

**Massachusetts Department of Conservation and Recreation
Bureau of Forest Fire Control and Forestry
Forest Management Proposal
Name: Wendell State Forest - Brook Road**

Date Posted: February 26, 2016
End of Comment Period: April 10, 2016

Region: Central
Recreation District: CT Valley
Forest Management District: Eastern CT Valley
State Forest: Wendell State Forest
Closest Road: Montague Road/Brook Road
Town: Wendell

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Overview:

Wendell State Forest consists of over 7,000 acres and encompasses a significant percentage of total land within the town of Wendell. This particular forest management project will include two separate project areas. One being a +/-25 acre stand of red pine located on both the north and south side of Montague Road, just south of Wendell State Forest Headquarters and the other being a +/-25 acre white pine plantation and +/-80 acre oak hardwood stand located on Brook Road, just west of Wickett Pond.

Much of Wendell State Forest has a history of forest management throughout the previous 40-50 years, including on two of the above listed stands. The red pine plantation has seen two entries in the past 30 years, once in 1990 and again in 2008 resulting in an abundance of regeneration in the understory. The white pine plantation was most recently cut in 1991 and has not been subject to any active forest management since. While the oak hardwood stand has seen little to no management over the years and consists of predominantly small sawtimber and pole size trees.

This specific site was selected for the following reasons:

- The red pine plantation is at risk of decline due to red pine scale which has devastated plantations throughout the region. This stand is currently heavily stocked with an abundance of native regeneration which is now ready for further release.
- The white pine stand has reached a point of stagnation, due to being overstocked which in turn results in limited growing space and resources available to individual trees.

- The oak hardwood stand is fairly uniform in age and structure throughout, harvesting operations will allow for an increase in structural complexity throughout the stand while improving forest productivity.
- Access to both proposed project areas is excellent.
- Area has an extensive history of past silvicultural treatments.
- Minimal presence of invasive species.

Forest Management Objectives:

As stated in the DCR “Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines” document, this particular portion of Wendell State Forest falls under a woodland designation, which is defined as a “forested area actively managed for forest health, resource protection, sustainable production of timber and recreation.” In accordance with the management objectives set forth in the above mentioned document, this forest management project intends to:

- Enhance forest productivity, species diversity and forest complexity
- Provide for locally sourced sustainable forest products
- Improve forest infrastructure with the use of in kind services
- Create educational opportunities by demonstrating sustainable active forest management

Stand Description:

This proposed project contains 3 stands:

1. Red pine plantation: This +/-25 acre, even two aged, red pine stand is located on both sides of Montague Road, just south of the Wendell State Forest headquarters building. Red pine dominates the overstory, with scattered occurrences of native species including but not limited to red oak, black oak, eastern hemlock, and red maple. The overstory trees are almost exclusively sawtimber size, with occasional pole size trees scattered throughout. Advanced regeneration is abundant throughout, due to previous forest management and is ready for further overstory release. This regeneration includes species such as white pine, red oak, black oak, red maple, American beech, and black birch, among others. The previous entries occurred in 1990 and again in 2008, each time focusing on the removal of overstory red pine.
2. White pine plantation: This +/- 25 acre, even aged, white pine stand is located along Brook Road, just west of Wickett Pond. Prior management occurred in 1991 and focused on the removal of overstory white pine, which resulted in the establishment of a new age class. The resulting regeneration included an array of native species such as white pine, red maple, eastern hemlock, black birch, and American beech, among others. The overstory is dominated by white pine, with scattered occurrences of native species including red maple, red oak, and black oak, among others. The large majority of overstory trees are sawtimber

size and the stand appears to be currently overstocked, resulting in stagnated growth and decline in vigor.

3. Oak hardwoods: This +/-80 acre stand, unlike the above listed stands, is the result of natural forest succession and was not planted. Currently this stand is dominated by a mix of oak, black birch, paper birch, red maple, and American beech, with inclusions of white pine and eastern hemlock. This seems to be a fairly young, even aged stand, with the majority of overstory trees being between pole and small sawtimber. Scattered occurrences of regeneration are present throughout and include species such as American beech, white pine, red maple, black birch, and eastern hemlock, among others. There is no documentation regarding previous management to this stand.

