

New England Forestry Foundation

New England Forestry Foundation (NEFF) was founded in 1944 to encourage more prudent use of New England's forests, which suffered from poor harvesting practices and a lack of good management planning. Today, NEFF is a recognized leader in sustainable forest management, conservation, forestry education, and assisting landowners in the long-term protection and management of their properties. NEFF owns and manages over 135 Community Forest, totaling more than 24,000 acres. We also hold over 135 conservation easements protecting over 1,143,000 acres of forestland.

To learn more about our organization, please visit our website at www.NewEnglandForestry.org.

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Carlstrom II Memorial Forest Community Forest Interpretive Trail

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Introduction

Welcome to the Carlstrom II Memorial Forest, a property of the New England Forestry Foundation (NEFF). This 31-acre woodland was donated to the New England Forestry Foundation in 1983 by the late Carl Carlstrom in memory of his wife, Mary Carlstrom. He also donated land on Gulf Street in Shrewsbury, which forms the Carlstrom I Memorial Forest. A one-acre tract on the south side of the property was donated from the estate of Dorothy Hunt in 2005 to fulfill her desire to contribute to land conservation. The Carlstrom II Forest is one of many forests owned and managed by NEFF for timber, wildlife, recreation, and ecological diversity. NEFF holds more than 140 property easements.

The forest features a diversity of tree species characteristic of Central New England. Visitors may notice that portions of the forest were recently harvested (in 2004). These areas are rapidly regenerating from indigenous seeds and stump sprouts. In fact, planting is rarely necessary in New England because of our quality growing conditions, a result of fertile soils and a relatively moist climate.

The interpretive trail in the Carlstrom II Memorial Forest features characteristics common to many central New England forests. The trail starts near the NEFF forest sign on West Main Street between Crawford Street and Jubilee Lane in Northborough. It also follows Jubilee Trail, which is part of a recreation trail network in Northborough. Along a nearly one-mile loop, visitors will enjoy a view of Northborough as well as a variety of features, including glacial erratics, stone walls, chestnut sprouts, and a certified vernal pool. Signs of native wildlife also may be observed, including tracks of the wild turkey and white-tailed deer, and songs of our local songbirds. As with all NEFF forests, Carlstrom II is a carry in-carry out facility. We ask that visitors respect both the forest and one another while enjoying all the forest has to offer. Visitors are reminded that Northborough enforces a dog leash law.

Station 15

Pine Grove. A few pine trees were spared from previous harvests and now form a small grove. This grove contrasts with the dominant oak-hickory forest elsewhere on the property. These trees will provide seeds for future generations of white pine. The grove offers an opportunity for quiet meditation.

Station 16

Invasive plants. The property is largely free of invasive vegetation, but a few species have gained a foothold here. This lower slope near the property boundary supports bittersweet vines and winged euonymus (burning bush). The extent of the invasive plants may be constrained to the richer soils in this area, but possible expansion into other areas will be monitored.

Station 13

Log Landing. The area to the south served as a landing for timber harvest from both this property in 2004 and from an adjoining private property in 2005. Several logs of various lengths that were not suitable for lumber were culled and left in low piles. These trunks are slowly rotting but will be evident for at least another 20 years. Immediately after logging, the cleared area was seeded to grass to minimize soil erosion.

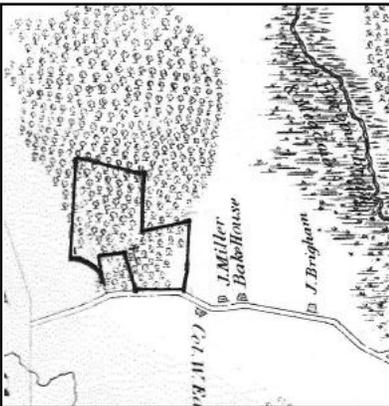


Log landing in 2004

Shrubs have since grown from tree stumps and indigenous seeds in the soil. Numerous aspen sprouts, typically a species to populate a cleared area, will eventually be shaded out by oak and white pine.

