Forest Stewardship Management Plan

For

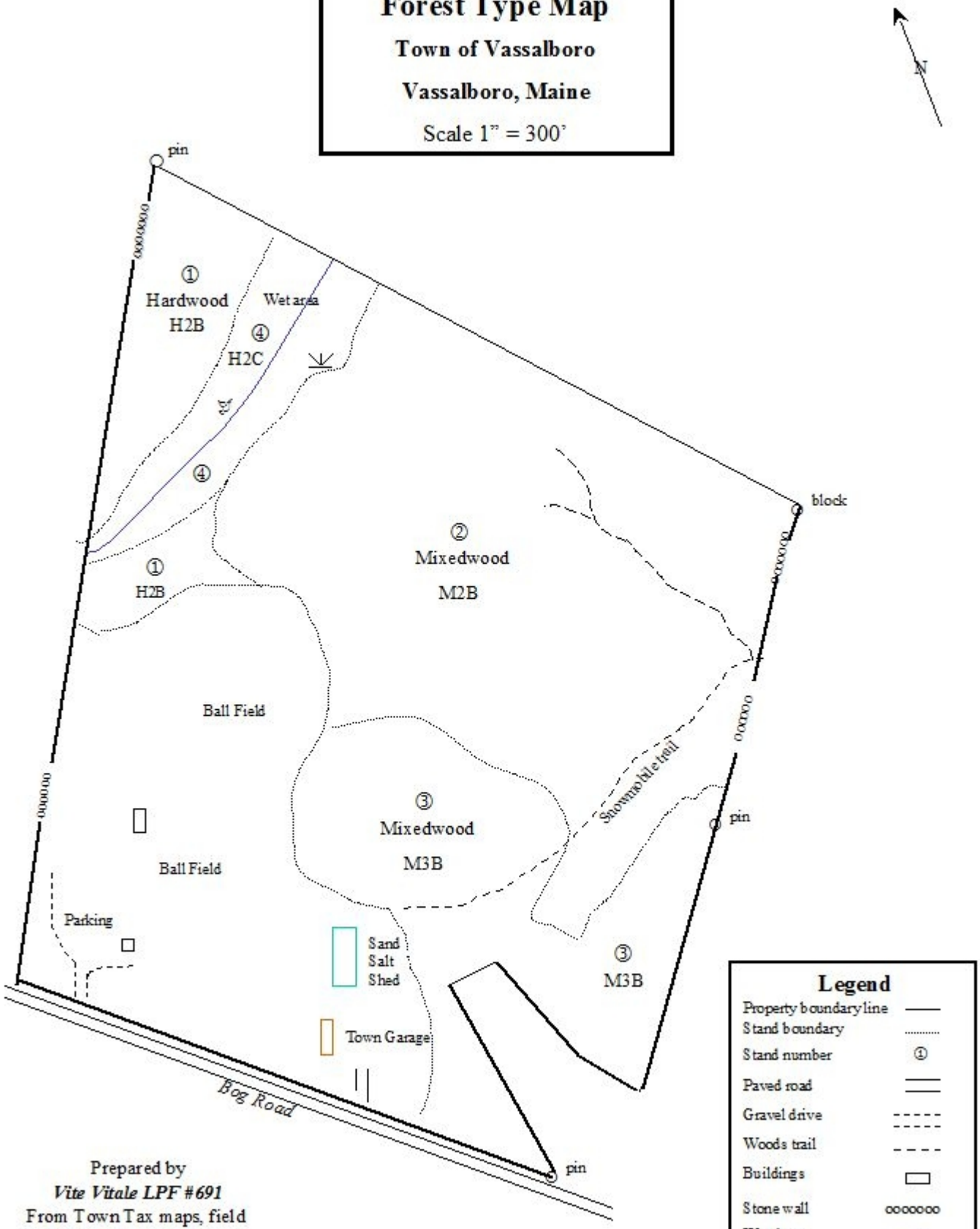
The Town of Vassalboro

Forest Type Map

Town of Vassalboro

Vassalboro, Maine

Scale 1" = 300'



Prepared by
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From Town Tax maps, field reconnaissance, aerial photos, & GPS receiver
August, 2003

Not a legal survey

Section I

Introduction

This forest management plan has been developed for The Town of Vassalboro, Maine, by the Vassalboro Tree Conservation Committee using the Maine Forest Service's Forest Stewardship Program in conjunction with Project Canopy. This plan meets all the guidelines for S I P management plans and practices. The entire 49-acre parcel is located in the town of Vassalboro, Kennebec County, Maine. The primary goal of the Town of Vassalboro is to manage the property for its forest resources on a multiple use basis which includes but is not limited to timber production, wildlife habitat management, recreational needs of the community, and the protection of its water resources. In addition and equally important is the potential for public education that can be demonstrated through sound forestry practices.

Historical Information

The 49-acre parcel along the Bog Road was acquired from James Wentworth and Walter Eugley on April 1, 1963. This land, which is located on the Bog Road, consists of 36 acres of forestland and 13 acres of open land. Ball fields occupy a large portion of the open land. The public works garage, which is located on the parcel, was constructed in 1997, and the adjacent sand and salt shed was constructed in 2001. Approximately 70 % of the forested acres was harvested in the fall of 1997.

Stonewalls can be found on both the eastern and western sections of the woodlot. In addition there is also a large stonewall running in a north-south direction in the middle of the lot. Indications are that the majority of this woodlot was used for farming and pasture land in the early part of the twentieth century. However, approximately 11% of the woodlot is classified as a forested wetland, which is not generally used for agricultural purposes.

This town woodlot has always been open to hunters and other local people that wanted to use the land for various recreational activities. Since the woodlot does not have any improved all-weather roads or hiking trails, the number of visitors has probably been very low. There is a maintained snowmobile trail that crosses the eastern section of the woodlot that appears to be used on a regular basis during the winter.

General Property Information:

Of the total 36 acres of forested town land, approximately 78% is classified as mixedwood and 22 % as hardwood. Except for several small areas that are less than an acre, this woodlot does not have any pure softwood stands. Four acres of the forested portion of the woodlot is classified as a forested wetland. Although this area is considered a wetland, it nonetheless supports commercial species such as red maple, balsam fir, white ash, white pine, aspen/poplar, and a few elm trees. Of the total parcel of land, 13 acres is considered open land. The town garage and salt shed occupy the eastern portion while public ball fields, parking areas, and storage sheds occupy the western portion of the area. A drainage ditch that is partially vegetated separates these two sections of the lot.

There are several old skid trails located throughout the northern half of the lot. Indications are that these skid trails were utilized in conjunction with harvesting operations in the fall of 1997.

