# Forest Stewardship Plan

(10-Year Planning Period)

Town of Pelham
Gumpas Pond Conservation Area
Pelham and Hudson, NH
153.3 Acres
December 19, 2005

**Amended December 7, 2022**

By E. Radlof of FCF, LLC
NH LPF #447

Brian E. Johnsen
NH LPF #363
12 Peacock Hill Rd.
Weare, NH 03281
(603) 387-9532

| | |
|---|---|
| Property Owners: | Town of Pelham |
| Location: | Gumpas Pond Conservation Area |
| Total Acreage: | 153.3 +/- Acres |
| | 31.2 +/- Acres in Hudson, NH |
| | 122.1 +/- Acres in Pelham, NH |
| Map/Lot Numbers: | Map 226, Lot 1 – Hudson |
| | Map 26, Lot 2 – Pelham |
| Date Prepared: | December 19, 2005 |

## General Description of the Property

This fabulous piece of property, located on the western line of Pelham, NH, and the eastern line of Hudson, NH, is a critical parcel to protect from development. The northwestern corner of this property is part of the conglomeration of wetlands known as Musquash Swamp between Merrill Hill in Hudson and Gumpas Pond in Pelham. This property was prepared for a development plan, with interior roads and an existing gravel pit, but will now remain as open land forever.

On August 20, 2004, the Conservation Commission purchased the property pursuant to RSA 36-A, subject to restrictions in the Deed. See copy attached. In 2005, a boundary survey was completed. The Plan is recorded at Hillsborough Country Registry of Deeds as Plan #34383. In 2006, the town voted the property as a town forest under RSA 31:110-113. See copy of warrant article attached. In 2011, the town created a 23 acre early successional habitat. See information and location maps attached. In 2014, land was added to the town forest. See copy of warrant article attached.

### Boundaries

The boundaries on this property range from very discernible to unknown. That is to say, the boundaries that are on land have been well-surveyed and are identifiable. The southeastern corner lines around a small houselot on Hinds Lane in Pelham need to be relocated due a difference in the orientation of the survey map and actual field data (grid north vs. magnetic north). Many of the boundaries are stone walls, making them very easy to find in the field. However, many of the northern corners are located in the wetland the flows into Musquash Swamp, making corner and line identification impossible. Furthermore, there is a discrepancy between the deed and an established 1979 survey for the boundary lines in Hudson. The possible error would drop the acreage about 2 acres. One boundary line, located in Stand 8 coming off Gowing Road (along the Town line) was not discernible and now has a lawn encroachment, which should be addressed at some point. All maps in this management plan use the boundaries as listed from the deed.

### Access

This property technically has frontage on three town roads. However, Gumpas Pond Road, the southern boundary for this property, is an old Class 6 road that has not been upgraded in years. The access point on Hinds Lane in Pelham is quite narrow and heads up a steep hill immediately off of the road, which would make truck access quite difficult. Therefore, the best access for this property is from Gowing Road in Hudson. This road is a cul-de-sac, with the access point being at the dead end part of the road.

This road has been used for logging access before by New England Forestry Foundation (NEFF), which owns the land immediately to the south. Gowing Road was used as the access point for the machinery involved in the gravel pit excavation, and is currently heavily used by 4-wheel-drive vehicles and ATV's to access the network of roads within this property.

## Forest Types & Harvest History

Forests with varying composition in terms of species, age, and density are able to respond with more resilience to catastrophic events than monocultures. Most trees in unmanaged, overgrown forests are chronically short of much-needed nutrients, sunlight, and water, and are therefore constantly living in a stressed environment. Pre-stressed trees are much more susceptible to disease than their healthy counterparts growing in a well-spaced, healthy forest. Forests are broken down into management units called stands, which are areas of trees with similar species composition, size, and frequency of occurrence.

This particular property has an abundance of harvest history. Judging from the stone walls and proximity to rivers, this woodlot most likely was cleared in the mid-1800s for sheep pasture, part of the movement across much of New England to increase wool production for water-powered mills along the banks of most New Hampshire waterways. When the pastures were abandoned, white pine grew in and the area was forested again. Subsequent cutting removed the white pine from some areas, and the open environment allowed red oak to seed in and become established in direct sunlight. The oldest trees on this property are likely 80-100 years old, although most are younger. More recently, this property was slated for development, as mentioned, and some areas were harvested quite heavily to remove the valuable timber before development. Across most of the property, much of the sawtimber-value white pine was removed, leaving behind a property that is mostly covered with a mixture of hardwood species. There are few areas of white pine that were left, either because of proximity to wetlands, or simply because the stocking was so high at the last harvest that some pine was left. This harvest history has resulted in a number of different conditions on the ground today. Stand 3 was heavily harvested and currently has very few sawlog-value trees. Stand 7 was clearcut to expand the gravel pit, and is growing back to saplings. Stand 8 was also harvested rather heavily, but this stand still has valuable timber growing and has a lush understory of hardwood regeneration. Other stands, such as 4 and 9, appear not to have been harvested at all, and are overstocked at the moment. All in all, this property has a very diverse history and therefore has rather diverse growth conditions in its current state.

In quantitative terms, about 100 acres of this property are considered forestland, growing more than 650 MBF (thousand board feet) of timber and more than 1,000 cords of hardwood and softwood pulp. Red oak and black oak account for about two-thirds of this sawtimber volume, with 225 MBF and 200 MBF respectively. White pine makes up another 18% of the standing timber volume with 124 MBF. White ash and hemlock, with 27 MBF and 24 MBF respectively, account for about 4% of the total sawtimber volume. The remaining 10% of timber volume is made up of various hardwoods, including white oak, poplar, white birch, red maple, and other species. One species notably lacking in this spectrum is black birch, which is particularly curious since there is so much black birch regeneration. Most of the volume of this species, which is present, is simply too small to be considered sawtimber at the time of this inventory. More details on the timber cruise are available below, and a complete summary is available on page 6.

## Soils, Terrain, & Hydrology

Forests are essential for preventing erosion of existing soil and maintaining clean water. One of the main reasons for purchasing this property was to maintain forested land around the numerous wetland areas found on this property. Nearly one-third of this property is considered wetland or covered with standing water.

Riparian and wetland areas are the places that open water and upland sites meet. A riparian zone is the general term for the area where water and land meet, whereas a wetland is an area in a riparian zone that specifically has hydric, or wet, soils as well as vegetation that grows on that type of soil. Riparian areas are important a number of reasons. They offer critical habitat for many wildlife species, providing shelter, food, water, and travel corridors. They are also very useful for flood control by acting as a sponge during times of high water volume, and then releasing that water slowly and consistently over time. Without wetlands, streams would fluctuate greatly between periods of high flow and dry streambeds. Finally, riparian areas are key for filtering water as it travels from upland sites to the open water, keeping out many chemical impurities and keeping water silt-free.

Soils on this property vary considerably, from excessively-drained this upland soils with exposed bedrock to very poorly-drained soils with standing water. Some areas have deep, fertile soils and other areas, like around the gravel pit, are quite dry and are growing drought-tolerant saplings. This property is part of the Musquash Marsh watershed, and the predominant drainage is to the north and northwest.

Many areas of this woodlot have had terrain alteration, in preparation for the development that never came to fruition. Consequently, there are drainage patterns that have been man-made and areas that have been flattened off to be more conducive for building purposes. That being said, the southeast third of this property has been altered very little, and has some nice hills and valleys, offering a variety of slopes. Where changes have been made, the land appears to have adjusted over time, and wildlife is using the property in the middle of these altered areas. Overall, this property has gently rolling terrain, with very few rock outcrops or sheer cliffs. One unique feature of this property is Adam's Rock, located at one of the northeastern boundary corners. This large formation of boulders is quite attractive and is a nice location for viewing wetland birds.

The single biggest threat to the wetlands, and the associated wildlife in them, is OHRV usage on this property. Wheeled vehicle users seek this property for the "mud factor," which generally means they are driving through sensitive wetland areas. This is particularly true in the area of Adam's Rock and other points where the gravel roads lead to wetland edges.

## Wildlife

Biological diversity can be described as the variety of plants and animals located in a given tract of land or landscape and the communities that are formed by that variety of species. Two of the biggest threats to biological diversity today are loss of habitat to non-forest uses and invasive species. This property has enormous value for wildlife, in the areas of food, water, cover, and breeding habitat. The wide variety of forest types and ages, the variable terrain, and presence of flowing and standing water all help to make the property very diverse when it comes to flora and fauna. What is particularly valuable

about this property is the fact that most habitats are connected to one another in some way; in other words, there are no areas that are isolated from the rest of the property.

As mentioned, the presence of water adds a great deal to the value of this property for wildlife. Wildlife professionals have often documented that water greatly increases the diversity of wildlife populations. This is most likely due to the wide variety of fish, birds, mammals, amphibians, reptiles, and invertebrates that depend on water for life, which then attract predators as well, the great horned owl being one example. Beavers have maintained this water presence through dams across the main brooks that flow north: the northeastern wetland area is held by at least 2 main dams, for example.

Another habitat type that is rapidly becoming rare in New England is that of early successional species. This dense, brushy growth is excellent cover and breeding grounds for a number of small upland mammals and birds. Stand 7 is a 4-acre example of this type of habitat, although it is starting to get beyond the "early successional" stage and grow into forest. Maintaining this and other areas around the property in the early successional stage would be beneficial to wildlife species that need this habitat.

One habitat type that this property lacks is that of an open field environment. Open fields and/or pasture-type settings offer deer and turkey huge benefits throughout the summer, especially since insects make up the primary diet of young turkey during the summer. More than that, these areas are frequented by small mammals, which in turn attract predators such as raptors, weasels, bobcat, and coyote. Another habitat missing from this property is that of a mature conifer forest. Looking at the landscape at large, however, one can find mature conifer forests adjacent to this property, whereas open fields are not close to this property, which makes the open fields more of a priority than mature conifer forest.

Overall, this property has a wealth of diverse habitats that support a large number of different species of birds, waterfowl, upland game, mammals, amphibians, reptiles, and their supporting flora.

### Timber Cruise

A detailed timber cruise was completed on the property yielding 42 plots of tree data across each forested stand. This data was used to tabulate the current tree growth on the property and the field notes made during this cruise helped to create many of the maps in this management plan. A cruise is a statistical sample that is used to determine the volumes of various forest products growing on the property. This cruise generates volumes in terms of cords (for all trees 6-11" in diameter, or trees larger than 11" that are not suitable for sawtimber) and board feet (for trees 12" and greater in diameter that could be sold and sawn into boards). The diameter of a tree is measured at 4.5' above the ground, which is an industry standard referred to as diameter at breast height (DBH). From this intensive cruise, a total of 13 stands were delineated for this property. Stands are areas of trees with similar species composition, size, and frequency of occurrence. These stands will be the basis for the methodical analysis of the forest management plan, and are depicted on the following Stand Map.

## Landowner Goals & Objectives

The Town of Pelham has been very proactive in protecting various areas around the town from development by keeping areas open for recreational use and

maintaining areas of forestland for wildlife habitat. Many of these parcels are associated with wetland areas that benefit greatly from the forested buffer they have instead of having pavement and lawns in the riparian zones. The Town continues to educate citizens and developers alike, explaining the benefits of forested lands around built-up areas. The general goals of the Town can best be summed up with the key words of the New Hampshire Tree Farm System, of which the Town is a member: wood, water, wildlife, and recreation. The Town is interested in managing their woodlots for long-term, sustainable forest management. They are interested in generating periodic revenue from timber harvests that encourage quality wood growth on residual trees as well as encourage regeneration, in order to grow tomorrow's forest beneath the forest of today. The Town owns many of their properties in order to protect sensitive wetland sites and waterways by maintaining a forested buffer between the open water and built-up areas. Because Pelham is a town with many people, the municipal officials recognize that families, individuals, and schoolchildren benefit from having wooded areas for walking and nature watching, as well as ballfields for playing sports. The Town hopes to keep these areas open to responsible recreation without compromising the other three goals. Finally, the Town recognizes that the native wildlife species of New Hampshire need areas for food, water, shelter, and raising young. To that end, these forests are kept as biologically diverse as possible while maintaining the other three goals as simultaneously as possible.

