

**Massachusetts Department of Conservation and Recreation
Bureau of Forest Fire Control and Forestry
Forest Management Proposal
Name: Beaman Pond Lot 2.0**

Date Posted: June 30, 2021

End of Comment Period: August 14, 2021

Region:	Central
Recreation District:	Central Highlands
Forest Management District:	Mid State
State Forest:	Otter River State Forest – Beaman Pond Lot
Closest Road:	Route 202
Town	Baldwinville and Winchendon, Massachusetts

Contact Information:	Joelle Vautour
	355 West Boylston Street
	Clinton, MA 01510
	(617) 429-8683
	Joelle.vautour@mass.gov

Overview:

The Beaman Pond lot is a ±290 acre isolated parcel of the Otter River State Forest complex. It is located off of Route 202 in Baldwinville and Winchendon, Massachusetts. This parcel of Otter River State Forest was acquired in 1915 and was the first state forest in Massachusetts. The U.S. Army Corps of Engineers (ACOE) acquired by takings many acres of land on the outskirts of this parcel in the mid-1900s for flood control operations (Birch Hill Dam). The Otter River State Forest complex encompasses about 1,200 acres, plus an additional 4,000 acres which is leased by the ACOE. In 1935, Otter River State Forest housed a Civilian Conservation Corps (CCC) camp which planted thousands of trees throughout the area, including in the plantations on this parcel. Additionally, the State Forest Commission planted trees in some of the plantations on this parcel between 1915-1919.

There are four plantations at the Beaman Pond lot, totaling 174.4 acres. There are three plantations consisting of non-native red pine (*Pinus resinosa*), Scots pine (*Pinus sylvestris*) and Norway spruce (*Picea abies*) as well as a plantation of native white pine (*Pinus strobus*). It is estimated that the trees in these stands are 85-104 years in age. The health and vigor of these plantations have been declining steadily due to insect and fungus damage and since recreational infrastructure exists in these stands, they currently pose a significant risk to public safety from falling limbs and trees.

Project Purpose, Goals, and Objectives:

As outlined in the Forest Futures Visioning Process and associated DCR Management Guidelines, published in March 2012, the Beaman Pond lot has a Parkland designation. This property is located in an area with high recreational value including an established campground, day use picnic areas, hiking trails, and waterfront swimming opportunities. While commercial production of wood for wood products is not an intended goal for Parkland-designated properties, silvicultural treatments are

permitted for the following two purposes pertinent to this project (Commonwealth of Massachusetts, 2012, p. 31):

- 1.) Vegetation management necessary to protect public health and safety, public interests, public assets and/or restore or maintain recreation sites following significant natural disturbances or destructive insects or disease.
- 2.) Removal of plantations to restore more natural and diverse vegetative communities – if public health and safety are at risk, or to restore ecologically significant communities such as pitch pine barrens.

The project at the Beaman Pond lot is being proposed at this time because:

- 1.) The plantations are rapidly declining in health and vigor and offer little vegetative diversity.
- 2.) Public safety and assets are being jeopardized by the current forest condition.

The goals and objectives of this project include:

- 1.) Demonstrate harvesting techniques in an even-aged red pine plantation that build on past management and natural disturbances to facilitate regeneration and conversion to native species.
- 2.) Demonstrate harvesting techniques to prepare even-aged plantations of white pine, Norway spruce, and Scots pine for the regeneration of a mixture of native tree species.
- 3.) Mitigate public safety risk by implementing silvicultural treatments that work to proactively harvest trees which are rapidly failing in condition.
- 4.) Increase the vegetative diversity and structural complexity within the project area to include an assortment of native plant species including native shrubs and herbaceous plants.
- 5.) Demonstrate harvesting techniques and best management practices (BMPs) that protect forest productivity, soil and water resources.
- 6.) Educate the public on forest management practices by placing additional interpretive signage along the Wilder-Mackenzie interpretive hiking trail and in other locations as appropriate.

Stand Descriptions:

The DCR Management Guidelines state that forest stands will be classed and considered for silvicultural treatments that generally fit their productivity, structural complexity (or potential thereof), and diversity. An analysis of stands 1 – 4 of the Beaman Pond lot site history (land use; agriculture/logging) and conditions (soil types, productivity, vegetation cover) suggests that the majority of these even-aged, lower complexity stands have a low productivity and complexity, while a small portion of the proposed area was classed as having medium productivity and complexity. Overall this suggests the use of even-aged management.

