Massachusetts Department of Conservation and Recreation
Bureau of Forest Fire Control and Forestry
Forest Management Proposal
Name: Cricket Hill 2018

Date Posted:	**February 9, 2018**
End of Comment Period:	**March 26, 2018**
Region:	**West**
Recreation District:	**Mountain**
Forest Management District:	**Western CT Valley**
State Forest:	**Conway State Forest**
Closest Road:	**Cricket Hill Road**
Town	**Conway**

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Overview

The Cricket Hill Project in Conway State Forest was selected for a forest management project to begin the process of forest regeneration in decaying Norway spruce plantations, white pine stands and northern hardwood stands. The management of the spruce stands, including the salvage of dying trees and the establishment of a new age class of forest will result in an increase of native species diversity,. Treatment of the other forest types will also increase species diversity, increase regeneration and remove declining white ash.

This project encompasses approximately 275 acres and will be carried out through multiple timber sales over a number of years to achieve multiple objectives.

This forest was chosen for forest management at this time because:

- Norway spruce and red spruce plantations are in decline.
- The maturing even age forest types are generally low in species diversity.
- Forest road infrastructure is in need of repair.
- The project offers an opportunity to demonstrate and fulfill an ecosystem services approach to forest management on DCR Woodlands.

The Cricket Hill Forest Management project endeavors to:

- Demonstrate harvesting techniques and best management practices that protect and enhance forest productivity, soil, and water resources.
- Demonstrate the irregular shelterwood silvicultural system applies to softwood plantations.
- Demonstrate the group selection method of silviculture in northern hardwoods and mixed white pine hardwood stands.
- Create and provide ecosystem services from this Woodland as directed by the Landscape Designations for DCR Parks and Forests: Selection Criteria and Management Guidelines (2012). These services include:
    - Provide locally grown forest products to the local economy.
    - Create a more diverse forest structure that is resilient to disturbance.
    - Sequester carbon in retained overstory trees, permanent forest products produced from the harvest, and in the vigorous regenerating forest.
    - Provide the conditions for early seral or regenerating forest that will support diverse species.

Project Area Description

Stand Information: The Conway State Forest was formed in the 1920's when parcels of land were purchased under the Massachusetts Reforestation Act of 1908. The majority of these parcels were abandoned farmland that was growing back into forests. The result is that the area is an even-aged forest that is approximately 80 -100 years old. Stand stocking is highly variable ranging from dense, overstocked plantations to medium density northern hardwoods. The plantations were established in the 1920's and documentation suggests that very little tree planting was done on the forest during the Civilian Conservation Corps period of the 1930's. The project area contains a mix of plantations comprised of Norway spruce (*Picea abies*), red spruce (*Picea rubens*), white pine (*Pinus strobus*) and native forest types consisting of northern hardwoods and white pine-hardwood mixes. The tree species found in these types are white ash (*Fraxinus americana*), sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), yellow birch (*Betula alleghaniensis*), black birch (*Betula lenta*), black cherry (*Prunus serotina*), basswood (*Tilia americana*), white pine (*Pinus strobus*), red oak (*Quercus rubra*), American beech *(Fagus grandifolia*) and hickory (*Carya spp*).

The DCR Management Guidelines state that forest land swill be classed and considered for silvicultural treatments that generally fit their productivity, structural complexity (or potential) and diversity. An analysis of the Conway State Forest using the Productivity/Complexity Data Layer (land use, forest type, and soil types) suggests a medium to high productivity throughout the project area. This implies the site is suited for both even-aged and uneven-aged management. This will be reflected in the types of silvicultural treatments utilized to regenerate the forest.

Topography: The proposal area is located in the town of Conway and the landform is the typical streams and ridges found in Franklin County east of the Connecticut River. Cricket Hill rises to 1294' elevation on the northeast corner of the forest and Dry Hill is 1352' at the southern end of the forest. Avery Brook flows to the southeast and terminates at the Northampton Reservoir in Whately.

Soils: Two major soil types cover most of the project area. These are the Colrain extremely stony fine sandy loam and the Westminster series of extremely rocky loam. These soils are well-drained and derived from glacial till and have varying amounts of stones and rocks present.

