN	\$442,218
098-C	Lanahan-Lahti	Kim	Root for a Tree - Minnesota State Fair Exhibit	The public will learn about the vital role of trees and their roots in providing clean water by exploring an engaging walk-through exhibit at the Minnesota State Fair.	MN DNR	\$82,860
099-C	Kline	David	Expanded Wolves at our Door program	An expansion to all of Minnesota for the successful Wolves at our Door classroom education program.	International Wolf Center	\$240,012

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100-C	Yetka	Leslie	Extension Master Gardeners Expand Habitats for Minnesota's Pollinators	Extension Master Gardener Volunteers will educate their communities and promote the use of native plants in small-scale landscapes as an important way to address pollinator decline.	U of MN - MN Landscape Arboretum	\$171,734
101-C	Bakken	Timothy	The New Prairie Sportsman Statewide Broadcast Video Project	Engage the statewide community to cultivate conservation ethics and generate activities to slow invasive species, improve water quality in agricultural areas and encourage safe outdoor experiences for youth and families.	Pioneer Public Television	\$300,000
102-C	Eckles	Joanna	Bird City Minnesota-Good for Birds and People	Bird City Minnesota is a community education program that guides and recognizes communities for fulfilling concrete actions to improve bird habitat, reduce threats and engage citizens in bird conservation.	Audubon Minnesota	\$343,943
103-C	Stoelb	Amanda	Building Environmental Stewardship Through Sustainable Farm Ecosystem Exploration	A collaboration between Youth Farm and Minneapolis Public Schools centered around a farm education campus that provides experiential education about sustainable ecosystems, teaching environmental literacy, conservation, and sustainable lifestyle skills.	Youth Farm	\$824,900
104-C	Hunt	Joe	Resilient Living Minnesota Television Series and Conference	Inform and educate Minnesotans about sustainable practices, leading to lifelong habits and business opportunities. Motivate a wide audience through public television, telling stories of innovators who live and work sustainably.	Happy Dancing Turtle	\$334,975
105-C	Deaver	Emily	Promoting Stewardship through Student Mentoring and River Monitoring	A partnership for inquiry-based learning focused on water quality, connecting agriculture and stewardship. University undergraduates mentor high school and middle school students who serve as citizen scientists monitoring local rivers.	Southwest Minnesota State University	\$39,490
106-C	Liebman	Alex	Public Benefits of Metropolitan Community Agricultural Land Access	Securing land tenure takes on core challenges to agricultural resource stewardship in urban regions. Our network of food producing sites demonstrates education, recreation, and habitat benefits of urban agricultural land.	Twin Cities Agricultural Land Trust	\$147,017

2016 Environment and Natural Resources Trust Fund Proposals Received - by Funding Priority Topic Area

ENRTF ID #	Last Name	First Name	Proposal Title	Summary	Organization	\$ Requested
107-C	Halvorson	Danni	Next Generation Watershed Connections	650 elementary and 100 high school students will connect through engagement in experiential education and outdoor learning activities designed to enhance their understanding of watershed connections and stewardship.	International Water Institute	\$246,444
108-C	Cotner	Sehoya	Developing Intellectual and Scientific Infrastructure for Clean Waters	The overall goals are to: 1) Improve water quality; 2) Increase understanding of N losses from freshwaters; 3) Develop intellectual and scientific infrastructure to understand N cycling.	U of MN	\$475,000
109-C	Mesko	John	Teaching High School Students to Build Soil Health	Existing Environmental Science curriculum will prepare Minnesota high school FFA students to implement soil health principles in agriculture.	Sustainable Farming Association of Minnesota	\$160,000
110-C	ONeill	Danielle	"Real Wildlife, Real Conservation, Real Impact"	We will provide environmental education programs to over 14,000 metro students using ambassador wild animals to illustrate the interface between natural and human systems, and our impact upon these systems.	Wildlife Science Center	\$476,879
111-C	Hueffmeier	Ryan	"Toasted" Birdhouse Market Readiness Test	To verify the performance and market readiness of bird nest boxes made from thermally modified Minnesota ash wood, while collecting pertinent bird conservation data, and delivering environmental education statewide.	U of MN - Duluth NRRI	\$117,846
112-C	Knapp	Peggy	Master Water Steward Program Expansion	This program trains community volunteers to work with neighbors to install water management projects. We have certified 90 stewards and are receiving requests to expand outside the metro area.	Freshwater Society	\$116,000
113-C	Tedrow	ONiell	Pilot/Bench-Scale Wetlands to Mitigate Potential Aqueous Contaminants	CWTSs for passive water treatment can mitigate contaminants in industrial influenced waters. Students will increase application of the scientific process using CWTSs for supplemental research projects within critical resource-management degrees.	Vermilion Community College	\$37,250
114-C	Ceurvorst	Robyn	Southwestern Minnesota Youth Environmental Education and Training Partnership	Through a college/city partnership, college students will train to become entry-level professionals through service-learning opportunities and faculty mentorship to provide environmental education programs to preK-12 student communities in Southwestern Minnesota.	Mankato State University	\$415,000