The Beaman Pond lot has a complex glacial history and therefore varied topographic characteristics. The property is underlain by an outwash plain of mostly droughty soils that are moderately well drained to excessively well drained. Soil types include Naumburg fine sandy loam, Adams loamy sand, Allagash fine sandy loam, Colton gravelly loamy sand, Croghan loamy fine sand and a Becket-Skerry association. The wetlands are underlain by very poorly drained soils, including Searsport loamy sand and Bucksport and Wonsqueak mucks.

Stand 1 is a 71.5 acre red pine plantation in several distinct areas. The overstory consists mostly of mature red pine trees. Advanced regeneration of mixed hardwoods and white pine is present and ranges from adequate to very dense as a result of past silvicultural treatments and overstory mortality. Stand condition and tree vigor are declining rapidly at this time. On October 28, 2020, the red pine scale insect was positively identified by DCR's Forest Health Program Supervisor throughout this red pine plantation. The infestation is considered more severe in the northern portion of the property compared to the southern portion. Tree quality ranges from poor to good with a linear and inverse correlation with the level of red pine scale infestation on the property. The mature overstory trees have stagnated in growth. Since these trees are no longer growing vigorously, they are more susceptible to infestation and mortality from insects and disease. Mortality is present in sections, including patches of dead standing red pine. The stocking level, or tree density, is moderate to low. The red pine located on the east side of Route 202 was treated in 1989. The red pine located in the northwestern portion of the property was treated in 1993 along with the white pine plantation. Finally, the red pine south of the campground and on the west side of the campground road was treated in 2000. These treatments were the first stage cutting (preparatory cut) of the three stage shelterwood regeneration method aimed at harvesting portions of the overstory to create optimal conditions for the establishment of regeneration in the understory. In 2017-2018, the majority of the red pine plantation, excluding the section in the northeastern-most corner of the property, underwent the second stage cutting of the shelterwood regeneration method.

Stand 2 is an 86.4 acre white pine plantation in several distinct areas of the property. The overstory consists mostly of mature white pine trees with minimal deciduous hardwoods. The far western area of this stand was treated in 1993 along with the northwestern portion of stand 1. The understory in this area contains dense pockets of white pine advanced regeneration. Northern red oak (*Quercus rubra*) advanced regeneration is present throughout the understory. Overall stand condition and tree quality are poor. Similarly to stand 1, stand condition and vigor are declining rapidly, with dead standing trees throughout. The stocking level is spatially variable, from under to overstocked. It appears that these trees could have a needle cast disease similar to what areas of the northern New England states are experiencing. Disease and a low live crown ratio combined with the stressors of competition and site condition could put this stand at significant risk for mortality. This stand was treated in 2017-2018 with group selection. Opening sizes varied but did not exceed one acre. Within 32 openings, 22.2 acres of the stand were regenerated, or 25.69% of the stand area.

Stand 3 is a 15.4 acre Scots pine plantation. The overstory consists mostly of mature Scots pine trees. This stand was treated in 2017-2018 with group openings. Similarly to stand 2, the openings varied in size but did not exceed one acre. Prior to this treatment, there was no evidence of past management in this plantation. Advanced regeneration is present in pockets and consists mostly of white pine and red oak. The stocking level is low to moderate. As with stands 1 and 2, growth has stagnated due to declining tree vigor. Mortality is evident with dead standing trees present and the live crown ratio in this stand is very low as well. Tree quality is poor. Within 10 group openings, six acres of the stand were regenerated, or 38.96% of the stand area.

Stand 4 is a 1.1 acre stand of Norway spruce. This plantation contains mature Norway spruce trees. This stand was thinned similarly to stand 1 in 2017-2018, with no previous management beforehand. Stocking levels are moderate. Overall stand condition is fair. The majority of the declining trees were removed in the last harvest, reserving the healthiest and best formed trees.

