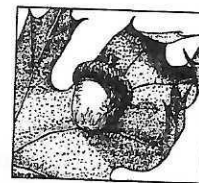




# FOREST MANAGEMENT PLAN

Submitted to: Massachusetts Department of Conservation and Recreation  
For enrollment in CH61/61A/61B and/or Forest Stewardship Program



## CHECK-OFFS

CH61	CH61A	CH61B	STWSHP	C-S
cert. <input type="checkbox"/>	cert. <input type="checkbox"/>	cert. <input type="checkbox"/>	new <input checked="" type="checkbox"/>	EEA <input checked="" type="checkbox"/>
recert. <input type="checkbox"/>	recert. <input type="checkbox"/>	recert. <input type="checkbox"/>	renew <input type="checkbox"/>	Other <input type="checkbox"/>
amend <input type="checkbox"/>	amend <input type="checkbox"/>	amend <input type="checkbox"/>	FSC <input type="checkbox"/>	Birds <input type="checkbox"/>
Plan Change: _____ to _____			Conservation Rest. <input type="checkbox"/>	

## Administrative Box

Case No. _____	Orig. Case No. _____
Owner ID _____	Add. Case No. _____
Date Rec'd _____	Ecoregion _____
Plan Period _____	Topo Name _____
Rare Spp. Hab. _____	River Basin _____
	Becket/Chester _____
	Westfld. _____

## OWNER, PROPERTY, and PREPARER INFORMATION

Property Owner(s) Town of Chester – Water Department

Mailing Address 15 Middlefield Rd, Chester, MA 01011

Email Address selectmen@comcast.net

Phone 413-354-7760

Property Location: Town(s) Chester & Becket

Road(s) Route 20

Plan Preparer Lincoln Fish & Tobias Carter; BSFS

Mailing Address 115 Nash Hill Road; Haydenville, MA

Mass. Forester License # 69

Phone 413-575-9790

## RECORDS

	Assessor's Map No.	Lot/Parcel No.	Total Acres	Ch61/61A 61B Excluded Acres	Ch61/61A 61B Certified Acres	Stewshp Excluded Acres	Stewshp Acres
Town of Becket							
Berkshire County	418	30	678.188	0	0	0	678.188
Town of Chester	407	1		0	0	0	
Hampden County	412	13	332.216	0	0	0	332.216
Totals			1010.404	0	0	0	1010.404

Excluded Area Description(s) (if additional space needed, continue on separate paper)  
No Exclusions

**HISTORY** Year acquired 1920's Year management began 1998

Are boundaries marked: Yes ☐ ~~staked/painted/flagged/signs posted~~ (circle all that apply)? No ☐ Partially ☒

What treatments have been prescribed, but not carried out (last 10 years if plan is a recert.)?

stand no. N/A treatment \_\_\_\_\_ reason \_\_\_\_\_

Previous Management Practices (last 10 years)

Stand #	Cutting Plan #	Treatment	Yield	Acres	Date
8,9	059-7203-15	Shelterwood	238.745 M, 187C	50	2014
7,8	022-5070-11	Commercial Thin	145M, 45C	30	2011

Remarks: (if additional space needed, continue on separate page)

Acreages based on 1982 Huntley Survey for the Inhabitants of the Town of Chester

## Landowner Goals

Please **check** the column that best reflects the importance of the following goals:

Goal	Importance to Me			
	High	Medium	Low	Don't Know
Enhance the Quality/Quantity of Timber Products*	X			X
Generate Immediate Income				
Generate Long Term Income	X			
Produce Firewood				X
Defer or Defray Taxes			X	
Promote Biological Diversity	X			
Enhance Habitat for Birds	X			
Enhance Habitat for Small Animals	X			
Enhance Habitat for Large Animals	X			
Improve Access for Walking/Skiing/Recreation	X			
Maintain or Enhance Privacy		X		
Improve Hunting or Fishing		X		
Preserve or Improve Scenic Beauty	X			
Protect Water Quality	X			
Protect Unique/Special/ Cultural Areas	X			
Attain Green Certification				
Other:				

\*This goal must be checked "HIGH" if you are interested in classifying your land under Chapter 61/61A.

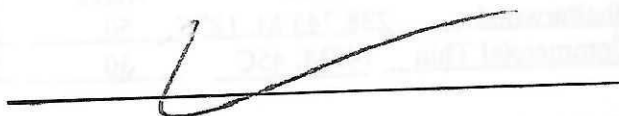
In your own words, describe your goals for the property:  
To preserve and protect the land for future generations.

### Stewardship Purpose

By enrolling in the Forest Stewardship Program and following a Stewardship Plan, I understand that I will be joining with many other landowners across the state in a program that promotes ecologically responsible resource management through the following actions and values:

1. Managing sustainably for long-term forest health, productivity, diversity, and quality.
2. Conserving or enhancing water quality, wetlands, soil productivity, carbon sequestration, biodiversity, cultural, historical and aesthetic resources.
3. Following a strategy guided by well-founded silvicultural principles to improve timber quality and quantity when wood products are a goal.
4. Setting high standards for foresters, loggers and other operators as practices are implemented; and minimizing negative impacts.
5. Learning how woodlands benefit and affect surrounding communities, and cooperation with neighboring owners to accomplish mutual goals when practical.

Signature(s):



Date:

4/13/2020

Owner(s) (print) Town of Chester  
 (This page will be included with the completed plan.)



## Property Overview, Regional Significance, and Management Summary

### Property Description

The Town of Chester Watershed property is located in the towns of Chester in Hampden County, and Becket in Berkshire County. The property is located in the northwestern corner of Hampden county, just to the south of the West Branch of the Westfield River and where the corners of Hampden, Berkshire, and Hampshire Counties meet. The property contains parcels on either side of the Chester/Becket border, with the majority of the acreage contained in one parcel in Becket. Two smaller parcels abut the Becket acreage on the Chester side of the town line. The Becket acreage occupies rolling terrain and upper slopes and ridgetop of Mount Gobble on the western-most edge of the property (not to be confused with Gobble Mountain which is located in the abutting property to the north of the Chester acreage). The Chester acreage occupies steep ravine slopes on either side of Austin Brook, the main drainage for the the property which flows into a reservoir in the southeast of the property. The Reservoir is accessed by a town road branching off of West Main Street (Route 20), less than a mile west of the town center of Chester. The Reservoir drains into Walker Brook along Route 20 which then joins the West Branch of the Westfield River in the center of Chester. The West Branch of the Westfield River joins the Westfield River 7 miles to the southeast in the center of Huntington, which then merges with the Connecticut River in the town of Agawam.

### Regional Significance

The Chester Watershed lands are located in the southern half of the Westfield River watershed. This region contains numerous town watershed properties that serve many of the southern hilltown communities as well as cities in the southern Connecticut river valley with drinking water supplies. The lands bordering the West Branch of the Westfield River and it's tributary brooks have generally steep, forested terrain. A combination of private, state, and municipal land owners have protected much of the land upstream from the Chester Watershed property, beginning with the Middlefield State Forest and the Nature Conservancy's Westfield River Highlands properties. The MA-Department of Fish and Game's Walnut Hill Wildlife Management area protects more than 1,000 acres within a mile of the Chester Watershed property. The non-protected land in this particularly rural region of the hilltowns is predominantly forested. Within the surrounding 2500 acre landscape, more than 95% of the acreage is forested. Of the surrounding landscape, only 2% is bare, pasture, grassland, or developed. 3% of the landscape is open water, shoreline or wetland. The Massachusetts Division of Fisheries and Wildlife has labelled the largely unfragmented forest in the vicinity of the property as Interior Forest – a land type with high conservation value for its beneficial qualities for wildlife species that require large uninterrupted tracts of forest.

**History:** The Chester watershed property has a long history of human use which reflects the broader land use trends in the town and region as a whole. Abundant stone walls, stone foundations and stone wells are found throughout the property in the flattest and most accessible terrain. Occassional very large sugar maples are found along the edges of former walled-in fields that likely were used for cattle and sheep pasture. Evidence of an ancient cemetery and ox-cart roads indicate a long history of settlement in the highlands of the property and surrounding landscape. Timbering was likely the main use of the steepest sloping terrain. Like many large landholdings in the hilltowns, when livestock agriculture was abandoned in the late 1800s, old pastures were allowed to revert to forestland or were actively planted with softwoods -in this case red pine. The Town of Chester acquired various parcels that became the town watershed in the decades after agricultural abandonment, in the early 1900s.

The expansion of utility infrastructure impacted this property through extensive right-of-ways, leaving a significant mark on the forest, which has filled in these areas with young forest over the decades after their abandonment. The combined effect of repeated vegetation control and hunting in the property produced some of the most desirable forest regeneration in the former right-of-ways, which are composed largely of excellent pole-sized red oak, black cherry, and yellow birch. The reservoir facility and infrastructure, was developed in the late 1960s.

There is evidence of a long history of logging throughout the property, both in natural and planted forest stands. Much of the property is densely timbered and has not been logged for decades. Approximately 1/3 of the acreage has had some logging done in the last two decades. Forest management included creating two large clearings for potential wind turbine sites on high, exposed ridgelines. Neither site proved adequate for turbines, though the clearings added a valuable component of young forest habitat to the already diverse wildlife habitat types on the property.

Owner(s) Town of Chester

Town(s) Becket/Chester



**Soils:** Factors such as soil depth, moisture and rockiness are key determinants of the accessibility and productivity of growing sites on the property. The majority of the soils on the property are of the Lyman-Tunbridge association. These soils occupy the rolling and steep upland terrain in the north and west of the property as well as the upper slopes west of Austin Brook in the southwest of the Chester parcel. These soils are predominantly extremely stony loams with a patchwork of the shallow and slightly droughty Lyman soils and the moderately deep, well drained Tunbridge soils. Rock outcrops, surface stones and boulders are common on the relatively poor growing sites associated with Lyman soils.

The flat, depressed area in the center of the property contains very deep but poorly drained Pillsbury loam. The water table is generally at or near the surface of this soil during winter, spring and after periods of prolonged rain. Due to the firm sub-layer and/or high water table in these soils tree root systems do not penetrate deeply on these sites, making them susceptible to blowdown and damage from equipment. These soils are moderately to very strongly acidic in nature and are potentially highly erodible.

A sizeable area in the upper slopes in south of the property are a combination of Peru-Marlow and Berkshire-Marlow soils. These are well-drained, productive, extremely stony soils that have a compact layer at about 24 inches in depth making this soil slow to dry out in spring and often wet in the fall season as well. On sloping ground this soil is prone to erosion once the vegetation has been removed.

The steep lower banks of Austin Brook in the southeast of the property consist of Hollis-Chatfield soils. The moderately deep, well drained and fairly productive Chatfield soils are generally found on relatively flat areas between rock outcrops. The shallow and rather droughty Hollis soils are found more on upper slopes. Rock outcrops, stones and boulders are common with these soils.

**Forest Health:** Pests, pathogens and invasive species can have long-term implications for the productivity and quality of forest stands in terms of both timber resources and wildlife habitat. Forest health issues detected on the property are common in the region and vary depending on the population size, density, and isolation of the tree species. The pressing forest health issues on the property are:

**Beech Bark Disease** (*Nectria coccinea* var. *faginata*) - This fungal disease usually infects the bark on the trunks of trees through feeding wounds caused by scale insects. The normally smooth gray bark can take on a "pock marked" appearance as the tree tries to wall off the infections. As the disease advances, enough of the live tissue in the trunk of a tree will become infected that all timber value will be eliminated. In severely infected trees, the main stem will break, or the tree will become completely girdled and die. Moreover, death of large beech stems leads to an explosion of beech sprouts in the understory, effectively smothering the chances of other trees to regenerate. Few beech trees in a stand fail to be affected by this disease. However, it is not uncommon for individual trees in a stand to show some resistance to infection. This disease is prevalent throughout the northeast and there is a high level of infection on the watershed due to the abundance of beech at all levels of the forest.

