

FOREST MANAGEMENT PLAN

for the

**ANDREW SANBORN FARM and POP'S WOODS
CONSERVATION LANDS**

Durrell Mountain Road

Belmont, New Hampshire

Prepared by:

Ronald J. Klemarczyk

FORECO: Forest Resource Consultants

PO Box 161 Contoocook NH 03229

PO Box 597 Rumney NH 03266

October 2013

TABLE OF CONTENTS

Table of Contents.....	2
Introduction.....	3
Goals and Objectives.....	3
Access.....	3
Boundary Lines.....	4
Topography.....	4
Site.....	5
Forest History.....	5
Forest Inventory and Timber Cruising Procedure.....	7
Areas of Forest Types.....	8
Forest Type Descriptions and Prescriptions.....	9
Total Operable Volumes.....	14
Potential Timber Harvest Volumes and Values.....	15
Forest Management Activity Schedule.....	16
General Recommendations	
Wildlife.....	17
Recreation.....	18
Water Resource Protection.....	18
Cultural and Historical Features.....	19
Threatened and Endangered Species.....	19
Invasive Species.....	19
Forest Fire Protection and Emergency Access.....	19
Glossary.....	20

**FOREST MANAGEMENT PLAN
ANDREW SANBORN FARM and POP'S WOODS
CONSERVATION LANDS
Belmont NH**

INTRODUCTION

The Andrew Sanborn Farm and Pop's Woods Conservation area is located on the south side of Durrell Mountain Road, at the corner of the Belmont, Gilmanton and Gilford Town Lines, about 2 miles east of the intersection with Route 107 in Belmont, New Hampshire. The Conservation Area consists of two adjacent lots and contains a total of 217.93 acres, including some minor acreage in Gilmanton and Gilford. The Sanborn Farm was purchased by the Town of Belmont in 2008 and Pop's Woods was purchased from Richard and Peggy Meyers in 2010. Both lots contain forested uplands and wetlands and the Sanborn farm also contains a hayfield now used for wildlife habitat. The property abuts protected land in the Town of Gilmanton and is part of a long range project by the Belknap Range Conservation Coalition to protect significant lands in the Belknap Mountain Range.

LANDOWNER GOALS and OBJECTIVES

The property was purchased with the intent of protecting open space as well as the headwaters of the Tioga River whose adjacent wetlands were identified in 2008 by Stoney Ridge Environmental as the top four wetlands in the Town. The property will be managed under the Multiple Use concept where consideration is given to timber production, forest recreation, wildlife habitat, education and watershed protection.

ACCESS

The Sanborn Farm Lot has 50 feet of frontage on Middle Route, 2,545 feet along the Class VI Rogers Road and 1,620 feet of frontage on Durrell Mountain Road, though some of that frontage is on the Class VI portion of that road which becomes very difficult to drive just east of the Gilmanton Town Line. Pop's Woods has a total of 905 feet of frontage on Durrell Mountain Road though it is split by the five acre Meyers house lot and 4,825 feet on Rogers Road. Rogers Road is only drivable for a short distance south of Durrell Mountain Road as the bridge over the Tioga River is designed for snowmobiles. The Sanborn Farm lot has an internal woods road system with entrances on Durrell Mountain Road, Middle Route and the drivable portion of Rogers Road just north of Middle Route. The woods roads on the Sanborn Farm were used for logging access by the previous owner and are also used to access a hayfield found in the center of that lot. There is an extensive skidder trail network on the Sanborn farm that ties into the roads and can be reused in future harvests. The road system is gated and not open to the public for vehicular traffic but is used for hiking, horseback riding and winter sports. The area of Pop's woods north of the Tioga River is accessed from Rogers Road south of Durrell Mountain Road. The area of Pops' Woods south of the river was also accessed by Rogers Road but northerly from Middle Route. Future harvests in the area south of the River could be accessed by laying out a skidder trail from one of the woods roads on the Sanborn Farm to avoid maintaining the Rogers Road south of the river. There were also a few old skidder trails on Pop's Woods but they are scattered and probably not suitable for modern logging equipment. The only access problem noted on the woods road system on the

Sanborn farm was a stone ford found in an intermittent stream at the west end of the field. The swale in the stone riprap was not deep enough to allow water to pass and has diverted the stream in a westerly direction down the road bed. The swale should be deepened or replaced with a culvert. The woods roads also need to be mowed once every two to three years to keep them from growing in with shrubs and trees.

New skidder trails should avoid crossing wetland areas and stream crossings should be kept to a minimum, especially on the steep slopes. If new culverts are installed on the woods road, the culvert crossings should be properly sized, and culvert diameters should not be less than 15 inches. Culvert sizing is based on the acreage of the drainage area and sizing recommendations can be found in the State's Best Management Practices (BMP's) guidelines. Skidder trails should be laid out with the thought of possibly using them in the future. A well maintained skid trail network will reduce the costs of future logging thereby adding to the value of the timber. It also provides easy access for recreational activities as well as for safety and fire protection purposes.

BOUNDARY LINES

Both lots were surveyed Harold Johnson just prior to their acquisition by the Town. The Sanborn Farm was surveyed in 2007 and Pops Woods was surveyed in 2010. The boundaries consist of a mix of stone walls, wire fences and blazed lines. The boundaries of the Sanborn Farm were blazed and spray painted with green paint. The paint is now faded and not very visible. The boundary of Pop's Woods was flagged but not blazed or painted. It is recommended to blaze the non-walled portions of the Pop's Woods boundary and then paint the entire boundary of both lots with one color. Boundaries should then be repainted every ten years. Well-marked boundaries will help limit forestry activities to the intended parcel and help reduce the risk of accidental trespass or encroachment on the part of abutters.

TOPOGRAPHY

The topography on the property is varied, with relatively flat areas along the tributaries of the Tioga River to heavily sloped areas along the lot's eastern boundary on the Gilmanton Town line. Elevations run from 1,000 feet in the northeastern corner of the Sanborn Farm down to 820 feet where the Tioga River crosses the western boundary of Pop's Woods. The Tioga River bisects Pop's Woods and is the northwestern boundary line of the Sanborn Farm. Almost all of the Tioga River found within the property has been dammed by beavers which has created an extensive wetland complex. There are two smaller streams that cross the Sanborn Farm from southeast to northwest. One enters into the lot through its southern boundary and joins the Tioga River just before it crosses under Rogers Road. The other enters the lot through the southeastern boundary and joins the river east of Rogers Road. Both streams have their own associated wetlands and beaver ponds. A third stream enters the Sanborn Farm at the lot's northeast corner and then runs westerly down to the Tioga River. Although the slopes are not a hindrance to timber harvesting, the wetland complexes are. Fortunately, the previous owner of the Sanborn Farm constructed a woods road network that has made almost all of the lot accessible. The wetland on Pop's Woods has prevented access to the southern half of the lot from Durrell Mountain Road unless the bridge is rebuilt on Rogers Road. The Conservation Area has a generally western exposure and drains entirely into the Tioga River which flows in a generally southwestern direction to Belmont Village and then westerly to the Winnepesaukee River in Tilton which combines with the Pemigewasset River in Franklin to become the Merrimack River.