The project area lies at approximately 1,100' in elevation, with a maximum elevation of approximately 1,200'. Topography is generally mild, with some slight to moderate slopes located in the stand 3, not exceeding 15% (derived using USGS topographical map). Soils present include Pillsbury fine sandy loam, Millsite-Woodstock complex, Agawam fine sandy loam, Henniker sandy loam, Canton fine sandy loam, and Chichester fine sandy loam. The majority of the soils present on site (covering approximately 93% of proposed harvest area) are described by the NRCS soil survey to be "moderately suited" for timber harvest operability. All of the above listed soils are classified as well drained or somewhat excessively well drained, with the exception of Pillsbury fine sandy loam which is described as being poorly drained.

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

Aesthetic: All required best management practices (BMP's) set forth in the most recent edition of the Massachusetts Forestry: Best Management Practices Manual shall be implemented across the entire project area, including those regarding buffers, filter strips, and slash. The Metacomet-Monadnock trail runs through this portion of the state forest, but lies more than 200 feet from any proposed forest management. Tree marking will be done to minimize lasting visual impacts, by marking residual trees which lie within 50' of a trail or road on only one side. All trails and roads impacted by the forest management operations will be restored to their prior conditions.

Recreation: Wendell State Forest is home to miles of trails and roads which are utilized year round by hikers, skiers, snowmobiles, hunters, birders and more. Consideration will be given to minimize conflict with recreational users. During winter months some interior roads will be cleared of snow to allow for truck traffic, local snowmobile clubs will be notified prior to the start of operations. This area will be temporarily closed during active harvest operations to protect the safety of the public, signs will be posted along main roads and trails indicating closed areas.

Wetlands: Several wetland resources are located in the immediate vicinity of the project area, including Wickett Pond, Ruggles Pond, and potentially a variety of intermittent streams, forested wetlands, and vernal pools. The project area lies within the Millers River watershed, which encompasses a large portion of north central Massachusetts. The headwaters of the Millers River are located in Ashburnham, MA, and continue to flow in a westerly direction until reaching the

Connecticut River near the tri-town line of Montague, Gill, and Erving. The current DEP wetlands layer shows an array of wetland resources in the vicinity of proposed management, with only a small (< 0.5 acre) wooded deciduous swamp being within the bounds of the proposed harvest. All regulated streams and wetland resources will have a 50' no cut buffer and all potential vernal pools will be treated as certified vernal pools. Operations which will impact wetland resources such as stream crossings and wetland crossings will be kept to a minimum and shall comply with current Massachusetts BMP's.

Cultural Resources: There is potential for the occurrence of stonewalls and possibly foundations throughout the forest management project area. A stonewall as well as a foundation were indicated on prior harvest maps just west of stand 1, south of Montague Road, but are located outside of the proposed management area. Currently no cultural features have been identified within the bounds of the proposed project area; all historical and cultural resources located during further site work will be GPS'd and indicated on harvest maps accordingly and will be protected from disturbance when and where possible.

Rare and Endangered Species: According to the most recent Natural Heritage and Endangered Species Program (NHESP) layer available at www.mass.gov/mgis, there is currently no priority or estimated rare species habitat associated with this proposed forest management area. There are two areas indicated as priority habitat in the vicinity, one surrounding Wickett Pond and the other being located in a forested wetland north of the project area.

Wildlife: As stated above, the current NHESP GIS layers pertaining to rare and endangered habitat lie within a fairly close proximity to the sale area. The stands proposed for management are currently classified as non-priority natural communities in the state of Massachusetts according to Massachusetts Division of Fish and Wildlife's State Wildlife Action Plan. Minimal sign of wildlife was observed during the early phases of reconnaissance including visual evidence of deer, squirrels, chipmunks, pileated woodpecker, and wild turkey. Despite deer presence observed and the potential for moose presence the current state of regeneration is adequate and minimal browsing damage was observed at this time. In accordance to provision set forth in DCR's Management Guidelines document the following wildlife habitat considerations will be implemented:

- Retention of at least 1 to 3 large diameter trees (where possible >18" dbh) and 4 live 10"-12" dbh trees per acre that have the potential to serve as cavity and den trees and future snags.
- Retention of all dead snags and stubs in harvest area as safe operating conditions allow.
- Retention of on average one of the oldest, largest diameter, well-formed dominant trees (where possible > 18" dbh) per acre in harvest area to serve as legacy trees.
- Maintain a minimum of 256 cords per acre of coarse woody material within the harvest area

Sale Layout and Harvesting Limitations: This proposed sale layout will consist of two non-contiguous harvest areas. One, stand 1 (red pine plantation) located on both sides of Montague Road, will require a minimum of two landings one on each side of the publicly maintained way and two, stands 2 and 3, will require at least one landing and will be accessed off of Brook Road. Skid roads and landings will be strategically placed in order to minimize soil compaction and erosion potential throughout the harvest areas. Where necessary erosion mitigation strategies such as water

bars, hay bale installation and seeding of disturbed areas will be implemented. All stream crossings, buffers and filter strips will be consistent with the most current Massachusetts BMP manual and will be in compliance with MGL 132. Some in-kind services are to be expected as the project progresses, these may include road maintenance, gate installation, among other infrastructure improvements within Wendell State Forest.

