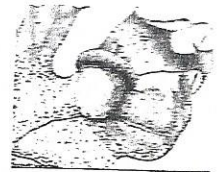




FOREST MANAGEMENT PLAN

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



CHECK-OFFS					Administrative Box			
CH61	CH61A	CH61B	STWSHP	C-S9(NRCS)	Case No.	Orig. Case No.		
cert. <input type="checkbox"/>	cert. <input type="checkbox"/>	cert. <input type="checkbox"/>	new <input checked="" type="checkbox"/>	EEA <input type="checkbox"/>	Owner ID	Add. Case No.		
recert. <input type="checkbox"/>	recert. <input type="checkbox"/>	recert. <input type="checkbox"/>	renew <input type="checkbox"/>	Other <input checked="" type="checkbox"/>	Date Rec'd	Ecoregion		
amend <input type="checkbox"/>	amend <input type="checkbox"/>	amend <input type="checkbox"/>	Green Cert <input type="checkbox"/>		Plan Period	Topo Name <u>Ipswich & Lawrence</u>		
Plan Change: _____ to _____				Conservation Rest. <input type="checkbox"/>	Rare Sp. Hab.	River Basin <u>Ipswich</u>		
				CR Holder _____				

OWNER, PROPERTY, and PREPARER INFORMATION

Property Owner(s) H. Michael Smolak, Jr. (Small Oxx Farm)
 Mailing Address 494 Ipswich Road Boxford, MA 01921 Phone 978-688-8058

Property Location: Town(s) Boxford Road(s) Ipswich Road and Main Street

Plan Preparer Richard W. Kulis TSP Mass. Forester License # 131
 Mailing Address P.O. Box 1372 Greenfield, MA 01302 Phone 413-863-8071

RECORDS

Assessor's Map No.	Lot/Parcel No.	Deed Book	Deed Page	Total Acres	Ch61/61A 61B Excluded Acres	Ch61/61A 61B Certified Acres	Stewshp Excluded Acres	Stewshp Acres
<u>17</u>	<u>01-07</u>	<u>7561</u>	<u>421</u>	<u>41.5</u>			<u>0</u>	<u>41.5</u>
TOTALS				<u>41.5</u>			<u>0</u>	<u>41.5</u>

Excluded Area Description(s) (if additional space needed, continue on separate paper)

HISTORY Year acquired 2004 Year management began 2011

Are boundaries blazed/painted? Yes No Partially

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

stand no. _____ treatment _____ reason _____
 (if additional space needed, continue on separate page)

Previous Management Practices (last 10 years)

Stand #	Cutting Plan #	Treatment	Yield	Value	Acres	Date
_____	_____	_____	_____	_____	_____	_____

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



Property Overview, Regional Significance, and Management Summary

The 41.5 acres of the H. Michael Smolak, Jr. forestland property, known as the Small Oxx Farm, elevation 225' is located on the south side of Ipswich Road and west side of Main Street in the town of Boxford Massachusetts. Boxford was settled in 1645 and incorporated in 1685. The town is located in the geographic center of Essex County. It is heavily forested with numerous streams, brooks, and ponds. Farming remains today as a great agricultural asset for Boxford since early it was farming that formed the structural framework for town's history, development, and the current rural atmosphere. This is evident today by the many stonewalls that farm roads that meander through the area. The glacial period had deposited extremely rich, stone free, fertile soils produce exceptional agricultural crops and forests. The surrounding rolling hills and plateaus are known for high quality sawtimber white pine, red oak, and abundant cordwood.

This hill top area has been actively farmed and pastured for the past 150 years. The local land use patterns show that many Boxford farms that were very active until the early to mid 1900's They eventually became no longer profitable and land values increased substantially. This resulted in fragmentation of considerable farm acreage with house lots being sold and pasture and hay land reverting to woodland. The property clearly has evidence of past farming use and subsequent farmland abandonment. Wire fences and stone walls follow boundary lines where cattle and sheep were pastured. Old farm roads are evident in the forest where once it was cleared or pastured long Ipswich Road and Main Street. The topography of the woodland is characterized by rolling upland terraced rocky plateaus with glacial boulders and slight to moderately slopes. The dominant forest types of the woodland are mixed oak hardwoods with a strong red oak component, white pine, and northern hardwoods. Tree diameters range from 6" to 24" DBH with good to excellent quality, and no observed forest health issues. Tree species include northern red oak, black oak, white oak, white pine, black birch, white birch, ash, red maple, a minimal amount of beech. The oak-hardwood forest type was valued by early hilltop farms for timber and cordwood. Northern red oak provided structural beams, flooring, and excellent firewood. White pine, oak, and northern hardwoods regenerated as the result of farmland and pastureland abandonment 75 to 150 years ago. The average age of the forest is 40 to 80 years with scattered older age red oak and white pine. The property has a northwest and northeast aspect.

