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**New England  
Forestry Consultants, Inc.**  
*www.cforesters.com*

Forest Stewardship Plan  
**Gilman Pond Town Forest**  
January 31, 2023



Prepared by:

Peter Farrell

PO Box 111

Alton, NH 03809

[pfarrell@neforestryconsultants.com](mailto:pfarrell@neforestryconsultants.com)



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Peter Farrell  
PO Box 111  
Alton, NH 03809

603-387-4338  
pfarrell@neforestryconsultants.com

NH LF #85

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## FOREST INFORMATION SUMMARY

**LAND OF** Alton Conservation Commission  
 P.O. Box 659  
 Alton NH 03809  
 364-6388

**FOREST NAME** Gilman Pond Town Forest

**TOWN** Alton town                      Belknap County                      NH

**ROAD** Gilman's Corner Road & Drew Hill Road

<b>PARCEL ID</b>	TOWN	TAX MAP	LOT N	ACRES	BOOK	PAGE	ACRES
<u>PRIMARY</u>	Alton	15	31	208	1213	051	208
<u>ADDITIONAL</u>	Alton	15	53	48	N/A	N/A	
	Alton	15	71	160.2	1213	39	160.2

TAX MAP AC                      416.2    DEED ACRES                      368.2

**PARCEL NOTES** This property consists of 2 separate tracts that were purchased by the Town of Alton for conservation purposes with funding from the Land Conservation Investment Program in 1992. The State of NH maintains a stewardship interest in the property. That interest is overseen by the office of NH Conservation Land Stewardship. <https://www.clsp.nh.gov/>

The Heidke lot was taken by the Town for back taxes. According to a town meeting in January of

<b>REFERENCE MAPS</b>	USGS	Alton - GRANIT DRG 113
	SURVEY	BCRD L16, P 60 & L16 P 6
	AERIAL PHOTO	GRANIT CIR 2015
	FOREST TYPE	PF & KC NEFCO Arcmap Project 2022
	SOILS	GRANIT NH State Belknap County
	OTHER(S)	Alton Tax Map 15, Heidke Lot

**OTHER DATA**                      FOREST CODE    330010051531  
 # OF COMPARTMENTS                      TOTAL ACRES IN LB                      453.3

## **MANAGEMENT OBJECTIVES: Gilman Pond Town Forest**

The management objectives for the 'Gilman Pond Town Forest' as set by the Alton Conservation Commission are, in order of priority;

1. The protection of water quality and wetland integrity.
2. The protection of wildlife, including both the diversity of native species and the quality of habitat.
3. The protection and enhancement of non-motorized recreational opportunities including hiking trails and the maintenance of forest esthetics.
4. Sustainable timber management for the production of high quality sawtimber and veneer, only to the extent that it does not compromise achieving the previous objectives.

In addition, protection of *Isotria medeoloides* (small whorled pogonia) and its habitat, are foundational to the conservation objectives that led to the acquisition of these lands under the Land Conservation Investment Program in 1992.

## **FOREST DESCRIPTION**

The Gilman Pond Town Forest was first established with the acquisition of the Seavey and Eley properties in 1992. The impetus for acquisition was conservation of land that had a population of *Isotria medeoloides* (small whorled pogonia). This elusive orchid was on the endangered species list at the time. Over time, the forest has become a popular walking and fishing location. Mapped trails, parking lots, and kiosks have been added to the property for the public benefit.

In the 19th century, this land was cleared for pasture and farms. In the latter 19th and early 20th century agricultural use declined and the land reverted to forest. The second growth forest, mostly softwood, was logged to varying degrees, and has now regenerated to a variety of hardwood and softwood species. Today, the land provides a rich illustration of cultural and biological history and presents opportunities for public benefit as both a landscape and educational site.

## **PROPERTY RESTRICTIONS**

- Conservation Easement     ROW to land     Collaborators     Local Regulations  
 Deeded     ROW across land     Abuttor Courtesy     No Restrictions
- 

Although not technically a CE the land is monitored by the office of NH Conservation Land Stewardship.

<https://www.clsp.nh.gov/>

NH DNCR Natural Heritage Bureau.