The majority of the property is relatively flat with very little change in elevation. The area near the town garage is approximately 200 feet above sea level while the elevations drop slightly to around 180 feet above sea level near the ball fields and forested wetland areas. Approximately 75% of the woodlot has a very slight west to southwesterly aspect.

Run-off from the entire property eventually enters into China Lake, which is less than one mile to the east of this woodlot.

Landowner Objectives:

The forest management objectives for the Town of Vassalboro woodlot are based in part on recommendations made by the citizens of the town and their elected officials. The overall objectives include managing the property on a multiple use basis that comprise the elements of timber production, wildlife enhancement, water quality, and recreational needs of the citizens of Vassalboro. Also in addition to the traditional uses of the forest, the educational benefits of having a four season outdoor classroom for adults as well as students is extremely important to the Town. Developing a network of trails on portions of the woodlot for recreational uses such as hiking, cross-country skiing, snowshoeing, snowmobiling, and horseback riding in addition to maintaining the ball fields for public use are many of the Town's primary recreational objectives. An equally important objective for this woodlot is to improve the wildlife habitat by properly managing the various forest resources that wildlife depends upon. One of the Town's wildlife goals is to provide a prime habitat for various species of birds and animals that are found locally in the area such as deer, snowshoe hare, ruffed grouse, migratory birds, turkeys, and various species of songbirds. Providing habitat for other small mammals such as squirrels, minks, otters, and to a limited extent even porcupines and beaver will be considered in the overall plan.

Maintaining the integrity of the forested areas and wetland areas of this woodlot is extremely important to the Town. However, above all these objectives, the citizens of the Town of Vassalboro want to ensure that future generations will have access to a quality woodlot that can continually be managed on a sustained basis.

Proper timber, wildlife, and recreational management activities will ensure that these important goals and objectives can be met.

Boundary Line Conditions

The eastern and western boundaries are delineated by stonewalls, and in most cases the corners are identified with monuments. However, the northern line was very difficult to locate. Very few blazes were found along this line. The southwest corner near the entrance to the ball field parking lot is not marked with a pin; although the stonewall marks the location of the line. With the exception of a corner pin along the Bog Road, the majority of the boundary lines around the out slots in the southeast corner were not positively located.

Recommendations to Improve the Boundary Lines.

Although most of the property lines were located, they should be blazed and painted and maintained regularly. Stonewalls and wire fence are generally good boundary lines, but sometimes they can become confusing, especially during a harvesting operation. Blazing and painting these areas is highly recommended. Locating the northern boundary line may be more difficult since very few blazes were positively located. The southwest corner pin along the road and entrance to the ball field was not located. Also the boundaries around the out lots in the southeast corner were not located with any certainty. The boundaries in this area should be located, blazed, and painted.

At a minimum, the recommendation is to paint all portions of the known line with a good quality boundary line paint available through forestry supply sources. The process is to lightly scrape the bark and paint the lines with quality boundary line paint. Deep blazing is not necessary as this can damage the trees. Lightly scuffing the loose bark with a paint scraper is recommended. See enclosed Maine Forest Service bullet on boundary line maintenance.

Trespassing and mistakenly harvesting trees is a common problem throughout the state. Many landowners have lost valuable timber because of poor boundary lines. Most are honest mistakes on the part of the timber harvester; however, in some cases, theft does occur. Although good boundary lines are not a cure-all for theft, they are one of the best deterrents to cutting over the line.

Section II

Recreation

As noted earlier, one of the major objectives for the property is to properly manage the timber resource in a manner that will enhance the recreational opportunities for the citizens of the Town of Vassalboro as well as for the many seasonal visitors that frequent the area. Maintaining and improving the network of trails for hiking, cross-country skiing, snowshoeing, horseback riding, and simply walking around the woodlot are activities that are important to the Town. These recreational activities are directly affected by the manner in which various timber management activities, especially periodic harvesting operations, are conducted. The Town would like to continue using, and in some cases construct and improve, the network of old skid trails and logging roads for recreational purposes. Enjoying the scenery and viewing the various species of wildlife and wild birds that frequent the property is also an important recreational activity that should be considered in the management of this property.

Horseback Riding and Other Trail Use

One of the Town's objectives is to utilize the property for recreational purposes such as hiking, cross-country skiing, snowshoeing, snowmobiling, walking around the property or possibly horseback riding. With a minimum of maintenance, the current trail system is adequate for most activities; however, horseback riding does demand special attention to trail construction and maintenance.

Currently several old woods roads are being utilized for various activities such as hiking and snowmobiling for example. However, if the Town decides to allow horseback riding on a regular basis, then they may want to consider upgrading a portion of the system to meet horseback riding standards.

There are many old skid trails on the property that could be connected to form several continuous loops. Constructing new trails in most areas is not necessary. However, some construction is necessary to connect the trails in a manner that will meet the rider's needs and the recreational goals of the town.

One of the most important considerations is safety, for both the rider and the horses. The following are several guidelines that should be considered when building or upgrading a trail:

1. Use existing trails whenever possible - The trails should be wide enough to accommodate the width of two horses or approximately 8 - 10 feet. Most existing skid trails are at least ten feet.
2. Although there are no major year round brooks on the property, the area does contain a small wetland area that could create trail maintenance problems. Also, during the spring or wet fall when additional water is present, there may be a need for some bridges or other type of water crossing. The recommendation is to allow the horses to ride through the water if possible. If a bridge is necessary, be sure that the horse cannot see through to the water. The platform must be solid or the horse may refuse to cross the bridge.
3. When constructing or upgrading trails, be sure that stumps are cut as low as possible, preferably flush to the ground. It is not necessary to dig the stumps out as this will only disturb the soil and possibly create the potential for unwanted low spots and holes that may appear suddenly.

4. Be sure to clear branches to a height of at least 8 ½ feet to accommodate the rider on a horse. The average size of a horse at the shoulder is 15 - 16 hands (60 - 64 inches). The average height of a person sitting in the saddle is approximately 36" to 42". Depending on the size of the horse and rider, this measurement could be adjusted accordingly. (Note: Horses generally like a few soft branches over the trail to brush away the flies.)
5. Avoid digging out rocks because this can create potential hazards if the soil settles unexpectedly.
6. Avoid going straight up and down hills. A zigzag or switch back road is preferable for both the horse and rider. A switch back trail makes for a more interesting ride.
7. Be sure to remove all barbed wire and trash along the trails. For safety reasons, keep trails clear of trash and debris.
8. Install water bars in the trails whenever necessary. This keeps the water from running directly down a trail, which can cause erosion and create safety hazards. Refer to the enclosed BMP handbook for proper installation of water bars and other water diversion techniques.
9. Jumps - If you install jumps, be sure that you place a "go-around" for any rider that prefers not to take the jump. It should be far enough away from the jump to discourage the horse from taking the easier route. Such a sudden decision by the horse could throw the rider and cause serious injury. An average jump should be no wider than 12 to 15 inches and no higher than 2 to 18 inches. Jumps can be constructed from just a pile of brush or simply by laying a log across the trail.
10. For watering purposes, loops should have access to water at least every 5 miles.

