

**Environment and Natural Resources Trust Fund  
2019 Request for Proposals (RFP)**

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**Project Title:**

**ENRTF ID: 125-C**

Plugging Knowledge Gaps for Sustainable Forest Management

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**Category:** C. Environmental Education

**Sub-Category:**

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**Total Project Budget: \$** 300,000

**Proposed Project Time Period for the Funding Requested:** June 30, 2022 (3 yrs)

**Summary:**

There are knowledge gaps in forest management. The gaps may be because research doesn't exist or because research exists but isn't reaching managers. We plan to "plug" the gaps.

**Name:** Forrest Fleischman

**Sponsoring Organization:** U of MN

**Title:** Assistant Professor

**Department:** Department of Forest Resources, College of Food, Agriculture, and Natural Resource Sciences

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St. Paul MN 55108

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**Email** fleisch@umn.edu

**Web Address** https://www.forestry.umn.edu/forrest-d-fleischman

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**Location**

**Region:** Statewide

**County Name:** Statewide

**City / Township:**

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**Alternate Text for Visual:**

The Problem: Forest managers & scientists need to communicate but this communication is difficult. Our goal: Managers & Scientists working together to solve forest health problems

|  |                    |                          |                   |                          |                       |                          |                            |
|--|--------------------|--------------------------|-------------------|--------------------------|-----------------------|--------------------------|----------------------------|
| <input type="checkbox"/>   | Funding Priorities | <input type="checkbox"/> | Multiple Benefits | <input type="checkbox"/> | Outcomes              | <input type="checkbox"/> | Knowledge Base             |
| <input type="checkbox"/>   | Extent of Impact   | <input type="checkbox"/> | Innovation        | <input type="checkbox"/> | Scientific/Tech Basis | <input type="checkbox"/> | Urgency                    |
| <input type="checkbox"/>   | Capacity Readiness | <input type="checkbox"/> | Leverage          | <input type="checkbox"/> |                       | TOTAL                    | <input type="checkbox"/> % |
| <input type="checkbox"/> If under \$200,000, waive presentation? |                    |                          |                   |                          |                       |                          |                            |



**Environment and Natural Resources Trust Fund (ENRTF)**

**2019 Main Proposal**

Plugging knowledge gaps for sustainable forest management

**PROJECT TITLE:** Plugging knowledge gaps for sustainable forest management.

**I. PROJECT STATEMENT**

Although maintaining healthy forests requires timely management, **scientists and forest managers in Minnesota agree that managers often lack research-based solutions to contemporary forest health threats.**

There could be two reasons for this:

- **A research gap** – The needed research has not been done.
- **An exchange gap** – The research has been done but managers don’t know about it.

This project has **3 goals**:

1. **Identify science and knowledge gaps** as they relate to forest health threats in three important forest types: aspen, black ash, and red pine, on public forest lands managed by the US Forest Service, DNR, and county land departments. These 3 entities have provided strong letters of support for our project.
2. **Plug research gaps** through the publication of practical case studies in UMN’s Great Lakes Silviculture Library, and by collaborating with the Minnesota Forest Resources Council’s Science Advisory Committee to identify priorities for future research. MFRC has written a letter in support of our proposed collaboration.
3. **Plug exchange gaps** by conducting trainings for forest managers targeted at identified exchange gaps. These trainings will be integrated into existing programs of the Sustainable Forests Education Collaborative at UMN.