SITE

Site, or growing site, refers to the condition of how well trees grow in a particular area. In most cases, site is based on soil type. Trees have adapted to various sites and some sites will favor certain species over others. The major site influences include soil depth, composition, drainage and exposure. There are seven upland and two wetland soil types found on the lot. The upland area on Pop's Woods contains the Champlain loamy fine sand and the Chichester sandy loam soils. Both soils are considered moderately productive that slightly favors white pine over hardwoods such as red oak and sugar maple. The northeastern portion of the sloped area along the Gilmanton Town line on the Sanborn Farm contains the Monadnock sandy loam soil, while the southeastern portion contains Tunbridge-Lyman-Beckett soil complex. Monadnock soil is considered a moderately productive forest soil that slightly favors white pine over hardwoods such as red oak and sugar maple. The Tunbridge-Lyman-Beckett soil complex contains a variety of soil conditions. Areas with deep soils and good drainage are considered a moderately productive soil that favors both white pine and hardwoods such as white birch and sugar maple. The areas with shallow soils and poor drainage are considered low to moderate productive soils for all species. The upland area at the base of the slope on the Sanborn Farm in the area of the hayfield contains Croghan soil which moderately productive soil that favors white pine over hardwoods. The upland area between the two streams in the southeastern part of the Sanborn Farm contains the Skerry fine sandy loam. It is considered a highly productive forest soil that strongly favors white pine. There is a small area of Metacomet fine sandy loam in the extreme southwest corner of the Sanborn farm which is also considered a highly productive soil that strongly favors white pine. Most of the soils directly adjacent to the streams in the southwestern part of the Sanborn farm contain the Moosilauke fine sandy loam. It is a sometimes wet soil that favors species such as red maple, hemlock and yellow birch, though white pine will grow on the drier humps of soil. The majority of the wetland areas along the Tioga River contain the Catden mucky peat soil, with a small area of a Searsport-Chocorua-Naumberg soil along the stream near Durrell Mountain Road. Intensive forest management should be focused on the productive forest soils, though the less productive soils are still capable of growing lower quality forest products such as firewood and pulp. Wetland soils are not considered productive forest soils, but they do provide ideal habitat for many species of wildlife.

Although long-term tree growth is dependent on site conditions, occasional occurrences such as insect defoliations, ice storms, prolonged drought or brush fires can have a severe impact on the forest's health and vigor. The concept of long-term forest management through timely thinning helps prevent the adverse effects typically brought on by stagnation. A healthier tree will be less affected by the above mentioned situations and will be better able to recover from them if they occur.

FOREST HISTORY

The history of the woodlot is fairly typical of most of the woodlots found on the hills around Belmont. The area was settled in the early to mid 1700's, when Belmont was part of Gilmanton. Many of the early pioneers tended to locate their houses near abandoned beaver swamps where the marsh grass provided hay for livestock until their hayfields and pastures could be cleared. Early fur traders had trapped out most of the beavers which allowed the beaver swamps to dry out and provide the right environment for a lush marsh grass to develop. It is no surprise therefore, to find that the only farmstead on the property to be located next to a beaver swamp along the Tioga River on Rogers Road. By the

mid1800's, the area that now makes up the Conservation Land was cleared for either crops or pasture. The interior stonewalls on Pop's Woods as well as the series of ditches along the river indicate the area was heavily used for agriculture. The outwash soils on much of the Sanborn Farm did not contain the rocks that had to be cleared and made into walls. However, those dry soils were typically used to grow grain crops such as wheat and barley, though the stone walls and wire fence along the lot's eastern boundary indicate that even that area was used for pasture at some point in time. In 1859, the area that now makes up the Town of Belmont became known as Upper Gilmanton and the 1861 Belknap County Map shows a "P. Farrar" living in the farmstead on Rogers Road and a water-powered sawmill located where the Tioga River crosses that road. Trees from land clearing, especially in the Belknap mountain area were probably sawn at the mill and the lumber was used locally. The Farrar family was well established in Belmont and a nearby portion of Town was called "Farrarville" for a time. In 1869, the name of Upper Gilmanton was changed to Belmont. At around that time, much of the marginal farmland in New Hampshire started to be abandoned. The wool industry had collapsed and the poor, rocky soils on steep hillsides could no longer support livestock. With the aid of the railroads, the opening of the Nation's mid-west with its flat, deep rock-free soils after the Civil War started to move commercial agriculture to that part of the country. The industrial revolution also created job opportunities in area mills that started to spring up on New Hampshire's larger rivers at around that time. By 1892, the old insurance map for the Town no longer shows the farmstead on Rogers Road. The map still shows the sawmill but it appears to be designated as abandoned. Remains of the mill foundation and dam are still visible, though beavers have now incorporated parts of the old dam into their new dam to recreate the mill pond.

White pine tends to grow into abandoned pastures and based on what was cut in the last few harvests, it appears that the wetter, southern portions of the Sanborn Farm were abandoned in the late 1800's and grew in with white pine and hemlock, most of which was cut in the 1970's. With the exception of the existing hayfield, the rest of the Sanborn Farm as well as much of Pop's Woods appears to have been abandoned as farmland in the early 1900's and the pine that grew into the old pasture land was harvested between the 1970's and early 2000's which helped to create the mixed forest currently found there.

FOREST INVENTORY and TIMBER CRUISING PROCEDURE

The forest inventory of Pop's Woods and the Sanborn Farm was performed using a point sampling technique with a 10 Basal Area Factor prism. Cruise lines were laid out 300 feet apart through lot and sample points were taken at 300 foot intervals along those lines. A total of 86 points were taken on the 156 acres of operable forestland. At each sample point, all trees four inches in diameter at breast height (DBH) and greater were measured and tallied by species, DBH, and merchantable height by product such as grade sawlog, pallet quality sawlog, or pulp. Merchantable heights were measured to a ten inch top diameter for sawlogs and a four inch top diameter for pulp.

Tally sheets containing the sample point data were processed by **FORECO** utilizing the **MULTICRUISE** program. MULTICRUISE is an advanced variation of the forest inventory program originally developed at the University of New Hampshire Forestry Department. The processed results are later summarized in this report.

Details such as streams, woods roads, trails, stone walls, wetlands, and forest type boundaries were mapped in the field while running the cruise lines. This information was then transferred to a base map of the property and the forest type acreage was then calculated by using an instrument called a polar planimeter and adjusted to match the total acres taken from the recent property survey. Finally, all of the base map details and forest type information were combined to produce the copy of the Forest Type Map found in this report.

A meeting was then held with the Belmont Conservation Commission to discuss the findings of the inventory as well as both general and specific forest management recommendations now found in this Management Plan.

A Glossary and other information are provided at the end of this report.

**AREAS OF FOREST TYPES
ANDREW SANBORN FARM and POP'S WOODS TOWN FOREST
Belmont, NH**

<u>STAND NUMBER</u>	<u>FOREST TYPE</u>	<u>DESCRIPTION</u>	<u>ACRES</u>
1	<u>Ro,Rm,H,Hm 2-3B</u> H,Be 1 B	Barely adequately stocked stand of pole and sawlog-sized red oak, red maple, mixed hardwoods and hemlock above a sapling-sized understory of mixed hardwoods dominated by beech.	74.0
2	Hm,Rm,Ro,H2-3A	Slightly overstocked stand of pole-sized and sawlog-sized hemlock, red maple, red oak and mixed hardwoods.	21.5
3	<u>Hm,Rm 3 C</u> Hm,H 1-2 A	Understocked overstory of sawlog-sized hemlock and red maple above an overstocked sapling and pole-sized understory of hemlock and mixed hardwoods.	27.0
4	<u>Wp,H 3 C</u> H,Bf 1-2 B	Understocked overstory of sawlog-sized white pine and mixed hardwoods above an adequately stocked sapling and pole-sized understory of mixed hardwoods and balsam fir.	19.0
5	Wp,Ro,H2-3A	Overstocked stand of pole and sawlog-sized white pine, red oak and mixed hardwoods.	14.8
TOTAL FOREST LAND			156.3 Acres
Hayfield			6.8
Wetlands			54.83
TOTAL PROPERTY			217.93

Acres

ANDREW SANBORN FARM and POP'S WOODS TOWN FORESTS

FOREST TYPE DESCRIPTION AND PRESCRIPTION

The following descriptions and prescriptions are listed on a stand by stand basis. However, timber markets and the financial needs of the owner change with time, sometimes abruptly. Other factors such as weather including windstorms and ice storms; or fire; or biological factors such as severe fungal infections or insect infestations may have serious impacts on the forest management program. This plan is only a guide and may have to be modified over time to address any unforeseen circumstances.

