**Massachusetts Department of Conservation and Recreation**
**Bureau of Forest Fire Control and Forestry**
**Forest Management Proposal**
**Name: Sheep Ranch Rendezvous**

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| **Date Posted:** | **February 26, 2016** |
| **End of Comment Period:** | **April 10, 2016** |
| **Region:** | **West** |
| **Recreation District:** | **Mountain** |
| **Forest Management District:** | **Western CT Valley** |
| **State Forest:** | **H.O. Cook State Forest** |
| **Closest Road:** | **State Forest Road** |
| **Town** | **Heath and Colrain** |


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**Overview:**

The H.O. Cook State Forest is located in northern Franklin County along the Vermont border in the towns of Heath and Colrain. It is currently over 1600 acres and was originally purchased under the Massachusetts Reforestation Law in 1909 with the purchase of 450 acres from Ira Lowe, a wholesale meat dealer in Gardner, MA. He had operated a sheep ranch on the property and had pastured around 400 sheep but was unable to remain profitable due to the depredation of dogs which preyed on the lambs. It was due to this past land usage that at least 70% of the land in the original purchase was open field. Plantations of Norway spruce (Picea abies), Eastern white pine (Pinus Strobus) and White ash (Fraxinus americana) were established in 1910 and 1911. Later plantings were established in 1915-1921 and the final plantings were carried out during the 1930's by the Civilian Conservation Corps which had established a camp on the forest. The stands chosen for this forest management project consists of approximately 227 acres of Norway spruce plantation, 25 acres of adjacent White pine- Hardwoods and 25 acres of White pine plantation and a 10 acre Red pine (Pinus resinosa)/Scotch pine (Pinus sylvestris) plantation. This proposal will generate multiple projects in which to treat these stands.

The guiding criteria to select this site for forest management are:

- There has been observed ongoing mortality of the overstory plantation Norway spruce and white pine
- The plantations are at risk for significant loss due to its age and recent abiotic (ice) damage.
- It offers an excellent opportunity to demonstrate and fulfill objectives for DCR Woodlands.

- A long history of past forest management and demonstration.

The Cook State Forest Management Project will:

- Demonstrate even and uneven age silvicultural techniques to regenerate native species within a currently even age plantation regime
- Demonstrate harvesting techniques and best management practices that protect forest productivity, soil and water resources.
- Fulfill management approaches for Woodlands as directed by the Forest Futures Visioning Process (2010) and subsequent Management Guidelines (2012).
- Follow general guidelines of the Western Connecticut Valley Forest Resource Management Plan.

**Stand Description:**

There are 11 separate forest stands as identified in the Sewell Vegetation Classification map which groups the forest based on tree species, density and height. The plantations are clearly defined in aerial photos and in most cases have a known date of planting. The primary focus is the Norway spruce (Picea abies) plantations, Eastern white pine (Pinus strobus) plantations mixed pine plantations and several Eastern white pine –hardwood stands that lie adjacent to some of the plantations. These stands are all from the original plantings dating back to 1910 with the Red/Scotch pine being established during the 1915 to 1921 period. The Norway spruce stands are high density, mature stems that average 80 to 90 feet in height with an average diameter of 16-18". Some of these stands were treated with thinnings and strip-cuts but several of them have not been treated. The dense crown canopy blocks out most sunlight from reaching the forest floor and as a result only the most shade tolerant species such as American beech (Fagus grandifolia) survive in the understory. The White pine plantations are similar in size and density to the spruce plantations with the most important difference being a definite lack of quality and vigor. While the Norway spruce seems to thrive on this forest, the white pine exhibits extensive damage from ice and snow storms, such as multiple leaders and crooked stems, and has a coarse branched appearance which may be a result of the growing site quality not being suitable for the pine. The mixed Red and Scotch pine plantation has been partially successful as tree mortality has allowed native northern hardwoods to regenerate and become part of the overstory.

The DCR Management Guidelines of 2012 stated 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 site history (land use; agriculture/logging) and conditions (soil types, productivity; vegetation cover) suggests moderate to high forest complexity and potential complexity. A mix of even-aged and uneven age forest management methods of regeneration are therefore appropriate in this project.

**Topography:** This proposed timber sale is located on a gently rolling hilltop with a southerly aspect. There are several major drainages that border the area and at least one small stream that flows through it.

**Soils:** The soil on the eastern portion of the proposal area is BcC, which is a Berkshire very stony fine sandy loam on slopes ranging from 8 to 15%. These are well-drained fine sandy loams with reddish subsoil and are in Woodland Suitability Group 1 which is excellent for growing trees. MeB, which is a Marlow very stony loam on slopes ranging from 3-8%, is found on the western portion of the project area. These soils are formed from compact glacial deposits and are in Woodland Suitability Group 3 which is very good for growing trees. The plantations were established on old pasture lands and agricultural land which was generally on the flatter sites and in some cases had much of the surface stones removed. Soil maps illustrate the relationship between good growing sites and past land agricultural land use.