Station 14

Historical land use. The view of Northborough to the east would have been very different in the early 1800's when 70 percent of the town was open farmland and houses were sparse. The forest now provides a habitat for wildlife including deer, turkeys, and fishers that sometimes wander into residential areas. Trees along this bedrock ridge survive despite the very thin soils. A small hickory tree cut during trail construction, although only about 2 inches in diameter, was nearly 50 years old. Many of the trees seen on this ridge are probably that old or older.



Carlstrom II area in 1830

Station 1

Hardwood-white pine-hemlock forest. The Carlstrom II Forest is typical of forests in Central New England. Tree types consist of a diverse mix that includes black, red, and white oaks; red maple; black birch; and pignut and shagbark hickories. Other hardwoods within a 30-meter (100 feet) radius of the marker are hophornbeam, sassafras, and black cherry. White pine and hemlock are common conifers. Nearby Norway spruce saplings are out of place in this vegetation zone and probably seeded from nearby ornamental trees.

Station 2

Forest management and harvesting. This area was harvested for timber and firewood in 2004. While specific forestry prescriptions differ from property to property, the most appropriate management practices for this forest included leaving a few strong, healthy trees. These harvests accomplish at least three objectives; focusing the site's growth potential on stronger trees, putting sunlight on the forest floor to allow new trees to start growing, and providing some income to the landowner. In addition, the slash provides cover for small animals. The forest will be mature enough for another harvest in 10 to 20 years.



Harvesting, August 2004

Station 3

Boundary Marks. Three blazes (red marks) indicates a witness tree to the property corner; a blaze on either side of a tree indicates that the boundary goes through the tree; and a single blaze on the side of a tree indicates that the boundary is on that side of the tree within a few feet.

Station 4

White pine thicket. White pine saplings form a thicket along the trail. These trees are all about 20 years old and probably seeded in after a harvest about 25 years ago. Two nearby large pines that were left during previous harvests were likely sources of seed for these trees. This patch will self-thin as stronger stems grow and shade out weaker ones. As the trees mature, the average spacing between trees at maturity will be about 25 feet, similar to other white pine forests in Northborough. White pine logs have been a major product of New England forests since colonial times, providing lumber for building and ship masts.

Station 5

Stone wall. The stone wall marks a property boundary and probably the edge of a former pasture on the south side. The narrow width of the wall, only one stone wide, indicates the wall was probably built as a fence to control livestock in a former pasture south of the wall. Alternatively or in addition, the wall was built to mark the property boundary. The area north of the wall probably has been a woodlot since colonization by European settlers. During the mid-1800s, much of the land in this part of Massachusetts had been extensively cleared for farmland, and wood became more valuable for fuel and lumber than for fencing. As a result, stones provided a nearly permanent alternative (Thorson, 2002; Foster and O'Keefe, 2000).



Stone Wall

Station 10

Wetland. The wetland viewed from this station is a certified vernal pool that covers approximately 0.5 acres (0.20 hectares). Put simply, a vernal pool is a shallow depression lacking a permanent outlet, where water levels fluctuate with the water table and precipitation. Because they dry periodically, these pools cannot support fish populations. As a result, they serve as ideal breeding habitat for many amphibians, including obligate species such as fairy shrimp, wood frogs, and a variety of salamanders. A diversity of other amphibians and reptiles also use these pools. In fact, a chorus of wood frogs and spring peepers often can be heard here in early spring. Swamp white oak trees, a comparatively uncommon species in this region, also grow in the moist soils. Ice-free areas along the western side in winter indicate that groundwater contributes water to the wetland along with precipitation that falls directly on the wetland.

