

FOREST STEWARDSHIP PLAN
for
THE TOWN OF JACKSON

Prospect Farm

Jackson, NH

450 Total Acres

July 2003



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PREFACE

Forest Land Improvement began as a forestry consultant firm in 1976 in the interests of helping preserve one of our greatest natural resources - the forest. Through hard lessons learned in this country and abroad, the forest industry recognized the need for a systematic approach to proper forest management. On private, non-industrial lands, the Landowner - Forester relationship is a key element for proper forest management. Our goal as foresters is to help landowners meet their goals and objectives as wise land stewards in their tenure of the land.

We have received assistance, encouragement, and criticism from the many people we have worked with over the years, including landowners, loggers, and other foresters. The County Foresters of the Cooperative Extension Service have been especially helpful in the development of our services within the forest industry.

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The Forest Management Plan you now have before you will, if used as intended, return your investment many times. This plan provides you a way to improve the amenities of your forest without sacrificing the quality of the other resources. We hope you will read these introductory passages for a clearer understanding of how this plan has developed and its usefulness to you.

The development of any management plan goes through several stages:

- 1) Landowner - Forester meeting(s) to discuss ideas, goals, and objectives;
- 2) Preparatory steps prior to the cruise:
 - apply for FSA cost-share assistance (if applicable)
 - design the cruise map;
- 3) Cruise the forest along a statistical pattern designed to obtain accurate information from the forest;
- 4) Write the plan, including the text and map;
- 5) Present the plan to the Landowner(s) to discuss plan, with its prescriptions and priorities.

INITIAL LANDOWNER - FORESTER MEETING

At the initial meeting, the Landowner and Forester discuss the Landowner's interests, in general terms, and what Forest Land Improvement can offer to fulfill those interests. The procedure Forest Land Improvement follows in the development of a management plan is discussed, as is the potential cost range of the plan. FSA cost-share information is explained to the landowner if steps have not been taken in this matter already.

PREPARATORY STEPS

Once an agreement to work together on a Forest Management Plan is reached, several steps must be taken before the actual statistical gathering of the cruise:

- 1) If the Landowner is interested, funds are presently available from the Farm Service Agency, a federal agency, to offset some of the cost of a management plan. An application is filed by the Landowner or Forest Land Improvement with the FSA.
- 2) An accurate map is necessary for the cruise. If an accurate map is not available, the Landowner can contract with Forest Land Improvement to have the boundary traversed and measured. From this, a map will be drawn. Scales of 1" = 200' on 100-200+ acres and 1"=100' on less than 100 acres have been found to work best for forest mapping purposes. Other map scales may be preferable depending on what the map is to be used for, and possible budget constraints.

In a management plan, an accuracy level of 20% on the total volume is considered adequate. An equally spaced array of parallel north-south lines are placed upon equally spaced east-west lines on the property map to form a grid pattern. The intersection of these lines represent the point on the ground where sample data must be collected. The spacing or density of these points assures the accuracy desired.

THE CRUISE - MAPPING AND INVENTORY

Cruise is the term used by foresters to designate the procedure of information gathering in the field. Forest Land Improvement uses the Point Sampling Method of Measuring Forest Statistics. Known under several synonyms, Point Sampling has become the standard for obtaining a forest inventory since its development in 1948. The tallying of the basal area at the sample point makes use of a wedge prism. Sighting through the prism, the trees whose stem sections at breast height do not appear detached from the main stem are counted. The tree count is used to develop the basal area per acre around the particular sampling point. There is a definite correlation between tree basal area and tree volumes. Therefore, timber volume estimates may be obtained when the tallied trees are converted to Board Feet of sawlog and Cords of pulpwood in their merchantable height.

The data collected falls into several categories: species, diameter, level, number of 8' bolts classified as either sawlog, pulpwood, veneer log, pallet log, box log, or cull quality and top diameter. After the cruise is complete, i.e., all points have been sampled, the data cards are segregated by forest types as determined through the mapping. All data is entered by forest type for processing by a computer program called FOREST TALLY. This program was developed by Lee Goldsmith. The program is an enhanced forest inventory that uses the original program from the University of New Hampshire called INVENT, by David S. Linden. This program compiles the various categories of data to determine sawlog and pulpwood volumes by species within each compartment as well as for the complete tract.

Besides the inventory data developed by the computer, the cruise provides other information useful to the development of the management plan. The mapping reveals the topography of the land, with access and access potential across terrain changes, soil types, and streambeds. Changes in forest composition are reflected in the mapping.

WRITING THE PLAN

The writing of the plan consists of:

- 1) Drawing the base map of forest types, soil composition, the schedule of priorities, access, slope and aspect, and any other special interests desired by the Landowner;
- 2) The text itself, for which stand recommendations and priorities are developed through extensive consultation among the foresters at Forest Land Improvement.

PLAN PRESENTATION

Upon completion of the plan, arrangements are made between the Landowner and Forest Land Improvement for the presentation of the plan. At this point, the plan is explained concerning the prescriptions and priorities for this tract. This should give the Landowner a preliminary understanding of the plan.

PLAN IMPLEMENTATION

After the plan has been thoroughly explained by the forester, then reviewed and understood by the Landowner, steps should be taken at this time to begin the implementation of the recommendations presented in the plan.

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GOALS AND OBJECTIVES

The Town of Jackson through its Conservation Commission is dedicated to long-term ownership and management of the Prospect Farm Lands. Donated in 1938 by Edith Baker, the land was willed to *the Inhabitants of the Town of Jackson*. The property has been set aside for the enhancement of recreation, wildlife and forest management.

Other specific goals are:

- Create turnouts along the main access road.
- Improve the parking area and perhaps move the gate.
- Reclaim the apple orchards.
- Establish open areas for wildlife management through proper forest management practices.
- Place monuments at existing cellar hole locations.
- Make a collaborative effort with the local school system to facilitate their *Service Learning Program*.

At Forest Land Improvement we have developed this Forest Stewardship Plan for The Town of Jackson's Prospect Farm lands to assist them in reaching their goals.

LAND HISTORY

The history of the Prospect Farm is quite well documented. Thanks to the efforts of the Jackson Historical Society, the Jackson Conservation Commission and several individuals, much valued information has been collected. It seems that the historical interest of this land has waxed and waned over the years, although a lot of quality information has been collected. Without trying to rewrite some of the wonderful historical excerpts, the following is a brief version of the Prospect Farm history. Please refer to the APPENDIX for complete documents and references, they are well worth reading.

- The historical information goes back to the Kings Grant in 1774, and this information can be found in more detail in the APPENDIX on the Prospect Farm by Margaret Brown Garland in August of 1986. However, let's begin at the early 1900's, where Charlie and Edith Baker received the land from Cyrus Gale, who was the owner of the Eagle Mountain House. The Farm was a summerhouse for the Bakers. Edith, who survived Charlie, willed the land to her son, Ezra Baker, and upon his death gave the land, also known as, Camp Wildcat, *to the Inhabitants of Jackson, NH*. The Town accepted the land at the 1938 Jackson Town Meeting.
- In 1961, the land was heavily logged.
- Around 1972, the Jackson Conservation Commission began and interest in managing the Prospect Farm came into being.
- Beginning around 1979, Hub George was involved in rejuvenating the land and exposing the history by clearing and mapping the old cellar holes, reviving the apple orchard, and opening new trails. *See* the APPENDIX for the 1979 Jackson Conservation Commission Newsletter and map, and the January 2, 1980 Jackson Historical Society meeting notes.
- In 1981, Forest Land Improvement completed 18 acres of timber stand improvement work on the Prospect Farm. The following year, another 19 acres was done. This was done through the ASCS cost-share program (*see* Map in APPENDIX).
- Soon after, the current Selectman, David Carta, contested the right of access to land he owned and to the color of the title of Lot 15, which was claimed as part of the Prospect Farm by the Town of Jackson.
- Around 1985, the USFS completed construction of the planned truck road for access of the Bog Brook area. They used the gravel pit on the Prospect Farm and improved the road leading up to it.
- The Prospect Farm was highlighted through a walking excursion in one chapter of a book published by Tin Mountain Conservation Center, written by Ned Beecher, called *Outdoor Explorations in Mt. Washington Valley*, Chapter 17, *see* APPENDIX.
- In 2003, Forest Land Improvement was contracted to do a detailed forest management plan.

LOCATION - DESCRIPTION

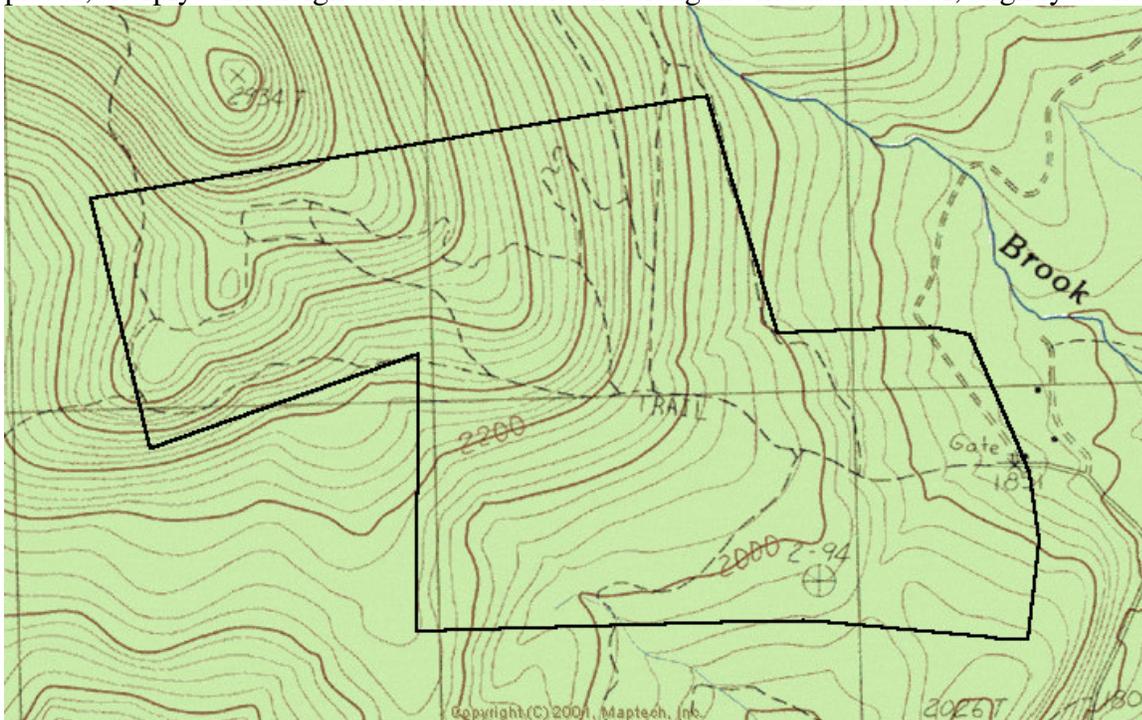
The Prospect Farm is located in the Town of Jackson and Carroll County. It is surrounded mostly by the White Mountain National Forest. Wildcat Mountain and Pinkhams Grant can be found to the north. The Ellis River parallels the Farm to the west and the Wildcat Brook and Black Mountain are located easterly. From the center of Jackson, take Carter Notch Road northerly until it dead ends at the Town land. There are two gates. The western gate is the main access for the Town land, while the gate to the north crosses the Farm land and serves as a ROW (Right of Way) for National Forest land.

The property shape actually resembles the letter “Z”. The land comprises of many acreages with distinct characteristics. The eastern portion, which is the main access point, is somewhat flat and relatively wet. This wet ground is consistent along the southern portion. As you travel northwesterly, the elevation rises and the slopes become steeper. The land becomes dryer. The highest elevation on the lot is in the northern and almost western corner. The land was probably open farmland in the early part of the last century and was heavily logged about 50 years ago.

