



*Silviculture Prescription
Horse Valley Lot*

*Massachusetts Department of Conservation and Recreation
Bureau of Forestry*

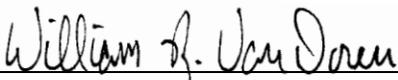
*Central Berkshire District
Huntington State Forest
Huntington, MA*

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Approved by:
Management Forestry
Program Supervisor



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Overview:

The Horse Valley Lot forest management project is located on the southeastern portion of the Huntington State Forest (see Locus Map) along Jourdan Road. The project is comprised of approximately one hundred and seventy-four acres of hemlock-hardwood stands.

The conditions that led to selecting this project for forest management are:

- The project area has a high percentage of hemlock which is or may be infested with hemlock woolly adelgid (HWA) and hemlock looper (proper management will enhance the ability of residual dominant hemlock trees to survive).
- Regeneration established by previous forestry projects by abutters to enhance wildlife populations is ageing beyond the desired age class (<15 years).
- It will provide an opportunity to demonstrate regeneration and retention of hemlock-hardwood stands by transitioning portions of the current even-aged stands to multiage / mosaic conditions.
- The existing road network is in disrepair causing erosion and inhibiting access to the forest for recreation.
- This project area offers an excellent opportunity to demonstrate and fulfill objectives for DCR Woodlands including maintaining and establishing diverse and resilient native forests, building upon past management, and maintenance and repair of infrastructure (<https://www.mass.gov/doc/landscape-designations/download>).

The Horse Valley Lot Forest Management Project endeavors to:

- Demonstrate multi-age silvicultural systems including irregular shelterwood.
- Demonstrate patch cutting up to 5 acres for continued early successional wildlife habitat in portions of the project area particularly where tree disease/insect caused decline is an issue.
- Demonstrate techniques aimed to reduce stress from HWA and hemlock looper and retain healthy dominant hemlock trees.
- Demonstrate harvesting techniques and best management practices that protect forest productivity, recreation values, and soil and water resources.
- Fulfill management approaches for Woodlands as directed by the Forest Futures Visioning Process (2010) and subsequent Management Guidelines (2012); including the maintenance of structural and species diversity, providing positive benefits to wildlife, and prescribing forestry techniques with carbon stock management in mind, and that help forest adaptation and resilience to stressors caused by climate change.

The Horse Valley Lot Forest Management Project may result in two or more timber sale entries.

Site Data:

Stand Information: The proposed project area consists of approximately 174 acres of hemlock-hardwood stands where composition and dominant species vary throughout. The dominant tree species that were observed are red oak (*Quercus rubra*), hemlock (*Tsuga canadensis*), sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), yellow birch (*Betula alleghaniensis*), white birch (*Betula papyrifera*), black birch (*Betula lenta*), white ash (*Fraxinus americana*), black cherry (*Prunus serotina*), American beech (*Fagus grandifolia*), and white pine (*Pinus strobus*). Individuals of hickories (*Carya* spp.), serviceberry (*Amelanchier laevis*), and hop-hornbeam (*Ostrya virginiana*) were seen in or near the project area.

This general forest type will be broken down into individual stands, for administration purposes and making proper planning and management decisions, based on topography, road and stone wall features, and species composition. Size classes in this project area range from small to large diameter trees. The area is

overstocked. Generally hemlock is in the understory populates the understory and intermediate crown layer with hardwoods dominating the canopy.

Previous Silvicultural Treatments: The Commonwealth purchased the 674 acre “Hattie L. Stanton Lot”, now Huntington State Forest, in 1930. Much of the property had been harvested shortly before Commonwealth ownership, while other portions consisted of abandoned fields. Most of the property was allowed to continue in natural succession, but several of the abandoned fields were planted with red pine and Norway spruce by the Civilian Conservation Corps (CCC).

Forest management maps created in 1934 and 1940 show the project area as a young forest regenerating after the extensive cutting prior to state ownership. These young stands, averaging 2-6 in. in diameter, were made up mainly of pioneer species including grey birch (*Betula populifolia*), red maple, paper birch, yellow birch, beech, and sugar maple, as well as previously established hemlock. Although red oak is currently found throughout the project area in varying amounts it was not listed as a predominant species on these maps.

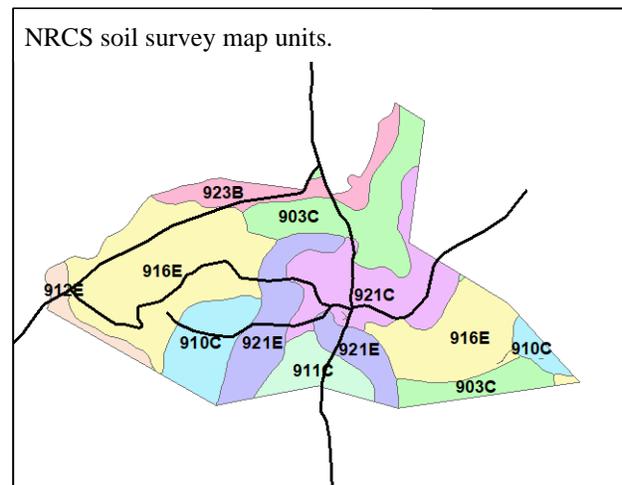
The most recent forest management projects conducted in Huntington State Forest by DCR occurred in the early to mid-2000’s, occurring in the northeastern portion of the forest. These harvests occurred in plantations, oak-hardwood, and hemlock-hardwood stands. Several forestry projects focusing on wildlife habitat improvement on private land adjacent to this project have occurred within the past 20 years. Subsequently, some of these lands have become DCR property.