STAND 1 Ro,Rm,H,Hm 2-3B / H,Be 1 B

Description: This 74 acre Stand is found in the northeastern corner of the Sanborn Farm and is located on the western base of Durrell Mountain. It contains an extensive woods road and skid trail system as well as several streams, wetlands, a hayfield and a few steep slopes. Although the slopes are steep, they are short and should not hinder management activities. The top of one of the slopes may have a vista potential that needs to be investigated when the leaves are off of the trees. Unfortunately, some *phragmites*, a tall, invasive grass, was found in a wetland along the woods road just south of Durrell Mountain Road. The Stand has been harvested at least twice, once around 15 to 20 years ago, and again around 5 years ago, which has created a mixed forest in both species and size classes though most of the large sawtimber-sized trees, especially the white pines, were cut in the last harvest. The Stand is slightly dominated by red maple with 34% of the basal area and red oak at 28%, followed by hemlock at 12%, white pine at 10%, and beech at 9%, with a scattering of sugar maple, aspen, white birch and yellow birch. The red maple is more common on the north facing slopes, while red oak is more common on the southern exposures. Hemlock and yellow birch tend to be found along the drainages and wetlands. Most of the trees are pole and small sawlog in size and would be considered fair to good in quality. Heavy regeneration developed after the last harvest and created an understory throughout much of the Stand. It is dominated by beech but also contains some red oak, red maple and a scattering of white pine and hemlock. There are a few patches of more advanced regeneration that developed after the earlier harvest and is made up of the same species that developed after the more recent harvest. With a Basal Area of 69 square feet and 175 trees per acre, the Stand is considered at the low end of adequately stocked, though this is a bit deceiving in that the recent harvests have created uneven stocking throughout the Stand. Some areas between old skidder trails would be considered overstocked, while other areas were heavily cut and are almost understocked.

Prescription: Due to the past logging, there are few mature trees that are ready to be harvested. However, there are some scattered, somewhat heavily stocked areas within the forest that contain some poor quality hardwoods that could be selectively thinned in about ten years (2020 -2025) to remove the poor quality trees, mostly red maple, and to create enough openings in the canopy to encourage regeneration. About 25% of the basal area could be removed. The harvest should occur on bare ground as the scarification will encourage pine and oak regeneration. Areas within the Stand

that were cut heavier in the past tend to have a heavier stocking of regeneration that will need to be released at about the same time by doing a near-complete removal of the overstory. However, red oaks should be left for acorn production and any white pines should be left as a seed source as white pine tends to grow quite well on that site. Another harvest will be needed in about 20 years after the next cut in any of the areas that were selectively thinned to remove the mature trees and release any regeneration that has developed. A final overstory removal could be expected in a subsequent 15 to 20 years, assuming adequate regeneration has developed. However, some mature trees should be left for Stand diversity and as a potential seed source.

STAND 2 Hm,Rm,Ro,H 2-3 A

Description: This 21.5 acre Stand is located in the center of the Conservation Area, along the east side of Rogers Road. It is bisected by a woods road and contains numerous skidder trails and abuts three wetland/beaver swamp complexes. Of note, the shores of the wetland areas are dominated by dense hemlock and pine thickets that developed after the beaver had removed the competing hardwoods. Like Stand 1, it was first cut in the 1970's and cut again around five to ten years ago. Neither harvest evenly thinned the Stand. Some areas are now lightly stocked with sawtimber and pole sized trees with heavy regeneration, while other areas are densely stocked with trees, but have little regeneration. Some small areas are similar to the forest found in Stand 3, but are separated from that type by the wetlands. There are some large "ancient" hemlocks found in those areas, though some had been damaged when the area was last logged. With the exception of the area along the stream near Rogers Road, the Stand is dry, though the water table is not too far down in some places. As a result, the Stand is dominated by hemlock at 45% of the basal area, followed by red maple at 26%, red oak at 14% with a scattering of beech, black cherry, white birch, sugar maple, white pine, red pine and red spruce. Regeneration is dominated by hemlock, but also includes scattered beech and white pine, some of which is found in the old skidder trails where the ground was scarified in the last harvest. The Stand appears to be a deer wintering area and one of the red pines was marked (clawed) by a bear. Although hemlock and red maple are not considered high value species, the quality of the hemlock would be considered fair to good. The red maple tended to of poorer quality. With a Basal Area of 100 square feet and 176 trees per acre, the Stand is just barely overstocked.

Prescription: Because the area is used as winter shelter by numerous wildlife species, and that the Stand is located on uplands, attempts should be taken to maintain the softwood cover. Unfortunately, the crowns on many of the larger hemlocks are getting too far off of the ground to provide adequate shelter. As a result, the Stand should be thinned to both maintain and encourage lower crowns on the hemlocks and to encourage hemlock, white pine and spruce regeneration. About 15 to 20% of the stems could be harvested with a focus on removing the hardwoods such as red maple and white birch, as well as some of the mature hemlocks with small crowns. It is important to maintain at least a 70% crown closure to provide adequate shelter. Red oaks should be left to provide acorns. White pine and spruce should also be left for a seed source, in case the *hemlock wooly adelgid* eventually infests the Stand and kills off the hemlock. Any harvesting should

be conducted on bare ground conditions to encourage softwood regeneration as well as avoiding disrupting deer wintering activities. Future thinnings would depend on how much softwood regeneration develops and how soon it needs to be released to avoid being shaded out. If adequate regeneration fails to develop, the soil could be re-scarified by a tractor or a skidder dragging a rough, heavy object, eliminating the need to either cut the Stand again or waiting until the next harvest to try to regenerate the Stand. The area of dense white pine regeneration adjacent to the wetland on the Tioga River needs to be thinned by releasing the high quality, more dominant stems to prevent them from stagnating. This can be accomplished by hand-cutting the competing poorer quality trees.

STAND 3 Hm,Rm 3 C / Hm,H 1-2 A

Description: This 27 acre Stand is located on the southeastern corner of the Conservation Area and contains several streams, beaver ponds, wetlands and seepage areas. There is a 200 foot wide View Easement along the Stand's southern boundary to benefit the lot abutting to the south. One of the woods roads with an entrance on Rogers Road crosses the Stand and is about the only way to walk through the area as the numerous ponds and wetlands, combined with the dense understory, make it difficult to traverse. Most of the non-wetland areas still have a high water table, with the driest part of the Stand being located on the slopes in the far southeastern corner of the forest type. The Stand was logged in the 1970's either during mud season or after a prolonged rain spell which allowed the skidding to create numerous ruts and even canal-like skidder trails. The last harvest was quite heavy and the residual stand consisted of scattered large, ancient hemlocks, many of which had been bumped and damaged during the harvest along with some large, poor quality red maples, red oaks and white pines. The heavy cut, aided by the removal of the hardwoods by beavers, allowed a thick understory of hemlock to develop in the wetter sites, and a mix of hemlock, red maple, beech, white pine and spruce in the drier sites. The Stand is dominated by hemlock with 51% of the basal area, followed by red maple at 16%, red oak and white pine at 8%, with a scattering of beech, balsam fir, sugar maple, white birch and yellow birch. As mentioned earlier, many of the hemlocks would now be considered ancient and should be protected. Unfortunately, many had been damaged and are starting to deteriorate. Some have already died off. Signs of heavy deer and use were observed in the hemlock thickets and some of the beaver swamps had active colonies. With a Basal Area of 58 square feet and 126 trees per acre in the overstory, the overstory is considered understocked, though the dense understory would be considered overstocked.