**Emerald Ash Borer** (*Agrilus planipennis*) - This introduced beetle pest was first detected in southeastern Michigan and adjacent parts of Ontario in 2002. Since then it has caused the death of tens of millions of ash trees in the Great Lakes and mid-Atlantic regions and was recently discovered in Massachusetts. It is readily moved long distances in infested ash material such as firewood, timber, pruned branches and nursery stock. In infested trees high densities of Borer larvae develop under the bark eating phloem tissue and scoring sapwood. Translocation of water and nutrients within the tree becomes disrupted and the health of the tree declines rapidly. Emerald Ash Borer was discovered in Becket and Chester in 2019. While not identified on the property, the ash on this property is highly vulnerable due to a combination of stressors that have been leading to the general decline of ash in the region.

**Ash yellows** - This disease is caused by a mycoplasma-like organism that utilizes lilac bushes as an alternate host. The negative effects of this disease in ash trees seem to worsen following periods of drought. The characteristic symptoms of this disease are a thinning of the crown, cupped leaves with a yellow-green color, sprouting along the main stem or at the base of the tree, and frost cracks at the base. Ash yellows was regularly observed in parts of the property.

**Elongate Hemlock Scale** (*Fiorinia externa* Ferris) - This insect pest is believed to have been unintentionally introduced from Japan during the early 1900s. It can now be found in nine states from Virginia to New England and west to Ohio. It attacks the lower surface of needles where it removes fluids through piercing sucking mouthparts. First instar



nymphs, also called crawlers, begin to emerge in the spring and can be spread by wind or birds to establish new infestations. The life stages of this insect broadly overlap and can be seen together as brown, yellow or white spots from .1 to 2mm long on the underside of needles. Outbreaks of this insect usually intensify after trees become weakened by other factors that have caused stress. Needles will turn yellow and drop prematurely and limbs will begin to die off from the bottom of the tree and progress upward. Trees can die within ten years or linger in a weakened state with only a sparse amount of live crown toward the very top. Elongate Scale was identified in several areas of the property and crown-defoliation, likely from multiple stressors, was observed frequently.

**Grapevines** - Grapevines can impede tree growth because their large leaves shade out the tree's foliage. These vines can be even more destructive in combination with heavy snow or ice storms. The combined weight of the vines and ice buildup can cause breakage of limbs and trunks, and can pull down several trees at one time if the vines are tangled among the crowns. Grapevines, although native to this area, can still be invasive if their growth becomes prolific to the extent that they can damage other vegetation. Even though their fruit is a large source of soft mast that provides food to many wildlife species, the benefits to wildlife must be weighed against the damage that these vines can do if allowed to grow uncontrolled. Areas of young forest and dense grapevine growth are particularly at risk of long-term, repeated damage from grape.

**Invasive Species:** Invasive species pose immediate and long-term threats to the woodlands of Massachusetts. Defined as a non-native species whose introduction does or is likely to cause economic or environmental harm or harm to human, animal, or plant health, invasives are well-adapted to a variety of environmental conditions, out-compete more desirable native species, and often create monocultures devoid of biological diversity. The exotic-invasive multiflora rose, Japanese barberry, Japanese knotweed, and oriental bittersweet are found on the property.

**Japanese barberry (*Berberis thunbergii*)** This thorny plant forms thickets that can exclude the growth of native tree seedlings, shrubs, and herbaceous plants. The bright red berries persist through winter and are a food source for wildlife, but the negative impacts of this plant must be weighed against its wildlife value. Cutting of these plants alone is ineffective, but may be combined with herbicide treatment of the stumps. Pulling out the entire plant, including roots, is a better treatment but difficult with larger plants.

**Multiflora rose (*Rosa multiflora*)** This plant forms thorny thickets that exclude growth of other plants. The berries are also eaten by birds, spreading seed across the countryside. Originally planted in the area as a "living fence," it now has spread throughout the region. Repeated cutting, pulling, or herbicide application are effective methods of control.

**Japanese knotweed (*Fallopia japonica*)** - This bamboo-like grass quickly spreads to form dense thickets that exclude native plant species. It is of little value to wildlife and has been described as an environmental weed. The extensive rhizome system of this plant can reach 50 to 60 feet in length allowing it to emerge early in springtime and quickly grow to heights of 12 feet or more. Early emergence and rapid height growth combine to shade out other vegetation, and reduce native species diversity. When the growing season comes to an end the mass of dead stems from this plant can further inhibit native plant regeneration leaving river banks vulnerable to erosion as well as to flooding. Flooding of stream banks can further spread this plant by depositing fragments of stems and rhizomes that will rapidly form new colonies.

**Oriental bittersweet (*Celastrus orbiculata*.)** This fast growing vine winds up around young trees or spreads over vegetation, smothering these plants. This vine interferes with forest regeneration and displaces native plants. Herbicide application to cut stumps is the most effective method of control. Glyphosate based products will work well for stump treatments but are generally not the most effective on bittersweet if applied as a foliar spray. A foliar herbicide application with a trichlopyr based product is effective for ground level growth or on small plants.

**Fire:** Most forests in Massachusetts are relatively resistant to fire. The forests in this area are generally only at risk for wildfire during the early spring when snow cover has melted and new leaves have not yet developed on trees. These conditions allow the strong springtime sun to dry out the bed of leaves on the forest floor from the previous fall thereby increasing the risk of fire. The risk of an unintentional and damaging fire in the woods could increase as a result of logging activity if the slash (tree tops, branches, and debris) is not treated correctly. Adherence to the Massachusetts slash law

Owner(s) Town of Chester

Town(s) Becket/Chester

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minimizes this risk. Under the law, slash is to be removed from buffer areas near roads, boundaries, and critical areas and lopped close to the ground to speed decay. Well-maintained woods roads are always desirable to provide access should a fire occur. There is no evidence of fire having an impact on this property.

**Recreation:** Recreational opportunities and aesthetic quality are the most important values for many forest landowners, and represent valid goals in and of themselves. Removing interfering vegetation can open a vista or highlight a beautiful natural feature, for example. Thoughtful forest management can be used to accomplish silvicultural objectives while also reaching recreational and/or aesthetic objectives. The scenic qualities, location, and access of the property offer great recreational opportunities. There is also excellent potential for improving the recreational connectivity between scenic features on the property, the center of town, and the preserved land surrounding Gobble Mountain to the north of the property. Taking care to clearly post allowed uses of trails/roads, and creating paths that utilize landscape features appropriate for the mode of travel can mitigate damage caused by recreationists and can discourage inappropriate uses on sensitive areas such as wetlands and steep and rocky terrain. Forest management should seek to mitigate disruption to permitted recreational uses and to thoughtfully enhance these public resources wherever possible. Some management practices can also be used to discourage unwanted recreational uses in certain areas.

**Boundaries:** Well marked property boundaries are an important guard against accidental boundary incursions from either direction. Boundaries that are readily seen on the ground save time for woods workers in determining where they are in relation to the boundary. Boundaries can be marked with signs and/or blazing and painting. Several boundary lines on the property show some evidence such as barbed wire or stone walls. Still, significant stretches of boundary lines lack any evidence.

**Biodiversity:** Biological diversity is, in part, a measure of the variety of plants and animals, the communities they form, and the ecological processes (such as water and nutrient cycling) that sustain them. With the recognition that each species has value, individually and as part of its natural community, maintaining biodiversity has become an important resource management goal. Many species of wildlife need a variety of plant communities to meet their lifecycle requirements. In general, a property that contains a diversity of habitats will support a more varied wildlife population. A thick area of brush and young trees might provide food and cover for grouse and cedar waxwing; a mature stand of oaks provides acorns for foraging deer and turkey; while an open field provides the right food and cover for cottontail rabbits and red fox. It is often possible to create these different habitats on a given property through active management.

**Forest Growth Stages** - While the biggest threat to biodiversity in Massachusetts is the loss of habitat to development, another threat is the introduction and spread of invasive non-native plants. Another factor influencing biodiversity in Massachusetts concerns the amount and distribution of forest growth stages. Wildlife biologists have recommended that, for optimal wildlife habitat on a landscape scale, 5-15% of the forest should be in the seedling stage (less than 1" in diameter). Yet we currently have no more than 2-3% early successional stage seedling forest across the state. There is also a shortage of forest with large diameter trees (greater than 20"), with the recommended amount of forest approaching old growth conditions being approximately 10%.

This property contains an adequate variety of forest growth stages and vegetation across its acreage, largely owing to the variation in topography, accessibility, and protection of freshwater resources. Recent timber harvesting in the most accessible reaches of the property has created tens of acres of young forest habitat and tens of acres of mixed species, uneven-aged forest. A significant part of the property that is more remote has a fairly uniform horizontal and vertical vegetative distribution, characterized by a high density overstory and relatively sparse, monotypic midstory and understory, largely of beech. A substantial amount of mature, ageing forest remains intact especially in riparian, wetland, and steep sites. These areas provide a significant share of ageing forest conditions to the overall mix of habitat types on the property and are valuable areas for preserving biodiversity in the larger landscape.

**Wildlife Habitat:** Wildlife habitat conditions on the Chester Watershed property benefit from the variety of topographical features and good horizontal vegetative distribution that will support a wide range of species. Targetted interventions can improve vertical distribution of vegetation within the property which can sustain and increase the variety of wildlife species supported in more diverse conditions. As part of a large block of relatively unfragmented forested land,

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Owner(s) Town of Chester

Town(s) Becket/Chester

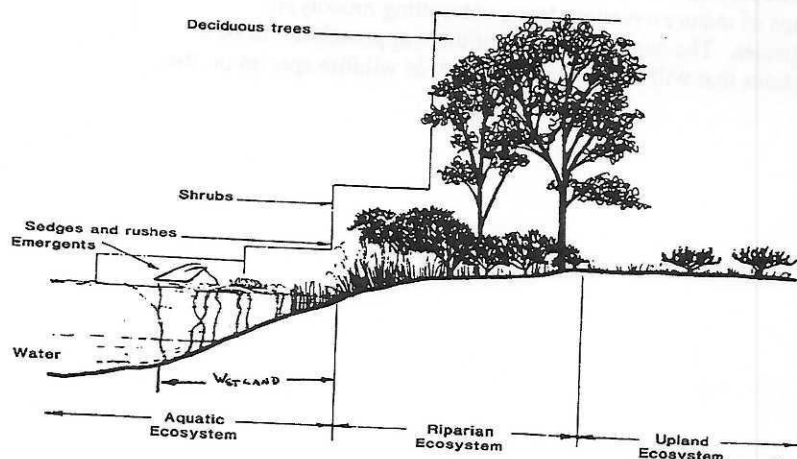
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this property has interior forest habitat which is important for many species that will only populate areas a certain distance from human development, and those that require large uninterrupted home ranges.

The Chester Watershed has significant upland wetland and riparian forest habitat. Riparian and wetland areas are transition areas between open water features (lakes, ponds, streams, and rivers) and the drier terrestrial ecosystems. More specifically, a **wetland** is an area that has hydric (wet) soils and a unique community of plants that are adapted to live in these wet soils. Wetlands may be adjacent to streams or ponds, or a wetland may be found isolated in an otherwise drier landscape. A **riparian area** is the transition zone between an open water feature and the uplands (see Figure 1). A riparian zone may contain wetlands, but also includes areas with somewhat better drained soils. It is easiest to think of riparian areas as the places where land and water meet.

The presence of water in riparian and wetland areas make these special places very important. Some of the functions and values that these areas provide are described below:

**Filtration:** Riparian zones capture and filter out sediment, chemicals and debris before they reach streams, rivers, lakes and drinking water supplies. This helps to keep our drinking water cleaner, and saves communities money by making the need for costly filtration much less likely.