The goals for this specific property are to periodically thin the forest to gain some revenue over the years; maintain a trail system through the area for walking, biking, and non-motorized winter activities; maintain the integrity of the stream and wetland areas with no pollution, siltation, or alteration of the terrain; and provide a diversity of species with enough cover, food, and water so as not to lose species from living in this area of Pelham. Sound forest management will be able to meet most of these goals.

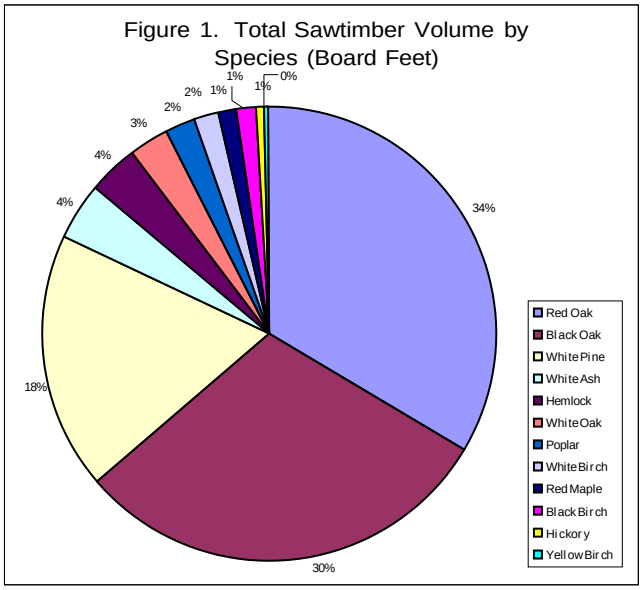
Additional action may need to be taken to prevent 4-wheelers from further degradation of the wetland areas. This may be as simple as asking users of the property to help build temporary wooden crossings to keep the machines out of the mud and water, and installing rubber waterbars on the steeper sections of trails. For areas (such as the mud holes in the middle of the gravel roads or gravel pit) that have ponded water with little wildlife value, filling in the mud holes should be considered. This will minimize the attraction by users that simply want to "go muddin'," which would do a lot to keep rogue riders out of wetland areas. This approach is probably better than simply posting signs that do not allow motorized vehicles on the property, since signs are generally ignored. Properly closing off the access at Gowing Road will likely help the situation a great deal, although it is obvious that trucks have even pulled away large boulders that were placed at this site a while ago. The upland areas of this property are not adversely affected by 4-wheelers, for the most part, and so the most important issues would be to keep the machines away from the wet areas.

In order to have a looping trail system that goes near Adam's Rock, a trail will most likely need to be built on the neighbor(s)' property to the east. Cooperation between landowners in a situation like this would be beneficial for the integrity of the wetlands.

# Forest Products Summary Table for All Stands

Town of Pelham
Gumpas Pond Conservation Area
Pelham and Hudson, NH
Total Acreage: 153.3 +/- acres

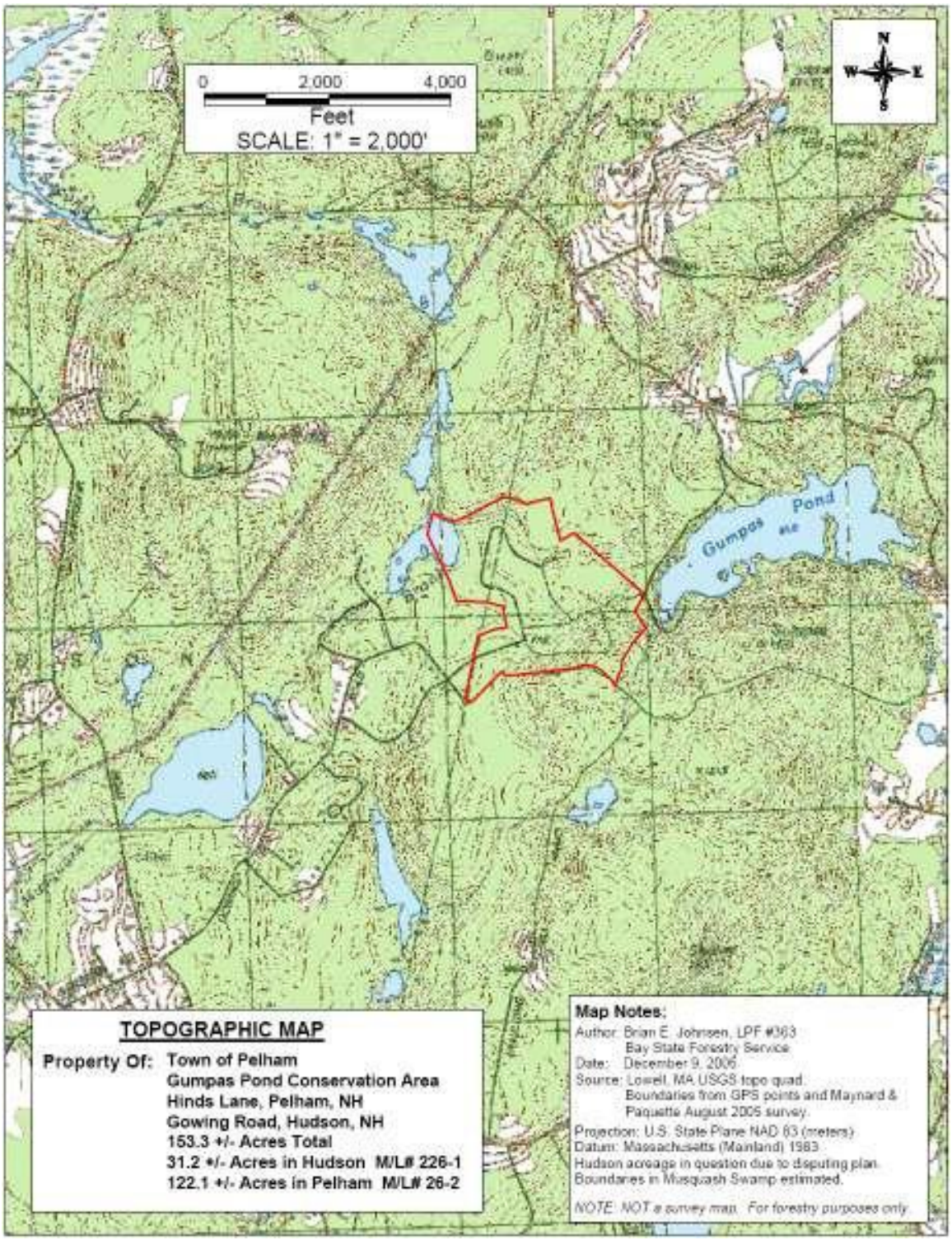
| Species | Board Feet |
|---|---|
| Red Oak | 225,507 |
| Black Oak | 199,587 |
| White Pine | 123,736 |
| White Ash | 27,331 |
| Hemlock | 24,617 |
| White Oak | 18,458 |
| Poplar | 14,151 |
| White Birch | 11,570 |
| Red Maple | 9,481 |
| Black Birch | 9,398 |
| Hickory | 3,940 |
| Yellow Birch | 1,171 |
| Total Sawtimber | 668,947[1] |
| Hardwood Cordwood | 876 Cords |
| Softwood Pulpwood | 162 Cords |
| Total Cordwood | 1,038 Cords[2] |