There are numerous maps and references of the parcel. Some will be referenced in more detail in the history section. The USFS has some useful information. A few old prints showing specific Tracts gave us the basic shape of the land. A plan titled *White Mt. Area Cyrus E. Gale Tract #232 Town of Jackson, Carroll County NH 346.16 Acres, F.A.G. Surveyor, dated 1914-1918* was used. In 1982, H. Edmund Bergeron, Civil Engineers from North Conway drew a plan titled *Deed Sketch of land in Jackson, NH, Prospect Farm. Drawn of Jackson Conservation Commission*. In addition, a plan titled *Land Acquisition Survey for USDAFS Mark McPherson Tract 1055, by Cartographic Association Inc. from Littleton, NH, dated 6/94* was used. It is recorded in CCRD Plan Book 151 Page 63. The Jackson Ski Touring Foundations *Ski Touring 1988 Map* shows the maintained trails. Also, the Jackson Town tax maps were used as well. Using a combination of these maps, a Garmin ETREX Vista handheld GPS unit, and some field mapping, the map boundaries were delineated. The land encompassed approximately 450 acres.

TOPOGRAPHY - ASPECT

The topography on the Prospect Farm is quite variable. The southern portion is small shallow slopes and tends to be wet, while traveling north; the land rises in elevations and in some places, sharply. The height of land can be found along the northern border, slightly to the west.



Aspect is generally easterly and somewhat southerly over much of the land. With the different drainages, the aspect can be quite varied over the very small areas associated with the sloping sides of the drainages.

SOILS

Six soil types underlay the Prospect Farm, as determined by the Carroll County Soil Survey Manual. These soils are divided between suitability to hardwood and softwood production. Marlow soils and to a lesser degree, Peru soils can be found on the majority of the woodlot, with Lyman-Berkshire soils found in the higher elevations. Marlow and Peru soils both have surface stoniness and an underlying pan layer as limitations. This explains the seasonal wetness of the southern portion of the woodlot. Lyman-Berkshire soils are shallow to bedrock. All the soil types on the Prospect Farm are more suited to hardwood production, with severe hardwood competition that limits the successful regeneration of softwoods.

The following is a list of the 6 soils that underlay the Prospect Farm. A description of the major forest soil groups is found on the following pages.

Group	Symbol - Description
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IB	LVE – Lyman-Berkshire very rocky fine sandy loam association, steep.
IIA	LVF – Lyman-Berkshire very rocky fine sandy loam association, very steep.
IIA	LYE – Lyman-Rock Outcrop-Berkshire loam association, steep.
IA	MFC – Marlow-Peru very stony fine sandy loam association, sloping.
IA	MEE - Marlow very stony fine sandy loam association, steep.
IA	PLC - Peru very stony fine sandy loam association, 0-15% slopes.

MEE - Marlow association series is found with Berkshire, Lyman and Peru soils. It is generally found on side slopes and lower valley walls of glaciated hills and mountains. Surface stoniness, steep slopes and an underlying pan layer are the typical limitations of this series.

WOODLAND MANAGEMENT AND PRODUCTIVITY OF SOILS

U.S Department of Agriculture / Natural Resource Conservation Service

9/20/93

IMPORTANT FOREST-SOIL GROUPS
Survey Area – CARROLL COUNTY, NEW HAMPSHIRE

GROUP IA

This group consists of the deeper, loamy textured, moderately well, and well-drained soils. Generally, these soils are more fertile and have the most favorable soil moisture relationships.

The successional trends on these soils are toward stands of shade tolerant hardwoods, i.e., beech and sugar maple. Successional stands frequently contain a variety of hardwoods such as beech, sugar maple, red maple, white birch, yellow birch, aspen, white ash, and northern red oak in varying combinations with red and white spruce, balsam fir, hemlock, and occasionally white pine.

Hardwood competition is severe on these soils. Softwood regeneration is usually dependent upon persistent hardwood control efforts.

GROUP IB

The soils in this group are generally sandy or loamy over sandy textures and slightly less fertile than those in group IA. These soils are moderately well and well drained. Soil moisture is adequate for good tree growth, but may not be quite as abundant as in group IA soils.

Soils in this group have successional trends toward a climax of tolerant hardwoods, predominantly beech. Successional stands, especially those which are heavily cut over, are commonly composed of a variety of hardwood species such as red maple, aspen, paper birch, yellow birch, sugar maple, and beech, in combinations with red spruce, balsam fir, and hemlock.

Hardwood competition is moderate to severe on these soils. Successional softwood regeneration is dependent upon hardwood control.

GROUP IC

The soils in this group are outwash sands and gravels. Soil drainage is somewhat excessively to excessively drained and moderately well drained. Soil moisture is adequate for good softwood growth, but is limited for hardwoods.

Successional trends on these coarse textured, somewhat droughty and less fertile soils are toward stands of shade tolerant softwoods, i.e., red spruce and hemlock. Balsam fir is a persistent component in many stands, but is shorter lived than red spruce and hemlock. White pine, red maple, aspen, and paper birch are common in early and mid-successional stands.

U.S Department of Agriculture / Soil Conservation Service

9/20/93

IMPORTANT FOREST-SOIL GROUPS
Survey Area – CARROLL COUNTY, NEW HAMPSHIRE

Hardwood competition is moderate to slight on these soils. Due to less hardwood competition, these soils are ideally suited for softwood production. With modest levels of management, white pine can be maintained and reproduced on these soils.

Because these soils are highly responsive to softwood production, especially white pine, they are ideally suited for forest management.

GROUP IIA

This diverse group includes many of the same soils as in groups IA and IB. However, these mapping units have been separated because of physical limitations which make forest management more difficult and costly, i.e., steep slopes, bedrock outcrops, erosive textures, surface boulders, and extreme rockiness. Usually productivity of these soils is not greatly affected by their physical limitations. However, management activities such as tree planting, thinning, and harvesting are more difficult and more costly.

Due to the diverse nature of this group, it is not possible to generalize about successional trends or to identify special management opportunities.

GROUP IIB

The soils in this group are poorly drained. The seasonal high water table is generally within 12 inches of the surface. Productivity of these poorly drained soils is generally less than soils in other groups.

Successional trends are toward climax stands of shade tolerant softwoods, i.e., spruce in the north and hemlock further south. Balsam fir is a persistent component in stands in northern New Hampshire and red maple is common on these soils further south. Due to abundant natural reproduction in northern New Hampshire, these soils are generally desirable for production of spruce and balsam fir, especially pulpwood. Red maple cordwood stands or slow-growing hemlock sawtimber are common in more southerly areas. However, due to poor soil drainage, forest management is somewhat limited. Severe windthrow hazard limits partial cutting, frost action threatens survival of planted seedlings, and harvesting is generally restricted to periods when the ground is frozen.

GROUP NC

Several mapping units in the survey are either so variable or have such a limited potential for commercial production of forest products they have not been considered. Often an on-site visit would be required to evaluate the situation.

ACCESS

The access for the Prospect Farm is existing and straightforward. Carter Notch Road enters the land along the eastern boundary and is the access for the Farm. The slope of this road leading up to the property is steep, making the trucking during the winter months difficult. This road has been used in the past for this property and abutting land (USFS and formerly land of Carta). As you cross the boundary, there is an intersection of two roads that are gated (L1). This area could be used as a landing area for any future harvesting operations. The area should be enlarged and graveled, which would serve as a better future parking area. The road leading to the north is a USFS right of way leading to the Bog Brook area and the Wildcat River. It should be noted that there has been recent stump dumping at the existing stump dump along this road. The trail heading west is again gated and is the main access road. This leads to a network of roads and trails that are in relatively good shape. Portions were created and maintained using the gravel pit located off of the Quail Trail (Picture 1). There are also two log piles left over from the last biomass operation done by Garland on the abutting land that was never removed (Picture 2). This area could be used as a landing, providing a parking area further from the entrance. The road leading up to L2 would have to be improved. Earlier in the spring, this portion of the road was extremely wet.



Picture 1: Gravel pit along Quail Trail.



Picture 2: Logs left after last harvesting operation.

The last portion of Carter Notch Road leading up to the Prospect Farm is a Class VI road and is in passable shape. However, in certain times of the year, such as spring and probably late fall, the road is questionable. This portion is not plowed during the winter months. While the seasonally wet ground and numerous drainages make winter logging ideal, the unmaintained portion of Carter Notch Road that needs to be traveled in order to reach the lot would have to be plowed during the winter. In addition, skidding over some of the existing trails cannot be avoided, and some disruption of the winter skiing activity will occur. This may not be desirable, and although relatively short in duration, it may necessitate any harvesting to occur on dry ground. Further, because of the seasonally wet areas, harvesting would have to be confined to the dry summer months.

During the course of most proposed harvests, several seasonal drainages/small streams may need to be crossed with trucks or logging equipment. This activity will require a *Notification of Forest Management Activities Having Minimum Wetlands Impact* form (see Appendix for a copy), filed with the State of New Hampshire, Dept. of Environmental Services. These crossing must be conducted in a manner consistent with the **Best Management Practices** so that no degradation of the water quality occurs.

In addition to providing management access, roads and trails can create unwanted recreational access for ATVs and 4-wheel-drive vehicles. However, during the cruise, extensive evidence of each was not noted. The Jackson Ski Touring Foundation, which is a community based non-profit organization, has been maintaining a portion of this trail network for a number of years, and therefore have a vested interest in keeping the trails open to use. Any proposed logging activity should be closely coordinated with their directors and accomplished to minimize any adverse impact to their activities. As previously mentioned, the trails are in relatively good shape, however, the culverts are plugging and the water bars are filling. This causes storm and spring thaw runoff to jump their designated course and erode the trail surface (Picture 3). And although, the trails are stabilized with grass, erosion is slowly taking its toll. In many cases, a drivable waterbar works better than a culvert.



Picture 3: Spring runoff jumping the ditch and traveling down the trail.

If the timber harvesting recommended in this plan is completed, the truck road should be "put to bed" properly to ensure that it is in useable condition the next time it is needed to access

the property. The culverts should be pulled out, leaving cross drainage ditches to funnel the water across the road. The absence of culverts ensures that the water can flow freely, eliminating the yearly cost of maintaining the culvert heads to prevent plugs. Waterbars should be located in appropriate places to further ensure the road is in good condition for future use. For additional information see the **Stabilizing and Reseeding** section of this plan

FOREST CATEGORIZATION

There are many ways a forester can categorize a woodland. The most common way is to break a larger forested area (be it a whole property, compartment, management unit, etc.) down into stands-- areas of the forest with similar characteristics (i.e. species composition, size class, and density or stocking). These stands can then, based on their similarity of character, be treated in a uniform manner.

For ease of reference, these stands are given a numerical label (Stand 1,2,3,etc.). Stands are then given a short coded description on the Forest Type Map to give someone in the field with the map a coarse description of the stand without reading the more involved description contained in the plan. This coded description deals mainly with the over story by selecting the segment of each of the following categories that best describes the stand.

SPECIES TYPE	SIZE CLASS	STOCKING LEVEL
H: Hardwood	1: Saplings (1-4")	A: Over stocked
M: Mixed wood	2: Poles (5-11")	B: Fully stocked
S: Softwood	3: Sawtimber (12"+)	C: Under stocked
WP: White Pine		

For example, H2A would indicate an overstocked hardwood pole stand, M3C an under stocked sawtimber sized mixed wood stand, or WP1B a fully stocked white pine sapling stand. If information regarding the understory were needed to be given in conjunction with overstory information, it would be recorded as ^{WP3C}/_{H1A}, in this case an under stocked white pine sawtimber stand with an overstocked understory of hardwood saplings.

