

# FOREST MANAGEMENT PLAN

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



	(	CHECK-OF	FS				Administr	rative Box	
CH61	CH61A	CH61B	STWSHP	C-S		Case No.		Orig. Case No	
cert.	cert.	cert.	new	⊠ EEA		Owner ID		Add. Case No	
recert.	recert.	recert.	renew	Other		Date Rec'e	<u></u>	Ecoregion	
amend	amend	amend	FSC	Birds		Plan Perio	d	Topo Name	Wrentham
			Conserva	ation Rest.		Rare Spp.	Hab.	River Basin	Charles
Plan Chang	e:	to	CR Hold	ler					-
	owner(s) To	own of Wrent	ham – Wollor 1 211, 79 Sou	monopoag	Cons	ervation A		e (508) 384-3	174
		wn(s) Wrenth					Road(s) Elys	ium Street	
			Patrick Con ain Road, No		IA 01:		Aass. Forester Phone	License # <u>11</u> (774) 364-4	
RECORI	DS .								
Assessor's Map No.	Lot/Parcel No.	Deed Book	Deed Page	Total Acres		Ch61/61A 61B Excluded Acres	Ch61/61A 61B <b>Certified</b> Acres	Stewshp Excluded Acres	Stewshp Acres
J-07	01-12	815	171	200.0		0.0	0.0	1.0	199.0
			TOTALS	200.0	· -	0.0	0.0	1.0	199.0
	om this plan	_	ditional space need				well house at	the end of Elysiu	m Street.
HISTOR	Y Year acc	quired 20	001 Year	r managen	nent be	egan	2015	-	
Are bound	aries marked	d: Yes 🔲 t	olazed/painted	l/flagged/©	igns p	osted (circ	e all that apply)?	No Par	tially 🖂
What trea	tments have	been prescrib	oed, but not ca	arried out	(last 1	0 vears if	plan is a rece	rt.)?	
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	_	Practices (lasting Plan #	t 10 years) Treatment		Yield	A	cres	Date	
Remarks: (	if additional space	needed, continue o	n separate page)						

#### **Landowner Goals**

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

		Importance to Me					
Goal	High	Medium	Low	Don't Know			
Enhance the Quality/Quantity of Timber Products*			X				
Generate Immediate Income		X					
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			X				
Other:							

<sup>\*</sup>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:	

## **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:
Owner(s) (print) _ Town of Wrentham	
(This page will be included with the completed plan.)	Page <u>2</u> of <u>23</u>



## Property Overview, Regional Significance, and Management Summary

The town of Wrentham, which covers an area of about 22 square miles, is situated in the southwestern edge of Norfolk County. The town's southern boundary is also the state line between Massachusetts and Cumberland, Rhode Island. This region along the Interstate 495 corridor is densely populated by suburban development. The population of this town has grown considerably in the last 100 years from 1,700 people in 1910 to more than 10,900 in 2010 (census records). Today, roughly 16% of land in Wrentham is classified as protected open space. These open spaces serve as important ecological reserves and are all the more important as they are dispersed across the town as islands of natural areas.

Historically, this region was populated by the Wampanoag and the name Wollomonopoag is derived from that nation's language. The land around Massachusetts Bay was one of the earliest portions of the United States to be settled by European colonists. This area was originally sought after by livestock farmers in search of new pasture lands which they found in the large marshes and meadows. Abundant natural resources and the devastating effects of pathogens on indigenous peoples created nearly unobstructed land clearing and conversion of forested areas. Despite this, not all of the Indigenous Americans had succumbed to the pressures of disease and displacement. The tribal leader of the Wampanoag, Metacomet (dubbed King Phillip by colonists), sold the land called Wollomonopoag (modern-day Wrentham) to colonists from Dedham. Metacomet would later lead an armed campaign against colonists that aligned indigenous Americans from the Atlantic coast to New York State. King Phillip's War as it is called, lasted only one year (1675-76), however, during the conflict Wrentham was burned (the colonists were spared due to a prudent evacuation). The town was eventually resettled and the business of working the land for agriculture continued. As lots were cleared (at an average rate of 2 acres per year), stumps from felled trees were placed along boundaries to mark property lines and fence in livestock. These stump fences were eventually replaced by fieldstones that were removed from fields and placed in well-crafted walls that still persist today. Around the end of the 19<sup>th</sup> Century, agriculture in New England dramatically decreased as more fertile lands west of the Appalachian Mountains became available and machinery designed for level ground increased production. Many of these abandoned farms reverted back to forests for around 50 years until the end of World War 2. Returning veterans bought small parcels of former farm land to build homes and raise the 'baby boomer' generation. This explosion in the home buying market sped the subdivision of lots for the purpose of both residential and commercial development and this trend continues in part today.

The Wollomonopoag Conservation Area is town owned open space that features 200 acres of oak/pine woodlands and vast wetlands. It is located near the center of town on the western banks of Lake Pearl. Parking and trail access is found at the end of Elysium Street in the northeastern corner of the conservation area. A quarry owns adjacent woodlands to the west and is accessible via Whiting Street, a discontinued road that bisects Wollomonopoag. The network of trails that crisscross the property are connected to this old road. Nearly half of the 200 acres this property covers is open water or wetlands devoid of overstory trees. Beaver activity has raised the water level recently creating interesting wildlife habitat and shrub swamp edge. Old stone walls and cellar holes are found in numerous spots and offer evidence of past settlement and agricultural land-use.

OBJECTIVE	CODE: CH	I61 = stands classified under CH	61/61A	STEW= stan	ds not class	ified u	nder CI	H61/61A
STD= stand	AC= acre	MSD= mean stand diameter	MBF= thousand	d board feet	BA= basal	l area	VOL=	volume
Owner(s)	Wollomo	onopoag Conservation Area	. Т	Cown(s)	Wrentham	l		
· /		1 8		· /				
					Page	3	of	23



## Property Overview, Regional Significance, and Management Summary

Glacial deposits of well-drained soils in upland portions of this property support the growth of overstory pine and oak. Aside from saturated areas, four forest types were identified on this property. White pine/oak, oak/hardwood, white pine, and grey birch/red maple are found throughout this property. A significant feature lacking from these woodlands is the presence of shade-tolerant mid-story species like hemlock and beech. As a result, enough sunlight is made available to stimulate germination of pine and oak seed. The lack of an established mid-story however shows that there is not enough sunlight available to allow these young trees the opportunity to establish in the canopy. The species that compose the overstory include white pine, red oak, black oak, scarlet oak, white oak, and red maple. Occasionally there is a hickory, white ash, or birch, but it occurs rather infrequently.