Topography: This proposed project area is in the southeast portion of Huntington State Forest, itself in the southeast portion of the town of Huntington. The project area is bound by current and historic (currently interior) property boundaries to the east, south and west and Horse Hill Brook to the north. Elevation within the project area ranges from 900 – 1020 feet with generally gentle slopes.

Drainage from this project area is split between the Westfield River and Middle Connecticut River watersheds (HUC-8 subbasins). Westward flow collects into Horse Hill Brook which flows west into Roaring Brook, and then to the Westfield River. Eastward flow is collected into several small drainages leading to Red Brook and Tucker Brook which merge and flow into the Tighe Carmody Reservoir. There are several wetland features ranging in size from 0.1 – 3+ acres within the project area. Although there are no certified vernal pools several of these wetlands may be functioning as vernal pools.

Soil: There are seven soil types associated with this project area, mostly associated with deep, well drained, and stony upland soils. As with topography the forest composition changes slightly with the soil types. The seven types are listed below.

- 903C – (27.9 ac) Chatfield-Hollis association
- 910C – (15.8 ac) Woodbridge-Paxton association
- 911C – (8.7 ac) Ashfield-Shelburne association
- 912E – (3.9 ac) Hollis-Chatfield association
- 916E – (61.4 ac) Charlton-Paxton association
- 921C / 921E - (46.0 ac) Westminster-Millsite association
- 923B – (10.9 ac) Ridgebury-Whitman-Natchaug association

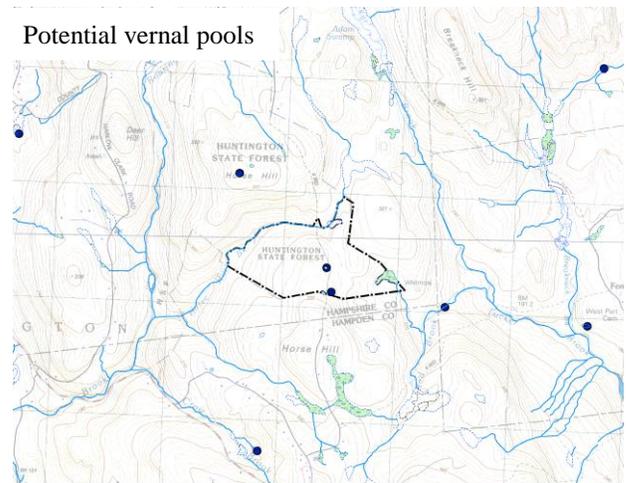
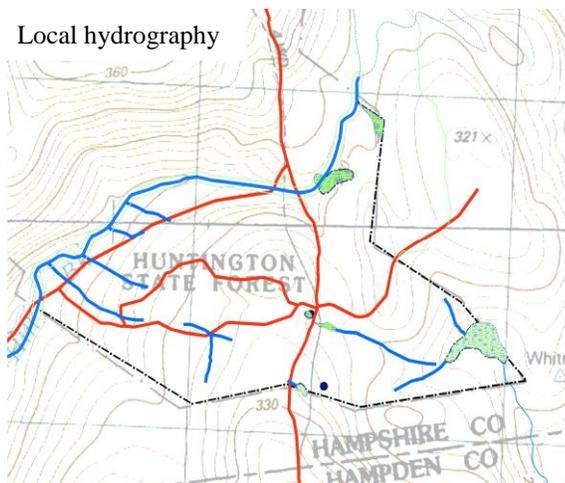


Climate: The project location lies in an area of mild summers and moderate winters with year round precipitation possible. Winds generally come from the west. Although major weather events can happen in any given year, the chances of hurricanes, tornadoes, ice storms, or other forest-changing events are seldom but do occur. The figures below (Table 1) are excerpted from the National Weather Service 2012 Climatological Report for Pittsfield, MA. The climate period used to determine normal value is 1981 through 2010.

Table 1 Local climatological data:

	2015 Annual	2014 Annual	Normal Annual Value	Normal Winter	Normal Spring	Normal Summer	Normal Fall
Annual maximum temp (°F)	56.1	54.0	55.3	31.7	54.3	76.7	57.9
Annual minimum temp (°F)	35.3	35.0	35.4	15.4	32.9	55	38
Annual mean temp (°F)	45.7	44.5	45.3	23.6	43.6	65.8	48
Total precipitation (in.)	40.63	44.17	45.38	8.6	11.44	12.74	12.6
Days with ≥ .01in. precipitation	130	141					
Average wind speed (mph)	6.6	6.7					

Hydrology and Watershed: Drainage from this project area is split between the Westfield River and Connecticut River watershed basins. Westward flow collects into Horse Hill Brook which flows west into Roaring Brook then into the Westfield River. Eastward flow is collected into several small drainages leading to Red Brook and Tucker Brook which merge and flow into the Tighe Carmody Reservoir.