<https://www.nh.gov/nhdfl/about-us/natural-heritage-bureau.htm>

Native Plant Trust

<https://www.nativeplanttrust.org/about/contact-us/>

The General Public

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## **FOREST CERTIFICATIONS**

*This forest has no certifications at this time.*

Gilman Pond Town Forest

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## COMPARTMENT INFORMATION

Gilman Pond Town Forest

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COMP ID 1 TOTAL ACRES 453.3

Compartment 1 of 1

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### **COMPARTMENT DESCRIPTION / MANAGEMENT GUIDELINES**

#### **COMPARTMENT LOCATION AND EXTENT**

For management purposes, the entire forest is treated as a single compartment.

#### **BOUNDARIES**

Map 15, Lots 31 and 71 both have surveys that clearly define the property boundaries. A property boundary discrepancy was noted on the surveys in 2006 by David Lawrence. This discrepancy was not of any consequence as the error was on the common line between the two lots which are now both owned by the town. The exterior property lines on these lots are variously marked by painted blazes (red, orange, and blue) and by stone walls. We recommended that all of the lines be marked with "Town of Alton Conservation Land" medallions fastened to live trees with aluminum nails and allowing for tree growth.

Map 15 Lot 53 does not yet have a survey. The boundaries are partially marked but blazes are now as much as 28 years old (boundary of abutting land now of Dana Freese was blazed in 1994). We recommend that either a survey or boundary line agreements be completed to establish these property lines. In either case, we also recommend contacting the abutters to let them know of the Commission's intentions. Upon confirmation of the boundaries they should be marked with Town medallions as described above.

(Continued)

## ACCESS & FOREST PROTECTION

The management objectives of recreation, forest protection and timber management all require some form of access. The recreation access needs for the property are currently well met by small parking areas and kiosks at the trail heads on Gilman's Corner Road and Drew Hill Road.

To meet the needs of forest protection and timber management, we recommend a strategy of creating new designated landing areas. These must be adequately laid out and sized to accommodate standard mechanized harvesting operations that employ tractor trailer trucks for hauling forest products. Full size landings will not be necessary if no timber management is planned, but for purposes of minimum preparedness for protection, driveway entrances to these sites is recommended. The recommended locations for access are:

*Gilman's Corner Road A* – At the northerly end of Area A, there is an old landing that was used sometime in the late 1980's or early 1990's. There is no driveway entrance at this time. There is enough upland that this original landing could be expanded to create an approximately 0.5-acre landing site. This will be an adequate size if the entrance is built wide enough for tractor trailers to back in off the town road. Estimated cost of complete construction in 2023 is \$4,200.00. (Tree clearing would be done by a timber purchaser). This landing would serve to access Areas A, H, B west shore, and possibly K.

*Gilman's Corner Road E* – This would be an entirely new landing at the northerly end of Area E. A 0.5-to-0.75-acre site would be appropriate if the entrance could be constructed for trucks to back in off the town road (the road bank on this location is significantly steeper than that into Area A). The estimated cost of complete construction in 2023 is \$4,200.00. This landing would serve to access Areas E, D, B east shore, and possibly F.

*Drew Hill Road F* – This would be a smaller landing created by expanding the footprint of the trail head parking on Drew Hill Road. It would serve area F only. This area is somewhat isolated from Gilman's Corner E site by distance and poorly drained soils. In addition, the forest cover in Area F is better suited to "cut to length" harvest methods which can function with a smaller landing space. The size of the landing entrance could also be reduced if temporary permission could be negotiated to turn around in the Eley landing across the road. The estimated cost of complete construction in 2023 is under \$3,000.

*Drew Hill Road M* – This landing would be located within the walls of a small, abandoned pasture located on the easterly side of Area M. This would be a full 1-to-1.5-acre landing, as it would need to accommodate a full truck turnaround. South of this proposed landing, Drew Hill Road does not provide an opportunity for bi-directional entrance and departure from a landing. Construction of the entrance for the landing is

also complicated by the steepness of the road bank and the ditch line which has the potential for severe run off. The estimated cost of complete construction in 2023 is \$5,200. This landing would serve to access Areas M, O, L, and possibly K.

