

Environment and Natural Resources Trust Fund 2020 Request for Proposals (RFP)

Project Title:**ENRTF ID: 257-FH**

Communicating about Science: Knowledge Exchange in Forest Management

Category: H. Proposals seeking \$200,000 or less in funding**Sub-Category:** F. Methods to Protect, Restore, and Enhance Land, Water, and Habitat**Total Project Budget:** \$ 199,922**Proposed Project Time Period for the Funding Requested:** June 30, 2023 (3 yrs)**Summary:**

Field foresters need access to the best information. We will study what information foresters need, what information is already available, and create training opportunities to facilitate knowledge exchange.

Name: Forrest Fleischman**Sponsoring Organization:** U of MN**Job Title:** Dr**Department:** Dept. of Forest Resources**Address:** 1530 Cleveland Ave N

St. Paul MN 55108

Telephone Number: (734) 834-6246**Email** ffleisch@umn.edu**Web Address:** <https://www.forestry.umn.edu/forrest-d-fleischman>**Location:****Region:** Statewide**County Name:** Statewide**City / Township:****Alternate Text for Visual:**

Forest Managers & scientists need to communicate their knowledge & knowledge gaps. Our goal is for scientists & managers to work together to build resilient forests

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



PROJECT TITLE: Communicating About Science: knowledge exchange in forest management.

I. PROJECT STATEMENT

The **goal of this project** is to improve our understanding of how science is used by DNR forestry and facilitate better communication between forest managers and scientists, thereby ensuring more effective science-based forest management. In this project we will identify areas of disconnect between scientists and managers, and then design training interventions to fill these gaps, thereby improving the management of Minnesota's largest forest landowner, the DNR, who manages 3.7 million acres of forestland. In an era of shifting disturbance regimes and shorter frozen-ground seasons, forest managers need information that enables them to innovate to solve emerging problems. Yet a variety of evidence from inside of the DNR, UMN, and other research organizations indicates that scientists are often not aware of the research questions that are most relevant to managers, and managers are often unaware of the latest management-relevant scientific findings.

This project has 2 goals:

1. **Publish a report identifying gaps between scientific knowledge and forest management practice in the Minnesota DNR.** We will utilize techniques developed by PI Fleischman in his federally funded research to analyze the exchange of scientific information between field foresters and scientists, and identify priority areas for scientific investment and improved communication.
2. **Develop and test new ways to generate and deliver reliable information to inform innovation and experimentation in managing complex forest systems for multiple goals.**

Achieving these goals **will improve forest management effectiveness, enhancing the ecological and economic resilience of Minnesota's forests to emerging threats.**

II. PROJECT ACTIVITIES AND OUTCOMES

Activity 1 Title: Identify and publish gaps between scientific knowledge and forest management practice, using Minnesota DNR as a test case.

Description: We will interview 30 field foresters responsible for making on-the-ground decisions on DNR lands. These interviews will focus on understanding what knowledge foresters draw on when making management decisions, and where they obtain this knowledge. We will then track down and analyze these information sources. We will use analytic techniques developed with funding from the National Science Foundation to examine how information is used in written documents. Then we will interview information providers, including other DNR staff (for example, area and program supervisors, staff from other divisions), as well as university scientists and educators, who provide information to the field staff. Finally, we will examine relevant scientific publications from UMN, the USFS, and other research organizations and interview the scientists involved in producing that knowledge, to understand how science moves from lab to field, and how research questions move from field to lab.

ENRTF BUDGET: \$60,000

Outcome	Completion Date
1. Interview 30 DNR field foresters, 15 other DNR staff, and 15 scientists. Analyze referenced documents	December 2021
2. Publish report on knowledge exchange in Minnesota DNR	June 2022



Environment and Natural Resources Trust Fund (ENRTF)

2020 Main Proposal Template

Communicating About Science: knowledge exchange in forest management.

