

2025 Delaware Envirothon 5th Topic
Forest Resiliency: A Natural Climate Solution

Mr. and Mrs. Smith own 140 acres of forested land in southern New Castle County. The property contains four stands that are in different phases with different species composition. As the New Castle County service forester with the Delaware Forest Service, the Smiths contacted you because they want to prepare their forested land for the changing climate. You met with the Smith's on January 10, 2025, to talk about the process of developing a Stewardship Plan that will help guide the management of their property. During this initial consultation, you also helped them identify their goals and objectives which will advise your recommendations.

Their goal is to increase forest resiliency through active forest management. Their primary objectives are to raise trees for future sale of wood and wood products and to maintain and enhance wildlife habitat. Lastly, the Smiths would like to know how managing for forest resiliency is considered a natural climate solution. The Smiths are in their late 60's and they want to keep this property in active forest management.

On February 2, 2025, you returned to the property and conducted the evaluation of the four stands (analysis below). After reviewing each stand analysis, recommend appropriate silvicultural practices that address the Smith's goals and objectives. Make recommendations for the immediate future and include a follow-up recommendation that should be done within 5 years. Secondly, use the Northern Institute of Applied Climate Science *Adaptation Workbook* to align your recommendations with Strategies that will show the Smith's how managing for forest resiliency is a natural climate solution. Lastly, make recommendations for any financial assistance or conservation programs that will help the Smiths achieve their goals.

Although BMPs are usually prescribed for Harvest Plans, you can reference Delaware's *Forest Best Management Practices to Protect Delaware's Water Quality* document if you plan on recommending any harvest practices.

GENERAL WOODLAND DESCRIPTION

There are three stands of woodland on this property. The stands are productive sites for growing timber. Wildlife usage of the site is moderate, with songbirds observed, along with evidence of deer, and gray squirrel populations. This area is in the Gum Branch Watershed. The western boundary is a tax ditch that flows into the Blackbird Creek. The surrounding land is mixed farmland, forestland, and development.

STAND ANALYSIS

Stand #1 – 49.25+/- acres

This stand is composed of mature (approx. 80 years old) loblolly pine and has an understory of holly and scattered blueberry bushes. This stand has considerable volume. Much of this stand serves as a buffer or riparian area for ditches that run through the middle which feed into Blackbird Creek.

Stand #2 – 62.65+/- acres

This stand was clearcut in 2023 and is currently a regenerating mixed stand that is dominated by red maple and sweet gum. This stand is not under the Delaware Seed Tree Law. Several invasive species were also documented.

Stand #3 – 26.21+/- acres

This stand is an older mixed maple and gum stand that appears to have been high graded at some point in history. The overstory is comprised of large mature trees of generally poor quality. The mid story contains a mix of different oak species that are generally of good quality. The understory has a mix of blueberries, huckleberries, and spicebush and is somewhat sparse.

Stand #4 – 1.65 +/- acres

This stand is an abandoned ag field. There is a significant tree of heaven problem at the south edge of the stand.

Resources

NIACS Adaptation Strategies and Approaches, *Adaptation Workbook*

https://adaptationworkbook.org/niacs-strategies/forest_carbon_management

Forest Best Management Practices to Protect Delaware's Water Quality

https://agriculture.delaware.gov/wp-content/uploads/sites/108/2017/12/DE_BMPManual.pdf