

ABEL ROAD PROPERTY ECOLOGICAL ASSESSMENT and MANAGEMENT PLAN

Prepared for:
Rindge Conservation Commission



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Cover photograph – Tarbell Brook and its riparian forest support high biological diversity.

INTRODUCTION

The Rindge Conservation Commission contracted with Moosewood Ecological LLC to prepare an ecological assessment and management plan for the town-owned Abel Road property (Map 5, Lot 14-4). The property is approximately 6.3 acres, and is located just south of Route 119 and Pearly Lake (Figure 1). Abel Road makes up the eastern boundary and the topography slopes westerly towards Tarbell Brook, an important tributary of the Millers River. The lot is predominantly forested, which provides protection for Tarbell Brook and its riparian zones from sedimentation, toxicants, and other forms of runoff from Abel Road.

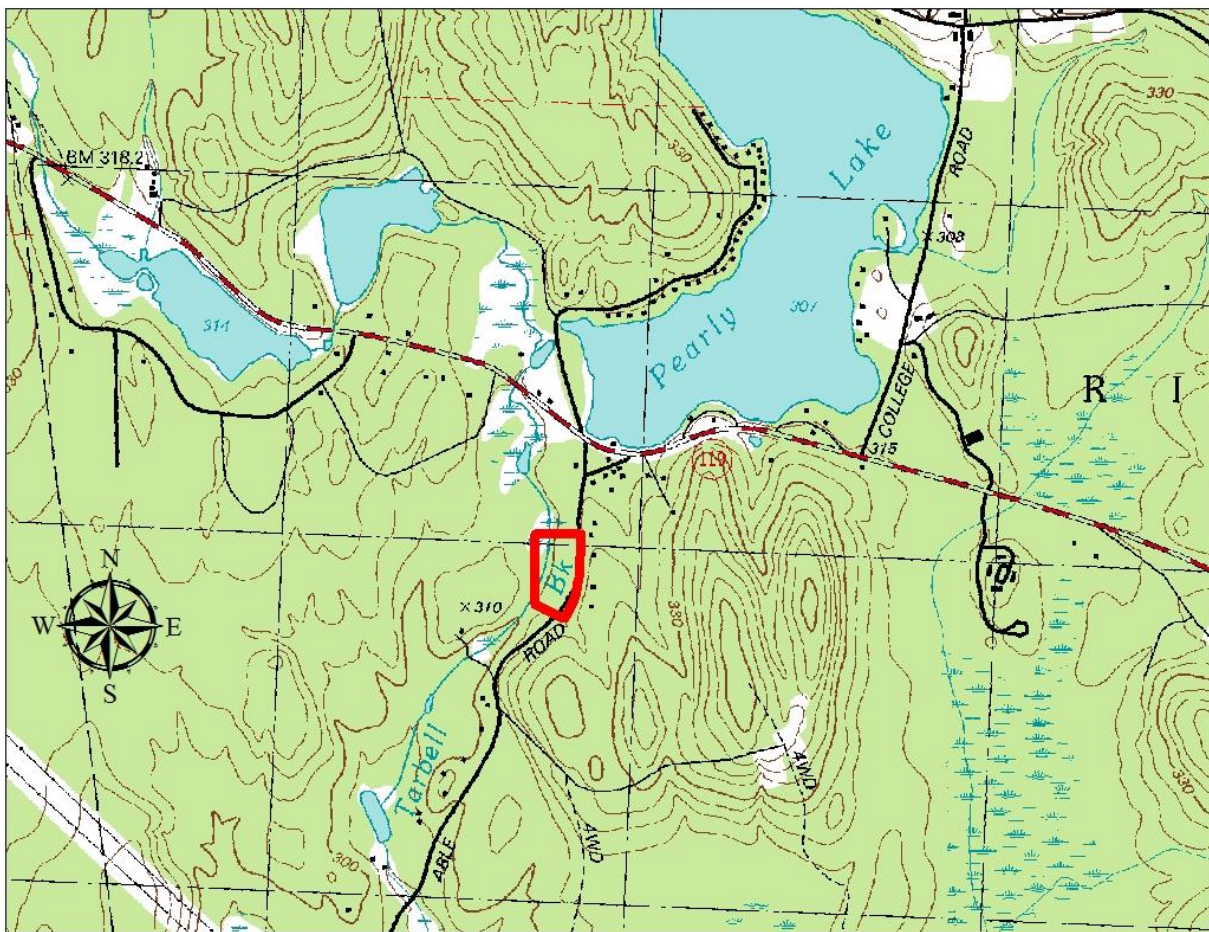


Figure 1 USGS topographic map of the Abel Road property.