Station 11

Tropical Storm Irene. This tree fell during tropical storm Irene, a major hurricane that hit the east coast of the U.S. in August 2011. The north-northwest orientation is the approximate direction of the near-hurricane strength winds in Central Massachusetts. In general, damage by the high winds was minimal in this forest, but this tree had been previously weakened by heartwood rot and ants. Devastating hurricanes that can flatten woodlands hit this part of Massachusetts on the average of about once each century (Foster and others, 2004). The last major hurricane to hit the area was in 1938 when white pine forests were flattened and church steeples were toppled in Northborough.

Station 12

Former chicken coop. The dilapidated structure served as a chicken coop under forest cover during the 1960's and 70's.

Station 8

Chestnut sprouts. Numerous American chestnut sprouts are apparent in the harvested area. These sprouts are generated from roots that have persisted since chestnuts were infected and nearly eradicated by a blight fungus introduced to the U.S. in the early 1900's. The presence of the sprouts is evidence that this area has been forested for at least 80 years. Chestnut sprouts rarely exceed a diameter of 10 cm (4 inches) before the fungus kills the tree. Prior to the blight, American chestnut was the dominant hardwood in many parts of the Eastern U.S. and provided an important source of wood for building, fence posts, and furniture.

Station 9

Glacial erratic on bedrock outcrop. This granite boulder, a glacial erratic, was transported by the last continental glacier from the north and settled on this bedrock outcrop as the ice melted. The bedrock shows the vertical cleavage (fracturing) that characterizes bedrock in this region. The rocks, originally sediments in an ocean, were compressed and distorted during deep burial below a mountain range as continental plates were colliding in this area approximately 350-400 million years ago. The thin soils support an oak forest of generally smaller trees than the thicker soils at the south and east sides of the property.



Glacial Erratic & Hikers

Station 6

Tree damage by natural causes. Trees are susceptible to damage by numerous causes. This large oak fell during an unseasonal Nor'easter that dumped heavy snow in the area on October 30, 2011, before the oak leaves had fallen. The trunk had been previously infested and weakened by the action of carpenter ants. The Carlstrom II Forest is very near the Town of Shrewsbury to the west that has been quarantined, as of 2012, because of the invasive Asian Longhorn Beetle. That quarantined area has been expanding and could eventually include all or part of this forest. Hemlocks near the trail head, are infested and stressed by the invasive Woolly Adelgid bug.

Station 7

Skid path. Modern foresters manage harvesting operations to minimize the disturbance of soils. When trees are cut and delimbed, they must be transported to the landing – a process called “skidding.” The paths that are used to skid logs to landings are particularly susceptible to wear and tear, so loggers must employ Best Management Practices to reduce soil erosion and protect water quality. These practices include, but are not



Log skidding, August 2004

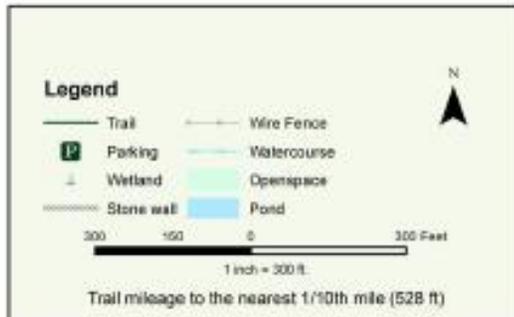
limited to, planning the most suitable route prior to harvest; using existing trails if they are appropriate; skidding on dry, frozen ground; and using small turns and bends to help break up the trail, which prevents water from gaining momentum and eroding the trail. Efforts to maintain the stability of the soil help encourage regeneration and reduce pollution in nearby stream.



Carlstrom II Forest

Interpretive Trail Stations

1. Hardwood-white pine-hemlock forest
2. Forest management and harvesting
3. Boundary marks
4. White pine thicket
5. Stone wall
6. Tree damage by natural causes
7. Skid path
8. Chestnut sprouts
9. Glacial erratic on bedrock outcrop
10. Wetland
11. Tropical Storm Irene
12. Former chicken coup
13. Log landing
14. Historical land use
15. Pine grove
16. Invasive plants



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