**Flood control:** By storing water after rainstorms, these areas reduce downstream flooding. Like a sponge, wetland and riparian areas absorb stormwater, then release it slowly over time instead of in one flush.

**Critical wildlife habitat:** Many birds and mammals need riparian and wetland areas for all or part of their life cycles. These areas provide food and water, cover, and travel corridors. They are often the most important habitat feature in Massachusetts' forests.

Figure 1: Example of a riparian zone.

**Rare and Endangered Species:** Rare species include those that are **threatened** (abundant in parts of its range but declining in total numbers, those of **special concern** (any species that has suffered a decline that could threaten the species if left unchecked), and **endangered** (at immediate risk of extinction and probably cannot survive without direct human intervention). Some species are threatened or endangered globally, while others are common globally but rare in Massachusetts.

Of the 2,040 plant and animal species (not including insects) in Massachusetts, 424 are considered rare. About 100 of these rare species are known to occur in woodlands. Most of these are found in wooded wetlands, especially vernal pools. These temporary shallow pools dry up by late summer, but provide crucial breeding habitat for rare salamanders and a host of other unusual forest dwelling invertebrates. Although many species in Massachusetts are adapted to and thrive in recently disturbed forests, rare species are often very sensitive to any changes in their habitat.

Indispensable to rare species protection is a set of maps maintained by the Division of Fisheries and Wildlife's Natural Heritage & Endangered Species Program (NHESP) that show current and historic locations of rare species and their habitats. This information is invaluable when considering implementing management activities to improve the habitat for these special species. A preliminary check of information provided by NHESP indicated that the property contains numerous potential vernal pools and one area of Priority Habitat of Rare Species (PH 1246), located in the southeast corner along the property boundary.

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## Management Summary

Forest management on the Chester Watershed must balance multiple objectives: 1) protect drinking water supply and quality through maintenance of healthy wetland and riparian forest and soils; 2) sustain and grow the value of standing timber by ensuring that healthy, diverse, and valuable growing stock of all ages is present; 3) sustain and enhance the beneficial wildlife habitat conditions for the whole property and including the surrounding landscape; and 4) sustain and improve the public value of the property as a recreational and productive resource.

Achieving all of these goals simultaneously demands a balance of passive and active management and identification of the places where each approach will have the best outcome for each goal. Specifically, over the next decade of management, the property will be treated with three overarching management approaches, corresponding with three significant portions of the property: 1) ageing wetland, riparian, and hillside forest will remain undisturbed for the benefit of protecting water, wildlife, and scenic and recreation resources; 2) forest with a high proportion of young growth will be released from overstory competition where the value of declining overstory trees will be salvaged, and young growth allowed to develop a new overstory of diverse, desirable species; and 3) forest lacking abundant diverse young growth will have variable-size gaps created by harvesting groups of mature overstory trees, controlling monotypic understories, and assisting with the regeneration of desirable species. The combined effect of these approaches will be a forest with increased vegetative and habitat diversity in proportions that will benefit a wider array of wildlife species on the property and the landscape as a whole.

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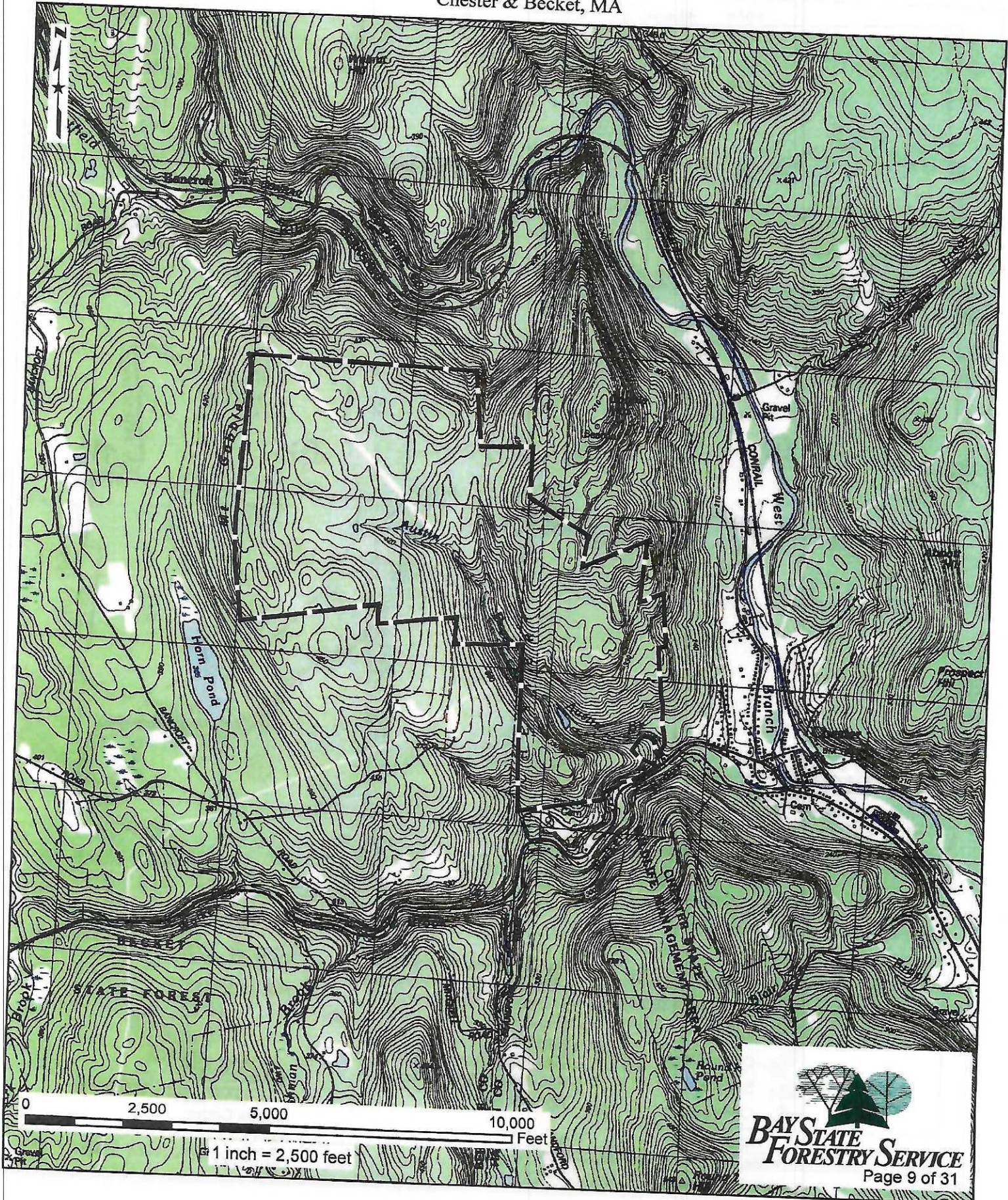
Town(s) Becket/Chester

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# Property Locus Map

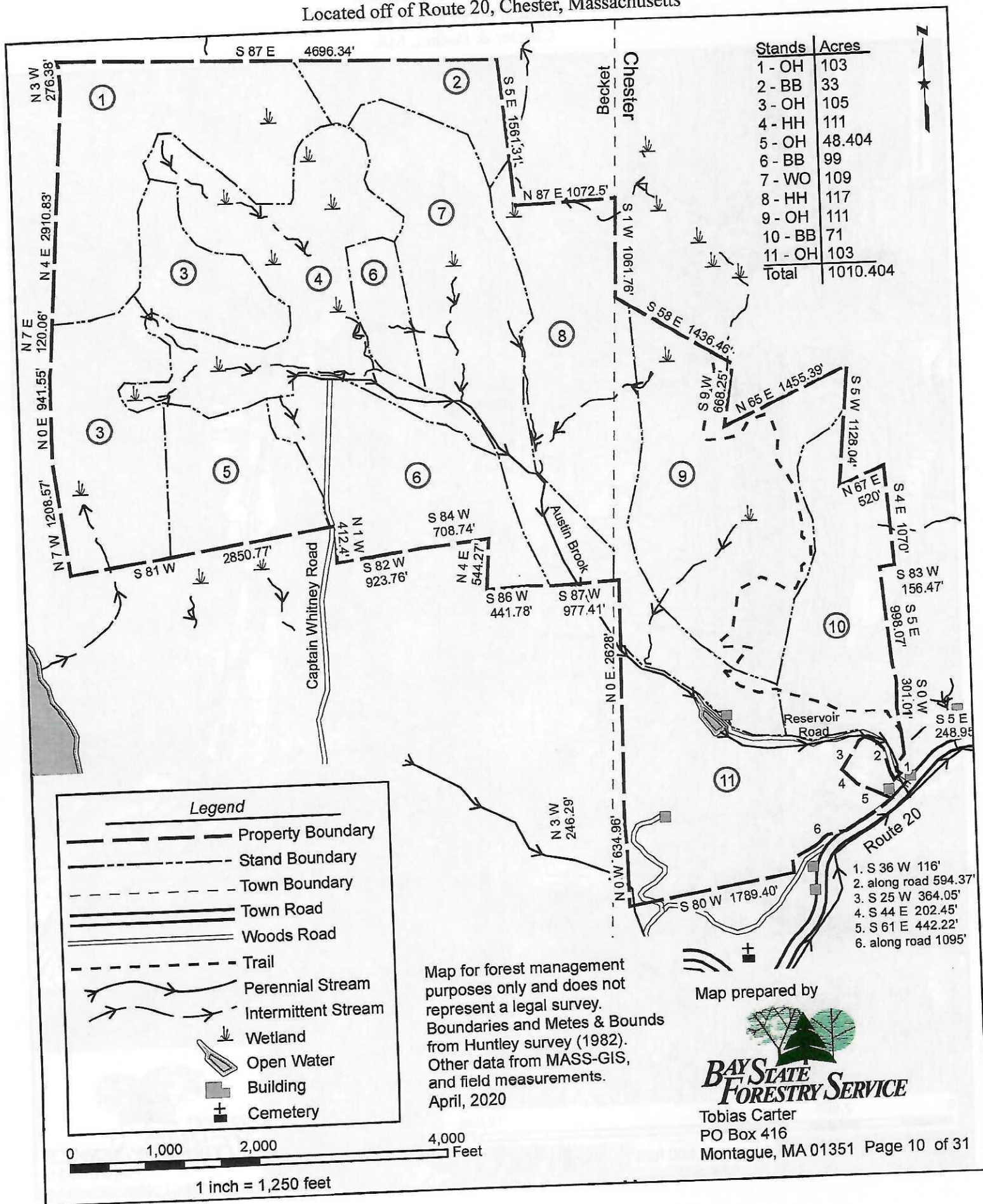
Property of Town of Chester  
Located off of Route 20,  
Chester & Becket, MA





# Forest Stewardship Stand Map

Property of the Town of Chester  
Located off of Route 20, Chester, Massachusetts





## Forest Stands

For the purposes of this report a forest stand is an easily defined area that is relatively uniform in composition, and structure.

