

**Environment and Natural Resources Trust Fund
2015 Request for Proposals (RFP)**

Project Title:

ENRTF ID: 133-F

Recognizing Full Value of Pine Restoration

Category: F. Methods to Protect, Restore, and Enhance Land, Water, and Habitat

Total Project Budget: \$ 177,278

Proposed Project Time Period for the Funding Requested: 2 years, July 2015 - June 2017

Summary:

Attracting substantial dollars for long-term reforestation investments is difficult. Project will integrate economic and ecological benefits from objective statewide perspective to develop strong case for restoring pines on the landscape

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Sponsoring Organization: U of MN

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Location

Region: Central, NW, NE

County Name: Aitkin, Becker, Beltrami, Benton, Carlton, Cass, Chisago, Clearwater, Cook, Crow Wing, Hubbard, Isanti, Itasca, Kanabec, Kandiyohi, Koochiching, Lake, Lake of the Woods, Mille Lacs, Morrison, Otter Tail, Pine, St. Louis, Todd, Wadena

City / Township:

Alternate Text for Visual:

Graph showing planting decline of pines and relative small portion of forest as pines

_____ Funding Priorities	_____ Multiple Benefits	_____ Outcomes	_____ Knowledge Base
_____ Extent of Impact	_____ Innovation	_____ Scientific/Tech Basis	_____ Urgency
_____ Capacity Readiness	_____ Leverage	_____ TOTAL	



PROJECT TITLE: Recognizing Full Value of Pine Restoration

I. PROJECT STATEMENT

The amount of young pine on Minnesota's landscape has dropped substantially over the last 30 years, raising concern about sustaining pine long term. Attracting substantial dollars for long-term reforestation investments is difficult. The goal of this project is to look closely and objectively at opportunities to increase and sustain the pine component on Minnesota's forested landscape. Project is based on assumption that a detailed, system-wide look can likely help make a strong case for more investments in pine restoration and will emphasize integrating ecological and economic benefits, recognizing broader statewide benefits of restoring pines. Work will be coordinated closely with the Minnesota Forest Resources Council and utilize planning expertise of the Minnesota DNR and new statewide forest resource assessment that will be available via recent support from the Blandin Foundation. A key is recognizing the value of increased investment under Minnesota statewide forest policies and guidelines for sustaining both environmental conditions and timber harvest volumes. Forest industry, local communities and environmental interest groups have different views on timber harvesting, yet all generally agree on a desire to increase reforestation of pines. Yet a major barrier is generating the financial resources necessary. This project will provide important information for helping understand and guide investment and policy decisions for increasing Minnesota's pine forests

II. PROJECT ACTIVITIES AND OUTCOMES

Activity 1 Pine restoration opportunities from a system-wide perspective

Budget: \$ 177,278

Pines have long been important components of Minnesota's forests. Yet young pine stands were once far more common on the Minnesota landscape. The most current statewide forest inventory suggest strongly that the number of acres of pine stands in the 0 to 5-year age class is less than one-third the area in this age class in 1990. Recently, much focus in forest management has been on sustaining older pine stands short-term by using thinnings and limiting "end-of-rotation" harvesting of existing pine stands. Yet that doesn't necessarily fit well for sustaining pines long-term. Sustaining older pines long-term depends on establishing young pines today. Pines are expensive to establish, and competition for investment dollars is strong, making it critical to make a strong case for pine restoration investments if large investments are to be realized. A stronger case for pine restoration can almost certainly be made by considering a broader forest-wide perspective, recognizing both economics and important environmental benefits of pines. More emphasis of pines on the landscape need not equate to more even-aged, single-species pine plantations.

It is important to understand site-level forest management investment options from a forest-wide perspective. Investments in site-level management options can have broad, forest-wide (system-wide) impacts. For example, intensifying management on better sites can reduce harvesting pressures on sensitive lands or increase overall sustainable harvest levels, thereby potentially realizing economic returns much sooner than achieved directly from the long-term nature of site-level investments. When considered only from an on-the-ground, individual-stand perspective, the value of forestry investments are often substantially underestimated. In forest management terms, broader impacts are commonly referred to as an "allowable cut" effect. This effect has been accepted and used to justify increased forest management investments throughout the US and the world. "Allowable cut" effects can sometimes be predominantly environmental in nature. For example, in some cases better termed an "allowable reservation" effect much like how management intensities are increased to help compensate for creating areas like the Boundary Waters Canoe Area Wilderness. This systems approach is emphasized in New Zealand to help protect environmentally sensitive areas.