There several wetland features ranging in size from 0.1 – 3.0+ acres within the project area. Although there are no certified vernal pools mapped by NHESP within the project area, several of these wetlands may be functioning as vernal pools and there are two mapped potential vernal pools. During stand exam visits these potential vernal pools sites were located along with several seeps, intermittent streams, and small wetland features that were also identified and added to the project map. All hydraulic features (wetlands, vernal pools, streams, etc.) currently known and those found during timber marking will be depicted in the Forest Cutting Plan and the Forest Products Sale Permit maps. This final sale layout will be submitted to the DCR Ecologist for final comment prior to this project being bid.

Bridge replacement at two existing crossings along Horse Hill Brook will be included as potential in-kind services through this project. Both crossings are on existing forest

Wetland functioning as vernal pool



roads and will require permitting by the Huntington Conservation Commission for permanent replacement. Both crossings see illegal use with resulting erosion and sediment problems.

Currently an additional 5 existing intermittent stream crossings will utilize temporary bridges, corduroy, or other acceptable means to cross. Thanks to existing access and favorable topography there are no anticipated new intermittent stream crossings within this project area. Every effort will be made to avoid creating stream and wetland crossings if additional water features are found. All operations near and within regulated water features found in the area will at minimum follow the guidelines of the “Massachusetts Forestry Best Management Practices Manual” (<https://www.mass.gov/doc/massachusetts-forestry-best-management-practices-manual-0/download>).

To minimize the chance of negative effects on the hydrology of the site from the project, there will be no cutting within wetlands or within filter strips. Within the no-cut buffer white ash may be removed if it is infested or will be imminently infested with emerald ash borer (EAB). Removal of white ash from the stream filter strips or wetlands will be done without entering the buffer area with machinery.

Disease and Insects: There are past, current, and potential threats to this project area including HWA, hemlock looper, beech bark disease, and EAB.

- HWA is believed to have originated in Japan and was found near Richmond, VA in 1951 and has spread north as far as Maine. Once infested with this aphid-like insect trees typically decline and die within 4 –10 years. There is no natural native control for this forest pest; however, harvesting to remove stressed understory trees and retain well-spaced healthy dominant trees that are free of competition for growing space. http://na.fs.fed.us/spfo/pubs/pest_al/hemlock/hwa05.htm



HWA



Hemlock looper

- Hemlock looper is a native species which can cause severe damage when concentrations become high in densely populated stands. This insect causes defoliation damage to many softwood tree species across the country, however in southern New England hemlock is the preferred target. Damage can be minimized by keeping the stand density of hemlock low and retaining well-spaced dominant healthy trees.

https://www.maine.gov/dacf/mfs/forest_health/insects/hemlock_looper.htm

- Beech bark disease (BBD) was first found in the United States in Maine in the 1930s and has been spreading throughout the Northeast and beyond since then. It is believed to have come to the US from Europe through Nova Scotia. It has spread throughout the eastern United States and Canada and has no natural control.



BBD

https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsbdev2_043310.pdf

- EAB was first found in North America in Michigan and Ontario in 2002. It was introduced from Asia and has few natural predators here to control populations. EAB has spread from Michigan and is now located throughout the northeastern part of the United States and Canada. This insect feeds exclusively on ash trees and has destroyed millions of trees across its range already. EAB is generally attracted to trees which were previously weakened or stressed.



EAB

<https://www.mass.gov/guides/emerald-ash-borer-in-massachusetts>

Degradation on Jourdan Road



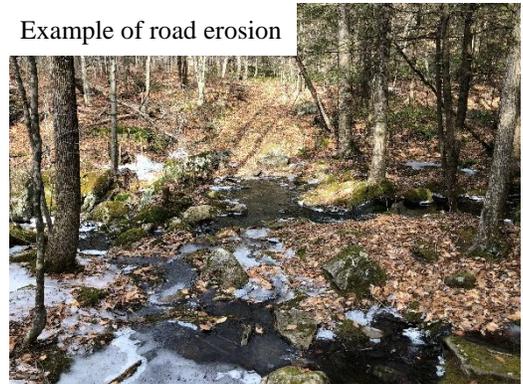
Roads, Trails and Recreation: Jourdan Road (off New State Road) is owned and maintained by the Town of Montgomery up to the last houses where ownership changes to the abutting property owners. Shortly past this point the road enters the Town of Huntington and then the State Forest. This forest road extends north through the state forest and exits as Sampson Road. There are several private homes along Jourdan Road.

Once past the last house, Jourdan Road is in poor condition and only accessible by high clearance 4x4 vehicles or by foot due to erosion issues. Many water control features of the road have failed due to lack of maintenance and illegal ATV/ORV use; as a result, the road has suffered significant erosion. Coordination with the abutting landowners will be sought in stabilizing the road both prior to, and upon completion of, the project to reduce effects of erosion. There are two other unnamed woods roads which traverse the project area. The woods roads in the project area are open to all legal passive recreation activities that are allowed on DCR properties. There is a history of illegal ATV/ORV use along these roads and evidence of unauthorized mountain bike trail building is appearing.

