

**Massachusetts Department of Conservation and Recreation  
Bureau of Forest Fire Control and Forestry  
Forest Management Proposal  
Name: Hadley-Aiken - Partial Overstory Removal**

**Date Posted:** March 15, 2019  
**End of Comment Period:** April 29, 2019

**Region:** Central  
**Recreation District:** Central Highlands  
**Forest Management District:** Mid State  
**State Forest:** Templeton State Forest – Hadley Aiken Lot  
**Closest Road:** Route 2A (Patriots Road)  
**Town:** Templeton, Massachusetts

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**Overview:**

The Hadley Aiken lot is a 304 acre isolated parcel of the Templeton State Forest complex. It is located off of Route 2A in Templeton, Massachusetts. The parcel was acquired in several pieces in the early 1900s. The U.S. Army Corps of Engineers (ACOE) acquired by takings, 2.57 acres along the eastern boundary in the mid-1900s for flood control operations. This state forest is located 3 miles south of the Otter River State Forest complex which encompasses about 1,200 acres, with an additional 4,000 acres that is leased by the ACOE. In 1935, Otter River housed a Civilian Conservation Corps (CCC) camp which planted thousands of trees throughout the area, including at the Hadley Aiken Lot.

There are approximately 180 acres at the Hadley Aiken Lot which consists of non-native plantation red pine (*Pinus resinosa*), Scots pine (*Pinus sylvestris*) and native white pine (*Pinus strobus*). Between December 2014 and September 2015, approximately 142 acres of the plantations were harvested using the shelterwood method. The health and vigor of this plantation remains at a decline. In addition, the state forest is continuing to be used by illegal off road vehicles (ORVs).

The project at the Hadley Aiken Lot is being proposed at this time because:

- 1.) The red pine plantation is at high risk for mortality from insect and disease. In addition, advanced regeneration established through past forest management may be adequate at this time for further release through a partial overstory removal.
- 2.) Continued illegal ORV use is causing erosion and other negative ecological impacts to the state forest.

The objectives of this project include:

- 1.) Harvest the remaining red pine overstory prior to its impending mortality.
- 2.) Release advanced regeneration of native tree species present in portions of the plantation which have undergone past forest management.
- 3.) Demonstrate harvesting techniques and best management practices that protect forest productivity, soil and water resources.
- 4.) Address illegal ORV use by using project revenues and contractual requirements to repair damage to roads and trails and to prevent future damage from occurring.

### **Stand Descriptions:**

The Hadley Aiken Lot has a complex glacial history and therefore the terrain varies dramatically. The property is underlain by an outwash plain of mostly droughty soils that are moderately well drained to excessively well drained. There are four forest stand types (plantations) located within the proposed project area. The largest plantation on the property is of red pine and has been divided into two separate stand types based on the current stand condition as a result of its past forest management history. In addition, there is a red pine-white pine plantation and a Scots pine plantation. Stand age is estimated to be around 80-85 years old.

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 Hadley-Aiken Lot site history (land use; agriculture/logging) and conditions (soil types, productivity; vegetation cover) suggests that these even-aged, lower complexity stands on poorer soils have a very low productivity and complexity which lend them to even-aged management.

Stand 1 is a 55.5 acre red pine plantation located in three separate areas. The overstory consists mostly of mature red pine trees with inclusions of native white pine and other deciduous hardwoods, most commonly Northern red oak (*Quercus rubra*). Advanced regeneration of mixed deciduous hardwoods and white pine saplings and poletimber is present and ranges from adequately stocked to very dense as a result of past silvicultural treatments and overstory mortality. Overstory tree vigor is declining at this time. The mature overstory trees are in a stage where their growth rates are declining. Since these trees are no longer growing vigorously, they are more susceptible to infestation and mortality from insects and disease. Red pine scale (*Matsucoccus resinosae*) and diplodia tip blight (*Diplodia pinea*) have caused widespread mortality in nearby red pine stands that are in similar condition to the plantation at the Hadley-Aiken Lot. Mortality is present in sections of this stand, including patches of dead standing red pine. Stand 1 was thinned in 1989 with the goal of improving the growth of overstory trees. The plantation responded minimally due to a stagnation of growth. However, the treatment did allow for the establishment of advanced regeneration in parts of the understory that were thinned heaviest. The stand was treated again in 2014-2015 with the second stage of the three stage shelterwood regeneration method. The shelterwood system gradually reduces the overstory stand density in a series of thinnings in order to fully regenerate the stand over time. The basal area of this stand was reduced from 189 square feet per acre to an average of 80 square feet per acre.

