

## **Chapter 11 A. Case Study: Creating Early-Successional Habitat on a Small Woodlot in Southeastern New Hampshire**

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Even though many people would like to improve wildlife habitat conditions on their land, it can be difficult for many small forest landowners to do so. A woodlot may be too small to make a timber sale worthwhile for a logger, while equipment used in non-commercial projects is often so expensive as to be cost prohibitive for a small landowner. However, management options do exist even for small woodlot owners. Another case study in this chapter describes the benefits of neighboring landowners teaming up to cooperate and affect management on a large scale. Landowner cooperatives such as these can certainly help facilitate habitat management on small woodlots by enhancing economies of scale and/or spreading out the cost of management projects among many landowners. If forming a landowner cooperative is not a viable option, a landowner can still seek technical guidance from state natural resource agencies and apply for state and federal cost-share funds to offset management costs. Let's take a closer look at a real-world example in which this was done.

### **Situation**

A 50-acre property located in southeastern New Hampshire was purchased in 1995 by a retiree just before the property was to be sold to a developer. After purchasing the property, the new owner became very interested in improving the forest and wildlife habitat on the land. Unsure of what she should do or how she should proceed, the owner sought assistance from a New Hampshire state wildlife biologist and her county Extension Forester. In New Hampshire, these professionals are available, free of charge, to assist landowners with the initial stages of land management. Specifically, the biologist and forester helped the owner develop achievable management objectives and identify important wildlife habitat types on her property and within the surrounding landscape. Additionally, they provided her with recommendations for accomplishing her objectives, and helped her secure federal and state cost-share money for her management projects.

### **Property description and landscape context**

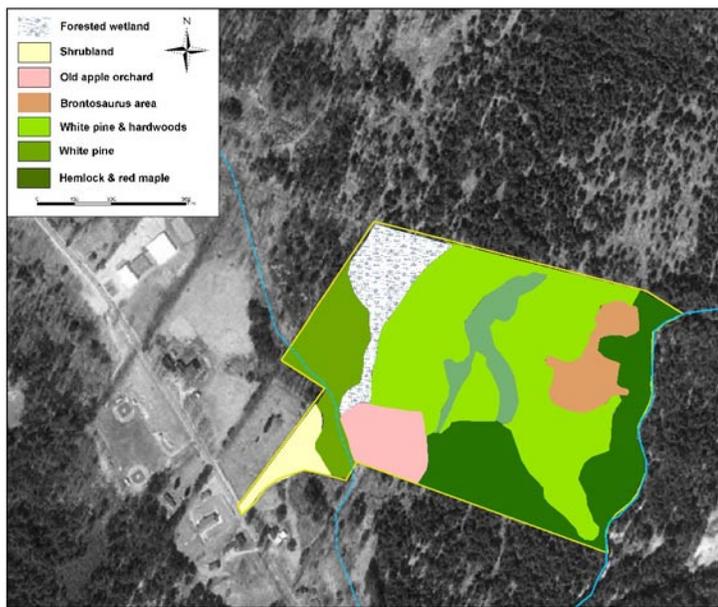
The property is about 95% forested. However, since the property had been scheduled for development, the previous landowner harvested all of the merchantable trees from the land prior to selling it. As a result, the forest on the property is in a two-aged condition. Most of the forested area is comprised of a mix of 20-year-old hardwoods and white pine averaging less than six inches in diameter at breast height (dbh). The largest trees on the property are red maples, hemlock, and white pine, averaging 14 to 16 inches dbh; these trees were not removed during the last timber harvest because they have low value as timber due to poor form and/or defects. The trees grow scattered throughout the property and in a five-acre stand near the Lamprey River.

Wetland habitats on the property include the river, a five-acre forested wetland, a 1/2-acre ephemeral wetland, and a 1/4-acre excavated farm pond. The river is the most prominent wetland habitat on the property and within the surrounding landscape. The property includes 2,500 feet of frontage on the river, which forms the eastern boundary. The five-acre wetland is associated with an intermittent stream that usually dries during the summer. The overstory in the wetland is dominated by red maple with a variety of wetland shrubs in the understory. Highbush blueberry shrubs dominate the 1/2-acre ephemeral wetland, which also functions as a vernal pool. The landowner uses the 1/4-acre farm pond for swimming and for training her retrievers.

Additional important habitats on the property include a two-acre grassy opening and a 1/2-acre abandoned apple orchard. The two-acre grassy opening contains a mixture of cool-season grasses such as timothy, as well as legumes such as bird's-foot trefoil and red clover. The apple orchard is overgrown with 30- to 40-foot white pines and red maples. Many of the apple trees are alive but in poor condition.