### Summary of the Forest Stands on your property

Stand	Forest/Habitat Type	Approx. Size (acres)	Notes
1	(OH) Closed canopy dry oak ridge with substantial northern hardwood component.	103	Excellent midstory sugar maple. Dense beech in the lower stand levels in places. Patches of abundant white ash.
2	(BB) Closed canopy northern hardwood stand. Excellent quality sugar maple.	33	Steep, remote, northeast-facing slopes. Dense beech in the lower stand levels in places.
3	(OH) Widely spaced, excellent red oak and northern hardwood crop/seed trees. Significant northern hardwood young growth.	105	Low density overstory throughout. Clearcut patches.
4	(HH) Diverse hemlock wetlands and riparian forest with occasional shrub-dominated areas.	111	High vertical vegetative diversity. Areas of shallow open water including isolated wetlands and vernal pools.
5	(OH) Closed canopy oak and northern hardwoods with large hemlock component.	48.404	Frequent steep rocky outcrops with wet pockets between.
6	(BB) Former red pine plantation. Low density mixed hardwoods and red oak. Significant northern hardwood young growth.	99	Seepy soil on slopes. Exotic invasive shrubs and grape vines pose a problem. Heavily declining white ash.
7	(WO) White pine and red oak crop trees. Large hemlock component.	109	Pockets of regeneration that includes white pine, black birch, red oak, and low levels of beech.
8	(HH) Hemlock and red oak dominate with mixed associated hardwoods.	117	Steep riparian forest areas. Very little regeneration anywhere in the stand.
9	(OH) Closed canopy oak and mixed hardwoods with patches of white pine and hemlock.	111	Excellent growing stock between dry oak/hemlock ridges and wetlands in flat terraces.
10	(BB) Closed canopy northern hardwoods with large red oak component and dense hemlock patches.	71	Steep east-facing slopes interspersed with rich wet sites. Large declining white ash component.
11	(OH) Closed canopy red oak and hemlock with areas of dominant beech in lower stand levels.	103	Dry rocky ridgetop with steep north, east, and south-facing slopes.
<b>Total</b>		<b>1010.404</b>	

Owner(s) Town of Chester

Towns(s) Chester/Becket

## STAND DESCRIPTIONS

OBJ	STD NO	TYPE	AC	MSD OR SIZE-CLASS	BA/AC	VOL/AC	SITE INDEX
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CH61	1	OH	103	15	136	12.4 MBF 7.1 Cds	RO 54
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**-Location**  
**-Topography**  
**-Soils**

Stand 1 is located in the northwest corner of the Becket acreage, along the moderate east-facing slopes on the western edge of the property, and the rolling, south-facing terrain along the northern boundary. Soils are of the Lyman-Tunbridge association and are predominantly extremely stony loams with a patchwork of the shallow and slightly droughty Lyman soils and the moderately deep, well drained Tunbridge soils. Rock outcrops, surface stones and boulders are common on the relatively poor growing sites associated with Lyman soils.

**-Stand structure**  
**-Overstory**  
**-Understory**

This is a dense stand with a closed canopy of mature red oak, sugar maple, white ash, black cherry, and red maple. Scarlet oak, yellow birch, hemlock, and beech are also found in the canopy. A midstory of quality northern hardwoods is found and includes sugar maple, beech, yellow birch, red oak, black birch, red maple, as well as hemlock. Understory stocking is low and largely consists of beech and smaller components of the same shade tolerant northern hardwoods as found in the midstory. A small component of red oak is found in some places. Striped maple, hophornbeam, and hobblebush viburnum are the most common woody understory plants.

**-Forest Health**  
**-Invasive species**

Forest health is generally good here. Beech bark disease is present at all levels of the stand and dense beech thickets are present, though infected beech has yet to take over large swathes of the understory. White ash appears to be declining from multiple stressors. Herbivory of understory trees and shrubs has inhibited regeneration in some places. Exotic invasive species were not detected at this time.

**Wildlife Habitat**

The abundant large-crowned, mature red oak provide hard-mast as well as important stick nest sites for woodland raptors, such as the northern goshawk. Occasional large-diameter cavity trees are critical for larger cavity-nesting species including owls and pileated woodpeckers.

**-Access & Operability**  
**-Recreation**

The stand is accessible from neighboring stands. Accessibility is somewhat limited in some areas by steep slopes and rocky outcrops. A foot path exists where the former right-of-way crosses the stand.

**Desired Future Condition**

The desired future condition is improved health, vigor, and quality of all levels of the stand, focusing on enhancing diversity and vigor of good growing stock in the midstory and understory. Diseased, declining, and low-quality material may be removed to release good growing stock from competition and to stimulate additional regeneration of diverse species, where it is lacking. It will be important that canopy openings are large enough to stimulate rapid growth in regenerating trees to in order to outgrow the pressure from herbivores.

OBJ	STD NO	TYPE	AC	MSD OR SIZE-CLASS	BA/AC	VOL/AC	SITE INDEX
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CH61	2	BB	33	12.9	123	8.6 MBF 9.2 Cds	SM 50-60
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**-Location**  
**-Topography**  
**-Soils**

Stand 2 is located in the far northeastern corner of the Becket acreage on steep northeast-facing slopes. Soils are of the Lyman-Tunbridge association and are predominantly extremely stony loams with a patchwork of the shallow and slightly droughty Lyman soils and the moderately deep, well drained Tunbridge soils. Rock outcrops, surface stones and boulders are common on the relatively poor growing sites associated with Lyman soils.

OBJECTIVE CODE: CH61 = stands classified under CH61/61A/61B    STEW= stands not classified under CH61/61A/61B  
 STD= stand   AC= acre   MSD= mean stand diameter   MBF= thousand board feet   BA= basal area   VOL= volume

Town(s): Chester/Becket

Owner(s): Town of Chester

## STAND DESCRIPTIONS

**-Stand structure**  
**-Overstory**  
**-Understory**

This is a densely stocked, true northern hardwoods stand dominated by sugar maple and beech. Associated overstory species include red maple, black birch, white ash, hemlock, white birch, and occasional red oak. A large midstory component is present and includes beech, sugar maple, yellow birch, hemlock, black birch, and white ash. Beech is the only tree observed in the understory. Grape vines have established in canopy gaps created by declining beech and white ash.

**-Forest Health**  
**-Invasive species**

Beech bark disease is widespread at all levels of the stand. The uniform understory of beech with a high level of infection of the disease has likely inhibited the regeneration of other shade tolerant species. Long term stand health would benefit from more diversity in the understory through the exclusion of diseased beech in parts of the stand. Exotic invasive species are not currently present.

**Wildlife Habitat**

This area contributes to similar conditions on much of the surrounding landscape in favoring habitat for forest interior dwelling wildlife species. Neotropical migratory birds and animals such as great horned owl, black bear, bobcat, fisher, and many other wildlife species depend upon large unbroken expanses of forest for their welfare.

**-Access & Operability**  
**-Scenery & recreation**

Access to the stand is possible from the neighboring stands. Operability is severely limited by the steep slopes and occasional rock outcrops. The terrain and density of the canopy and beech understory make this a challenging stand for recreationists. It's remoteness should offer excellent wildlife viewing opportunities. A black bear was observed here during field work for this plan.

**Desired Future Condition**

The desired future condition is improved forest health of this northern hardwood stand. The beech component should be reduced to allow for other native shade tolerant and moderately shade tolerant species to regenerate. Stand density should remain high to protect vulnerable soils on steep slopes.

OBJ	STD NO	TYPE	AC	MSD OR SIZE-CLASS	BA/AC	VOL/AC	SITE INDEX
CH61	3	OH	105	12.9	74	4.7 MBF 6.1 Cds	SM 50-60

**-Location**  
**-Topography**  
**-Soils**

Stand 3 is located in the southwest corner of the Becket acreage, on the moderate east-facing slopes of Mount Gobble, extending into the rolling, upland terrain bordered by the hemlock hardwood forest of Stand 4. The stand includes the 6-acre clearing – the former site of a communications tower. Soils here are of the Lyman-Tunbridge association and are predominantly extremely stony loams with a patchwork of the shallow and slightly droughty Lyman soils and the moderately deep, well drained Tunbridge soils. Rock outcrops, surface stones and boulders are common on the relatively poor growing sites associated with Lyman soils.

**-Stand structure**  
**-Overstory**  
**-Understory**

This stand has undergone commercial timber harvesting that has reduced the canopy density to that of a shelterwood or seed tree stocking level across most of the stand in 2007. There is also a substantial clear-cut, in addition to the 6-acre clearing for the proposed wind turbine, done in 2003. Much of the removed material was large, overstory oak, white pine, and mixed associated northern hardwoods. A low-density component of large red, scarlet, black oak, and white pine remains in the overstory as seed trees. Also variably distributed in the overstory is sugar maple, red maple, beech, black cherry, white ash, black birch, yellow birch, and occasional hemlock.

A midstory of beech, white birch, white ash, red maple, yellow birch, sugar maple, black cherry, and occasional hemlock and red oak occurs at low density in the forest matrix between overstory trees. Beech is the most commonly found tree in the understory, followed by dense growth of black birch, white birch, and yellow birch. Black cherry occurs at variable density in the most open areas of the understory. The stocking

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Owner(s): Town of Chester

Town(s): Chester/Becket



## STAND DESCRIPTIONS

### -Understory (cont.)

level of regeneration is medium to high across the entire stand. Striped maple, hophornbeam, American hornbeam, rubus species, and grape vines are the main understory plants present. Herbivory is evident at fairly high levels throughout the stand.

### -Forest Health -Productivity -Invasive species

Beech bark disease is a significant problem in this stand. The infestation of trees of all levels has led to areas in the understory where beech has dominated and excluded other trees of species with fewer health concerns. Due to the extent of young growth in the stand, grape vines have infested some areas in a damaging way. While a native plant, grape has the potential to damage large numbers of trees and to open the stand to disease and invasive plants. The canopy has suffered substantial damage from storms and epicormic branching, both resulting from increased exposure following the timber harvest. A small amount of the exotic invasive Japanese barberry and multiflora rose is scattered in open, saturated soils in the stand.

### Wildlife Habitat

The dense tree regeneration throughout the stand provide significant upland early successional habitat conditions of well more than 10 contiguous acres, the area preferable to certain migratory birds. Early successional habitat provides food, shelter and nesting habitat to some 144 wildlife species found in this region. Over 22 percent of New England wildlife species rely on these vegetative communities at some point in their life span. This habitat is seasonally important to 70% of the regions species. Furthermore, old fields, where shrubs and small trees occupy the site, have wildlife communities that differ from that of regenerating forested stands because of the dense herbaceous cover provided (eg. rubus species) that help to maintain this condition longer than that of the regenerating forest habitat. Presently, the different age and densities of the early successional vegetative types contribute important structural and habitat diversity to the property at large.

### -Access & Operability -Recreation

Access to the stand is easily attained from neighboring stands and several established skid trails. Operability is severely limited in places by slopes, wet soils, and rock outcrops. Good vistas and wildlife view opportunities are abundant in the higher and open parts of the stand.

### Desired Future Condition

A portion of this stand may continue to provide early successional wildlife habitat conditions of various stages. Young forest areas that have begun to age-out of their benefits as early successional habitat (15-20 years), especially areas that have suffered storm damage are good candidate areas for re-setting early successional conditions. Areas with trees of mixed ages and less damaged (more sheltered) regeneration should continue to develop into uneven-aged forest. Controlling beech where it has worst effected regeneration of other species will stimulate diverse regeneration where it is lacking.

OBJ	STD NO	TYPE	AC	MSD OR SIZE-CLASS	BA/AC	VOL/AC	SITE INDEX
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CH61	4	HH	111	14.1	131	10.8 MBF 8.8 Cds	RO 53-68
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### -Location -Topography -Soils

Stand 4 is located in the central, upland portion of the Becket acreage. This area includes extensive forested freshwater resources including, slow-draining wetlands, vernal pools, saturated depressions, seeps, and intermittent and perennial streams. The majority of soils are of the Tunbridge- Lyman association. These soils are predominantly extremely stony loams with a patchwork of the shallow and slightly droughty Lyman soils and the moderately deep, well drained Tunbridge soils. Rock outcrops, surface stones and boulders are common on the relatively poor growing sites associated with Lyman soils. The flat, depressed area in the center of the stand contains very deep but poorly drained Pillsbury loam. The water table is generally at or near the surface of this soil during winter, spring and after periods of prolonged rain. These soils are potentially highly erodible.