Stand 2 is a 32.2 acre red pine plantation located in two separate areas. The overstory consists mostly of mature red pine trees with inclusions of white pine. This stand is located primarily along

the slopes of the kames in the northeastern portion of the project area. This stand underwent two forest cuttings since planting. The first was a fence post thinning in the 1960's and the later was completed in 2014-2015. The later thinning reduced the stands basal area from 250 square feet per acre to 125 square feet per acre. Prior to this last harvest, the understory contained little to no regeneration and the overstory trees were much smaller compared with the overstory trees in stand 1. Similarly to stand 1, stand condition and vigor is declining rapidly, with patches of dead standing trees as well as sections of blow down from past storms. Advanced regeneration is becoming established throughout many portions of the stand as a result from the last silvicultural treatment and contains mostly seedlings and saplings.

Stand 3 is a 75.9 acre red pine – white pine plantation located in two separate areas. The overstory consists mostly of mature red pine trees with a dominant presence of overstory white pine. This stand underwent forest management treatments in 1984, 1989 and 2014-2015. Most recently, the basal area was reduced from 198 square feet per acre to 80 square feet per acre. Advanced regeneration in the understory is diverse and dense throughout with a mixture of hardwoods and white pine saplings and poletimber.

Stand 4 is a 12.3 acre Scots pine plantation located in the southeastern corner of the property. The overstory of this stand contains mostly Scots pine with some red pine and white pine trees present. The overall health of the Scots pine is poor with mortality throughout the stand. Stocking is moderate to low. The overstory has been declining in this plantation for the past couple decades. As a result, advanced regeneration is abundant and dense and contains mostly white pine saplings and poletimber. There is no evidence that any forest management has taken place in this stand since planting.

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

#### **Aesthetic:**

The Hadley-Aiken Lot is not located on any paved roadways. All aesthetic considerations will be made to legal recreational users of the state forest. Larger trees along the edges of roads and trails will be retained. As mentioned in the DCR Management Guidelines for roads and trails, hazard trees will be harvested along the truck roads and skid 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. As with any overstory removal treatment, the forest will look drastically different after the treatment has been implemented. By maintaining reserve trees, this treatment will be a partial overstory removal. The objective will be to maintain overstory trees throughout the harvest area for forest complexity and wildlife benefits but also to maintain aesthetic considerations.

#### **Recreation:**

Hiking, mountain biking, skiing, snowshoeing and hunting, among others, are potential uses of this state forest. Illegal ORV use has seriously degraded woods roads and trails located in the state forest. Woods roads and trails with serious erosion were closed during the last forest management project (2015). In addition, two gates were installed along the main truck road and many of the interior trails were slashed in to prevent ORV use in the interior of the forest. At this time, it appears that the illegal ORV use seems to be contained to the main truck road that runs through the state forest. The project area will be closed to the public during active harvesting hours. A

12/15

snowmobile trail that is permitted for use and maintained by the Coldbrook Snowmobile Club is located at the Hadley-Aiken Lot and within the project area. This trail will be utilized as a truck road (see Project Map) and the project timeline will be communicated to the snowmobile club to prevent user conflicts.

**Wetland Resources:**

There are several wetlands on the edge of or within the project area, including two potential vernal pools. There are three stream crossings that will require use. While two of these crossings contain existing bridging, they will be additionally reinforced with temporarily bridges (steel plates or timber mats). All Forestry Best Management Practices will be implemented within the project area. Trees adjacent to these buffers will be triple striped. This will aid in directional felling away from these resource areas. No equipment will operate in wetlands or wetland buffers except on pre-existing woods roads and trails.