2016 Environment and Natural Resources Trust Fund Proposals Received - by Funding Priority Topic Area

ENRTF ID #	Last Name	First Name	Proposal Title	Summary	Organization	\$ Requested
115-C	Smith	Stacy	Developing Connections and Conservation Ethics through Nature Play	Nature play areas address a growing need to provide children opportunities to engage with the natural world through unstructured, independent play which creates long-lasting conservation values for the next generation.	MN DNR	\$710,140
116-C	Vlasak	Raymond	Student Outdoor Environmental Education Program	This project will expand an existing student environmental education program at the Tamarac National Wildlife Refuge from 3000 to 6000 student visits per year.	Friends of Tamarac National Wildlife Refuge, Inc.	\$96,600
117-C	Van Blaircom	Susie	Nature Walk at Como Park Zoo and Conservatory	Nature Walk empowers teens to share Como's unique animal and plant collections with visitors. Requested funding would create a Monarch Station to teach visitors about the value of butterfly conservation.	Como Friends	\$9,300
118-C	Wilson	Diane	Native Youth Plant a Pollinator Meadow	DWH will provide hands-on educational and cultural experiences for American Indian youth in our programs to learn about pollinators, and establishment and maintenance of pollinator habitat and native plants.	Dream of Wild Health	\$55,487
119-C	Von Korff	Ben	Visualizing Flow: Education on Flow Sources to Rivers	Educate citizens on the timing of flow in ditches, ravines, tiles, fields, and rivers using trail cameras to link visuals to existing water quality and hydrology data using interactive hydrographs.	Mankato State University - Water Resources Center	\$39,647
120-C	Conrad	Jennifer	Connecting Every 4th Grader in State Parks	Connect Minnesota 4th graders to the outdoors and inspire a new generation to experience their states natural, cultural and recreation heritage, complimenting the NPS Every Kid in a Park program.	MN DNR	\$508,740
D. Aquatic and Terrestrial Invasive Species (RECEIVED: 14 Proposals / Subtotal \$10,216,759)						
121-D	Venette	Dr. Robert	Minnesota Invasive Terrestrial Plants and Pests Center - Phase 3	Funding is requested to accelerate priority research that will protect Minnesota's prairies, wetlands, forests, and agricultural resources from terrestrial invasive plants and pests, including non-native weeds, pathogens, and insects.	U of MN	\$5,000,000
122-D	Romero-Vargas Castrillón	Santiago	Using Membranes to Treat Lake Superior Ballast Water	We will develop a filtration system to treat Lake Superior ballast water. The filtration system will remove >90% of suspended pathogens, invasive species, and contaminants.	U of MN	\$151,091