Prescription: The combination of numerous wetlands, ancient trees and a View Easement would suggest that this Stand be set aside as a Natural Area where commercial logging would be excluded. However, there are some small areas of pole-sized hardwoods adjacent to the dense softwood patches that could be cut by hand to encourage hardwood sprouts for browse. Larger hardwoods, mostly red maples, that are overtopping the softwood cover could be girdled to encourage thicker crowns in the softwood, though the old growth maples should be left for Stand diversity. All oaks should also be left for their mast production. Due to the wetlands, the Stand has little recreational except for the woods road that bisects it. Because of its high habitat value, the public should be kept from the site during nesting season as well as the winter months to avoid disturbing the wildlife in that area.

STAND 4 Wp,H 3 C / H,Bf 1-2 B

Description: This 19 acre Stand is located on the south side of the Tioga River in Pop's Woods. It contains two wetlands and is bisected by an intermittent stream, a stone wall and a hiking trail. A small brook crosses into the property from the Sanborn Farm but quickly turns back across Rogers Road to the large beaver swamp found on that Forest. The Stand appears to have been somewhat heavily logged in the 1980's and again, though somewhat lighter in the early 2000's. As a result, the forest developed two tiers, with the overstory dominated by scattered white pine and mixed hardwoods above an understory of mixed hardwoods and balsam fir. There is a dense strip of white pine found along the old beaver swamp on the Tioga River that developed once the beavers removed the competing hardwoods. There is also a series of shallow ditches running southwesterly from the old beaver swamp that were probably dug in the 1800's to dry out the site to allow agricultural activities. The only party/camping spot found during the inventory was located on the southern shore of the old beaver swamp, but has not been used for several years. The hiking trail is also used by snowmobiles and ATV's. An old log yard is located in the extreme southeastern corner of the lot on Rogers Road, but is not large enough for today's harvesting equipment. The overstory contains a fairly even mix of red maple at 33% of the basal area and white pine at 31%, followed by red oak and balsam fir at 11% each, with red spruce at 5%, hemlock at 4% and a scattering of red pine, yellow birch, white birch and beech. Some of the pines and red maples would be considered mature and their quality runs from poor to good. Regeneration consists of a mix of balsam fir, beech, white pine and red maple, both in the sapling and pole size classes. With a Basal Area of 103 square feet and 261 trees per acre, the Stand would be considered only slightly overstocked. The basal area could be considered an "average" as the overstory is slightly understocked, and the advanced understory is somewhat overstocked.

Prescription: With about 25% of the stocking considered mature or poor quality, the Stand should be thinned with a focus on harvesting the mature and poor quality overstory stems of white pine and red maple. Some of the mature red oaks could also be harvested to make the timber sale more attractive, with the rest left for a seed source and food for wildlife. The process of removing those stems will also tend to thin the understory so skid trails should be laid out to minimize damaging the areas with good quality regeneration. A few of the healthier mature trees should also be left for Stand diversity. Another thinning will be needed in 20 to 30 years as the current advanced regeneration continues to mature. At that time, any smaller, poor quality trees that might have developed should be harvested, along with most of the mature overstory trees, not to exceed 25 to 35% of the basal area. Because the existing advanced regeneration, there are no concerns for encouraging new regeneration, though some will inevitably develop. One concern is the wet nature of the soil towards the Tioga River. Some of those areas can only be operated in very dry or frozen conditions. Harvesting this Stand could be tied in with the harvest in Stand 2 though would require skidding across Rogers Road.

STAND 5 Wp,Ro,H 2-3 A

Description: This 14.8 acre Stand is located in Pops's Woods between the Tioga River and Durrell Mountain Road and abuts the Meyer's houselot. It also contains some wetlands and two intermittent streams. A fieldstone cellar hole can be found along Rogers Road and was once the site of the Farrar homestead and a short stone wall runs at an odd angle within the stand and passes by a small spring. Portions of the Stand were lightly cut within the last 10 years and might have been tied into the clearing of the houselot. There is a seldom used hiking trail that runs along the northern shore of the beaver swamp on Tioga Brook and another trail that runs from the houselot to Rogers Road. Like Stand 4, there is a dense strip of white pine found along the old beaver swamp on the Tioga River that developed once the beavers removed the competing hardwoods. The Stand is dominated by white pine at 61% of the basal area, followed by red oak at 15%, red maple at 12% with a scattering of hemlock, red pine, red spruce, aspen and white birch. Quality runs from poor to good and some of the pines would be considered mature. Regeneration is scattered but dominated by beech, with some white pine and balsam fir mixed in. With a Basal Area of 151 square feet and 302 trees per acre, the Stand is considered overstocked.

Prescription: With about 30% of the Stand considered mature and/or poor quality, the Stand is in need of a thinning. However, any thinning would be modified by establishing buffer zones along the wetlands, Rogers Road, Durrell Mountain Road and the adjacent houselot. The focus of the harvest would be to remove the poor quality and mature stems that make up about one third of the Stand. Some of the larger aspens are deteriorating and they should also be cut before they die off to encourage root suckers to regenerate that species within the Stand. Aspen is a favored food for beaver and grouse use the buds as a winter food source. Due to the high amount of poor quality pines that are only suitable for chipping, the Stand should be thinned using a Biomass harvest where tree tops and portions of the cut trees not suitable for sawlog or firewood are chipped and sold for fuel. Chipping improves aesthetics and utilization, but will require a slightly larger log yard which would have to be located south of the fieldstone foundation on Rogers Road. A smaller log yard could be constructed if the trucks can back down Rogers Road from Durrell Mountain Road. Once the Stand is thinned, another thinning will probably be needed in 15 to 20 years to again harvest the mature trees and to release any desirable regeneration that may have developed after the first cut. Group selections are recommended for the second harvest to encourage new regeneration. Future harvests will be determined on how well the regeneration develops as the goal should be to regenerate a pine and oak forest. There should be enough large trees in the buffer zones to give the Stand adequate structural diversity allowing the high quality mature trees within the Stand to be cut.

OPERABLE VOLUMES
ANDREW SANBORN FARM and POP'S WOODS CONSERVATION AREA
Durrell Mountain and Rogers Road
Belmont NH
August 2013

Species/Product	Stand 1 RoRmHhm2-3B/HBElB 74 ac.	Stand 2 HmRmRoH2-3A 21.5 ac.	Stand 3 HmRm3C/HmH1-2A 27 ac.	Stand 4 WpH3C/H,BF1-2B 19 ac.	Stand 5 Wp,Ro,H 2-3A 14.8 ac.	Total Volume
White pine	13,000	11,000	-	46,000	96,000	166,000
White pine #4	-	-	-	10,000	13,000	23,000
Red pine	-	2,000	-	1,000	4,000	7,000
Hemlock	13,000	41,000	50,000	3,000	-	107,000
Balsam fir	-	-	-	1,000	-	1,000
Red spruce	-	6,000	-	8,000	1,000	15,000
Sugar maple	1,000	-	-	-	-	1,000
Red maple	8,000	13,000	-	4,000	-	41,000
Aspen	5,000	-	-	-	-	5,000
Black cherry	-	2,000	-	2,000	-	4,000
White birch	-	1,000	1,000	-	-	2,000
Yellow birch	1,000	-	1,000	-	-	2,000
Red oak	67,000	15,000	8,000	6,000	13,000	109,000
Hardwood pallet	<u>10,000</u>	<u>4,000</u>	<u>-</u>	<u>6,000</u>	<u>1,000</u>	<u>21,000</u>
TOTAL SAWLOG	128,000	95,000	66,000	87,000	128,000	504,000 Bd. Ft.
Softwood pulp	150	125	75	95	170	615 cords
Hardwood pulp	580	130	85	145	130	1,070 cords