Wildlife in the region undoubtedly rely on Wollomonopoag and the other areas of open space in this fragmented portion of the state. Additionally, the presence of oak on this site provides highly nutritious food in the form of acorns. Decaying oak tend to persist longer than most other species of trees and thus serve as valuable nest/denning sites for birds and mammals. Understory vegetation includes blueberries/huckleberries, greenbrier, and American hazelnut which add to on site food availability. Beaver activity has converted a portion of the white pine stand into wetlands. The mature pines have died and now exist as dead standing timber (snags). A colony of great blue heron established a nest congregation called a 'rookery' at the tops of these snags. An osprey has even created a nest in this area and has been reported by birders every spring since at least 2013 according to ebird.com records. Other migratory birds such as wood duck, yellow-rumped warbler and hermit thrush find suitable foraging and nesting habitat in these woodlands.

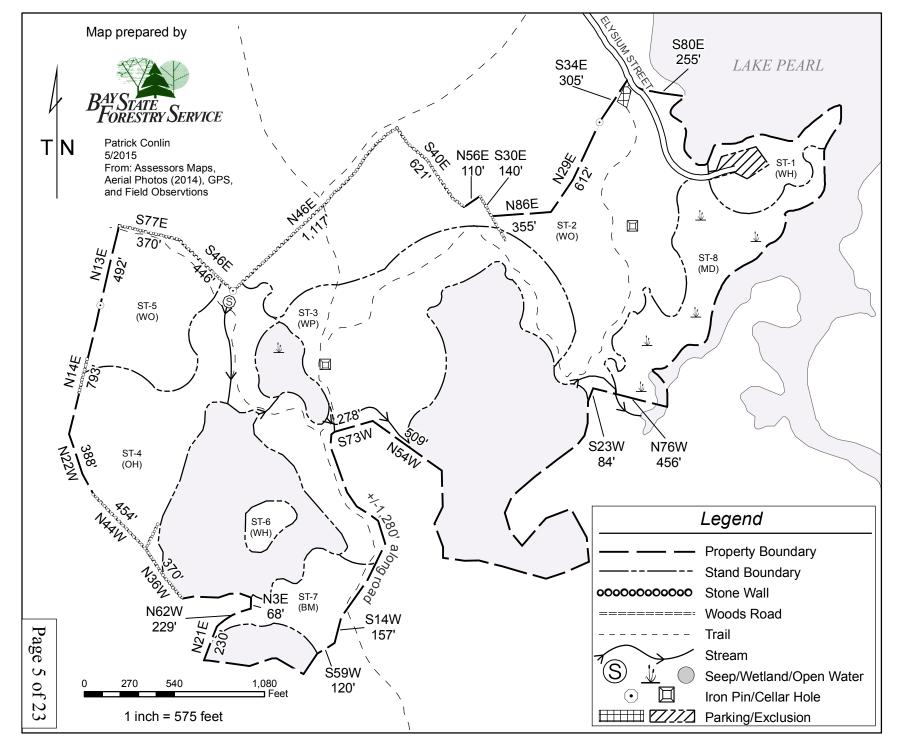
Forest health is excellent throughout the Wollomonopoag. Invasive plants are present but are in minimal numbers. Light patches of barberry, multiflora rose, Oriental bittersweet, common buckthorn, autumn olive, and bush honeysuckle could easily be controlled to reduce the threat to native ecology these exotic species pose. Pathogens are few and insect damage is mostly limited to galls on oaks. These galls are not problematic in current numbers and are quite normal in the natural setting. The few white ash found in low lying wet areas in the south are threatened by the arrival of emerald ash borer (EAB). This Asiatic beetle has been killing ash trees emanating from its initial entry point in Michigan. It was detected in western Massachusetts in 2012 and has since been found in New Hampshire and eastern Massachusetts. These white ash will suffer a similar fate as the American chestnut which survives to this day as stump sprouts from century old root systems. The cause of chestnuts decline is chestnut blight, an introduced fungal pathogen that attacked American chestnuts in the early part of the 20<sup>th</sup> century. No threats outside of the mild invasive plant component threaten Wollomonopoag. Many surrounding properties have much more severe invasive plant infestations making monitoring a necessity to protect this forest in the future.

This property contributes many facets to the town and surrounding communities. The aesthetic qualities of Wollomonopoag attract visitors to hike and view wildlife. The variety of habitats supports a diverse array of species in an area where developed land fragments islands of open space. Water from this area is used by many communities as a drinking source and requires certain consideration in order to protect and preserve this resource. These benefits can be preserved and even improved through management practices that replicate natural systems to perpetuate healthy and resilient forests with emphasis on promoting diversity of species and vertical forest structure

OBJECTIVE	CODE: CH	I61 = stands classified under CH	61/61A	STEW= star	nds not classified u	nder CH61/61A
STD= stand	AC= acre	MSD= mean stand diameter	MBF= thou	sand board feet	BA= basal area	VOL= volume
Owner(s) _	Wollomo	onopoag Conservation Area	<u> </u>	Town(s)	Wrentham	
					Page4	of <u>23</u>