2016 Environment and Natural Resources Trust Fund Proposals Received - by Funding Priority Topic Area

ENRTF ID #	Last Name	First Name	Proposal Title	Summary	Organization	\$ Requested
123-D	Hicks	Randall	Advancing Microbial Invasive Species Monitoring from Ballast Discharge	We will identify bacteria in ship ballast water and St. Louis River Estuary sediments, assess the risk of introducing invasive bacteria, and evaluate techniques for their removal from ballast water.	U of MN	\$368,995
124-D	Salomon	Christine	White Nose Bat Syndrome Biological Control - Phase 2	Phase 2 continuation of research towards discovery and optimization of biocontrol for White Nose Bat Syndrome. Work scope is expanded to additional statewide hibernacula, and characterization of total bat microbiomes.	U of MN	\$452,532
125-D	Phelps	Nicholas	Modeling AIS Spread to Evaluate Management Options	This project will describe and mathematically model the spatial distribution and pathways of AIS in Minnesota to predict future spread, estimate risk and evaluate the impact of control interventions.	U of MN	\$264,141
126-D	Aukema	Brian	Tamarack in Decline: The Resurgence of Larch Casebearer	Larch casebearer weakens tamarack and makes is susceptible to eastern larch beetle. This proposal examines the recent failure of biological control of larch casebearer.	U of MN	\$344,900
127-D	Abrahamson	Mark	Optimizing Chemical Management of Emerald Ash Borer	This project optimizes the ongoing chemical management of emerald ash borer while protecting pollinators and other insects. Close collaboration with cities will ensure resulting guidelines are workable and effective.	Minnesota Department of Agriculture	\$600,000
128-D	Chandler	Monika	Elimination of Target Invasive Plant Species - Phase 2	To prevent environmental and economic damage, we will: 1) Train people to find target invasives; 2) Survey for infestations; and 3) Control these species before they spread.	Minnesota Department of Agriculture	\$752,100
129-D	Henquinet	Jeffrey	Treating Invasive Species in Laker Ballast Water	The project will further development of a ballast water treatment system for Great Lakes freighters. Outcomes include refinement and testing of a treatment neutralization process using vessel engine emissions.	Izaak Walton League of America - Minnesota Division	\$347,840
130-D	Reich	Peter	Cover It Up! Using Plants to Control Buckthorn	We will develop management tools to limit buckthorn re-colonization following its removal, by identifying cost-effective methods of establishing dense cover of preferred plant species that will suppress buckthorn regeneration.	U of MN	\$307,703

2016 Environment and Natural Resources Trust Fund Proposals Received - by Funding Priority Topic Area

ENRTF ID #	Last Name	First Name	Proposal Title	Summary	Organization	\$ Requested
131-D	Blanchette	Robert	Winning the Dutch Elm Disease Battle - Phase 2	This project will identify and test 50 native elms from throughout Minnesota for resistance to Dutch elm disease so hardy disease resistant trees can be made available to the public.	U of MN	\$330,187
132-D	Burks	Susan	PlayCleanGo: Stop (Terrestrial) Invasive Species In Your Tracks	By engaging more recreationists and recreational organizations in actions that prevent the spread of terrestrial invasive species, the Minnesota outreach campaign PlayCleanGo will help protect Minnesota wetlands, prairies and forests.	MN DNR	\$609,266
133-D	Henquinet	Jeffrey	Rapid Response Mobile Ballast Water Treatment System	Project will demonstrate a rapid response mobile ballast water treatment system to prevent invasive species introductions into Minnesotas Lake Superior ports. Project outcomes include three shipboard efficacy trials.	Izaak Walton League of America - Minnesota Division	\$498,068
134-D	Arvidson	Adam	Invasive Carp Applied Research in Lake Nokomis Subwatershed	Application of current invasive carp research to management of an entire subwatershed, to improve water quality, increase aquatic vegetation, and provide additional guidance for large-scale carp management.	Minneapolis Park and Recreation Board	\$189,936
E. Air Quality, Climate Change, and Renewable Energy (RECEIVED: 19 Proposals / Subtotal \$12,690,897)						
135-E	Snyder	Peter	High Resolution Climate Projections to Aid Planning Efforts	Minnesota's climate is changing and local scale climate projections are needed to ensure the development of sound adaptation strategies to help protect and sustain Minnesota's environment, infrastructure, economy, and health.	U of MN	\$411,389
136-E	Thomas	Brenda	Improving Health and Environment by Mitigating Airborne Pollutants	This project quantifies and maps primary emissions of toxic airborne pollutants, traces their effects on air quality, identifies ecosystem and human exposure, and develops policy recommendations.	U of MN	\$630,614
137-E	Sadinski	Walt	Assessing Climate Effects on Wetlands Water and Species	We will use integrated, cutting-edge methods to provide resource managers a field assessment of how wetland water availability and dependent species are responding to climate on 50 state conservation areas.	U.S. Geological Survey	\$1,070,448
138-E	Simcik	Matt	Atmospheric Transport of Antibiotic Resistance Genes	Antibiotic resistance is a growing problem in the world, and Minnesota. We propose to characterize agricultural operations and wastewater treatment plants as sources of antibiotic resistance genes to the atmosphere.	U of MN	\$449,325