As per the “Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines”, there will be a 50 ft. buffer along these two roads where no more than 50% of live basal area will be harvested and no slash within 25 ft. of the road will remain. The Massachusetts Slash Law will be observed beyond the 25 ft. no slash zone.

No other formal recreational trails are found within the project area. Several unauthorized mountain bike trails have been found during site visits. By default, these trails will not be buffered or protected within this project area.

Example of road erosion



Stone walls in project area



Cultural and Archaeological Features: There are several cultural resources including homestead sites, mill sites, road features and numerous stone walls within Huntington State Forest. The features located within the project area will be protected from disturbance during operations and will be treated according to guidelines set

forth in the “Bureau of Forestry – Cultural Resource Management Protection Standards & Guidelines”.

Stone foundation in project area



Wildlife / Rare and Endangered Species: According to the NHESP “Massachusetts Natural Heritage Atlas 13th Edition” there is no priority or estimated habitat located in the proposed harvest area. No rare plants have been identified in the field to date. Care will be taken to properly report and address the needs of any state-listed rare plant or wildlife species if found on the site. Any invasive species will be documented and treated within the project area.

No rare animals or critical habitat were noted upon the initial site visit. Over the past 20 years there have been several forestry operations located on adjacent private property including clearcuts, seed tree,

shelterwood, and selection harvests. The clearcuts and heavier seed tree and shelterwood areas were completed with the goal of creating early successional habitat. As the harvested areas progress through natural succession the early successional habitat elements they possessed are slowly being lost. Massachusetts Fish and Wildlife will be consulted during the prescription process to aid in locating the patch clearcuts to maximize benefit for wildlife.

Stand Data:

Forest Stand Attributes: This prescription will describe the conditions and treatments within the 174 acre project area. This project area may be broken up into multiple stands for silvicultural treatment based on features such as roads, trails, or streams for administration purposes. Throughout the project area the forest type changes gradually from hemlock-hardwood to oak-hardwoods creating a mosaic effect. Due to the continuously variable overstory this project will be considered one forest type.

Stand Structure: This project area consists of stands that are fully stocked, with a relative stand density of 115 percent of what is considered the maximum for this forest type. These stands are approximately 90 years old with generally little understory, shrub, or herbaceous layer except for patches of hobble bush and mountain laurel. These single age class stands are beginning to break up due to the above-mentioned disturbances and regenerate slowly to American beech as indicated by regeneration data.

These stands are overstocked with a combined overstory basal area of 186 ft²/ac and are above “A” level according to local stocking charts. Under the current conditions the stand is overcrowded causing the already stressed trees to compete for limited resources. Hemlock, red oak, red maple, yellow birch, American beech and black birch dominate the overstory with paper birch, sugar maple, white pine, white ash and black cherry present in smaller amounts. The over story has a quadratic mean diameter of 11.7 in. and a medial diameter of 14.7 in. with the maximum diameter of sampled trees reaching 30 in. dbh. Red oak and white pine within the project area have quadratic mean diameters of 18.2 in. and 18.7 in. respectively (Table 2).

The understory of this stand is dominated by American beech seedlings and saplings under 4.5 ft. in height (1311.7 stems/acre). Other understory species include hemlock, red maple, red oak, birches, and black cherry (Table 3). In this project area hobble bush and mountain laurel are found in patches where they dominate, however these species were found on less than 25 percent of the understory plots (Table 4). Other shrub and ground cover species found were ferns, grasses, and *Lycopodium* spp.

Throughout the stand there is an average of 32 snags per acre. Although hemlock and yellow birch account for a large percentage of the snags, there is range in both size and species composition throughout the project area (Table 5). On average 446 cubic feet of coarse woody debris (CWD) per acre were recorded in inventory transects.

Table 2: Overstory (all measured live trees greater than or equal to 5 in. dbh)

	All species	Hemlock	Red Oak	Red Maple	Yellow Birch	Am. Beech	Black Birch	Paper Birch	Sugar Maple	White Pine	White Ash	Black Cherry
Basal area (square feet)	185.9	54.1	34.6	30.3	16.2	12.4	15.7	7.6	6.5	4.9	2.2	1.6
Percentage of stand	100	29	17	16	9	8	8	5	3	2	1	1
Acceptable growing stock (percent)	59	73	86	33	62	26	63	28	46	56	40	33
Stems per acre	241.9	93	19.1	32.2	29.7	23.1	18.9	11.8	5.9	2.5	1.4	4.2
Quadratic Mean Diameter	11.7	10.1	18.2	13.1	9.7	10.6	12.3	11.1	13.7	18.7	14.3	8.4
Relative Density (%)	115	34	17	17	11	12	9	5	6	2	1	1
Sawlog Net Total (bd-ft/ac)	12904.5	3463.1	4290.5	1866.1	301.1	585.7	582.5	264.9	424.5	788.3	290.9	46.8
Cords Gross Total (cda/ac)	57.4	13.1	11.9	10.6	4.7	4.4	4.6	2.9	2.2	1.7	0.9	.4

Table 3: Understory (measured trees less than 5 in. dbh)