**Previous Silvicultural Treatments:** Documentation indicates that 40 acres of precommercial girdling was performed in the Norway spruce stand during 1959-1960. This type of treatment involved hacking a ring around the stem of the target tree and spraying herbicide into the wound. The trees selected to be treated did not have commercial value at the time and their removal from the live canopy provided additional growing space for the residual trees. A variety of silvicultural techniques were used in the Norway spruce plantations including strip cuts and row thinnings. These techniques used linear harvests or thinnings to promote regeneration and increase growing space to residual trees and in some cases these were some of the first experimental harvests done on state lands.

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

**Aesthetic**: The Cook State Forest is not located within or near any designated scenic by-ways. There are no authorized roads or trails within this State Forest, and additionally there is public road frontage, so utilizing tree marking techniques to minimize aesthetic impacts will t be needed. Trees will be felled so as to not impact wetland and stream buffers or stonewalls. All slash will be dealt with in a way that meets or exceeds the regulations of Chapter 48 of MGL, the Massachusetts Slash Law.

**Recreation**: There are no developed facilities in this state forest and recreational opportunities consist of hiking, cross country skiing, hunting, fishing, bird watching and snow mobiling.

**Wetlands**: There is at least one stream in the proposal area and several larger streams adjacent to the area. Several seeps are also present. Adequate filter strips will be implemented according to Chapter 132 regulations. Crossing will be minimized and existing culverts will be used when possible.

**Cultural Resources:** There are no known cellar holes or wells but additional research may discover some as they are common in this area.. There is a stone wall network located within the first sale area, and where possible, pre-existing bar-ways will be used to cross through them. If a portion of a stonewall needs to be dismantled, it will be rebuilt at the conclusion of the sale to presale conditions. Trees will also be felled away from stonewalls in order to prevent damage. The timber sale will be reviewed by DCR's archeological/cultural resource expert.

**Rare and Endangered Species:** According to the Natural Heritage Endangered Species Program atlas, there are no known endangered species (animals or plants) in the proposed project area.

**Wildlife:** This project area does not fall within any NHESP delineation. However, the streams and wet areas mentioned above will be protected for both water quality and wildlife corridor reasons. The gradual transition of the monoculture of Norway spruce to a mixed hardwood and softwood stand will add to both the diversity of trees and wildlife. Within the project area a minimum of 1-2 trees per acre at least 18 inches in diameter will be left that show characteristics favorable to wildlife such as large holes and dead branches. Large snags that do not pose a danger to the operator will be retained.

**Sale Layout and Harvesting Limitations:**

**Project Access:** Primary access will be from State Farm Road in Heath and Forestry Road in Colrain.

**Landings**: A main landing will be located on a forest road that runs south from State Farm Road in Heath. Secondary landings for some of the scattered stands will be constructed as needed and old landings from previous harvests will be used whenever possible.

**Forwarder Roads and Trails**: Forwarder roads will be utilized to access the forest. These will also provide access to future harvests.

**Wetland and Stream Crossings:** Stream and wetland crossings will be avoided and crossed by using existing roads and culverts.

**Road and Trail Buffers:** There are no recreational trails to buffer and the existing state forest roads will be buffered as needed. The landing is in a partially open field accessible by a state forest road.

**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:** None at this time.

**Erosion and Sedimentation and Site Restoration:** 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".

**In Kind Services:** Steel gates will be purchased to control unauthorized access by off-road vehicles. Several sections of state forest road are in need of grading, gravel and drainage. Many of the improvements on the forest such as culverts and fire ponds were constructed by the Civilian Conservation Corps in the 1930's and are in need of maintenance.

**Silviculture:**

**Primary and Secondary Goals and Objectives:** The primary silvicultural goal is to begin the process of converting the spruce and pine plantations to a northern hardwood stand with a softwood component. A secondary goal is to promote tree species that are deep-rooted in order to provide a forest that is resistant to wind damage. A third goal is to modify the structural diversity of the forest.

**Methods Used To Accomplish These Goals:** The plantations will be regenerated using the irregular shelterwood system. This is an even-aged system that retains canopy cover throughout the rotation and utilizes a series of gaps to regenerate the forest. The focal point for these groups will be patches of existing northern hardwood regeneration and high quality northern hardwood and spruce 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 buffers if needed. A series of forwarder roads will be marked in advance in order to gain access to the groups and prevent any damage to either the crop trees or desirable regeneration. A mechanized cut-to-length harvester will be used to reach into these groups and areas of regeneration to remove trees designated for harvest. Also these plantations will be thinned from below in order to remove small diameter overtopped trees.

**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 and spruce regeneration and eventual conversion to a northern hardwood stand with a component of 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.

**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 ones to regenerate. The process of converting even-aged plantations to an all-aged forest will both lengthy and continuously ongoing. 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.