FOREST INVENTORY

On the Prospect Farm, a total of 48 inventory points were recorded using a 20 basal area factor (BAF) prism. Inventory points were located on a grid spacing of 800' by 600'. At each inventory point, data was recorded regarding tree species, DBH, merchantable height by various product, and overall tree quality. This information was analyzed by the **Forest Tally** computer program developed by Lee Goldsmith. Information was also gathered at each sample point regarding advanced regeneration. A 1/700th acre plot was taken. Trees greater than 3' in height and less than 4" in diameter were tallied. The presence of just one stem in this sample area indicates full stocking of advanced regeneration in that plot.

The following species codes are used when recording and reporting data.

SPECIES CODES

WP – White Pine	HM – Hemlock	SP – Spruce
BF – Balsam Fir	BE – Beech	SM – Sugar Maple
RM – Red Maple	RO – Red Oak	WB – White Birch
YB – Yellow Birch	WA – White Ash	StM – Striped Maple
HH – Hophornbeam	GB – Grey Birch	

SUSTAINABLE HARVEST

To calculate sustainable harvest levels in this woodlot, a computer program developed by researchers at the Northeastern Forest Experiment Station was used. **FIBER 3.0 An Ecological Growth Model for Northeastern Forest Types** was developed by Dale Solomon, David Herman, and William Leak. This program takes the information that a program such as **Forest Tally** generates and makes growth predictions based on silvicultural information and guidelines specific to the stand. Sustainable harvest levels were calculated over a 100-year rotation, with periodic entries into the stand when stocking levels warrant. The volume/acre sustainable harvest figures were calculated using the theoretical future harvest figures that **FIBER** generated along with the current volume figures produced by **Forest Tally**.

Detailed descriptions of each stand can be found in the **STAND DESCRIPTIONS** and **STAND RECOMMENDATIONS** sections of the Management Plan.

STAND DESCRIPTIONS

STAND	CODE	ACREAGE	DESCRIPTION
1	M2A	55	Overstocked, spruce and fir/northern hardwoods (heavy to white birch) stand: small pole to small sawtimber sized. 50+/- year old stand. Fair quality
2	H2A	391	Overstocked, northern hardwoods (heavy to white birch)/spruce and fir stand: small pole to small sawtimber sized. 50+/- year old stand. Fair quality.
		2	Apple orchard and field
		2	Wetlands.
		450	TOTAL ACREAGE

STAND TECHNICAL DATA AND RECOMMENDATIONS

The forests in this area support a variety of species. Each with a corresponding value, such as: economic, aesthetic and wildlife. Proper forest management tries to meld specific silvicultural methods with the goals of the landowner. Forest types or specie groups are closely related to soil groups. The majority of the Prospect Farm is located on Group IA and IIA soil types that have physical limitations such as stoniness and steep slopes. In addition, these soils are typically shallow to ledge or contain a water restricting pan layer. This contributes to growth limitations as can be seen at the higher elevations (Picture 4) and lowdown (Pictures 5 and 6). They also tend to favor hardwood production.



Picture 4: Stand 1 at higher elevations. Note the smaller stems.



Picture 5: Stand 1 on Peru soil type with lowdown. Note the false hellebore indicating a *hydric B* wetland.



Picture 6: Blown down trees in the southern portion of the lot.

As soils play an important role in the species mix and productivity of a forest stand, successional trends will also occur over time. The composition of any given stand is related to the tolerance of an individual species to shade. For example, white pine and white birch will be a few of the species to come in first to an overgrown field. They are not very tolerant to shade. Other species such as hemlock and beech will establish and grow well underneath an existing overstory. They would be considered shade tolerant. Timber harvesting can interrupt the trend, and there are times when this is desired. Two common harvesting schemes are cutting individual trees or cutting groups. As a forest matures, sequential thinnings should be incorporated to remove any undesirable trees and improve the existing stand. These are typically accomplished using individual selection. When stand regeneration is a concern, the harvesting schemes play a more important role. Individual selection cutting generally favors regeneration of shade tolerant species such as beech and hemlock, whereas creating larger openings should promote more desirable shade intolerant species like birch and maple. In addition, ground scarification after

harvesting will better prepare the seedbed for these species. Harvesting on dry ground will usually accomplish this goal.

Approximately 60 years ago the Prospect Farm was deeded to the Town of Jackson. The existing fields were abandoned, and the land again, reverted back to forest. Then the land was heavily harvested in 1960-61. The pioneer species, such as birch, cherry and aspen became prolific. This is what we find today. In general, the woodlot could be considered an evenaged northern hardwoods stand with pockets of spruce and fir, as well as, aspen thickets. They have been delineated for location on the forest type map and individual stand statistics in the written plan, however, due to their similarity, they will be considered as one unit with some inclusions when management recommendations are addressed. Although the land was probably treated (harvested) in a relatively uniform manner, it has developed different species groups or stands. This is due to a variety of factors beginning with the amount and species type of advanced regeneration to site conditions, or even the seed source from the previous stand. There are two distinct stands. They both contain an abundance of northern hardwoods, but basically, Stand 1 has more spruce and fir (Picture 7).

INDIVIDUAL STAND DATA

STAND 1 M2A (55 acres)

Species Composition by Basal Area	SP-12%, BF-31%, RM-8%, WA-2%, YB-12%, WB-25%, AS-12%
Mean Stand Diameter	8.0"
Mean Merchantable Stand Diameter	9.7"
# Trees per acre (4"+)	376
Basal Area/Acre	130.0 sq. ft./acre
Site Indices for selected species	BF-48, WB-45
Growth Rates for selected species	BF-3.8%
Soils	LVE,F, LYE, MFC, MEE, PLC
Advanced Regeneration Stocking	89%
Species Comp. for Adv. Regeneration	SM-29%, BF-13%, WB-5%, STM-5%



Picture 7: Stand 1 M2A

**STAND DESCRIPTION:
Stand 1 M2A**

Stand 1 approximately 40% red spruce and balsam fir. It is over stocked and the trees range from small pole to small sawlog sized. The size varies throughout the stand, due to factors as shallow and wet soils, and higher elevations. Just southeast of the old Baker house site is one of the larger portions of this stand and can be viewed from the main Prospect Farm Road or Wildcat Valley Trail. It begins just after the apple orchard on the right side of the trail. There are other occurrences of this stand throughout the woodlot that vary in size and shape. Stand 1 is essentially the same as Stand 2, just with a larger softwood component. This next photo (Picture 8) shows one of the many bulldozed skid roads left after the logging in 1960-61. Note the abundance of northern hardwoods mixed in with the spruce and fir.



Picture 8: Old bulldozed skid road in Stand 1 M2A.

STAND 2 H2A (392 acres)

Species Composition by Basal Area	SP-5%, BF-11%, BE 6%, SM 12% RM-19%, WA-5%, YB-6%, WB-24%, AS-8%, BC 4%
Mean Stand Diameter	8.0"
Mean Merchantable Stand Diameter	10.5"
# Trees per acre (4"+)	295
Basal Area/Acre	102.0 sq. ft./acre
Site Indices for selected species	BF-54, WB-50
Growth Rates for selected species	BF-3.3%, WB-3.5%
Soils	LVE,F, LYE, MFC, MEE, PLC
Advanced Regeneration Stocking	83%
Species Comp. for Adv. Regeneration	SM-40%, BF-19%, SP 7%, AS 7%, RM 13%, WB-1%, STM-1%

STAND DESCRIPTION:
Stand 2 H2A

This stand makes up the majority of the woodlot and has many of the same specie types and characteristics as Stand 1. It comprises of northern hardwoods, more consistently white birch. It varies in size. From large pole and small sawtimber in much of the stand at the lower elevations and south of the main Prospect Farm Trail to small to medium pole along the northern portions of the lot. A classic area is along the Dana Place Trail (Picture 9). Many examples of this stand can be found along most of the trails. There is an inclusion of northern hardwoods without the heavy white birch component at the northeastern and eastern portions of the lot (Picture 10). In addition, there are small inclusions of aspen (Picture 11). The percentage of aspen is higher in the southern portion. These inclusions are too small to be considered individual stands, but large enough to be mapped and mentioned.



Picture 9: Stand 2 H2A from the Dana Place Trail.



Picture 10: A portion of Stand 2 H2A with white birch as a minor component.



Picture 11: Aspen inclusion in Stand 2 H2A.

MANAGEMENT GOAL: To thin and improve the quality and species composition of the stand, using group and individual tree selection methods of harvesting. Create wildlife openings and scenic vistas if possible, and promote recreational uses. Species targeted for regeneration would be white and yellow birch, aspen, spruce, fir, and red and sugar maple.

TIME FRAME: 1-10 years (2003-2013)

RECOMMENDATIONS:

As noted earlier, the majority of the woodlot is an evenaged northern hardwood stand. The size varies throughout the woodlot, but averages at the large pole to small sawlog size. To accomplish the management goals, a timber sale is recommended to generate some income and create stand diversity. Because of the average size, a timber sale will be somewhat marginal. The group selection method of cutting combined with individual selection would be most advantageous on the Prospect Farm. Group selection, over time, produces a stand with multiple age classes in a relatively small area. This type of forest would benefit a large number of wildlife species. This woodlot offers excellent bird habitat, particularly grouse and woodcock (see WILDLIFE section). Small group openings would enhance this bird habitat. The regeneration resulting from this recommended harvest would add another age class to this stand. It also can be incorporated into cutting openings for scenic vistas for the existing or potentially new trails. It will be important to minimize skidding over the currently maintained trails. They will have to be used in some cases or at least crossed. Some of the created openings should be established as permanent openings. It would be best to mark these group areas with an irregular edge for maximum length. The centers should be stumped and grassed along with the skid roads leading to them. The outside edge (+/- 10') should be left to regenerate naturally, and brush sawn on a regular basis, say every 5-10 years. This will create a soft edge, making it more appealing to wildlife use. The skid roads leading up to these openings should also be limed, seeded and fertilized. This will produce a permanent mechanical access for maintenance.

Although the Town of Jackson has a special reserve to fund cost practices, there is cost-share assistance for municipalities. The NH Fish and Game Department's Private Lands Habitat Conservation-Small Grants Program can be used (*see* APPENDIX). The Prospect Farm qualifies for this program. It is limited to a maximum of \$2,000 per property per year and no more than \$6,000 per landowner over a 10-year period. It is granted only for projects on land that is and will continue to be open to public hunting and other non-motorized public activities. This grant

can be used to release apple trees, brush clearing to maintain old fields, periodic mowing, creation of woodland permanent openings and their maintenance.

A whole tree harvest (biomass) or cut-to-length harvesting method is recommended. Either method of logging would be most suited to this woodlot, due to the large amounts of low value wood that would be selected for removal. Both of these logging types are more suited to cutting pulpwood than conventional logging with a cable skidder and chain saw. Biomass logging removes the whole trees from the woods, scarifying the ground more than cut-to-length, a desired affect when striving for birch regeneration, but is less suited to working on potentially wet ground. The cut-to-length system is more suited to operating wet ground, with lower ground pressure being exerted by the equipment. The drawback to the cut-to-length equipment is the presence of the slash in the group openings, making natural regeneration and scarification more difficult.

As seen earlier, blown down trees are occurring within the woodlot. This usually happens when individual tree root systems are damaged or are restricted due to environmental conditions such as high moisture or shallow soil (i.e.-ledge). Because of the limited strength of the root system, a strong wind can blow them over. Opening individual trees in these areas will typically enhance the opportunity for blow downs to occur. Harvesting in groups works the best under these circumstances to minimize the affects of wind after logging.