**Cultural Resources:**

Significant cultural resources were not identified in the project area. Many of the roads located in this state forest are old farm roads. Two western boundary lines are composed of stone walls (see Project Map). There are no cellar holes or wells within the project area.

**Rare and Endangered Species**

A review of the Natural Heritage and Endangered Species Program (NHESP) atlas shows that there are no habitat restrictions located within the project area. NHESP will review the project prior to any harvesting to determine if any limitations or modifications will be required.

**Wildlife**

There are signs of deer, moose, rabbit and turkey 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. 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 also. 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 and oak will be retained whenever possible. Beaver activity has impacted the eastern portion of the property surrounding the large wetland. As the water level rises due to flooding, trees upslope have faced mortality and will continue to do so if beavers remain active in the area.

**Sale Layout and Harvesting Limitations:**

This project will generally treat the plantations in one single harvest.

There will be two landing options available to the harvester. Both landing locations are pre-existing and were utilized in the 2014-2015 harvest. One is located centrally within the project area and the other landing is in the southwestern portion of the project area.

Access to this property is via a legal right-of-way off of Patriots Road (Route 2A). This access location was used in 2014-2015 and was improved with a stone tracking pad. The interior forest

truck road throughout the project area that connects to Patriots Road was improved significantly with in-kind services in 2014-2015. Additional improvements will likely be necessary but the scope will be significantly smaller in comparison.

All existing skid trails will be re-utilized for this project. Secondary skid trails will be established when necessary to access the project area.

Wetland resource areas (buffers and filter strips) will be delineated with flagging and subsequently marked with paint. Conservation Management Practices will be implemented as required by the NHESP for the priority habitat area along the eastern portion of the property. There are no wetlands crossings anticipated within the project area. There will be three stream crossings which will be bridged (see Project Map).

A cut to length logging system will be the primary logging method utilized. There are isolated portions within the project area which will be too steep for operation, particularly along the eastern edge of the project area. Skid trails will be properly stabilized to prevent erosion and sedimentation with the use of water bars, hay bale installation, slash or otherwise, where necessary. Woods roads and skid trails that need restoration from destructive illegal ORV use will be addressed. Roads and trails which are within the project area will be regraded and stabilized. Access by ORVs will be restricted by additional access blockages.

### **Silviculture:**

An overstory removal, or the cutting of the upper canopy trees, will be used to proactively salvage the declining plantations at the Hadley Aiken lot while simultaneously releasing the advanced regeneration that has become established as a result of past forest management efforts.

The regeneration process in these stands began in 1984 by means of a thinning aimed at improving overstory growth. A result of the thinning has been an established understory throughout a large majority of the project area. Currently, the result of that thinning can be considered the first stage of a three stage shelterwood regeneration system. The second stage cut of the shelterwood system occurred in 2014-2015. This project would implement the third and final step of the system.

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. A combination of a partial overstory removal and another shelterwood harvest could be implemented in combination if deemed necessary. The goal of another shelterwood harvest at this time would be to increase the available light to the forest floor to aid in the partial release of established advanced regeneration or to encourage the establishment of regeneration where it might be absent.

District Forester:

  
Joelle Vautour

Date: 12/22/18

Field Operation Team Leader

Or District Manager

Or Park Supervisor:

  
Dwayne Ericson

Date: 12/19/2018

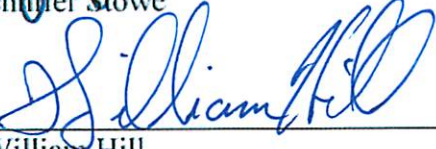
Regional Director:

  
Jennifer Stowe

Date: 12/27/18

Management Forestry

Program Supervisor:

