

Jump-starting old growth

The Edward Lowe Foundation is trying to accelerate development of old-growth forest, a disappearing ecosystem that plays a critical role in biodiversity.

As its name suggests, old-growth forests have numerous large, mature trees that may stand 130 feet or higher. In addition to these mature trees, there are also trees of all ages and sizes, creating a multilayered canopy. Other hallmarks include open, well-lit areas due to trees that either have died or been blown over by wind, large craters resulting from these fallen trees, and a considerable amount of large, decaying logs.

Due to its unique environmental characteristics, old growth is a haven for many plants and animals. The ecosystem is also thought to have a positive impact on climate change due to the amount of carbon dioxide absorbed by trees and root systems.

Estimates of how much old-growth forest remains in the United States vary. In early 2023 a report from the U.S. Forest Service and the Bureau of Land Management found 18% or 32 million acres managed by the two agencies were old-growth.

Old growth at BRV

The foundation began its old-growth initiative in 2000 as part of the land stewardship efforts at Big Rock Valley (BRV), the 2,000 acres of woodland, wetland and prairie in southwest Michigan that serve as the organization's headquarters.

Of the 700 acres of woodland at BRV, about 100 acres are now being managed for old growth.



Forester Chris Egolf with a fallen tree that has been left on the woodland floor to contribute to down woody material.

“Essentially, we’re trying to jump-start this ecosystem,” explains Jay Suseland, director of grounds maintenance at the foundation. “In designated areas, we’re taking the thought process of what old growth should look like and setting the stage accordingly.”

The majority of trees in these plots are relatively young — about 100 years old, compared to conventional old-growth forests where trees are 300 to 800 years old. Thus, a key component

of the foundation’s old-growth initiative is to encourage larger, older trees.

To do so, trees that are competing with larger, healthy ones are selectively thinned.

Measuring results

Although most of the thinning is achieved by felling trees, some trees are girdled to promote snags — standing dead trees that are favored as a nesting spot and food source by many birds, such as kestrels and woodpeckers.

After thinning, trees are left lying in the old-growth stands to contribute to down woody material. Large, decaying logs are one of the most important components of an old-growth forest. They create a sponge effect and keep the area moist even in dry periods, as well as slowing down the wind and evaporation along the soil surface.

The coarse, woody debris also creates the right conditions for many species of fungi, lichens, mosses, and insects that are important for proper functioning of ecosystems.

Thinning of targeted trees is done in stages, spread over a 12-year period. “We don’t want to drop all the trees at once,” Suseland explains. “A large-diameter tree can take 20 or more years to rot, and we’re trying to promote different stages of down woody material.”

To compare forest management styles and to gather research data, the foundation’s environmental team has created demonstration plots. Ranging from 10 to 15 acres in size, these plots represent the four woodland management practices at BRV: old growth, environmental diversity, no management and high timber production. Within these demo plots, a forester has marked trees and measured for volume, woodlot density, basal area, canopy cover and species diversity.

“The initiative aligns with our overall goal to promote biodiversity, which is important from a number of perspectives,” says Dan Wyant, the foundation’s chairman and president. “For one thing, a loss of biodiversity



At Big Rock Valley, about 100 acres of woodland are being managed for old growth.

weakens ecosystems, making them more vulnerable to events like droughts and floods.”

“By actively managing for old growth, we also hope to provide a site for researchers to better understand this ecosystem’s importance to imperiled species and how old growth reacts in different climates and changing environmental circumstances,” he adds.

For example, he points out, old-growth forests in the Pacific Northwest can encompass several hundred contiguous acres while stands in the central United States are generally far smaller and are typically located in isolated pockets and surrounded by farm fields.

Although the stands managed for

old growth at BRV can’t officially claim old-growth status for a century or two, the foundation’s environmental team has seen some differences between these areas and other woodlands.

Species inventories indicate that certain birds, such as the pileated woodpecker and the cerulean warbler, can be found using the foundation’s property but not nearby woodlands with comparable acreage.

“Although these inventories are great for quantifying differences, you can feel a difference even without these inventories,” adds Jarod Reibel, conservation stewardship land manager at the foundation. “When you walk into one of our old-growth units, it looks and feels like no other of the forests around.”