The aspects of this sale lend themselves more toward a cut to length and forwarder operation, due to the limited landing space along Montague Road as well as the emphasis on the protection of advanced regeneration throughout the sale area. All truck roads will be returned to their prior state if not improved upon during harvest operations, landings and skid roads will be graded and seeded where deemed appropriate by the DCR forester. All hiking trails impacted in harvesting operations will be returned to prior conditions, i.e. cleared of slash, graded, and properly marked.

Silviculture: Silvicultural treatments will coincide with the management guidelines set forth in DCR's Management Guidelines document and are anticipated to be as follows:

Stand 1: An even aged silvicultural method will be implemented in these stands, with the intent of releasing advanced regeneration present, as well as to aid in the establishment of new regeneration and increase the amount of available resources to residual trees. The prescribed management of this stand will fall between an overstory removal and a shelterwood style regeneration harvest, where areas with abundant regeneration will be subject to heavier cuttings and areas lacking in regeneration will be subject to a more traditional shelterwood regeneration cut. Areas where heavier cutting will occur are expected to see the removal of 80-100% of the current basal area, where the remainder of the stand will see basal areas reduced by 40-75%. This will allow for the release of advanced regeneration were present, while aiding in the establishment of new regeneration where it is lacking. Although a portion of this stand was rated as possessing "Moderate forest productivity –stand complexity," the presence of the monocultural non-native red pine plantation lends itself to a more even aged management approach. The intent is to minimize the presence of this nonnative at-risk species, while restoring a diverse mix of native species. The larger scale overstory removal will allow for an expedited removal of the stagnated overstory red pine, while releasing advanced regeneration and capturing the monetary value of these at-risk overstory trees. Future entries in this stand will focus on the creation of multiple age classes and increasing forest complexity through the implementation of a series of small canopy openings over several decades.

Stand 2: An uneven aged management approach is proposed for this stand (see note below), with the intent of increasing structural complexity, forest productivity, and species diversity throughout the stand. Using this approach, small openings (no larger than 1/3 acre) will be implemented throughout the stand, with the remaining areas being subject to a thinning. This thinning will focus on the removal of poorly formed less vigorous trees, which in turn will allow for an increase of sunlight and resource availability for advanced regeneration and will aid in the establishment of new regeneration. The small openings will be irregularly shaped and will attempt to mimic natural disturbance, with the goal being to increase structural complexity by sporadically creating a second age class throughout the stand. The "Forest Productivity and Complexity Model," developed by

Goodwin and Hill, labels this stand as moderately complex, which lends itself to an uneven aged management approach as stated in the DCR Management Guidelines.

Note: During the internal comment period, The Department of Fish and Game, Division of Fish and Wildlife (DFW) recommended that an even age harvest regeneration system be used in this stand as an alternative to the above proposed approach. Using clearcuts to regenerate young forest was recommended by DFW because the state listed whip-poor-will which thrives in early seral forest conditions, has been observed in an adjacent tornado disturbed young forest. If this recommended approach is used, a large clearcut (>5 acres) or a series of small clearcuts (≤ 5 acres) with clumped and scattered reserve trees would be implemented to provide additional habitat to the whip-poor-will.

Stand 3: The primary intent of management in this stand will focus on the removal of low quality poorly formed, less vigorous trees, with the hope of promoting the establishment of and increasing the growth rates of more desirable trees. This will occur through a selective intermediate thinning accompanied with the implementation of variably shaped 1/3 acre openings. The thinning will act as a method of timber stand improvement, while the 1/3 acres openings will be utilized with the intent of establishing new regeneration and increasing structural diversity throughout the stand. Future entries will focus on the expansion of said openings, and further selective cutting to release designated crop trees. The large majority of this stand is described as possessing “High Forest productivity – stand complexity” as determined by the above described productivity/complexity model. It is encouraged through the DCR Management Guidelines that these stands are managed with regard to maintaining the currently high levels of complexity and productivity present, through the implementation of uneven aged management practices.