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Town(s): Chester/Becket

Owner(s): Town of Chester

## STAND DESCRIPTIONS

**-Stand structure**  
**-Overstory**  
**-Understory**

This stand is a dense matrix of forested wetlands, predominantly of closed canopy hemlock and associated hardwoods. Red maple, black birch, black cherry, beech, yellow birch, red oak, white birch, white ash are the main associates. Other wetland types present include red maple and swamp hardwoods, shrub swamp areas, and a small area of red spruce wetlands. Parts of the most accessible areas within the stand have been thinned as part of commercial timber harvesting in 2002 and 2009. Occasional large white pine and red oak were retained in thinned areas.

A sparse midstory of highly shade tolerant or opportunistic species is present and consists of hemlock, red maple, beech, yellow birch, and occasional red oak. What little regeneration there is consists of hemlock, beech, yellow birch, and black birch and white ash, predominantly in canopy gaps caused by blowdown of overstory trees. Mountain laurel is the most common understory plant and is sparse below dense hemlock canopy. Open, saturated areas contain winterberry, alder, and a variety of rushes and sedges.

**-Forest Health**  
**-Invasive species**

This is an intact riparian forest serving to protect water, soil, and wildlife habitat. There is a high degree of mortality among trees of all sizes – normal in dense, undisturbed forest. Beech bark disease is common at all levels in the stand, though relatively sparse in the stand.

**Wildlife Habitat**

The matrix of freshwater aquatic habitat types provide diverse conditions that benefit a wide array of species. Areas with saturated soils tend to have a low canopy height and an abundance of ground cover – primarily ferns and shrubs. They also have structurally complex and uneven forest floors with hummocks, rootballs, and downed woody debris that provide concealment for nesting birds. Shrub dominated areas provide habitat for specialist bird species such as American woodcock. The numerous isolated wetlands and potential vernal pools provide conditions that are vital for portions of the life cycles of many species. The isolated nature of these sites allows amphibians to carry out breeding and feeding in an area of reduced predation. Riparian forest areas also serve as vital corridors utilized by many species to travel between other woodland habitats.

**-Access & Operability**  
**-recreation**

Access throughout the stand is easily attainable from neighboring stands. The terrain is favorable, though operability is severely restricted by saturated soils. Operational and recreational paths are well worn. There should be excellent wildlife viewing opportunities here.

**Desired Future Condition**

This stand should remain largely undisturbed to continue to provide its protective functions for water, soil, and wildlife habitat.

OBJ	STD NO	TYPE	AC	MSD OR SIZE-CLASS	BA/AC	VOL/AC	SITE INDEX
CH61	5	OH	48.404	12.9	130	9.9 MBF 10.6 Cds	RO 53-79

**-Location**  
**-Topography**  
**-Soils**

Stand 5 is located in the south central portion of the Becket acreage, along the property boundary and adjacent to the Captian Whitney Road access to the property. There is rolling terrain over most of the stand with areas of steep slopes to the east and north of the stand. The majority of soils are of the Tunbridge-Lyman association. These soils are predominantly extremely stony loams with a patchwork of the shallow and slightly droughty Lyman soils and the moderately deep, well drained Tunbridge soils. Rock outcrops, surface stones and boulders are common on the relatively poor growing sites associated with Lyman soils. Numerous slow draining seeps and depressions occur in flat areas between rock outcrops.

**-Stand structure**  
**-Overstory**  
**-Understory**

This is a relatively densely stocked mixed oak, associated hardwood, and hemlock stand. This area was harvested less intensively during recent timber harvesting in the early 2000s compared with neighboring stands. Areas around steep slopes, seeps, and potential vernal pools were left undisturbed. The resulting

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Owner(s): Town of Chester

Town(s): Chester/Becket

## STAND DESCRIPTIONS

**-Overstory  
-Understory  
(cont.)**

overstory consists of variable density red oak, black oak, and black cherry of largely excellent timber quality. Associated overstory species are sugar maple, hemlock, black birch, red maple, white birch, beech, and occasional white pine. A dense midstory of hemlock and beech occurs throughout the stand, along with variable densities of black birch, red maple, sugar maple, yellow birch and white birch. The understory is unevenly distributed pockets of beech, black birch, and hemlock. Mountain laurel is present in low density throughout much of the stand. Hophornbeam is also present to a small extent.

**-Forest Health  
-Invasive species**

Beech bark disease is a significant health problem in much of the stand. Shade intolerant tree species have not successfully regenerated, due to combination of insufficient light and competitive pressure from densely sprouted diseased beech. Exotic invasives have not been detected at this time.

**Wildlife Habitat**

In this hardwood dominated forest, a dense hemlock midstory provides diverse habitat conditions available to birds and other wildlife species. Softwood inclusions often provide increased structural complexity as well as a varied foraging and nesting opportunities. Softwood inclusions are particularly beneficial for species such as the black-throated green warbler, blackburnian warbler, and blue-headed vireo. Several low lying depressions may function as isolated vernal pools, providing important breeding sites for amphibious wildlife.

**-Access &  
Operability**

Access to the stand is easily attained from neighboring stands and several established skid trails. A main skid trail to stand 3 runs through the southern part of the stand. Operability is severely limited in places by slopes, wet soils, and rock outcrops.

**Desired Future  
Condition**

Increased health, diversity, quality and vigor of all levels of the stand is desirable for this area. The work begun to thin out commercially mature overstory trees to provide growing room for good growing stock and to stimulate diverse regeneration should be continued in conjunction with controlling the diseased component of beech at all levels of the stand. Undisturbed parts of the stand should be left as softwood refugia for wildlife species who utilize these areas within a hardwood stand.

OBJ	STD NO	TYPE	AC	MSD OR SIZE-CLASS	BA/AC	VOL/AC	SITE INDEX
CH61	6	BB	99	11.4	73	3.9 MBF 6.8 Cds	SM 50-60

**-Location  
-Topography  
-Soils**

Stand 6 is located in the south-central portion of the Becket acreage, occupying the flat and gradually increasing east-facing slopes that made up the former red pine plantation. There are extensive stone walls and foundations throughout, indicating the long history of agricultural use here. The majority of soils are of the Peru-Marlow and Berkshire-Marlow associations. These are well-drained, productive, extremely stony soils that have a compact layer at about 24 inches in depth making this soil slow to dry out in spring and often wet in the fall season as well. On sloping ground this soil is prone to erosion once the vegetation has been removed.

The flat, depressed area in the north of the stand contains very deep but poorly drained Pillsbury loam. The water table is generally at or near the surface of this soil during winter, spring and after periods of prolonged rain. These soils are potentially highly erodible. A small portion of extremely stony, well-drained Lyman-Tunbridge soils. Rock outcrops, surface stones and boulders are common in these soils.

**-Stand structure  
-Overstory  
-Understory**

This area had been part of a multiple commercial timber harvests between 2000 and 2009 that was focused on thinning and salvaging most of the red pine overstory. The residual stand is a variably dense overstory with several large areas that were clear cut to promote create brushy wildlife habitat and regenerate diverse tree species. The residual overstory is mixed northern hardwoods. Black cherry, white ash, and occasional

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Town(s): Chester/Becket

Owner(s): Town of Chester



## STAND DESCRIPTIONS

**-Overstory  
-Understory  
(cont.)**

red pine were retained in the most heavily cut areas and throughout the stand. Red oak and white pine were retained in a low density as seed trees. Sugar maple, basswood, black birch, red maple and occasional hickory are found primarily in the more lightly harvested, downslope areas.

Variable midstory components are found of sugar maple, beech, black birch, white birch white ash, yellow birch, and hemlock. Stocking of understory trees is typically high throughout the stand. Dense black birch, and beech predominate in the heavily cut areas. Also present are yellow birch, white birch, red maple, white ash, red oak, black cherry, sugar maple, and occasional red oak, hemlock, white pine, and red pine. Pin cherry and striped maple are ubiquitous in the understory and grape vines are found throughout and in dense patches in some open places.

**-Forest Health  
-Invasive species**

There are several concerning forest issues present here. Decline and mortality of white ash is frequent in the overstory. Numerous stressors, including sun and wind exposure following the timber harvest, has left this component severely weakened. Crown damage is fairly common in other overstory trees as well, especially black cherry. The open canopy conditions have led to the dense establishment of grape vines. The beech component at all levels of the stand is infected with beech bark disease. Grape, though native, can cause heavy damage to regenerating trees and the overstory alike. Some exotic-invasive plants, such as Japanese barberry and multiflora rose have established in a very low density. The open conditions and saturated soils in much of the stand make this area very vulnerable to rapid spread and dominance of these shrubs in the understory.

**Wildlife Habitat**

This area hosts the largest early successional habitat on the property. Young forest plays an integral role in the New England landscape. This vegetative cover type provides food, shelter and nesting habitat to some 144 wildlife species found in this region. Over 22 percent of New England wildlife species rely on early successional habitat at some point in their life span. This habitat is seasonally important to 70% of the regions species. The relative frequency of black cherry in the overstory is also beneficial to soft-mast-eating birds and mammals.

**-Access &  
Operability  
-Recreation**

Access throughout the stand is well established through a dense network of former skid trails. Operability is only slightly limited by saturated soils in some places. Terrain for most of the stand is great for foot paths and other recreational trails. There should be excellent wildlife viewing opportunities here.

**Desired Future  
Condition**

Improved forest health is the main priority for this stand. The single most important improvement to forest health is the preventative control of exotic-invasive plants. This will ensure the healthy and vigorous development of native vegetation. The abundance of grape vines and beech in the understory is also a detriment to the stand and great benefit would be derived from severing some proportion of stems of these species. Improved quality and vigor of good growing stock of all present species should be encouraged through the control of competing vegetation, such as through the pre-commercial thinning around desirable advanced regeneration like red oak.

OBJ	STD NO	TYPE	AC	MSD OR SIZE-CLASS	BA/AC	VOL/AC	SITE INDEX
CH61	7	WO	109	17.6	130	16.6 MBF 4.1 Cds	WP 50-56

**-Location  
-Topography  
-Soils**

Stand 7 covers a long narrow swathe of land in the center of the property. The stand straddles numerous drainages, flowing from the flat and rolling terrain in the north of the stand into Austin Brook, as the slope increases into the main ravine in the southeast corner of the Becket acreage. Soils are very stony loams of the Lyman-Tunbridge association. Shallow and slightly droughty Lyman soils are interspersed with the

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Owner(s): Town of Chester

Town(s): Chester/Becket

## **STAND DESCRIPTIONS**

<b>-Soils (cont.)</b>	moderately deep, well drained Tunbridge soils. Rock outcrops, surface stones and boulders are common on the relatively poor growing sites associated with Lyman soils.
<b>-Stand structure</b> <b>-Overstory</b> <b>-Understory</b>	<p>This is white pine/red oak stand with highly variable distributions of both dominant species depending on the site and the management history. Much of the central part of the stand was included in several commercial harvests between 2002 and 2014. These harvests sought to thin the canopy to improve the growth of quality growing stock of all species and promote the regeneration of both pine and oak. Much of the stand, especially in the southern half is within steep or poorly accessible riparian zones and has been allowed to develop a dense mature canopy with some areas dominated by red oak and others by white pine.</p> <p>Associated overstory species include hemlock, black cherry, black birch, red maple, sugar maple, beech, and yellow birch. Throughout most of the stand there is a midstory consisting of primarily of hemlock but also including all species found in the overstory. The level of regeneration is predominantly low, with moderately dense regeneration occurring in more recently harvested areas. Beech, hemlock, and black birch are found throughout the understory, along with white pine and red oak occurring in small amounts near parent trees. Hophornbeam, striped maple, witch hazel, and mountain laurel are found variably throughout the stand.</p>
<b>-Forest Health</b> <b>-Invasive species</b>	Beech bark disease is a significant issue in the stand because diseased beech root-suckers inhibit the establishment of healthier species. Competition with beech in the understory may prevent species that are desirable to herbivores, like oak, from growing fast enough to reach above the browse height. Heavy herbivory was observed in the understory here. Another health issue here is the defoliation of hemlock which is likely the cause of hemlock elongate scale which was observed on the property. These trees may also have been weakened by past infestations of hemlock wooly adelgid, though these were not identified at present.
<b>Wildlife Habitat</b>	The frequent gaps in the canopy from past thinning has left a stand structure that is beneficial to many interior forest dwelling species of wildlife, especially neotropical birds. A largely open midstory with patches of dense trees in the understory provides good foraging conditions for forest interior birds such as wood thrush. Dense riparian forest is also highly beneficial to species that utilize these areas for protective cover, foraging, and movement between parts of the forest.
<b>-Access &amp; Operability</b> <b>-Recreation</b>	Access throughout the stand is possible from neighboring stands and through a well-established network of former skid trails. Operability is severely limited by steep slopes, rock outcrops, drainages and wet areas. Terrain for most of the stand is great for foot paths and other recreational trails.
<b>Desired Future Condition</b>	While there is some desirable regeneration in the stand that is well sheltered, current levels of regeneration across most of the stand are lower than what is desirable for sustaining a healthy, mixed oak and pine stand. It will be important to release desired regeneration from competition for light, while stimulating further regeneration of a greater diversity of species by expanding on gaps in the canopy created in previous management activities and creating additional gaps. Assisted regeneration of oak would be beneficial here, where patches of regeneration are at high risk of herbivory.