The soils of the woodland are the Canton, Charlton, Deerfield, and Sutton soil series that formed in loose glacial deposits. Canton soils are soils are very stony fine sandy loam. The Charlton soil series represent soils that are very stony fine sandy loam with slopes of 3-25%. The Deerfield fine sandy loam soils are well drained and suited to agricultural or forestry use. The Sutton soil series are very stony fine sandy loam with slopes of 3 to 15%. Red oak, black oak, white pine, and northern hardwoods regenerate in areas that have these four soil series, especially where farmland and pastureland abandonment has occurred. Excellent wildlife habitat and periodic heavy oak mast production is present in forestlands that contain the Canton, Charlton, Deerfield, and Sutton soil series.

A history of disturbance occurred during the 1980's when a heavy Gypsy Moth infestation caused moderate defoliation of northern red oak and hemlock on the woodland. Limited tree decline occurred, but the forestland has since recovered. No NHESP habitat has been identified on this property.



Property Overview, Regional Significance, and Management Summary

The Department of Recreation and Conservation (DCR) owns, and manages the 541 acres Boxford State Forest, the 114 acre Willowdale State Forest, and the 24 acre Georgetown Rowley State Forest within the town of Boxford. Cultural features on the property include picturesque stone walls which bound the complete property and a series of unique woodland farm roads. The aesthetic quality of the property is found in its rural land character, unique woodland highland plateaus, the adjacent extensive wetlands to the south, and the landscape of forested stands which originated from farmland and pasture abandonment.

Since no previous forest management has occurred on the H. Michael Smolak woodland, the management planned will be to improve the forest health, growth, quality, and structure through sound recommended silvicultural practices, assuring that wildlife is a high priority, protecting the integrity of the site, water quality, scenic beauty, improving forest access, and maintaining woodland boundaries. In addition, since wildlife habitat is also a Stewardship objective, red oak regeneration will be a high priority. The local economy will benefit from the Stewardship Management recommendations by providing future forest products, fuelwood, wildlife habitat enhancement, and continued scenic beauty for the local area.

Owner(s) H. Michael Smolak, Jr.

Town(s) Boxford

STAND DESCRIPTIONS

OBJ	STD NO	TYPE	AC	MSD OR SIZE-CLASS	BA/AC	VOL/AC	SITE INDEX
STEW	1	OM	32.3	13.5"	102Sqft	9.2MBF 10.5Cds	RO 62

This is a mixed oak stand the dominant position trees being black oak (29%) and red oak (22%) with associate species of red maple, black birch, yellow birch and white pine. Many of the oak stems are of excellent quality. Some stems do show epicormic branching on the main bole; this was probably due to prior gypsy moth defoliation 20 + years ago. The stand shows very little evidence of any recent cutting no stumps were observed through most of the stand, the north central area of the stand had some cutting 10 + years ago. Most oaks are of single stem origination but several areas showed to have originated from stump sprout. The understory contained low to no oak seedlings, many areas had a stocking of white pine saplings approximately 20-25 years old but most could not be considered viable regeneration as most stems have been overtopped and suppressed to long and they are starting to decline. Red maple and yellow birch sapling were also observed randomly through out the stand. The herbaceous layer contained sporadic amounts of low bush blue berry, lycopodium, Canada mayflower, and star wart. The terrain is flat to rolling in the southern end and a gentle 5-10% slope in the northern end. It has southerly aspect with good sunlight exposure for tree growth. The soils are mainly Charlton very fine sandy loam and Sutton very fine sand loam both types moderately drained and suitable for trees and woodland wildlife habitat. The desired future condition of this stand would be to long create conditions favorable to the regeneration of oak Favor and foster red oak when possible. A series of light cutting should be to allow the residual stand to adjust to the increased light and crown space available before any attempt to regenerate the stand is done.