EXISTING CONDITIONS

Ecological Features

The Abel Road property provides both wetland and upland habitats (Figure 2). The hemlock-hardwood-pine forest is one of three main wildlife habitats on the property. It is dominated by hemlock, beech, red oak, white pine, red maple, and yellow birch. The riparian forest adjacent to Tarbell Brook provides more moisture, providing conditions to promote greater diversity for plants that thrive in more mesic and hydric soils. Wildlife using the forested habitat included broad-winged hawk, American robin, black-capped chickadee, tufted titmouse, American crow, blue jay, hermit thrush, red-eyed vireo, brown creeper, pileated woodpecker, wild turkey, winter wren, veery, black-throated green warbler, black-throated blue warbler, and ovenbird. The last four birds are considered as species of conservation concern for our region. It is likely that there are other birds of conservation concern using the property. Mammal sign included raccoon, coyote, deer, and porcupine. Redback salamanders and juvenile red-spotted newts were also observed.

Tarbell Brook runs through the property from north to south. It drains Pearly Lake to the north and forms an important tributary for the Millers River. This rocky bottom brook and its riparian forest support high biodiversity and habitat for a vibrant aquatic food web. For instance, aquatic macroinvertebrates and crayfish provide food for various fish, otter, mink, raccoon, stream salamanders, and turtles.

A small marsh and shrub wetland is located in the northern section of the property along Tarbell Brook. This wetland provides habitat for a variety of wildlife, including birds such as song sparrow, common yellowthroat, gray catbird, and various waterfowl. Spotted salamander egg masses were observed along the edge of the marsh. This wetland can also support many other wildlife species such as turtles, snakes, beaver, otter, dragonflies, and damselflies.



Figure 2 Wildlife habitats of the Abel Road property.



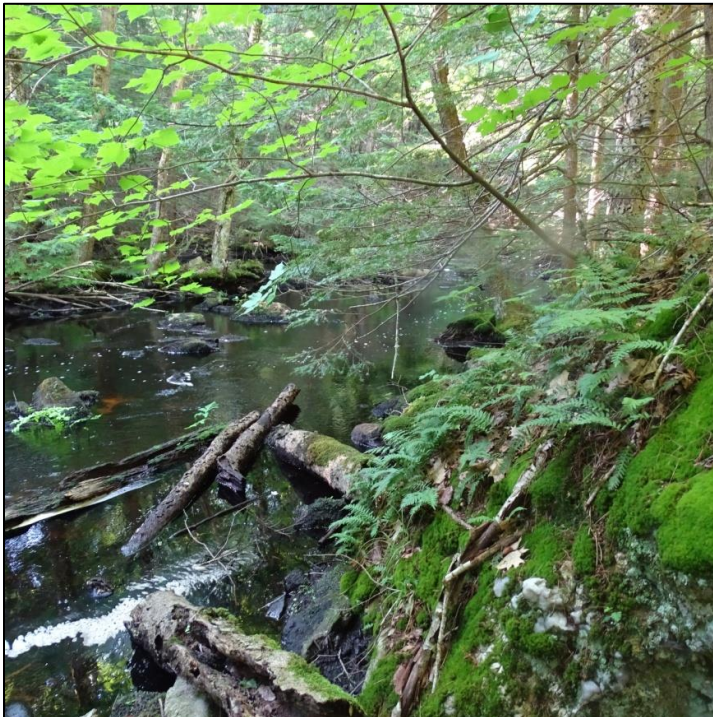
Hemlock-hardwood-pine forest.



Forest riparian zone adjacent to Tarbell Brook.



This large dead tree provides habitat for salamanders and insects, as well as nutrients for



Tarbell Brook provides habitat for a variety of aquatic and semi-aquatic wildlife.



This marsh and shrub wetland also provides important habitat for a diverse array of wildlife.

Human Features

Several stonewalls are scattered throughout the property, providing structures for property bounds and evidence of early cultivation and livestock grazing in pastures during the late 1700s through the 1800s (Figure 3). Old-field white pines provide evidence that the land was most likely abandoned from previous agricultural activities about 150 years ago.