The Department of Forest Resources, University of Minnesota, has a long history of applied research on analysis for forest planning. Applications have shown it valuable to take a broad statewide and multi-ownership approach to forestry issues. Recently, the Blandin Foundation funded a study to update the baseline statewide analysis and models that were used for the 1994 Minnesota Generic Environmental Impact Statement (GEIS) on timber harvesting and forest management in Minnesota. This LCCMR project also takes a systems approach, focusing on statewide strategies for better utilizing pine restoration options and how such options might be best integrated across all forest cover types and ownerships to restore more pine on the landscape. It will link pine restoration with potential harvest opportunities to improve forest productivity. Key staff of the DNR will help consider DNR forest lands as a case study. Results of DNR case study will be timely, as DNR continues to work to integrate multiple objectives in forest planning. The Minnesota DNR is the largest forest landowner in the state with a long history of investments in pine management. The Minnesota Forest Resources Council will also be involved directly, helping analyze new forest policy options and transferring results to decision makers.

Outcome	Completion Date
1. Summary Report for Statewide Assessment	December 2016
2. Summary Report for Case Study of Minnesota DNR lands	June 2017
3. Presentation to Minnesota Forest Resources Council on Key Findings and Forest Policy Implications	June 2017

III. PROJECT STRATEGY

A. Project Team/Partners

Project PI: Dr. Howard Hoganson (forest management), Dept. of Forest Resources & North Central Research and Outreach Center (NCROC), Univ. of MN. Grand Rapids. Hoganson has 30-year history in analyses for forest management involving both ecological and economic objectives. Hoganson will oversee activities.

Key Collaborator: Dr. Curtis VanderSchaaf (forest growth expert and DNR leader in forest planning analysis), MN DNR Grand Rapids. VanderSchaaf provides key ties with DNR planning, DNR data, and DNR case study.

Key Collaborator: Dr. Calder Hibbard (forest policy), Minnesota Forest Resources Council (MFRC) St Paul. Hibbard will coordinate project with MFRC members and the forestry community. Hibbard will provide technical support involving forest policy assumptions and plausible options. He will help interpret and present results.

Majority of funding request is for support of University of Minnesota graduate student. Computers for analysis will be supplied by U of MN and MN DNR. Minimal operating and travel dollars are requested, as only Hibbard is not located in Grand Rapids. Valuable and timely base support for project originates from \$135,000 Blandin Foundation study to be completed by June 2015. Work will be coordinated with and complement site-level silviculture and ecological research ongoing in the region to help identify new management strategies to help increase pine in the region. The University agrees to waive all administrative costs for this project

B. Project Impact and Long-Term Strategy

Project will improve understanding of potential opportunities to increase pine component in Minnesota’s forests. Systems approach will utilize best available data to help integrate environmental and economic objectives over broad landscapes and ownerships. Ties are in place with Minnesota DNR and Minnesota Forest Resource Council to help utilize and implement results effectively.

C. Timeline Requirements

Project will be completed in two years.