STEW	2	WH	5.8	17.5 "	150Sqft	17.6 MBF 5.2Cds	WP 68
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This stand has White pine (80%) as the major overstory species and associate species (20%) of red maple, black oak, red oak and yellow birch. It has a large mean stand diameter, 50 % of the trees in the unacceptable growing stock category. The understory has low to no seedlings present but contains a strong stocking of white pine saplings 20-25 years old, unfortunately most have been overtopped and suppressed to long to be considered as viable replacement regeneration. The stand is located at the top of a slope and is dry and generally flat to slightly sloping 5%to the north. It has an excellent aspect for growing white pine. The soils of the stand are the Sutton very stony loam and Charlton very stony loams; Both are moderately drained with no equipment limitations, well suited to growing trees and woodland wildlife habitat. The herbaceous layer contained low bush, blueberry, Canada mayflower and lycopodium. The duff layer had many cones present from the prior years development there may be a seed bed component present from these cones if it is operated scarification would aid the regeneration. The desired future condition of the stand would be to maintain the type through the use of a stage shelterwood harvest remove the stand in 2 cuts. The first cut would remove the poor quality trees and create gaps in the canopy to create and foster conditions favorable to white seedling regeneration. Maintain the remaining overstory until an acceptable amount of white seedling and saplings are present.

STAND DESCRIPTIONS

OBJ	STD NO	TYPE	AC	MSD OR SIZE-CLASS	BA/AC	VOL/AC	SITE INDEX
STEW	3	RM	3.4	8.5"	60Sqft	1.5 MBF 7Cds	RM 55

This is primarily a typical red maple stand associates of yellow birch, American elm and an occasional red or black oak on the drier north and south shoulders of the stand. The understory contain no seedling and only scattered red maple and yellow birch saplings. High bush blueberry, alders and winter berry are present in the shrub layer. The herbaceous layer contains sensitive fern, skunk cabbage, Canada may flower, burdock, and sedges. The terrain is flat and low sloping to the west. The soils are typed as Canton and Charlton extremely stony fine sandy loams, this would apply to the north and south shoulders of the stand the center portion is a poorly drained muck with a high organic content. There is an access road that crosses the stand on the western side of this road should be maintained for general access purposes to the remaining forest. The desired future condition of this stand would be to maintain the type as is remove trees only on a salvage or maintenance basis.

Volumes and site index

Volumes were determined by using the USFS NEDs volume and tally system
Site index was determined by referencing the soils information.

Continue to monitor forest health review with licensed professional forester

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) H. Michael Smolak, Jr.

Town(s) Boxford

MANAGEMENT PRACTICES
to be done within next 10 years

OBJ	STD NO	TYPE	SILVICULTURAL PRESCRIPTION	AC	TO BE REMOVED		TIMING
					BA/AC	TOT VOL	
STEW	1	OM	Selection /improvement Cut	15	30Sqft	60 MBF 120 Cds	2011-2016

This cut will focus on removing the poorest quality sawlogs, firewood and pulp. It will be relatively light; trees will be harvested in singular selection or small groups of one to three trees. The goal is to improve the conditions of spacing and crown expansion for the residual stand. This light cut will allow the residual stand to adjust to the increased light conditions. Care should be take so as not to remove the trees that would provide shade for high quality boles with a southern aspect, protect against the encouragement of epicormic branching. The stand should be re-evaluated after 5 years of the completion of the cut; the ultimate goal would be to regenerate the stand to red oak. The next cut would be a regeneration cut using a shelterwood, group selection or patch cut silvicultural system.

STEW	2	WH	Two Step Shelterwood	5.8	65Sqft	44 MBF 60 Cds pulp	2011-2016
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This cut is the first stage of a two step shelterwood harvest. It will focus on removing the unacceptable growing stock, poorly formed, poorly spaced, forked, or multi stemmed white pine. Trees will be harvested within the stand in two stages. The period between the cuts will allow for the development and establishment of white pine seedlings and saplings, allowing the new stand to grow under partial shade protecting against weevil damage. Since the stand is on a small hill top, residual trees should be left in small clusters to protect against wind throw. The stand should be reevaluated after 5 to 8 years of the completion of the cut with the ultimate goal to regenerate the stand to white pine with a scattering of red and black oak.

STEW	3	RM	Salvage / Maintenance	N/A		N/A	N/A
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No treatment recommended at this time. Salvage any dead or damaged trees as they appear as maintenance or salvage type of cutting.

OBJECTIVE CODE: CH61 = Forest Products (for Ch. 61/61A) STEW= Stewardship Program practices
 STD= stand Type= Forest type AC= acre MBF= thousand board feet BA= basal area VOL= volume

Owner(s) H. Michael Smolak, Jr.