Aesthetic, Recreation, Wetlands, Cultural, Rare Species, and Wildlife Considerations:

Aesthetic:

The Beaman Pond lot is located along a portion of Route 202, Dennison Road (Baldwinville), and along “Old 202” which are actively used for recreation. All aesthetic considerations will be made to legal recreational users of the state forest. Slash over one inch in diameter will be lopped to under two feet in height above the ground. Larger trees along the edges of trails will be retained unless they pose a safety hazard. As mentioned in the DCR Management Guidelines for roads and trails, hazard trees will be harvested along the truck roads, skid trails, and hiking trails. Harvester operation will be limited to times when ground conditions are stable. Directional felling to protect residual trees, wetlands, woods roads, and trails will also be implemented.

Recreation:

There are many passive recreational uses of the Beaman Pond lot and surrounding protected lands (Birch Hill Wildlife Management Area, Lake Dennison Recreational Area, Birch Hill Flood Control Area). Hiking, mountain biking, cross country skiing, snowshoeing, hunting and fishing, equestrian use, dog sledding, swimming, and legal snowmobiling are potential uses of this state forest. The Wilder-Mackenzie interpretive hiking trail is a popular trail which connects Otter River State Forest campground to Lake Dennison. The project area will be closed to the public during active harvesting hours. There is an extensive network of snowmobile trails that are permitted for use and maintained by the Coldbrook Snowmobile Club. These trails extend through several local towns. Some of these trails will be utilized as main truck/access roads (see Project Map). Active harvesting operations will be planned to minimize negative effects on recreational users as much as possible. During the 2017-2018 harvest in this area, the DCR Trails Coordinator waived trail buffer requirements as outlined in the DCR Management Guidelines due to the excessive amounts of hazard trees along the hiking trail and roads within the project area. It is likely the same request will be made for this project as well.

Wetlands and Water Resources:

There is an extensive network of wetlands adjacent to and within the proposed harvest area in addition to one intermittent stream. Beaman Pond, although outside of the project area, is located centrally in the state forest and is a result of a CCC constructed dam. It is currently utilized as a designated swimming area at the Otter River State Forest campground. There are three perennial streams just outside of the project area. The first is Beaman Brook which enters the project area from the east side of Route 202 and flows into the southern end of Beaman Pond. The second perennial stream enters the property from the south and flows north into Beaman Pond. A third perennial stream flows northwestward out of Beaman Pond into the Mud Pond wetland system located on the ACOE property. All regulated wetlands and streams will have appropriate buffers and filter strips as required by the Massachusetts Forestry Best Management Practices Manual. These buffers and filter strips will be delineated in the field prior to harvesting. This will aid in directional felling away from these resource areas. No equipment will operate in streams, wetlands, or wetland buffers, except on pre-existing woods roads and trails or at designated crossings approved by a forest cutting plan.

Cultural Resources:

The Beaman Pond lot was reforested by plantings on lands which were cut over, burned over, and agriculturally abandoned. There is a significant cultural history surrounding the state forest and within the state forest itself. Otter River State Forest campground, Otter River campground contact station, and Beaman Pond and its dam were constructed by the CCC. “New Boston”, once located in the vicinity, was a town/hamlet that was abandoned when the ACOE took much of its land for flood control and

management along the Millers River and associated tributaries. During construction of the flood control area, Route 202 and the railroad were moved to their current locations. Birch Hill Dam and associated Tully Dam (Royalston, MA) and their flood control areas prevent the downtown areas in the towns of Athol and Orange from flooding during high water events along the Millers River and its tributaries. There are many old town roads, cellar holes, and wells; and New Boston Cemetery and other historical features are located near, but outside the project area. The proposed project area will not include any portion of what makes up Otter River State Forest campground. Cultural resources were not observed in the field in the proposed project area during preparations for this proposal. As previously mentioned, Otter River State Forest is the first state forest in Massachusetts.

Rare and Endangered Species and Certified Vernal Pools

A review of the Natural Heritage and Endangered Species Program (NHESP) atlas shows that there is no mapped potential Estimated or Priority Habitat located within the project area nor any certified vernal pools. NHESP will review the project prior to any harvesting to determine if any limitations or modifications will be required.