Time of harvest is an important factor. The relatively high water table causes seasonal harvesting limitations. The optimal time for harvesting would be dry summer or frozen winter conditions. Late summer is generally dry, although a heavy rain can cause problems. There is generally a narrow window during this time of year. If the harvest occurs on frozen ground, there is generally less impact. However, the steepness of the truck road during the winter months may be a limitation. In addition, harvesting across a maintained ski trail will degrade that part of the trail. Signs will have to be posted and any debris will have to be removed every day. Another alternative to minimize the skiing/logging conflict, is to focus on specific harvest areas that minimize trail crossings. For example, if the lot is divided into 2 or perhaps 3 harvesting units, each unit would be harvested during that period, and therefore, maybe only a few trails would have to be crossed or used during the length of that operation.

Weighing the pros and cons of each method of logging, in conjunction with the time of year, is something that will need to be considered when the harvest is in the planning stages.

Getting a handle on harvesting volumes is an approximation. Some assumptions need to be made. Although the Farm contains about 450 acres, not all is easily accessible. There are portions that are steep, rocky and wet. It would acceptable to assume that approximately 300 to 350 acres are easily operable. In addition, the higher elevation areas have very slow growth and

combined with aesthetic considerations, minimal harvesting should be implemented here. Therefore, the operable acreage would more likely be 300 acres +/- . This could be divided into 3 harvesting units of approximately 100 +/- acres. By staggering the cutting cycles over 5-10 year periods, a harvest could be conducted now (1-5 years) and then another one in another 5-10 years and another in 5-10 years. Keeping to our cutting cycle, after another 5-10 years or 20-30 years total, the first cut area would be reentered again. The drawback to this scheme is the relative value per acre per harvest. This reduces the desirability to loggers and lowers the net return to the landowner.

If a proposed 100 acre area is harvested, approximately 45 MBF of sawtimber and 500 cords (approximately 1200 tons) of pulpwood could be removed from the Prospect Farm, yielding approximately \$5,000 in gross stumpage revenues. The net revenues after commission and fees and allowing for timber tax, will be closer to \$3,000. Based on sustainable growth figures of .107 MBF/acre/year and .84 tons/acre/year, the amount of volume removed in the recommended cut would take 10 years to regrow.

TIMBER VOLUMES AND VALUES - 2003

Species	Total Volume	Stumpage Value	Total Value
<i>Sawlogs</i>			
Spruce	200.125 MBF	\$150/MBF	\$30,019
Balsam Fir	126.012 MBF	150/MBF	18,902
Beech	15.597 MBF	10/MBF	156
Sugar Maple	83.904 MBF	100/MBF	8,390
Red Maple	41.643 MBF	35/MBF	1,458
White Ash	9.871 MBF	80/MBF	790
Yellow Birch	20.135 MBF	50/MBF	1,007
White Birch	93.581 MBF	50/MBF	4,679
Aspen	204.127 MBF	30/MBF	6,124
Hardwood Pallet	30.975 MBF	15/MBF	465
	795.355 MBF		\$83,240
<i>Pulpwood</i>			
Hardwood	16,055 tons	3.00/ton	48,165
Softwood	2,609 tons	3.00/ton	7,827
	18,664 tons		\$55,992
<i>Biomass</i>			
	11,250 tons	1.00/ton	11,250
		Total	\$150,482

TOTAL VALUE PER ACRE (based on 450 acres): \$334

Notes:

- *the following conversion factors were used for converting cords to tons*
hardwood 2.55 tons/cord
softwood 2.2 tons/cord

AESTHETICS & EDUCATION

Aesthetics play a major role in the management of the Prospect Farm. Public opinion of the forest management that occurs there will be based largely on aesthetics rather than the technical quality of the work performed. Where active forest management on this woodlot will be new, creating positive public opinion should be of paramount importance. It is recommended to hold a public informational field session following the completion of some of the recommended forest management activities to explain why and how the various projects were conducted.

Following a harvest, all landings and applicable truck roads should be cleaned of debris and seeded. Not only does this benefit wildlife and in some cases help prevent erosion, but it greatly enhances the post harvest aesthetic appearance of a property.

Maintaining the aesthetic appearance of the forestland can be accomplished by careful logging. Lopping slash close to the ground, avoiding damaging the residual stand, and taking care not to unnecessarily rub on trees adjacent to the skid roads will all help to produce an aesthetically pleasing post harvest appearance. Biomass logging, where the entire trees are removed from the woods and there is little or no slash, is perhaps the form of logging most pleasing to the eye, but not suited to all applications.

It is likely that the UNH Cooperative Extension, Natural Resource Conservation Service, New Hampshire Timberland Owners Association, the Society for the Protection of New Hampshire's Forests, the New Hampshire Fish and Game Department and other like minded groups would be interested in assisting The Town of Jackson with the planning, publicizing and implementation of any public information or field sessions.

Educating the public as to the importance of environmentally sound forest management is vital to the long term survival of New England's forests and forest industry. To this end, Forest Land Improvement would be more than willing to provide whatever help may be needed.

One of the goals of the Town is to promote educational participation with the local school through a Service Learning Program (see APPENDIX). The Prospect Farm offers ample opportunity for on-hands educational programs. From historical discoveries and accounts to botanical and silvicultural information. The possibilities are endless. Some examples would be:

- Historical accounts of the cellar holes and the everyday life of the inhabitants.
- Interview local people with personal accounts of the Farm.

- Catalogue the botanical herbaceous communities.
- Create permanent forest inventory plots that can measure growth and species diversity over time.
- Prune the existing apple orchard.
- Open new trails for recreational hiking and skiing.
- Organize periodic woodland programs or field day, once or twice a year to help children and adults discover the different forest resources through identification of trees, wetlands, and wildlife, orienteering, etc.
- Currently, the Tin Mountain Conservation Center implements environmental activities with the children of Jackson. Perhaps the Prospect Farm can be included as a part of their outdoor laboratory.

RECREATION AND CULTURAL FEATURES:

The discussion of recreational and cultural features on the Prospect Farm have been combined because of their natural relationship. An important historical landmark is Monument rock (Picture 12), which can be found along the Prospect Farm Trail between the Hubs Loop intersections. Also, along the Orchard Trail is a large boulder called *Lookout Rock*, from which at one time a clear view of the Moats could be seen. Now, it is still visible—someone had cut the view—but it is growing in. Another classic historical addition is the old rusted car adorning the Orchard Trail (Picture 12a).



Picture 12: Memorial rock dedicated to Charles Baker.



Picture 12a: Famous Buick Landmark.

The Farm seems to be an under used recreational facility. Currently, the Jackson Ski Touring Foundation under the direction of Tom Perkins, maintains approximately 7 miles of ski trails of varied difficulties. These trails are used during the non-winter months for recreational hiking and probably for hunting in the fall.

The land is a cultural goldmine. The history is very rich with 5 cellar holes (Picture 13 and 14), apple orchards and a scenic vista (Picture 15). There is even a picnic table at this overlook. The chapter from Tin Mountains book written by Ned Beecher is a great educational walkthrough (see APPENDIX). A sign and kiosk should be placed at the proposed parking area. On this a map of the Farm should be posted with the ***You Are Here*** in the appropriate place. Each historical monument should be listed along with a brief history. Obviously, the trails should be labeled and properly signed with distance and difficulty levels.



Picture 13: Cellar hole #5 (Hall) along the Prospect Farm Trail.



Picture 14: Cellar hole #2 (Tolle Place) adjacent to the apple orchard.



Picture 15: Scenic vista overlooking Halls ledge of Mount Washington.

Portions of the lot were at one time cleared for agriculture, as evidenced by old stonewalls and by existing pictures (Picture 16). Again, referencing Ned Beecher's article, there is a picture of an earlier version of the Baker home and a picture of Cyrus Gale at Monument Rock. The area was mostly open pasture.

BAKER PLACE, PROSPECT FARM, JACKSON N.H



Photograph by Phinney

Picture 16: The Baker Place.

In an attempt to find the eastern line that runs south from Camp Gout, I approached a man raking leaves at the Camp. His name was Cobbie Kelly, and I had a very interesting and historical conversation. He is a walking history book. As previously mentioned, and perhaps to connect with the service-learning program, I would recommend at least an interview with Mr. Kelly.

WILDLIFE

From observed sign, a wide variety of wildlife is currently using the woodland habitat. Most noticeable are moose, bear, rabbits, songbirds, ravens, hawks, raccoons, squirrels, owls, mink, otter, and coyote, as well as other species of wildlife (Picture 17). Walking the Prospect Farm trail in July, there were numerous areas where a moose had bedded down. Actual wildlife sightings during the cruise, other than typical songbirds, chipmunks and squirrels, included ruffed grouse and her clutch of eggs and a nesting woodcock parading around the vernal pool along the Dana Place Trail.

The ruffed grouse can be found in many forest types but prefer aspen/birch. These are the early successional or pioneer species. They tend to inhabit recently cut over areas or invade old fields. Along the main snowmobile trail in the eastern portion of the property, I just about stepped on a nesting grouse. Aspen is the preferred species because it has the highest food value for grouse, relatively easy to manage and grows rapidly. Optimal habitat requires 3 stand age classes: 1-15 yrs, 6-25 yrs and mature stands. These provide brood habitat, fall feeding and spring breeding cover, and winter feeding and nesting sites respectively. A 40-year rotation is optimal. For example, in a 10-acre stand, 2.5 acres should be clearcut every 10 years. In the management recommendations, periodic group selection harvests would be ideal.



Picture 17: Moose track near the gravel pit along the Quail Trail.

Periodic cutting maximizes forest succession to the benefit of many forms of wildlife. A dynamic mix of all age classes is considered advantageous for many species for both food and cover. Mast species, especially oak, should be favored and left to grow freely. Larger crowns provide increased nut production and are more valuable for wildlife, especially deer, bear, and squirrels. A main objective would be to retain at least 6 to 12 good mast trees per acre. Because of the relatively young age of this woodlot and its species mix, large mast trees are not abundant. In the hardwood inclusion in the northeast portion of the lot, beech trees are significantly more prevalent. However, the current mix with aspen, birches and cherry, as stated earlier, provides excellent grouse and turkey habitat.

Trees containing cavities should be left for cavity dwelling birds and animals. Any standing rotten trees should be left as habitat for insects upon which woodpeckers and bear feed. Larger, poor quality, oversized (non-marketable) trees are usually decreasing in vigor, which makes them good candidates for future "critter condos".

The southern and southeastern portion of the Farm is relatively wet. Included is the beaver pond at the end of the Dana Place Trail. Many species of amphibians utilize this area. Spring peepers, bullfrogs, salamanders and newts can be found. Along with them of course are the beavers that dammed the drainage.

As mentioned under stand recommendations, the maintaining of the group harvests as permanent wildlife openings is recommended. The habitat that these permanent openings produce is a type utilized by many species of wildlife, particularly birds. These grassy, open areas are used for nesting, mating and hunting as well as providing an abundance of insects that are not commonly found in a forested area. Small rodents are found in great numbers in these areas, providing food for hawks, owls, foxes, bobcat and coyotes. The grassed trails, acts as a wildlife opening, in that it maintains grasses and non-woody growth.

At the intersection of the Orchard Trail and the main Prospect Farm Trail is a 2-acre apple orchard (Picture 18). This was open and pruned under the guise of Hub George in the early 70's. The area is mowed by the Jackson Ski Touring Foundation when they mow the trail. There is another apple orchard across the main trail to the east. This area is heavily overgrown, and is listed as a goal to revitalize. This, along with annual mowing can be cost-shared through the NH Fish and Games Small Grants Program as previously mentioned.



Picture 18: The existing apple orchard at the beginning of the Orchard Trail.

In general, creating a forest with the most complex species mix will create habitat beneficial to the greatest number of animals. Within the Prospect Farm, numerous habitat types exist, ranging from hardwood, softwood and mixed wood forest types. This mix of habitat types should be maintained and improved wherever possible. The development of early successional hardwoods is recommended during any timber harvest as both a food source and a well-utilized habitat type by many native species of wildlife.

RARE AND ENDANGERED PLANT & ANIMAL SPECIES

No rare or endangered plant or animal species were encountered at the time of the cruise. This is not to say that none exist.