Town(s) Boxford

MANAGEMENT PRACTICES SUMMARY
to be done within next 10 years

STEW Blaze and paint western and southern boundary lines 2011-2012

In Addition to the silvicultural practices described in this Forest Management Plan, the woodland boundaries should be discernable and maintained. Blazing, painting, and permanent identification of corner boundaries corner is recommended. Whenever possible, permanent blazing and painting of boundary lines should be completed in coordination with the adjacent owners, utilizing the recent survey information and established corners

STEW Maintain and upgrade old farm access roads and trails 2011-2021

The availability of internal and neighboring access road systems provide ease of removal of forest products and will additionally increase the timber and cordwood value. Existing farm and past harvesting roads should be maintained to provide access for fire protection, forest management, recreational walking, hiking, and cross country skiing. The USDA WHIP and EQUIP cost/share programs may offer financial assistance for erosion control measures for farm access roads.

STEW Protect privacy and scenic beauty Annually

Privacy and scenic beauty, a desired future condition, is achieved through practicing best management practices, using professional forester advice and following the written forest management plan.

STEW Monitor for Gypsy Moth, and invasive plant species Annually

The USDA WHIP and Equip cost/share programs may offer financial assistance for controlling invasive shrubs and vines.

STEW Maintain biological stand diversity and encourage northern red oak mast 2011-2021

Leave den and snag trees for wildlife use Create den trees by girdling low quality course trees. Nesting boxes could be installed for bats, wood ducks and owls as the property contains excellent opportunities for their use if made available. Create course brush piles for ground nesting and cover wildlife habitat. The exceptional wildlife habitat throughout the property is primarily due to the close proximity of the active agricultural fields and nearby red oak stands. This wide diversity of upland wildlife ranging from song birds, owls, small mammals, medium mammals, deer, and wild turkey will all benefit through careful planning, design, and implementing silvicultural practices. Care should be used when harvesting or commercial thinning adjacent to the early successional regeneration, seasonal wetlands, mast den, and snag trees. . USDA WHIP cost/share incentives may offer financial assistance for wildlife projects.

OBJECTIVE CODE: CH61 = Forest Products (for Ch. 61/61A)

STD= stand Type= Forest type

AC= acre

MBF= thousand board feet

BA= basal area VOL= volume

Owner(s) H. Michael Smolak, Jr.

Town(s) Boxford

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 Richard W. Kusler Date 05/26/2011

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

Approved, Service Forester _____ Date _____

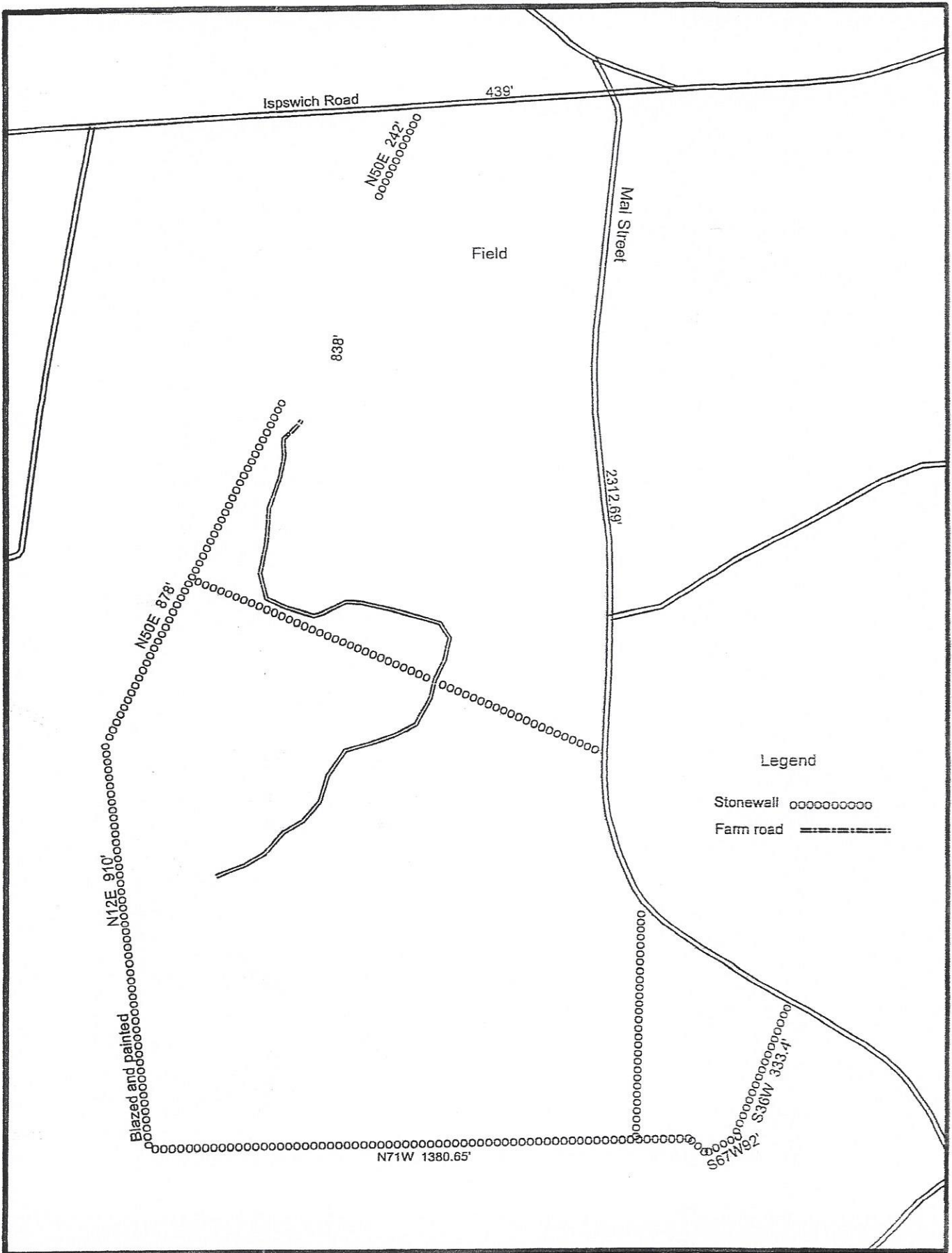
Approved, Regional Supervisor _____ Date _____

