

ML 2018, Ch 214, Art 4, Sec 2, Subd 6a **Project Abstract**
For the Period Ending June 30, 2024

PROJECT TITLE: Managing Buckthorn with Trees

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FUNDING SOURCE: Environment and Natural Resources Trust Fund

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M.L. 2023 - Sec. 2. Carryforward; Extensions

APPROPRIATION AMOUNT: \$499,734

AMOUNT SPENT: \$499,734

AMOUNT REMAINING: \$0

Sound bite of Project Outcomes and Results

The abundance of native tree and shrub stems (regardless of identity) is a significant predictor of buckthorn re-establishment following management. This project illustrates the value of adaptive management that leverages natural tree regeneration and augments native stem densities through strategic planting.

Overall Project Outcome and Results

Three experimental sites for long-term monitoring. We forged partnerships with Washington County, Three Rivers Park District, and Ramsey County to conduct mechanical removal of buckthorn and establish experiments within one of their managed properties each. Each site contained a series of roughly 60 experimental plots that we planted with varied combinations of bare-root trees and shrubs. In total, approximately 18,000 trees and shrubs were planted as part of the experiment. Each site was rigorously maintained to provide favorable growing conditions to planted stems and surveyed extensively for planted stem performance, invasion by buckthorn and other exotic species, and light availability. These experiments will provide researchers with the ability to easily monitor the sites as they mature over time.

The project team focused on analyses and dissemination of findings. Results suggest that managers' focus following buckthorn management should be on establishing the greatest number of native stems possible in the short-term, not necessarily on the identity of the particular species used. Managers can be more confident to select species based on site conditions and other management goals rather than attempting to use a prescribed tree or shrub based on our work. The large influence of volunteer cherry trees on buckthorn abundance also highlights that managers can and should seek to augment naturally establishing native trees to make revegetation more effective and less expensive.

We leveraged herbicide treatments to provide a novel comparison of Fosamine ammonium and Triclopyr choline (two foliar herbicides used in buckthorn management). We found that while both herbicides were effective at reducing buckthorn abundance, they had idiosyncratic impacts on non-target species.

Findings from The Cover it Up! research have been published and made available to the public. This [guide](#) introduces Minnesotans to the concept of using plants to more effectively manage buckthorn and provides them with multiple approaches to doing so as well as insight on potential strengths and weaknesses of common management strategies.

Project Results Use and Dissemination

May 2024. A guide to forest understory revegetation to help manage buckthorn and other invasive plants.

Authors: Schuster, Reich, Partington, Kaul

<https://z.umn.edu/buckthorn-revegetation-guide-2024>

Under Review. Efficacy and Non-target Impacts of Fosamine Ammonium and Triclopyr Choline Use in Controlling Common Buckthorn (*Rhamnus cathartica*) in a Forest Understory Community. Authors: Granstrom-Arndt, Bockenstedt, Stefanski, Reich, Schuster

In Preparation. Improving understory biotic resistance against invasive buckthorn (*Rhamnus cathartica*) through active revegetation of trees and shrubs. Schuster, Stefanski, Villanueva, Windmuller-Campione, Reich

Oral presentations informed by this grant.

Invasive Species Centre Webinar. September 2023. Approximately 2,800 views combined between live attendees and recording views.

Recording: https://youtu.be/AZDYf97SoeY?si=j_PK27LlhDnAYYq1

Friends of Eden Prairie Parks. Eden Prairie, MN. October 2023. Approximately 20 attendees.

Woody Invasive Species Advisory Panel. Billings, MT. November 2023. Approximately 30 attendees.

Prairie Enthusiasts St Croix Valley Chapter. Hudson, WI. January 2024. Approximately 50 attendees.

Prairie Enthusiasts Virtual Conference. February 2024. Approximately 200 attendees.

Wisconsin Woodland Owners Association. Hudson, WI. March 2024. Approximately 150 attendees.

Maple Grove Rotary. Maple Grove, MN. March 2024. Approximately 50 attendees.

Weed Inspectors of Hennepin County. Medina, MN. April 2024. Approximately 20 attendees.

North Dakota State University and University of Minnesota Extension Sheep/Goat Webinar. June 2024. Approximately 100 attendees.

Other media associated with this grant.

University of Minnesota. <https://twin-cities.umn.edu/news-events/beating-buckthorn-blues>

Minnesota Conservation Volunteer.

<https://www.dnr.state.mn.us/mcvmagazine/issues/2024/jan-feb/buckthorn.html>