*Heidke I* – There is an existing landing on the Heidke Lot that was first used in 1994. Access to this landing is by way of two private roads, Finethy Road and a woods road across the land of Vachon (Map 15 Lot 35). A right of way on Finethy Road, runs with the ownership of Map 15 Lot 35. During the last 28 years, the former owner of Lot 15 35 granted permission to use the road for harvesting on his own land, and the lands N/F of Sclar, Varney, Farrell-Freese, and Freese. Generally, the permitted use was in exchange for improvements to the road including grading, gravel, and access control. This is the only feasible way to access timber on this land short of a significant wetlands crossing and very long skidding.

Access Notes –

*Forest protection* refers to salvage or restoration operations that may be undertaken following sudden and major damage caused by wind, fire, ice, and pathogen losses. *Timber management access issues*, including roads, landings, and skid trails, often beneficially intersect with recreation, water quality protection, and wildlife habitat considerations. These intersections will be discussed in sections that follow.

## TIMBER MANAGEMENT & ALLOWABLE CUT

Timber management is last on the list of prioritized management objectives, but it is the ‘elephant in the room’ with respect to the potential impact it can have on the other objectives. As such we are discussing this first, so that the limitations and opportunities can be addressed in the report sections that follow.

A well-planned timber management strategy will minimize the adverse impacts of harvesting, complement other objectives where possible, and achieve the goal of sustainably producing the highest value timber products. The key elements to a successful timber management strategy include:

1. Growing the best quality trees to produce the highest value products.
2. Harvesting the trees at a rate that is an optimum balance between conditions for growth, operational efficiency, and the productive capability of the forest site.
3. Insuring that as mature trees are removed, they are replaced by young trees (regeneration) of desired species, and of adequate vigor to reach maturity.

We will review all three elements of timber management by first, reviewing the findings from the 2022 inventory; second, outlining alternatives for timber harvesting; and third, describing silvicultural steps to insure the regeneration and development of new stands.

Timber Management Thoughts –

Growing trees for the production of wood products is a controversial issue. The choice to harvest timber has as much to do with philosophy as it does with biology or ecology. Left alone, nature will take a *course, no matter*. The question becomes will that course bring the results ‘you’ the forest owner/steward wish to see. As you navigate this plan keep in mind that there are cost and benefits to timber management and no single correct answer. Managed or not, the forest will be changing slowly or quickly, but regardless of speed, constantly. A timber management approach that mimics natural processes, is done with care and a dose of humility will yield the best results.

# **ESTIMATED TIMBER INVENTORY AND VALUE**

Gilman Pond Town Forest

Compartment 1 of 1

YEAR OF INVENTORY	END YEAR OF ESTIMATE	ESTIMATED GROWTH RATES % PER YEAR					
<u>2022</u>	<u>2022</u>	SFTWD	.015	HDWD	.015	PULP	.015
<b>SPECIES /PRODUCT</b>	<b>VOLUME</b>					<b>\$/UNIT</b>	<b>TOTAL \$</b>
White Pine	1,388.5	MBF				250.0	347,130.3
Spruce /Fir	6.4					125.0	795.1
Hemlock	482.8					70.0	33,798.5
Red Pine	25.3					50.0	1,267.0
Other softwood							
Softwood Pal/Tie	361.8					30.0	10,855.2
Red Oak	537.0					330.0	177,210.0
Black Oak							
White Oak							
Sugar Maple	9.4					300.0	2,818.8
White Ash	3.5					150.0	524.1
White Birch	16.2					80.0	1,299.8
Yellow /Black Birch	18.0					150.0	2,700.0
Black Cherry							
Red Maple	86.4						
Beech							
Other Hardwood							
Hardwood Pallet	166.3					50.0	8,315.5
Softwood Pulp	714.0	CORDS					
Spruce/Fir pulp							
Hemlock Pulp	707.0					4.0	2,828.0
Hardwood Pulp	3,061.0					30.0	91,830.0
Gr Stock: Softwood							
Gr Stock: Hardwood							
<b>ESTIMATED TIMBER VALUE</b>							<b>\$681,372.24</b>

NOTE: This table displays the estimated timber inventory at the "end" year. It is based on the following:

1. Starting inventory volumes are from the year of the cruise displayed.
2. Growth of the starting volume using the percentages displayed, compounded annually.
3. Less any harvest occurring in the interim years, and subsequent changes in compounded growth.