Figure 3 shows five areas labeled with letters. The areas denote past land use by the early colonists. Area A on the west side of Tarbell Brook and south of the wetland appear to have been used as a pasture. Areas B and D show evidence of past cultivation. Small rock piles, a plow terrace, small stones found in the stonewall, and flat land indicate this type of land use. Area C was most likely part of a pasture, and Area E was associated with the old schoolhouse. There were some flattened areas adjacent to the school that may have been part of a small garden, while areas to the west appear to have been part of a pasture. Area E may have been a pasture originally before the schoolhouse was constructed in 1820.

Other stone features include a cellar and dug well from a schoolhouse used by early colonists. There are also some stone structures located along Tarbell Brook in the middle of the property. These structures indicate the possibility that the site may have been used as part of a

mill by the colonists or at least some sort of attempt was made. This structure could have been used to support power of a mill downstream.



Figure 3 Existing human structures.



Stone structure crossing Tarbell Brook.



Small stones in a double stonewall indicative of past cultivation.



Cellar hole from the old schoolhouse.



Dug well associated with the schoolhouse.

Unfragmented Landscape

Figure 4 shows how the Abel Road property fits into the surrounding unfragmented landscape with conservation lands. The Millers River Watershed Council has identified a 6-mile section of the Millers River as a Blue Trail in recognition of its natural and cultural history. Tarbell Brook is an important tributary to the Millers River, contributing to its natural and cultural heritage, as well as helping to maintain good water quality.



Figure 4 Unfragmented landscape with conserved lands within the upper Millers River watershed associated with the Abel Road property.

LAND MANAGEMENT RECOMMENDATIONS

The Conservation Commission states that the purpose of land management should focus on the conservation and maintenance of the wildlife corridor along Tarbell Brook; water quality of Tarbell Brook and its associated wetland; historical provenance; recreational access and potential; public education; and wildlife habitat and diversity. Based on this purpose in concert with the size of the property and its existing conditions best management practices should focus on wildlife, recreation, and education. Although logging has occurred on the property as recently as 20 years ago any forest management over the next 10 years should focus on wildlife and water quality management.

Wildlife and Habitats

- **Mast tree release:** Many trees provide a great source of food for a variety of wildlife. Trees such as beech, oaks, birches, and pines provide mast important for local and migratory species. The seed and nut production of some of these mature trees located in the canopy could be enhanced. After a selection of multiple species have been identified, surrounding trees can be removed to allow more space in the canopy to allow for more vegetative growth and mast production. This could involve the creation of snags simultaneously (see recommendation on snags below). This management activity can also help to create a brushy understory needed by various wildlife, including the black-throated blue warbler observed using the property which is a species of regional concern. A forest or wildlife ecologist can identify trees for release.
- **Retention and creation of snags:** Many species of birds and mammals use dead standing trees for nesting, feeding, resting, and rearing of young, including raccoons, porcupine, fisher, squirrels, owls, chickadees and nuthatches to name a few. Identify existing snags by size class to be retained. Where appropriate and in consideration of the trail location, create a variety of standing snags to complement the existing snags. Girdling trees near the base of a tree is a common method used. Typical recommended average densities include the following: 9.1 individuals per acre (5.1 softwoods and 4.0 hardwoods) with diameters of 12.1-15 inches, and 3.8 individuals per acre (2.7 softwoods and 1.1 hardwoods) with diameters of greater than 15 inches. A forest or wildlife ecologist can

identify the number of snags by size class for retention, as well as identify live trees for girdling.