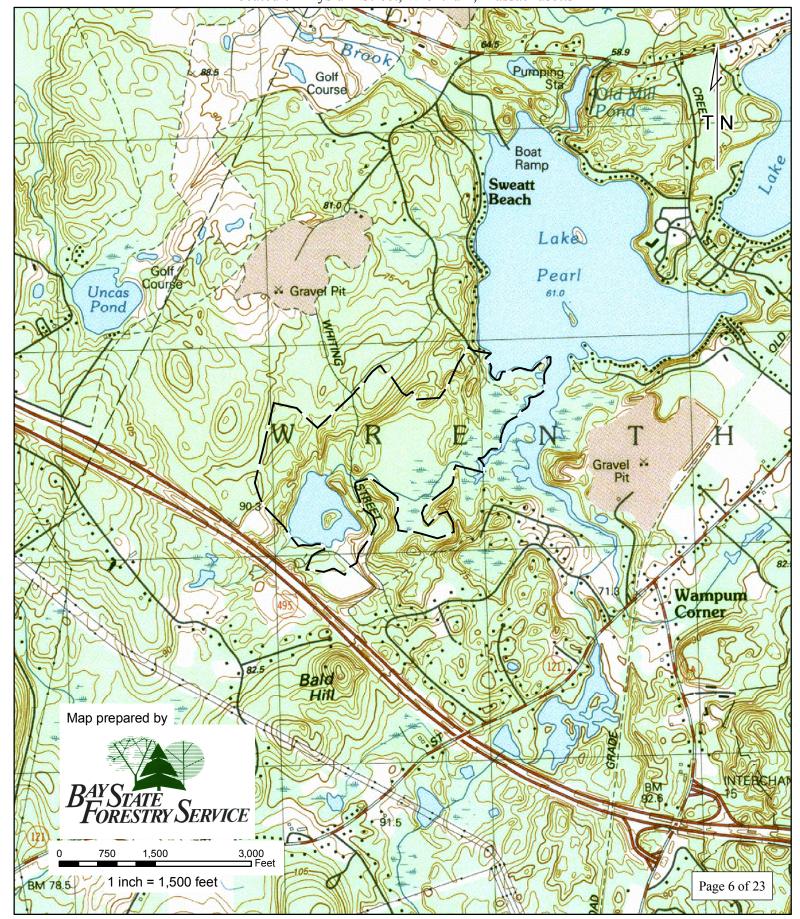
# Forest Stewardship **Boundary And Forest Stand Map**

Wollomonopoag Conservation Area
Wrentham Town Property
Located off of Elysium Street, Wrentham, Massachusetts



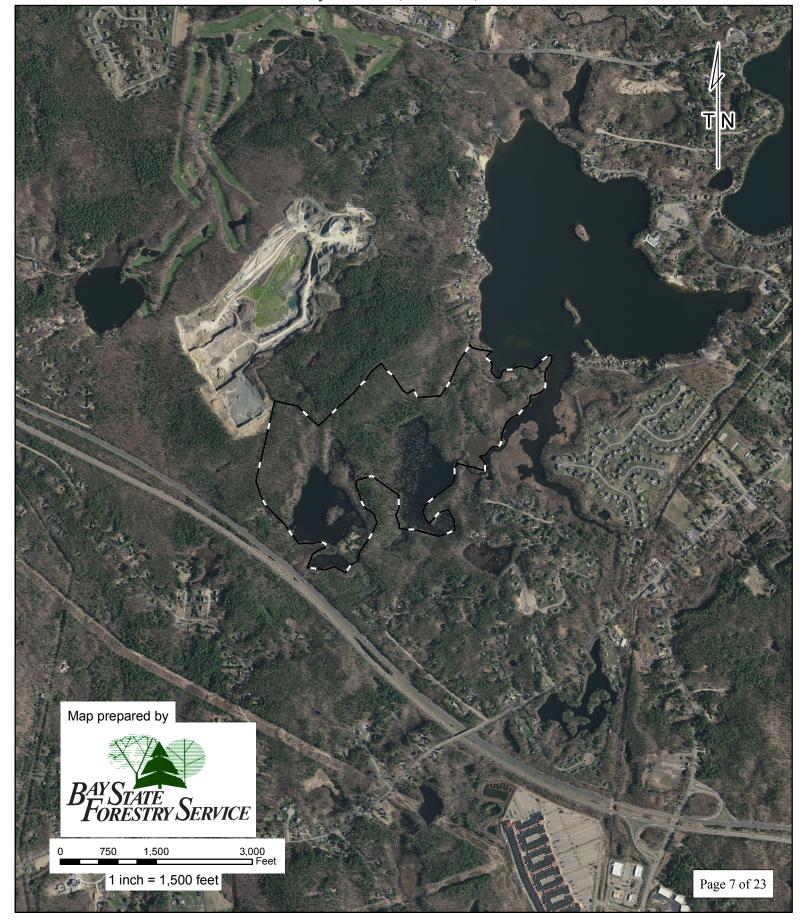
## **Forest Stewardship Locus Map**

Wollomonopoag Conservation Area Wrentham Town Property Located on Elysium Street, Wrentham, Massachusetts



# Forest Stewardship Orthophoto (2014) Map

Wollomonopoag Conservation Area Wrentham Town Property Located on Elysium Street, Wrentham, Massachusetts



OBJ	STDNO	TYPE	AC	MSD OR SIZE-CLASS	BA/AC	VOL/AC	SITE INDEX
STEW	1	WH	4.9	12.4"	130	4.2 MBF	60 WP
						21 CDS	

This white pine/hardwood (WH) stand is found in the eastern most portion of the property, surrounding the structures in the excluded area. Overstory species include white pine, red maple, red oak, black birch, and white oak. The mid-story is composed of red maple, red oak, and some white pine. Regeneration is composed of sassafras, black birch, red maple, and the occasional American beech. Some of the understory species found here include green brier, highbush blueberry, lowbush blueberry, and witch hazel.

The soil found in this stand is Hinckley sandy loam. This soil type is fairly well-drained and is productive for the growth of oaks and pine. Despite this, the close proximity to surface water due to beaver activity has made many portions of this stand incapable of supporting large overstory trees. This change in condition can be evidenced in the species composition of lower strata vegetation, where water tolerant trees such as birch and red maple become common. The terrain is rolling with high points supporting the largest trees while lower areas gather considerable soil moisture.

Forest health is excellent in this stand. No invasive plants were observed and vegetation was free of pathogens and/or insects that pose significant threats. A stand of *Phragmities australis* was spotted on the opposite shore of the pond and should be monitored to prevent possible colonization.

Wildlife take advantage of this stand as it is gated off from public access and provides cover adjacent to Pearl Lake. Wood duck and fishers find valuable nesting/denning sites in oak cavities while deer and wild turkey forage on the acorn crops they produce. The well-stocked understory produces additional food in the form of browse and berries which diversifies the seasonal availability of food on site. The wet areas in this stand are good insect breeding sites which are fed upon by wood warblers as they return each spring in near correlation.

In the future, it would be desirable to leave this stand to be shaped by natural processes. The poor quality of trees, proximity to drinking water facilities, and current benefit to wildlife are all barriers to meaningful management at this point in time.

STEW 2 WO 39.4 12.7" 156 9.8 MBF 60 RO 11.8 CDS

Stand 2 is composed of overstory pine and oak (WO). The species that make up this area include white pine, red oak, black oak, scarlet oak, and red maple. Regeneration levels are moderate to high and consist of white pine, white oak, red maple, and the occasional hickory. The density of the understory is moderate with lowbush blueberry, huckleberry, witch hazel, club moss, various ferns, and lichens.