However, many different flora species exist. And, after walking with Wink Lees, who located a spot where Dutchman’s Breeches can be found. While not on the endangered list, it is listed to occupy an enriched upland forest and is certainly uncommon. Along with that, spring beauty was found (Picture 19). In addition, there are many other common species, like Painted Trillium (Picture 20) and violet (Picture 21).



Picture 19: Spring Beauty.



Picture 20: Painted Trillium.



Picture 21: Violet.

WETLANDS - WATER RESOURCES

The wetland and water resources on the Prospect Farm include small seasonal drainages, vernal pools and a beaver pond. Some current beaver activity was noted at the time of the cruise at the beaver pond at the end of the Dana Place Trail. There are a number of seasonal drainages flowing off the height of land. On the western portion of the lot, and steeper ground there are some cascading flows. There is one at the end of an old bulldozed skid road that has some scenic qualities, although the 1998 storm damage has taken its toll.

As mentioned in the 1979 Jackson Conservation Commission Newsletter and other places, Hub George had received permission from the USFS to extend one of the trails over the Forest Service land along the northern boundary to Wildcat Brook to a length of cascading waterfall. Since, the trail has been overgrown. Inquiries should again be made to see if it would be acceptable to reopen and maintain this trail.

Just to note, and it may be common knowledge to the Town, there is a spring to the right of the main Prospect Farm Trail, with a line running across the boundary to Camp Gout.

Forest management on The Prospect Farm lands should seek to maintain and protect the integrity of all wetlands. Buffer strips should remain uncut along all drainages and wetland edges. All stream crossings should be done in accordance with the standards presented by the State of New Hampshire in its **Best Management Practices** manual.

BOUNDARY LINES

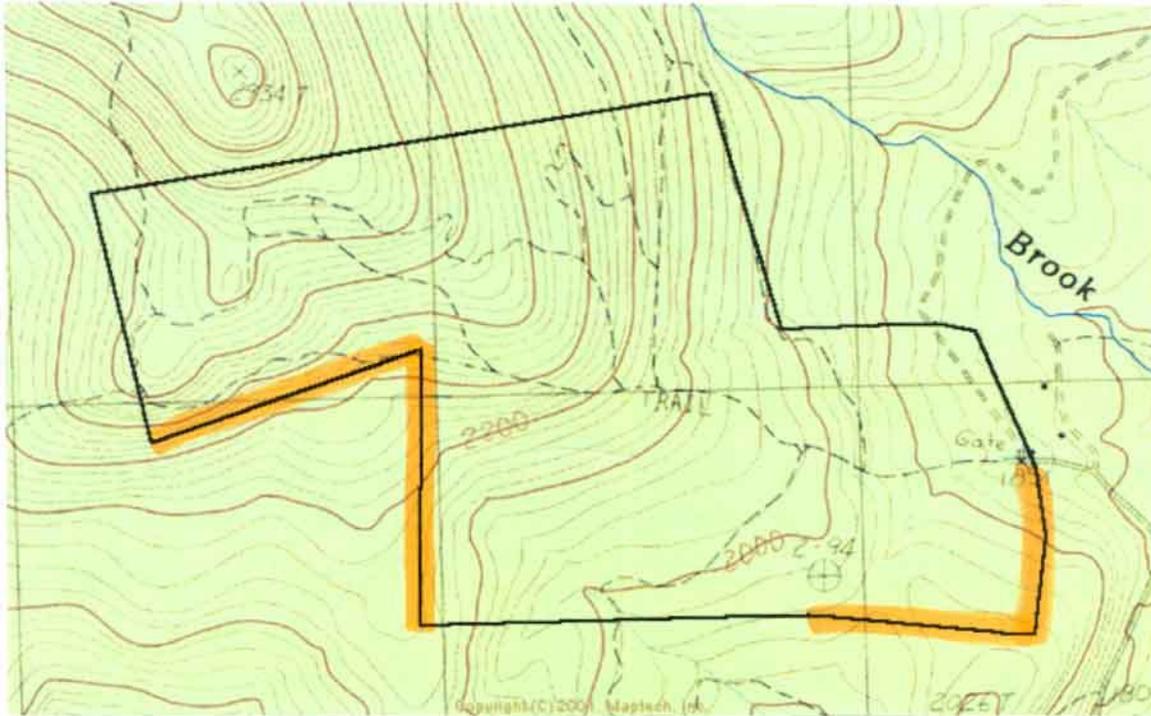
Fortunately, the majority of the property lines abut the USFS, who strongly maintain their boundaries (Picture 22). The remaining lines along the southeastern corner are in poor shape. From Camp Gout south to the corner, and then west to the USFS corner is old, fallen wire fence (Picture 23). The corner itself was not found. This should be the first priority, and marked well. In addition, the southwestern boundary should have the boundary repainted (Picture 24).



Picture 22: USFS boundary lines are well marked.



Picture 23: The southeastern boundary lines are old fallen wire fence.



Picture 24: Property map showing boundary areas in need of work.

Periodic boundary maintenance should be part of any regime of woodland management. The southern corner boundaries of the Prospect Farm should be inspected and repainted every 5-10 years.

BEST MANAGEMENT PRACTICES

All woods road construction use, maintenance, wetland and brook crossings should follow recommendations as made, (and required by law on brook crossings), in the "Best Management Practices for Erosion Control on Timber Harvesting Operations in New Hampshire", a resource manual by J.B.Cullen, DRED, Division of Forests and Lands. A copy of this publication can be requested through the above contact at the Department of Resources and Economic Development, P.O. Box 856, Concord, NH 03301 or call 271-2214.

Before crossing a stream/wetland for the purpose of logging, a **Notification of Forest Management or Timber Harvest Activities having Minimum Wetland Impact** (see **Appendix**) form must be filed with the N.H. Wetlands Board.

STABILIZING AND RESEEDING

When any harvest operation is completed, all critical skid roads and landing should be stabilized. Steep skid roads and truck roads should be waterbarred, outsloped, ditched and smoothed. Truck roads, major skid roads and landings should be limed, fertilized, reseeded with conservation seed mix and mulched with hay where needed. This will help stabilize the soil, provide feed for wildlife, help control woody plant growth and provide an aesthetically pleasing road or trail. Carroll County Conservation Mix, combined with white clover is the recommended seed mixture in most applications.

The seeding of these areas not only stabilizes the soil and provides wildlife habitat, but it will also greatly improve the aesthetics of the access areas. Public opinion of the entire timber sale will be greatly influenced by the post harvest appearance of the truck road and landing areas. Providing an aesthetically pleasing final product is of high priority to The Town of Jackson in the management of its forestlands.

FOREST PROTECTION - FIRE HAZARD

The care, maintenance and further development of the woods road system would be the best tool for forest fire protection and prevention. A good example of this is when a fire broke out near Halls Ledge in 1978, and a fire truck was able to drive up there. The 1998 ice storm did substantial damage to the woodlot, mainly in the higher elevations. There was and still a major effort to keep the main ski trails open. Again, in the upper elevations, pin cherry is prevalent and relatively short lived. What results are standing dead stems around 5-6 inches in DBH that slowly fall and clutter the forest floor and trails.

In addition, practicing good forestry by maintaining species diversity, avoiding monoculture and promoting varied stages of forest succession should minimize mortality from common pathogens, and environmental stress.

INSECTS AND DISEASES

From observed evidence, there is fairly low occurrence of insect or disease problems on Prospect Farm. There is some evidence of Beech Bark Disease, Nectria canker and Poria. Many of the balsam fir trees are rotted in the center, with some broken at the base. This seems common among fir and therefore should be removed at a saleable age and size whenever possible.

SAFETY

In the forested areas, the safety hazard is currently low. The remaining affects of the 1998 ice storm are apparent (Picture 25). However, the majority of broken tops have fallen to the ground.



Picture 25: Broken tops from the 1998 ice storm.

During any timber sale, signs should be posted at the start of the main access road and at other appropriate places, warning of the ongoing logging operation.

MANAGEMENT SUMMARY – SCHEDULE OF PRIORITIES

2003-2008

PRIORITY

First

- ~Locate and blaze and paint southeastern and southwestern property lines.

Second

- ~Discuss harvesting options. If interested, construct landing. Harvesting should be scheduled during the driest summer months or better, frozen ground. Also, discuss cost-share programs and how they would tie into harvesting schedule.

Third

- ~Discuss the service learning program, and how it can be implemented at the Prospect Farm.

Fourth

- ~Create permanent openings. Stabilize skid roads and repair existing trails. Prune existing apple orchard and rejuvenate second one. Create public educational signage, parking lot, new trails, monuments and information for cellar holes.

ACCOMPLISHMENTS

DATE	ACCOMPLISHMENT
2003	Contracted with Forest Land Improvement to complete a comprehensive forest management plan.

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NH FISH AND GAME DEPARTMENT PRIVATE LANDS HABITAT CONSERVATION – SMALL GRANTS PROGRAM: PROGRAM OVERVIEW	page 90
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JACKSON CONSERVATION COMMISSION NEWSLETTER 1979.....	page 105
JACKSON HISTORICAL SOCIETY MEETING 1/20/1980.....	page 110
1981 TIMBER STAND IMPROVEMENT MAP	page 113
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PROSPECT FARM FALL 1984 MAP	page 124
PROSPECT FARM BY MARGARET BROWN GARLAND AUGUST 1986.....	page 125
OUTDOOR EXPLORATIONS IN MT.WASHINGTON VALLEY BY NED BEECHER PUBLISHED 1989	page 136
GLOSSARY	page 147
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LANDOWNER GOAL ASSESSMENT FORM (14 pages)

FOREST LAND IMPROVEMENT EDUCATIONAL SERIES: REPORT #8
INDIVIDUAL TREE IMPROVEMENT THINNING

Many forest tracts have received little or incorrect management in recent years. This can be due to lack of interest, poor understanding of forest growth, or unstable market conditions. Silvicultural techniques have been developed and improved greatly to allow for the best management possible of the variety of forests which exist in the Northeast. Out most common initial step for improving a non, or mismanaged stand is one of the Individual Tree Improvement Thinning well known to the forest industry.

Improvements can be made in several ways, depending on the stand under consideration. It is extremely difficult to generalize since each forest tract has had its own history of management on the diversity of possible slopes, soil types, aspects, and altitudes. These can cause wide variation from one locale to another. However, certain factors always stand out to a forester examining a stand in need of work

During the cruise, the forester learns the density of a stand through the determination of its basal area. The stand is also examined for overall health of the trees, their size, age, and other factors which contribute to the management recommendation. If an Individual Tree Improvement Thinning is recommended, the forester believes that the removal of lower grade and poorer quality trees will improve the overall quality and growth of the forest. The remaining trees, released by the harvest, have been favored over the removed trees because of superior qualities. Besides the selection of the most desirable species, straightness of stem, branch locations, forks, disease, etc. are all looked at. Spacing of the crop trees, wind thrown hazard, and access are other factors under consideration.

The resulting forest, after the Individual Tree Improvement Thinning, should allow for increased growth rate and better growing conditions for the released crop trees. This improved health should make trees more resistant to disease and insect infestations. A much greater return should then be realized during the next harvest cycle. Therefore, the smaller return for proper management initially is returned in greatly increased harvest income over a longer period of time. The forest is better for it, as is the landowner.

FOREST LAND IMPROVEMENT EDUCATIONAL SERIES: REPORT #28
WILDLIFE HABITAT MANAGEMENT RECOMMENDATIONS

The following recommendations were compiled by the New Hampshire Tree Farm Committee, with assistance from other organizations, for use in evaluating wildlife habitat management for tree farms.