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Town(s): Chester/Becket

Owner(s): Town of Chester

## STAND DESCRIPTIONS

OBJ	STD NO	TYPE	AC	MSD OR SIZE-CLASS	BA/AC	VOL/AC	SITE INDEX
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CH61	8	HH	117	14.5	142	14.9 MBF 7.1 Cds	RO 47-79
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**-Location  
-Topography  
-Soils**

Stand 8 occupies the moderate and steep, west-facing slopes that straddle the Chester/Becket town line in the center of the property, down to the steep, south-facing slopes immediately north of the reservoir. The majority of soils are of the Lyman-Tunbridge association. These are a patchwork of shallow and slightly droughty Lyman soils and moderately deep, well drained Tunbridge soils. Rock outcrops, surface stones and boulders are common on the relatively poor growing sites associated with Lyman soils. A small area of Hollis-Chatfield soils occurs in the south of the stand above the reservoir. Here, the moderately deep, well drained and fairly productive Chatfield soils are generally found on relatively flat areas between rock outcrop, while the shallow and rather droughty Hollis soils are found on the steeper terrain.

**-Stand structure  
-Overstory  
-Understory**

This is a varied stand in terms of species composition and density, depending largely on the variable accessibility of the site for timber harvesting due to the presence of steep slopes, frequent rock outcrops, and proximity to drainages. The northern half of the stand has been part of commercial timber harvests within the past fifteen years. The operations have largely been with the aim to reduce the density of hemlock and promote the growth and regeneration of diverse hardwoods through a shelterwood system.

Hemlock dominates the overstory in most of the stand. There is a significant component of quality red oak at varying densities in the overstory. Associated species include black birch, red maple, beech, yellow birch, white birch, sugar maple, scarlet oak, black cherry, white ash and occasional, very large white pine. A highly diverse midstory is present throughout the stand with varying abundance of each of species present in the overstory. Hemlock is the dominant midstory species in most of the stand. Tree regeneration is largely limited to hemlock and beech at low stocking levels, except in occasional gaps where beech and black birch occur in denser clusters. There is very little understory diversity in this stand owing to the dense shade below hemlock canopies. Rubus species occur in some of the more recently logged areas and in naturally occurring gaps in the canopy.

**-Forest Health  
-Invasive species**

Though beech is not currently a major component in the stand, the abundance of beech in the understory and the high level of beech bark disease infection at all levels of the stand is a major concern. Where the stand has been opened recently, there is a likelihood that faster growing hardwoods will overtop the dense root sucker growth of beech, especially if the canopy is further reduced to release this regeneration from competition for light. The exotic invasive multiflora rose is present at low densities in the vicinity of Austin Brook in the south of the stand.

**Wildlife Habitat**

Dense hemlock stands perform an important function in providing good cover for wildlife and protection from the elements during winter months. The relatively warm west and south facing slopes here make this area especially attractive as a winter deer yard. Hemlock seed is a preferred source of food for chickadees and goldfinches and ruffed grouse will eat both seeds and needles. The twigs are browsed by porcupine, deer, red squirrel, snowshoe hare and cottontail rabbit. Several isolated wetland areas in the stand are important in the life cycle of many amphibious wildlife species.

**-Access &  
Operability  
-Recreation**

Access to the stand is well somewhat limited by steep slopes and stream crossing necessary to enter the stand from established skid trails in neighboring stands. Operability is also severely limited by slope, rockiness, and proximity to water features. Terrain for most of the stand is great for foot paths and other recreational trails. The Highland Footpath climbs steep slopes in the south of the stand.

**Desired Future  
Condition**

The desired conditions in this stand vary by site. A significant area on steep, rocky slopes above water features should remain undisturbed for the protection of soil and water quality and wildlife habitat. More accessible areas should continue to be managed for species and age-class diversity. A combination of

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Owner(s): Town of Chester

Town(s): Chester/Becket



## STAND DESCRIPTIONS

### Desired Future Condition (cont.)

practices to release established growing stock of all ages from competition and to promote the establishment of a diverse understory should be applied. Areas that have been harvested recently should be allowed to regrow until regeneration in understory develops.

OBJ	STD NO	TYPE	AC	MSD OR SIZE-CLASS	BA/AC	VOL/AC	SITE INDEX
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CH61	9	OH	111	14.4	133	11.4 MBF 8.5 Cds	RO 54
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#### -Location -Topography -Soils

Stand 9 occupies the central upland area of the Chester acreage. Terrain alternates between extensive flat shelves where water collects and flows gradually in the southwest direction into Austin Brook, and steep south-, and east-facing, dry, rocky slopes. Soils are of the Lyman-Tunbridge association. These are a patchwork of shallow and slightly droughty Lyman soils and moderately deep, well drained Tunbridge soils. Rock outcrops, surface stones and boulders are common on the relatively poor growing sites associated with Lyman soils.

#### -Stand structure -Overstory -Understory

Red oak is the most abundant and dominant species in the stand. Growing conditions and species composition vary significantly between rich, flat shelves, and dry, steep rock slopes. Only a small portion of the stand has been included in timber harvesting activities in the past two decades, specifically in 2014. Several isolated wetlands and remote rocky ridges have very low site productivity and have been left undisturbed. Swathes of excellent site productivity have been left unmanaged for a long period due to accessibility issues and have developed a dense closed canopy of mature hardwoods. Small pockets of white pine and red pine occur – both are remnants of former widespread natural pine stands and plantations. Associated overstory species include black and scarlet oak (in drier settings), red maple, black cherry, white ash, beech, sugar maple, black birch, white birch, hickory, and yellow birch.

There is a well-developed, mixed midstory throughout much of the stand, including all of the species found in the overstory – evidence of the duration since timber harvesting occurred in much of the stand. The understory is dominated by beech, both in the closed canopy conditions and in gaps, having been able to establish under dense, shady conditions. Hemlock is found scattered throughout the understory. Sugar maple and hickory are found in more rich or dry sites, respectively. A single large clear cut patch in the north central part of the stand exhibits excellent regeneration of diverse shade intolerant species including red oak and black cherry. Striped maple, hophornbeam, mountain laurel, hobble bush viburnum, and grape are the most common understory species. Winterberry is present in isolated wetlands.

#### -Forest Health -Invasive species

Beech bark disease is a significant risk to healthy stand development in the future here. The closed canopy and dominance of beech in the understory means that efforts to promote diverse regeneration may require treatment of the beech understory to enable other species to compete with dense thickets of infected, root sprouting beech. The small component of ash in the stand appears to be in decline from a combination of stressors common to the species. The emerald ash borer is also likely to arrive on the property as it has been detected in the towns of Chester and Becket in 2019. The exotic invasive shrub, Japanese barberry, was detected in several locations in the west of the stand, typically in saturated soils or below open canopy conditions such as skid trails or remnant red pine patches.

#### Wildlife Habitat

The topography and corresponding vegetative diversity provide beneficial structural and habitat diversity for a range of wildlife species. Isolated wetlands and pockets of slow draining water (potential vernal pools) provide conditions that are vital for portions of the life cycles of many species. The density of mast-producing species, especially soft-mast-producing black cherry, is beneficial to numerous species, especially migratory birds. Furthermore, the stand contributes to similar conditions on much of the surrounding landscape in favoring habitat for forest interior dwelling wildlife species.

OBJECTIVE CODE: CH61 = stands classified under CH61/61A/61B    STEW= stands not classified under CH61/61A/61B  
 STD= stand    AC= acre    MSD= mean stand diameter    MBF= thousand board feet    BA= basal area    VOL= volume

Town(s): Chester/Becket

Owner(s): Town of Chester

## STAND DESCRIPTIONS

**-Access &  
Operability  
-Recreation**

The stand is somewhat isolated from the rest of the property by steep slopes required to enter the stand. Similarly, operability is limited by slopes, rockiness, and saturated soil, both in drainages and standing wetlands. Several high ridgelines are terrific vantage points of the town of Chester and surrounding hills. The Highland Footpath climbs traverses much of the higher terrain within the stand.

**Desired Future  
Condition**

Improved forest health and species diversity in all levels of the stand is the desired future condition for this stand. Increasing the share of shade intolerant species in the understory through a combination of practices to open the canopy and control the beech understory will sustain positive habitat conditions for numerous species of wildlife. Importantly, exotic invasives should be prevented from spreading in the understory, especially where they occur with declining white ash and red pine. Areas that protect vital natural resources of soil and water quality and wildlife habitat, such as steep rocky ridges, riparian slopes, and vernal pools and wetlands should be left undisturbed.

OBJ	STD NO	TYPE	AC	MSD OR SIZE-CLASS	BA/AC	VOL/AC	SITE INDEX
CH61	10	BB	71	15.1	123	10.6 MBF 8.1 Cds	RO 54

**-Location  
-Topography  
-Soils**

Stand 10 occupies the southeastern edge of the property. The majority of the stand is gently to moderately sloping, east- to south-facing slopes. Steep slopes line the stand on all sides. The flat central area contains numerous seeps and slow-draining, saturated areas. The majority of soils are of the Lyman-Tunbridge association. These are a patchwork of shallow and slightly droughty Lyman soils and moderately deep, well drained Tunbridge soils. Rock outcrops, surface stones and boulders are common on the relatively poor growing sites associated with Lyman soils. A small area of Hollis-Chatfield soils occurs in the south of the stand. Here, the moderately deep, well drained and fairly productive Chatfield soils are generally found on the relatively flat areas between rock outcrops, while the shallow and rather droughty Hollis soils are found on the steeper terrain.

**-Stand structure  
-Overstory  
-Understory**

This is a mixed northern hardwood stand that has a large red oak component in the overstory but the rich, moist site conditions in the bulk of the stand favor the dominance of sugar maple, white ash, black birch, beech, yellow birch, and red maple. Very large specimens of each are found in the richest sites. Associated species include hemlock, white birch, hickory, and basswood, as well as places with mixed, black, scarlet, and white oak. This stand has long been excluded from timber harvesting, and an evenly distributed midstory of beech, hemlock, sugar maple, yellow birch, red maple, black birch and occasional red oak and basswood is present. The understory is majority very shade tolerant beech and hemlock. Sugar maple and yellow birch are found in few sites. Hophornbeam, witch hazel, and grape are the main woody understory species.