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) H. Michael Smolak, Jr.

Town(s) Boxford, MA

H. Michael Smolak, Jr.
Boxford, MA



Prepared by Richard W. Kulis, TSP Forester 05/16/2011
Use for Forest Management

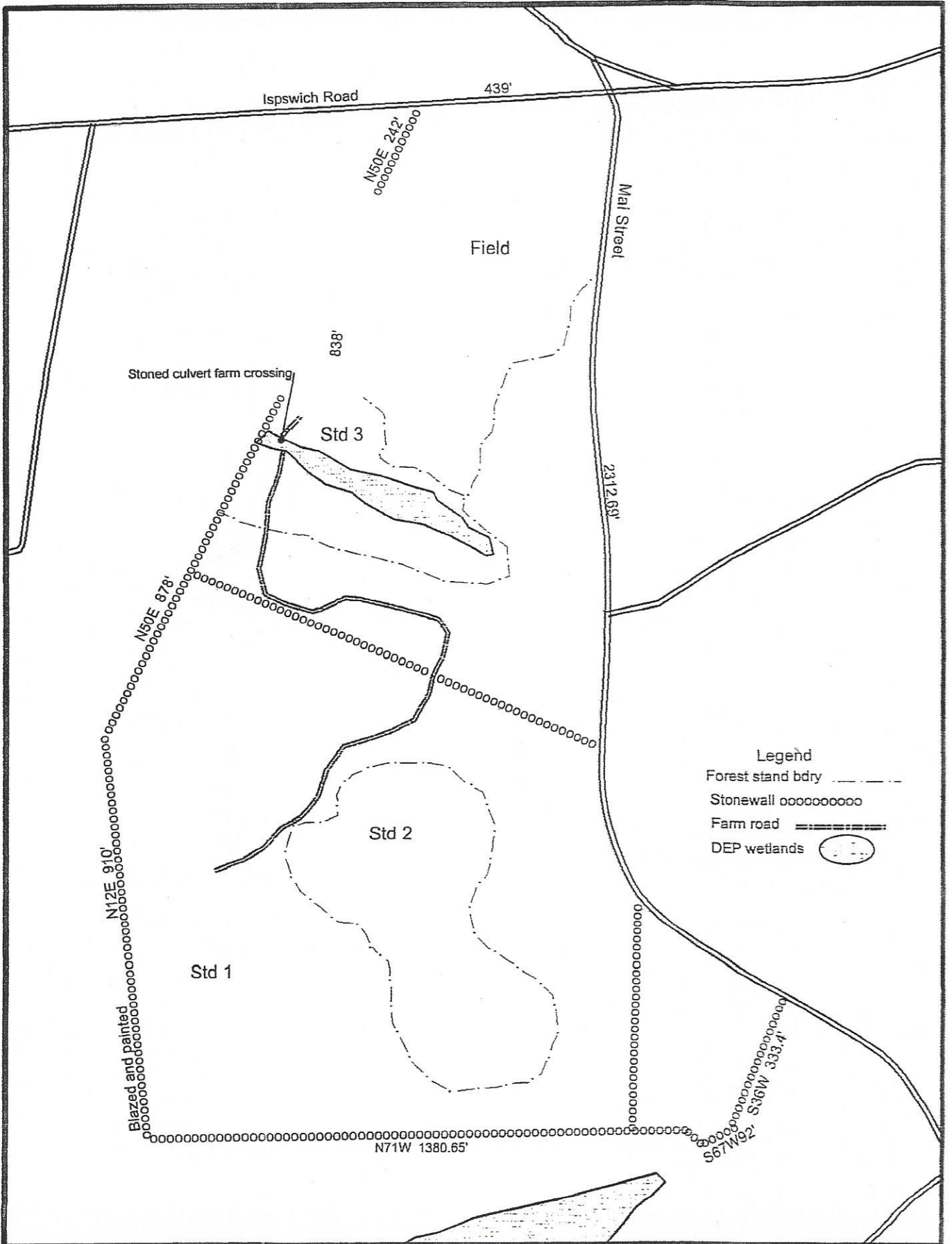
Source: MA GIS
Morse, Dickinson, and Goodwin Engineers Survey Map 1941