The soils found in this stand include Hinckley sandy loam, Hinckley loamy sand, Charlton-Hollis-Rock outcrop complex, and Paxton fine sandy loam. These soils are moderately well-drained and suitable for growing pine and oak. The western extent of this stand is found on an esker. This modest ridge is the result of sediment deposits from a stream that carved a path under a glacier in an effort to dispense melt water during the last retreat some 10,000 years ago. The eastern portion of the stand borders wetlands to the south and the property boundary, including the main entrance, to the north. Hiking trails provide access from the parking area to all portions of this property. A cellar hole can be found on the high ground east of the main trail 800' south of the parking area.

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

Owner(s) Town of Wrentham – Wollomonopoag Town(s) Wrentham

OBJ	STDNO	TYPE	AC	MSD OR SIZE-CLASS	BA/AC	VOL/AC	SITE INDEX
STEW	2	WO	39.4	12.7"	156	9.8 MBF	60 RO
						11.8 CDS	

Forest health is good in this stand. Very minor occurrences of invasive plants were noted. Species observed include bush honeysuckle, multiflora rose, European barberry, Japanese barberry, and Oriental bittersweet. All of the invasive plants observed were in close proximity to trails.

In the future, it would be desirable to encourage the healthy, well-formed oak and white pine in this stand. Management techniques that employ selective and patch harvesting would aid in the removal of poorly formed competing stems while releasing existing regeneration in the understory. This would diversify age classes of genetically adapted individuals to perpetuate a healthy forest well into the future.

STEW 3 WP 23.7 14.8" 108 9.4 MBF 70 WP 7.6 CDS

This white pine (WP) stand is found between Stand 2 to the north and the beaver pond to the south. White pine is the dominant species in the overstory, with associated white/black/red/scarlet oak, red maple, and the occasional white ash. The pines in this stand are tall and generally exhibit good form. Regeneration levels are high, consisting mostly of white pine with white oak and red maple mixed in. American hazelnut, lowbush blueberry, witch hazel, American chestnut stump sprouts, and club mosses can all be found in this moderately stocked understory.

The soil found in this stand is Hinckley loamy sand. This well-drained soil is productive for the growth of white pine as evidenced by the height of the trees found here. A portion of this stand was flooded due to beaver activity and the dead standing pines have become repurposed as a rookery for great blue herons. A trail follows the water line along the southern edge of this stand to provide an excellent vista of this unique wildlife attraction. Hiking trails make many parts of this stand accessible and leads hikers to an old foundation from an early structure.

Forest health is excellent in this stand. The persistence of chestnut blight will continue to suppress the stump sprouts of these once abundant overstory trees. White ash in this stand are threatened by emerald ash borer, an Asiatic beetle who spends its larval life feeding on vascular tissue of host trees. Infested ash trees may succumb to emerald ash borer in as few as three years after initial colonization. Fortunately, ash is a very minor component of this forest and the loss of this species, although significant, will not outwardly impact the structure of this property.

Wildlife benefit from the coniferous cover offered in this stand. Pine is common throughout this property, but this is the only stand in which it is the dominant species. The lack of midstory shade-tolerant species such as American beech and hemlock allow just enough sunlight for the establishment of pine and oak seedlings. This thick understory is good cover for ground nesting birds like wood thrush and ovenbirds. The height of the mature pines provides suitable foraging grounds for birds like scarlet tanager and great crested flycatchers. Mature oak provide food through acorn crops and some have cavities which can be used for nesting.

In the future, it would be desirable to encourage the regeneration already present to assume a position in the midstory and ultimately, the canopy. This diversification of vertical structure will enhance the benefits this stand provides wildlife while promoting the next generation of trees. Even-aged silviculture such as shelterwood management would assist in the realization of that goal.

OBJECTIVE CODE: CH61 = stands classified under CH6	51/61A STEW= star	nds not classified under CH61/61A
STD= stand AC= acre MSD= mean stand diameter	MBF= thousand board feet	BA= basal area VOL= volume
Owner(s) Town of Wrentham – Wollomonopoag	Town(s)	Wrentham

OBJ	STDNO	TYPE	AC	MSD OR SIZE-CLASS	BA/AC	VOL/AC	SITE INDEX
STEW	4	ОН	26	11.5"	128	4.0 MBF	60 RO
						15.9 CDS	

Stand 4 is an oak/mixed hardwoods (OH) type, found in the southwestern portion of this property. Overstory species found here include red/scarlet/white/black oak along with white ash, hickory, and some white pine. Regeneration is composed of white pine and associated red maple, white oak, and hickory in low to moderate densities. The understory is made up of huckleberry, blueberry, greenbrier, sassafras, chestnut sprouts, witch hazel, American hazel, and spicebush.

The soils found in this stand include Hinckley sandy loam and Charlton-Hollis-Rock outcrop complex. These soils are well-drained and are good growing medium for pine and oak. A stream runs through the center of this stand and connects the pond south of this stand to a smaller body of water to the north.

Along that stream, light infestations of common buckthorn, Japanese barberry, and bush honeysuckle (all invasive exotic plants) can be found. Invasive plants also occur along the southwestern property line. A heavy infestation occurs on the abutting land in this area, likely due to disturbance caused by construction activities associated with Route 495. The invasives have crept onto the conservation land, and occur in low to moderate densities in a strip along the property line. Other forest health concerns involve the eventual infestation of this stand's white ash by the emerald ash borer. American chestnut persist in this stand as stump sprouts that continually get infested with chestnut blight which kills the stem back to the stump.

The great numbers of oak in this stand provide high quality food in the form of acorns for local wildlife. Oak also provide excellent denning/nesting trees when they form cavities due to the trees persistence, even after it has died. Other food is available in this stand through fruits produced by understory shrubs along with the browse provided by tender twigs of witch hazel.

In the future, it would be desirable to encourage the existing regeneration found in this stand. Shifts in the overstory composition will be dictated by what succeeds in the regeneration stage which at present seems to be oak and pine.

STEW 5 WO 11.8 13.2" 135 9.3 MBF 65 WP 13.9 CDS

This white pine/oak (WO) stand is found to the north of Stand 4 in the northwestern corner of the property. Overstory species found here include red/black/white/scarlet oak, white pine, and red maple. Regeneration is low to moderately stocked with white pine, red maple, and white oak saplings. The understory is moderately stocked and features chestnut sprouts, sassafras, huckleberry, and lowbush blueberry.