INVENTORY Variable Plot 20 BAF. 5x5 uniform grid. WP Saw 10'dbh+, Hem Saw 12" DBH + both 8" top.  
 METHODS: hardwood 12" dbh plus to 10" top, 9"top on Red oak pallet. OH pallet converted to Hdw pulp cords .  
 This table only includes timber management land omitting Pond buffer, J area wetlands, and inoperable inclusions. 281 acres. Prices from market in Feb 2023, 14-16 year high for WP and Hdwd Pulp prices.

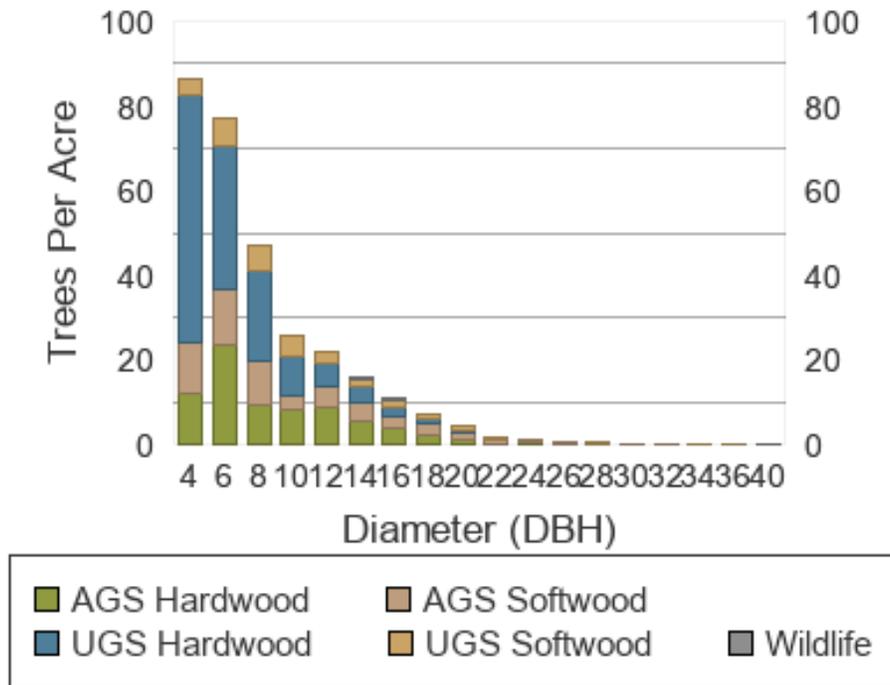
### ***Element 1: Timber Inventory and Quality Assessment***

Approximately 281 acres of the 453 acres (62%) of the land and open water encompassed by the Town Forest are suitable for timber management. Of the 172 remaining acres, 63 are open water (Gilman Pond), 26 acres are deep wetland, 31 are a forested buffer around the pond and 2 acres are non-forest, old field. The balance of 50 acres are forested areas and inclusions that are generally inoperable. Soil productivity on the timber management acres is generally good.

The 2022 forest inventory results indicate the property has a gross standing timber volume of 10.3 thousand board feet (MBF) and 17 cords per acre. These figures represent levels of timber stocking that are above the averages of 8-10 MBF and 15-20 cords per acre for well managed forests. The ratio of sawtimber to pulp does indicate that this is overall mature forest land. The total net standing timber value of the property, excluding buffers, reserves, and inoperable forest wetland is estimated to be \$681,000 as listed by species and product in the attached table, *Estimated Timber Volume and Value*. It is important to note that this is the total standing timber value of [ALL](#) of the trees. Management limitations, including conservation objectives, recreation value, and public ownership will allow for sales of only a relatively small portion of this inventory at any one time.