Boundary Map

40.1 Acres

Scale: 1"=200'

H. Michael Smolak, Jr.
Boxford, MA



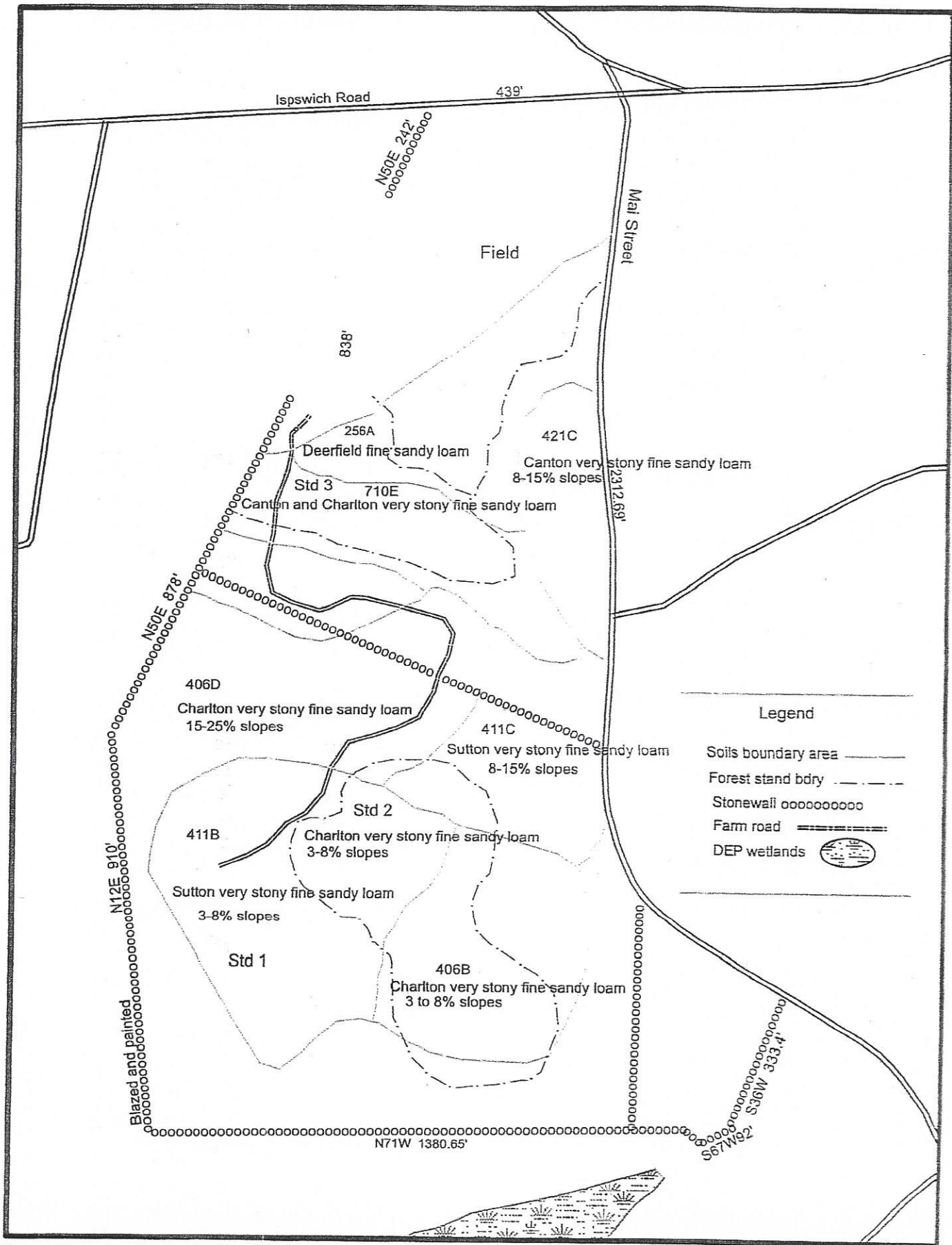
Prepared by Richard W. Kulis, TSP Forester 05/16/2011
Use for Forest Management

