

NRRI GRANTS, COOPERATIVE AGREEMENTS AND SPONSORED PROJECTS FOR FISCAL YEAR 2018

Chemical Modification of Peat Granules Surface for Waste Water Treatment: *American Peat Technology, LLC*

Poplar Genetic Improvement and Preservation: *Battelle Energy Alliance, LLC (U.S. DOE)*

Love Outdoors Incorporated: *Blandin Foundation*

Using Statewide LiDAR to Quantify the Distribution and Productivity of Minnesota Red Pine and Aspen Forests: *Blandin Foundation*

Technical and Economic Feasibility of a Particleboard Manufacturing Facility Utilizing Low-value, Small-diameter Minnesota Wood Feedstock: *Lexington Manufacturing, Inc.*

Mille Lacs Spiny Water Flea Gear Fouling Project: *Minnesota Aquatic Invasive Species Resources Center*

Lake Superior Beach Monitoring and Advisory Program: *Minnesota Dept. of Health*

Grassland Bird Monitoring - Lac qui Parle and Glacial Lakes: *Minnesota*

Assessing Forest Land Conversion Risk to Maintain Water Quality in North Central Minnesota: *Minnesota Dept. of Natural Resources*

Wood Turtle Telemetry: *Minnesota Dept. of Natural Resources*

Potentially Acid Generating Rock Implementation Project - Map: *Minnesota Dept. of Transportation*

Center for Transportation Studies Scholars Program: *Minnesota Dept. of Transportation*

Cost-competitive Timber Bridge Designs for Long-Term Performance: *Minnesota Dept. of Transportation*

Eagles Nest Geotechnical Survey: *Minnesota Dept. of Transportation*

Comparing Properties of Water Absorbing/Filtering Media for Bioslope/Bioswale Design: *Minnesota Dept. of Transportation*

Development and Integration of Advanced Timber Bridge Inspection Techniques for National Bridge Inspection Standards: *Minnesota Dept. of Transportation*

Optimized Taconite-Based Pavement Repair Compound and Deployment System: *MNDOT*

Promoting Wild Rice Restoration Success by Examining Microbes: *Minnesota Environmental & Natural Resources Trust Fund*

Prioritizing Future Management of North Shore Trout Streams: *Minnesota Environmental & Natural Resources Trust Fund*

Building Deconstruction to Reduce Greenhouse Gas Emissions and

SERVICE CONTRACTS & EXTERNAL SALES

In addition to this list, NRRI researchers engaged with 82 businesses, companies, associations, universities and research science centers with service contracts in FY18. We assist with basic and applied research activities; provide consulting, analytical testing, as well as prototyping and product development and product testing.

Investigating Cryptic Biodiversity of Invertebrate Fauna in Great Lakes Coastal Wetlands through Traditional Taxonomy and Molecular Barcoding: *Central Michigan University*

Great Lakes Coastal Wetland Monitoring: Continued Implementation: *Central Michigan University (U.S. EPA)*

Functional Indicators of Coastal Wetland Condition: *Central Michigan University (U.S. Geological Survey)*

The Enterprise for Strategic Resources: *Dept. of Iron Range Resources & Rehabilitation*

Dept. of Natural Resources

Mapping Potential Native Plant Communities of Minnesota Eastern Broadleaf Forest: *Minnesota Dept. of Natural Resources*

Bat Acoustic Detection at Soudan Mine: *Minnesota Dept. of Natural Resources*

Site-Level Research for FY 2018-2019: *Minnesota Dept. of Natural Resources*

Endangered Bats, White-Nose Syndrome, and Forest Habitat: *Minnesota Dept. of Natural Resources*

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Solid Waste: *Minnesota Environmental & Natural Resources Trust Fund*

Dredged Sediment for Forest Restoration on Minelands: *Minnesota Environmental & Natural Resources Trust Fund*

Genetic and Camera Techniques to Estimate Carnivore Populations: *Minnesota Environmental & Natural Resources Trust Fund*

Emerald Ash Borer and Black Ash Wildlife Impacts: *Minnesota Environmental & Natural Resources Trust Fund*

Evaluation of Tree Retention Guidelines Pertaining to Wildlife: *Minnesota Environmental & Natural Resources Trust Fund, Minnesota Land Trust*