2016 Environment and Natural Resources Trust Fund Proposals Received - by Funding Priority Topic Area

ENRTF ID #	Last Name	First Name	Proposal Title	Summary	Organization	\$ Requested
139-E	Reich	Peter	Managing for "Climate-Smart" Trees and Forests	Measure tree growth responses to climate throughout Minnesota to identify climate-resilient species for each region to promote through management; and develop an on-line forest management tool for climate change adaptation.	U of MN	\$380,026
140-E	Cui	Tianhong	Cheap Solar Cells from Simple Roll-to-Roll Advanced Manufacturing	This project is to develop cheap clean solar energy by simple roll-to-roll advanced manufacturing technology. Perovskite is a new photovoltaic material, very economical while maintaining high power conversion efficiency.	U of MN	\$388,762
141-E	Northrop	Will	Clean Vehicles Fueled by Hydrogen from Renewable Ammonia	Renewable ammonia from wind can be used to fuel vehicles. Technology will be developed to reduce emissions from diesel engines and to power fuel cell cars using hydrogen from ammonia.	U of MN	\$842,849
142-E	Campbell	Stephen	Making Solar Energy Cheaper than Carbon-Based Energy	We will demonstrate inexpensive thin-film devices that can bring the cost of solar energy in Minnesota below carbon. The device operates by capturing different parts of sunlight in different layers.	U of MN	\$664,180
143-E	Forester	James	Management to Prevent Biofuels from Becoming Invasive Species	Biofuel are an important invasive species threat in Minnesota and we will evaluate three potential crop options (Miscanthus, switchgrass and native prairie) to determine optimal management practices to prevent invasions.	U of MN	\$257,837
144-E	Nelson	Carl	Geotargeted Distributed Clean Energy Initiative	This project will determine the potential for geographically targeted clean, distributed energy resources to replace planned transmission and distribution upgrades by testing the concept in three communities.	Center for Energy and Environment	\$1,850,000
145-E	Barney	Brett	Expanding Biofertilizers for Responsible Nitrogen Application	This project aims to develop a broad-application biofertilizer to accomplish in crops like corn and wheat a relationship similar to what nature evolved in soybeans to fix atmospheric-nitrogen.	U of MN	\$659,512

2016 Environment and Natural Resources Trust Fund Proposals Received - by Funding Priority Topic Area

ENRTF ID #	Last Name	First Name	Proposal Title	Summary	Organization	\$ Requested
146-E	Schweser	Greg	Modified Terrace System for Climate Adaptive Agricultural Landscapes	Incorporate modified terraces with woody perennials and native prairies into agricultural systems. Test responsiveness to climate change (flood, drought, weather extremes) and improvements to water quality, soil, and pollinator habitat.	U of MN	\$665,037
147-E	Wu	Xiao	Revolutionizing Ammonia Emission Reduction/Nutrient Recovery from Manure	This project develops a revolutionary technology to reduce 70% ammonia emission from animal manure during storage and land application and recover the nutrients (70% N and 90% P) as fertilizer.	U of MN	\$558,539
148-E	Heins	Bradley	Utilization of Dairy Farm Wastewater for Sustainable Production	This project will develop and demonstrate an integrated facility to recycle nutrients from dairy farm wastewater as well as simultaneously produce "green" energy, clean water, food, and livestock feed.	U of MN	\$1,451,125
149-E	Johnston	Lee	Innovative Solar Energy Utilization for Minnesota Swine Farms	Swine facilities will be energy-optimized using solar generation for innovative cooling and heating. Optimized systems should reduce water usage while lowering odor, greenhouse gases, dust emissions, and the carbon footprint.	U of MN	\$928,478
150-E	Current	Dean	BMPs for Sustainable Biomass Production for Clean Energy	This project will compile information to develop Non-Forest Biomass Guidelines to ensure sustainable siting and management of bioenergy feedstocks while supporting wildlife, water quality, soil health, and carbon sequestration.	U of MN	\$191,077
151-E	Kortshagen	Uwe	Waste Heat Recovery with Efficient Thermoelectric Energy Generators	Almost 55% of energy consumed in the US is discharged as waste heat. We propose transforming waste heat into electricity through thermoelectrics to ameliorate climate change and reduce air pollution.	U of MN	\$404,427
152-E	David	Andrew	Identifying Best Seed Sources for Forest Tree Planting	Climate change threatens Minnesota's future forests by stressing young seedlings. This project improves forest productivity and ecological services by determining the best seed sources for future reforestation efforts.	U of MN	\$396,843
153-E	Edens	Jason	Solar Solutions to Minnesota Energy Poverty	This project reduces carbon emissions, produces clean energy and changes the energy assistance landscape by installing a 200 kW solar array and distributing electricity to Minnesotans qualifying for energy assistance.	Rural Renewable Energy Alliance	\$490,429
F. Methods to Protect, Restore, and Enhance Land, Water, and Habitat (RECEIVED: 20 Proposals / Subtotal \$23,679,305)						