Wildlife

There are many signs of wildlife using this area. Moose and deer browse are not problematic for the regeneration at this time. Pileated woodpecker sign was observed throughout the project area. Large and small mammals and numerous bird species are assumed to utilize the project area. Ring-necked pheasants are stocked regularly within the vicinity and additional hunting for native game birds is a common activity. Rabbits are common in the area as well. As outlined in the DCR Management Guidelines, selected large trees will be reserved as wildlife trees. Snags, dead trees, and coarse woody debris (CWD) will be retained for habitat as well. Browse for wildlife will be enhanced during the harvest and for many years after the harvest as regeneration becomes established. Mast producing trees such as black cherry (*Prunus serotina*) and oak will be retained whenever possible. All potential vernal pools will be treated as certified vernal pools with the required BMPs applied.

Silviculture:

In stand 1, an overstory removal, or the cutting of the residual upper canopy trees in the shelterwood system, will be used to proactively salvage the declining plantation while simultaneously releasing the advanced regeneration that has become established as a result of the past forest management efforts described above.

Before this partial overstory removal is implemented, an assessment will be made throughout the entire project area using regeneration sampling techniques to ensure that the implementation of this partial overstory removal will be appropriate given the condition of the regeneration. In areas that contain adequate stocking of regeneration, a partial overstory removal will be implemented. In areas that do not contain adequate levels of regeneration, either another seed cut (shelterwood method) will be implemented or a partial overstory removal (shelterwood method) will be implemented followed by supplemental replanting in the understory. The goal of another seed cut at this time would be to increase the available light to the forest floor to aid in the partial release of established advanced regeneration and to encourage the establishment of regeneration where it might be absent.

Stands 2 and 3 will undergo a group selection silvicultural treatment. At this time, these stands are in such poor quality and condition that the overstory trees would respond poorly if at all to any thinning treatments. The group opening sizes will not exceed one acre and will require agency approval by the Commissioner. Creating openings in these stands will benefit tree species that are mid-tolerant and

intolerant to shade (white pine, red oak, birch and maple) rather than the more shade tolerant species (beech, hemlock).

Stand 4 will undergo a shelterwood harvest where a portion of the overstory will be harvested to allow for greater amounts of light to penetrate the main canopy to the forest floor. This will aid in creating the conditions favorable for the establishment of regeneration as well as partially release the advanced regeneration that is present in the understory.

It is likely that soil scarification will be a required in-kind service of this proposed harvest. The purpose of this will be to expose bare mineral soil in portions of stands 1, 2 and 3 where advanced regeneration is absent in the areas being treated. The goal of this is to provide the best possible growing conditions for white pine seed to germinate.

Sale Layout and Harvesting Limitations:

The infrastructure of the previous harvest in 2017-2018 will be re-utilized for this harvest, including landings, truck roads, skid trails and stream crossings. Access for this operation is excellent. Trees will be cut up to the edges of roads and trails to lessen hazardous tree presence where necessary.

All wetland resource areas as well as no-cut areas will be established using paint in the field. This will indicate that machinery should not operate within these areas and trees should be felled away from them. There will be one temporary stream crossing on the east side of Route 202.

A whole tree logging system or a cut to length logging system will be utilized for this project. There is a significant amount of low quality wood present within this proposed project. A whole tree system will better utilize larger volumes of low quality wood than a cut to length system. The stand exam will determine an estimated volume of this low quality wood. If a whole tree logging system is used, the sale will be laid out in such a way that an average of two cords of CWD per acre is retained onsite.


The project will take place when the ground is dry, frozen or otherwise stable. The well drained soil conditions of this site will prove to be very stable compared with other more moderate to poorly drained soil types. Skid trails will be properly stabilized to prevent erosion and sedimentation with the use of water bars and/or slash where necessary. Winter harvesting would require some of the snowmobile trails to be plowed/sanded, weather permitting. Communication with the local snowmobile group will be ongoing to ensure user safety.

References:

Commonwealth of Massachusetts. Department of Conservation and Recreation. *Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines*. March 2012.

Attached: Topographic map showing project details. Locus map showing project location within regional context.