- Maintain downed coarse woody debris: Large downed trees provide habitat for a variety of invertebrates and amphibians, as well as decaying organisms that help to break down woody material and provide soils enrichment and development.
- Invasive species:
 - Invasive plant species were observed mostly along the riparian edge of the brook and road edge. A few were also noticed in the forest interior. Glossy buckthorn and Oriental bittersweet were noted in relatively low abundance in general. However, there are some large buckthorns located along the edge of the wetland in the north in association with Tarbell Brook. These large buckthorns can be girdled in the first year and manually cut back annually to prevent them from going to seed. Conversely, they could be cut and herbicide applied to the freshly cut stump. This would have to be performed by a licensed herbicide applicator and a special permit would be needed from the NH Dept. of Agriculture since they are adjacent to aquatic habitat. The other individuals on the property can be manually removed.
 - Based on site visits there were no invasive forest insects observed. The main species of concern is the hemlock woolly adelgid. Annual inspection of understory hemlocks is suggested as a way to understand the presence of this invasive insect.
- A 100-foot forested riparian buffer should be maintained along both sides of Tarbell Brook and its wetland. This buffer will provide a continuous wildlife corridor associated with the properties to the north and south, help maintain good water quality whereby trapping sediments and pollutants from Abel Road, and stabilizing the stream bank. The buffer should be divided into 2 zones. Zone 1 includes a fifteen-foot buffer located perpendicular to the edge of the active channel. This zone should remain undisturbed except for the placement of the proposed bridge (described below) and development of snags when the opportunity presents itself. Tree harvesting should not occur in this zone. Zone 2 begins at 15 feet from the edge of the channel and extends to 100 feet. Limited tree removal should be exercised in this zone and should be allowed to revegetate. Care

should be exercised in order to not significantly disturb the soil whereby preventing erosion and potential sedimentation into the brook.

- Maintain older white pines with multiple leaders: These trees were formed as a result of the white pine weevil depositing eggs in the terminal shoot of the young pine as it grew in the open when the fields were abandoned. These older trees provide a complex canopy structure that is missing in many forests today that provide habitat for many birds for nesting, resting, cover, and feeding. These older trees will also provide a food source for many species, as well as provide insight into our cultural history.
- Examine the possibility to create and maintain aquatic connectivity within Tarbell Brook. The human-developed stone structure crossing Tarbell Brook in the middle of the property appears to be a barrier for aquatic species, such as fish, to freely move within the brook for much of the year.

Recreation and Education

The map in Figure 5 below provides a conceptual design for various recreational and educational aspects described below. The placement of these features is ultimately decided in the field as dictated by opportunities and obstacles.

- Promote passive recreation on the property such as walking, nature watching, snowshoeing, and cross-country skiing. The terrain, surrounding land use, and sensitive stream habitat do not lend itself to motorized vehicles, horseback riding, or biking.
- Develop a small parking lot in the vicinity of the old log landing.
- Develop interpretive trail and annual maintenance plan: The property can provide a great opportunity to educate the public on its ecology and past land use history. The following numbers correspond to the map in Figure 5. Other interpretive stops could include stumps and coppiced trees associated with past logging events, “old field” white pines, other tree species identification, and areas of wildlife management such as mast tree release.
 - #1 – schoolhouse, dug well, and cultivated site
 - #2 – stonewall designed for sheep pasture
 - #3 – Tarbell Brook and riparian forest

- #4 – plow terrace, small stones, and flattened topography associated with cultivation
- #5 – stone structure across Tarbell Brook
- #6 – double stonewall with small stones and flattened topography associated with cultivation; wetland habitat associated with Tarbell Brook
- Install kiosk at parking lot, which could include a written narrative on the history of the property, examples of flora and fauna frequently observed, map of the interpretative trail, and brochure of the trail.
- Consider the installation of a bridge across Tarbell Brook in the most appropriate location to access the “island,” and consider clearing a small space for a picnic table. Flooding associated with Tarbell Brook should be assessed to determine the appropriateness of the placement, design, and installation of a bridge.
- Promote the property as a public fishing area: Emphasize the importance of carry in, carry out policy and that under no circumstances should live worms or other live bait as well as trash be placed on the property.
- The property provides a great opportunity for local schools to learn about forest and stream ecology, as well as past land use history when the school and agricultural fields were in use as early as the second half of the 1700s through the 1800s. A biological monitoring program could be established that studies water quality of Tarbell Brook.

Other Recommendations

- Adequately cover the dug well site to prevent bodily harm.
- Clearly mark boundaries identifying it as Town-owned property.
- Seek formal conservation options (i.e., conservation easement, deed restriction, etc.) that prevent development of the property so as to maintain the historical and potential archaeological aspects, as well as the ecological integrity and water quality of Tarbell Brook, wetlands, and wildlife within and adjacent to the brook.
- The management plan should be revisited and revised as needed based on past management activities, current opportunities, and new acquired information in accordance with the purposes outlined above.

