



# Pooled Monitoring Initiative's Restoration Research Award Program

## Project Title

Reforestation  
Restoration  
Success

## Lead Entity

Delaware  
Center for the  
Inland Bays

## Partners

Fairfax County  
Department of  
Stormwater  
Planning

## Research question(s)

Does reforestation, as practiced in the Chesapeake Bay watershed, and as compared to a novel approach, return forest function to levels found in adjacent forests? What metrics best predict equivalency. We tested 12, inexpensive, accessible, and Common metrics to find an understanding of forest health and reforestation success.



## Issue addressed

Widely implemented for water quality benefits, reforestation efforts often result in rows of trees referred to as plantations. Or reforestation is considered a cost of doing business when implementing practices in forested areas. Success metrics have been based on number of trees planted – without regard to restoration efficacy. Fast and efficient monitoring tools are necessary to understand the costs of removing forests and the lag until function returns.

## Project findings

The novel applied nucleation technique implemented in Fairfax County has the potential to restore forest function more quickly than traditional reforestation. Three metrics stood out as being able to determine forest condition: percent soil organic matter, percent cover of leaf litter, and tree canopy cover.

## Recommendations

- Applied nucleation or other approaches to reforestation should be considered over traditional row-based planting.
- Unplanted areas showed little recovery after five years, such that passive restoration should not be relied on.
- Inexpensive and accessible soil and vegetation metrics can provide sufficient rigor to determine if the restoration is returning function.

The Pooled Monitoring Initiative pools resources to support scientists who answer key restoration questions posed by the regulatory and practitioner communities. The research teams then provide the answers back to those who asked the questions for direct application. The goal of the program is to answer these key restoration questions that serve as a barrier to watershed restoration project implementation.

**Questions?** See [cbtrust.org/grants/restoration-research/](http://cbtrust.org/grants/restoration-research/)



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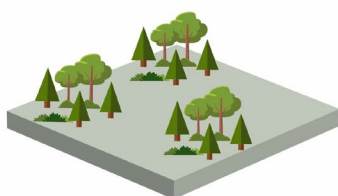
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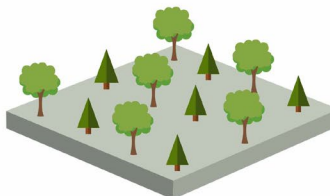
## Why does this study matter?

Miles of stream are degraded; the impacts to forested buffers are significant. Techniques for reducing recovery lag, as well as metrics to understand forest function and quality can be used to determine if the restoration is justified.

APPLIED NUCLEATION



PLANTATION



COMBINED METHOD



## What should we do with this information?

Implement low-cost tools to understand forest quality within the stream restoration project phase and avoid areas with high tree cover, excellent duff (leaf litter) cover and high percent organic matter. Careful post-restoration management can speed up recovery and function. Buffer reforestation should not be an after thought to channel restoration. Reforestation has options and does stream restoration does not have to have unintended impacts to riparian corridors.

## What will the end-user (regulator/manager and practitioner) do with this information?

Increase reforestation success after disturbance, in afforestation or reforestation.

## For more information:

See the final report at:

<https://cbtrust.org/grants/restoration-research/>