2015 Detailed Project Budget

Project Title: Recognizing Full Value of Pine Restoration

IV. TOTAL ENRTF REQUEST BUDGET 2 years

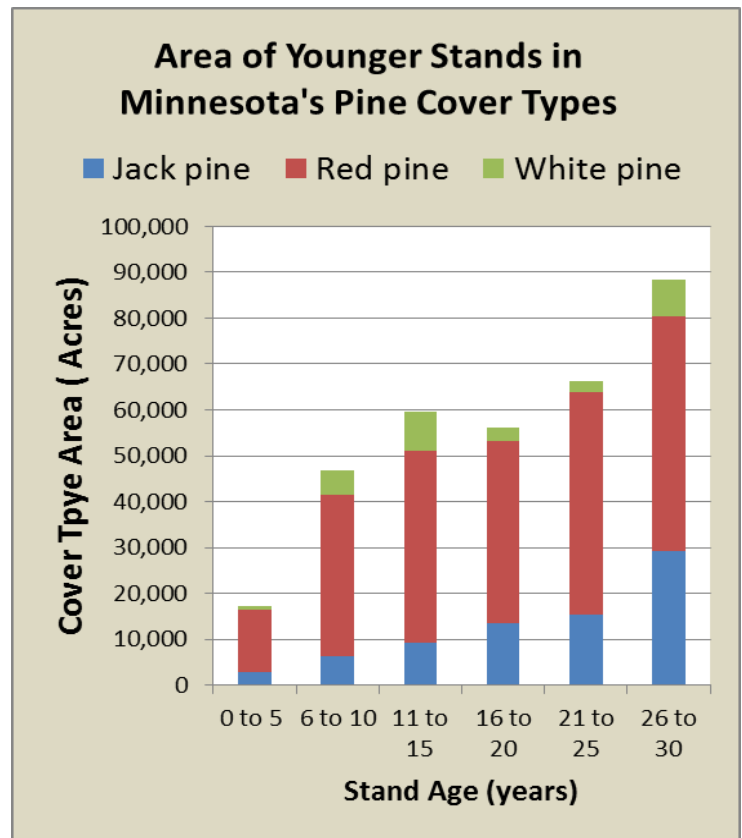
<u>BUDGET ITEM</u>	<u>AMOUNT</u>
Personnel: PI Hoganson -- U of MN faculty, Department of Forest Resources & North Central Research & Outreach Center (NCROC) in Grand Rapids -- one month of summary salary in 2015 and 1 month in 2016. Includes 33.9% fringe and assumed 2.5% salary increase/yr	\$ 32,712
Personnel: Graduate Research Assistant -- Department of Forest Resources , University of Minnesota , St Paul. Half-time research assistantship for 2 years, with work serving as basis of masters thesis. Salary includes 21.5% fringe + \$17.84/hr tuition benefit assuming full-time graduate student status during 2 academic years.	\$ 80,000
Contract With Minnesota DNR Dr. Curtis VanderSchaaf, lead forest planning analyst for DNR, will help integrate study with DNR planning, providing best available DNR data on growth and yield of pine, and current DNR planning assumptions. VanderSchaaf will also help lead case study examining Minnesota DNR opportunities. VanderSchaaf is located in Grand Rapids. Contract rate is \$90/hr including all fringe.	\$ 39,000
Contract With Minnesota Forest Resources Council (MFRC): Dr. Calder Hibbard, Policy Analyst, MFRC, will help analyses by providing data and insights on current Minnesota forest policies, plausible adjustments to forestry policy and input from MFRC members and staff. Hibbard will also help substantially with interpreting and presenting results to stakeholders. Contract is expected to require less than 1 month of Hibbard's time each year.	\$ 21,000
Travel: Includes mileage for 6 round trips per year between St Paul and Grand Rapids per year plus partial summer lodging and meal support for graduate spending 40 days/year in Grand Rapids.	\$ 4,566
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND \$ REQUEST =	\$ 177,278

V. OTHER FUNDS

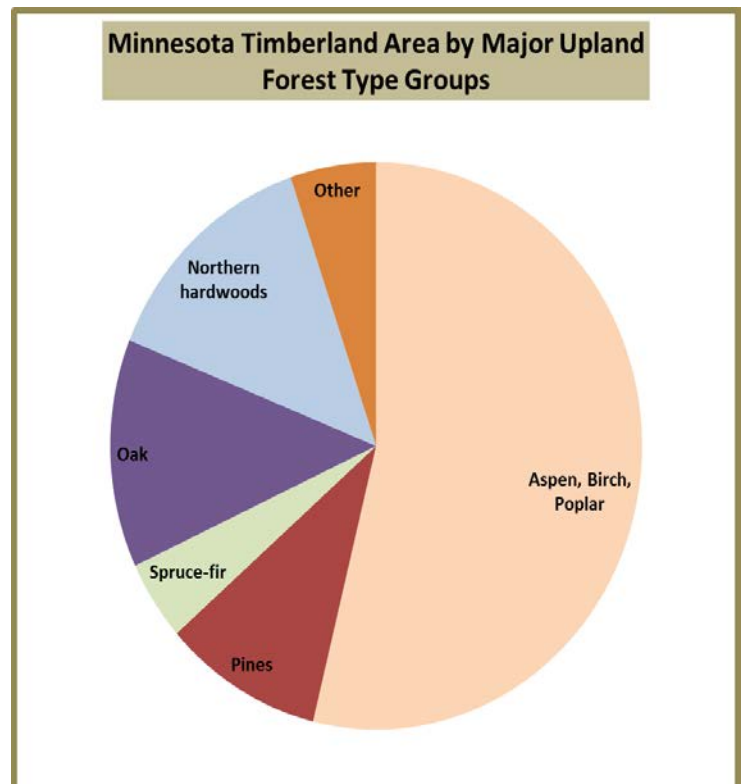
<u>SOURCE OF FUNDS</u>	<u>AMOUNT</u>	<u>Status</u>
Other Non-State \$ To Be Applied To Project During Project Period: N/A	\$ -	N/A
Other State \$ To Be Applied To Project During Project Period: N/A	\$ -	N/A
In-kind Services To Be Applied To Project During Project Period: Unrecovered indirect direct costs, calculated at the University's federally negotiated rate of 52% Modified Total Direct Costs	\$ 76,064	Secured
Funding History: Funding from the Blandin Foundation to support statewide forest resource assessment. Project to be completed June, 2015 and provide stateline baseline analysis that will help provide important detail for this project	\$ 135,000	Thru June 2015
Remaining \$ From Current ENRTF Appropriation: N/A	\$ -	N/A