**-Forest Health  
-Invasive species**

The lack of diversity and the dominance of beech in the understory is problem for the sustained healthy development of the stand. The high level of infection of beech by beech bark disease means that it can inhibit the establishment of healthier species by forming dense colonies of root suckers that outcompete most seedlings. The large component of white ash in this stand is particularly poor. The declining state of ash here is likely caused by a combination of stressors, which add to its vulnerability to emerald ash borer, which is present in Chester, as of 2019. The exotic invasive, Japanese barberry is detected in saturated soils and old roads in the lower elevations of the stand.

**Wildlife Habitat**

The dense forest conditions found here contributes to similar conditions on much of the surrounding landscape in favoring habitat for forest interior dwelling wildlife species. Neotropical migratory birds and animals such as great horned owl, black bear, bobcat, fisher, and many other wildlife species depend upon large unbroken expanses of forest for their welfare.

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Owner(s): Town of Chester

Town(s): Chester/Becket

## STAND DESCRIPTIONS

### -Access & Operability -Recreation

Access to the stand is from neighboring stands and properties is somewhat limited by steep slopes and rock outcrops. Similarly, operability is limited by these factors, as well as the frequent seeps and areas of saturated soils. The Highland Pathway enters the property through this stand. A former access road that is now a mixed-use recreational trail also runs most of the length of the eastern boundary.

### Desired Future Condition

Diverse, healthy, and vigorous growing stock is desired for all levels of the stand. Quality sugar maple in the midstory should be released from competition, and areas dominated by white ash should be salvaged for the timber value that currently remains. Diverse regeneration should be promoted through the creation of canopy gaps and control of understory vegetation, especially diseased beech and exotic invasive shrubs.

OBJ	STD NO	TYPE	AC	MSD OR SIZE-CLASS	BA/AC	VOL/AC	SITE INDEX
CH61	11	OH	103	15.3	120	13.8 MBF 4.5 CDS	RO 47-70

### -Location -Topography -Soils

Stand 11 occupies the steep slopes surrounding the flat ridgetop in the southernmost portion of the Chester acreage. Soils in this stand vary by elevation. The lowest slopes consist of Hollis-Chatfield soils. The moderately deep, well drained and fairly productive Chatfield soils are generally found on relatively flat areas between rock outcrop, while the shallow and rather droughty Hollis soils are found on the steeper terrain. The mid-slope consists of Tunbridge-Lyman soils. These soils are predominantly extremely stony loams with a patchwork of the shallow and slightly droughty Lyman soils and the moderately deep, well drained Tunbridge soils. The rolling terrain on the ridgetop consists of Peru-Marlow soils, which are well-drained, productive, extremely stony soils that have a compact layer at about 24 inches in depth making this soil slow to dry out in spring and often wet in the fall season as well. On sloping ground this soil is prone to erosion once the vegetation has been removed. Rock outcrops, surface stones and boulders are common across the entire stand.

### -Forest Structure -Overstory -Understory

This is a diverse stand dominated by red oak, frequently of very large diameter and height. Commercial harvesting hasn't taken place here since 1999 and 2000. There are variable overstory components of northern hardwood, and hemlock/hardwood forest types. Sugar maple and hemlock are the second and third most abundant overstory species, respectively. Other associated species include beech, red maple, white ash, black birch, yellow birch, white birch, basswood, and occasional white pine and black cherry. There is a dense hemlock midstory in areas, and beech is ubiquitous in the midstory. Red maple and black birch are present in the midstory as well. The understory is dominated by beech at varying densities. Hemlock is present throughout understory at low density. Black birch saplings are dense in some places, and red maple, sugar maple, yellow birch and saplings are found occasionally. Hophornbeam, striped maple, and mountain laurel are common understory trees and shrubs.

### -Forest Health -productivity -Invasive species

The large component of beech at all levels of the stand is heavily infected with beech bark disease. This fungal infestation has heavily impacted the composition of the understory by growing in dense thickets – a recreation to stress caused by the disease. Hemlock is another species effected by a common forest pest. Hemlock elongate scale was detected and telltale crown defoliation is present in limited frequency throughout the stand. While exotic invasive plants were not detected at this time, grape vines found in dense patches in the stand, although native, can act invasively under the right conditions, lowering the health and productivity of the stand.

### -Wildlife Habitat

The high proportion of large diameter, hard-mast producing oak and hemlock is a significant wildlife habitat quality in the stand. Structurally-sound, large diameter trees are important stick nest sites for woodland raptors, such as the northern goshawk. Large-diameter cavity trees are critical for larger cavity-nesting species including owls and pileated woodpeckers. Acorns, beechnuts, and hemlock cones provide a variety of food sources for wildlife. The dense component of hemlock in places in the stand offers a

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Town(s): Chester/Becket

Owner(s): Town of Chester



## STAND DESCRIPTIONS

<b>-Wildlife Habitat (cont.)</b>	diversity of habitat conditions available to birds and other wildlife species. Softwood inclusions often provide increased structural complexity as well as varied foraging and nesting opportunities.
<b>-Access &amp; Operability -Recreation</b>	Access to the stand is best made from the southeast, from the direction of the town cemetery and access road to the communications tower. Operability is severely limited by steep slopes and rocky terrain. Ample views of the river valley to the south are found from the ridgetop. Large trees and rock features also provide scenic value throughout this stand.
<b>Desired Future Condition</b>	The current levels and diversity of regeneration in much of the stand are suboptimal. The dominance of the beech understory in places is a problem that should be prevented from spreading through active control. Diverse regeneration should be encouraged by opening the canopy in places with little beech in the understory.

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Owner(s): Town of Chester

Town(s): Chester/Becket

# MANAGEMENT PRACTICES

to be done within next 10 years

## General Management Priorities

With the large amount of mature timber growing on the property, it can be useful to follow a hierarchical sequence of activities, structured to minimize costs and maximize the benefit of active management on healthy forest growth for multiple objectives. (see page 30 for proposed management priority location and sequence map)

**Priority One-** timber harvesting that will aide in increasing the future health and value of the growing stock based on releasing advanced regeneration from competition, and establishing a diverse mixture of high-value species. In this category are included: 1) harvesting of diseased or at-risk species such as beech, hemlock and white ash; 2) harvesting in areas where advanced regeneration of desirable and difficult to grow species such as white pine, red oak and sugar maple are present; 3) harvesting where it is possible to control undesirable vegetation in the understory simultaneously (beech, grape vines, exotic invasives).

**Priority Two-** timber harvesting that will utilize existing access infrastructure and which does not create additional infrastructure cost or unnecessary impact, on soil, water, wildlife habitat and recreational resources, when possible.

OBJ	STD NO	TYPE	SILVICULTURAL PRESCRIPTION	AC	TO BE REMOVED		TIMING
					BA/AC (Sq. ft.)	TOTAL VOL (MBF / CDS)	
STEW	1	OH	Group & Individual Tree Selection w/ small patch cuts	85	57	450 / 264	2020-2022
	2	BB		20	21	31 / 86	2023
	5	OH		35	50	157 / 175	2026
	8	HH		31	27	90 / 20	2024
	10	BB		45	44	172 / 202	2028
	11	OH		55	54	330 / 55	2029-2030

### Purpose

This practice will be designed to release good growing stock of all sizes from competition, improve the overall health, quality and vigor of the residual growing stock in these stands, and improve stand structure by creating conditions for the establishment of new growth of desired species in areas where it is lacking.

### Treatment

Cutting should release established regeneration through liberation cutting and expanding existing gaps. This is the case in many portions of these stands where past cutting occurred. Small group selection cuts up to 1/3 acre can be done to encourage regeneration of shade mid-tolerant or intolerant species such as red oak, black cherry, white pine, hickory, white birch, and aspen. Several larger patches of up to 2 acres can be made to encourage shade intolerant species, preferably where it is possible to fully control a midstory and understory of diseased beech, so as to ensure the establishment of other species (see activity: Control of Undesirable Species). Crop tree release and selection cutting should be done in accessible areas between gaps to increase growth and initiate advance regeneration. More shade tolerant to mid-tolerant species such as sugar maple, black birch, yellow birch and healthy beech will be favored in these areas. Cutting should focus on damaged or at-risk species, particularly white ash and beech. Most existing grapevines should be severed during cutting activity. Trees that exhibit good cavities, or potential cavities, as nesting and den sites for birds and small mammals should be retained. Care should be taken to retain shade on boles of hardwoods such as red oak that are prone to epicormic branching

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Town(s): Chester/Becket

Owner(s): Town of Chester



**Stand 1** - Cutting should focus on the removal of poorer quality trees including some low thinning of suppressed and damaged trees for the primary goal of releasing good seedling-large pole-sized sugar maple, and stimulating red oak regeneration. Group selection cuts should focus on the removal of groups of timber sized white ash in preparation for arrival of emerald ash borer. Individual tree selection should be employed in areas with wet or shallow soil in order to minimize blowdown in the residual stand.

**Stand 2** - This is largely a cordwood harvest. Cutting should focus on the removal of poorer quality trees including low thinning of suppressed and damaged trees, particularly of white ash and beech, for the primary goal of releasing good seedling-large pole-sized sugar maple and yellow birch. Individual selection should be the primary method here in order to minimize soil erosion on steep slopes. Group selection may be employed in areas of dense diseased beech, where all sizes of beech can be removed to allow other species to regenerate.

**Stand 5** - Cutting should focus on releasing good northern hardwood growing stock and oak crop-trees by removing hemlock of low vigor from all levels in the stand along with diseased beech and suppressed and damaged stems of all species. Crop tree release and selection cutting should be done between gaps to increase growth and initiate advance regeneration. Hemlock with vigorous live crowns should be retained along with dominant red oak seed trees.

**Stand 8** - Cutting in the central portion of this stand should focus on removing hemlock of low vigor from all levels, along with diseased beech and damaged stems of all species. Hemlock with vigorous live crowns should be retained along with crop trees of preferred species. Group selection should focus on areas with seed trees of heavy seeded trees like oak, black cherry, and hickory, as well as pine so as to initiate regeneration of these species. Harvesting should not occur on the steepest slopes above drainages.

**Stand 10** - Cutting should focus on the removal of poorer quality trees including some low thinning of suppressed and damaged trees for the primary goal of releasing good seedling-small sawtimber sugar maple, and stimulating red oak regeneration. Group selection cuts should focus on the removal of groups of timber sized white ash. Individual tree selection should be employed in areas with wet or shallow soil in order to minimize blowdown in the residual stand.

**Stand 11** - Cutting should focus on the removal of suppressed, damaged or competing oak, as well as hemlock of low vigor, and damaged or at-risk hardwoods, especially beech and white ash. Hemlock with vigorous live crowns should be retained along with dominant red oak seed trees. Heavy control of midstory and understory beech is needed to create conditions for oak and mixed hardwood regeneration. Individual tree selection should be employed in the steepest terrain in order to minimize blowdown and soil erosion in the residual stand.

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Owner(s): Town of Chester

Town(s): Chester/Becket

OBJ	STD NO	TYPE	SILVICULTURAL PRESCRIPTION	AC	TO BE REMOVED		TIMING
					BA/AC (Sq. ft.)	TOTAL VOL (MBF / CDS)	
STEW	7	WO	Irregular Shelterwood – Expanding Gap w/intermediate thinning	78	44	400 / 109	2023-2024

#### Purpose

This practice will be designed to release areas of young growth, improve the overall health, quality and vigor of the residual stand, improve conditions for wildlife and create conditions for the establishment of new growth of desired species in areas where it is lacking.