Wildlife habitat types located within the surrounding landscape are similar to those on the property. The area within a one-mile radius of the property is about 95% forested and is comprised of mixed hardwoods, white pine, and hemlock. The forest in this area averages about 60 years of age. Wetland habitats include the Lamprey River and forested wetlands dominated by red maple.

*Figure 1. This cover type map clearly shows a lack of habitat diversity in and around the property. Adding a shrubland component will add to habitat diversity and the diversity of wildlife using the property.*



## Habitat management prescriptions

After considering wildlife habitat types on the property and those within the surrounding area, the forester and biologist determined that an early-successional habitat component was lacking. They immediately focused their attention on the five acres of low-quality timber near the Lamprey River, and recommended this be converted into a shrub-dominated opening. Several reasons made this area particularly suitable for conversion into a shrub-dominated habitat. First, the area contained an unfavorable mix of low-value timber species (no potential timber revenue would be lost by removing these trees) and the majority of trees were pole-sized and could be removed easily. Second, the mixture of upland and wetland soils had the potential to support a diversity of shrub and herbaceous plant species. Third, the shrub opening would create a valuable transitional habitat between the two-acre grassy opening and the Lamprey River. Last, the area would be suitable for many shrub-dependent wildlife species that often use habitats less than five acres in size. As a secondary benefit, this arrangement of habitats would provide the landowner with an ideal area for training her retrievers.

## Management implementation

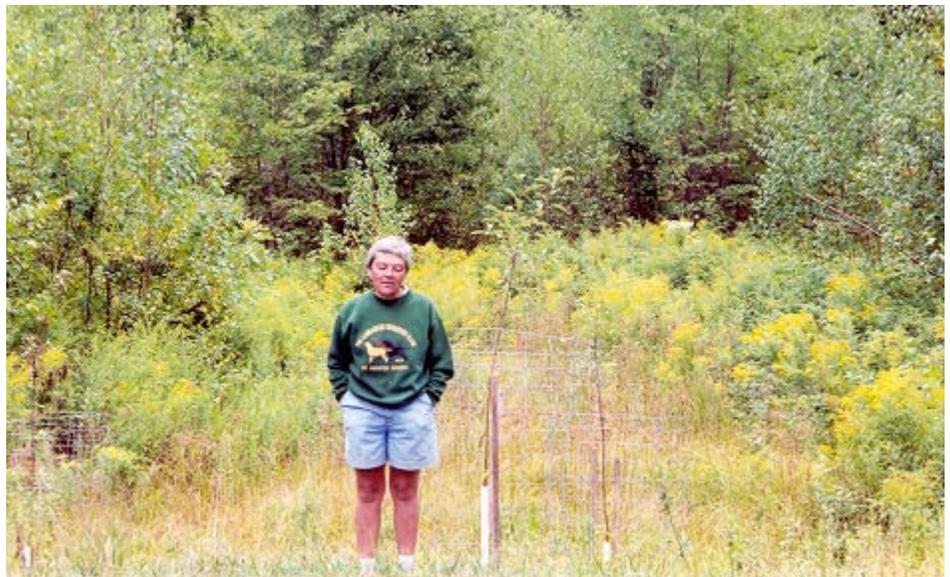
In early March 2002, the landowner hired a Brown Brontosaurus operator to convert the five-acre area into a shrub-dominated opening (refer to the mechanical tools section of chapter 10 for more information on the Brontosaurus). The landowner utilized New Hampshire Fish and Game Department's Small Grants Program to pay for one day of mowing with the Brontosaurus (cost = \$1,400 for eight hours). The Small Grants Program provides up to \$2,000 per year (maximum grant total of \$6,000) to eligible properties to help implement a variety of habitat management practices (see chapter 12 for more information on this and other funding sources). In an effort to cover as much area as possible, only trees less than eight inches dbh were removed. Although a state regulation restricts timber cutting within the first 50 feet of a water body, the



*Figure 2. A Brontosaurus grinding or “mowing” a tree. All that remains of mowed trees are small strips of wood fiber on the ground. Photos by Matt Tarr.*

Brontosaurus operator was instructed to leave a wider 100-foot buffer of dense hemlocks along the edge of the Lamprey River as an undisturbed riparian corridor for wildlife. Additionally, all berry-producing shrubs were retained. By the end of the day, a five-acre opening, with only scattered remnant trees had been created.