Previous Silvicultural Treatments: The spruce plantations have no record of past silvicultural treatments since they were established over 70 years ago. This forest has a history of home fuelwood harvests and several timber sales but these are not in the areas being treated by the proposed project.

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

Aesthetics: The project area is situated in a state forest that has developed from abandoned farms and agricultural land. The main forest roads are lined with stone walls and large trees which will be protected to enhance the scenic value. These roads also function as trails in both summer and winter so adequate buffers will be used to screen the roads and landing areas. There are no designated scenic roads in the forest.

Recreation: There are no developed facilities in this state forest and recreational opportunities consist of hiking, cross country skiing, mountain biking, hunting, fishing, bird watching and snow-mobiling. The main forest roads are used as snowmobile routes in the winter season.

Wetlands: All required Best Management Practices (BMPs) as set forth in the current edition of the Massachusetts Forestry Best Management Practices Manual will be implemented across the project area and all provisions of Massachusetts Forest Cutting Practices Act (Chapter 132) will be followed. Streams will be given no-harvest filter strips and buffers will be used to protect wetland areas.

Cultural Resources: There are abundant stonewalls and cellar holes scattered throughout the project area and the entire state forest. This area has a rich history of colonial settlement followed by farm abandonment in the late 1800's. Existing "bar ways" (original openings in the walls) will be used whenever possible for logging access and minimal openings will be made if necessary to cross them. Stonewalls dismantled to create openings will be rebuilt after harvesting operations are completed. Trees will be felled away from walls and cultural features to prevent any damage. This project will be reviewed by a DCR archeologist to determine if any significant historic or archeological resources exist in the project areas and any recommendations will be incorporated into the final Silvicultural Prescription.

Rare and Endangered Species: There is occurrence data for state-listed species within the project area, but not enough to justify mapping as a priority habitat.(http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/regulatory-maps-priority-and-estimated-habitats/natural-heritage-atlas-book.html)

Wildlife: Animals noted in the project area were white-tailed deer, chipmunks, porcupine, eastern coyote, moose and squirrel. Refer to pages 133 – 164 of the Massachusetts State Wildlife Action plan at: **http://www.mass.gov/eea/docs/dfg/dfw/habitat/ma-swap-public-draft-26june2015-chapter4.pdf.** This document provides a detailed description of animals found in the Conway state Forest.

Sale Layout and Harvesting Limitations:

Project Access: Primary access will be from Cricket Hill Road. Secondary access to the forest will be on the Henhawk Trail Road and Sinkpot Road.

Landings: Small landings will be used to deck logs and other forest products. These will be situated to facilitate truck access and minimize forwarder travel when possible.

Forwarder Roads and Trails: Forwarder roads will be utilized to access the forest. These will also provide access to future harvests. These will involve minimal construction in in most cases will involve brushing out the trails to allow equipment use.

Wetland and Stream Crossings: Stream and wetland crossings will be avoided whenever possible and crossed by using existing roads and culverts. Stream crossing will be on existing roads when possible and any temporary crossings will use portable bridges which will be removed upon completion of harvesting operations.

Road and Trail Buffers: There are no recreational trails to buffer and the existing state forest roads will be buffered as needed.

Equipment Limitations: Roads will be planned in advance of the sale in order to facilitate access of harvesting equipment. Timber harvesting equipment will be restricted to a mechanized cut-to-length system with the wood products being transported to the landing by forwarder. No ground skidding will be permitted. Hand falling of larger trees will be permitted provided that proper directional-falling techniques are used to protect residual trees and any cultural resources.

Excluded Areas: A defined polygon at the southern edge of the project area is excluded and has been mapped as Estimated Priority Habitat by the NHESP. All wetland areas are excluded and will be protected with appropriate filter strip/ buffers as required by Chapter 132.

Erosion and Sedimentation: All forwarder roads and trails and the landing will be stabilized with water bars, and seeded and mulched according to the recommendations found in the "Massachusetts Forestry Best Management Practices Manual". Operations will be conducted during dry, frozen or otherwise stabile soil conditions.