Hiking, cross-country skiing, and snowshoeing all require a certain level of attention associated with any timber management activity. The Town would like to continue using the network of new and old skid trails and logging roads and possibly upgrade the trails as people's needs and interests change. Viewing the scenery and the various species of wildlife and wild birds is also a very important recreational pastime for many people in the area.

The property is not posted and is currently open for hunting. Refer to enclosed brochure, Landowner Liability, from the Maine Department of Inland Fisheries and Wildlife Department for important information on the "Landowner Liability Law".

Developing cross-country skiing and snowshoeing trails through the forested wetland would allow people access to this portion of the woodlot that would normally be difficult and inconvenient to traverse other seasons of the year. New trails would have to be established through this area, but many of them could be connected to some of the existing skid and haul roads. This is an area that is not particularly inviting when the ground is wet and the vegetation is thick; however, visiting the area on skis or snowshoes opens up an entirely new dimension to hiking. Many of the wetland species such as nannyberry and winterberries are very noticeable this time of year. Animal tracks are obviously very noticeable on the snow. In addition to identifying the various tracks, a visitor may also learn the various habits of particular species by the location of the tracks and whether the animal or bird is a predator or prey. The entire woodlot has the potential to become an excellent outdoor classroom for all ages of students. Traveling through a wetland area is an adventure many people overlook.

Forest Fire Protection:

Protection of this woodlot from fire is extremely important. There is no major water source on the Town property that can be used in case of a fire emergency. However, there are many streams and lakes in the area that can provide an endless supply of water for forest fighting purposes. Access to portions of the woodlot could be very difficult during the wet spring and fall seasons. Plans to ensure that fire-fighting equipment can reach those areas of the woodlot that are not readily accessible should be considered.

Insect and Disease

There were no major insect or disease infestations found on the woodlot. However, the Town of Vassalboro and a forester should maintain a close watch on the ice damaged trees in an effort to detect any major insect or disease outbreak resulting from the Ice Storm of '98. Ice damage on parts of this woodlot is moderate. In the more heavily damaged areas, some of the trees could become susceptible to insect and disease infestations.

The white pine weevil has affected a few of the white pine trees. This is a common problem with this species. Fortunately most of the white pine regeneration is protected by overtopping hardwoods that help to discourage the white pine weevil.

Another destructive pest is the Hemlock Looper that can destroy stands of mature hemlock. This pest has seriously affected hemlock stands on other woodlots in the Kennebec County area. The Town manager and forester should review the condition of the hemlocks on a periodic basis so that corrective action can be taken in a timely manner. See the enclosed brochure for additional details on both the Hemlock Looper and the White Pine Weevil.

Another very serious pest that could affect hemlock is the Hemlock Woolly Adelgid. Fortunately, this destructive pest is not currently found in natural forest stands in Maine; however, it has been discovered on several nursery stock trees that were transported in from southern New England. The State of Maine Insect and Disease Laboratory is monitoring the spread of this pest. See the enclosed leaflet for details on the Hemlock Woolly Adelgid.

Most of the beech trees have been affected by the beech scale insect and nectria fungus complex. This two-stage process can take many years to kill a tree; and at present, there is no cost effective method of control for forested trees. This is an extremely common problem on beech trees throughout the entire Northeast, but one that is not a major concern to most landowners. These trees can be kept for their valuable beechnuts that are a prized source of food for deer, bear (not normally found in the Vassalboro area), turkeys and a variety of smaller mammals.

Wildlife Considerations:

Various species of birds, mammals, and an occasional migratory bird such as woodcock frequent the area. White tailed deer, wild turkey, ruffed grouse, and woodcock use this property for food and cover. The snowshoe hare may even show up on occasion.

The diversity of habitat found on this property is excellent and should be maintained as much as possible in order to attract and maintain a variety of wildlife. The forested wetland and intermittent streams contain the necessary habitat elements for various species of birds including migratory birds, mammals, and amphibians. This property also contains several areas of immature forest and brush areas that provide excellent food and cover for a variety of wildlife species. Space, cover, food, and water are the prime habitat requirement for all species of birds and animals. Although this property does not contain any pure softwood stands that are required for a deer wintering area, the diversity of vegetation on this property appears to satisfy most wildlife needs.

Several snags, wolf trees, and den trees were noted on the property. Most of these trees fortunately were bypassed during the previous harvests and are now a haven for small mammals and birds. These trees should be retained as a home for wildlife and a food source for various birds.

Snag Trees- generally standing dead trees 4" dbh and larger and at least 6 ft high. This type of tree should be maintained at the rate of at least two trees per acre. Preferably one snag should be at least 20"dbh.

Den Trees - These are generally large, live, cull trees, often hardwood (deciduous), with existing cavities. Maintain at least one den tree per acre with an 18-inch minimum dbh. Thought should be given to maintaining potential wildlife trees. A tree that is firewood today may be a wildlife tree in the future.

Wolf Trees - poorly formed trees that have little economic value. Many of these trees have potential value for wildlife.

Wildlife trees (snag trees, den trees, and wolf trees) do not have to be evenly spaced throughout the property. They can be clumped together in leave strips, riparian zones, or selectively cut areas. Maintain at least 4 wildlife trees per acre.

Nut and fruit trees: Several mast-producing trees such as red oaks and a few beech trees were found on the property. Many of these nut and fruit trees should be released and encouraged to grow. If the Town wants to encourage more wildlife to visit the property they may want to purchase and plant a few apple trees. However, when planting apple trees, some form of protection from deer and the stray moose is necessary for proper establishment.

Planting various species of shrubs such as high bush cranberries, service berries, and filberts will also help attract wildlife. See enclosed brochures on native plants. Planting oak trees is also recommended. Gathering acorns from the Vassalboro area is recommended. Using a dibble and dropping an acorn in the hole is a quick and efficient method for establishing a new stand of oak trees (source of information- State of Maine wildlife biologist).

See Section V for additional wildlife and waterfowl management recommendations

Threatened and Endangered Species

There are no Threatened or Endangered species of plants or wildlife on this property.