The soils found here include Canton fine sandy loam and Charlton-Hollis-Rock outcrop complex. These soils are very well-drained over gently sloping or flat terrain, making this site well-suited for growing pine. This stand is accessible via trails that extend westward from the discontinued dirt road ( Whitting Street). Remnant interior stone walls along with the walls along the property boundary are evidence of an agricultural history. Chestnut stump sprouts also provide clues to the former abundance of overstory chestnut that would have been found here a century ago.

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Owner(s) Town of Wrentham – Wollomonopoag Town(s) Wrentham

OBJ	STDNO	TYPE	AC	MSD OR SIZE-CLASS	BA/AC	VOL/AC	SITE INDEX
STEW	5	WO	11.8	13.2"	135	9.3 MBF	65 WP
						13.9 CDS	

Forest health is good. No major insects or pathogens are threatening the overstory here. Chestnut blight is present here on the stump sprouts found in the understory. No invasive species were noted in this stand and this can be maintained if the populations on site are controlled.

The mix of coniferous and hardwood trees is preferred by some wildlife species. Certain migratory birds like pine warblers and yellow-rumped warbler utilize this composition for foraging insects in the mid to upper canopy. Oaks with cavities tend to last longer than other species due to the rot resistance associated with those species' high tannin levels. In addition to providing food through nut crops, they serve as lasting denning/nesting site in those areas.

In the future, it would be desirable to encourage existing regeneration as well as establishing more seedlings. This would promote a diverse age structure of oak and pine to attract wildlife that require dense under and midstory conditions as well as promoting the vigor of understory vegetation such as huckleberry.

STEW 6 WH 1.5 11.4" 90 5.2 MBF 55 WP 7.8 CDS

Stand 6 is a white pine/hardwoods (WH) type found on a small island in the pond along the south western border of the property. Overstory species found here include white pine, red/white/scarlet oak, red maple, and white ash. Regeneration is poor, consisting of red maple, white pine, and white ash. Understory species present include lowbush blueberry, sassafras, and witch hazel.

The soil found here is Hinckley loamy sand. This well-drained soil is good for growing pine and oak but is limited by the small size of this island. Depending on future beaver activity, this stand could be reduced in size as water levels rise.

Wildlife like birds and beaver find food and cover in this secluded area. Forest health appears to be good.

The future condition of this stand should be shaped by natural processes in order to enable it to serve as a benefit to local wildlife.

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Owner(s) Town of W	rentham – Wollomonopoag	Town(s)	Wrentham	

OBJ	STDNO	TYPE	AC	MSD OR SIZE-CLASS	BA/AC	VOL/AC	SITE INDEX
STEW	7	BM	5.75	2.0"	0	0.0 MBF	55 WP
						0.0 CDS	

A grey birch/red maple (BM) stand is found in the strip of land to the east of Stand 6. Access to this stand is gained via Witting Street. Much of this area is open with small clumps of birch and white pine. No regeneration exists here and the understory is a sparse assortment of drought tolerant herbaceous plants.

The soil here is Udorthents, sandy. This material has the appearance of rubble and is very infertile. The resulting plant community is scrubby and open with lots of sunlight. This can be a valuable habitat for some species of wildlife, such as brown thrasher and white-throated sparrow. One occurrence of autumn olive, an invasive shrub, was found here. To avoid further dispersal of seed from this bush, it is highly recommended that it be removed using appropriate methods.

In the future, this site should be monitored to reduce the populations of invasive plants. Natural processes should shape this stand for the benefit of wildlife.

STEW 8 MD 13 0.0" 0 0.0 MBF N/A 0.0 CDS

A deep marsh (MD) found east of stands 1 & 2 constitutes Stand 8. This flat area adjacent to an open body of water associated with Lake Pearl supports a rich community of water-dependent vegetation. Cattails, speckled alder, red maple, and American elm can be found here. Greenbrier is common along the shrubby edges of this marsh.

Beaver activity over the past few years has caused water levels to rise and saturate lower lying land. It appears that this trend will continue for the next few years and will benefit this area through the ecological changes it initiates. Only the plants with adaptations that allow them to survive in this environment will persist allowing them to become represented in the overall species mix on site.

In the future, this stand will be altered by beaver activity and likely expand. No management is recommended.

STEW N/A Open 72.95 0.0" 0 0.0 MBF N/A Water 0.0 CDS

Three areas of open water wetlands occur along the southern property boundary. These areas have been expanded significantly by recent beaver activities. While these areas are not currently productive for growing timber or other upland vegetation, they are a very good resource for enhancing the wildlife diversity on the property as well as for providing good aesthetics in this conservation area. In the distant future, the beaver activities may cease, and some of this area may revert to an upland condition. This will allow a young forest to regenerate, demonstrating how dynamic natural areas can be.

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Owner(s) Town of Wrentham – Wollomonopoag Town(s) Wrentham

#### MANAGEMENT PRACTICES

to be done within next 10 years

	STD				TO BE REMOVED	
OBJ	NO	TYPE	SILVICULTURAL PRESCRIPTION	AC	BA/AC TOT VOL	TIMING

#### STEW 2-5 WO,OH,WP Commercial Thinning

33 35 100 MBF 2016 160 Cds

Harvesting in stands 4 and 5, and in the western portions of stands 2 and 3 is recommended early in this management planning period. This practice will focus on the removal of poorly formed stems and trees with less vigor or small crown size. The best quality trees will be released to promote an increase in growth rate. This harvest will improve the overall forest health and prepare the stands for future harvesting designed to establish tree regeneration. If access can be obtained from the adjacent parcel to the north, from an existing road that leads to Elysium Street, it would allow for a reduced impact on the road and trail infrastructure on this parcel. Permission will need to be sought from the owner to explore this possibility.