  
William Hill

Date: 1/2/2019

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



1 inch = 700 feet

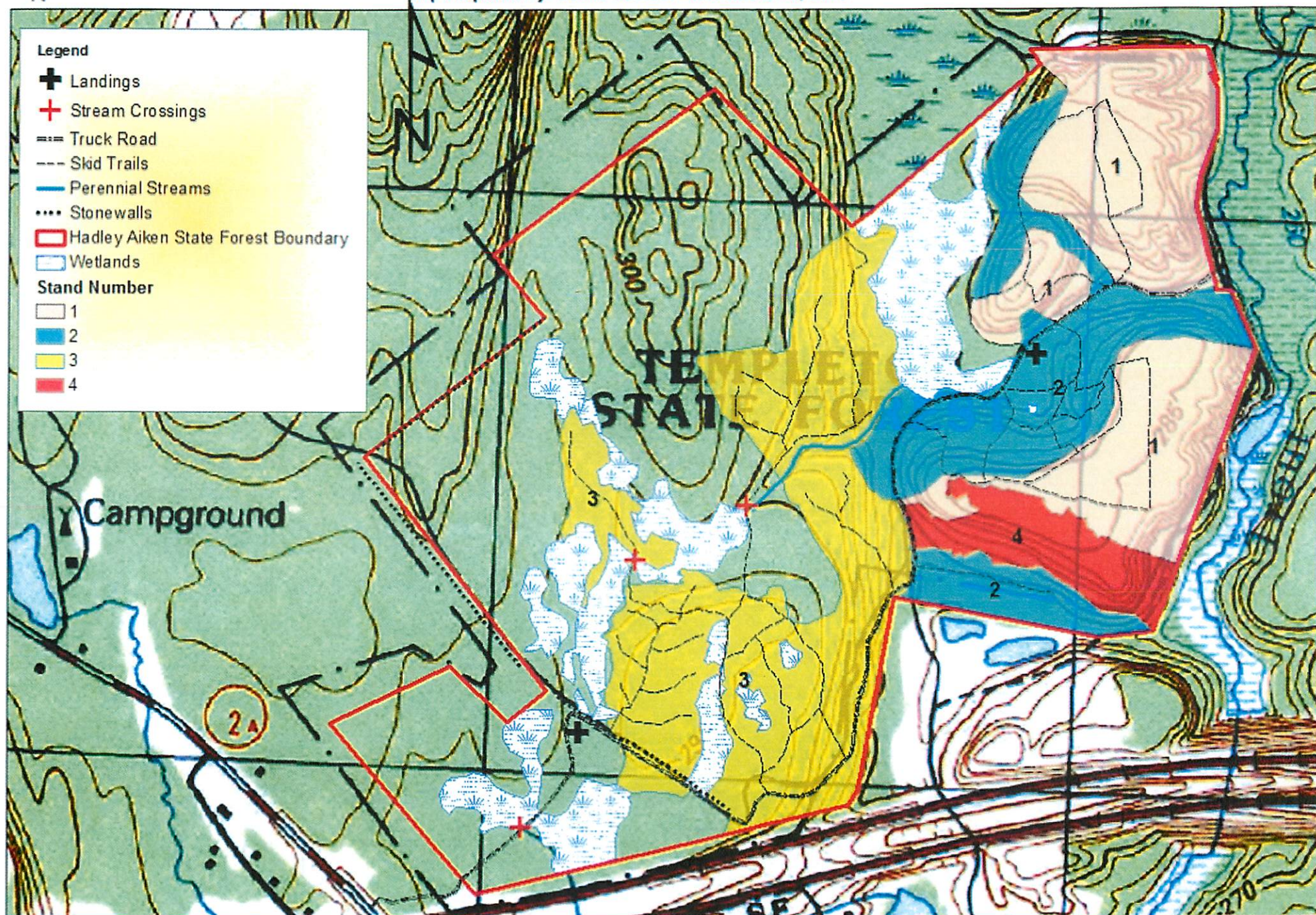
Project Map  
Templeton State Forest  
Hadley Aiken Lot

Map Prepared By: Joelle Vautour - November 20, 2018

0 350 700 1,400 Feet

Legend

- Landings
- Stream Crossings
- Truck Road
- Skid Trails
- Perennial Streams
- Stonewalls
- Hadley Aiken State Forest Boundary
- Wetlands
- Stand Number**
- 1
- 2
- 3
- 4



# Hadley-Aiken Lot Locus Map