Plant Species on the Town of Vassalboro Woodlot

Hardwood

White Ash	*Fraxinus americana*
*Black/Brown Ash	*Fraxinus nigra*
Big Toothed Aspen (Poplar)	*Populus grandidentata*
Quaking Aspen (Poplar)	*Populus tremuloides*
*Basswood	*Tilia americana*
*American Beech	*Fagus grandifolia*
*Gray Birch	*Betula populifolia*
*White/Paper Birch	*Betula papyrifera*
*Yellow Birch	*Betula alleghaniensis*
*American Elm	*Ulnus americana*
*Hophornbeam	*Carpinus caroliniana*
Red Maple	*Acer rubrum*
*Striped Maple/Moosewood	*Acer pensylvanicum*
*Sugar Maple	*Acer saccharum*
Northern Red Oak	*Quercus rubra*

Softwood

*Northern White Cedar	*Thuja occidentalis*
Balsam Fir	*Abies balsamea*
Eastern Hemlock	*Tsuga canadensis*
*Red Spruce	*Picea rubens*
Eastern White Pine	*Pinus strobus*
*Tamarack/Larch	*Larix laricina*

Shrubs

Alder	*Alnus* spp.
Blueberry	*Vaccinium* spp.
Hawthorn (Thorn-apple)	*Crataegus* spp
Ground Hemlock	*Taxus Canadensis*
Honeysuckle	*Lonicera* spp.
Huckleberry	*Gaylussacia* spp.
Leatherleaf	*Chamaedaphne calyculata*
Shadbush	*Amelanchier* spp.
Winterberry	*Ilex verticillata*
Witch Hazel	*Hamamelis virginiana*
Witch Hobble	*Viburnum alnifolium*
Nannyberry	*Viburnum lentago*

**Trees identified but not tallied in the cruise*

Section III

Forest Stand Description

The forest types included in this management plan identify the different areas of forest growth based on stand density, species composition, and tree diameter. The forest types and associated volumes were determined by a systematic cruise using a BAF 10 prism and measured by one inch diameter classes using both a diameter tape and a Biltmore stick. The locations of each of the forest types were determined by on the ground measurements and observations along with aerial photographs purchased through the J.W. Sewall in Old Town, Maine. The statistical calculations to determine total volumes by stand were calculated using the U.S. Dept. of Agriculture computer based program developed by the Northeastern Forest Research Station in Burlington, Vermont.

Forest Stand Type Designation:	*Town of Vassalboro Lot*	
General - Species Composition -	*% of Forested Acres*	*Acres*
S - 75% or more softwood	*0 %*	*0*
Mixedwood (hardwood and softwood)	*78 %*	*28*
H - 75% or more hardwood	*22 %*	*8*
	100%	*36*

Height

1 - Less than 30 feet
2 - 30 feet to 60 feet
3 - Over 60 feet

Crown Closure

A - 71% +
B - 31 - 70 %
C - 0 - 30 %

Example:

H2C - represents average stand conditions of greater than 75% hardwood, with total tree heights ranging from 30 ft. to 60 ft., and a crown closure between 0% - 30%.

Stand 1 – Hardwood (H2B) - 4 acres

Description

Stand 1 comprises 11 % of the forested acres and is located on the northwestern corner of the property bordering a forested wetland. This stand contains an average of 65 square feet of basal area in trees 6 inches dbh and up. This basal area figure is above the average of 48 square feet for the entire woodlot.

Stand 1 is classified as H2B. This is a hardwood forest type that contains trees between 30 feet and 60 feet in height and has a crown closure 45 %. (Crown closure represents the percentage of the forest area occupied by tree crowns). This classification includes trees 6 inches dbh and up.

This stand contains only 3 commercial sized tree species. Eighty-five percent of the total merchantable volume is red maple. White ash and aspen/poplar each account for 7 % of the total. Although there are several softwood species in the understory, 100 % of the total commercial sized trees consists of hardwood (deciduous) species. The stand averages almost 1,200 bd. ft./acre of sawlogs and 11 cords/acre of pulpwood/firewood for a net total of 14 cords/acre. Red maple accounts for two-thirds of the volume of sawlogs and white ash accounts for one-third. Eighty-five percent of the pulpwood quality trees are also red maple with aspen/poplar and white ash comprising the remaining 15 %.

Portions of this stand were harvested in the fall of 1997 just prior to the Ice Storm of '98. Many woodlots in Central Maine, including this one, experienced light to moderate ice damage as a result of the partial harvest. The regeneration and understory trees in this stand consists of balsam fir, white pine, white and black ash, along with some lower valued hemlock, red maple, elm, and aspen. The white pine saplings are growing extremely well in portions of this stand. Several trees are adding 2 to 3 feet of growth per year.

Excluding 4" and 5" dbh trees, the stand has an average merchantable diameter of 8.4" d.b.h.

Prescription

Since this stand was harvested recently, the recommendation is to let it grow for at least 10 more years. At that time the Town manager and local forester should review the condition of the stand and possibly conduct a few silvicultural practices such as TSI (Timber Stand Improvement) work that may include weeding and thinning and possibly some salvage removal. Additionally there are many excellent growing white pine saplings that should be released from overtopping hardwoods within the next 10 years. Currently the hardwoods benefit the white pine by helping to protect the tender growth from the white pine weevil. See enclosed leaflet on this destructive pest.

Planting some selected wildlife trees and shrubs in this stand is also recommended. Some of this work can be accomplished in cooperation with area schools, civic groups, or interested parties. See the enclosed brochure on native wildlife plants or contact the Department of Inland Fisheries and Wildlife in Augusta for additional information. Also refer to details in Section V under miscellaneous recommendations. This stand is easily accessible from the ball field and adjacent landowners' hay fields.

Stand 2 - Mixedwood - (M2C)- 20 acres

Description

Stand 2, which is the largest stand on the property, comprises 56 % of the forested acres. This recently cutover stand, which is classified as M2C, contains only 32 square feet of basal area per acre, which is considered a very lightly stocked stand of timber. Stand 2 is a mixedwood forest type that contains trees 30 to 60 feet in height and having a crown closure of only 18 %. This classification includes trees 6 inches dbh and up. The majority of this stand was harvested in the fall of 1997, which is the reason for the relatively open nature of the stand. Nonetheless, there are still many 4 and 5-inch dbh stems that will soon enter merchantable size.