Achieving these three goals **will improve management effectiveness, enhancing the resilience of Minnesota’s forests to emerging threats.** Our project focuses on three forest types which were identified in DNR’s recent Sustainable Timber Harvest Analysis as facing challenging new threats:

| Forest Type | Area in Minnesota | Threats   |
|-------------|-------------------|---|
| Aspen       | 4,984,225 ac      | Age class imbalance limits production opportunities. Crucial habitat for deer, ruffed grouse, & neotropical migrant birds |
| Black ash   | 1,571,473 ac      | Emerald ash borer, ash dieback, shorter winters and limited demand, concern for loss of forest cover due to swamping      |
| Red pine    | 707,756 ac        | Shoot blights, drought, mountain pine beetle, thinning practices  |

**II. PROJECT ACTIVITIES AND OUTCOMES**

**Activity 1: Identify science & knowledge gaps by document analysis, surveys (500), and field interviews (90). ENRTF BUDGET: \$123,000**

To plug knowledge gaps, we must identify those gaps. We will synthesize available research-based knowledge by analyzing scientific documents and interviewing scientists, building on the Minnesota Forest Resource Council’s pending Research Advisory Committee report. We will survey officials working for the USFS, DNR, and counties about how they obtain information, and conduct field-based interviews to understand how they apply that information when developing management plans in the field.

| Outcome   | Completion Date |
|---|-----------------|
| 1. Analysis of scientific documents to understand the state of research-based knowledge | July 2020       |
| 2. Survey of agency officials to identify sources of knowledge                          | December 2020   |
| 3. Field visit interviews to understand how knowledge is applied                        | July 2021       |



**Environment and Natural Resources Trust Fund (ENRTF)**

**2019 Main Proposal**

Plugging knowledge gaps for sustainable forest management

**Activity 2: Plug research and exchange gaps through the publication of 90 practical case studies and identification of future research priorities.**

**ENRTF BUDGET: \$101,000**

We will draw on our analyses described in Activity 1 to publish practical and usable information to improve forest management. To plug research gaps, we will publish a report identifying research gaps in the three focus forest types. This will provide a framework for researchers and their funders to prioritize important research gaps. To plug exchange gaps, each of our 90 site-based interviews will result in the publication of a case study in the Great Lakes Silviculture Library, enabling forest managers to exchange information about management outcomes.

| <b>Outcome</b>   | <b>Completion Date</b> |
|--|------------------------|
| 1. <i>Contribution of case studies to Great Lakes Silviculture Library</i> | <i>December 2021</i>   |
| 2. <i>Publication of report on research priorities</i>                     | <i>July 2022</i>       |

**Activity 3: Plug exchange gaps by designing & conducting 6 day-long workshops**

**ENRTF BUDGET: \$76,000**

Based on information gathered from activities 1 & 2, the UMN Sustainable Forests Education Cooperative, managed by co-PI Eli Sagor, will develop new learning opportunities for forest managers to fill identified exchange gaps. SFEC programs are financially supported by organizations that receive training, and thus, funding is requested for program development but not for running the proposed trainings. Since SFEC programs do not require funding from LCCMR, these workshops will continue to be offered in the years after initial development.

| <b>Outcome</b>  | <b>Completion Date</b> |
|---|------------------------|
| 1. <i>Develop &amp; provide 6 workshops in accordance with identified exchange priorities</i> | <i>July 2022</i>       |

**III. PROJECT PARTNERS:**

**A. Partners receiving ENRTF funding**

All funding will be used directly by the University of Minnesota to support the work of the three co-PIs, assistant professor Forrest Fleischman (social science), assistant professor Marcella Windmuller-Campione (forest management), and associate extension professor Eli Sagor (education).

**B. Partners not receiving ENRTF funding**

| <b>Name</b>             | <b>Title</b>                            | <b>Affiliation</b>   | <b>Role</b>   |
|-------------------------|---|--|---|
| <b>Rob Slesak</b>       | <b>Site-level Program Manager</b>       | <b>Minnesota Forest Resources Council</b>  | <b>Coordination with MFRC Research Advisory Committee</b> |
| <b>Nathan Heibel</b>    | <b>Land Commissioner</b>                | <b>Koochiching County/Head of Minnesota Association of County Land Commissioners</b> | <b>Coordination with County land departments</b>          |
| <b>Mike Reinikainen</b> | <b>Silviculture Program Coordinator</b> | <b>DNR Division of Forestry</b>  | <b>Coordination with DNR</b>                              |
| <b>Carrie Sweeney</b>   | <b>Regional Silviculturalist</b>        | <b>US Forest Service</b>   | <b>Coordination with USFS</b>                             |