Site Restoration: Landings and main skid roads will be stabilized with water bars, seed and mulch upon completion of harvesting operations. Stonewalls that have been breached will be rebuilt and any temporary bridges will be removed and the banks and road approaches will be stabilized according to Best Management Practices (BMPs).

In Kind Services: Cricket Hill and Henhawk Trail Road are in need of maintenance and repair. Services may include gravel, grading, drainage work, culvert cleaning, and gates where needed.

Silviculture:

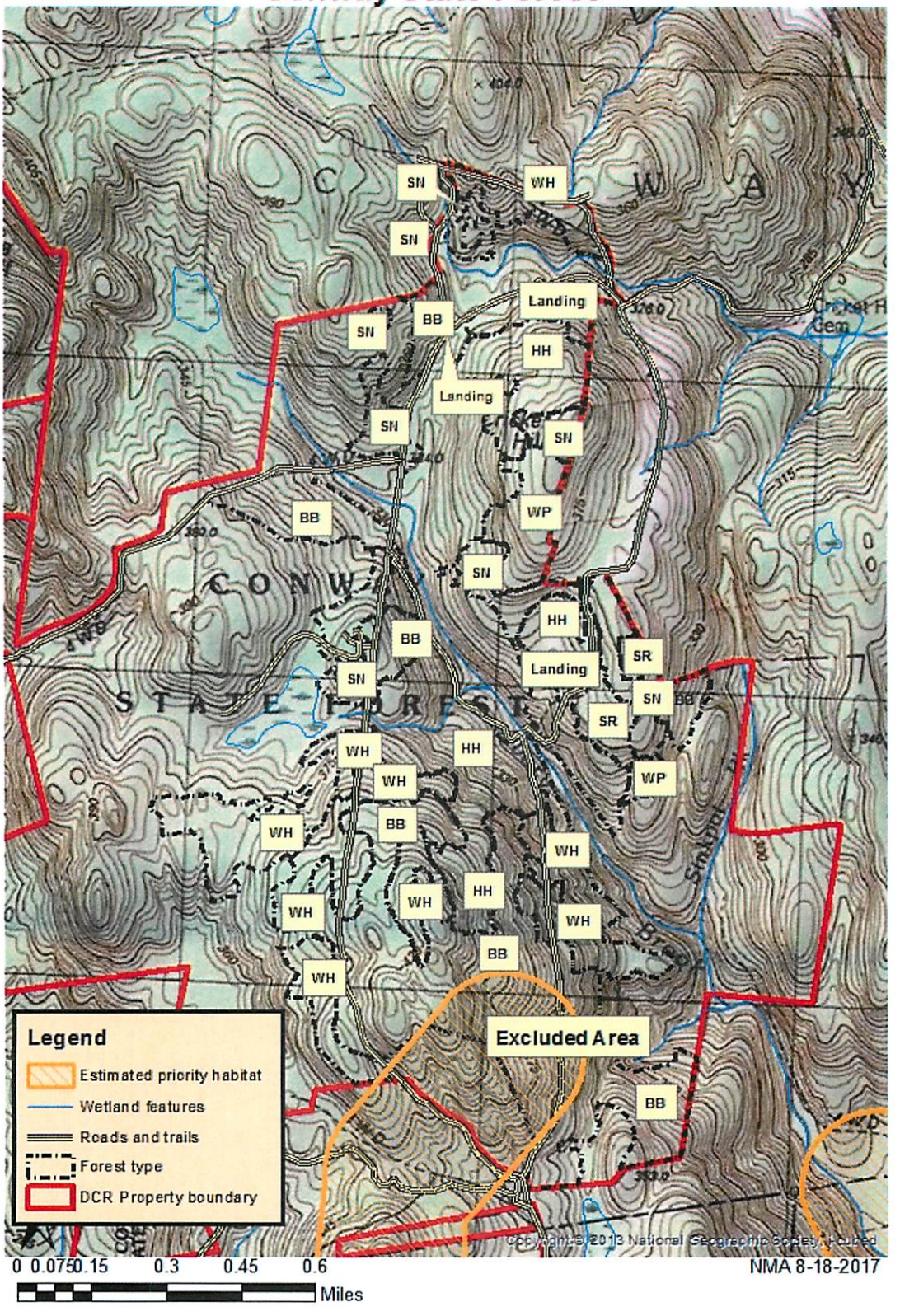
Primary and Secondary Goals: The primary silvicultural goal will be to regenerate the plantations with a mix of native hardwood and softwood species. Secondary goals include structural and species diversity of the forest. The primary goals in the hardwood and native white pine stands will be to regenerate the forest with a secondary goal of pre-salvaging white ash, much of which faces almost certain mortality from the emerald ash borer (EAB).