SPECIES	<1 ft	1-4.5 ft	4.5ft – 1”dbh	1”-5” dbh	TOTAL	Percent of Plot
Beech	582.9	458	270.6	52	1363.7	59.5
Hemlock	0	0	0	166.6	166.6	35.1
Red maple	0	10.4	0	10.4	20.8	5.4
Yellow birch	0	10.4	0	0	10.4	2.7
Red oak	0	10.4	0	0	10.4	2.7
Striped maple	0	0	0	10.4	10.4	2.7
TOTAL	582.9	489.3	270.6	239.4	1582.3	

Table 4: Ground Cover (shrub and herbaceous species)

<u>Species</u>	<u>Avg. % cover</u>	<u># plots observed</u>	<u>% of plots observed</u>
No Tally	N/A	13	36.11
Hobble	5.14	10	27.78
Mountain laurel	8.89	10	27.78
<i>Lycopodium</i> spp.	3.33	7	19.44
Fern	1.81	2	5.56
Wintergreen	0.42	1	2.78

Table 5: Snags

	All species	Hemlock	Red Oak	Red Maple	Yellow Birch	Am. Beech	Black Birch	Paper Birch	Sugar Maple	White Pine	White Ash	Black Cherry
Basal Area	18.4	5.4	0	2.7	2.2	4.3	0.5	2.2	0.5	0	0.5	0
Tress/acre	32.6	13.6	0	2.9	6.3	4.4	0.7	2.8	1	0	1.1	0

Panoramic view from sample location



Evaluation of Data and Projected Results:

Goals: The primary goals of treatments in these stands will be to ensure future diversity of the tree, shrub, and herbaceous layers.

- Create new young forest habitat through patch clearcuts up to five acres to replace previous clearcuts which are growing out of the young forest stage. This will promote tree species which require full light for regeneration such as paper birch, pin cherry, black cherry and poplars.
- Retain the current hemlock-hardwood forest habitat type by promoting the retention and regeneration of hemlock. Follow guidelines to provide hemlock desirable conditions to withstand HWA and hemlock looper.
- Regenerate red oak and other mast trees to ensure their retention on the landscape as a food source for wildlife.

Silviculture Methods: The anticipated practice used in these stands will be irregular shelterwood and patch clearcuts of up to 5 acres. This method of management will begin the transformation of the current even-aged forest into one with multiple age classes represented.

Patch Clearcuts: Up to twenty percent (34 acres) of the project area will be treated by patch clearcut. Location of openings will be chosen based on proximity to existing openings, density and health of beech, and understory composition. Openings on this scale will provide adequate sunlight for regenerating red oak as well as creating conditions that will slow the growth of beech allowing other desired species to thrive.

This practice will generally remove all trees over one inch in diameter from the designated area. Within each opening an average of 2-5 trees/acre will remain as individuals or in patches to add vertical structure. Retained trees will be mast producing, have wildlife value, and/or be desired as a seed source. Chemical control of beech should not be needed in these groups; ample sunlight should ensure the desired native species can emerge.

Existing and anticipated CWD left as part of the harvest will exceed the minimum standard in DCR guidelines. In addition, a recommendation from MA Fish and Wildlife will be followed to retain additional CWD in the form of whole trees cut and placed within retained groups of trees.

Irregular shelterwood: The remaining project area will be treated using the irregular shelterwood method, providing variability of stem density, species composition, and canopy distribution across the varied forest type. This system is effective at maintaining and enhancing variability.

Maintaining healthy dominant hemlock and other softwood species in the overstory and creating favorable conditions for regenerating desirable species are the two main goals. Harvesting should occur with little to no snow cover to allow for scarification of soils to provide an adequate seed bed for germination. Generally, between 30% and 80% of the volume within each stand will be harvested based on species composition, crown condition, and tree health. Lower volume removal generally will occur in portions of the treatment area dominated by shade-tolerant species such as hemlock, sugar maple, and yellow birch; and higher volume removal in portions of the treatment area dominated by shade-intolerant hardwoods such as red oak, black cherry and white birch. Due to the mosaic patchwork of species distribution, geological features, and elevation changes, portions of this project area may not be treated.

For added wildlife value hardwood trees to be retained will be prioritized based on mast production capacity (e.g., large crowned, wind-firm oak, cherry, hickory, and/or non-diseased beech trees), and potential den trees. To maintain species diversity, it is important to prevent the proliferation of diseased American beech and therefore mechanical or chemical control of beech may be used where harvesting alone will not create adequate light for desired species to compete. Cut stump, “hack and squirt”, or foliar spraying are techniques that have had favorable results in the past.

Desired Future Conditions: Ten years after treatment it is anticipated that the clearcut portions will be fully stocked stands that are sapling size with almost closed canopy structure. The portion of area treated with the irregular shelterwood method will have great diversity in size and structure. Regeneration in areas of heavier cutting should have a softwood species component equally competing with hardwood species.

The expected outcome over both areas is a diverse forested condition with a greater capability to withstand climate, weather, and insect disturbances.

Anticipated Future Treatments: Both the clearcut and irregular shelterwood portions of the project area should be visited in approximately 5-7 years to ensure regeneration techniques have been successful. If the density of beech regeneration becomes a concern, chemical control may be prescribed.

It is anticipated that 10-15 years after this harvest the next silvicultural treatment will be to expand and create new patch clearcuts to retain this age class in the local landscape. This second treatment can be within or adjacent to the current project area based on regeneration success of the irregular shelterwood harvest.

