Cornell University
Department of
Natural Resources

Slash Walls – A Novel Method to Prevent Deer Impacts to Forest Regeneration
Slash Walls Sustain Hardwood Forests

Smallidge, P.J., P.D. Curtis. B.J. Chedzoy
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Executive Summary
Over-browsing by deer has impaired the regeneration of desirable hardwood seedlings in the Northeast. Slash walls, the dense accumulation of low-value tree tops at the perimeter of a harvest, may provide a cost-effective and ecological desirable strategy to protect seedlings. Research will document the effectiveness of slash walls, and extension resources will increase awareness and adoption.

Collaborators
Bob O'Brien, Cotton-Hanlon, Chief Forester. Cotton-Hanlon; Jeff Tilley, Silviculturist, Forestry Program Leader, USFS Green Mountain and Finger Lakes National Forest; Tim Noon, Natural Resource Specialist, USFS - Finger Lakes National Forests. The Green Mountain/Finger Lakes National Forest; Doug Little, Director of Conservation Operations (Northeast), National Wild Turkey Federation.

Integrated Research and Extension Activities
This project was specifically designed to integrate research and extension objectives. Pilot data from recently established slash walls at the Arnot Forest, coupled with extension forestry field tours, document the need to fully validate the effectiveness of slash walls and develop best practices for stakeholders who intend to use of slash walls. Approximately 16,000 feet of slash walls were installed in 2017 among 4 harvest blocks, and two additional harvest blocks will add 12,000 feet of slash walls by 2019. The field tours helped identify research data that stakeholders will value as they assess the legitimacy of slash walls. Research objectives for this project will create knowledge that directly feeds into the extension objectives. Preliminary research data substantiates the need for an expanded project. A logic model strategy used the desired extension outcomes to inform the types of research objectives and methods that will be used and the partners/collaborators to engage.

Background and Context
Deer have devastated NY and eastern forests. Until now there has not been a practical, timely and cost-effective method to limit deer impacts. Deer over-browsing destroys desirable seedlings, reduces biodiversity, and promotes undesirable interfering shrubs. The ForestConnect forest vegetation management network identified the impacts of deer and interfering vegetation as the highest priority issue. NYFOA, with partners such as TNC and Audubon prioritize and advance their Restore New York Woodlands Initiative similarly focused on deer and interfering vegetation.

Methods to limit deer impacts are costly to install and maintain, and seldom used. In a completely novel approach, the Arnot Forest recently began trials of slash walls, a dense accumulation of low-value tree tops and stems at the perimeter of regenerative harvests. Pilot data, field observations, and multiple expert assessment have been highly favorable, but validation requires an integrated applied research and extension project to optimize adoption.

Slash walls are potentially one of the most profound advances in forestry as a solution for the greatest threat to forest regeneration. Commercial forestry needs a workable solution. The cost estimates of the original four slash walls, the pilot data on effectiveness, and the receptivity of stakeholders suggests this

novel approach is the most viable method to sustainably manage and regenerate New York's valuable hardwood resource. Stakeholders have helped develop this practice and are excited by its potential.

Extension Objectives

1. Increase awareness and knowledge among foresters, loggers and woodland owners for the benefits and application of slash walls.
2. Create educational resources that document cost and effectiveness and validate slash walls as a method that is legitimate under federal farm bill cost share funding.

Research Objectives

1. Evaluate the ability of slash wall to protect hardwood seedlings from deer and slash wall induced changes in wildlife habitat.
2. Identify barriers to hardwood regeneration within the slash wall.
3. Evaluate beech resprouting and its impact on hardwood seedling development within harvests protected by slash walls.
4. Assess changes in slash wall dimensions and estimate wood volume in slash walls.

Intended Outcomes and Impacts

The outcomes and impacts of this project are highly relevant. Most if not all forestry organizations are supportive of the Restore NY Woodlands initiative, focused on deer impacts, interfering vegetation, and non-regenerative logging.

Outcomes –

1. Document a novel practice to control deer impacts, evaluate barriers to seedling success, feasibility of organic beech control, and slash wall longevity. 2. Document financial models for slash wall establishment. 3. Increase awareness among the majority of practicing foresters in the state and among loggers in the east-central Finger Lakes region.

Impacts -

1. Stakeholders will have a cost-effective and ecologically sensitive practice to control the deer impacts to assure quality forest regeneration. This is the single-most significant problem facing the sustainability of eastern hardwood forests. 2. Cornell University will gain stature among these stakeholders for its land grant role in practical and applied forestry research.

Intended Beneficiaries

The primary beneficiaries are woodland owners and foresters in NY and the eastern hardwood forest region. They will have access to a practice that allows them to effectively control deer without the burdens of existing "best" practices. The forest products industry will have a feasible tool to ensure sustainability. Harvesting can happen with confidence that the forest resource is sustained. Loggers receive primary benefits because when forester and woodland owners include slash wall provisions in contracts, the loggers will know how to construct the wall and have economic guidelines for expected costs. Secondary audiences include CCE educators, MFO volunteers, and agency staff all of whom work with the primary audiences. To the extent slash walls are adopted, the costs of regenerative forest practices will be reduced and more efficient, resulting in benefits of biodiversity, desired forest age-structures, and landscape resource patterns that support an array of ecosystem services.