District Forester:


Joelle Vautour

Date: 6/15/21

Field Operation Team Leader

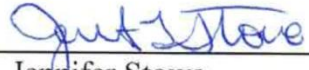
Or District Manager

Or Park Supervisor:


Brad Gallant

Date: 6/15/21

Regional Director:


Jennifer Stowe

Date: 6/24/21

Management Forestry

Program Supervisor:



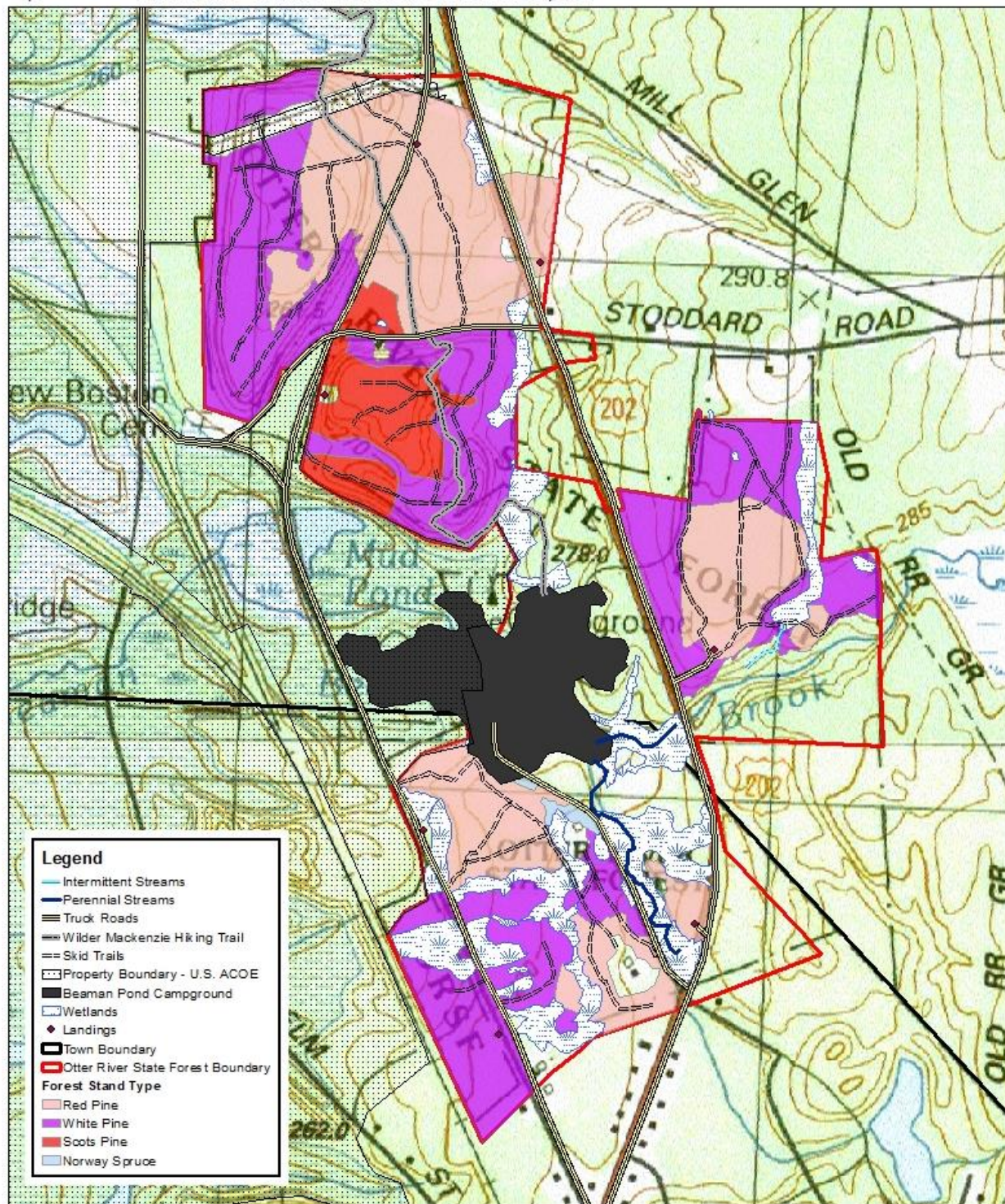
Date: 6/16/21

Attached: Topographic map showing project details. Locus map showing project location within regional context.

N

Project Map
Otter River State Forest - Beaman Pond Lot 2.0
Route 202 - Baldwinville and Winchendon, MA

0 295 590 1,180 Feet
 ───────────



Map Prepared By: Joelle Vautour, DCR Management Forester - January 19, 2021