Within the irregular shelterwood portion of this project, a second entry in 15-20 years for portions of overstory removal may be appropriate based on regeneration success.

Sale Layout and Harvesting Limitations:

The Horse Valley Lot may be divided into multiple timber sales. Harvesting in hemlock dominated portions of the project area should be conducted between August and March to reduce the spread of HWA and hemlock looper.

Project Access: Access to the project area will be from one of two routes.

- Option 1 – Route 112 in Huntington, to Montgomery Road which turns into Main Road in Montgomery, to New State Road, to Jourdan Road which enters the state forest and project area after crossing the town line into Huntington.

This is the preferred route; coordination with the abutting landowners will be sought to make improvements to the road. Portions of the in-kind services will provide for stone and gravel, drainage repair, and improved stream crossings.

Currently this is the only entry point to the forest that is not gated. It is anticipated that a gate will be installed upon completion of the project to deter unauthorized vehicle access.

- Option 2 – Route 66 to Tucker Road, continue straight through intersection onto Sampson Road to the entrance of the state forest. The project area is approximately one mile past the entrance on an existing woods road of poor condition.

Although this is not the preferred route to the project area, repairs will be built into the project's in-kind services to control erosion and improve passive recreation access.

Landings: There are no currently existing landing areas large enough to support a modern timber harvest operation. Currently two landings will be proposed along Jourdan Road at intersections with existing woods roads. An additional truck landing on Jourdan Road may be sought on the adjacent private land to the south to load larger on-road tractor trailers.

Skid Road and Trails: There are several existing woods roads located in the project area that will be used for transporting logs and wood either by forwarder or skidder. Improvements to these trails will need to be completed prior to the start of the harvest to correct drainage issues. Additional skid trails will be laid out to avoid stream crossing and to account for slope and grade. Throughout the project area there are existing skid trail segments still visible from the previous harvests; these existing segments will be evaluated and connected as needed to gain access to necessary portions of the project area.

Wetland & Stream Crossing: There are two existing perennial stream crossings and five existing intermittent stream crossings located on the existing woods road network within the project area. Additional skid road and trails will be laid out to minimize the number of crossings throughout the project area. No additional wetland or stream crossings are planned or anticipated. All regulated stream and wetland crossing will be bridged and/or have corduroy installed during harvest. All mapped hydraulic features (wetlands, vernal pools, streams, etc.) and final access layout will be depicted in the Forest Cutting Plan and the Forest Products Sale Permit maps. Conservation Commission approval will be sought to

install permanent replacement bridges at the two existing perennial stream crossings to prevent further damage and erosion by unauthorized vehicle access after the project has been completed.

Road and Trail Buffers: As per the “Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines”, there will be a 50 ft. buffer on each side of existing woods roads where no more than 50% of live basal area will be harvested and no slash will remain within 25 ft. of the road. The Massachusetts Slash Law will also be observed along the State Forest boundary. There are no other authorized recreation trails in the project area. Unauthorized trails will not be buffered or protected.

Equipment Limitations: Currently there are no harvesting equipment limitations or restrictions. It will be determined upon completion of field work if any limitations or restrictions are necessary for this project.

Excluded Areas: Within the project area all wetland areas will be excluded from harvesting. Regulated streams within the project area will have marked filter strips restricting equipment access per the “Massachusetts Forestry Best Management Practices Manual”. There may be additional portions of the project area removed from active management due to excessive slope, or wet or rocky ground. These exclusions will be documented and mapped within the Forest Cutting Plan.

Erosion and Sedimentation: Unwanted movement of soil will be controlled by following recommendations in the “Massachusetts Forestry Best Management Practices Manual”. All work will be limited to dry or frozen soil conditions.

Site Restoration: Upon completion of harvest activity in the Project area all woods roads, skid roads, and skid trails will be left in a stable state by grading and installing water bars as needed. All landings will be left clear of debris, graded, and seeded with “Berkshire Conservation Mix” and straw.

In-kind Services: There are no definitive in-kind services to be attached to this project to date. Below is a list of possibilities that will be evaluated during project layout and design:

- Equipment time and materials to maintain/restore Jourdan Road, Samson Road, and other woods roads within the State Forest.
- Installation of two woods road bridges at existing crossing location along Horse Hill Brook.
- Installation of a gate on Jourdan Road at the southern entrance of the Forest.

Proximity to Designated Forest Reserves: There is no forest reserve located adjacent to, or near, this project area.

Sensitive Public Issues: There are no anticipated highly sensitive public issues. There is illegal ATV use on the existing woods roads as well as unauthorized mountain bike trail building and use.

Prescription Documentation:

Project Marking Guidelines: Follow the directions below for marking instructions of sale and stand level features.

Sale Level:

1. Locate, flag (pink), and paint with two red diagonal stripes the buffers and filter strips along all wetland and associated streams.
2. Locate and paint with two red diagonal stripes the sale boundary (property boundary).
3. Flag temporary layout of primary and secondary skid trail network with orange flagging. Using orange paint mark small noncommercial stems or stems already marked for removal located along adjusted skid trails upon completion of marking (orange).
4. Flag temporary layout of all wetland and stream crossings with labeled orange flagging. Using red paint mark and label each crossing upon completion of marking and any final adjustment to location.
5. Locate and mark perimeter of landings and with one red diagonal stripe.