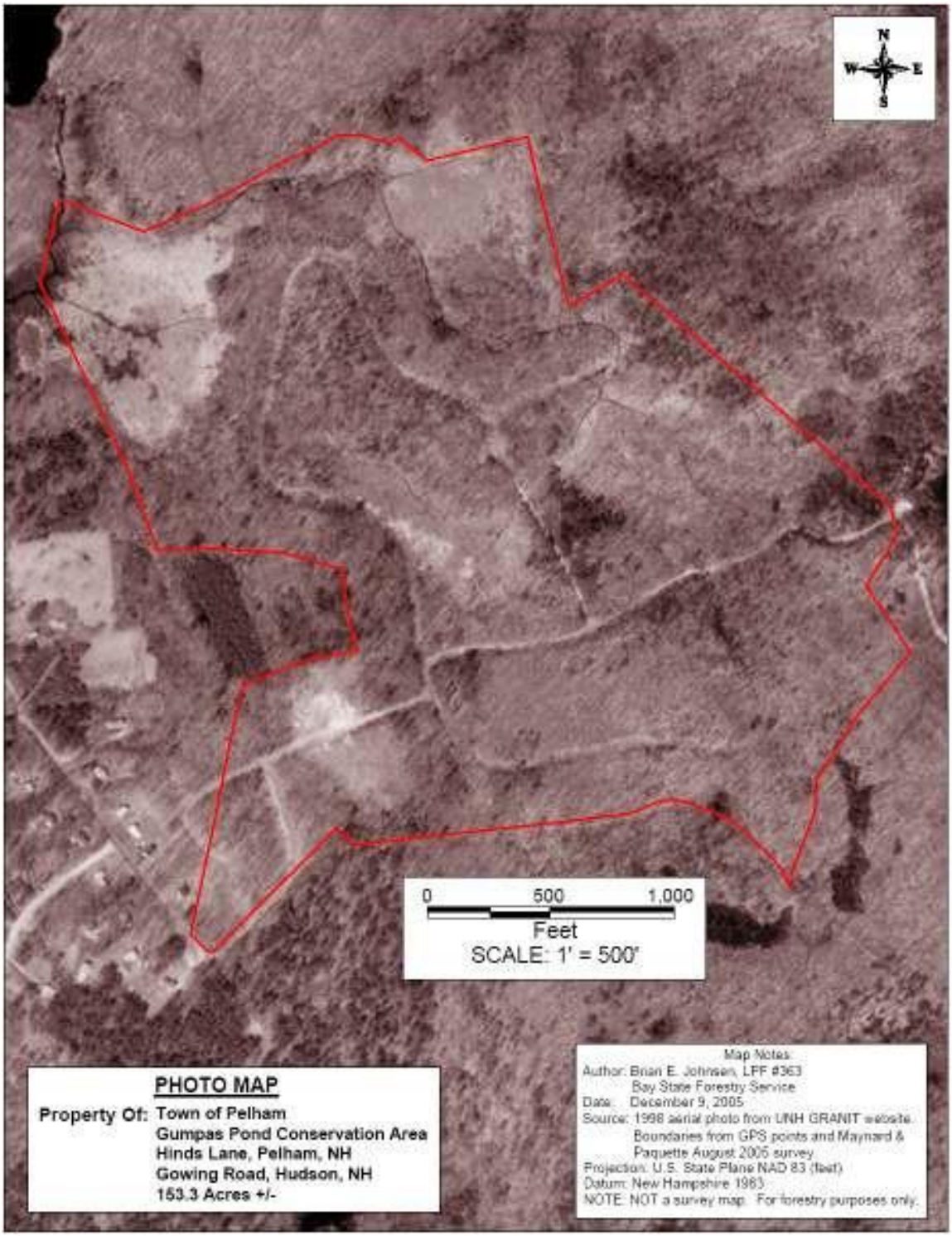


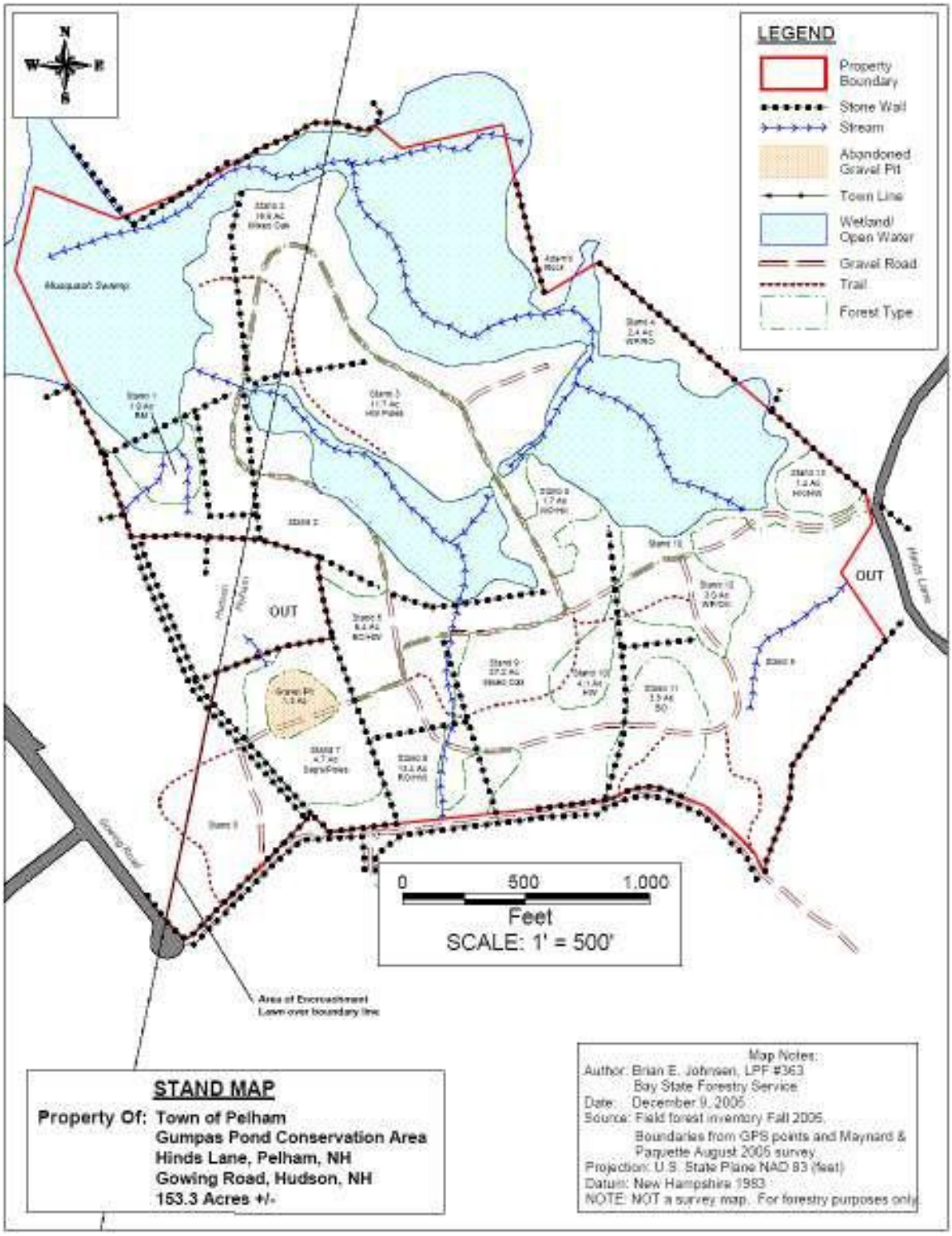

A basal area factor 10 prism was used to conduct the inventory sample. A total of 42 plots, distributed across each forested stand, were taken to arrive at this cruise summary.

[1] This sawtimber total represents all the trees of sawtimber quality 12 inches and greater in diameter found in this block. In order to capture this total volume, all trees of this specification would have to be harvested.

[2] These cordwood totals, both softwood and hardwood, represent all the standing trees with diameters of 6-11.9 inches found in this block, as well as trees of larger diameters that do not meet sawtimber quality specifications. In order to capture this total volume, all trees of this specification would have to be harvested.


0 2,000 4,000
Feet
SCALE: 1" = 2,000'
N
W
E
S
Gumpas Pond
TOPOGRAPHIC MAP
Property Of: Town of Pelham
Gumpas Pond Conservation Area
Hinds Lane, Pelham, NH
Gowing Road, Hudson, NH
153.3 +/- Acres Total
31.2 +/- Acres in Hudson M/L# 226-1
122.1 +/- Acres in Pelham M/L# 26-2
Map Notes:
Author: Brian E. Johnsen, LPF #363
Bay State Forestry Service
Date: December 9, 2006
Source: Lowell, MA USGS topo quad.
Boundaries from GPS points and Maynard & Paquette August 2005 survey.
Projection: U.S. State Plane NAD 83 (meters)
Datum: Massachusetts (Mainland) 1983
Hudson acreage in question due to disputing plan.
Boundaries in Musquash Swamp estimated.
NOTE: NOT a survey map. For forestry purposes only


N
W
E
S
0
500
1,000
Feet
SCALE: 1' = 500'
PHOTO MAP
Property Of: Town of Pelham
Gumpas Pond Conservation Area
Hinds Lane, Pelham, NH
Gowing Road, Hudson, NH
153.3 Acres +/-
Map Notes:
Author: Brian E. Johnsen, LFF #363
Bay State Forestry Service
Date: December 9, 2005
Source: 1998 aerial photo from UNH GRANIT website.
Boundaries from GPS points and Maynard & Paquette August 2005 survey
Projection: U.S. State Plane NAD 83 (feet)
Datum: New Hampshire 1983
NOTE: NOT a survey map. For forestry purposes only.


LEGEND
Property Boundary
Stone Wall
Stream
Abandoned Gravel Pit
Town Line
Wetland/ Open Water
Gravel Road
Trail
Forest Type
N
W
E
S
Musquash Swamp
OUT
OUT
Hinds Lane
Gowing Road
0
500
1,000
Feet
SCALE: 1' = 500'
Area of Encroachment
Lawn over boundary line
STAND MAP
Property Of: Town of Pelham
Gumpas Pond Conservation Area
Hinds Lane, Pelham, NH
Gowing Road, Hudson, NH
153.3 Acres +/-
Map Notes:
Author: Brian E. Johnsen, LPF #363
Bay State Forestry Service
Date: December 9, 2005
Source: Field forest inventory Fall 2005.
Boundaries from GPS points and Maynard & Paquette August 2005 survey.
Projection: U.S. State Plane NAD 83 (feet)
Datum: New Hampshire 1983
NOTE: NOT a survey map. For forestry purposes only.

## General Management Strategies

Timber – One of the main goals for this property is sound timber management in order to produce a periodic income. A list of management strategies on a stand-by-stand basis is discussed later in this plan.

Fish/Wildlife Habitat – Although some activities can manage for a specific plant or animal (species specialists), most forest management activity focuses on habitat generalists by managing for a diversity of species, protecting existing critical habitat, and enhancing existing habitat. Keeping large browsers in mind, there will be some areas that are opened up to sunlight to encourage young growth on the forest floor.

Soil – Care will be taken to not harvest in mud season, when the ground is too soft, or on excessive slopes, to minimize rutting and erosion during harvest operations. Landings will be seeded with a conservation mix and limed at the conclusion of the job to stabilize the soil, and waterbars will be installed on skid trails where necessary. All these erosion controls will not prevent erosion, however, if OHRV's are not kept at bay. The Town will need to decide the best way the handle this situation.

Water Quality – Buffers will be left along streams and the wetland edge to avoid removing too many trees at once; this will provide soil stabilization along waterways and adequate shade. This shade will decrease water temperature and therefore increase the water's oxygen-holding capacity. The wetlands and steams will be left intact to keep the water clean and silt-free. Poled fords will be used when crossing smaller steams to further prevent siltation. Fueling of machines will not take place near the water's edge to prevent pollution. The crushed culvert on the western loop of the upper gravel road will be replaced. The rest of this gravel road to the south, where it meets with the general gravel road near the gravel pit, should be abandoned to the beaver pond.

Wetlands – In order to preserve the integrity of more sensitive areas of this woodlot, wetlands will only be harvested under dry or frozen conditions. Furthermore, some wetland areas that are currently accessed by OHRV trail will be blocked off from future access. The washout area near Stands 3 and 5, where the large and small wetlands meet, will be re-dressed so that vehicles are kept of out the water at that crossing area. Instead, a culvert and/or stone crossing will be used.

Recreational Resources – The skid trails will provide a nice network of trails for recreational opportunities, both for walking and wildlife viewing. To this end, trails will be kept free of slash where possible.

Aesthetic Values – To maintain good aesthetics, logging operations will not rut up the soils and will cut up the tops so they lay close to the ground for rapid decay. Logging crews will specifically leave high brush, rocks, and log barricades along trails that should be closed to OHRV's, but this will be an exception, following the landowner's goals to prevent erosion and maintain the integrity of sensitive wetlands.

Cultural Features – Care will be taken to avoid breaching or breaking the stone walls during timber harvests unless no openings exist to allow the trees to be skidded to the landing. To accomplish this, loggers will use existing barways for skidding.

Forest Protection – The diversity of tree species does well to protect this property from a forest pest looking for a monoculture of timber. By keeping logging slash low to the ground, decay is speeded up; this prevents too much of a buildup of fuels as a fire hazard.

Threatened/Endangered Species and Unique Natural Communities – During all the walks through this forestland, no species were identified as either threatened or endangered. If at some time any flora or fauna are identified on this property as such, appropriate measures will be taken to prevent disturbing that species.

# Forest Management Plan

## Stand 1 – Red Maple Swamp – 1.9 Acres

Description:

This stand, located in the northwestern corner of dry land in this property, is one of the stands located in Hudson, NH. This stand also makes up the majority of land involved in the boundary discrepancy between a 1979 survey and the deed for this parcel. The stand is comprised of wetland hardwood poles, mostly red maple, with an understory of hardwood shrubs, cattails, and herbaceous cover. The soils are quite wet, ponded most of the year, and very poorly drained. Two intermittent streams flow into this stand from the south and west. This stand provides an excellent filter for stream water and surface flow reaching Musquash Swamp and should remain intact.

Recommendations:

This stand is quite wet, has little in the way of timber resources to make harvesting appealing, and should be considered inaccessible for conventional harvesting purposes.

**Stand 2 – Mixed Oak Sawtimber**

| Standing Volumes -- Stand 2 | | 19.6 Acres | |
|---|---|---|---|
| Species | Average BA/acre (sq. ft./ac.) | Volume per acre (bd. ft./ac.) | Total Volume (bd. ft.) |
| Black Oak | 46 | 4,831 | 94,688 |
| Red Oak | 15 | 1,756 | 34,418 |
| Poplar | 5 | 722 | 14,151 |
| White Oak | 4 | 439 | 8,604 |
| Sawtimber Total: | 70 | 7,748 | 151,861 |
| | | Cords/ac. | Total Cords |
| Cordwood | 37 | 6.2 | 122 |
| Softwood Pulp | 7 | 1.4 | 27 |
| Total BA/acre | 114 | | |

Description:

This rather large stand, located in the northern and western areas of the property south of the large wetlands, is composed mostly of black and red oak sawtimber 10-16" in diameter along with some smaller white oak and poplar sawtimber. Red maple, black birch, and white pine poles 6-10" in diameter, as well as the above-mentioned species, also add to the overstory composition. This stand has some decent white pine regeneration 5-15' tall, as well as red maple and other hardwood shrubs of similar size. Soils are rather rocky, somewhat well-drained or very well-drained, and the stand has already been cut over at least once before in the past 50 years. This stand is bounded by the old gravel road that was installed by the previous owners. This road provides very good access to this stand, although the road has been flooded in two places by beaver activity, at the southern ends of this stand.