2016 Environment and Natural Resources Trust Fund Proposals Received - by Funding Priority Topic Area

ENRTF ID #	Last Name	First Name	Proposal Title	Summary	Organization	\$ Requested
154-F	Schottler	Shawn	Seeding Between the Lines: Permanent Habitat Within Rowcrops	Establishing prairie forbs and alfalfa as permanent cover strips in the bare soil between selected rows of corn/soy to create pollinator, monarch and gamebird habitat without removing land from production.	Science Museum of Minnesota - St. Croix Research Station	\$179,400
155-F	Spivak	Marla	Bee Pollinator Habitat Enhancement Phase 2	Our goal is to provide floral resources for pollinators in areas currently dominated by turfgrass, to protect and enhance Minnesota natural resources and support the nutritional needs of all bees.	U of MN	\$387,085
156-F	Lenhart	Christian	Riparian Management Practice Guidelines for Minnesota's Waterways	Riparian areas provide filtration, stream bank stability and habitat benefits. Guidance will be developed to maximize their benefits through a variety of management practices focusing on four study watersheds.	U of MN	\$103,594
157-F	Holland	Matt	Pollinator & Habitat Enhancement Program	Enhance 2,550-acres of permanently protected habitat for pollinators, monarchs and grassland birds. Engage RIM easement holders to upgrade grassland habitat by completing pollinator plots, invasive tree removal & diversity seeding.	Pheasants Forever	\$1,767,950
158-F	Lenhart	Christian	A Treatment Wetland Strategy for Nutrient Reduction Goals	A treatment wetland strategy will be developed to address state nutrient reduction goals while considering ecological restoration priorities. Monitoring of wetlands will provide a scientific backing for the strategy.	U of MN	\$338,097
159-F	Schlagenhaft	Tim	Controlling Reed Canary Grass to Regenerate Floodplain Forest	Floodplain forests are not regenerating due to invasive species. LCCMR funding will determine the most effective regeneration methods to best utilize existing funding from other sources for tree regeneration projects.	Audubon Minnesota	\$218,500
160-F	Hoek	Tabor	CREP III Implementation - Phase 1	Assistance through SWCDs will be provided to 1,500 landowners to implement 40,000 acres of permanent protection through the Conservation Reserve Enhancement Program (CREP), leveraging \$240 million of federal CRP funding.	Board of Water and Soil Resources	\$8,686,320
161-F	Herb	William	Prioritizing Walleye Spawning Habitat Restoration in Minnesota Lakes	This project will enhance efforts to increase natural reproduction of walleye in Minnesota lakes by assembling easily accessible information on wave energy and near-shore spawning habitat.	U of MN	\$288,205