Bird Surveys: *Minnesota Land Trust*

Northeastern Minnesota Lake and Stream Water Assessment 2016-17: *Minnesota Pollution Control Agency*

Duluth Streams Urban Watershed Restoration and Protection: *Minnesota Pollution Control Agency*

Event Based Stream Sampling in Northeastern Minnesota: *Minnesota Pollution Control Agency*

St. Louis River Estuary Aquatic Vegetation Quality Metrics: *Minnesota's Lake Superior Coastal Program*

Superior Streams Algal Assessment Protocol: *Minnesota's Lake Superior Coastal Program*

Conservation of Common Terns in Lake Superior: *Minnesota's Lake Superior Coastal Program*

Summer Habitat Use by Bats in Managed Minnesota Forests: *National Council for Air and Stream Improvement*

Climatic and Anthropogenic Forcing of Wetland Landscape Connectivity in the Great Plains: *National Science Foundation*

Post-Burn Bird Surveys at Pagami River, Superior National Forest: *USDA Northern Research Station*

Wooden Nailed Cross Laminated Panels (NCLP) for Industrial Crane/Equipment Mats Constructed from Local, Underutilized Low-grade Species: *Savanna Pallets Inc.*

Development and Evaluation of Medium Intensity Magnetic Separator: *SGM Magnetics S.P.A.*

Assessing Productivity of St. Louis County Red Pine and Aspen Forests: *St. Louis County*

What Gear on Your Boat is Most Likely to Spread Spiny Water Flea?: *St. Louis County*

St. Louis County Aquatic Invasive Species Introduction Risk Assessment: *St. Louis County*

Baseline Surveys and Geospatial Modeling of Aquatic Invasive Species: *St. Louis County*

Construction-grade Thermoplastics from Organosolv Lignin: *University of Tennessee - Knoxville*

Improving Brook Trout Stream Habitat Through Beaver Management: *University of Bemidji*

(Minnesota Environmental & Natural Resources Trust Fund)

2017 Shipboard Ballast Treatment International: *University of Wisconsin-Superior*

Evaluation and Verification of Ballast Water Treatment Technologies: *University of Wisconsin-Superior (U.S. Dept. of Transportation)*

Consortium for Advanced Wood-to-Energy Solutions: *U.S. Endowment for Forestry and Communities, Inc.*

Great Lakes Biological Monitoring - Phytoplankton: *U.S. Environmental Protection Agency*

Biomass Briquettes for Coal Replacement: *USDA Forest Service*

Minnesota State Wood Innovation Team: *USDA Forest Service*

Using Thermal Modification Technology to Add Value to Small-Diameter Logs from Underutilized Species: *USDA Forest Service*

Monitoring Breeding Bird Populations in Chippewa and Superior National Forests: *USDA Forest Service*

Biomass Briquettes for Coal Replacement: *USDA Forest Service*

Technical and Economic Feasibility of a Particleboard Manufacturing Facility Utilizing Low-value, Small-diameter Minnesota Wood Feedstock: *USDA Forest Service, *Note: This is a Business Assistance Fund project with Lexington Manufacturing*

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Wooden Nailed Cross Laminated
Panels for Industrial
Crane/Equipment Mats
Constructed from Local, Under-
utilized Low-grade Species: *USDA
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Genetic Development, Evaluation,
and Outreach for Establishing
Hybrid Poplar Biomass Feedstock
Plantations in the Midwestern
United States: *USDA National
Institute of Food & Agriculture*

Assessing Acid Sensitive Lakes in
Northern Minnesota: *U.S. Dept. of
Interior Cooperative Ecosystem
Studies Unit*

Climate Change Adaptation
Planning for Northern Forest
Ecosystems in the Great Lakes
National Parks: *U.S. Dept. of
Interior Cooperative Ecosystem
Studies Unit*

State Water Resources Research:
*U.S. Dept. of Interior, U.S.
Geological Survey*

Adaptive Management of Untreated
Urban Runoff: *U.S. Dept. of
Interior, U.S. Geological Survey*

Demonstrating Potential for
Distributed Power Generation
Using Converted Biomass:
Xcel Energy