Excluding 4" and 5" dbh trees, the stand has an average stem diameter of 9.2" dbh. The total merchantable volume is 7 cords to the acre that includes 1,500 bd.ft. of sawlogs. This stand contains the second highest volume of sawtimber on the woodlot. Sawtimber accounts for 43% of the total volume in this stand. White pine accounts for 85 % of this volume, red oak accounts for 10 %, and the remaining 5 % is red maple. White pine accounts for 50 % of the pulpwood volume. and the remaining 50 % is comprised of equal volumes of red oak, red maple, balsam fir, and hemlock. Many of the smaller and vigorous growing red oak trees are potential sawlog quality trees.

Portions of this stand contain many dead and dying aspen/poplar trees that were bypassed in the previous harvest. These trees were not harvested at the time, most likely because there was a very limited market for poplar logs and pulpwood at that time.

The regeneration consists of white pine, red maple, white ash, paper and gray birch, aspen, balsam fir, hemlock, red oak, and a few scattered elm. As a result of the most recent harvest, much of the area regenerated to white pine and many of these seedlings and saplings are growing extremely well.

Prescription

Since this stand was recently harvested in the fall of 1997, it should be left to grow for at least another 10 to 15 years before conducting another major harvest. However, there are small pockets of timber in the northeast corner of the woodlot that would benefit from a salvage cut and possibly a light commercial harvest in the next 5 to 10 year period. Many of the aspen/poplar that were bypassed in the previous harvest should be removed to allow growing space for some of the more valuable species such as white pine and red oak. Also in this same general area, some of the smaller white pine sawtimber trees can be harvested at that time. Harvesting these two areas, which are adjacent to each other, should be economically possible at that time. Also see the prescription for Stand 3 for a combined harvest of these areas.

Conducting a weeding and thinning operation in portions of this stand is also recommended. Sections of this stand support an extremely dense stand of sapling sized balsam fir and aspen/poplar that would benefit from some TSI (timber stand improvement work – thinning & weeding). See enclosed leaflet on the benefits of this type of an operation.

Stand 3 - Mixedwood - (M3B) 8 acres

Description

Stand 3 comprises 22 % of the forested acres on this woodlot and is located in the southeastern section of the property adjacent to the town sand and salt shed. This stand borders the out lots along the Bog Road and contains a major snowmobile trail. Stand 3 contains 93 square feet of basal area per acre that is well above the woodlot average of 48 square feet. This stand is classified as M3B. This is a mixedwood forest type that contains trees exceeding 60 feet in height and having a crown closure of 64 %. This classification includes trees 6 inches dbh and up. In general, this is the most well stocked stand on the woodlot. All indications are that the majority of this stand has not been harvested for at least 30 years.

Thirty-three percent of the total volume of timber in this stand is sawlog quality material. Of the total sawlog volume, red oak accounts for 50 %, white pine accounts for 25 % with the remaining 25 % consisting of small volumes of red maple, hemlock, and balsam fir. The stand averages slightly over 3600 bd. ft./acre of sawlogs and 14 cords/acre of merchantable pulpwood for a net merchantable total of 20 cords/acre.

The regeneration in this stand consists of good quality white pine, red oak, and some lower valued red maple, balsam fir, hemlock, and aspen/poplar.

Excluding 4" and 5" dbh trees, the stand has an average merchantable diameter of 8.4" d.b.h. which is average for the entire woodlot.

Prescription

The recommendation for this stand is to conduct a commercial harvest within the next 5 years. Although the overall basal area for this stand is 93 square feet, there are many areas that exceed 110 square feet. The basal area in the more dense areas of the stand should be reduced by at least 35 % to 40 % while the more open areas only 25 %+/-. Several of the larger white pine trees can be removed along some of the lower quality red maple, especially those that experienced ice damage from the Storm of '98. In addition, most of the merchantable balsam fir and some of the forked red oak could be harvested. Care should be taken not to harvest all the larger white pine and red oak in this stand, because this could result in an extremely heavy cut that would far exceed the recommended removal of 40% of the volume.

Since this area is easily accessible to the main road, it can be harvested most anytime of the year as long as the ground is not wet. Plans to develop and construct nature, educational, and recreational trails in this stand should be made prior to conducting the commercial harvest. Adjustments to either the harvest operation or the trail systems may be necessary to accomplish all the goals. As noted above, a snowmobile trail crosses this area.

Stand 4 - Hardwood - forested wetland - (H2C) - 4 acres

Description

Stand 4, which is a hardwood stand, comprises 11 % of the woodlot. The majority of this stand is classified as a forested wetland. This stand, which contains a few commercial tree species, is extremely wet and swampy. Much of the vegetation in Stand 4 is characteristic of wetland type species. The area supports cattails, common alders, nannyberry, winterberries, a few scattered black ash, and elm (noted but not tallied in cruise). Except for a scattered white pine, the majority of this stand contains mostly hardwood species (deciduous).

This stand supports only 20 square feet of basal area per acre that is considered extremely open. Stand 4 is classified as H2C. This is a hardwood forest type that consists predominately of trees between 30 and 60 ft. height with a crown closure of 13 %. Most commercial tree species in this stand are on the lower end of the height classification that is around 30 to 40 feet in height rather than the upper end of 60 feet. This classification includes only trees 6 inches dbh and up.

Sixty-three percent of the total merchantable volume in this stand is red maple; while white ash, aspen/poplar, and white pine each comprise 12% of the volume. Although this stand is considered a forested wetland, it only supports 200 bd.ft. per acre of sawlogs and 4 cords/acre of pulpwood/firewood for a net total of 5 cords/acre. The sawlog volume accounts for only 10 % of the total merchantable volume.

Excluding 4" and 5" dbh trees, the stand has an average diameter of only 7.5"dbh.

The regeneration in this stand consists of scattered red maple, balsam fir, and a few black ash. As noted earlier, most of the stand is covered with wetland type shrubs and grasses.

Prescription

The recommendation for this area is to encourage its use as a wildlife and recreational area. In addition to fostering the native vegetation, the town may want to plant additional wildlife plants around the wet areas. See enclosed pamphlets on purchasing and planting species native to the area.

Apply for Cost Share under SIP 6 - Riparian & Wetland Protection & Improvement. SIP Code 580 - Stream bank and Shoreline Protection

Refer to miscellaneous recommendation in Section V for additional details.

The best use of the stand is to include it as part of a winter trail network for cross country skiing and snow shoeing. Accessing this area in the summer months is difficult and not very enjoyable because of the presence of mosquitoes and other annoying insects. In addition to viewing wildlife, this area is an excellent spot to identify various shrubs and wetland plants such as nannyberries, winterberries, and heath plants. Traversing areas such as this forested wetland in the winter on a bright sunny day is especially satisfying and enjoyable--a great place to conduct a winter nature trail; be sure to bring your sunglasses.