# STEW 2-5 WO,WP,OH Expanding Gap- Shelterwood 9 65 50 MBF 2016 75 Cds

A group shelterwood-expanding gap harvest would create gaps that are enlarged in successive treatments. A soft edge will be created over time as regenerative stems of differing ages abut one another. Three, 3 acre patches will be located in areas where overstory stems of poor quality are overstocked and regeneration levels are poor. A shelterwood would remove all stems except for acceptable regeneration and quality seed trees, allowing young trees the opportunity to grow into the midstory while letting genetically adapted overstory trees to perpetuate those traits with seed. These gaps will be expanded in future harvesting practices to promote shade intolerant species (white pine and oak) and release existing regeneration

An added benefit from the creation of canopy gaps is the invigoration of understory vegetation. Dense understories are an important habitat feature for a great variety of wildlife. Among this vegetation will be saplings of overstory trees, establishing a new generation of trees and adding to the diversity of age classes which provide the forest resiliency against disturbance.

# STEW 2-3 WO,OH,WP Commercial Thinning 31 35 90 MBF 2021 150 Cds

This harvest will follow the same recommendations as the first commercial thinning practice in this plan. The harvest area will be in the eastern portions of stands 2 and 3 that were not included in the earlier cut.

# STEW 2-3 WO,OH,WP Expanding Gap-Shelterwood 9 65 55 MBF 2021 70 Cds

This harvest will follow the same recommendations as the first expanding gap practice in this plan. The harvest area will be in the eastern portions of stands 2 and 3 that were not included in the earlier cut.

STD= stand AC= acre MSD= mean stand diameter MBF= thousand board feet BA= ba	al area VOL= volume
Owner(s) Town of Wrentham – Wollomonopoag Town(s) Wrenth	ım

#### **Guidelines for all Timber Harvesting Practices**

- 1. Slash Slash will be lopped to lie close to the ground in order to facilitate more rapid decay and to maintain a better aesthetics after the harvest. If a whole-tree chipping operation is conducted, maintaining a component of slash may be written into the contract. This will allow for beneficial woody material and nutrients to remain on the site and return to the soil.
- 2. Brush piles Contracts may be written to require the creation of small brush piles (up to 20 feet long and 4 feet in height). Brush piles are beneficial for maintaining woody material as well as for providing cover habitat for small mammals and birds.
- 3. Snags/Coarse woody material Large dead trees, both standing and dead, are quite beneficial for wildlife. Where these features can be maintained safely, the contract can specify that they are left alone.
- 4. Hiking trails Once a network of hiking trails is established, harvesting activities should be planned to minimize the disturbance to trails. Trails should be flagged prior to harvesting, and designated crossings for harvesting equipment can be identified. This will allow for the trail network to remain in place as best as possible when harvesting occurs.
- 5. Equipment Cleaning Due to the current condition of the property, with limited infestations of invasive plants, it would be wise to require that all equipment to be used in harvesting activities be power-washed prior to arriving on site. This can incur a cost when completing a project, but is greatly preferred over allowing a new invasive plant problem to start.

	STD				TO BE REMOVED	
OBJ	NO	TYPE	SILVICULTURAL PRESCRIPTION	AC	BA/AC TOT VOL	TIMING

#### STEW ALL

#### Road and Trail Mapping and Maintenance

There is an existing network of trails and roads on the property. Some of the trails constitute a good network for recreation and management of the land. Other trails have been created by unauthorized users, primarily for dirtbike use. Mapping of the roads and trails on the property and identifying problem areas could provide a very useful tool for managing the recreational resources on the property. Once all of the trails are mapped, decisions can be made as to which trails will be maintained as a formal trail network. Trail maps can be produced and provided to the recreational users. Unofficial trails can be blocked or closed, and erosion issues can then be managed. Managing unauthorized use can be a challenging issue, but it is next to impossible until the extent of the problem is known.

OBJECTIVE	CODE: CH	61 = stands classified under CH6	51/61A STEW= star	nds not classified u	nder CH61/61A
STD= stand	AC= acre	MSD= mean stand diameter	MBF= thousand board feet	BA= basal area	VOL= volume
Owner(s) T	own of Wr	rentham – Wollomonopoag	Town(s)	Wrentham	

STEV	V ALI		Invasive Plant Control	10	N/A	N/A	2016-19
OBJ NO TYPE		TYPE	SILVICULTURAL PRESCRIPTION	AC	BA/AC	TOT VOL	TIMING
STD TYPE		TVDE	CALLARD A PRESCRIPTION		TO BE R	REMOVED	TD (D) (C

Invasive plants exist in low levels in several portions of the property. By applying control efforts now, efforts will be low while maintaining effective control. As these plants become more established, they become harder to kill and have produced many seasons worth of seed that can lay dormant in the soil for many years. Non-chemical measures may be appropriate with such mild infestations. Group weed pulling events could be utilized to use volunteers for important conservation work and education on the importance of native plants.

STEW ALL Boundary Marking ALL N/A N/A 2016/25

The Forest Stewardship Program recommends keeping property boundaries visibly painted. Well-marked boundaries help to prevent trespass issues and allow for more efficient implementation of management activities. The boundaries on this property are marked in some locations by the abutters, but are not marked in other locations. The boundaries will be marked by painting or other form of marking of trees on both sides of property lines, prior to conducting other management activities in this plan. The status of the boundaries will be re-examined at the end of this management planning period to determine additional maintenance necessary.

OBJECTIVE CODE: CH61 = stands classified under CH61/61A STEW= stands not classified under CH61/61A STD= stand AC= acre MSD= mean stand diameter MBF= thousand board feet BA= basal area VOL= volume Owner(s) Town of Wrentham – Wollomonopoag Town(s) Wrentham

### **Stewardship Issues**

Massachusetts is a small state, but it contains a tremendous variety of ecosystems, plant and animal species, management challenges, and opportunities. This section of your plan will provide background information about the Massachusetts forest landscape as well as issues that might affect your land. The Stand Descriptions and Management Practices sections of your plan will give more detailed property specific information on these subjects tailored to your management goals.



**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.

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. Non-native invasives like European Buckthorn, Asiatic Bittersweet, and Japanese Honeysuckle spread quickly, crowding out or smothering native species and upsetting and dramatically altering ecosystem structure and function. Once established, invasives are difficult to control and even harder to eradicate. Therefore, vigilance and early intervention are paramount.

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"). See more about how you can manage your land with biodiversity in mind in the "Wildlife" section below. (Also refer to *Managing Forests to Enhance Wildlife Diversity in Massachusetts* and *A Guide to Invasive Plants in Massachusetts* in the binder pockets.)



**Rare 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 woodled 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. The maps of your property will be compared to these rare species maps and the result indicated on the upper right corner of the front page of the plan. Prior to any

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regulated timber harvest, if an occurrence does show on the map, the NHESP will recommend protective measures. Possible measures include restricting logging operations to frozen periods of the year, or keeping logging equipment out of sensitive areas. You might also use information from NHESP to consider implementing management activities to improve the habitat for these special species.