Recommendations:

This stand, harvested sometime in the past 20 years, is actually growing fairly well and is not completely overstocked. However, the quality red oak sawtimber that is growing here could benefit greatly from a light harvest that removes the competing hardwood poles and poorly-formed large hardwoods. This thinning would remove about 20-30 square feet of basal area per acre, leaving a well-stocked stand of quality hardwoods to grow into the future. This harvest would remove about 15 MBF of oak sawtimber and at least 40 cords of firewood.

## Stand 3 – Harvested Hardwood and White Pine Poles

| Standing Volumes -- Stand 3 | | 11.7 Acres | |
|---|---|---|---|
| Species | Average BA/acre (sq. ft./ac.) | Volume per acre (bd. ft./ac.) | Total Volume (bd. ft.) |
| Black Oak | 17 | 1,273 | 14,894 |
| White Pine | 9 | 598 | 6,997 |
| Red Oak | 3 | 255 | 2,984 |
| Sawtimber Total: | 29 | 2,126 | 24,874 |
| | | Cords/ac. | Total Cords |
| Cordwood | 36 | 6.8 | 80 |
| Softwood Pulp | 24 | 4.4 | 51 |
| Total BA/acre | 89 | | |

Description:

This stand, located north of the small wetland and inside the upper loop of gravel road, is a high-and-dry area of dense hardwood and white pine poles 4-12" in diameter. Most of the white pine has been badly weeviled and is of very poor quality. This stand was harvested quite heavily during the last timber operation, and this stand has regenerated very well. The stand consists mostly of black oak and white pine 4-12" in diameter, along with some red oak, red maple, and white birch of similar size. Blueberry bushes make up the most common regeneration on the forest floor underneath the saplings and poles. The terrain is rather flat, generally sloping to the north or south with grades of 2-4%. A main ATV trail cuts through this stand, connecting the northwestern corner of the gravel road with the southeastern section just before the washout in Stand 2. The northwestern corner of this stand has been used a number of times as a camping area, with much trash and charred wood as evidence. Unless this area is monitored more closely against illegal camping, it is quite likely that a carelessly-left fire could start a wildland fire in this stand.

Recommendations:

This stand should be allowed to grow some more before attempting any sort of serious timber harvesting. However, this stand is at the perfect age for a timber stand improvement operation, called TSI. TSI is a manual operation of going through the woods with a chainsaw, felling or girdling poor-quality trees and releasing the high-quality neighbors. By reducing the competition for sunlight, water, and nutrients, the residual crop trees increase in diameter growth, thereby producing sawtimber sooner than if nature had self-thinned the pole growth.

**Stand 4 – Well-stocked White Pine/Red Oak Sawtimber**

| Standing Volumes -- Stand 4 | | 2.4 Acres | |
|---|---|---|---|
| Species | Average BA/acre (sq. ft./ac.) | Volume per acre (bd. ft./ac.) | Total Volume (bd. ft.) |
| White Pine | 56 | 8,675 | 20,820 |
| Red Oak | 43 | 3,509 | 8,422 |
| White Oak | 3 | 265 | 636 |
| Yellow Birch | 3 | 265 | 636 |
| Black Oak | 3 | 255 | 612 |
| Sawtimber Total: | 108 | 12,969 | 31,126 |
| | | Cords/ac. | Total Cords |
| Cordwood | 16 | 5.3 | 13 |
| Softwood Pulp | 21 | 7.5 | 18 |
| Total BA/acre | 145 | | |

Description:

This small stand, located along the northeastern boundary of the property, is composed of white pine and quality red oak sawtimber 12-18" in diameter, along with some mixed oak and yellow birch of similar size. Some smaller white birch and red maple can be found in this stand as well. This stand can be accessed through Stand 2, using an ATV trail and crossing the wetland area at one narrow point. The stand is somewhat dense and would benefit greatly from a thinning. Regeneration consists of good white pine, oak, and black birch saplings 2-8' tall. Soils are well-drained and slope with grades of 2-5% to the west.

Recommendations:

As mentioned, this stand would benefit greatly from a light sawtimber harvest. Such a harvest should remove much of the suppressed hardwoods as well as a number of poor-quality white pines. This harvest would also remove some oak and white pine sawtimber, yielding about 10 MBF of sawtimber, mostly white pine.

**Stand 5 – Dense White Pine/Hemlock Sawtimber**

| Standing Volumes -- Stand 5 | | 1.7 Acres | |
|---|---|---|---|
| Species | Average BA/acre (sq. ft./ac.) | Volume per acre (bd. ft./ac.) | Total Volume (bd. ft.) |
| Hemlock | 60 | 22,249 | 37,823 |
| White Pine | 50 | 8,603 | 14,625 |
| Red Oak | 60 | 5,783 | 9,831 |
| White Oak | 10 | 1,103 | 1,875 |
| Sawtimber Total: | 180 | 37,738 | 64,155 |
| | | Cords/ac. | Total Cords |
| Softwood Pulp | 50 | 10.3 | 18 |
| Total BA/acre | 230 | | |

Description:

This very small stand, located south of the eastern tip of Stand 2 between the two wetland areas, is a dense pocket of white pine, hemlock, and hardwood sawtimber 10-20" in diameter. This small stand appears to have been missed in the last harvest. The dense softwood overstory has shaded out most regeneration, and so the only regeneration found on the forest floor consists of hemlock saplings 5-15' tall. Soils are somewhat well-drained and fairly flat. Access to this stand is very good, using the gravel roads.

Recommendations:

This stand is overstocked and would benefit greatly from a sawtimber thinning. This harvest should remove about 10 MBF of hemlock, white pine, and oak sawtimber, focusing on removing more of the shady hemlock in order to establish some quality regeneration on the forest floor. Care should be taken to leave a few very large overstory white pines as perches for raptors.

## Stand 6 – Black Oak/Hardwood Sawtimber & Poles

| Standing Volumes -- Stand 6 | | 6.4 Acres | |
|---|---|---|---|
| Species | Average BA/acre (sq. ft./ac.) | Volume per acre (bd. ft./ac.) | Total Volume (bd. ft.) |
| Black Oak | 30 | 2,898 | 18,547 |
| White Ash | 10 | 1,369 | 8,762 |
| White Pine | 10 | 1,321 | 8,454 |
| Red Oak | 7 | 716 | 4,582 |
| White Oak | 7 | 613 | 3,923 |
| Red Maple | 3 | 255 | 1,632 |
| Black Birch | 3 | 265 | 1,696 |
| Sawtimber Total: | 70 | 7,437 | 47,597 |
| | | Cords/ac. | Total Cords |
| Cordwood | 29 | 5.9 | 38 |
| Softwood Pulp | 3 | 0.8 | 5 |
| Total BA/acre | 102 | | |

Description:

This large stand is located south of the small wetland and along the western boundary line, north of the gravel pit, and along the northern edge of the gravel road network. This stand is fairly similar to Stand 8 in a number of ways, but is distinctly different, as noted in the Stand Description for Stand 8. The stand is well-stocked, composed primarily of black oak sawtimber 12-16" in diameter, along with white ash, red oak, white oak, and black birch of similar size. Also found in this stand is a high pole component of red maple 6-10" in diameter as well as some white pine 14-18" in diameter. Regeneration consists of viburnum species and hardwood shrubs 3-6' tall, as well as pockets of good white pine regeneration 4-10' tall. Soils are somewhat well-drained and generally slope to the northeast with grades of 2-6%. Access to this stand is good, using the network of gravel roads and utilizing the gravel pit for a landing.

Recommendations:

This stand is fairly well-stocked as is, but the quality of sawtimber would benefit from a light thinning that would remove some of the poorly formed hardwoods and white pines. This thinning would remove some of the dominant black oak and white ash as well, in order to allow more sunlight to reach the younger, more vibrant pole stock. This harvest would yield 5-10 MBF of sawtimber as well as about 15 cords of firewood.

## Stand 7 – Hardwood Saplings & Poles After Clearcut – 4.7 Acres

Description:

This small stand, located in the southwestern part of the property, south of the gravel pit, was clearcut in preparation to expand the gravel pit. The pit was never expanded, and this area has grown back in very well to red maple, gray birch, white birch, black birch, white pine, and red ok saplings. Soils are well-drained and slope very little. Access to this stand is very good.

Recommendations:

This stand is too young to prescribe any forestry treatments at this time, and should be monitored over the next 10 years for health and vigor. Towards the end of this 10-year management period, this stand should be evaluated for TSI potential in order to increase growth on crop trees and weed out poorly-formed stems.

## Stand 8 – Harvested Red Oak & Hardwood Sawtimber

| Standing Volumes -- Stand 8 | | 13.4 Acres | |
|---|---|---|---|
| Species | Average BA/acre (sq. ft./ac.) | Volume per acre (bd. ft./ac.) | Total Volume (bd. ft.) |
| Red Oak | 30 | 3,076 | 41,218 |
| White Pine | 15 | 2,190 | 29,346 |
| White Ash | 10 | 1,195 | 16,013 |
| Black Oak | 7 | 708 | 9,487 |
| Black Birch | 3 | 341 | 4,569 |
| Hickory | 3 | 294 | 3,940 |
| Red Maple | 2 | 194 | 2,600 |
| White Oak | 1 | 109 | 1,461 |
| Sawtimber Total: | 71 | 8,107 | 108,634 |
| | | Cords/ac. | Total Cords |
| Cordwood | 53 | 9.6 | 129 |
| Softwood Pulp | 2 | 0.4 | 5 |
| Total BA/acre | 126 | | |

Description:

This stand, located in the southeastern corner of the property, is quite similar to Stand 6 in a number of ways. Where Stand 6 is dominated by black oak, though, this stand is dominated by red oak sawtimber 10-16" in diameter. White pine stocking and size is similar, with slightly more sawtimber volume in this stand. White ash sawtimber stocking and volume is very similar, although this stand has a very high pole-sized stocking of white ash. Black birch sawtimber volume and stocking is similar, although the pole stocking is higher in this stand than in Stand 6. Red maple size and stocking is similar in both stands, with higher stocking of poles in Stand 6. White oak is nearly absent from this stand, as opposed to Stand 6. Soils in this stand are moderately well-drained and generally slope to the north and west, with grades of 3-6%. Access to this stand is very good. This stand appears to have been harvested more recently and more heavily than Stand 6, which may account for the higher pole stocking of white ash and black birch. Regeneration consists of some good pockets of white pine saplings 2-4' tall, as well as plenty of black birch saplings 10-20' tall. There are some areas that have some very good red maple, sugar maple, and black birch saplings 1-2" in diameter as well. It would appear that this stand has better soils for growing quality sawtimber, and it is likely that much of the standing white pine sawtimber was removed in the last harvest. Stand 6, on the other hand, never had much white pine sawtimber to begin with, and therefore was not as appealing to the previous harvesters.

Recommendations:

This stand is growing well after the last harvest, and regeneration is doing quite well. However, this stand would benefit from a light sawtimber harvest that would remove competing trees from around quality red oak crop trees. This harvest would remove about 10 MBF each of white pine and red oak sawtimber, about 5 MBF each of black oak and white ash, and more than 30 cords of firewood.