FIRST HARVEST VOLUMES AND VALUES

**ANDREW SANBORN FARM and POP'S WOODS CONSERVATION AREA
Durrell Mountain and Rogers Road
Stands 2, 4 and 5
Belmont NH**

August 2013

<u>SPECIES/PRODUCT</u>	<u>ESTIMATED VOLUME</u>	<u>ESTIMATED VALUE</u>	<u>TOTAL VALUE</u>
White pine	34,000 Bd.Ft.	\$ 150.00/M Bd.Ft.	\$ 5,100.00
White pine-grade 4	8,000	30.00	240.00
Hemlock	4,000	30.00	120.00
Spruce	6,000	80.00	480.00
Red maple	6,000	60.00	360.00
Red oak	2,000	250.00	500.00
Hardwood pallet	<u>2,000</u>	25.00	50.00
TOTAL SAWLOG	62,000 Bd.Ft.		
Softwood pulp-cords	350 tons	\$ 1.50/cord	525.00
Hardwood pulp -cords	60 cords	\$ 12.00/cord	<u>720.00</u>
TOTAL ESTIMATED VALUE			\$ 6,850.00
	Total estimated forester services, permits and fees		- <u>\$ 2,200.00</u>
TOTAL ESTIMATED NET VALUE			\$ 4,650.00

**FOREST MANAGEMENT ACTIVITY SCHEDULE
ANDREW SANBORN FARM and POP'S WOODS
CONSERVATION LANDS
Belmont NH**

TIMBER HARVESTS

<u>STAND</u>	<u>YEAR</u>	<u>ACTIVITY</u>
2	2014-2018	Selection Harvest to improve softwood cover for wildlife.
4	2014-2018	Selection Harvest/overstory removal to improve forest quality.
5	2014-2018	Selection Harvest to improve forest quality.
1	2020-2025	Selection Harvest/overstory removal to improve forest quality.

RESOURCE PROJECTS

1	2014-2015	Improve drainage swale or install culvert on road south of hayfield.
5	2014-2018	Construct Trailhead parking lot on Durrell Mountain Road.

GENERAL MAINTENANCE ACTIVITIES

2013-2014	Blaze and paint boundary. Repaint every 10 years.
Yearly	Maintain woods roads and hiking trails.
Every 1-3 years	Mow roadways on Sanborn Farm

GENERAL RECOMMENDATIONS

WILDLIFE

Interacting with wildlife can be the most memorable part of any forest experience. A variety of wildlife signs were noted while cruising on the property, including signs of deer, moose, bear, coyote, porcupine, fox, squirrels, rabbits and mice. Birds of note included wood ducks, geese, ruffed grouse, kingfishers and red tailed hawk. There were no rare or endangered wildlife species observed during the inventory nor are there any listed in the NH Heritage Bureau data check as of September, 2013. The presence of wildlife usually indicates the presence of adequate habitat both on the property as well as on abutting lands for a breeding population. The size of a species' population is usually dependent on the amount of suitable habitat. Animal populations can often be manipulated by varying the amount of habitat, especially if game species are preferred. Providing a variety of habitats will increase the diversity of wildlife. Most wildlife species are opportunists and will take advantage of almost any type of habitat according to their needs. As area habitats are slowly lost to development, it may become more important to replace some of the lost habitats to avoid losing wildlife populations.

There are several habitat improvement and protection practices that can be incorporated into the timber harvesting activities. First, all harvesting should follow the State's "Best Management Practices" (BMP's) guidelines for logging. Wetlands should be avoided and stream crossings should be kept to a minimum. Any crossings should be designed to prevent mudding of the stream. This includes installing temporary bridges, culverts and/or pole fords. Logging should be avoided during "mud" season or prolonged rain spells. Access road construction or improvements should be designed to minimize erosion. These practices are designed to protect water quality, which in turn protects the aquatic habitats of fish, amphibians and certain birds and mammals. Den trees, also known as cavity trees, as well as potential den trees should be left and protected during harvest activities. Several active den trees were noticed during the cruise. Leaving five to seven of those types of trees per acre is recommended to provide sufficient habitat though some areas dominated by pine and hemlocks had fewer den trees. Hollow trees are nesting sites for squirrels, mice, bats, raccoons, owls and other birds along with many insects that are the start of numerous food chains. Tall hardwood trees with a three-pronged fork are preferred nesting sites for hawks. Some of the larger, more vigorous red oak trees should be protected to act as "mast" (nut and acorn producing) trees as their acorns are an important wildlife food source, especially for deer and turkey. Grouse use aspen buds as a winter food source. Only a few aspen trees were observed on the lot, so they should be protected though some will have to be cut in their prime to encourage them to regenerate through root suckers. These sucker sprouts need full sunlight in order to survive. Planting trees or shrubs for wildlife purposes is generally discouraged unless local, native species are used. Crab apples are about the only non-native trees now recommended for planting as they do not easily spread and are therefore not considered invasive. The hayfield in Stand 1 should continue to be mowed at least once every three years, but no more than once a year.

It appears that deer and moose are using the white pine and hemlock forest types near the beaver swamps for winter shelter so it is important that any thinning of those Stands maintains at least a 70% crown closure of which 50% should be softwoods to provide adequate shelter. Some of the hardwood areas near the swamps could be patch cut to provide hardwood browse to supplement the winter food supply for deer and moose. The browse lasts 5 to 7 year for deer and up to 10 to 12 years for moose as they can eat twigs higher up on the tree.

RECREATION

The woods roads offer a great opportunity for passive recreation including hiking, mountain-biking, snowshoeing, cross-country skiing, wildlife observation and hunting. These uses are considered relatively environmentally friendly, though some of them can be temporarily disrupted by logging as forest management prescriptions and site conditions will sometimes dictate the time of year when logging will occur. Loop trails are often preferred as opposed to walking back and forth on the same trail or logging road. The woods road system combined with Rogers Road provides several loop opportunities. There is a nice view looking east over the beaver swamp from the bridge on Rogers Road. Several mountains are visible including Durrell Mountain and Grant Hill. Lower branches on the trees growing along the east side of that road could be removed to improve the view from the road just south of the bridge. There is a potential view looking northwest from the hill along the Gilmanton Town Line in Stand 1 that should be investigated when the leaves are off of the trees. If a view exists, it could be cleared during the next harvest and a short loop trail could be constructed to that site. Any trails constructed on steep slopes should be laid out diagonally to the contours with the use of switchbacks if space is limited. Trails should be cleared to the height of eight feet to allow for at least a two foot snowpack. Trail widths should not be less than four feet. Narrow trails have some aesthetic appeal, but will require frequent brushing and may be difficult to use in the winter when the snow weighs down the branches. Any trails that are regularly used will require **YEARLY MAINTENANCE**. Opening up vistas will greatly improve the recreational opportunities on the forest and may also attract additional use of the lot by the general public. If that occurs, a formal parking area may need to be constructed along the maintained portion of Durrell Mountain Road.

WATER RESOURCE PROTECTION

Life can not be sustained without water, so it is a resource that needs to be respected as well as protected. Siltation from erosion is the most common pollution problem associated with forest management. Soil disturbance can seldom be avoided during harvesting, but it can be minimized. Winter harvesting reduces soil scarification, though scarification is sometimes desired for regeneration purposes. Winter harvesting also reduces mud problems and allows operating in areas while they are frozen that would not normally be logged except during extreme drought conditions. One problem with winter harvesting is that pole crossings will sometimes freeze in and they can not be removed upon completion of the harvest. Due to the slopes found in the northeastern part of the Sanborn Farm, skid trails in that area are more susceptible to erosion. Skid trails located on slopes should be water-barraged as soon as the use of that trail is completed or interrupted for long periods of time. Logging should be stopped during mud season and periods of prolonged rain spells. Newly installed culverts should be over-sized to accommodate flood conditions. All culverts and water bars should be checked yearly to insure that they are functioning. Following the State's **Best Management Practices** for erosion control during harvesting will prevent most of the sedimentation problems associated with logging.

All of the houses in the area depend on wells for their water supply so it is important to protect the groundwater. Minor fuel spills are often unavoidable during a timber harvest and blown hydraulic hoses on logging equipment is always a possibility. Fuel contamination of the water resources can be minimized by making sure that truck and skidder fueling areas along with the log yards are not located adjacent to streams and drainage ways. Leaking equipment and hoses should be repaired before starting a harvest, and any heavy maintenance and repair activities should be conducted off-site. Exposed soils in log yards and on skidder trails could be seeded and mulched to reduce the erosion potential and decrease the amount of time it takes for the site to recover after a harvest.

