### PROJECT TITLE: Promoting Forest Health and Reducing Forest Fire Hazards

**I. PROJECT STATEMENT**

The goal is to improve forest health, reduce wildfires, and grow Minnesota’s forest products industry by demonstrating value-added uses for underutilized tamarack and white pine. The outcomes are to:

1. Design, install, and demonstrate an approximately 250-ft boardwalk and 400 ft2 boathouse manufactured from thermally modified tamarack (boardwalk) and white pine (boathouse) at the Boulder Lake Environmental Learning Center (BLELC) (Duluth, MN), an environmental education leader with an 18,000-acre outdoor classroom that annually serves 10,350 K-12 through adult learners.
2. Educate BLELC visitors and forest products industry stakeholders on the economic and environmental benefits of utilizing innovative, chemical-free thermally modified tamarack and white pine.

This project is important because, while Minnesota forests display fire regimes that can be managed through proper timber harvest, tamarack harvest has decreased 44% since its peak in 2010. Also, the Eastern larch beetle has killed over 50% of mature tamarack trees on over 280,000 acres, with no indication that is subsiding. These beetle-infested trees die and become fuel for wildfires. Similarly, white pine harvest has declined 66% in the past 30 years. With relatively few markets, a large portion of unharvested tamarack and white pine become ladder fuels, leading to increased fire risk. Climate change is also likely to increase the risk for larger and more frequent wildfires and large-scale disease/insect epidemics. Unfortunately, harvest of this tamarack and white pine is often expensive and delivers minimal economic returns. *Therefore, finding new, value-added uses for tamarack and white pine is becoming more urgent*.

**II. PROJECT ACTIVITIES AND OUTCOMES**

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| **Activity 1: Design, install, and demonstrate a thermally modified wood boardwalk and boathouse at BLELC****Description:** *The objective is to construct a public thermally modified tamarack boardwalk and thermally modified white pine-cladded boathouse at BLELC. The lumber will be harvested from Minnesota forestland, kiln-dried at Lester River Sawmill (Duluth, MN), and thermally modified by Superior Thermowood (Palisade, MN). It will then be cut to size and finished at the NRRI, prior to being transported to the BLELC for subsequent installation. Installation will be led by a contractor (TBD) and BLELC, with NRRI support. The specific outcomes of this Activity are successful thermal modification of the lumber, and installation of the boardwalk and boathouse. These outcomes will be used to allow BLELC visitors to use the new boardwalk and boathouse and be educated on the environmental benefits and economic opportunities presented by increased production of thermally modified wood. The outcomes will be evaluated by number of volunteers assisting with boardwalk and boathouse installation, and time to install the boardwalk and boathouse.***ENRTF BUDGET: $106,420**

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| **Outcome** | **Completion Date** |
| *1. Thermal modification of tamarack and white pine* | *11/30/2020* |
| *2. Completion of boardwalk design and installation* | *06/30/2021* |
| *3. Completion of boathouse design and installation* | *09/30/2021* |

**Activity 2: Dissemination of economic and environmental benefits****Description:** *The objective is to disseminate the economic and environmental benefits of increased harvest of tamarack and white pine and subsequent production of thermally modified wood. To accomplish this Activity and publicize this innovative use of wood, we will communicate these benefits to BLELC visitors, landowners, timber harvesters and processors, wood products distributors, and other industry stakeholders. The specific outcomes are:*1. *Sharing of web-based media (e.g., electronic newsletters, webpages/social media) with public and private stakeholders,*
2. *Presentations to National Forest Supervisors and state utilization foresters across Minnesota,*
3. *Creation of an educational video highlighting project activities and benefits,*
4. *Posting of educational signage at BLELC, and*
5. *Execution of educational workshops at BLELC. These workshops will be used to demonstrate the economic opportunities presented by thermal modification technology while improving forest health and reducing wildfire hazards in Minnesota. The outcomes will be evaluated by successful creation and dissemination of the educational video, number of reports/web-based media shared, and number of BLELC visitors educated on the project’s benefits.*

**ENRTF BUDGET: $45,953** |  |
| **Outcome** | **Completion Date** |
| *1. Sharing of web-based media with public and private stakeholders (will occur throughout Years 1 and 2)* | *06/30/2022* |
| *2. Presentations to National Forest Supervisors and state utilization foresters* | *03/30/2022* |
| *3. Creation of an educational video* | *03/30/2022* |
| *4. Posting of educational signage at BLELC* | *06/30/2022* |
| *5. Execution of educational workshops at BLELC (will occur throughout Year 2)* | *06/30/2022* |

**III. PROJECT PARTNERS AND COLLABORATORS:**

* Matthew Aro, Project Leader, NRRI; coordination of all project activities and reporting
* Scott Johnson, Research Scientist, NRRI; sizing/finishing of lumber and assisting with installation
* Patrick Donahue, Research Program Manager, NRRI; disseminating project benefits to stakeholders
* June Breneman, External Affairs Coordinator, NRRI; PR/media relations, developing the educational video and disseminating project benefits to stakeholders
* Jeremy Weizel, Marketing Strategist, NRRI; assisting with PR/media relations and developing the educational video
* Ryan Hueffmeier, Program Director, BLELC; coordinating boardwalk and boathouse installation with the contractor, delivering educational workshops at BLELC, and disseminating project benefits to stakeholders

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

This project accelerates and complements a larger strategy to reduce wildfire threats while improving forest health and productivity by demonstrating *commercially-available* thermal modification technology that can provide new incentives to increase harvest, while simultaneously providing economic development and job creation opportunities. While the proposed Activities will be completed during the funded project period, the project team intends to continue to share project results and benefits with key stakeholders after project completion. Project Manager Matthew Aro (NRRI) and Ryan Hueffmeier (BLELC) will lead these efforts using funds legislatively-appropriated to the University of Minnesota Duluth.