District Forester: Ken D. Hall

Date: 2/12/2016

Field Operations Team Leader
Or Park Supervisor: Kevin L. Marble

Date: 2/12/2016

Regional Director: [Signature]

Date: 2/12/16

Management Forestry
Program Supervisor: [Signature]

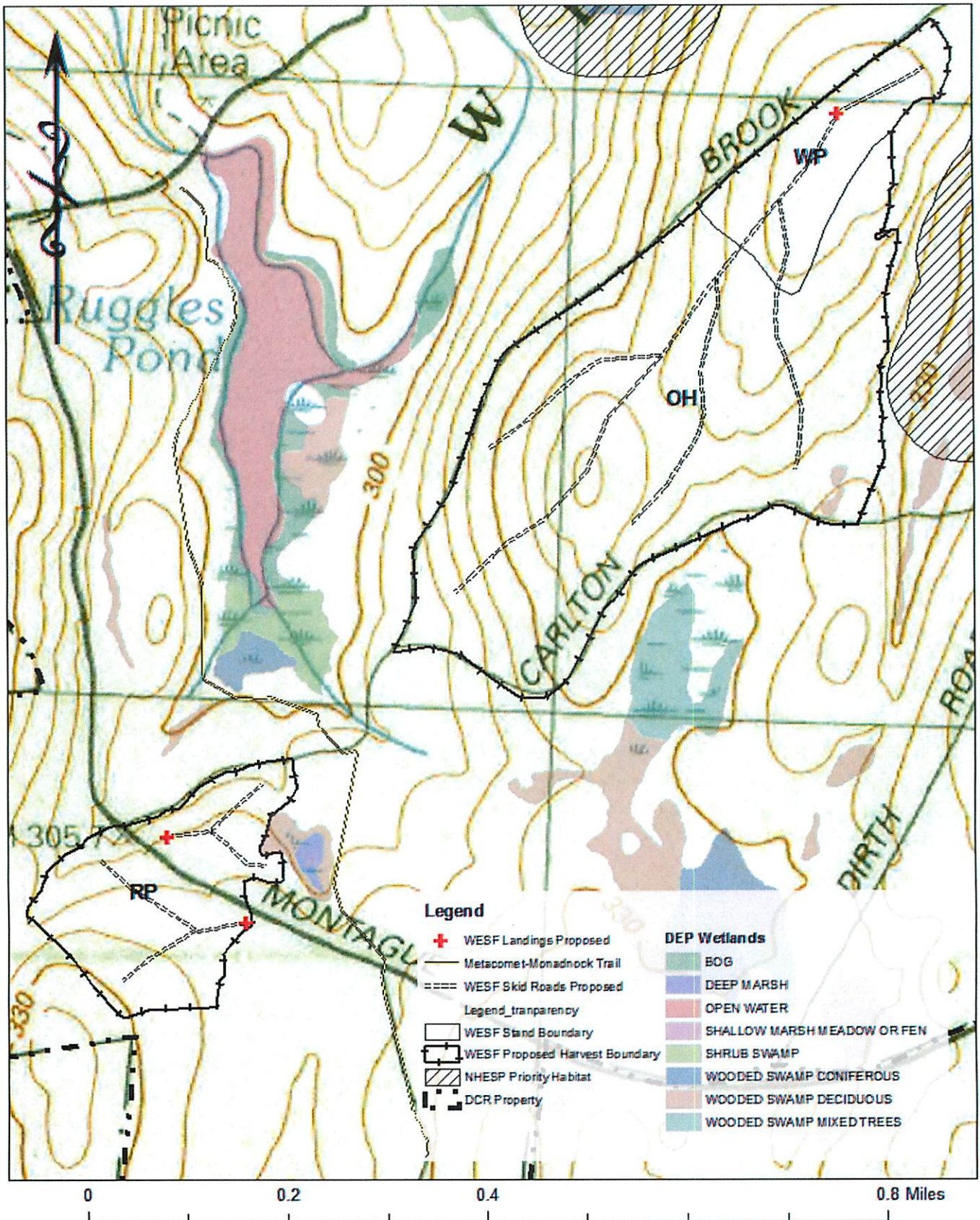
Date: 2/12/16

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

1 inch = 650 feet

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01/13/2015



1 inch = 2,500 feet

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