**Stand 9 – Well-stocked Mixed Oak Sawtimber**

| Standing Volumes -- Stand 9 | | 27.2 Acres | |
|---|---|---|---|
| Species | Average BA/acre (sq. ft./ac.) | Volume per acre (bd. ft./ac.) | Total Volume (bd. ft.) |
| Red Oak | 46 | 3,933 | 106,978 |
| Black Oak | 28 | 1,781 | 48,443 |
| White Pine | 6 | 895 | 24,344 |
| Red Maple | 2 | 193 | 5,250 |
| White Ash | 1 | 94 | 2,557 |
| White Oak | 1 | 72 | 1,958 |
| Sawtimber Total: | 84 | 6,968 | 189,530 |
| | | Cords/ac. | Total Cords |
| Cordwood | 39 | 11.2 | 305 |
| Softwood Pulp | 2 | 0.6 | 16 |
| Total BA/acre | 125 | | |

Description:

This very large stand, making up the southern and southeastern portions of the property, is composed of a healthy stocking of red oak and black oak sawtimber 10-16" in diameter, as well as white pine and various hardwoods. This stand also has a full stocking of pole hardwoods 6-12" in diameter, particularly red oak, black oak, red male, and white oak. Soils are generally moderately well-drained to well-drained, and range greatly in slope and aspect, although the general aspect of this stand is northerly. Regeneration varies a fair bit, but generally this stand has good stocking of white pine saplings 2-6' tall on the forest floor. Access is good for most of this stand.

Recommendations:

This would benefit from a light harvest much like Stand 8, removing the competing pole-sized and sawtimber trees from around desired red oak and other quality crop trees. Such a harvest will yield at least 100 cords of firewood and 20 MBF of red oak and black oak sawtimber.

## Stand 10 – White Birch & Hardwoods

| Standing Volumes -- Stand 10 | | 4.1 Acres | |
|---|---|---|---|
| Species | Average BA/acre (sq. ft./ac.) | Volume per acre (bd. ft./ac.) | Total Volume (bd. ft.) |
| White Birch | 30 | 2,822 | 11,570 |
| Red Oak | 10 | 1,029 | 4,219 |
| Black Oak | 10 | 1,029 | 4,219 |
| Black Birch | 10 | 764 | 3,132 |
| Sawtimber Total: | 60 | 5,644 | 23,140 |
| | | Cords/ac. | Total Cords |
| Cordwood | 80 | 19.4 | 80 |
| Total BA/acre | 140 | | |

Description:

This stand, located in the central-eastern area of the property, is primarily a white birch poles/small sawtimber stand along with mixed oaks, black birch, and other hardwoods of similar size. This small stand dips into Stand 9, and then is also found along the gravel road out to Hinds Lane and south of the extreme tip of the large wetland. Soils range from moderately well-drained (near Stand 9) to rather poorly-drained (near the wetland edge), and slope with grades of 3-8% to the south and west. Regeneration is sparse, with some hardwood shrubs and much less white pine than Stand 9. Access to this stand is good using the gravel roads. However, the northern edge of this stand forms the riparian zone around the southern edge of the large wetland, and should only be harvested under conditions that will not jeopardize the integrity of the wetland.

Recommendations:

This small stand would benefit from a light sawtimber and cordwood harvest in areas away from the wetland edge. This thinning should remove much of the dying white birch and competing, poor-quality black oak, leaving the healthier red oak and black birch as residual crop trees. This harvest will reduce the basal area just below 100 square feet per acre.

## Stand 11 – Upland Stunted Black Oak

| Standing Volumes -- Stand 11 | | 3.8 Acres | |
|---|---|---|---|
| Species | Average BA/acre (sq. ft./ac.) | Volume per acre (bd. ft./ac.) | Total Volume (bd. ft.) |
| Black Oak | 20 | 1,162 | 4,416 |
| Sawtimber Total: | 20 | 1,162 | 4,416 |
| | | Cords/ac. | Total Cords |
| Cordwood | 70 | 16.3 | 61.9 |
| Total BA/acre | 90 | | |

Description:

This small stand, located along the southern boundary line, is actually a subset of Stand 9. This stand has very dry soils, excessively drained, and rocky, with shallow soils and bedrock close to the surface. The red oak does not grow nearly as well here, and so this stand consists mostly of black oak stunted pole-sized trees growing over an understory of blueberries and hardwood saplings. This stand is accessible using the southern loop of gravel road.

Recommendations:

This small stand is currently understocked, and the shallow soils are not likely to grow excellent timber in the near future. This stand, then, should be used more as a travel-way between harvesting locations and should be addressed for sawtimber and cordwood removal in the next period. Some of the poorest-quality stems could be removed in the upcoming harvest for skid trail layout.

## Stand 12 – White Pine & Oak Sawtimber

| Standing Volumes -- Stand 12 | | | 3 Acres |
|---|---|---|---|
| Species | Average BA/acre (sq. ft./ac.) | Volume per acre (bd. ft./ac.) | Total Volume (bd. ft.) |
| White Pine | 35 | 5,679 | 17,037 |
| Red Oak | 30 | 2,800 | 8,400 |
| Black Oak | 20 | 1,427 | 4,281 |
| Sawtimber Total: | 85 | 9,906 | 29,718 |
| | | Cords/ac. | Total Cords |
| Cordwood | 35 | 9.6 | 29 |
| Softwood Pulp | 15 | 4.4 | 13 |
| Total BA/acre | 135 | | |

Description:

This small stand, located south of the large wetland at the junction of diverging gravel roads, is comprised of white pine 10-16" in diameter along with mixed oak 8-14" in diameter. This stand could be considered a small pocket of white pine growing in Stand 9, but the concentration of white pine sawtimber has warranted its own stand. Otherwise, the soils and regeneration are the same: moderately well-drained, sloping north with grades of 4-8%, with areas of very good white pine regeneration 2-8' tall. Access to this stand is quite good.

Recommendations:

This small stand will benefit greatly from a timber harvest that will thin out some of the suppressed white pine poles and the low-quality black oak. Such a thinning will release the advance regeneration and increase the diameter growth rates on residual crop trees. This thinning will bring the basal area per acre down to about 90 square feet.

## Stand 13 – Dense Hemlock/Hardwood Sawtimber

| Standing Volumes -- Stand 13 | | | 1.4 Acres |
|---|---|---|---|
| Species | Average BA/acre (sq. ft./ac.) | Volume per acre (bd. ft./ac.) | Total Volume (bd. ft.) |
| Hemlock | 60 | 14,449 | 20,229 |
| Red Oak | 25 | 3,183 | 4,456 |
| White Pine | 10 | 1,509 | 2,113 |
| Yellow Birch | 10 | 382 | 535 |
| Sawtimber Total: | 105 | 19,523 | 27,332 |
| | | Cords/ac. | Total Cords |
| Cordwood | 70 | 14.8 | 21 |
| Softwood Pulp | 30 | 5.7 | 8 |
| Total BA/acre | 205 | | |

Description:

This small stand, located on the eastern boundary line near Hinds Road, consists of large hemlock sawtimber 12-20" in diameter along with red oak and white pine 8-14" in diameter. This stand also has some white and yellow birch pole stock 6-10" in diameter along with hemlock poles of similar size in the understory. Regeneration consists of some hemlock 4-10' tall growing under the dense overstory. Soils are well-drained and slope to the west with grades of 6-15%. Access to this stand is fairly good off of the gravel road, although this stand is probably the furthest skid from the gravel pit landing area.

Recommendations:

This stand will benefit greatly from a sawtimber harvest that would remove much of the shady hemlock overstory to make room for the white pine and red oak poles to grow and mature into valuable sawtimber. This harvest will also allow sunlight to reach the forest floor, in order to establish some quality species for the future.

# Management Schedule

2005

- Prepare the forest management plan.
- Blaze and paint identifiable boundary lines.
- Address recreational issues (hunting, hiking, ATV use, etc.).

2006-08

- Conduct a conventional timber harvest in harvestable areas.
- Seed and lime the landing at the conclusion of the timber harvest.

2006-15

- Monitor the woodlot for wind damage, ice damage, fire, or disease and take appropriate corrective actions as needed to ensure the continued health of this forest block.
- Address parking issues for trailheads, and trail creation and maintenance.
- Re-assess the woodlot in 10 years and write a new 10-year management plan, specifically looking at TSI potential and another harvest midway through the next management period.
- (Recommended Item) Make this property available for Project Learning Tree excursions for the local schools.

## Concluding Remarks

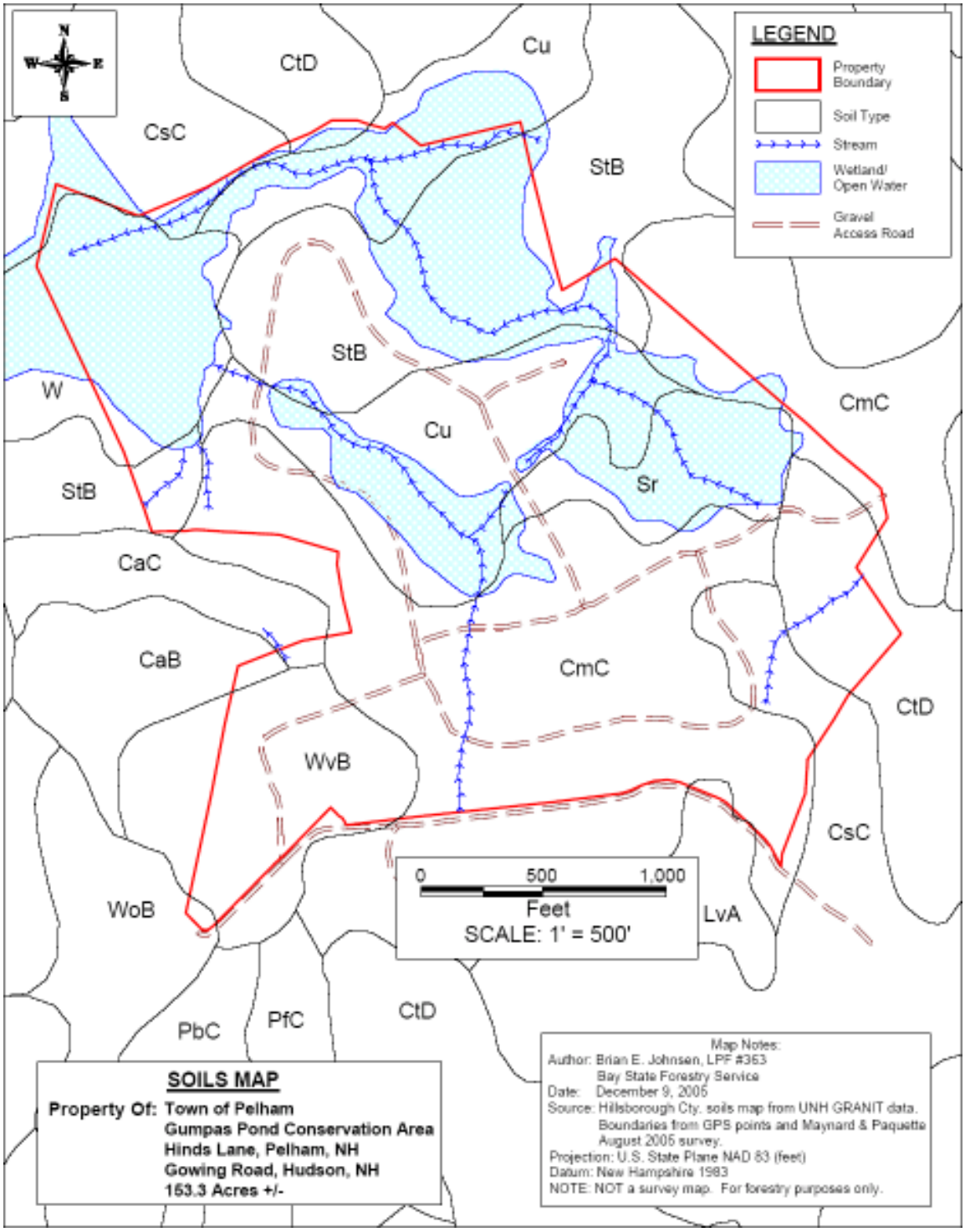
The recommendations proposed in this 10-year management plan should be implemented within the next 10 years, although timing will depend on landowner priorities, market conditions, and environmental conditions such as pest outbreaks and weather. Through sound silvicultural practices and using best management practices (BMP's), mature, diseased, and defective trees will be harvested to allow residual trees to grow in their place. This forest should be monitored for pest outbreaks and destructive weather events; corrective action should be taken as needed over the next 10 years in response to any such events. These recommendations are silviculturally and operationally sound and should result in meeting the landowners' objectives for their woodlot. Implementing these recommendations will help ensure that this forestland is being managed with long-term sustainability in mind.