**Riparian and Wetlands Areas:** 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.

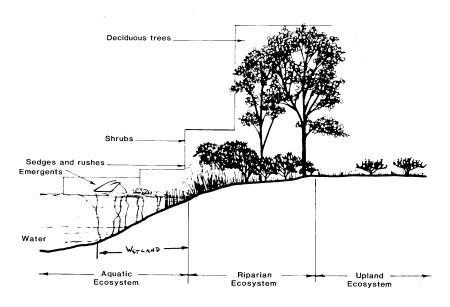


Figure 1: Example of a riparian zone.

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 keeps 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.

**Recreational opportunities:** Our lakes, rivers, streams, and ponds are often focal points for recreation. We enjoy them when we boat, fish, swim, or just sit and enjoy the view.

In order to protect wetlands and riparian areas and to prevent soil erosion during timber harvesting activities, Massachusetts promotes the use of "Best Management Practices" or BMPs. Maintaining or reestablishing the protective vegetative layer and protecting critical areas are the two rules that underlie these common sense measures. DCR's Massachusetts Forestry Best Practices Manual (included with this plan) details both the legally required and voluntary specifications for log landings, skid trails, water bars, buffer strips, filter strips, harvest timing, and much more.

The two Massachusetts laws that regulate timber harvesting in and around wetlands and riparian areas are the Massachusetts Wetlands Protection Act (CH 131), and the Forest Cutting Practices Act (CH132). Among other things, CH132 requires the filing of a cutting plan and on-site inspection of a harvest operation by a DCR Service Forester to ensure that required BMPs are being followed when a commercial harvest exceeds 25,000 board feet or 50 cords (or combination thereof).



**Soil and Water Quality:** Forests provide a very effective natural buffer that holds soil in place and protects the purity of our water. The trees, understory vegetation, and the organic material on the forest floor reduce the impact of falling rain, and help to insure that soil will not be carried into our streams and waterways.

To maintain a supply of clean water, forests must be kept as healthy as possible. Forests with a diverse mixture of vigorous trees of different ages and species can better cope with periodic and unpredictable stress such as insect attacks or windstorms.

Timber harvesting must be conducted with the utmost care to ensure that erosion is minimized and that sediment does not enter streams or wetlands. Sediment causes turbidity which degrades water quality and can harm fish and other aquatic life. As long as Best Management Practices (BMPs) are implemented correctly, it is possible to undertake active forest management without harming water quality.



**Forest Health:** Like individual organisms, forests vary in their overall health. The health of a forest is affected by many factors including weather, soil, insects, diseases, air quality, and human activity. Forest owners do not usually focus on the health of a single tree, but are concerned about catastrophic events such as insect or disease outbreaks that affect so many individual trees that the whole forest community is impacted.

Like our own health, it is easier to prevent forest health problems then to cure them. This preventative approach usually involves two steps. First, it is desirable to maintain or encourage a wide diversity of tree species and age classes within the forest. This diversity makes a forest less susceptible to a single devastating health threat. Second, by thinning out weaker and less desirable trees, well-spaced healthy individual trees are assured enough water and light to thrive. These two steps will result in a forest of vigorously growing trees that is more resistant to environmental stress.

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**Fire:** Most forests in Massachusetts are relatively resistant to catastrophic fire. Historically, Native Americans commonly burned certain forests to improve hunting grounds. In modern times, fires most often result from careless human actions. The risk of an unintentional and damaging fire in your 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 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.

Depending on the type of fire and the goals of the landowner, fire can also be considered as a management tool to favor certain species of plants and animals. Today the use of prescribed burning is largely restricted to the coast and islands, where it is used to maintain unique natural communities such as sandplain grasslands and pitch pine/scrub oak barrens. However, state land managers are also attempting to bring fire back to many of the fire-adapted communities found elsewhere around the state.



**Wildlife Management:** Enhancing the wildlife potential of a forested property is a common and important goal for many woodland owners. Sometimes actions can be taken to benefit a particular species of interest (e.g., put up Wood Duck nest boxes). In most cases, recommended management practices can benefit many species, and fall into

one of three broad strategies. These are managing for diversity, protecting existing habitat, and enhancing existing habitat.

Managing for Diversity – 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 your property through active management. The appropriate mix of habitat types will primarily depend on the composition of the surrounding landscape and your objectives. It may be a good idea to create a brushy area where early successional habitats are rare, but the same practice may be inappropriate in the area's last block of mature forest.

**Protecting Existing Habitat** – This strategy is commonly associated with managing for rare species or those species that require unique habitat features. These habitat features include vernal pools, springs and seeps, forested wetlands, rock outcrops, snags, den trees, and large blocks of unbroken forest. Some of these features are rare, and they provide the right mix of food, water, and shelter for a particular species or specialized community of wildlife. It is important to recognize their value and protect their function. This usually means not altering the feature and buffering the resource area from potential impacts.

**Enhancing Existing Habitat** – This strategy falls somewhere between the previous two. One way the wildlife value of a forest can be enhanced is by modifying its structure (number of canopy layers, average tree size, density). Thinning out undesirable trees from around large crowned mast (nut and fruit) trees will allow these trees to grow faster and produce more food. The faster growth will also accelerate the development of a more mature forest structure, which is important for some species. Creating small gaps or forest openings generates groups of seedlings and saplings that provide an additional layer of cover, food, and perch sites.

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Each of these three strategies can be applied on a single property. For example, a landowner might want to increase the habitat diversity by reclaiming an old abandoned field. Elsewhere on the property, a stand of young hardwoods might be thinned to reduce competition, while a "no cut" buffer is set up around a vernal pool or other habitat feature. The overview, stand description and management practice sections of this plan will help you understand your woodland within the context of the surrounding landscape and the potential to diversify, protect or enhance wildlife habitat.



**Wood Products:** If managed wisely, forests can produce a periodic flow of wood products on a sustained basis. Stewardship encompasses finding ways to meet your current needs while protecting the forest's ecological integrity. In this way, you can harvest timber and generate income without compromising the opportunities of future generations.