6. General tree marking guide:

Type of Tree	Tally Method	Mark Type
Cut Saw Log	Individual tally dbh & height	Blue Horizontal Line
Cut Pulp/Cord Wood	Individual tally dbh - 1/10 height	Blue Dot
Cut Live Cull Tree	Count	Blue X
Dead Tree / Warning	No tally	Blue X
Leave Tree	No Tally	Red Horizontal Line

Patch Clearcuts: On no more than 20% (34 acres) of the project area lay out patch clearcuts ranging from one to five acres. Patches should be laid out to enhance previous harvest openings or current natural openings, remove portions of heavily diseased beech, and be diverse in elevation and aspect. Each patch will be delineated by one red stripe painted on perimeter trees (to be retained after harvest) and a GPS used to verify acreage. Within these patches live trees 5 in. dbh and above will be marked for harvest. Within each patch 5 trees per acre with good wildlife features, or those phenotypically selected for desirable traits, will be left. Aggregation of retention trees is preferred with at least one cull tree cut and placed within the aggregate group for additional CWD.

Irregular Shelterwood: Remove 30% to 80% of basal area within remaining project area based on existing ground conditions, including species composition, tree health, form, and vigor using the following prioritized guide below, ordered from highest (1) to lowest (8) priority for removal. Dominant hemlock should be well spaced. Residual density should remain higher in areas with acceptable growing stock.

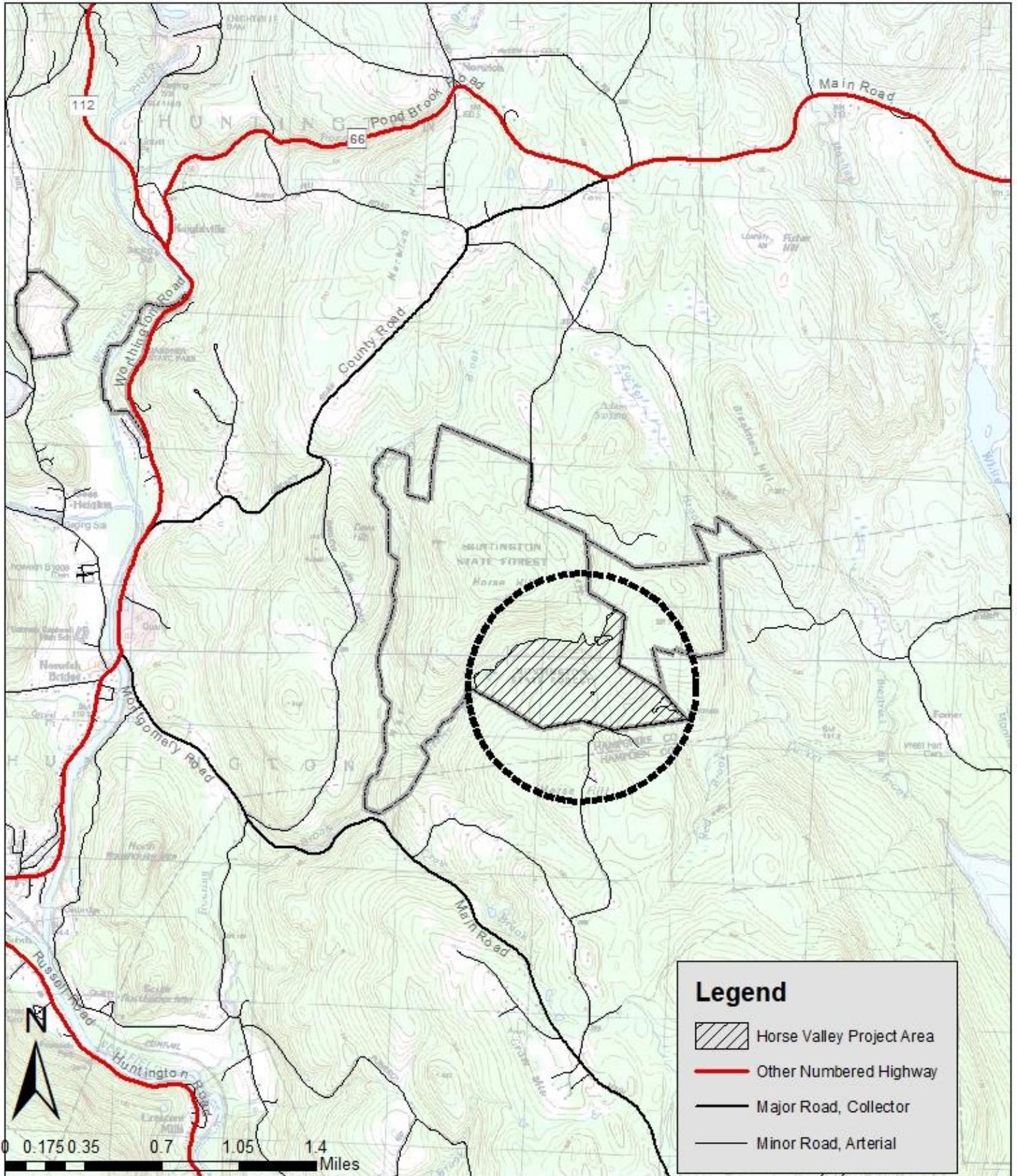
1. White ash greater than 10 in. dbh
2. Any BBD-infected American beech greater than 5 in. dbh
3. Trees of any species with less than 25 percent live crown
4. Intermediate, suppressed and/or hemlock classified as unacceptable growing stock (UGS)
5. Red maple, sugar maple, black cherry, black birch, yellow birch classified as UGS
6. Co-dominant hemlock for spacing
7. Softwood species and other hardwood species classified as UGS
8. Hardwood species classified as acceptable growing stock for control of density, spacing, and growing space reallocation