CULTURAL AND HISTORIC FEATURES

There are several cultural and historic features found throughout the property that should be protected. They include the stone walls, farm ditches and the fieldstone farmstead and sawmill foundations along Rogers Road. Trees growing in or adjacent to the walls should be left un-cut as their removal will probably disturb the wall. There are a few large, ancient trees scattered around the property that existed when the lot was still open farmland as well as the large hemlocks in Stand 3 that should also be protected.

THREATENED AND ENDANGERED SPECIES

There were no threatened or endangered plant or wildlife species observed on the lot during the cruise, nor are there any listed with the NH Heritage Bureau as of September 2013. There were no truly unique habitats or sites that would harbor unique species found during the cruise, though blundings and spotted turtles may use the brushy, alder areas along the streams and beaver swamps. A few vernal pools were noted on the property and are an important breeding habitat for frogs and salamanders. Those pools should be protected during harvesting activities.

INVASIVE SPECIES

Invasive species become a problem when they start crowding out native plant and animal species. Only one invasive species was noted on the lot during the inventory which was the tall *phragmites* grass found on the Sanborn Farm in the wetland below the woods road just off Durrell Mountain. The *phragmites* should be eliminated as soon as possible before it spreads and destroys the valuable wetland habitat. Many invasive species are spread by bird droppings and are often found in the old field/shrub habitat as well as old log yards. Cutting the plants and removing the stumps and roots is an effective way of ridding the invasive plants though it is labor intensive and disruptive to the soil. Herbiciding is probably the best way to eliminate plants, but should only be done by a licensed applicator.

FOREST FIRE PROTECTION

Weather plays an important role in limiting wildfire in the northeastern United States but occasional droughts, especially if accompanied by high winds, will periodically raise the fire danger in New Hampshire. The combination of steep slopes, grass and shrub fuels, a southwestern exposure and use by the public can also increase the risk of wildfire. There was evidence that the old log yard on the abutting ownership along Durrell Mountain Road has been used as a party spot. Poorly extinguished campfires in such spots are a leading cause of wildfires in New Hampshire. In order to provide quick emergency access, the woods roads on the Sanborn Farm should be checked yearly to clean up any trees that were blown down and to repair any washouts. The Belmont Fire Department should be given keys to the gates as well as a copy of the Forest Type Map.

In general, the forest can provide a wide variety of benefits. By following a sustainable Multiple Use program as outlined in this report, those benefits will remain available for future generations to enjoy.

GLOSSARY

ACCEPTABLE GROWING STOCK (AGS): Trees with desirable qualities that would potentially be grown to their economic or biological maturity.

ACCESS: The place or ability to enter a woodlot from an existing public road.

AGE CLASS: The age of groups of trees used to describe the characteristics of that group, i.e. 10 or 20 year age class.

BASAL AREA (BA): The cross-sectional area of a tree at 4½ feet above the ground, usually measured in square feet. A measure of the density or stocking of a stand is often expressed as square feet of basal area per acre.

BEST MANAGEMENT PRACTICES (BMPs): The practice or practices used to control soil erosion or sedimentation on truck roads, skid trails and log landings.

BLAZE: An axe mark on a tree denoting a boundary line.

BIODIVERSITY: The variety and variability of living organisms.

BIOMASS: Commonly refers to the entire mass of living tree material above stump height.

BOARD FEET (BF): A measure of wood by volume. One board foot is the volume of wood equal to a piece 12 inches long by 12 inches wide by one inch thick. Many “log rules” are available for converting raw material to board foot units. Log rules are closely linked with the local forest industries and vary with geographical areas. The “International ¼ inch Log Rule” is commonly used in most areas of the Northeast. Board feet per acre (BF/A) is a measure of tree density in a forest stand.

BOLTWOOD: Wood which is used for turning stock and for the eventual manufacture of countless small items, such as buttons, golf tees, dowels and wooden toys. Boltwood mills buy the raw material in four-foot lengths (bolts) and/or log length form.

BROWSE: Leaves, buds and woody stems used by mammals such as deer and moose for food.

CANOPY: The more or less continuous cover of branches and foliage formed by the crowns of adjacent trees.

CAPITAL GAINS: Increase in value over time of an asset. For tax purposes, it is the sale price of an eligible asset less its cost.

CORD: The standard cord of wood is an imaginary rack, or stack of wood, measuring 4 feet by 4 feet by 8 feet and containing 128 cubic feet of wood, bark and voids. Tables are available for estimating the number of cords represented by standing trees. Cords per acre (CDS/A) is a measure of density in a forest stand.

CROP TREE: Crop trees are trees that are left un-harvested due to desirable qualities or have the potential to produce a particular benefit, i.e. a red oak tree left to produce acorns for wildlife food or timber production.

CROWN: The part of the tree or woody plant bearing live branches.

CROWN CLOSURE: The percent of the canopy overlying the forest floor.

DBH (Diameter at Breast Height): The average diameter of a standing tree, measured outside the bark, at a point 4½ feet above the ground.

DIAMETER CLASS: Intervals of tree size used to describe stand characteristics; i.e. 8” or 10” diameter class.

DEFECT: Internal rot, knots, or other defects in a live tree. The extent of unseen defect can be estimated from the history of a stand and from evidence of external damage from ice, wind, fire, insects, logging operations, etc.

DEPLETION ALLOWANCE: A tax benefit derived from “depleting” timber harvested as defined by the Internal Revenue Service.

FIREWOOD: Similar to pulpwood in that it is wood, not fit for higher uses such as sawlogs and veneer but it is used for heat production rather paper production.

FLAGGING: The practice of hanging plastic ribbon as temporary markers in the woods for such things as boundary location and skid trail layout.

FOREST TYPE LINE: A boundary between two different stands of trees.

GROWTH: The amount of fiber added to a tree over a period of time. Usually expressed in cords per acre per year or board feet per acre per year.

HARDWOOD: Hardwood trees are generally of the broad leaved species, also known as “deciduous” trees. Economically important hardwood species include maples, birches, ashes, and oaks.

INACCESSIBLE: Describes land which cannot be logged at the present time because there is no economical way to harvest the timber.

INVASIVE: Non-native or exotic plants, animals and insects that are introduced into and can thrive in areas beyond their natural habitat. They are often adaptable, aggressive and capable of high reproduction, to the detriment of native species.

INTOLERANCE: A species inability to thrive in shade.

LOGGING COSTS: Include cost of cutting and yarding, trucking, internal road construction, and agent’s fees.

MANAGEMENT PLAN: A document which analyzes the forest on a woodlot and makes suggestions for future activities thereon.

MATURE: Describes a tree which is at its peak as far as biological or economic conditions are concerned.

MBF: Thousand board feet (see “board feet”).

MEAN STAND DIAMETER (MSD): The average diameter of a group of trees measured at diameter breast height (DBH).

MERCHANTABLE HEIGHT: The height of a tree where the merchantable portion of it ends. Usually at about 4"- 6” in diameter.

MIXED WOOD: Describes a stand condition where both softwood and hardwood are present in significant amounts.

MULTIPLE USE: Concurrent use of the forest resources for more than one goal such as timber production, wildlife habitat, watershed management, recreation, etc.

NON-COMMERCIAL: A stand which is not able to be operated economically either due to terrain or size and value of the timber present.

OPEN AREA: Un-forested land, typically hayfield, built up areas, or overgrown fields.

OPERABLE: Before a stand of timber can be logged (operated) on a commercial basis, it must have some minimum volume of timber. Just as markets vary from one geographical area to another, so does the minimum volume required to operate a stand profitably.

OVERMATURE: A condition in which a tree or stand is past its peak of either economic value or biological growth.