Forest Type Map
(44.5 Acres Forestland)

Source: MA GIS
Morse, Dickinson, and Goodwin Engineers Survey Map 1941

Scale: 1"=300'

H. Michael Smolak, Jr.
 Boxford, MA

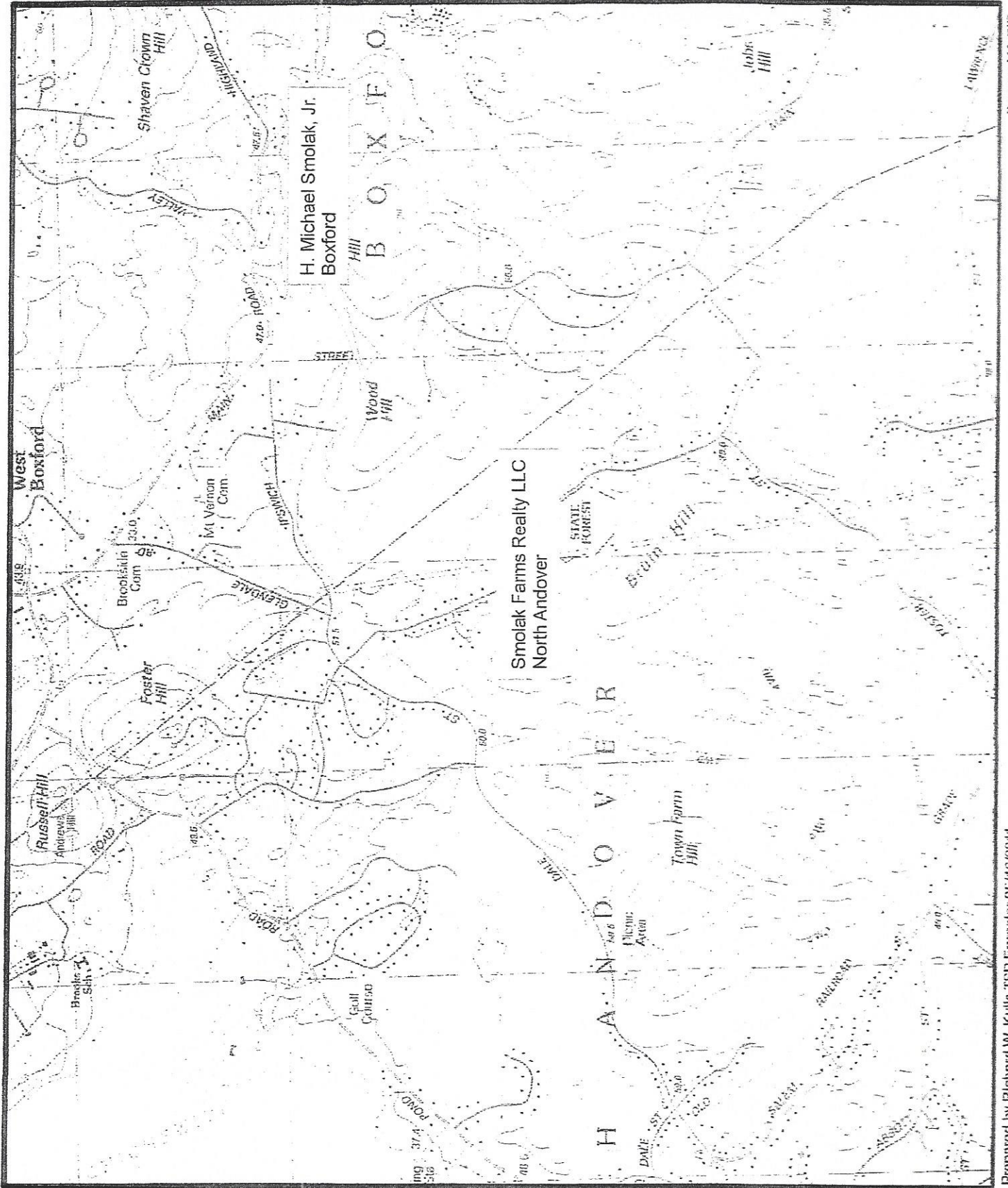


Prepared by Richard W. Kulis, TSP Forester 05/16/2011
 Use for Forest Management

Soils Map

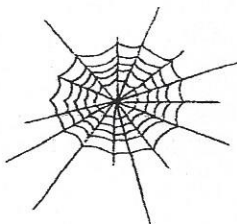
Source: MA GIS
 USDA NRCS Soil Information Data