Respectfully Submitted,

Brian E. Johnsen, Consulting Forester
N.H. License #363

# Appendix A.

# SOILS INFORMATION


N
W
E
S
LEGEND
Property Boundary
Soil Type
Stream
Wetland/ Open Water
Gravel Access Road
CtD
Cu
CsC
StB
StB
W
Cu
CmC
Sr
StB
CaC
CaB
CmC
CtD
WvB
CsC
0
500
1,000
Feet
SCALE: 1' = 500'
WoB
LvA
PbC
PfC
CtD
SOILS MAP
Property Of: Town of Pelham
Gumpas Pond Conservation Area
Hinds Lane, Pelham, NH
Gowing Road, Hudson, NH
153.3 Acres +/-
Map Notes:
Author: Brian E. Johnsen, LPF #363
Bay State Forestry Service
Date: December 9, 2005
Source: Hillsborough Cty. soils map from UNH GRANIT data.
Boundaries from GPS points and Maynard & Paquette August 2005 survey.
Projection: U.S. State Plane NAD 83 (feet)
Datum: New Hampshire 1983
NOTE: NOT a survey map. For forestry purposes only.

# Hillsborough County Soils Profiles

CaB – Canton fine sandy loam, 3-8%

Suitability for growing wetland plants for wildlife habitat – Poor.
Suitability for growing coniferous and hardwood trees – Good.
Suitability for area as habitat for wetland wildlife – Very poor.
Suitability for area as habitat for woodland wildlife – Good.
Suitability for area as habitat for openland wildlife – Good.
Suitable for trails & paths.
Has a good site index (greater than 60) for red pine.
Has only slight erosion hazard and slight windthrow hazard.
Well-drained, moderately rapid permeability, well-suited for cropland, low productivity as forestland.

CaC – Canton fine sandy loam, 8-15%

Suitability for growing wetland plants for wildlife habitat – Poor.
Suitability for growing coniferous and hardwood trees – Good.
Suitability for area as habitat for wetland wildlife – Very poor.
Suitability for area as habitat for woodland wildlife – Good.
Suitability for area as habitat for openland wildlife – Good.
Suitable for trails & paths.
Has a good site index (greater than 60) for red pine.
Has only slight erosion hazard and slight windthrow hazard.
Well-drained, moderately rapid permeability, well-suited for cropland, low productivity as forestland.

CmC – Canton stony fine sandy loam, 8-15% slopes

Suitability for growing wetland plants for wildlife habitat – Very poor.
Suitability for growing coniferous and hardwood trees – Good.
Suitability for area as habitat for wetland wildlife – Very poor.
Suitability for area as habitat for woodland wildlife – Good.
Suitability for area as habitat for openland wildlife – Poor.
Has a good site index (greater than 60) for red pine.
Has only slight erosion hazard and slight windthrow hazard.
Well-drained, moderate permeability, low productivity as forestland, steep slopes can limit logging.

CsC – Chatfield-Hollis complex, 8-15% slopes

Suitability for growing wetland plants for wildlife habitat – Poor.
Suitability for growing coniferous and hardwood trees – Fair.
Suitability for area as habitat for wetland wildlife – Very poor.
Suitability for area as habitat for woodland wildlife – Fair.
Suitability for area as habitat for openland wildlife – Good.
Has a good site index (greater than 60) for sugar maple, white ash, red oak, white pine.
Has only slight erosion hazard and slight windthrow hazard.
Well-drained, granite bedrock within 2', high permeability, high drought susceptibility, moderately productive as forestland.

CtD – Chatfield-Hollis-Rock outcrop complex, 15-35% slopes

Suitability for growing wetland plants for wildlife habitat – Very poor.
Suitability for growing coniferous and hardwood trees – Fair.
Suitability for area as habitat for wetland wildlife – Very poor.
Suitability for area as habitat for woodland wildlife – Fair.
Suitability for area as habitat for openland wildlife – Poor.
Has a good site index (greater than 60) for sugar maple, white ash, red oak.

Has only slight erosion hazard and slight windthrow hazard.
Excessively-drained, granite bedrock at 1-2', moderately permeable, low productivity as forestland, steep slopes and exposed rock outcrops limit logging.

Cu – Chocorua mucky peat
Suitability for growing wetland plants for wildlife habitat – Good.
Suitability for growing coniferous and hardwood trees –Very poor.
Suitability for area as habitat for wetland wildlife – Good.
Suitability for area as habitat for woodland wildlife – Very poor.
Poor suitability for trails, high windthrow hazard.
Very poorly-drained, thick organic layer, moderately permeable, high water table, generally grows shrubs or red maple.

LvA – Leicester-Walpole complex stony, 0-3% slopes
Suitability for growing wetland plants for wildlife habitat – Good.
Suitability for growing coniferous plants – Fair.
Suitability for area as habitat for wetland wildlife – Good.
Suitability for area as habitat for woodland wildlife – Fair.
Has a good site index (greater than 60) for eastern white pine and red maple.
Has only slight erosion hazard and severe windthrow hazard.
Often poorly drained, seasonal high water table limits tree species and operability.

Sr – Scarboro stony mucky loamy sand
Suitability for growing wetland plants for wildlife habitat – Good.
Suitability for growing coniferous and hardwood trees –Poor.
Suitability for area as habitat for wetland wildlife – Fair.
Suitability for area as habitat for woodland wildlife – Poor.
Poor suitability for trails, high windthrow hazard.
Very poorly drained, rapid permeability, high water table, low productivity as forestland, high water table limits most logging, can grow eastern white cedar and red maple.

StB – Scituate stony fine sandy loam, 3-8% slopes
Suitability for growing wetland plants for wildlife habitat – Poor.
Suitability for growing coniferous and hardwood trees – Good.
Suitability for area as habitat for wetland wildlife – Very poor.
Suitability for area as habitat for woodland wildlife – Good.
Suitability for area as habitat for openland wildlife – Poor.
Trails & paths moderately restricted due to wetness.
Has a good site index (greater than 60) for red pine, white pine, red oak.
Has only slight erosion hazard and slight windthrow hazard.
Moderately well-drained, hardpan at 2' limits permeability and rooting depth, often has a perched high water table, moderate productivity as forestland.

WoB – Woodbridge loam, 3-8% slopes
Suitability for growing wetland plants for wildlife habitat – Poor.
Suitability for growing coniferous and hardwood trees – Fair, good.
Suitability for area as habitat for wetland wildlife – Very poor.
Suitability for area as habitat for woodland wildlife – Good.
Suitability for area as habitat for openland wildlife – Good.
Trails & paths moderately restricted due to wetness.
Has a good site index (greater than 60) for red pine, white pine, red oak, sugar maple.
Has only slight erosion hazard and slight windthrow hazard.
Moderately well-drained, hardpan at 2' limits permeability and rooting depth, often has a perched high water table, moderately-high productivity as forestland.

WvB – Woodbridge stony loam, 3-8% slopes

Suitability for growing wetland plants for wildlife habitat – Poor.
Suitability for growing coniferous and hardwood trees – Fair, good.
Suitability for area as habitat for wetland wildlife – Very poor.
Suitability for area as habitat for woodland wildlife – Good.
Suitability for area as habitat for openland wildlife – Poor.
Trails & paths moderately restricted due to wetness.
Has a good site index (greater than 60) for red pine, white pine, red oak, sugar maple.
Has only slight erosion hazard and slight windthrow hazard.
Moderately well-drained, hardpan at 2' limits permeability and rooting depth, often has a perched high water table, high productivity as forestland.

4080064 2004 AUG 23 AM 11:55

PLEASE RETURN TO:

Town of Pelham
6 Village Green
Pelham, NH 03076

18·37
2
20·37

NOTS

**WARRANTY DEED**

KNOW ALL MEN BY THESE PRESENTS,

That I, Roger A. Frenette, being unmarried, of Hudson, Hillsborough County, New Hampshire,

for consideration paid, grant(s) to

Town of Pelham, a New Hampshire Municipal Corporation with a mailing address of 6 Village Green, Pelham, Hillsborough County, New Hampshire,

with WARRANTY COVENANTS

A certain tract of land with the buildings thereon situated partly in said Hudson and partly in Pelham in Hillsborough County, containing two hundred five (205) acres, more or less, described as follows:

Beginning at the corner of the wall, on the northern side of the highway leading from the Samuel Gowing house to the Thomas Gowing house, so-called, and at the corner of the Brown pasture, so-called; thence

(1) Northerly by said Brown pasture to the bridge at the brook; thence

(2) Northeasterly up said brook by land of Cutter to land of Warren Spalding; thence

(3) Easterly by land of Spalding by the wall to land of Chamberlain to a ditch; thence

(4) Southerly by land of said Chamberlain by the ditch about ten (10) rods to a stake and stones; thence

(5) North 84° by land of said Chamberlain twenty-five (25) rods, fifteen (15) links; thence

(6) Southeasterly by land of said Chamberlain two (2) rods to a stake; thence

(7) North 87° east by the ditch and land of said Chamberlain thirty-nine rods, two (2) links to the corner of the ditch; thence

(8) South 2° east by land of David Pearson forty-two (42) rods, seventeen (17) links to Adam Rock, so-called; thence

(9) North 71 1/2 ° east by land of said Pearson fifteen (15) rods to the end of the wall; thence

(10) South 37 1/4° east by land of Warren Butler one hundred four (104) rods, ten (10) links to Gumpus Pond; thence

BK 7303PG0673

(11) Southwesterly by said Pond about seventeen (17) rods to the end of the wall; thence

(12) Southwesterly by land of Joseph Marsh by the wall seventy-four (74) rods to the highway; thence

(13) Northwesterly by the highway to the place of beginning.

BF

Excepting and reserving from the above a tract deeded to Barbara S. Hinds containing about two (2) acres by measure in the Town of Pelham bordering seventeen and one-half (17 ½ ) rods on Gumpus Pond, dated May 27, 1937 and recorded at the Hillsborough County Registry of Deeds at Volume 963, Page 59.