Methods Used To Accomplish These Goals: The plantations will be regenerated using the irregular shelterwood system. This is a hybrid uneven-age / even-aged silviculture system that retains canopy cover throughout the rotation and utilizes a series of variable sized gaps to regenerate the forest. The focal point for these groups will be patches of existing northern hardwood regeneration and high quality northern hardwood, red oak and white pine crop trees. Patches of advanced spruce regeneration will also be released when they occur on areas with good site quality. Areas of the stand along the westerly and northern boundaries will be treated in a manner to reduce windthrow. This may consist of smaller openings or wind buffers if needed. A series of forwarder roads will be marked in advance in order to gain access to the groups and minimize damage to retention trees and desirable regeneration. Smaller sections of plantation less than 3 acres or in thin strips may be harvested to completely regenerate native species. This practice would remove most or all of the overstory while retaining trees of favored species, such as Sugar maple, black birch, black cherry and yellow birch, for seed. A mechanized cut-to-length harvester will be used to reach into these groups and areas of regeneration to remove trees designated for harvest. The hardwood and white pine stands will be treated with a mix of group and single tree selection in which trees will be harvested in groups up to 1/2 acre. Some of the native white pine stands will be treated with the irregular shelterwood system as this offers good opportunities to convert to an all-aged stand in the future.

Short and Long Term Desired Conditions: The immediate desired condition is to establish regeneration of desirable species, release existing patches of regeneration and establish a series of forwarder roads to gain access to the plantations. Long term desired conditions include creation of small gaps throughout the plantations filled with a mix of northern hardwood, red oak and spruce regeneration and eventual conversion to a northern hardwood stand with a component of red oak spruce and white pine. A long term desired condition would also be the creation of both vertical structural diversity and diversity among age classes represented in the stand. This would be present in the form of retained large trees, living and dead snags and a wide variety of age classes represented though out the forest. The irregular shelterwood system is flexible enough in its application that it can be used to eventually shift the stand to multiple age classes found in all-aged forests. The hardwood stands will have small patches of regeneration with the long term condition of shifting the species mixture toward more red oak and hickory when possible. The same desired conditions in terms of both structural and species diversity would also apply in these stands.

Future Silvicultural Treatments: The irregular shelterwood system will be used to re-enter the stand in another 10 to 15 years. Established regeneration will continue to be released by expanding the prior gaps and creating new gaps for regeneration. The process of converting even-aged plantations to an all-aged forest will require several harvest operations. It is highly probable that a series of harvests carried out at 10 to 15 year intervals will be needed to generate the required age classes needed to classify as all-aged. Once this structure becomes established then the entries at the stand can spread out to longer intervals. This will be based on periodical monitoring of the forest and adjusting the cutting cycle to accommodate rotation lengths and biological or environmental issues. Stands treated with group selection would be re-entered at an interval of approximately 15 years in order to release regeneration and create new groups in the areas previously not treated.