Residual Basal Area Ranges:

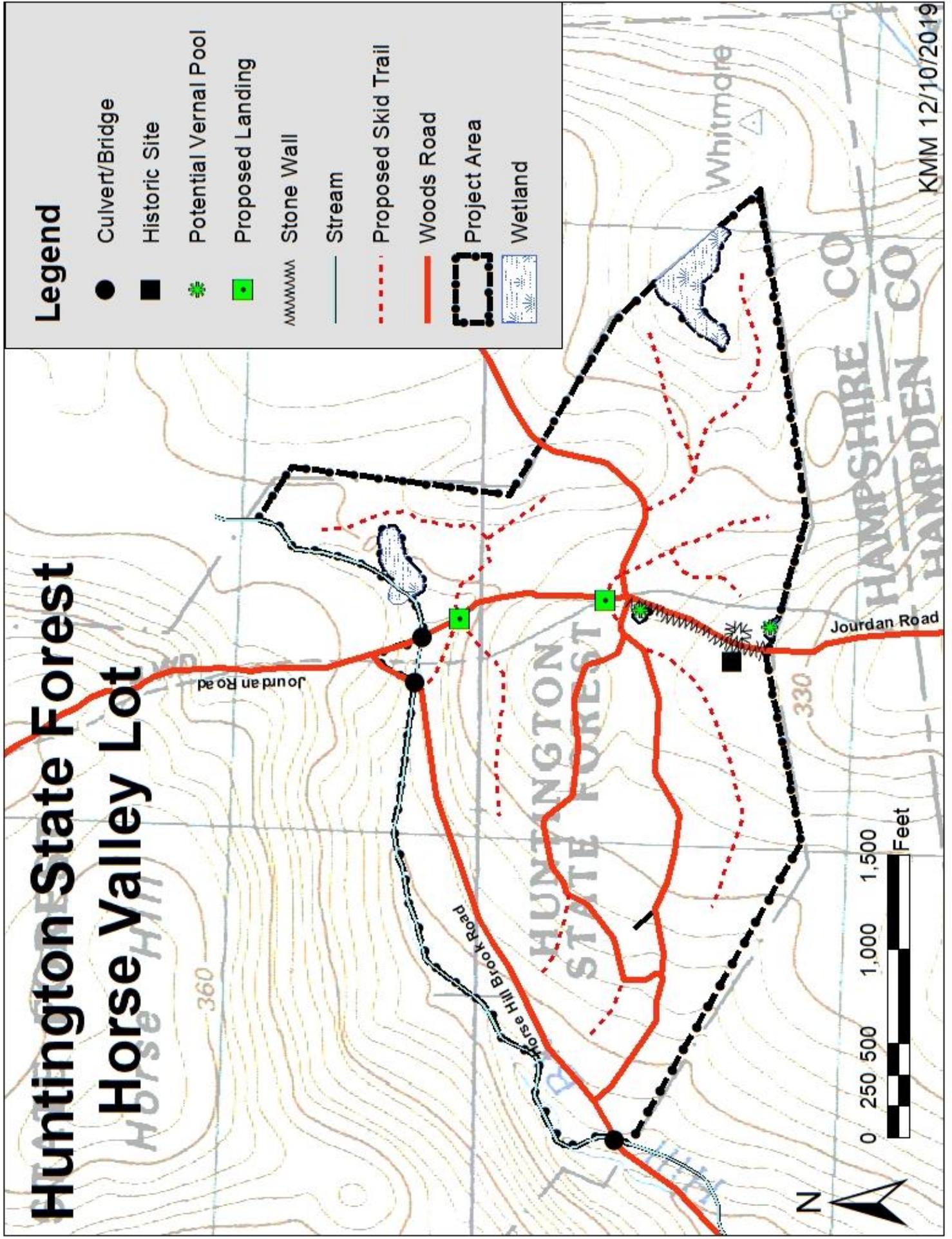
	Current average over entire area	Goals for post-harvest residual	
		High	Low
Hardwood-dominated areas	185	120	40
Softwood-dominated areas	185	130	70

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

October Mountain State Forest OMSF Day Use Area - Locus Map



Huntington State Forest Horse Valley Lot



Legend

- Culvert/Bridge
- Historic Site
- ✱ Potential Vernal Pool
- Proposed Landing
- ~~~~~ Stone Wall
- Stream
- - - Proposed Skid Trail
- Woods Road
- Project Area
- Wetland