Boxford



Stewardship Issues

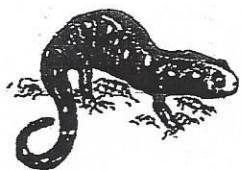
Massachusetts is a small state, but it contains a tremendous variety of ecosystems, plant and animal species, management challenges, and opportunities. This section of your plan will provide background information about the Massachusetts forest landscape as well as issues that might affect your land. **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 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. 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

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.

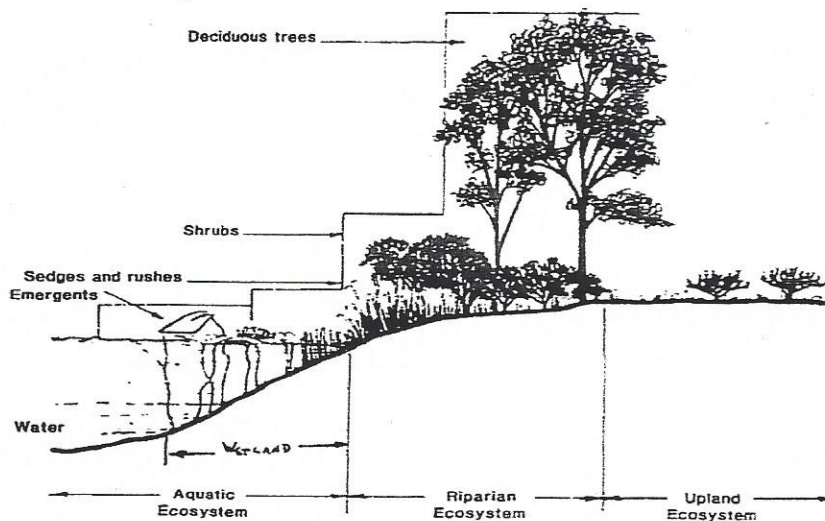


Figure 1: Example of a riparian zone.

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 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.

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 than 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.



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

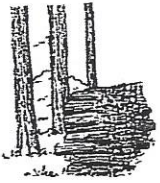
one of three broad strategies. These are **managing for diversity, protecting existing habitat, and enhancing existing habitat.**

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.

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 17th and 18th 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.

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.

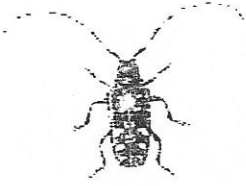
If aesthetics is a concern and you are planning a timber harvest, obtain a copy of this excellent booklet: *A Guide to Logging Aesthetics: Practical Tips for Loggers, Foresters & Landowners*, by Geoffrey T. Jones, 1993. (Available from the Northeast Regional Agricultural Engineering Service, (607) 255-7654, 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, www.nbii-nin.ciesin.columbia.edu/ipane, and the New England Wildflower Society, www.newfs.org 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 (*Berberis thunbergii*)
- Japanese Knotweed (*Fallopia japonica*)
- Autumn Olive (*Eleaagnus 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.



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.





Forest Management Plan

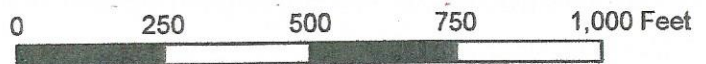
Michael Smolak
Small Ox Farm
Boxford, MA 01845

Field Office: USDA Westford Service Center
Agency: MA Assoc. of Conservation Districts
Assisted by: Elizabeth McGuire 4/11/2012



Legend

-  Forest Management Stands
-  Planned Land Units Tract 1280



2008 aerial

Small Oxx Management Plan

Michael Smolak
Smolak Farm LLC
315 S. Bradford St.
North Andover, MA 01845

Field Office: USDA Westford Service Center
Agency: MA Assoc. of Conservation Districts
Assisted by: Elizabeth McGuire 10/16/2014



Legend

 SmallOxx



1 inch = 350 feet