OVERSTORY: The upper crown canopy of a forest, usually referring to the largest trees.

POINT SAMPLING: Statistical approach determining volumes in a forest. Commonly done with a prism at a point randomly selected on a grid network spread throughout the property.

PRISM: In forestry, a prism is a calibrated wedge of glass which deflects light rays at a specific offset angle. In conducting a timber cruise, trees seen through the prism from fixed points are measured and are easily converted to “per acre” figures.

PULPWOOD: Wood or trees used to make pulp, from which paper products are manufactured. Trees of poor form and/or quality (rough and rotten), and of small size, are commonly tallied as pulpwood during at timber cruise.

RELEASE: Freeing the tops of young trees from competing vegetation.

RESIDUAL TREES: Trees left to grow in the stand following a silvicultural treatment.

SAWLOG: The portion of wood cut from a tree which will yield timbers, lumber, railroad ties and other products which can be sawn with conventional sawmill equipment.

SCARIFICATION: Exposing soil for regeneration by direct seeding or natural seed-fall.

SELECTIVE HARVESTING: The process of choosing some trees to cut over others based on such criteria as species, age, quality, location, health, etc., with the owner’s long term goals for management in mind.

SILVICULTURE: The practice of growing trees.

SITE INDEX: A measure of the ability of an area to grow timber.

SIZE CLASS: Stands fit into size classes based on the size of trees which occupy them.

Sawlog - A live tree which measures over 10 inches in diameter 4½ feet from the ground.

Pole - A live tree which measures between 4 and 10 inches in diameter 4½ feet from the ground.

Sapling - A live tree taller than 4½ feet but less than 4 inches in diameter 4½ feet from the ground.

Seedling - A live tree less than 4½ feet tall.

SOFTWOOD: A class of tree species retaining their needles year round, also known as Conifers such as pine, hemlock, and spruce.

SOIL SUITABILITY: The general quality of the soil to provide a good medium for the growth of timber products.

SOIL TYPE: A general description of depth and water content of soil.

STAND: A group or area of trees or forest having similar characteristics and requiring similar management practices.

STEMS: A term used to describe individual trees such as in the phrase “stems per acre.”

STOCKING: The density of a forest stand, often quantified as trees, basal area or volume per acre.

Overstocked - A stand condition where there are too many trees present to maximize growth and yield.

Adequately Stocked - A favorable stand condition where growth and yield are at or near optimum levels.

Understocked - A stand condition where growth and yield is lessened because all growing space is not adequately utilized.

STUMPAGE VALUE: The value of the standing tree. It consists of the mill price (M) paid for the logs, less the total logging costs (L) for cutting the timber and trucking the wood to the mill. Stumpage value is crucial to the forest owner; it represents his profit on timber sales to the mill, and may be determined by using the formula: $S = M - L$.

TIE AND PALLET: Logs that are too rough, short, small, knotty or crooked to be marketed as high quality sawlogs, but which can be sawn into railroad ties or pallet stock.

TIMBER CRUISE: A “cruise,” or timber appraisal, is an inspection of a forest tract, conducted in order to determine the species composition, volume and value of timber of the tract. Other considerations during a cruise include site characteristics, reproduction and growth capacities of the species on the tract, operability, and the availability of markets.

TIMBER LIQUIDATION VALUE: The timber liquidation value (TLV) of a forest is the value of all the standing trees in operable stands. The value depends upon many variables, including logging costs and delivered mill prices, and may change from month to month.

TIMBER STAND IMPROVEMENT (TSI): Treatments that improve the composition, condition and growth of a timber stand, often performed non-commercially (at an expense).

TOLERANCE: A species ability to thrive in shade.

TREES PER ACRE (TPA): The number of trees or stems per acre, a measure of stand density.

TRUCKING: Moving logs or other wood products from the landing area to the mill and is one of the costs of logging.

UNDERSTORY: All vegetation growing under an overstory.

UNACCEPTABLE GROWING STOCK (UGS): Trees of poor quality or mature/overmature trees that would potentially be removed from a forest stand to provide more growing room for better quality and younger trees to grow.

VENEER: Veneer logs are turned on a lathe to produce thin sheets of wood to be used in the production of veneer, plywood and paneling. Veneer logs are usually the highest quality logs produced in a logging operation.

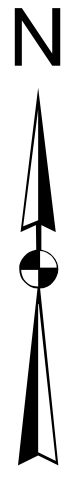
VERNAL POOL: A temporary body of water that forms in shallow depressions in the spring and does not have a permanent outlet. They are important for the propagation of amphibians such as frogs and salamanders.

VOLUME: A quantitative measure of the amount of wood in a tree, stand, or woodlot usually expressed in board feet, cords, tons, or cubic feet.

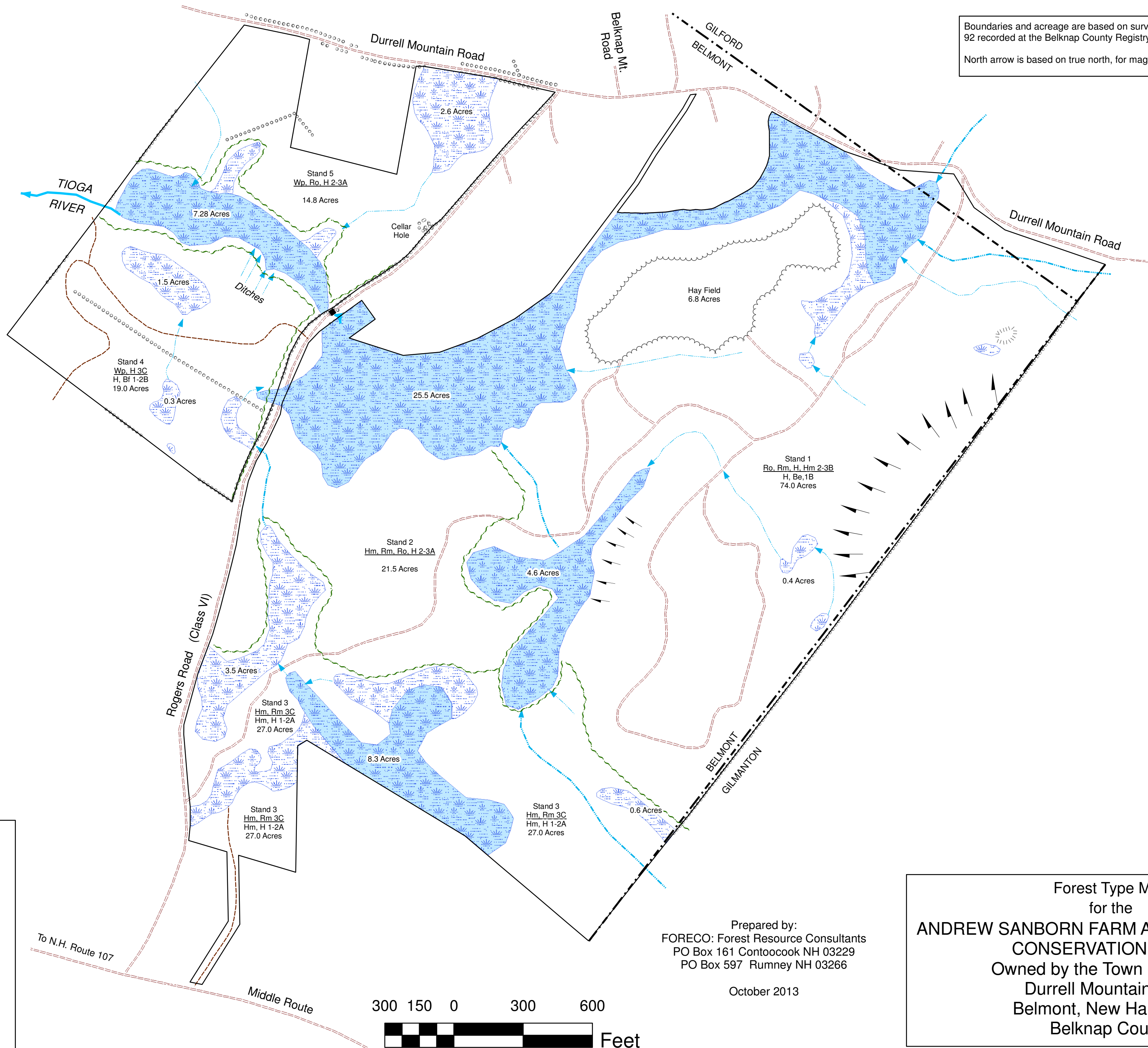
WETLAND: Area of property which has surface water or high water table and is not able to economically grow trees.