Of greater importance are the findings regarding timber quality, as illustrated in the chart [below](#) titled *Trees Per Acre by Class and Family*. Overall, the timber quality is good, with over 55% of the tree volume being tallied as *acceptable growing stock* (AGS, trees that have current or future potential to produce higher value sawtimber). 43% of the tree volume was found to be *unacceptable growing stock* (UGS, trees not having any potential, present or future, to produce sawtimber). Less than 2% of the trees were classified as having wildlife habitat value, but no timber value. However, when we examine the distribution of trees by diameter, beginning with the 4-inch and 6-inch groups, we see an inverse of the overall ratio, with only 20% AGS trees and 80% UGS trees. The ratio of AGS trees improves with increasing diameter, which is a good indicator that past harvesting has focused on eliminating low quality trees. **However, to insure that future timber quality is maintained, it is very clear that attention must be given to reducing the number low quality trees in the early stages of stand development, and to encourage and protect the higher quality, small diameter, trees.** Harvesting low quality trees that generate little or no income must be a component of every timber harvest, as must carefully harvest layout to protect higher quality trees in the residual stand.

## Trees Per Acre By Class & Family



### Element 2: Harvesting Strategy

Timber management is the lowest priority objective identified for the Forest, but it is an activity, or tool, that can be used for achieving other objectives directly, indirectly, or concurrently. Not insignificant is the potential for generating income to support investments related to the other objectives. We will discuss the general principles of harvest strategy here and how it relates to other objectives in sections that follow.

There are a variety of factors to consider when planning a harvest strategy. These include access, esthetic impacts, wildlife habitat, income needs, timber volume, markets, acreage, seed crops, and harvest technology. In the case of the Gilman Pond Town Forest, there is the additional need for special consideration for the habitat of the orchid species *Isotria medeoloides* (small whorled pogonia, SWP).

Where timber is not the highest priority, we recommend periodic harvesting on limited portions of the property. This type of strategy has advantages which are compatible with multiple-use objectives, as follows;

1. Harvesting on 5-to-10-year intervals creates forest structural diversity, and a consistent supply of hardwood browse less than 10 years old, both of which are favorable for wildlife habitat.
2. By limiting harvesting to a portion of the ownership, the esthetic impact at any given time is lower, and the appearance of harvested sites have a chance to soften before another harvest commences.
3. There are operational advantages of having labor and logging equipment on site more frequently as they may be engaged for smaller but important projects such as post-harvest silvicultural treatments, salvage cleanup, or hazard tree removal.
4. Income is generated in smaller amounts, but on a more regular basis.
5. In dealing with orchid habitat, harvests with a smaller footprint will affect smaller portions of the plant population, and allow for monitoring between harvests that will help improve understanding the effect on plant growth.
6. Smaller periodic operations help in the development of an 'institutional memory'. When these sales are executed properly, future harvesting operations may be more readily accepted and expedited by the public.

As a guide to determining the amount of area to be harvested we would, under normal circumstances, use the attached Area Regulation Guidelines table. Each harvest operation would include intermediate cutting and regeneration cutting. Intermediate cutting is commonly referred to as thinning, where most of a stand is retained for future growth. Regeneration cutting, in the form of small clearcuts or patch cuts, is performed where a stand is very poor quality or completely mature and creation of new forest growth is the objective. Although this is a good general guide for sustainable timber production, we are recommending a slower more conservative schedule, to allow for monitoring of the SWP response.

In addition to modifying the scheduling strategy, we have recommended excluding, or narrowly limiting, timber management in specific areas. These restrictions apply to: Area B, the buffer around Gilman Pond; Area J, a forested wetland on the Heidke Lot; and Area N – a very steep talus site on the Eley lot. These areas were excluded when calculating the total timber management acres.

### ***Element 3: Silvicultural investments.***

Silvicultural investments are expenditures that are made to improve the composition of forest regeneration and/or the growth of young forest stands. The general schedule for silvicultural investments is also shown in the Area Regulation Guidelines Table. The three general categories of silvicultural investment area

1. *Scarification* – In conjunction with or after harvesting, moderate disturbance of the forest floor, breaking through slash and heavy leaf litter, will expose some mineral soil. When their seed is available, this condition is very favorable to the regeneration of

white pine and red oak. Scarification is generally the most economical of the silvicultural investments to make as it can be done with logging equipment after the operation or, as in the case of summer logging, incidental to the tree harvesting. Timing of harvest during or around a seed year is important to making the scarification effective.