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**WILDLIFE MANAGEMENT RECOMMENDATIONS:**

**Timber Harvesting Related:**

1. Designate mast producing trees for maximum rotation. On at least half of the reasonably good sites, crop trees of the following species should be grown to at least 20-24" DBH before harvesting: Oaks, hickories, butternut, beech, white ash, and sugar maples. On poorer sites any large, full crown, mast producing trees should be favored.
2. Encourage within-stand diversity of hardwoods/softwoods by harvesting to release small patches (minimum of 1/2 acre) of hardwoods in extensive softwood stands and softwoods in extensive hardwood stands.
3. Create openings of various sizes. A dispersed network of small "patch cuts" is ideal. Patch cuts should generally be no larger than 3 acres, irregular in shape, and oriented so their maximum width is less than 250 feet. The greater the amount of edge created, the greater the number and variety of wildlife species attracted to the site. Aspen (poplar) in particular, responds very well to patch cuts and is highly favored by ruffed grouse. For maximum benefit, aspen should be periodically harvested to provide a mixture of stands of all ages.
4. Designate snag and den trees for food and shelter. Wherever possible, leave all snags (standing dead trees and trees which are partially dead). Strive to maintain a per-acre minimum of at least 6 snags 9"-24" DBH. A mixture of sizes and species is best. Ideally, all snags within 300 feet of perennial streams and ponds should be left. Some wildlife species (birds and mammals) prefer long-lived, slowly decaying trees such as beech, elm, and sugar maple while other species use rapid decayers such as aspen, gray birch, and red maple. Living trees with cavities, decayed heartwood, or major breaks in the trunk or large branches, may be especially valuable and should be saved.

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**REPORT #28: WILDLIFE MANAGEMENT RECOMMENDATIONS**

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5. Maintain and enhance winter deer yards and browse. Deer will seek dense conifer stands in harsh winters. Sites that have full canopy closures, are low in elevation, and have a slope which faces southeast to west are preferred. If harvesting is deemed necessary in a known deer wintering area, it should be done in consultation with New Hampshire Fish and Game Department biologists. Generally speaking, cut no more than 25% of the standing volume of the softwoods in any given cycle. Of the volume cut, no more than 10% should be hemlock and it is further recommended that the minimum DBH cut should be 22".

6. Identify and preserve specific trees critical to wildlife of concern. Besides den trees used by mammals and cavity nesting birds, look for hawk platform nest trees, and tall trees with nest-bearing crotches that show evidence of use. The "threatened" red-shouldered hawk and the uncommon goshawk are among those species, which reuse old nesting sites. If possible, no cutting should take place within sight of the nest tree or at minimum a 100' buffer should be left.

Special food trees, scattered trees that may be of minor importance in volume, may nevertheless be very important food suppliers. Examples include black cherry, butternut, hickory, white ash, red and white oak, "wolf" white pine, and especially those beeches with bear claw marks.

**Other:**

Conduct and record wildlife surveys. Examples include surveys of "breeding birds" in May and June, and mammal signs (tracks and droppings) when the ground is snow covered. At minimum, keep a brief record of the date, species observed, location, activity, and weather. Not only is it educational, it is also good to know what you presently have to work with.

Construct and/or maintain a wildlife pond. A good wildlife pond generally has 50% open water greater than 5 feet deep, 50% aquatic vegetation in water less than 3 feet deep, and a variety of plant species around the edge, including grasses, shrubs, and trees. Livestock use should be controlled and the pond can be managed for specific species (i.e. wood ducks, frogs). The pond should be 1/4 acre or larger with no known sources of pollution.

REPORT #28: WILDLIFE MANAGEMENT RECOMMENDATIONS

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Improve logging roads and landings for wildlife. Seeding of logging roads and landings with a conservation-type mix will benefit many mammals and birds. Semi-permanent landings of approximately 1/2 acre with irregular edges are highly valuable in densely forested regions. Planting non-native (exotic) shrubs and trees is **not** recommended. In terms of cost, effort and forest ecology, it is far more beneficial to create and maintain openings that encourage native plant species which wildlife are already adapted to for food and cover. Desirable plants include: virburnams, dogwoods, sumac, and high bush blueberry.

Release wild apple trees and other fruit producers. Removing competing trees around wild apple trees will increase yields of apples, which are valuable for many wildlife species, game and non-game. Other fruit producers, which can also be released, include high bush blueberry, service berry (shad bush), dogwoods, hawthorn NH Land Trust, chokecherry, and black cherry.

Provide nesting boxes in the absence of suitable snags. A wide variety of birds and mammals **require** tree cavities for nesting, roosting, or shelter. Where suitable natural cavities are scarce or lacking, they may use nesting boxes of the right design if properly located. TABLE 1 provides a listing of specific dimensions for constructing and locating nesting boxes for a number of different birds. Larger sized boxes can be provided for gray and flying squirrels, owls, fisher, and raccoons.

## REPORT #28: WILDLIFE MANAGEMENT RECOMMENDATIONS

**TABLE 1:** Dimensions and height above ground of nesting boxes for various species of birds regularly using them.

| Species                  | Floor of Cavity | Depth of Cavity | Entrance above Floor | Diameter of Entrance | Ht. above Ground or Water (W) | Preferred Habitat Codes** |
|--------------------------|-----------------|-----------------|----------------------|----------------------|-------------------------------|---------------------------|
|                          | <u>Inches</u>   | <u>Inches</u>   | <u>Inches</u>        | <u>Inches</u>        | <u>Feet</u>                   |                           |
| House Wren               | 4x4             | 6-8             | 4-6                  | 1-1 1/4              | 4-10                          | 2, 6                      |
| Chickadee                | 4x4             | 9               | 7                    | 1-1/8                | 4-15                          | 2                         |
| Titmouse                 | 4x4             | 9               | 7                    | 1 1/4                | 5-15                          | 2                         |
| Downy Woodpecker         | 4x4             | 9               | 7                    | 1 1/4                | 5-15                          | 2                         |
| Nuthatches               | 4x4             | 9               | 7                    | 1 3/8+               | 5-15                          | 2                         |
| Bluebird                 | 4x4             | 8-12            | 6-10                 | 1 1/2*               | 3-6                           | 1                         |
| Tree Swallow             | 5x5             | 6-8             | 4-6                  | 1 1/2*               | 4-15                          | 1                         |
| Hairy Woodpecker         | 6x6             | 12-15           | 9-12                 | 1 5/8                | 12-20                         | 2                         |
| Great Crested Flycatcher | 6x6             | 8-10            | 6-8                  | 1 3/4                | 8-20                          | 1, 2                      |
| Red-Headed Woodpecker    | 6x6             | 12              | 9                    | 2                    | 10-20                         | 2                         |
| Purple Martin            | 6x6             | 6               | 1                    | 2 1/4                | 10-20                         | 1                         |
| Saw-Whet Owl             | 6x6             | 10-12           | 8-10                 | 2 1/2                | 10-20                         | 2                         |
| Flicker                  | 7x7             | 16-18           | 14-16                | 2 1/2                | 6-30                          | 1, 2                      |
| Screech Owl              | 8x8             | 12-15           | 9-12                 | 3                    | 10-30                         | 2                         |
| American Kestrel         | 8x8             | 12-15           | 9-12                 | 3                    | 10-30                         | 1, 4                      |
| Barn Owl                 | 10x18           | 15-18           | 0-4                  | 6                    | 12-18                         | 4                         |
| Wood Duck                | 12x12           | 22              | 17                   | 4                    | 10-20, 6W                     | 3, 5                      |
| Phoebe                   | 6x6             | 6               | ~~                   | ~~                   | 8-12                          | 6, 7                      |
| Barn Swallow             | 6x6             | 6               | ~~                   | ~~                   | 8-12                          | 6, 7                      |
| Robin                    | 6x8             | 8               | ~~                   | ~~                   | 6-15                          | 6                         |

\*Precise measurement required; if diameter over 1 1/2 inches, then starlings may take over cavity.

+Red-Breasted Nuthatch (1 1/4) and White Breasted Nuthatch (1 3/8) will all use the same box.

However, the smaller opening sizes where appropriate may discourage use by House Sparrows.

~~One or more sides open.

REPORT #28: WILDLIFE MANAGEMENT RECOMMENDATIONS

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\*\*Preferred habitat codes. The numbers in the last column of Table 1 refer to the habitat types listed here:

1. Open area in the sun (not shaded permanently by trees), pastures, fields or golf courses.
2. Woodland clearings or the edge of woods.
3. Above water, or if on land, the entrance should face water.
4. On trunks of large trees or high in little-frequented parts of barns, silos, water towers, or church steeples.
5. Moist forest bottom lands, flooded river valleys, swamps.
6. Backyards, near buildings.
7. Near water, under bridges, barns.

Cooperative Forestry Programs  
Pettee Hall  
UNH Durham, NH 03824  
(603) 862-1055 Fax: (603) 862-1585

UNH COOPERATIVE EXT.

### **PUBLICATIONS ON WILDLIFE HABITAT IMPROVEMENT**

The booklets listed below were written for persons in the northeast who are interested in improving habitat conditions for wildlife on their land. They can be ordered from the addresses listed. We make no claims as to their current availability or cost.

#### Landscaping for Wildlife

Henderson, C.L. 1987. Nongame Wildlife Program - Section Wildlife. Minn. Dept. of Nat. Res. 500 Lafayette Rd. Box 7 St. Paul, MN 55155-4007. 144pp.

#### Conservation Plants for the Northeast

Lorenz, D.G., C.W. Sharp, and, J.D. Rufner 1989. Program Aid No. 1154. SCS. USDA. Washington, DC. 40pp.

#### Invite Wildlife to Your Backyard

Thomas, J.W., R.O. Brush, and R.M. Degraaf 1974. National Wildlife Federation. Sixteenth St. NW Washington, DC 20036. 12pp.

#### Enhancement of Wildlife Habitat on Private Lands

Decker, D.J., and J.W. Kelly. 1982. Information Bul. 181. CES Distribution Center. 7 Research Park Cornell Univ. Ithaca, NY 14850. 40pp.

#### Control of Wildlife Damage in Homes and Gardens

Caslick, J.W., and D.J. Decker. no date. Information Bul. 176. CES Distribution Center. 7 Research Park Cornell Univ. Ithaca, NY 14850.

#### A Guide to Urban Wildlife Management

Leedy, D.L., and L.W. Adams. 1984. National Institute for Urban Wildlife. 10921 Trotting Ridge Way Columbia, MD 21044. 41pp.

#### Improving Ruffed Grouse Habitat with proper Planning

Gullion, G.W. The Ruffed Grouse Society. Coraopolis, PA 15108.

#### Managing Small Woodlands for Wildlife

Gutierrez, R.J. et al. 1979. Information Bul. 157. NYS College of Agriculture and Life Science. Cornell Univ. Ithaca, NY 14850. 32pp.

#### Woodlands and Wildlife

Hassinger J. et al. 1979. Penn. St. Univ. College of Agriculture. University Park, PA 16802. 68pp.

#### Timber Sales and Wildlife

Hassinger, J., C.E. Schwartz, and R.G. Wingard. 1981. Penn. Game Commission. 13pp.

#### How to Plant Wild Shrubs

Myers, R.E. 1979. Information Sheet NY-64. USDA SCS. Syracuse, NY.

#### Management of Northcentral and Northeast Forests for Nongame Birds

USDA Forest Service. 1979. Workshop Proc. Gen Tech. Report NC-51.  
USDA Forest Service North Cent. For. Exp. Sta. St. Paul, MN 55155.

#### Managing Northern Forests for Wildlife

Gullion, G.W. 1984. Ruffed Grouse Society. Coraopolis, PA 15108. 72pp.

Wildlife and Timber from Private Lands: A Landowners Guide to Planning

Decker, D.J. et al. 1983. Cornell Univ. Ithaca, NY 14850. 57pp.