Massachusetts forests grow many highly valued species (white pine, red oak, sugar maple, white ash, and black cherry) whose lumber is sold throughout the world. Other lower valued species (hemlock, birch, beech, red maple) are marketed locally or regionally, and become products like pallets, pulpwood, firewood, and lumber. These products and their associated value-added industries contribute between 200 and 300 million dollars annually to the Massachusetts economy.

By growing and selling wood products in a responsible way you are helping to our society's demand for these goods. Harvesting from sustainably managed woodlands — rather than from unmanaged or poorly managed forest — benefits the public in a multitude of ways. The sale of timber, pulpwood, and firewood also provides periodic income that you can reinvest in the property, increasing its value and helping you meet your long-term goals. Producing wood products helps defray the costs of owning woodland, and helps private landowners keep their forestland undeveloped.



**Cultural Resources:** Cultural resources are the places containing evidence of people who once lived in the area. Whether a Native American village from 1,700 years ago, or the remains of a farmstead from the 1800's, these features all tell important and interesting stories about the landscape, and should be protected from damage or loss.

Massachusetts has a long and diverse history of human habitation and use. Native American tribes first took advantage of the natural bounty of this area over 10,000 years ago. Many of these villages were located along the coasts and rivers of the state. The interior woodlands were also used for hunting, traveling, and temporary camps. Signs of these activities are difficult to find in today's forests. They were obscured by the dramatic landscape impacts brought by European settlers as they swept over the area in the 17<sup>th</sup> and 18<sup>th</sup> centuries.

By the middle 1800's, more than 70% of the forests of Massachusetts had been cleared for crops and pastureland. Houses, barns, wells, fences, mills, and roads were all constructed as woodlands were converted for agricultural production. But when the Erie Canal connected the Midwest with the eastern cities, New England farms were abandoned for the more productive land in the Ohio River valley, and the landscape began to revert to forest. Many of the abandoned buildings were disassembled and moved, but the supporting stonework and other changes to the landscape can be easily seen today.

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One particularly ubiquitous legacy of this period is stone walls. Most were constructed between 1810 and 1840 as stone fences (wooden fence rails had become scarce) to enclose sheep within pastures, or to exclude them from croplands and hayfields. Clues to their purpose are found in their construction. Walls that surrounded pasture areas were comprised mostly of large stones, while walls abutting former cropland accumulated many small stones as farmers cleared rocks turned up by their plows. Other cultural features to look for include cellar holes, wells, old roads and even old trash dumps.



**Recreation and Aesthetic Considerations:** 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 tree, for example. When a landowner's goals include timber, thoughtful forest management can be used to accomplish silvicultural objectives while also reaching recreational and/or aesthetic objectives. For example, logging trails might be designed to provide a network of cross-country ski trails that lead through a variety of habitats and reveal points of interest.

If aesthetics is a concern and you are planning a timber harvest, obtain a copy of this excellent booklet: A Guide to Logging Aesthetics: Practical Tips for Loggers, Foresters & Landowners, by Geoffrey T. Jones, 1993. (Available from the Northeast Regional Agricultural Engineering Service, (607) 255-7654, for \$7). Work closely with your consultant to make sure the aesthetic standards you want are included in the contract and that the logger selected to do the job executes it properly. The time you take to plan ahead of the job will reward you and your family many times over with a fuller enjoyment of your forest, now and well into the future.



**Invasive Species Management:** Invasive species pose immediate and long-term threats to the woodlands of MA. 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 websites of the Invasive Plant Atlas of New England, <a href="https://www.newfs.org">www.newfs.org</a> are excellent sources of information regarding the identification and

management of invasive plants. Some of the common invasive plants found in MA are listed below.

- Oriental Bittersweet (Celastrus orbiculata)
- Glossy Buckthorn (Frangula alnus)
- Multiflora Rose (Rosa multiflora)
- Japanese Barberry (Berbis thunbergii)
- Japanese Knotweed (Fallopia japonica)
- Autumn Olive (Eleaeagnus umbellata)

Early detection and the initiation of control methods soon after detection are critical to suppressing the spread of invasive species. Selective application of the proper herbicide is often the most effective control method. See the next section for information on the use of chemicals in forest management activities.

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#### **Pesticide Use**

Pesticides such as herbicides, insecticides, fungicides, and rodenticides are used to control "pests". A pest is any mammal, bird, invertebrate, plant, fungi, bacteria or virus deemed injurious to humans and/or other mammals, birds, plants, etc. The most common forest management use of a pesticide by woodland owners is the

application of herbicide to combat invasive species. MA DCR suggests using a management system(s) that promotes the development and adoption of environmentally friendly no-chemical methods of pest management that strives to avoid the use of chemical pesticides. If chemicals are used, proper equipment and training should be utilized to minimize health and environmental risks. In Massachusetts, the application of pesticides is regulated by the MA Pesticide Control Board. For more information, contact MA Department of Agricultural Resources (MDAR), Pesticide Bureau at (617) 626-1776

On MA Private Lands Group Certification member properties, no chemicals listed in CHEMICAL PESTICIDES IN CERTIFIED FORESTS: INTERPRETATION OF THE FSC PRINCIPLES AND CRITERIA, Forest Stewardship Council, Revised and Approved, July 2002, may be used.

**This is your Stewardship Plan.** It is based on the goals that you have identified. The final success of your Stewardship Plan will be determined first, by how well you are able to identify and define your goals, and second, by the support you find and the resources you commit to implement each step.

It can be helpful and enjoyable to visit other properties to sample the range of management activities and see the accomplishments of others. This may help you visualize the outcome of alternative management decisions and can either stimulate new ideas or confirm your own personal philosophies. Don't hesitate to express your thoughts, concerns, and ideas. Keep asking questions! Please be involved and enjoy the fact that you are the steward of a very special place.



Signature Page Please check each b	ox that applies.
	he period of classification, I am under ons of this plan which become his/hers to
	riod of the plan, I will notify the Department of
and MA private lands group certification for a Certification you must also check the box below  Tax considerations. I attes	
Signed under the pains of perjury:	
Owner(s)	Date
Owner(s)	Date
I attest that I have prepared this plan in good fa	aith to reflect the landowner's interest.
Plan Preparer	Date
I attest that the plan satisfactorily meets the reg Stewardship Program.	quirements of CH61/61A and/or the Forest
Approved, Service Forester	Date
Approved, Regional Supervisor	Date
	part of the property, the new owner must file an n the transfer of title to insure continuation of Ch.
Owner(s) Town of Wrentham	Town(s)Wrentham
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