2016 Environment and Natural Resources Trust Fund Proposals Received - by Funding Priority Topic Area

ENRTF ID #	Last Name	First Name	Proposal Title	Summary	Organization	\$ Requested
162-F	Sullivan	Lauren	Measuring Prairie Fragment Connectivity: Pollen and Seed Dispersal	Habitat connectivity is unknown in prairie fragments. Our project measures plant movement by pollen and seeds, determines connectivity, and informs agencies and the Prairie Conservation Plan how far species move.	U of MN	\$556,000
163-F	Lemm	Les	Comprehensive Wetland Planning Framework and Mitigation Pilot	The Statewide Wetland Planning Framework will improve targeting, quality, and functional benefits of wetland mitigation and a Mitigation Pilot will provide for new, innovative wetland mitigation actions in Northeast MN.	Board of Water and Soil Resources	\$5,600,000
164-F	Slesak	Robert	Identifying Optimal Soil Conditions for Sustainable Forest Management	Quantify factors that control optimal soil conditions with historic data and experimental manipulations. Develop strategies and tools to expand acceptable harvesting conditions while minimizing impacts to soil and water.	U of MN	\$412,000
165-F	Barrick	Melissa	Forest Management for Mississippi River Drinking Water Protection	A SWCD north central Minnesota pilot source water and watershed approach using forest stewardship plans, tax incentive programs, and targeted riparian forest restoration projects on public and private lands.	Crow Wing Soil and Water Conservation District	\$350,000
166-F	Buck	Wiley	Restoring our Metro Lands and Waters: MeCC IX	Greening will restore 153ac and 0.15mi of significant habitat throughout the metro area, engage 650 volunteers; apply innovative techniques, conduct evaluations, and implement corrective actions to advance restoration practices.	Great River Greening	\$509,000
167-F	Quinn	Edward	Implementing/Showcasing Shoreline BMP's on Parks and Trails Lands	Streams and lakes in southern and western MN fall below water quality standards. This proposal will improve water quality by restoring shoreline at 25-30 sites managed by the division.	MN DNR	\$1,035,491
168-F	Austinson	Craig	Agricultural Runoff Water Quality Treatment Analysis Phase II	Building on successes from LCCMR funded conservation practices, Phase II will validate agency requests to refine results. Phase I was more successful than anticipated, showing significant water quality benefits.	Blue Earth County Drainage Authority	\$295,010
169-F	Mundahl	Neal	Restoration/Monitoring of Winona's 40-acre Blufflands Natural Area	WSU will restore critical Blufflands oak savannah (97% lost in MN) and dry bluff prairie (99% lost) by goat grazing, replanting native species, monitoring recovery, and creating/delivering demonstration workshops.	Winona State University	\$99,427

2016 Environment and Natural Resources Trust Fund Proposals Received - by Funding Priority Topic Area

ENRTF ID #	Last Name	First Name	Proposal Title	Summary	Organization	\$ Requested
170-F	Hoganson	Howard	Sustaining Long-lived Pines on Minnesota's Landscape	Diplodia poses a major threat to red pine. Strategies will be developed and field-tested for sustaining older pines on the landscape long-term, better coordinating red pine and white pine management.	U of MN - North Central Research and Outreach Center	\$443,576
171-F	Lin	Zhibin	Functionalized Nanomaterials to Enhance Performance of Pervious Concrete	This study aims to develop innovative pervious concrete using nanotechnology for mitigating climate change impact and enhancing ecosystems resilience in Minnesota's environment and natural resources.	North Dakota State University	\$131,728
172-F	Hokanson	Stan C	Genetic Analysis of Minnesotas Most Endangered Tree Species	Seedlings derived from mature native Minnesota Eastern hemlock will be evaluated for genetic diversity, inbreeding and growth rates in three seasons. Information gathered will inform management of this endangered species.	U of MN	\$277,922
173-F	Tuominen	Todd	Restoring the City of Champlins Northern Gateway	Restoring Champlins Northern Gateway: A three phase project to improve habitat and water quality through Conservation, Protection and Restoration. Phase II to Restore Deep Water Habitat in the Mill Pond.	City of Champlin	\$2,000,000
G. Land Acquisition for Habitat and Recreation (RECEIVED: 11 Proposals / Subtotal \$36,704,768)						
174-G	Christie	Jennifer	State Parks and State Trails Land Acquisitions	Acquire the highest priority State Park and State Trail land in-holdings statewide from willing sellers with significant ecological, historic and recreational attributes to protect, preserve and enhance Minnesotas environmental stewardship.	MN DNR	\$2,000,000
175-G	Booth	Margaret (Peggy)	SNA Acquisition, Restoration, Enhancement & Public Engagement	Sites of biodiversity significance will be permanently protected as state designated Scientific and Natural Areas, their quality improved, and public support for and involvement in their conservation will be increased.	MN DNR	\$9,324,826
176-G	Schulte	Judy	Native Prairie Stewardship and Prairie Bank Easement Acquisition	Native Prairie Bank conservation easements will be acquired on 1600 acres, habitat management will occur on 1000 acres of protected prairie and landowner stewardship will increase through assistance and workshops.	MN DNR	\$10,999,942