**IV. LONG-TERM- IMPLEMENTATION AND FUNDING:**

Funding this proposal will enable the development of research-based priorities for future research and educational funding in concert with the MFRC’s Research Advisory Committee. Our research will help funders (including the LCCMR) and research & education organizations (including UMN) identify priority areas for research and educational activities based on a scientific assessment of the research and educational needs of forest managers from the largest public land managers in our state. These priorities can inform the design of future projects, while the training programs we develop will continue indefinitely through the self-supporting programs of the SFEC.

**V. Timeline Requirements**

Data collection and analysis will be completed in 2019 & 2020. Publication and outreach activities will begin in 2020 and be completed by July 2022.

## 2019 Proposal Budget Spreadsheet

**Project Title: Plugging knowledge gaps for sustainable forest management**

**PIs: Forrest Fleischman**

### IV. TOTAL ENRTF REQUEST BUDGET 3 years

| BUDGET ITEM   | AMOUNT            |
|---|-------------------|
| <b>Personnel:</b>   |                   |
| Dr Forrest Fleischman .11% FTE + 33.5% fringe 1 month salary for 3 years  | 39218             |
| Marcella Windmuller-Campione .05% FTE +33.5% fringe 2 weeks summer salary for 3 years   | \$ 19,167         |
| Eli Sagor .04% FTE + 33.5% Fringe 2 weeks summer salary for 3 years   | 13501             |
| Post Doc Salary (1 FTE) and fringe (21.4%) for 3 years  | \$ 187,627        |
| Field Technician Salary (0.28 FTE) and fringe (7.7%) for a to be named field technician \$17.73/hr for 40 hours per week for ~ 15 weeks for 2 years | \$ 22,922         |
| <b>TOTAL PERSONNEL</b>  | <b>\$ 282,435</b> |
| <b>Professional/Technical/Service Contracts:</b>  | N/A               |
| <b>Equipment/Tools/Supplies:</b> Mailing for mailing of 500 surveys, 4.5/survey   | \$ 2,250          |
| <b>Acquisition (Fee Title or Permanent Easements):</b>  | N/A               |
| <b>Travel:</b> In state travel -90 days to conduct interviews, of which 35 days will require hotel stay @ \$93/day                                  | \$ 3,255          |
| Meals - \$25/day for 90 days  | \$ 2,250          |
| Mileage 200 miles per day for 90 days at current rate of \$0.545/mile   | \$ 9,810          |
| <b>TOTAL TRAVEL</b>   | <b>\$ 15,315</b>  |
| <b>Additional Budget Items:</b>   | N/A               |
| <b>TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND \$ REQUEST =</b>  | <b>\$ 300,000</b> |

### V. OTHER FUNDS *(This entire section must be filled out. Do not delete rows. Indicate "N/A" if row is not applicable.)*

| <u>SOURCE OF FUNDS</u>  | <u>AMOUNT</u> | <u>Status</u>  |
|---|---------------|----------------|
| <b>Other Non-State \$ To Be Applied To Project During Project Period:</b>   | N/A           | N/A            |
| <b>Other State \$ To Be Applied To Project During Project Period:</b>   | N/A           | N/A            |
| <b>In-kind Services To Be Applied To Project During Project Period: Unrecovered Facilities and Administration (54% Modified Total Direct Costs)</b> | \$ 162,000    | <i>secured</i> |
| <b>Past and Current ENRTF Appropriation:</b>  | N/A           | N/A            |
| <b>Other Funding History:</b>   | N/A           | N/A            |

Plugging knowledge gaps for sustainable forest management

# The Problem: Forest managers & scientists need to communicate but this communication is difficult







**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, 2013

**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 a NASA funded project that involves 8 other scientists from several disciplines working together to understand the dynamics of tree plantations in India. Previous work in India led me to consult with the national Ministry of Environment & Forests to redesign their forestry training curriculum. I have also coordinated 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.