Forest Habitat Guidelines for Wildlife

Anonymous. 1985. Minnesota Dept. of Nat. Res. - Section Wildlife. 500 Lafayette Rd. Box 7 St. Paul, MN 55155-4007.

A Forester's Guide to Managing Wildlife Habitats in Maine

Elliott, C.A. 1988. Univ. of Maine. Coop. Ext. Service. Orono, ME 04469.

A Landowners Guide to Woodcock Management in the Northeast

Sepik, G.F., R.B. Owen, and M.R. Coulter. 1981. Life Science and Agriculture Exp. Sta. Univ. of Maine. Orono, ME 04469. 23pp.

Forester's Guide to Wildlife Habitat Improvement

Williamson, S. 1986. UNH Coop. Ext. 110 Pettee Hall. UNH Durham, NH 03824. 56pp.

Guide to Wildlife Tree Management in New England Northern Hardwoods

Tubbs, C.H., et al. 1987. Gen. Tech. Report NE-118. NE Forest Exp. Sta. 370 Reed Rd. Bromall, PA 19008. 30pp.

Managing Cavity Trees for Wildlife in the Northeast

Degraaf, R.M., and A.L. Shigo. 1985. Gen. Tech. Report NE-101. NE Forest Exp. Sta. 370 Reed Rd. Bromall, PA 19008. 21pp.

Managing New England Woodlands for Wildlife in the Northeast

Degraaf, R.M. no date. C-171. CES. Univ. of Mass. Amherst, MA 01003. 17pp.

Woodworking for Wildlife: Homes for Birds and Mammals

Henderson, C.L. no date. Code No. 9-14. Minnesota Dept. of Nat. Res. Minnesota Documents Div. 117 University Ave. St. Paul, MN 55155. 47pp.

Nh native trees shrubs and vines 4p







## ENDANGERED AND THREATENED WILDLIFE OF NH

*Endangered wildlife* are those native species whose prospects for survival in New Hampshire are in immediate danger because of a loss or change in habitat, over-exploitation, predation, competition, disease, disturbance or contamination. Assistance is needed to ensure continued existence as a viable component of the state's wildlife community.

*Threatened wildlife* are those species which may become endangered if conditions surrounding them begin, or continue, to deteriorate.

### *Endangered*

Canada lynx, *Lynx canadensis*  
small footed bat, *Myotis leibii*

pie-billed grebe, *Podilymbus podiceps*  
common tern, *Sterna Hirundo*  
\*piping plover, *Charadrius melodus*  
upland sandpiper, *Bartramia longicuada*  
\*bald eagle, *Haliaeetus leucocephalus*  
golden eagle, *Aquila chrysaetos*  
\*peregrine falcon, *Falco peregrinus*  
sedge wren, *Cistothorus platensis*  
loggerhead shrike, *Lanius ludovicianus*  
Henslow's sparrow,  
*Ammodramus henslowii*

Sunapee trout, *Salvelinus alpinus*  
\*shortnose sturgeon,  
*Acipenser brevirostrum*

timber rattlesnake, *Crotalus horridus*

(none currently listed)

### *Threatened*

#### -- MAMMALS --

pine marten, *Martes americana*

#### -- BIRDS --

common loon, *Gavia immer*  
least tern, *Sterna antillarum*  
arctic tern, *Sterna paradisaea*  
\*roseate tern, *Sterna dougallii*  
Cooper's hawk, *Accipter cooperii*  
northern harrier, *Circus syaneus*  
osprey, *Pandion haliaetus*  
common nighthawk, *Chordeiles minor*  
purple martin, *Progne subis*

#### -- FISH --

(none currently listed)

#### -- REPTILES --

(none currently listed)

#### -- AMPHIBIANS --

(none currently listed)

**Endangered**

\*dwarf wedge mussel,  
*Alasmidonta heterodon*  
 brook floater, *Alasmidonta varicosa*  
 frosted elfin butterfly, *Incisalia irus*  
 Karner blue butterfly,  
*Lycaeides melissa samuelis*  
 Persius duskywing skipper,  
*Erynnis persius*  
 banded bog skimmer,  
*Williamsonia lintneri*

\*federally threatened or endangered.

**Threatened****-- INVERTEBRATES --**

pine pinion moth,  
*Lithophane lepida lepida*  
 pine barrens zanclognatha moth,  
*Zanclognatha martha*  
 cobblestone tiger beetle,  
*Cicindela marginipennis*

| History of Endangered Wildlife Protection in New Hampshire |
|------------------------------------------------------------|
|------------------------------------------------------------|

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>•1973- The Endangered Species Act, a federal law, was passed. It protects wildlife and plant species in danger of nationwide extinction.</li> <li>•1979 - The New Hampshire Endangered Species Conservation Act was passed, giving New Hampshire Fish and Game Department the authority to protect wildlife in danger of becoming extinct in New Hampshire.</li> <li>•1980- The first list of New Hampshire threatened and endangered wildlife was created.</li> <li>•1987- The threatened and endangered wildlife list was revised. This list, effective 6/29/87, remains in effect.</li> </ul> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

The list of New Hampshire's endangered and threatened wildlife is maintained by the New Hampshire Fish & Game Department. The list is used to determine protection and management actions necessary to ensure the survival of the state's endangered and threatened wildlife. State and federal agencies and numerous New Hampshire nonprofit conservation organizations work cooperatively to protect and manage the state's wildlife. The Fish & Game Department has legal authority regarding all wildlife, game, nongame and endangered or threatened species.

This work is made possible through voluntary contributions to the Nongame and Endangered Wildlife Program. Donations to this program are matched by state dollars. A small amount of federal money, available only for federally listed species, also assists wildlife. With your help we are able to protect New Hampshire's wildlife.

*For more information about the Nongame and Endangered Wildlife Program, to report a sighting of threatened or endangered wildlife, or to make a contribution contact:*

**Nongame & Endangered Wildlife Program**  
**New Hampshire Fish & Game Department**  
 2 Hazen Drive, Concord, NH 03301  
 or call (603) 271-2462.

























**THE NATURAL RESOURCE CONSERVATION SERVICE IN NEW HAMPSHIRE**

The Natural Resource Conservation Service (NRCS) is an agency of the U.S. Department of Agriculture. Since 1935 NRCS has offered help to individuals, groups, towns, and other units of government to protect, develop, and wisely use soil, water, and other natural resources.

NRCS provides the skills of trained soil conservationists, technicians, soil scientists, agronomists, engineers, geologists, economists, biologists, and other experts to help landowners and land users carry out voluntary plans to:

- |                               |                                   |
|-------------------------------|-----------------------------------|
| reduce soil erosion           | improve water quality             |
| reduce upstream flood damage  | improve fish & wildlife habitat   |
| improve farm and forest land  | protect wetlands                  |
| reduce land maintenance costs | manage organic waste              |
| enhance community development | make informed land use decisions  |
|                               | help with critical area plantings |

The Soil Conservation Service works through New Hampshire's 10 conservation districts (each one representing a county). Each district, directed by local citizens, determines needs and works toward solving conservation problems within its own boundaries.

State Conservationist Dawn W. Genes directs NRCS operations in New Hampshire Including:

**Program or Project**

**Service**

|                                                      |                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Technical Assistance                                 | Help landowners to plan, install and use methods (structures, techniques, crops, plant materials) to better control erosion and wisely use soils. Help farmers to comply with provisions of the 1985 Food Security Act (FSA) and the Food, Agriculture, Conservation and Trade Act (FACTA) of 1990. |
| Soil Surveys                                         | Map soil characteristics and discuss needed land treatment of areas for various uses. Provide maps and detailed interpretations for local use.                                                                                                                                                      |
| Watershed Projects                                   | Help local groups plan, finance, and construct small projects for flood prevention, erosion control, water quality, and recreation.                                                                                                                                                                 |
| Inventory & Monitoring<br>and<br>Program Development | Evaluate soil conditions and trends and provide assistance to development of local programs for soil and water conservation districts and others.                                                                                                                                                   |
| River Basin Investigations                           | Identify water and land-related problems and help communities to identify flood hazards and form local flood plain management programs.                                                                                                                                                             |

**CONSERVATION DISTRICT, AND RC&D OFFICES  
IN NEW HAMPSHIRE**

Natural Resource Conservation Service and  
Belknap County Conservation District  
Federal Building  
719 Main St., Rm. 203  
Laconia, NH 03246  
Phone: 528-871

Natural Resource Conservation Service and  
Carroll County Conservation District  
44 Main St. (PO Box 533)  
Conway, NH 03818

Natural Resource Conservation Service and  
Cheshire County Conservation District  
U.S. Postal Service Building  
196 Main St. - Rm. 212  
Keene, NH 03431 Phone: 352.3602

Natural Resource Conservation Service and  
Coos County Conservation District  
RR 2, Box 235  
Lancaster, NH 03584 Phone: 788-4651

Natural Resource Conservation Service and  
Grafton County Conservation District  
Swiftwater Road  
PO Box 229  
Woodsville, NH 03785 Phone: 747-2001

Watershed Project Office  
103 Main Street, Suite #1  
Meredith, NH 03253 Phone: 279-6546

NH Association of  
Conservation Districts  
10 Ferry Street, PO Box 2042  
Concord, NH 03301  
Phone: 271-3576

The Southern RC&D Area  
10 Ferry Street, Box 312  
Concord, NH 03304  
Phone: 225-6401

The North Country RC&D Area  
103 Main Street, Suite #1  
Meredith, NH 03253 Phone: 279-6546

Natural Resource Conservation Service and  
Hillsborough County Conservation District  
#468, Route 13, South  
Milford, NH 03055  
Phone: 673-2409

Natural Resource Conservation Service and  
Merrimack County Conservation District  
The Concord Center  
10 Ferry Street, Box 312  
Concord, NH 03055  
Phone: 255-6401

Natural Resource Conservation Service and  
Rockingham County Conservation District  
Federal Building  
32 Front Street  
Exeter, NH 03833 Phone: 772-4385

Natural Resource Conservation Service and  
Strafford County Conservation District  
259 County Farm Road, Unit #3  
Dover, NH 03820 Phone: 749-3037

Natural Resource Conservation Service and  
Sullivan County Conservation District  
25 Mulberry Street  
Claremont, NH 03743 Phone: 542-6681

Natural Resource Conservation Service  
Federal Building  
Durham, NH 03824 Phone: 868-7581  
FAX: 868-5301

All programs and services are offered on a nondiscriminatory basis, without regard to race, color, national origin, religion, sex, age, marital status, or handicap.