Also excepting and reserving from the above described premises the land and rights conveyed by Myron C. Hartford and Carl D. Oliver herein to Emile F.Vallerand and Emilie Vallerand and by deed recorded in the Hillsborough County Registry of Deeds, Volume 1437, Page 130, and granting the rights reserved to the grantors in said deed, all being set forth in said deed as follows:

"A certain tract or parcel of land with the buildings thereon situate in said Hudson at the end of Musquash Road, so-called, bounded and described as follows:

Beginning at the southwesterly corner of the premises at the corner of a stone wall; thence

(1) Easterly seventy-six (76) rods to another stone wall; thence

(2) Northerly twenty-three and one-half (23 ½) rods to a stone wall; thence

(3) Westerly thirty-three (33) rods to the west side of a lane; thence

(4) Northerly to the brook; thence

(5) Following the brook west to a dam and stone wall; thence

(6) Southerly along the stone wall bordering Viens land to the main road; thence

(7) Southwesterly along said road to the point of beginning.

Said main road referred to being the said Musquash Road. Together with a right to lay pipes to two wells on other land reserved to said grantors and the right to draw water from said wells. Also reserving to said grantors a right-of-way of said granted premises from said Musquash Road to other land reserved to said grantors, said reserved right-of-way being heretofore known as the Gumpus Pond Road."

Also excepting from this conveyance 7.72 acres, more or less, as shown on Plan #26555, drawer 115, on record at Hillsborough County Registry of Deeds.

For locus, reference is made to "Plan of Land, Hudson & Pelham, Surveyed for R & H Builders, Scale: 1" = 100', June 1967, W. Robert Nolte & Associates, Land Surveyors, Nashua, N.H.;" showing 162.64 acres, more or less, via its metes and bounds; based upon an actual field survey; and to be recorded.

Being the same premises conveyed to the grantor by deed of Henry A. Frenette dated November 13, 1998 and recorded in the Hillsborough County Registry of Deeds Book 6023 0131. See also Volume 3366, Page 571, at Hillsborough County Registry of Deeds.

The portion of the land situated in Pelham shall be (a) used for non-building purposes and no structures of any kind, other than construction of trails and/or nature walks (including foot bridges at wetland crossings) and other structures appurtenant thereto shall be erected on the premises; and (b) managed in perpetuity by the Town of Pelham Conservation Commission and/or its successors.

The portion of the land in Hudson shall be subject to management by the Board of Selectman for recreational purposes as per RSA 35-B.

Homestead Rights Do Not Apply.

RF

SIGNED this August 20, 2004

Roger A. Frenette

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM

Dated: August 20, 2004

Then personally appeared Roger A. Frenette known to me, or satisfactorily proven, to be the persons whose names are subscribed to the foregoing instrument and acknowledged that they executed the same for the purposes therein contained, before me,

Peter H. Bronstein
Justice of the Peace
My commission expires: 5/29/07

## RESTORATION PLAN

The Town of Pelham Forestry Committee (Forestry Committee) and Conservation Commission have been proactive in protecting various areas of forestland for wildlife habitat throughout Pelham, New Hampshire. The Gumpus Pond Conservation Area located in western Pelham (**Figure 1**) off of Hinds Lane is one of these sites.

Although the subject parcel is not ranked by the NEC model, it was determined by the U.S Fish and Wildlife Service's Partners for Fish and Wildlife (PFW) and the Wildlife Management Institute (WMI) that this parcel not only is suitable for the restoration of early successional forest habitat, but could also be beneficial in creating a corridor between other ranked parcels in the focus area.

The enclosed site plans (**Figure 2a – 2d)** have been developed in coordination with the Town of Pelham Forestry Committee, Conservation Committee, the Wildlife Management Institute, and the U.S. Fish and Wildlife Service (FWS). The general goals of the restoration efforts focus on creating early successional forest habitat, open fields, and reducing the impacts to the property from recreational vehicle use and littering.

There are three (3) habitat improvement projects planned for this area, which include the creation of two early successional forest stands and the creation of a field. The following pages describe each of the proposed habitat improvement projects.

Area – 1 - Early Successional Forest Stand Improvement (17 acres)

This area is located in the northwest portion of the property and is depicted on Figure 2b. The western portion of this stand is comprised of pole stage hardwoods, mostly red maple, with an understory of shrubs, cattails, and herbaceous cover that abuts a wetland to the west. The eastern portion of this stand consists of mixed hardwoods and slopes up to the adjacent uplands in Pelham. Two intermittent streams flow into this stand from the south and east. The western portion of this stand is comprised of pole stage hardwoods, mostly red maple, with an understory of shrubs, cattails, and herbaceous cover that abuts a wetland to the west.

Early successional forest habitat shall be created by selectively removing overstory trees from the area. No trees shall be harvested within fifty (50) feet of wetlands. Selective removal of trees shall be determined prior to and during the proposed improvement operations. This management strategy will be useful in determining what trees should be selectively removed by hand (chainsaw), a forestry cutter, a brontosaurus, and/or other heavy equipment. During the proposed implementation, specimen sized trees (12 inch DBH or greater), snags, and mast producing trees shall be marked for removal or to be left in place by FWS biologist, WMI staff, and/or the Town of Pelham Forestry Committee/Conservation Committee. At their own expense, the Forestry Committee may remove trees with timber value prior to the beginning of the project in accordance with its existing forest management plan.

The U.S. Fish and Wildlife Service anticipate conducting this work with their staff and equipment in the dormant season (September 2011 to March 2012). The FWS reserves the right to sub-contract any of the work that may be necessary to complete the project.

*Operations and Implementation Outline for Area 1*

- Area 1 (Dormant Season - September 2011 to March 2012)
    - FWS will mark limits of project area – 50 feet setback from wetlands
    - Mark trees for removal or to be left in place
    - Selectively harvest trees 4” DBH or greater
    - Canopy goals
        - 20% canopy closure
    - Tree harvest goals
        - 4” DBH to 8” DBH chipped on site
        - 9” DBH + fell and left on site
            - Tree crowns to be ground on site or used to create brush piles
                - Brush piles to be limited to be spaced between 200 and 300 feet and should range between 10 to 15 feet in diameter and 5 to 8 feet in height
    - Cutting shrub areas to be avoided

Area 2 - Early Successional Forest Stand Improvement (5 acres)

This area is located to the south of the existing disturbed area and is depicted on Figure 2c. This area has regenerated to a mix of red maple, gray birch, white birch, black birch, white pine, and red oak saplings. Early successional forest habitat shall be created by cutting all trees (clearcut) from the area to no less than 1 foot from the ground. Tree removal shall be done by hand (chainsaw), a forestry cutter, a brontosaurus, a hydro ax, and/or other heavy equipment. During the proposed implementation, specimen sized trees (12 inch DBH or greater), snags, and mast producing trees can be marked for removal or to be left in place by FWS biologist, WMI staff, and/or the Town of Pelham Forestry Committee/Conservation Committee. At their own expense, the Forestry Committee may remove trees with timber value prior to the beginning of the project in accordance with its existing forest management plan. .

The U.S. Fish and Wildlife Service anticipate conducting this work with their staff and equipment in the dormant season (September 2011 to March 2012). The FWS reserves the right to sub-contract any of the work that may be necessary to complete the project.

*Operations and Implementation Outline for Area 2*

- Area 1 (Dormant Season - September 2011 to March 2012)
    - FWS will mark limits of project area
    - Mark trees for removal or to be left in place
    - Clearcut – remove all trees 3" DBH +
        - Tree crowns to be ground on site or used to create brush piles
            - Brush piles to be limited to be spaced between 200 and 300 feet and should range between 10 to 15 feet in diameter and 5 to 8 feet in height

Area 3 – Field Creation (1 acre)

This area is located north of Area 2 and is depicted on Figure 2d. No vegetation is present and the substrate consists of mostly bare mineral soil, debris, and mulch from the previous logging operations. The proposed plan for this area is to create a field. The appropriate grassland/forbs seeds for the area (invasive free seed mix) must be used and must not be mowed more than once a year. This field may be used as a staging area for future logging operations; however, it must be fully restored after each logging event. The Town of Pelham cleaned the site of debris and graded the area.

The U.S. Fish and Wildlife Service shall provide the seeds for the grass field and anticipate conducting this work with their staff and equipment in spring 2012 after the field work is completed for Areas 1 and 2. The FWS reserves the right to sub-contract any of the work that may be necessary to complete the project.

*Operations and Implementation Outline for Area 3*

- Area 1 (Dormant Season - September 2011 to March 2012)
    - FWS will mark limits of project area
    - Re-grade site and prepare for seed – Completed May 2011
    - Seed and potential add amendments to the soil

Invasive Plant Species Control

The U.S. Fish and Wildlife Service and/or the Wildlife Management Institute shall provide a licensed contractor to treat invasive plant species throughout the project area. This work will most likely take place in September 2011 and September 2012.

Town of Pelham Site Work

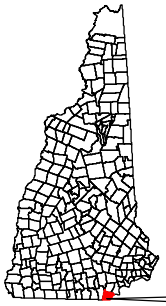
The Town of Pelham Forestry Committee shall provide the following services for the project. The PFW will be available for technical assistance if requested by the Town.

1. Remove Trash from the site
2. Re-grade the disturbed area – to be done by others
3. Mark trees to be removed/kept and at its discretion remove trees with timber value prior to implementation of the project.
4. Create barriers on existing logging roads after the project is completed
5. Place habitat restoration signs

Long Term Maintenance

- The U.S. Fish and Wildlife Services and/or the Wildlife Management Institute shall periodically monitor the site for vegetation regeneration and wildlife utilization throughout the project term. Additional tree removal in Area 1 and 2 may take place during the project term.
- Invasive species control shall be maintained throughout the life of the contract as indicated above.
- The Town of Pelham shall mow the field not more than once a year between October 1st and April 1st if the funds to do such work are appropriated by vote of the town's residents.