Crickett Hill Proposal
Conway State Forest



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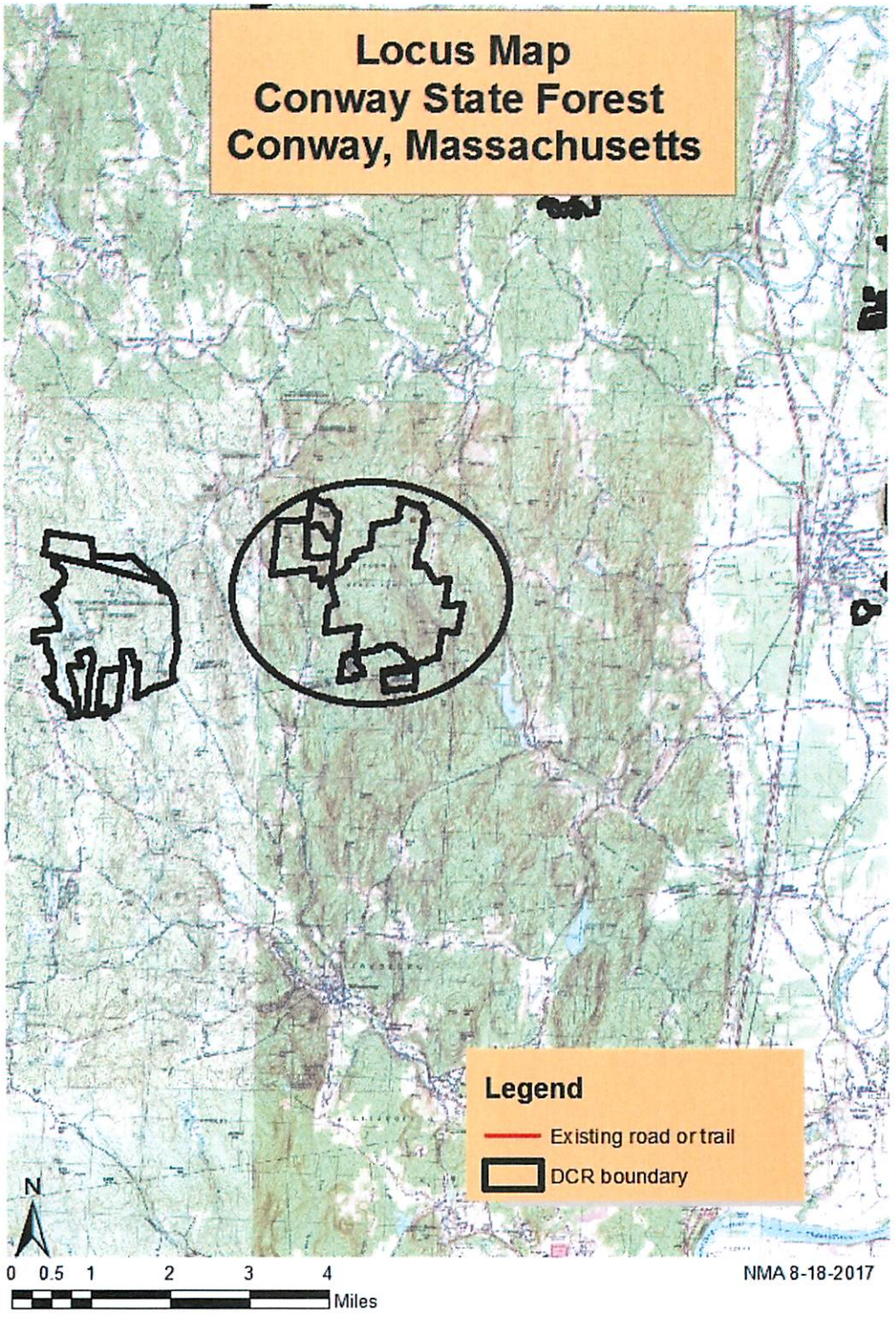
Locus Map
Conway State Forest
Conway, Massachusetts
Legend
Existing road or trail
DCR boundary
N
0 0.5 1 2 3 4
Miles
NMA 8-18-2017

District Forester: _____ **Date:** 1/10/18

Field Operations Team Leader Or Park Supervisor: _____ **Date:** 1/10/18

Regional Director: _____ **Date:** 1/11/18

Management Forestry Program Supervisor: _____ **Date:** 1/12/2018

Attached: Topographic map and Locus Map showing location of Forest Products Sale Area