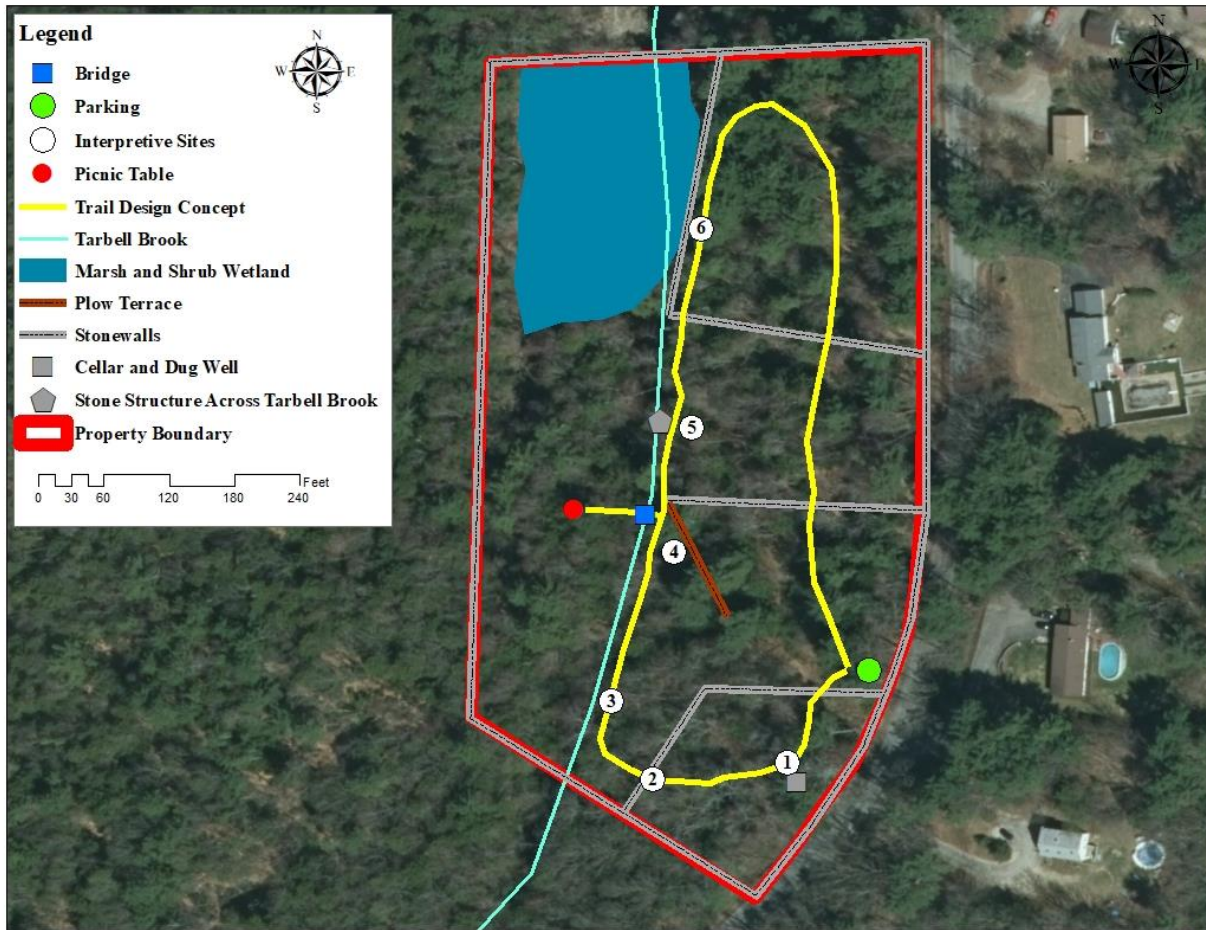


Figure 5 Conceptual design of proposed recreational and educational features.

CONCLUSION

The Abel Road property offers many benefits to humans and biodiversity alike. The rich nature of Tarbell Brook and riparian forest provide many ecological benefits for various wildlife and plants, some of which are species of conservation concern. The forested buffer provides additional capacity to help maintain good water quality, as well as a corridor for wildlife movement.

The property also supports the opportunity for light recreation as a local fishing hole and picnic area while providing historical education about the former schoolhouse and past agricultural history. A small parking area would be feasible along Abel Road where more gentle slopes allow. However, residential development would further compromise the water quality of Tarbell Brook and alter riparian and upland forests for wildlife movement due to the loss of a

forested buffer and the addition of fill to account for the steep slopes leading from Abel Road towards Tarbell Brook.



Pileated woodpecker holes in an eastern hemlock tree.