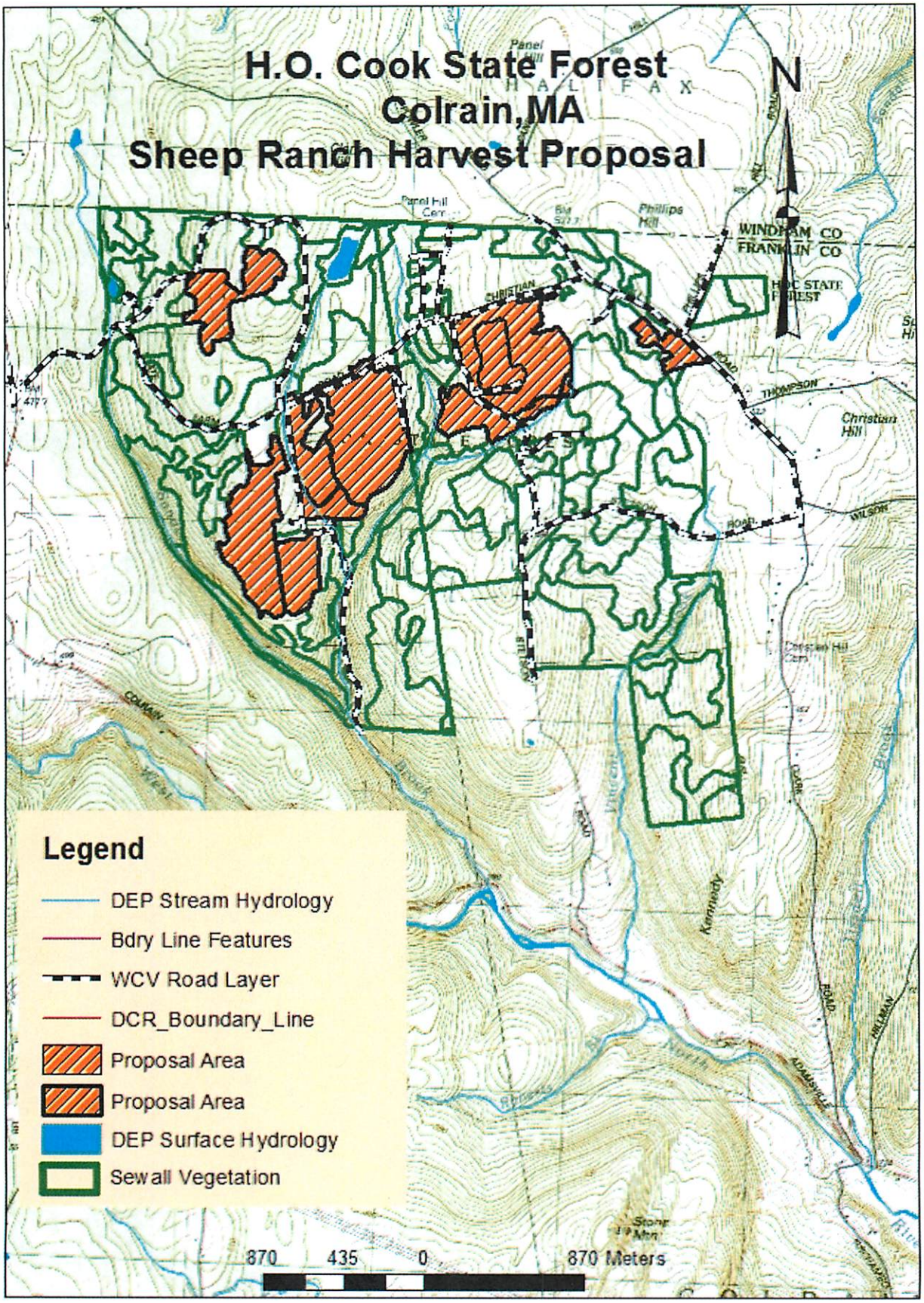
**District Forester:** /Nicholas Angerson/ **Date:** 3/4/16

**Field Operations Team Leader Or Park Supervisor:** /Daniel B. Allen/ **Date:** 2-2-16

**Regional Director:** Dominick F. Sacco **Date:** 1/29/16

**Management Forestry Program Supervisor:** [signature] **Date:** 2/16/16

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


H.O. Cook State Forest
Colrain, MA
Sheep Ranch Harvest Proposal
N
HALIFAX
WINDHAM CO
FRANKLIN CO
H.O.C. STATE FOREST
THOMPSON ROAD
WILSON ROAD
Christian Hill
Phillips Hill
Panel Hill
COLRAIN
Kennedy
ADAMSVILLE ROAD
HILLMAN
Legend
DEP Stream Hydrology
Bdry Line Features
WCV Road Layer
DCR_Boundary_Line
Proposal Area
Proposal Area
DEP Surface Hydrology
Sewall Vegetation
870 435 0 870 Meters

# Sheep Ranch Lot - Locus Map
# H.O. Cook State Forest