Service learning definition

Jackson cons com newsletter 1979 5pp







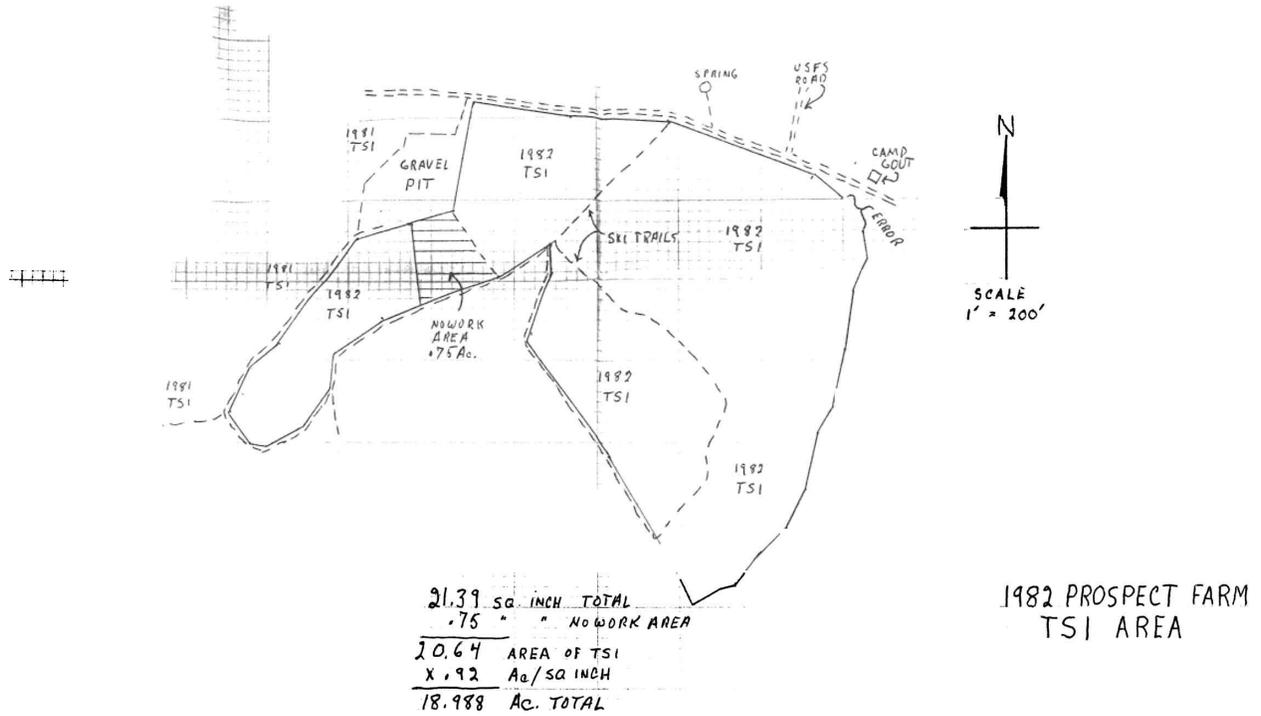


historical soc meeting 1980 3p





PROSPECT FARM TIMBER STAND IMPROVEMENT



prospect farm report 10pp



















prospect farm map 1p

pros farm Margaret brown 11p





















outdoor explorations by ned beecher 11p





















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**GLOSSARY OF FOREST TERMS**

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**BASAL AREA** - a quantitative measure of density, usually expressed as a square feet per acre, approximates the amount of tree stump area to be found per acre at breast height or 4.5 feet above the ground.

**BIOMASS** - the total mass of a tree, or stand, including the main trunk, branches, crown, and foliage.

**BOARD FEET** - a measure of sawed lumber. A board measuring 1 foot long, 1 foot wide, and 1 inch thick contains 1 board foot, or 1 B.F. See MBF.

**CANOPY** - the cover formed by the crowns of the individual trees.

**CAPITAL GAIN OR LOSS** - generally, the gain or loss realized on the sale or exchange of capital assets such as land, timber, buildings, and equipment. Income received in this manner is treated differently for tax purposes than income received in the form of wages or salaries, or the profit realized from the operation of a business. In forestry, this is due to the growth of the trees. Only a percentage of the income derived from a timber sale is taxable because of capital gains.

**CLEAR-CUT** - this harvesting technique removed all timber products down to 2" in diameter. It is often useful in managing areas of low quality timber for improved regeneration as well as ending a rotation. Patch clearcuts removes timber in small, roughly circular areas. Strip clearcuts removes timber along 100 foot strips which usually cover much larger areas than a patch clearcut.

**COMPARTMENT** - a forest area that is separate and unique from other areas because of predominant species composition in terms of volume of softwoods and hardwoods. Compartmentalization is used in forestry for mapping purposes and the statistical processing of forest data. See Compartment Definitions in Chapter 2.

**CORD** - a measure of forestry products, such as firewood, pulp, or fuel chips. The legal measure of a cord is a stack of 4 foot lengths of roundwood, 4 feet high, and 8 feet long, with its air spaces, which measures 128 cubic feet. In terms of solid wood, the standard is 90 cubic feet. Since mills often record pulp by its weight, the industry has developed standards for the conversion of weight to cords. Green hardwood approximates 5,100 pounds, while green softwood is 4,400 pounds.

**CROP TREE** - a tree, due to species, potential, age, form, and spacing, considered to be of high economic value either now or in the future. The growth of such trees is made the object of frequent thinnings or other improvement cuts.

**CROWN** - upper part of the tree, including branches and foliage.

**CROWN CLASSES OF FOREST TREES** -

- a) Dominant - a tree whose crown receives full sunlight on the top and all sides;
- b) Co-dominant - a tree whose crown receives full sunlight on the top and indirect lighting on the sides;
- c) Intermediate - a tree whose crown and sides receive indirect lighting;
- d) Suppressed - a tree which has always grown in low light which has thwarted its growth.

**CULL REMOVAL** - the removal of trees of no economic value because of poor quality and/or large size. These are often a detriment to the overall rigor of the stand.

**CURRENT USE** - a legal designation of a parcel of land which restricts its use and tax base to its current status. This normally greatly reduces the tax burden to the landowner and encourages proper land management. This law is referred to as RSA 79-A and CHAPTER Rev 1200 for current use.

**DBH** - diameter of a tree at breast height or 4.5 feet above the ground.

**DEPLETION UNIT** - a calculable value of timber at the time of harvest which is deducted from the taxable income. Expressed as \$/MBF, it is based on the value of the timber at the time of purchase and the total volume of the lot at harvest. This value is known as the Depletion Unit Allowance.

**DIB** - diameter inside bark. The diameter of the tree without the bark, used in determining the rate of growth.

**EPICORMIC BRANCHING** - the sprouting of dormant buds from under the bark of the tree, on either the bole or limbs, due to environmental stress such as increased sunlight following harvesting, insect defoliation, disease, or weakening of the tree.

**EROSION** - the usually destructive movement of soil particles, often associated with logging operations and access roads.

**FUELWOOD THINNING** - this harvesting technique improves a hardwood stand through the removal of weed and cull stems which can be used as fuelwood.

**HARVESTING TECHNIQUES** - a variety of methods prescribed by foresters to best utilize the forest products. They include; Conventional, Biomass and Integrated.

**HARDWOOD** - broad leafed trees that drop their leaves each fall, except tamarack, which is a softwood. The wood is often denser than softwood.

**HIGH RISK TREE** - a tree with a low probability of surviving until the next harvest. If an effort is not taken to harvest a high risk tree, its value will most likely be lost.

**IMPROVEMENT CUT** - a broad term used to describe a silvicultural practice designed to promote health, growth, and better stocking of crop trees as well as determining species composition.

**MBF** - an abbreviation of the industry standard for saw timber, thousand board feet.

**MANAGEMENT** - the systematic approach to monitoring and assisting forest growth by professional foresters.

**MEAN STAND DIAMETER (MSD)** - the average DBH of all trees found within a specific area of the forest.

**MERCHANTABLE HEIGHT** - the height of the commercially salable portion of the tree.

**MULTIPLE USE** - the management of the same area of forest land for several uses, such as hiking, wildlife habitat, and timber production.

**NECTRIA CANKER** - disease caused by a fungus in which bark and cambium are killed back in the autumn and winter months; the next year the tree grows callus tissue and in several seasons of this process the canker on the tree has a target-like appearance. The canker itself often appears discolored and as a depression on the side of the tree's main trunk, and sometimes the limbs.

**OPTIMUM GROWTH** - the greatest growth which can be achieved on a given site, usually in reference to timber volume.

**OVERSTOCKED** - a stand where all growing space is occupied, with no room for future development.

**OVERSTORY REMOVAL** - the harvest of trees left from previous harvests. These trees are generally older than the other trees, with their crowns in the overstory.

**PLANTATION** - an area planted with forest trees.

**POCKET** - a collection of timber with unique qualities which warrants discussion. This may be a small area of a single species, low quality pulp, or high quality sawlog which differs from the average. It is smaller than a stand.

**POLE** - greater than 4" in diameter but less than sawlog specifications.

**PULPWOOD** - the portion of a tree not suitable for lumber which has economic value in the production of paper products or fuelwood.

**REGENERATION** - the natural or artificial restocking of an area with a new generation of trees.

a) Natural - seedlings which have grown from seed stock of that area or sprouts from past cuttings.

b) Artificial - seedlings which have been introduced by hand or mechanical planting.

**RLI** - rings last inch: the number of annual rings occupying the outer one inch of growth of a tree. It is used to determine the rate of growth.

**ROTATION** - the period of years required to reproduce, grow, and harvest a crop of timber under definite objectives of forest management.

**SALVAGE CUT** - the harvest of dying timber through natural or human causes which would be lost if left untouched.

**SANITATION CUT** - the harvest of diseased, weakened, and insect infested trees and/or stands to prevent further infestation.

**SAPLING** - a young tree greater than 3' tall but less than 4" in diameter.

**SAWLOG** - the part of a tree which has economic value as sawed lumber.

**SCARIFICATION** - a method of disturbing the ground cover in preparation of natural or artificial regeneration.

**SECTION** - a part of a stand which is geographically separated from the rest. It has the same characteristics as the other sections which make up the stand.

**SEEDLING** - young trees up to 3' tall.

**SEED TREE** - a harvesting technique useful at the climax of a forest's growth. The majority of trees are harvested, while leaving the best to provide seed stock for regeneration.

**SELECTIVE HARVEST** - this silvicultural prescription removes enough timber to retain a large quantity of good growing trees and creates an uneven aged stand.

**SHELTERWOOD** - the art of producing and tending a forest; the application of the knowledge of forest treatment; the theory and practice of controlling forest establishment, composition and growth.

**SITE INDEX (SI)** - the average total height of dominant and co-dominant trees within a stand at fifty years of age. The figure gives foresters an indication of the growth potential of a particular site. It's based on the rate of growth and the height of the resident trees.

**SITE PREPARATION** - methods used to prepare the forest for natural or artificial regeneration.

**SIZE CLASS** - the size, in inches, of the stand at any one time, using the following code:

|             |                 |                                                  |
|-------------|-----------------|--------------------------------------------------|
| 1 = sapling | 1-5 inches DBH  |                                                  |
| 2 = pole    | 6-11 inches DBH |                                                  |
| 3 = sawlog  | 12+ inches DBH, | White birch can be a sawlog as small as 10" DBH. |

**SLASH** - the tree and shrub residue left after a logging, TSI, or cull removal operation which has no economic value.

**SOFTWOOD** - coniferous or needle bearing trees also referred to as evergreens. Tamarack is the only softwood which loses its needles each fall.

**STAND** - a finer breakdown of compartments. A hardwood compartment may have an area that is mostly red oak, while another area may be mostly white birch. These areas are considered separate stands within the same compartment.

**STOCKING** - the number of stems per acre using this code:

A = overstocked;      B = fully stocked;      C = understocked.

**TIMBER SALE** - the commercial removal of timber from the forest. Marking, supervision, administration, and closure are all important components of a timber sale.

**TIMBER STAND IMPROVEMENT (TSI)** - the improvement of a young forest through non-commercial operations. These small trees will increase in growth and vigor, and thereby will increase their economic value. There are two methods:

- a) Weeding and Thinning - the removal of competing stems in an area to release crop trees and improve spacing for maximum growth.
- b) Pruning - the removal of all limbs from the main stem of designated crop trees, usually up to 17.5 feet. This increases the yield of clear lumber and value of the tree when it reaches maturity.

**TIMBER TRESPASS** - the unauthorized removal of timber from another's property. This is formally referred to as a RSA539.

TOTAL HEIGHT - the linear distance from the ground to the top of the tree.

TREE FARM - an official designation by the American Tree Farm System. It signifies a commitment by the landowner to proper forestry practices. The tree farm brings a certain amount of recognition to the dedicated landowner.

VENEER - the highest grade of timber for some species. Thin sheets of wood are sliced, sawed, or rotary cut from the log to be used as facings on furniture, etc.

WATER BAR - a mound of dirt mechanically placed diagonally across a road or trail to divert run-off and prevent erosion. These are often placed on woods roads in steep areas as part of timber sale closure.

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FOREST TALLY SUMMARY