2016 Environment and Natural Resources Trust Fund Proposals Received - by Funding Priority Topic Area

ENRTF ID #	Last Name	First Name	Proposal Title	Summary	Organization	\$ Requested
177-G	Kroll	Thomas	Preserving the Avon Hills with Reverse-Bidding Easements	Use the MMAPLE reverse-bid and conservation easement ranking system to protect 450-600 acres. Final test using ENRTF of MMAPLE's precision-conservation, market-based approach. Also, landowners pay MN Land Trust's stewardship costs.	Saint Johns University	\$1,307,000
178-G	Manzoline	Robert	Mesabi Trail Segment Highway 135 to Embarrass	For environmental, engineering and trail construction work to complete a 10' wide, bituminous surfaced trail, 6 mile long segment of the Mesabi Trail from Highway 135 to Embarrass.	St. Louis and Lake Counties Regional Railroad Authority	\$1,200,000
179-G	Werner	Tom	Minnesota Point Pine Forest SNA Addition Project	This project consists of the acquisition of 10.35 acres of land to be added to the existing Minnesota Point Pine Forest SNA located along the shores of Lake Superior.	Duluth Airport Authority	\$500,000
180-G	Otey Wold	Hilary	Wilder Forest Acquisition for Conservation, Preservation and Education	MFA will purchase 539 acres of diverse, critical habitat, pristine lakes and 3.2 miles of shoreline, protecting it from development and preserving the rural heritage of Washington County for generations.	Minnesota Food Association	\$6,320,000
181-G	Johnson	Mark	Long-Term Drinking Water Supply Protection, Recreation, Habitat Plan	Long-term drinking water supply protection plan effectuated through permanent controlled ownership placing vulnerable lands into conservation use with benefits of drought resistance, contamination elimination; promoting habitat, recreation; retaining tax bases.	Lincoln Pipestone Rural Water System	\$2,500,000
182-G	Hydukovich	Gordon	Otter Tail River Protection and Recreation Trail Acquisition	One million dollar purchase of 16.624 acres of former MidAmerican Dair property, currently partially industrial and agricultural. For tot lot, Barefoot Park expansion, splash plad and river protection.	City of Fergus Falls	\$500,000
183-G	Keith	Linda	Tower Historic Harbor Nature Trail/Kayak Route	This project consists of the construction of a nature trail, layout of a kayak route and construction of a boat/kayak/canoe landing along the shores of the East Two Rivers.	City of Tower	\$1,430,000
184-G	Bissonette	Cathy	Babbitt Recreation Area Water Protection Project	This project will prevent drainage flow along the entrance road and parking area and to construct a rain garden to prevent debris, sediment and pollution from entering Birch Lake.	City of Babbitt	\$623,000

H. Other (RECEIVED: 2 Proposals / Subtotal \$270,250)

2016 Environment and Natural Resources Trust Fund Proposals Received - by Funding Priority Topic Area

ENRTF ID #	Last Name	First Name	Proposal Title	Summary	Organization	\$ Requested
185-H	Graeber	Amanda	Contract Agreement Reimbursement	This appropriation would provide continued contract management services (grant agreements, amendments, reimbursements, fiscal monitoring, etc.) to pass-through recipients of ENRTF dollars appropriated to the commissioner of natural resources.	MN DNR	\$135,000
186-H	Van Offelen	Henry	Roseau Lake Watershed: Targeted Water Quality Improvement	Advanced geospatial modeling in conjunction with local professional knowledge will identify the top 100 field scale Best Management and Conservation Practices to improve water quality in the Roseau Lake watershed.	MN DNR	\$135,250