WHOLE TREE CHIPS: Wood fiber produced when the remains of a tree are ground up after logs and pulp have been removed, often referred to as biomass.

YARDING: The transport of logs or whole trees from the stump to the log yard where the wood is sorted. Yarding is usually done with rubber-tired “skidders,” with either cables or a grapple.



Boundaries and acreage are based on survey Plans L60-61 & 62, L65-1, and L67-92 recorded at the Belknap County Registry of Deeds.
 North arrow is based on true north, for magnetic north rotate 16 degrees west.



Legend

- - - - Town Line
- - - - Roads
- - - - Skid Trail
- - - - Forest Type Lines
- ~~~~~ Tree Line

Streams

- ← Intermittent
- ← Perennial
- ← River

- Marsh
- Forested Wetlands
- Stone Walls
- Slope

Forest Type:

- Be Beech
- Bf Balsam Fir
- H Mixed Hardwood
- Hm Hemlock
- Rm Red Maple
- Ro Red Oak
- Wp White Pine

Size Class:

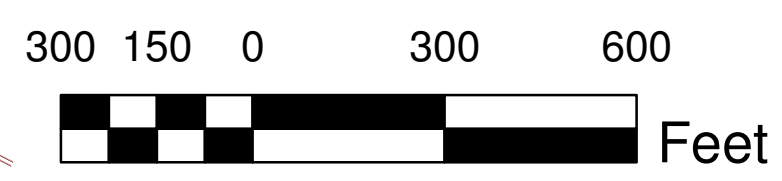
- 1 Seedling/Sapling
- 2 Poletimber (4" to 10")
- 3 Sawtimber (> 10")

Density:

- A Overstocked
- B Adequately Stocked
- C Understocked

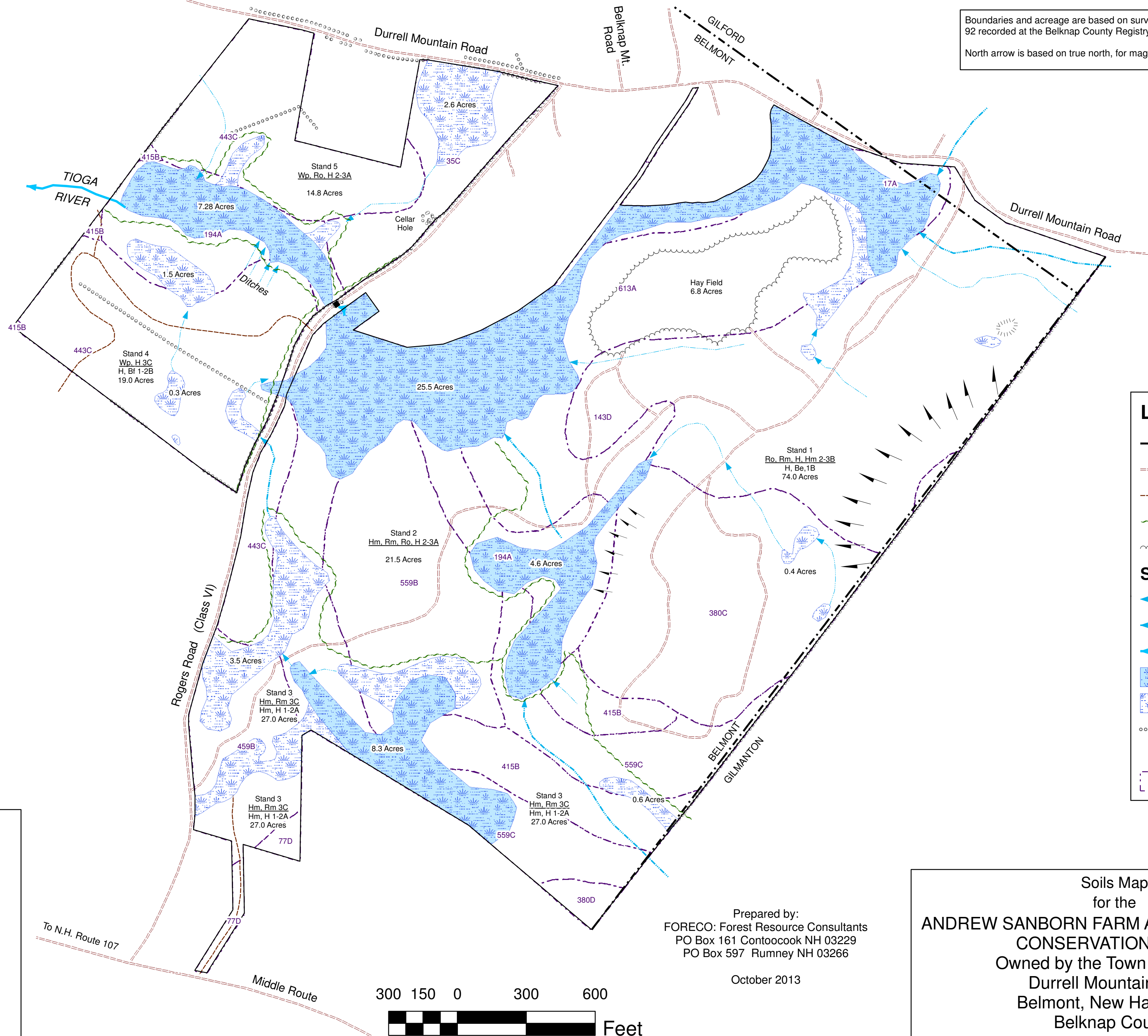
Prepared by:
 FORECO: Forest Resource Consultants
 PO Box 161 Contoocook NH 03229
 PO Box 597 Rumney NH 03266
 October 2013

Forest Type Map
 for the
**ANDREW SANBORN FARM AND POP'S WOODS
 CONSERVATION LANDS**
 Owned by the Town of Belmont
 Durrell Mountain Road
 Belmont, New Hampshire
 Belknap County





Boundaries and acreage are based on survey Plans L60-61 & 62, L65-1, and L67-92 recorded at the Belknap County Registry of Deeds.
 North arrow is based on true north, for magnetic north rotate 16 degrees west.



Legend

- Town Line
- Roads
- Skid Trail
- Forest Type Lines
- Tree Line

Streams

- Intermittent
- Perennial
- River
- Marsh
- Forested Wetlands
- Stone Walls
- Slope
- Soils

Forest Type:

- Be Beech
- Bf Balsam Fir
- H Mixed Hardwood
- Hm Hemlock
- Rm Red Maple
- Ro Red Oak
- Wp White Pine

Size Class:

- 1 Seedling/Sapling
- 2 Poletimber (4" to 10")
- 3 Sawtimber (> 10")

Density:

- A Overstocked
- B Adequately Stocked
- C Understocked

Prepared by:
 FORECO: Forest Resource Consultants
 PO Box 161 Contoocook NH 03229
 PO Box 597 Rumney NH 03266
 October 2013

Soils Map
 for the
**ANDREW SANBORN FARM AND POP'S WOODS
 CONSERVATION LANDS**
 Owned by the Town of Belmont
 Durrell Mountain Road
 Belmont, New Hampshire
 Belknap County