Eventually, the pine overstory of our current older pine stands will die. Minnesota’s young pine stands today will be tomorrow’s older pine stands. The graph on the right shows the current age class distribution of younger stands in the pine cover types (USDA Forest Service FIA Data, 2008-2012). The area in each age 5-year class reflects pine regeneration in a past 5-year period. The graph shows that there were many more acres of young pine stands in the past 20-30 years than there are today. Management can add pine to the landscape, but doing so requires investment dollars.



Although pines have been the primary species planted in Minnesota over the last 80 years, the area of pine forest cover types is still relatively small (US Forest Service FIA Data, 2008-20012). Increasing the pine forest cover types would help diversify the forested landscape. Over half of the area of upland forest cover types is currently in the “aspen, birch, poplar” forest cover type group.





Project Manager Qualifications/Organization

Howard M. Hoganson, Professor

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Background: He has a B.S. degree in forestry from the University of Minnesota, a M.S. degree in forestry from the University of Washington, a M.S degree in operations research from the University of Minnesota and a Ph.D. in forest management from the University of Minnesota. He joined the faculty at Minnesota in 1987 after service as a Principal Economist with the USDA Forest Service North Central Research Experiment Station in Duluth, Minnesota and a faculty member in the Forestry Department at Virginia Polytechnic Institute and State University in Blacksburg, Virginia. He has authored numerous papers on forest management planning and served as an Associate Editor for *Forest Science* for five years. Recently he has served as lead analyst in forest harvest scheduling efforts for Interagency Information Center of the University of Minnesota. He has been recognized internationally for developing solution methods for forest management models that take advantage of the specific mathematical structure of forestry problems. These methods have been used in large-scale applications in US, Canada, Sweden, Brazil and Portugal. He is the instructor for forest management & planning courses for the Department of Forest Resources, University of Minnesota. He led technical timber supply analysis for the Environmental Impact Statement for a proposed \$700 million UPM Blandin Mill Expansion in Grand Rapids, MN and served as the lead analyst for the 2004 Forest Plan for the Chippewa and Superior National Forests in Minnesota. His research results served as the basis for scenario modeling for the Minnesota Generic Impact Statement (GEIS) on Timber Harvesting and Forest Management. Since the GEIS, he has often worked closely with the Minnesota Forest Resources Council (MFRC) and Minnesota DNR. He currently serves on the Information Management Committee of the MFRC. Recent research has emphasized spatial facets of forest management with applications to Kirtland's warbler habitat in Michigan on the Hiawatha National Forest. He is especially interested in linking operational planning and analysis with broad forest-wide objectives involving both environmental and economic objectives.

Responsibilities for the proposed project: Hoganson will oversee all aspects project emphasizing broad statewide and long-term perspective under Minnesota forest policies directing sustainable forest management. Hoganson will provide important link with Blandin Foundation study to be completed by June 2015 to describe current statewide forest conditions and potential economic opportunities in Minnesota. Work will also be integrated with ongoing forest policy efforts of the Minnesota Forest Resource Council (MFRC) regarding integration of economic and ecological objectives over multiple forest ownerships. Dr. Calder Hibbard, MFRC staff, is committed to assisting Hoganson with the project and coordinating it closely with MFRC programs. Hoganson will work closely with Dr. Curtis VanderSaff, planning analyst with the Minnesota DNR, both in utilizing DNR data and developing detailed case study related to Minnesota DNR forest planning for DNR lands. Overall emphasis by project team will be on recognizing the full value and potential of pine restoration activities, including potential interactions with other important facets of the forest management situation.