2. *Release Cutting* – While a stand is still in seeding small sapling stage (< 20 years) cutting undesirable young trees to favor preferred species is a way to shape the future development of a timber crop. For white pine, this treatment is done earlier (<10 years) as it grows slowly in its first 5 years as compared with hardwoods and hardwood stump sprouts in particular. For hardwoods the treatment is applied later (10-20 years) to allow the development of a straighter stem with few or no lower branches. In all cases, this treatment is labor intensive whether it involves mechanical cutting or the use of herbicides.
3. *Pre-commercial Thinning* – Once the trees have reach large sapling - pole size ( 20-40 years ) another thinning is generally recommended to reduce crowding and allow for crown growth. By this stage the trees will have developed to the point where their vigor and quality are more obvious. The trees to be left are now considered ‘crop trees’ This thinning is labor intensive, generally being performed by chainsaw felling or girdling. It is also a ‘messy’ business as the cut trees are not merchantable and are left on site.

In addition to establishing tree growth for timber, thinning investment may be employed to improve growth and propagation of the SWP. In the SWP study that was reported in 2011, the canopy thinning that was used included both mechanical and chemical control of shrubs and small saplings. This is essentially the same as release and pre-commercial thinning aimed at improving tree growth.

Following every harvest, we recommend a regeneration survey be conducted 5 to 7 years after cutting is completed.

**AREA REGULATION METHOD GUIDELINES**

Gilman Pond Town Forest

Compartment 1 of 1

To properly manage a forest for timber production and wildlife habitat, harvesting levels must be regulated so as to prevent over cutting. Traditional forestry theory provides for two methods of harvest regulation; Area and Volume. The table which follows here is a simplified illustration of the theoretical guidelines for area regulation on a forest of this size. This illustration is based on the following assumptions and definitions:

1. **TIMBER MANAGEMENT ACRES** - The total acreage available for commercial timber production, based on the records contained in the *Areas* file.
2. **ROTATION AGE** - The maximum age to which commercial timber trees are grown before harvest. In mixed species management, the species to be grown the longest would define the rotation age.
3. **OPERATING OR AGE CLASS INTERVAL** - This is the average amount of time between the treatments which will be conducted during the course of one rotation. This definition assumes that the operating interval is the same throughout the rotation, and that a consistent series of treatments will be applied to the timber management acreage as a whole.
4. **PLANNING HORIZON** - The time frame for which this particular evaluation is being considered.
5. **TREATMENT COVERAGE GOALS** - Once the criteria have been established for the above terms, we can calculate the expected acreage to be affected by each treatment. These figures can be compared with the report from the *Recommended Treatments* file (Rec Trt by Type - Forest) to see how the suggested treatments compare with the theoretical guidelines.

**AREA REGULATION GUIDELINES TABLE**

TIMBER MGMNT ACRES	ROTATION AGE	OPERATING OR AGE CLASS INTERVAL	PLANNING HORIZON
<u>280.7</u>	<u>120</u>	<u>20</u>	<u>15</u>

**SUGGESTED TREATMENT COVERAGE GOALS BY AGE CLASS**

ENDING AGE	TREATMENT TYPE	% OF ACRES	# OF ACRES
<u>20</u>	<u>Silvicultural Investment- Release</u>	<u>12.5%</u>	<u>35.1</u>
<u>40</u>	<u>Silvicultural Investment: PreCommercial Thin</u>	"	"
<u>60</u>	<u>Intermediate harvest - 1st thinning</u>	"	"
<u>80</u>	<u>Intermediate harvest - 2nd thinning</u>	"	"
<u>100</u>	<u>Intermediate harvest: 1st shelterwood</u>	"	"
<u>120</u>	<u>Regeneration Harvest - Final shelterwood</u>	"	"
<u> </u>	<u> </u>	"	"
<u> </u>	<u> </u>	"	"
<u> </u>	<u> </u>	"	"

## WILDLIFE & FISH HABITAT

The total acreage of Gilman Pond Town Forest, including open water of the pond, is 453 acres. On properties larger than 250 acres, we can assess habitat conditions from two perspectives: *habitat elements* and the *landscape level*.