#### Treatment

Cutting should release areas of established regeneration through liberation cutting and expanding existing gaps where regeneration has become established. Cutting should focus on removing hemlock of low vigor from all levels in this stand along with diseased beech and damaged stems of all species. Crop tree release and selection cutting should be done between gaps to increase growth and initiate advance regeneration. Hemlock with vigorous live crowns should be retained along with trees that exhibit good cavities, or potential cavities, as nesting and den sites for birds and small mammals. Care should be taken to retain shade on boles of hardwoods such as red oak that are prone to epicormic branching. Favored species should include red oak and white pine along with species that are not well represented in the stand such as yellow birch, black cherry, white oak and sugar maple. Healthy beech should also be retained.

OBJ	STD NO	TYPE	SILVICULTURAL PRESCRIPTION	AC	TO BE REMOVED		TIMING
					BA/AC (Sq. ft.)	TOTAL VOL (MBF / CDS)	
STEW	3	OH	Shelterwood with Reserves	65	30	123 / 110	2025
	6	BB		30	24	38 / 51	2026

#### Purpose

This practice will largely remove mature, diseased, damaged and poor-quality trees along with undesirable species and to favor the further development of preferred species in the younger age classes. Having had much of the overstory removed in places in the last 10-20 years, these stands have good levels of mixed regeneration that should be released from overstory competition.

#### Treatment

Cutting should focus on removing all timber size white ash in preparation for the arrival of emerald ash borer, as well as beech and red maple in favor of other species. Reserve overstory trees should be those that are among the preferred species in these stands such as red oak, black cherry, sugar maple, yellow birch, basswood, hickory and white pine. Reserves can include trees that contain good cavities to be utilized as den or nest sites for wildlife. Most grapevines should be severed during this operation. Select areas with a dense diseased beech midstory and understory should have beech of all sizes removed to allow for the establishment of preferred species (see Control of Undesirable Vegetation).

**Stand 3** – Most mature trees may be cut in this stand with the exception of widely spaced, red oak and other preferred species that serve as seed sources and beneficial wildlife habitat structure.

**Stand 6** – Only taking place in the eastern third of the stand, this activity should focus on removing ash in favor of other quality hardwoods, especially good sugar maple growing stock. Individual and group selection should occur in steep or wet soils in order to mitigate soil erosion and blowdown.

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Town(s): Chester/Becket

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OBJ	STD NO	TYPE	SILVICULTURAL PRESCRIPTION	AC	TO BE REMOVED		TIMING
					BA/AC (Sq. ft.)	TOTAL VOL (MBF / CDS)	
STEW	9	OH	Irregular shelterwood	65	36	196 / 130	2027

#### Purpose

This practice will be mainly to cut mature, diseased, declining, damaged and poor-quality trees along with undesirable species and to favor the further development of preferred species in the younger age classes in the central upland portion of the stand.

#### Treatment

Cutting should focus on removing timber size white ash in preparation for the arrival of emerald ash borer, as well as beech, red maple, and red pine in favor of other species. Reserve overstory trees should be those that are among the preferred species in these stands such as red oak, black cherry, sugar maple, yellow birch, basswood, hickory and white pine. Reserve trees can be those that contain good cavities to be utilized as den or nest sites for wildlife. Otherwise reserves should have healthy large crowns, be of good form and vigor and be windfirm as well. Select areas with a dense beech understory should have beech of all sizes removed to allow for the establishment of preferred species (see Control of Undesirable Vegetation). A light thinning is appropriate in areas with wet or rocky soil to reduce soil erosion and the potential for blowdown.

OBJ	STD NO	TYPE	SILVICULTURAL PRESCRIPTION	AC	TO BE REMOVED		TIMING
					BA/AC	TOTAL VOL	
STEW	1	OH	Timber Stand Improvement – Control of Undesirable Vegetation w/ Assisted Regeneration - (tree planting/protection & precommercial thinning)	36			2020-2030
	2	BB					
	3	OH					
	5	OH					
	6	BB					
	7	WO					
	9	OH					
	10	BB					
	11	OH					

#### Purpose

To diminish undesirable vegetation (diseased beech, grape vines, and invasive exotic plants) where its removal will have the greatest benefit to native plants and long-term forest health, quality, timber value, and wildlife habitat, and to establish desirable tree regeneration where it is currently scarce due to severe competition and herbivory.

#### Treatment

##### Small patch-cut – understory control

Within the timber harvest area, all beech, grape, and exotic invasive plants within the selected two-acre patches in each stand will be removed or killed. Patches will be treated with various methods, depending on the slope and the proximity of the site to aquatic features. Where appropriate soil conditions occur, timber harvesting machinery will be utilized to scarify the soil in order to disturb the root systems of undesirable plants and to prepare the soil for natural regeneration of desirable species.

##### Assisted regeneration

In order to initiate the regeneration of favored tree species, seedlings may be planted within the small patch clearings following treatment of the understory. Seedlings of species desirable to wildlife must be protected from herbivory with staked tree-tubes, ideally 5ft. in height. This will

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**Treatment  
(cont.)**

give seedlings the greatest chance of survival amidst the regenerating understory. Advanced regeneration of desired species will be released from competition of surrounding vegetation by manual felling (precommercial thinning). Brush will be left on the forest floor to add coarse woody debris to the stand.

**Pre-harvest invasives control**

*Invasive exotic plants* can be spread by multiple methods including wind and migrating wildlife. It is not realistic to assume that complete eradication of these plants can be achieved. However, reducing the rate at which they spread and mitigating their impact on native regeneration will constitute effective control. Japanese barberry and multiflora rose are the two most abundant species of exotic on the property. They are currently found in very low densities, scattered throughout the understory in moist areas within several stands. Japanese knotweed and Asian bittersweet are found along the access road below the reservoir. The introduction of additional light onto the forest floor through cutting of trees will create conditions favorable to the spread of many invasive plant species. Therefore, control efforts should be performed prior to any further cutting activity on the property.

**Special  
Considerations**

DCR Municipal Forest Stewardship Program cost-sharing may be applied for to support this activity.

OBJ	STD NO	TYPE	SILVICULTURAL PRESCRIPTION	AC	TO BE REMOVED		TIMING
					BA/AC	TOTAL VOL	
STEW	All		Boundary Maintenance	N/A	N/A	N/A	2020

**Purpose**

Properly marked boundaries aid in the location of management activities and help prevent unwanted trespass.

**Treatment**

Boundary lines that are not stone walls should be blazed and painted in order to assist in the planning and implementation of management activities.

**Special Considerations for all Management Activities**

- Where and when possible, activities should be performed in conjunction with other planned harvests in adjacent stands in order to mitigate road improvement costs.
- The control of invasive plant species should be completed prior to the start of cutting so that increased sunlight on the ground resulting from tree cutting does not lead to further spread of invasive plants on the property.
- At the close of the cutting operation properly spaced water bars should be installed in all roads that occur on sloping ground. Portions of these roads with disturbed soil on slopes can be seeded to provide for further stabilization and to minimize erosion and sedimentation into wetland areas.
- Conducting cutting activity during frozen or dry ground conditions will reduce soil disruption, potential erosion and sedimentation into streams. Any stream crossings associated with this commercial activity should be kept to a minimum and should take place in areas where stream banks can remain stable. "MA Best Forestry Management Practices" must be utilized in conjunction with activities to maintain water quality.
- At the close of the cutting operation all roads should be left free of tops and other debris to allow for ease of access and subsequent recreational use, unless there are considerations that make it desirable to leave tops roads.

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Town(s): Chester/Becket

Owner(s): Town of Chester



## Management Recommendations

For the purposes of this report management practices with an object code of *STEW* are voluntary and are provided as suggestions of activities that can help you achieve your woodland objectives.

### Summary of the Management Recommendations for your property

Stand	Object Code	Recommendation	Value/Cost/ Cost Sharing opportunities	Acres	Timing
1, 2, 5, 8, 10, 11	STEW	Group & Individual Tree Selection w/ small patch cuts	Market value for mature sawtimber and cordwood	271	2020-2030
7	STEW	Irregular Shelterwood – Expanding Gap w/intermediate thinning	Market value for mature sawtimber and cordwood	78	2023-2024
3, 6	STEW	Shelterwood with Reserves	Market value for mature sawtimber and cordwood	95	2025-2026
9	STEW	Irregular shelterwood	Market value for mature sawtimber and cordwood	65	2027
1, 2, 3, 5, 6, 7, 9, 10, 11	STEW	Timber Stand Improvement – Control of Undesirable Vegetation (Mechanical/Chemical) w/ Assisted Regeneration - Tree planting/Protection & precommercial thinning	Potential DCR Municipal Forest Stewardship Program cost-share	36	2020-2030
ALL	STEW	Boundary Maintenance	Daily, hourly, or per/acre rates	All	2020

Owner(s) Town of Chester

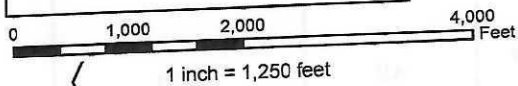
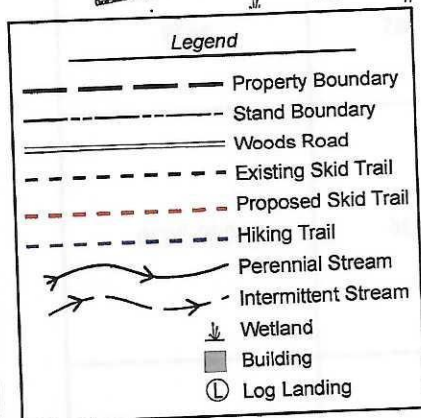
Towns(s) Chester/Becket

# Proposed Forest Management Chester Watershed

Approximate Area of Timber Harvest by Year



○ Approximate locations of 2-acre, patch cuts w/ understory control



Map prepared by



Tobias Carter  
PO Box 416  
Montague, MA 01351



**Signature Page** Please check each box that applies.

☐ **CH. 61/61A Management Plan** I attest that I am familiar with and will be bound by all applicable Federal, State, and Local environmental laws and /or rules and regulations of the Department of Conservation and Recreation. I further understand that in the event that I convey all or any portion of this land during the period of classification, I am under obligation to notify the grantee(s) of all obligations of this plan which become his/hers to perform and will notify the Department of Conservation and Recreation of said change of ownership.

☒ **Forest Stewardship Plan.** When undertaking management activities, I pledge to abide by the management provisions of this Stewardship Management Plan during the ten year period following approval. I understand that in the event that I convey all or a portion of the land described in this plan during the period of the plan, I will notify the Department of Conservation and Recreation of this change in ownership.

☐ **Green Certification.** I pledge to abide by the FSC Northeast Regional Standards and MA private lands group certification for a period of five years. To be eligible for Green Certification you must also check the box below.

☐ **Tax considerations.** I attest that I am the registered owner of this property and have paid any and all applicable taxes, including outstanding balances, on this property.

Signed under the pains of perjury:

Owner(s) \_\_\_\_\_ Date \_\_\_\_\_

Owner(s) \_\_\_\_\_ Date \_\_\_\_\_

I attest that I have prepared this plan in good faith to reflect the landowner's interest.

Plan Preparer \_\_\_\_\_ Date \_\_\_\_\_

Lincoln Fish & Tobias Carter

I attest that the plan satisfactorily meets the requirements of CH61/61A and/or the Forest Stewardship Program.

Approved, Service Forester \_\_\_\_\_ Date \_\_\_\_\_

Approved, Regional Supervisor \_\_\_\_\_ Date \_\_\_\_\_

In the event of a change of ownership of all or part of the property, the new owner must file an amended Ch. 61/61A plan within 90 days from the transfer of title to insure continuation of Ch. 61/61A classification.

Owner(s) Town of Chester Town(s) Town of Chester