Timetable of Periodic Activities

For The Town of Vassalboro woodlot

2003

Develop a Forest Stewardship Management Plan under the direction of the Project Canopy Grant Program of the Maine Forest Service.- 49 acres at The Public Works Garage and Sand and Salt Shed located on the Bog Road in Vassalboro.

2003 - 2008

Stand 3
Conduct a commercial harvest (in conjunction with portions of Stand 2)

Stand 3
Depending on the Town of Vassalboro needs, consider constructing a nature/educational/ recreational trail network.

2003 - 2013

Stand 1
Growth Period

Stand 4 - Forested wetland area
Depending on the Town of Vassalboro needs, consider constructing a winter orientated nature/educational/ recreational trail network

Apply for cost share funds for Riparian and wetland restoration projects

2003 - 2018

Stand 2
Growth period

2004 - 2013

Stand 1
Consider planting wildlife trees and shrubs

2008 - 2013

Stand 1
Review condition of white pine seedlings and saplings and, if needed, release white pine saplings from overtopping hardwoods.

Stand 2
Conduct a salvage operation in aspen/poplar area and lightly harvest some larger white pine sawlog trees in adjacent area

Stand 2
Conduct TSI work (thinning and weeding); see details under prescription for Stand 2

2013

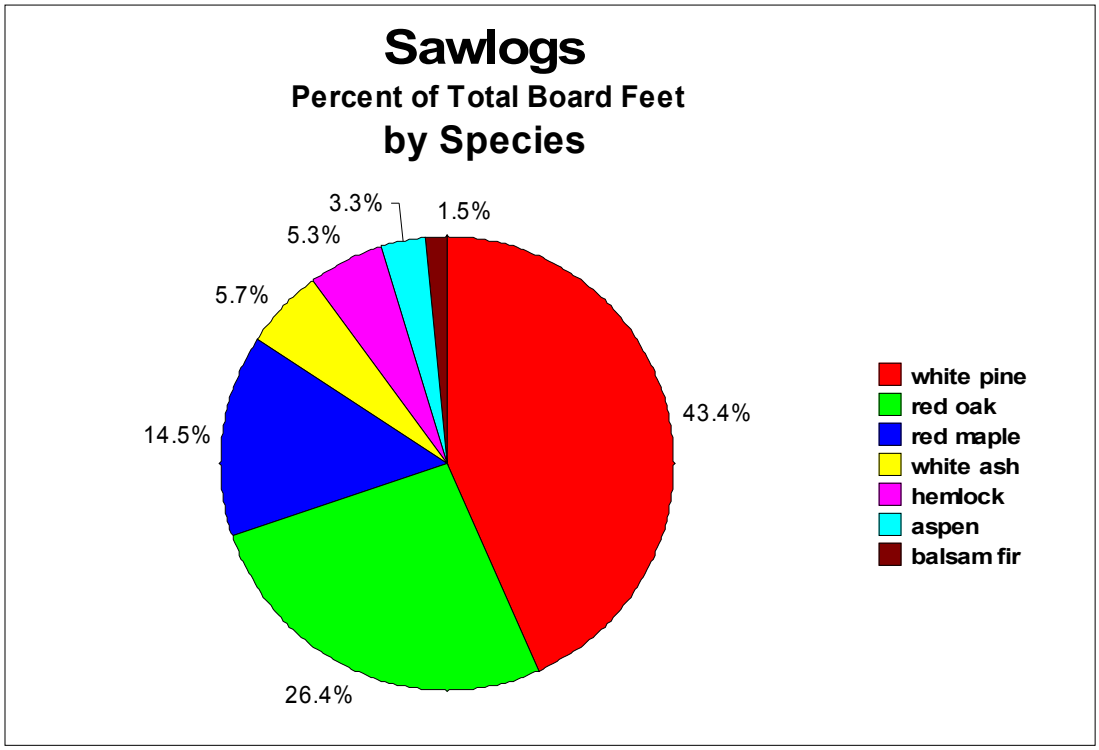
All Stands
Thoroughly review the condition of the entire woodlot and make necessary changes in the forest management recommendations. Review and modify The Town of Vassalboro objectives and take appropriate action to ensure goals are being met.

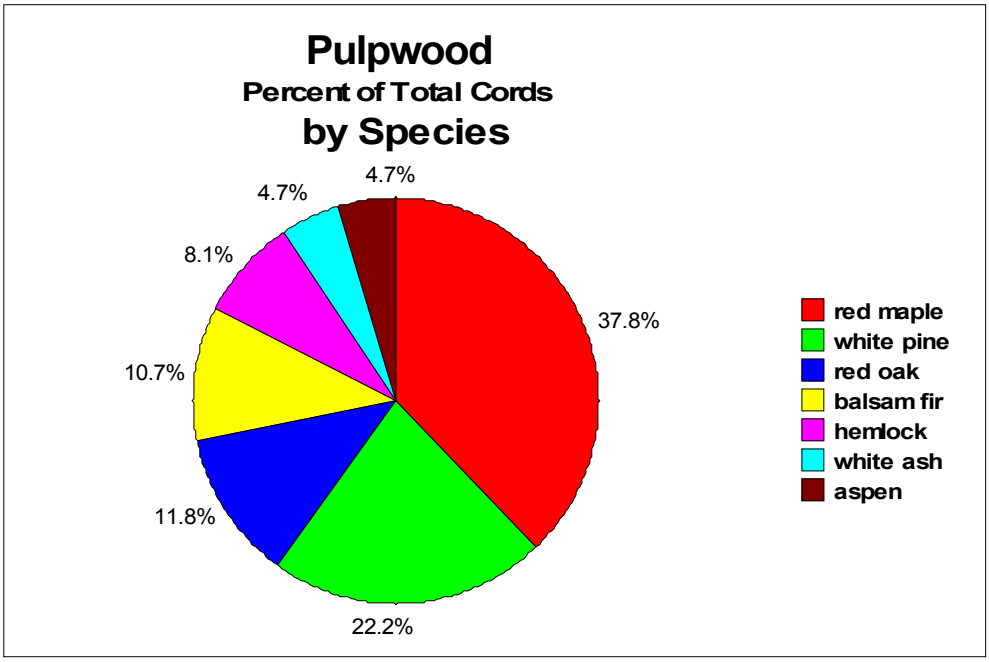
Summary of Stand Statistics

Town of Vassalboro Woodlot

Stand Number	Forest Type	# of Acres	Ave. Stand Diameter	Ave. BA Sq. Ft.	Ave. Tree per acre	Ave. Bd. Ft. per acre	Ave. Cords per acre	Net Tree Vol/ acre Cord Equiv.	Total Tree Vol/ acre Cord Equiv.	Total Vol/ Stand Cord Equiv.	# of Plots
1	Hardwood	4	8.4	65	159	1154	11.3	13.1	16.4	65.6	2
2	Mixedwood	20	9.2	32	58	1532	4.7	7.1	9	180	10
3	Mixedwood	8	8.4	93	208	3621	14.4	20.1	25.1	200.8	6
4	Mixedwood	4	7.5	20	54	198	4.2	4.5	5.7	22.8	4
Total	**Forested**	**36**	**8.7**	**48**	**102**	**1806**	**7.5**	**10**	**13**	**469**	**22**