Activity 2 Title: Innovate in training & research to deliver the right science to the right people to improve forest management

Description: We will build on the analysis conducted in Activity 1 to identify, in collaboration with the DNR, two priority knowledge gaps where available scientific information is being under-used by DNR field foresters. We will develop innovative, technology assisted methods to communicate this information to practicing natural resource practitioners. Leveraging the broad connections in the U's Sustainable Forests Education Cooperative (SFEC), we will test different methods to deliver scientific knowledge to practitioners in ways that lead to adoption and experimentation. We will assess knowledge gain, barriers to change, and land managers' ability to use their knowledge in the field. We will use the findings of these trials to inform the design of future trainings conducted by the SFEC and make our findings available to other programs that provide forestry education in the state. We will also bring findings on scientific information needs back to the DNR, the U of M, and other research organizations. Our findings about knowledge gaps will be used to insure that future research proposals from the University to LCCMR and other funders will provide valuable and needed information to continue the sustainable management of forests within Minnesota.

ENRTF BUDGET: \$120,000

Outcome	Completion Date
1. Develop new learning modules that fill knowledge exchange gaps	August 2022
2. Provide recommendations to University scientists on DNR research priorities	August 2022
3. Complete training process, provide recommendations on learning models which effectively and efficiently provide knowledge transfer between scientists and Natural Resource Professionals	August 2023

III. PROJECT PARTNERS AND COLLABORATORS:

All funding will be used directly by the University of Minnesota to support the work of the three co-PIs, Drs. Forrest Fleischman (social science), Marcella Windmuller-Campione (forest management), and Eli Sagor (education). We will collaborate closely with DNR forestry. Our main collaborator there will be Amanda Keuper, whose responsibilities include interfacing between researchers and DNR forestry managers.

IV. LONG-TERM IMPLEMENTATION AND FUNDING:

Since 1963, approximately \$999 million has been appropriated to more than 2,200 projects through LCCMR. Our goal is to ensure that projects related to forest management are reaching the end user and to ensure that relevant applied research is being conducted in Minnesota to ensure healthy, resilience forests now and in the future. Our aim is to provide recommendations and trial techniques that will be adopted and integrated into the regular practices of DNR, the University of Minnesota, and other land management and research organizations in the state, without requiring additional funding beyond the three year cycle of this project.

Attachment A: Project Budget Spreadsheet
 Environment and Natural Resources Trust Fund
 M.L. 2020 Budget Spreadsheet

Legal Citation:

Project Manager: Forrest Fleischman

Project Title: Communicating about science: knowledge exchange in forest management.

Organization: University of Minnesota

Project Budget: \$199,922

Project Length and Completion Date: 3 years (completion August 2023)