*Figure 3. The landowner and two of the 20 crabapple trees she planted as part of her wildlife habitat improvement project. Trees have been fenced to help reduce damage from antler rubbing and browsing by deer.*



In May of the same year, the landowner planted 20 crabapple trees along the edge of the newly created five-acre opening. These trees were donated as part of a wildlife habitat improvement program sponsored by the New Hampshire Fish and Game Department.

## **Results and wildlife response**

By the summer of 2002, the five-acre opening contained a mixture of upland and wetland vegetation. The drier areas of the opening were dominated by black raspberries, and the hardwood stumps had sprouted. Areas with wetter soils contained wetland rushes and sedges, as well as a mixture of ferns. Vegetation in the opening averaged three feet in height by early summer. Although no formal wildlife inventory was conducted, a variety of shrub-associated songbirds such as indigo buntings, chestnut-sided warblers, common yellowthroats, yellow warblers, and song sparrows were observed within the opening. As expected, the opening received very heavy browsing activity from both deer and moose.



*Figure 4. A portion of the five-acre opening four months after being mowed by a Brontosaurus. A diversity of grasses, ferns, berry-producing shrubs and young trees are already establishing within the opening. The landowner did not seed or plant this area, but rather, allowed plants to regenerate naturally.*

*Photo by Matt Tarr.*

## **Future management**

The landowner has been approved to receive funding through the Natural Resources Conservation Service's (NRCS) Wildlife Habitat Incentives Program (WHIP), a cost-share program that pays up to 75% of a project's total cost. The landowner worked with a biologist from NRCS and developed a five-year plan to improve wildlife habitat on the property. Funding through WHIP and the NH Fish and Game Department's Small Grants Program will be used to cost-share the following projects:

### **Continued conversion to shrubland**

A timber harvesting company with whole-tree chipping equipment will be hired to harvest the trees remaining within the five-acre opening. Any trees with timber value will be sold for lumber and the remaining trees will be chipped. The whole-tree chipping equipment will be used because it will allow all unwanted trees, including saplings, to be removed. Removing all trees in this manner will maximize the amount of sunlight in the opening and is expected to result in a positive growth response from shrub and herbaceous plant species. Once these trees are removed, the area will be allowed to regenerate for five to seven years. A Brontosaurus will then be used to maintain the opening every five to seven years by removing any trees or undesirable shrub species.

### **Small wildlife openings**

While the whole-tree chipping equipment is on the property it also will be used to create two, one-acre wildlife openings in a section of the property dominated by low-quality hardwoods and white pine. Once created, these openings will be allowed to regenerate naturally, which will improve the diversity and distribution of forest age-classes on the property, as well as improve the overall habitat matrix within the immediate landscape.

### **Apple tree release**

The whole-tree harvesting equipment will also be used to remove poor-quality white pines and red maples that are shading apple trees in the 1/2-acre orchard. The apple trees will be pruned gradually for three years after they are released.

### **Grassy opening maintenance**

The two-acre grassy opening will be limed and fertilized according to a yearly soil test to ensure healthy, vigorous growth of the grasses and legumes. This area will be maintained by mowing it once each year in late August.

The landowner and the County Extension Forester will monitor wildlife response within each of the project areas over the next five years. Shrub-associated songbirds are expected to become more common on the property due to improved nesting and feeding opportunities within the five-acre opening. A similar response is expected from small mammals as herbaceous cover increases and berry production improves. The dense shrub cover combined with the adjacent forested stands and wetlands will provide suitable foraging habitat for raptors such as Cooper's hawks, sharp-shinned hawks, and northern saw-whet owls. Regeneration within the two forest openings will provide immediate browse opportunities for deer, moose and snowshoe hares, all of which have been observed on the property. These small forest openings will improve foraging conditions for barred owls and broad-winged hawks. High-quality forage within the two-acre grass opening will be grazed by deer and will provide turkeys and grouse with a habitat containing abundant insects. Improved apple production within the 1/2-acre orchard will provide a high-quality food option for small mammals, fox, turkeys, deer and bears.

## **Biography**

Matt Tarr works for the University of New Hampshire Cooperative Extension Forestry and Wildlife program as an Extension Educator. He assists private landowners and municipalities in managing their land for timber, wildlife habitat, water resources, recreation, and aesthetics. Matt received an Associate's degree in Forest Technology, as well as a B.S. and M.S. in Wildlife Ecology from the University of New Hampshire.