Forested Hedgerow	**0**	(less than 1 acre)
Fields	**13**	includes ball fields, parking areas, garage site
Garage	**0**	(less than 1 acre - included in field total)
Wetland	**0**	forested wetland included in Stand 4
Total Acres	**49**	


Sawlogs
Percent of Total Board Feet
by Species
43.4%
26.4%
14.5%
5.7%
5.3%
3.3%
1.5%
white pine
red oak
red maple
white ash
hemlock
aspen
balsam fir


Pulpwood
Percent of Total Cords
by Species
37.8%
22.2%
11.8%
10.7%
8.1%
4.7%
4.7%
red maple
white pine
red oak
balsam fir
hemlock
white ash
aspen

Total Sawtimber and Pulpwood on the Town of Vassalboro Public Works Garage Site

by species and volume

Species	Total Bd. Ft.	Value/mbf	Total Value
white pine	28,200	$ 140.00	$ 3,948
red oak	17,168	$ 268.00	$ 4,601
red maple	9,412	$ 114.00	$ 1,073
white ash	3,700	$ 111.00	$ 411
hemlock	3,436	$ 57.00	$ 196
aspen/poplar	2,120	$ 53.00	$ 112
balsam fir	1,000	$ 119.00	$ 119
Total Board Feet on woodlot	**65,036**		**$ 10,460**

Average/1000 bd. Ft.

Species	Total cords	Value/cord	Total Value
hardwood	147.6	$ 8.00	$ 1,181
aspen/poplar	12.8	$ 9.00	$ 115
white pine	60.4	$ 7.00	$ 423
spruce/fir	29	$ 19.00	$ 555
hem/tam/r.pine	22	$ 12.00	$ 264
Total cords on woodlot	**272**		**$ 2,538**

Grand Total on Woodlot **$ 12,997.50**

All dollars are based on the 2001 Maine Forest Service Stumpage report dated September 26, 2002

Growth Rates

The sample of trees measured indicates that the overall growth rate on the entire forested portion of the Town of Vassalboro woodlot is 2.5 % annually. Growth rates on the entire property were determined by increment borings taken at selected locations throughout the property. Only dominant and codominant trees were selected for measurement at various plot intervals. A representative sample by species, diameter class, quality (sawlog and pulpwood), and location in the stand was measured to determine the average annual growth rate.

Section IV

Soils

The soils information in this report was obtained from the latest Soil Survey of Kennebec County dated 1978. Included in this report are four sections of soils information:
***1)** General soils information that are found on the property - a description of each soil series and specific information about each soil type.*
***2)** Soils table related to the suitability of each soil for growing specific species of trees*
***3)** Combined wildlife and recreational table highlighting those types of plants suitable for maintaining wildlife and soil limitations associated cottages and camps.*
***4)** Copy of a map showing the location and type of soil on the property - Map symbols on the map correspond to the following soils descriptions*

Buxton Series

The Buxton series consists of deep, moderately well drained to somewhat poorly drained, gently sloping to sloping soils. Permeability is slow to very slow. Available water capacity is high. These soils are generally free of stones. Buxton series soils are used mainly for woodland, but some areas are used for hay, pasture, and cultivated crops.

Buxton silt loam (BuB2) 3 to 8 percent slope.

This soil type covers 8 % of the woodlot or approximately 4 acres. This gently sloping soil is on terraces adjacent to natural drainage ways and on plains. This classification of soils has the profile described as representative of the series. This soil is suited to hay, pasture, cultivated crops, and woodland. Wetness of this type of soil is a major limitation for most uses. The limitations to the use of this soil for septic tank absorption fields are severe.

Buxton silt loam (BuB2)

Management Concerns				**Potential Productivity**		
Erosion Hazard	Equipment Limitations	Seedling Mortality	Windthrow hazard	Common Trees	Site Index	Trees preferred - in existing stands
Slight	Slight	Slight	Slight	E. White Pine Sugar Maple Yellow Birch Beech Spruce Balsam Fir	60-70 52-59 52-59 52-59 50-60 50-60	E. W. Pine Balsam Fir Spruce Hemlock Northern - Hardwoods

Trees preferred for planting - White Pine and White Spruce

Scantic Series

The Scantic series consists of deep, poorly drained, nearly level soils that formed in marine or lacustrine sediments. These soils are in valleys and low, flat areas throughout the county. Permeability is slow to very slow. Available water capacity is high. These soils are used mainly for woodland, but some are used for hay and pasture. Some areas in the county are also used for urban and industrial development. Depth to bedrock is generally more than 5 feet.

Scantic silt loam (ScA) 0 to 3 percent slope.

This soil type covers 87 % of the woodlot or approximately 43 acres.

This soil is nearly level, deep, and poorly drained. Slopes are generally 0 to 3 percent, but they can range as much as 8 percent. Permeability is this Scantic soil is moderate or moderately slow in the surface layer and slow or very slow in the subsoil and the substratum. The available water capacity is high. Surface runoff is slow, and erosion is a slight hazard.

Most areas of this soil are used for pasture, hay, and woodland. A few areas are used for cultivated crops. The soil is poorly suited to farming. The main limitation is the seasonal high water table. Grazing when the soil is wet easily causes surface compaction. Rotation grazing helps to maintain the carrying capacity of pasture.

Potential productivity for eastern white pine on this soil is high. The seasonal high water table causes high seedling mortality and restricts the use of equipment. It also restricts the depth of the root zone; consequently, wind throw is a hazard.