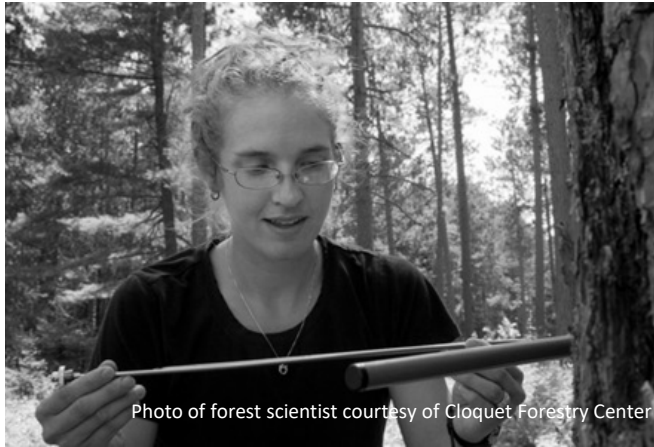
Today's Date: March 11, 2018



ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET		Budget	Amount Spent	Balance
BUDGET ITEM				
Personnel (Wages and Benefits) total:		\$ 194,292	\$ -	\$ 194,292
Research Scientist (Researcher 5) 1/2 time during year 1, full time during years 2 & 3 (100,097 salary, 39,635 fringe)		\$ 149,732	\$ -	\$ 149,732
Forrest Fleischman, lead investigator, 3.37% time (12,101 salary, 4,356 fringe)		\$ 16,458	\$ -	\$ 16,458
Marcella Windmuller-Campione, co-investigator, 3% time (10,663 salary, 3,839 fringe)		\$ 14,502	\$ -	\$ 14,502
Eli Sagor, co investigator, 4% time (10,000 salary, 3,600 fringe)		\$ 13,600	\$ -	\$ 13,600
Professional/Technical/Service Contracts		\$ -	\$ -	\$ -
Equipment/Tools/Supplies		\$ -	\$ -	\$ -
Capital Expenditures Over \$5,000		\$ -	\$ -	\$ -
Fee Title Acquisition		\$ -	\$ -	\$ -
Easement Acquisition		\$ -	\$ -	\$ -
Professional Services for Acquisition		\$ -	\$ -	\$ -
Printing		\$ -	\$ -	\$ -
Travel expenses in Minnesota		\$ 5,630	\$ -	\$ 5,630
30 days of travel to conduct interviews, average of 200 miles/day, 0.58 cents/mile		\$ 3,480		
Travel meals for 30 days @ \$25/day		\$ 750		
14 days of travel requiring hotel room stays to conduct interviews, hotel room \$100/night		\$ 1,400		
Other		\$ -	\$ -	\$ -
		\$ 199,922	\$ -	\$ 199,922
COLUMN TOTAL				
		Budget	Spent	Balance
SOURCE AND USE OF OTHER FUNDS CONTRIBUTED TO THE PROJECT				
Status (secured or pending)		\$ -	\$ -	\$ -
Non-State:		\$ -	\$ -	\$ -
State:		\$ -	\$ -	\$ -
In kind: Unrecovered Facilities and Administration 54%		\$ 107,958		\$ 107,958
		Budget	Spent	Balance
Other ENRTF APPROPRIATIONS AWARDED IN THE LAST SIX YEARS		\$ -	\$ -	\$ -
Amount legally obligated but not yet spent				

Communicating About Science: knowledge exchange in forest management.

The Problem: Forest managers & scientists need to communicate their knowledge and knowledge gaps





Environment and Natural Resources Trust Fund (ENRTF)
Project Manager Qualifications and Organization Description
Plugging knowledge gaps for sustainable forest management

Project Manager: Forrest Fleischman

Assistant professor of environmental and natural resource policy, Department of Forest Resources, University of Minnesota, St. Paul, 55108.

Professional Appointments and Preparation

- Assistant professor, Forest Resources, University of Minnesota, 2017-Present
- Assistant professor, Ecosystem Science & Management, Texas A&M University, 2013-2016
- Postdoctoral Research Associate, Environmental Studies, Dartmouth College, 2012-2013
- Ph.D. Public Policy, Indiana University, Bloomington, 2012
- MS & BS, Earth Systems Science, Stanford University, 2003

Areas of Expertise

Forest policy, policy processes, environmental governance, public participation, the use of science in policy-making. My research examines how forest managers make decisions about land use, and how their decisions are influenced by science, law, and public participation. I have worked on forest policy in several regions of the US, as well as overseas. In addition, my interdisciplinary background, spanning the social and natural sciences, enables me to work effectively with partners across a range of professional backgrounds.

Selected Publications

- **Fleischman, F.** (2017). Questioning Kaufman: How Cross-Level Political Coalitions Interact with Organizational Structure. *Public Administration Review*, 77(5), 743-751. doi:10.1111/puar.12753
- Cox, M., Villamayor-Tomas, S., Epstein, G., Evans, L., Ban, N. C., **Fleischman, F.**, Nenadovic, M., & Garcia-Lopez, G. (2016). Synthesizing theories of natural resource management and governance. *Global Environmental Change*, 39, 45-56. <http://dx.doi.org/10.1016/j.gloenvcha.2016.04.011>
- **Fleischman, F.**, & Briske, D. D. 2016. Professional ecological knowledge: an unrecognized knowledge domain within natural resource management. *Ecology and Society*, 21(1). <http://www.ecologyandsociety.org/vol21/iss1/art32/>

Project Management Experience and Responsibilities for this Project

I have extensive experience coordinating interdisciplinary teams of researchers and working with partners to transform research findings into educational programming. Currently I am the Principal Investigator of 3 federally funded projects (from NASA, NSF, and the USFS), with a total of 16 collaborators from several disciplines. I have previously teams of researchers studying community forest management in Indiana and the management of large-scale social-ecological systems.

I will bring this project management and educational design experience with me to this project, where I will be responsible for overall project coordination, as well as for insuring the integrity of the social research (surveys and interviews) which will undermine our research and outreach strategy.

Organization Description

For over 100 years, the Department of Forest Resources at the University of Minnesota has been the leader in producing high quality research regarding natural resource management issues across the state of Minnesota.