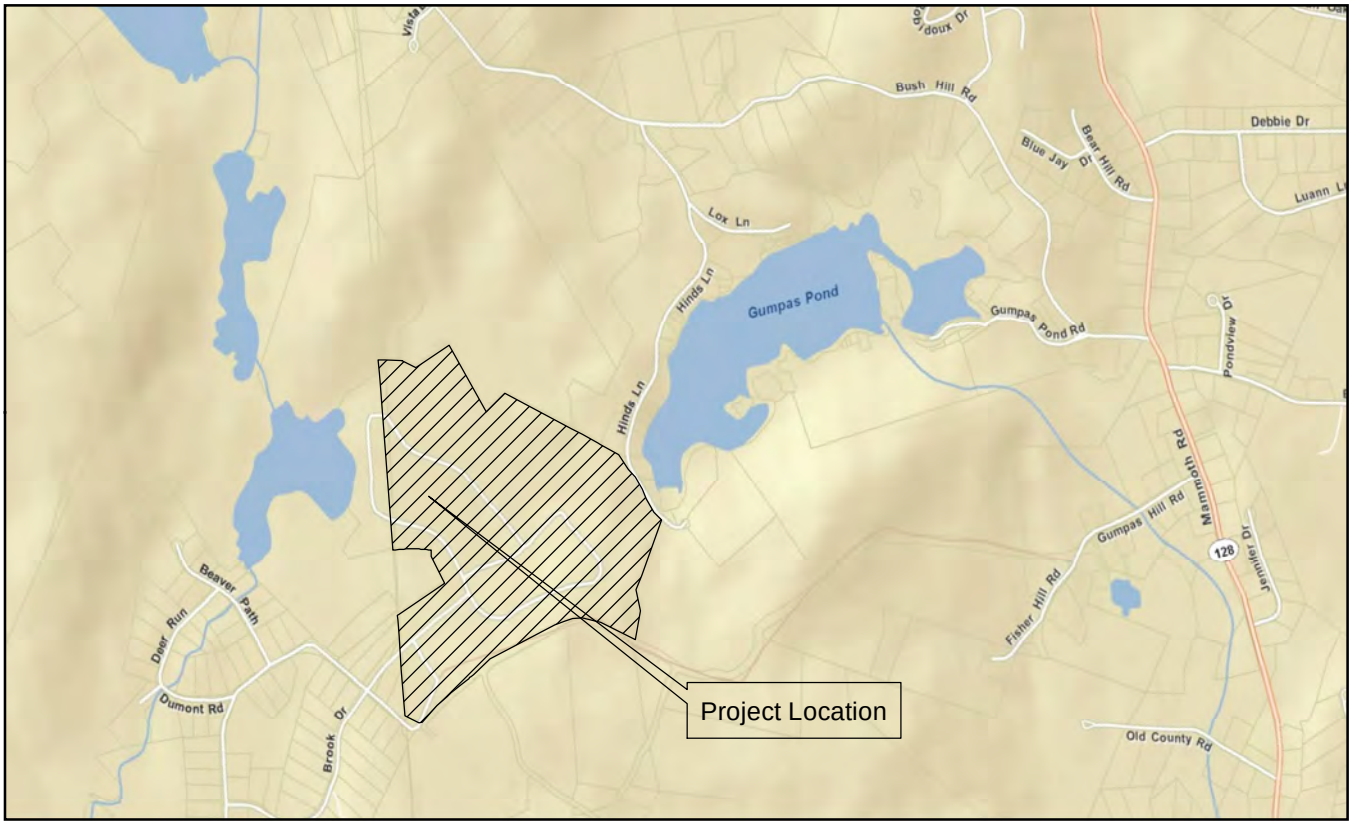
# New Hampshire
# Town of Pelham



N
W E
S
NTS

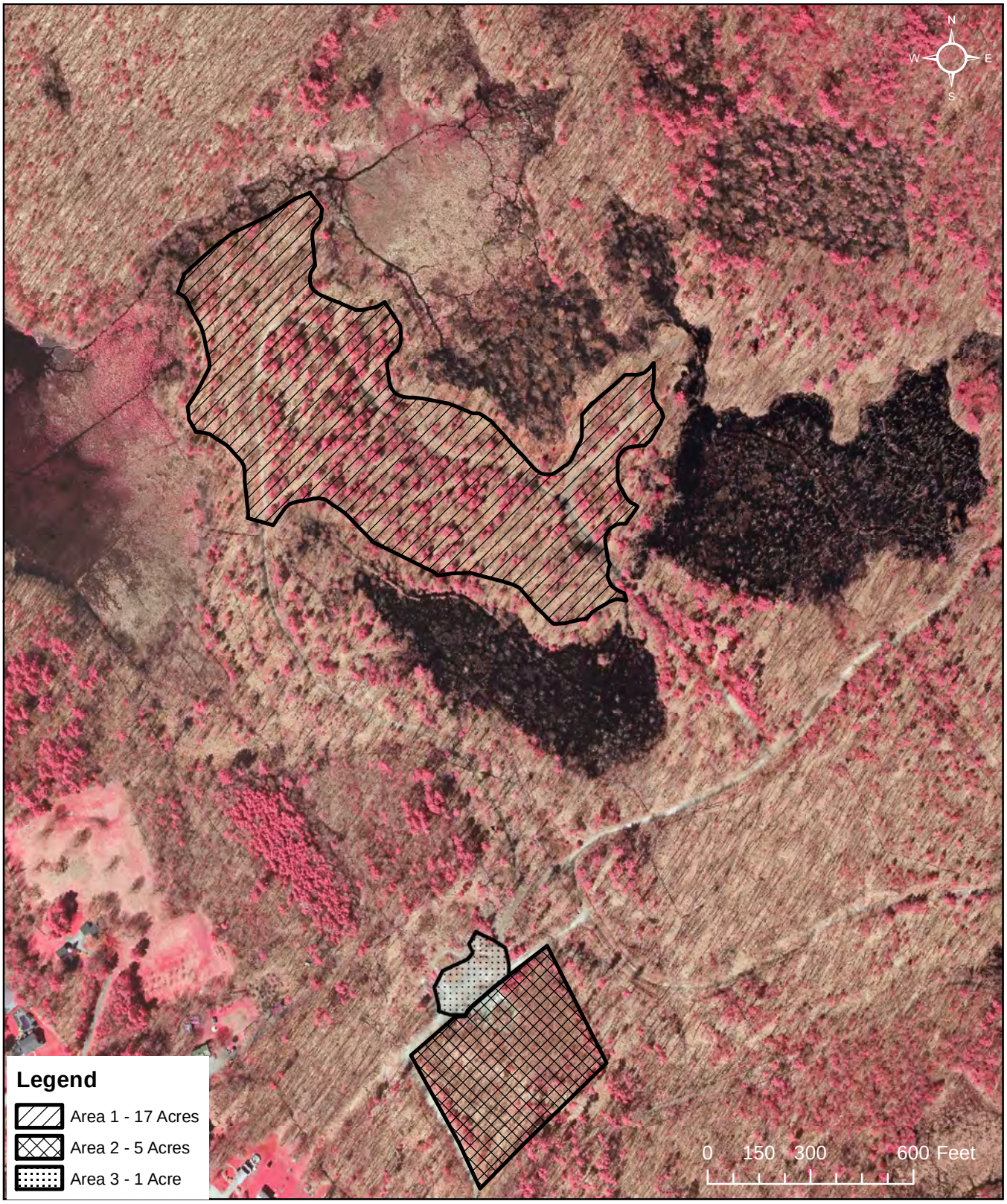

**Legend**

Gumpas Pond Property Lines




Source: 2010 NH Aerial Imagery WMS on broadbandnh.sr.unh.edu & http://www.granit.unh.edu/

| | | |
|---|---|---|
| Gumpas Pond Reservation Area<br>Pelham, New Hampshire | U.S. Fish and Wildlife Service<br>Partners for Fish & Wildlife | Location Map<br>May 2011<br>Figure 1 |




Source: 2010 NH Aerial Imagery WMS on broadbandnh.sr.unh.edu & http://www.granit.unh.edu/

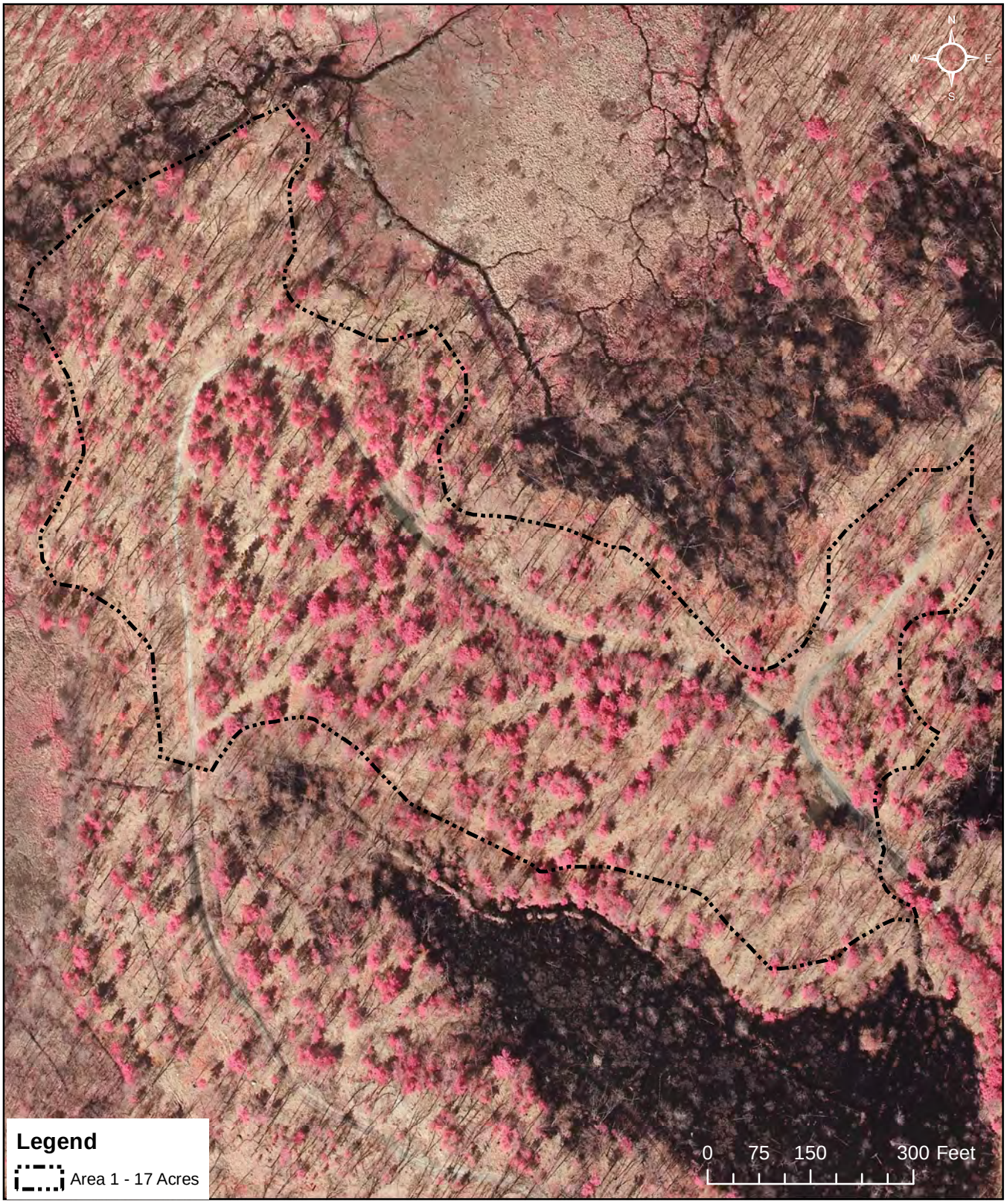
Gumpas Pond Reservation Area
Pelham, New Hampshire

U.S. Fish and Wildlife Service
Partners for Fish & Wildlife

Site Plan

May 2011

Figure 2a




Source: 2010 NH Aerial Imagery WMS on broadbandnh.sr.unh.edu & http://www.granit.unh.edu/

Gumpas Pond Reservation Area
Pelham, New Hampshire

U.S. Fish and Wildlife Service
Partners for Fish & Wildlife

Site Plan - Area 1

May 2011

Figure 2b

| 2006 | 2014 |
| --- | --- |
| **ARTICLE 13:**<br>Shall the Town will vote to establish as Town Forests pursuant to RSA 31:110-113, the following parcels:<br><br>Tax Map 26 & 27, Lot 2-79 ("Hinds Lane Conservation Area")<br><br>Tax Map 25, Lot 12-38 (Calitri Family Conservation Area)<br><br>Tax Map 30 & 36, Lot 11-254 (Little Island Pond Conservation Area)<br><br>Tax Map 10, Lot 10-1 (Costa Family Conservation Area)<br><br>Tax Map 33, Lot 1-159 (Frederic Cutter Merriam Conservation Area)? **(Recommended by Conservation Commission) (No Tax Impact)**<br><br>YES 2250<br>NO 467 | **ARTICLE 11:**<br>**Shall the Town vote to establish as Town Forests pursuant to RSA 31:110-113 the following parcels and add them to existing Town Forests as follows: Add tax map 20 lots 2-113-2 and 2-113-3 to the Hinds Lane Town Forest and rename it the Gumpas Pond Town Forest totaling approximately 169 acres; and add tax map 33 lot 1-161 and tax map 33 lot 2-61 (formerly owned by Lareau) to the Cutler-Spalding Town Forest and rename it the Cutler-Lareau-Spalding Town Forest totaling approximately 261 acres? No tax impact. (Recommended by Selectmen) (Majority Vote Required)**<br><br>2876 YES ○<br>581 NO ○ |