Scantic silt loam (ScA)

Management Concerns				**Potential Productivity**		
Erosion Hazard	Equipment Limitations	Seedling Mortality	Windthrow hazard	Trees preferred in existing stands	Site Index	Trees to Plant
Slight	Severe	Severe	Severe	E. White Pine Balsam Fir Spruce Cedar	50-60 40-50 40-50 ----	E. W. Pine White Spruce

Woodbridge Series

The Woodbridge series consists of deep, moderately well drained, gently sloping soils that formed in glacial till. These soils are on hills and ridges throughout Kennebec County. Permeability is moderately slow to slow. The available water capacity is moderate. These soils are naturally stony, but most areas have been cleared of stones for cultivation. Woodbridge soils are used mainly for hay, pasture, and woodland, but a few areas have been used for cultivated crops.

Woodbridge fine sandy loam, (WrB) 3 to 8 percent slopes

These gently sloping soils are on the tops or sides of hills and ridges and in some depressions. This soil type has the characteristic representative of the Woodbridge series. This soil has been cleared of surface stones. This soil is suited to hay, pasture, woodland and cultivated crops. Wetness and moderately slow to slow permeability in the subsurface layer (fragipan) are major limitations to the use of this soil. The limitations to the use of this soil for septic tank absorption fields are severe.

This soil type covers 5 % of the woodlot or approximately 2 acres.

Woodbridge fine sandy loam (WrB)

Management Concerns				**Potential Productivity**		
Erosion Hazard	Equipment Limitation	Seedling Mortality	Windthrow hazard	Trees preferred in existing stands	Site Index	Trees to Plant
Slight	Slight	Slight	Slight	White Pine Spruce Balsam Fir N. Hardwoods Oaks	70-80 52-59 52-59 60-70 60-70 Good to Excellent	White Pine White Spruce Larch/Tamarack

Wildlife Soils Table

Soils	**Potential for Habitat Elements**							**Potential as Habitat for:**		
Name & Map Symbol	*Grain seed crops*	*Grasses legumes*	*Wild herba-ceous plants*	*hard wood trees*	*conif-erous plants*	*Wet- land plants*	*shallowwater areas*	*open land wild life*	*wood land wild life*	*wetland wildlife*
Buxton BuC2	fair	good	good	good	good	very poor	very poor	good	good	very poor
Scantic ScA	poor	fair	fair	fair	fair	good	good	fair	fair	good
Woodbridge WrB	fair	good	good	good	good	poor	very poor	good	good	very poor

Recreation Soils Table

Soils *Name and Map symbols*	**Campsites**	**Playgrounds**
Buxton BuC2	Severe: slow to very slow permeability	Severe: slow to very slow permeability
Scantic Series ScA	Severe: Poorly drained; slow to very slow permeability	Severe: poorly drained; slow to very slow permeability
Woodbridge Series WrB	Moderate: seasonable high water table; moderately slow to slow permeability	Moderate: moderately slow to slow permeability; slope; more than 5% coarse fragments high potential frost action

A rating of:
Slight indicates that the limitations, if any, are easily overcome
Moderate indicates that overcoming the limitations is generally feasible
Severe indicates that the limitations are difficult to overcome and that the use of the soil for this purpose is questionable

Section V

Miscellaneous Recommendations

1) The Town of Vassalboro would benefit by planting a variety of wildlife shrubs to encourage various species of birds and mammals to visit the property. Wildlife shrubs can be purchased through the Kennebec County Soil and Water Conservation Service at reduced rates. Order forms are available in late winter for delivery in early May. Consider planting wildlife shrubs that are suitable for the area - for example red oak, apple trees, and wild grape. Gathering and planting red oak acorns from the local Kennebec County area will improve chances of survival. Avoid gathering seeds or obtaining trees and plants from sources outside the area.

See enclosed brochures for more details

Contact one of the Conservation Department's wildlife managers for more details. The telephone number is 287 - 4921.

2) The Town may want to contact the Department of Inland Fisheries and Wildlife for specific guidance on implementing various wildlife projects. This is especially important for Stand 4, which is a forested wetland.

3) Adhere to all harvesting laws when conducting a commercial harvesting activity. This includes but is not limited to:

- The Forest Practices Act
- Shoreland zoning
- Notice of Intent to Harvest
- Natural Resources Protection Act Erosion and Sedimentation Control Law

Monitor the long-term effects of ice storm damage and take action as appropriate. Harvest as needed - either commercially or conduct a firewood harvest. When conducting any major activity such as harvesting or road and trail construction, the impact that these activities have on the streams and ponds in the area should be considered and addressed.

4) Monitor insect and disease conditions regularly. This is especially important with the ice damaged trees. Monitor the **Hemlocks** for the exotic pest known as the ***Hemlock Woolly Adelgid***.

This serious pest is well established in 11 eastern states, but fortunately not in Maine, Vermont, and New Hampshire. However, several infestations on introduced nursery stock have recently been discovered in Maine. The Department of Conservation is asking landowners and foresters to be on the lookout for this pest.

Signs of infestation are:

- Twig dieback and /or premature needle drop
- White woolly masses at the base of needles of young twigs
- Unhealthy grayish-green needles that normally are dark green

- Also monitor **Hemlocks** for the ***Hemlock Looper Moth*** – It is important to note that several hemlock trees were tallied on the preliminary cruise of the Vassalboro Town lot. Some of the Hemlock on this property does have the potential to become infected by the Hemlock Looper.

Although this pest was not found on the Vassalboro lot, it is important to monitor this destructive insect. See enclosed leaflet

5) Good record keeping for all management activities and associated costs are extremely important, especially for tax purposes. Detailed records of all the timber that is harvested on the woodlot should be kept by species, volume, and products. Other activities related to the land and timber resource may include road and bridge building, trail construction, forest protection activities, pre-commercial thinning operations, tree planting, boundary line work, and erosion control measures. There may also be other activities specific to the town property.

Section VI

Vassalboro Rustic Roads and Street Tree Inventory

There are more than 60 miles of public roads in Vassalboro. Many of these roads are very rural in nature and offer scenic views and places for roadside beautification. The Vassalboro Tree Conservation Committee has made a preliminary roadside inventory of the scenic views, features to be noted, recreational areas, and places for conservation and appropriate tree plantings. This project is modeled after the Rustic Roads Program in the State of Wisconsin to identify roads suitable for recreational activities such as walking, bike riding, or sightseeing. See enclosed map under Appendix G.

Recreational Trails

The Vassalboro Tree Conservation Committee encourages public easements for preserving nature and providing recreation.

One easement, already in place, open to the public is the Annie Sturgis Sanctuary Trails for Nature Walks located on the Cushnoc Road in the Riverside Community. The trails extend from Cushnoc Road to the Kennebec River and are open from dawn to dusk from March 1 to November 1. Motor vehicles and skiing are prohibited. All dogs must be leashed, and hunting and shooting are forbidden.