**Habitat Elements:** These are discreet features having attributes that have specific habitat value for one-to-many species. On the Gilman Pond Town Forest they include:

1. *Wildlife trees* – These are living or dead standing trees with existing or potential features that can serve as nesting, breeding, or feeding sites for insects, birds, and small mammals. Trees of this type were tallied in the inventory sample and found to occur at an average of 9.2 trees per acre, a higher rate from the generally recommended average of 6 trees per acre. During timber harvesting operations, trees that show signs of decay, nesting sites, or open cavities will be retained.
2. *Mast producing trees* – Mast refers to the nuts, seeds, and fruits of woody plants that provide food for wildlife. Red oak, white pine, and beech are the most common mast producers on the property. Managing for the growth of large diameter white pine and red oak sawtimber – the most economically valuable trees in this region - will result in vigorous, large, crowned trees that produce the heaviest seed crops. Seed crops in pine and oak are generally produced at 3-4-year intervals. Highbush blueberry is also a valuable soft mast species and may be found in association with the wetland edges. Where blueberries are abundant, cutting adjacent overstory timber can create light conditions that are favorable to flower and fruit production.
3. *Coarse woody debris (CWD)* – Large diameter dead, fallen, trees and rotting stumps serve many functions in the forest ecosystem. Whether on the forest floor or partially submerged in streams and wetlands, logs serve many species as feeding sites, shelter, and pool-creating dams. A simple count of the CWD was taken on a subsample of the forest inventory stations, indicating that on average per acre there are approximately 0.8, 12-inch or larger diameter, 20 feet and longer, which compare favorably with the generally recommended minimum of 1 similar size log per acre. Retaining large diameter low quality trees for standing habitat will eventually translate into more debris on the ground.
4. *Hemlock/softwood cover* – Hemlock and mixed softwood stands provide cover for deer during winter and for birds that nest in dense canopies. Hemlock cover is very common across the forested upland and forested wetland of the Gilman Pond Town Forest. It represents over 20% of all the basal area in the forested acres. Given the abundance of hemlock, soil type, and site conditions, it is highly likely that hemlock will easily regenerate following harvesting and continue to be a significant component in the

Gilman Pond Town Forest stands. Hemlock and softwood cover will be discussed further at the landscape level, below.

5. *Early successional forest cover* – Gilman Pond Town Forest is notable for the *absence of this habitat element*. Many native New England species, including reptiles, birds, and mammals, use early successional habitat (shrub, seedling, and sapling cover under 10 years old) for shelter and forage. This habitat element is optimal when occurring in openings 2 acres and larger. Timber management which includes creation of these size openings on a regular, sustainable basis, is compatible with creating diverse habitats for a wide variety of species. This element will be discussed further at the landscape level, below.
6. Permanent non-forest openings – Openings in the forest canopy where the vegetation is maintained as shrub or grass cover are also used by numerous species for shelter and foraging. Currently the only permanent opening in the found in the Gilman Pond Town Forest is Area C which is a 2.0 acre opening.
7. Forested wetlands, vernal pools, inclusions, and springs – These sites are important to smaller wildlife including reptiles and amphibians. There is one well defined forested wetland in the Gilman Pond Town Forest, Area J, 26.5 acres. We propose that harvesting be limited to the outer edges of this site and only where cutting can release blueberry, winterberry and other shrub growth. No vernal pools were identified during the 2022 inventory.
8. Non-forested wetland systems – Area P is a 16 acre mixed type, non-forest wetland (sedge meadow, palustrine). Ironically categorized as ‘Unproductive’ in the NH Current Use Assessment categories, this wetland provides a unique habitat for numerous wildlife species, particularly birds, reptiles, and amphibians. Previously dammed by beaver activity there is now much less open water in the area but enough that it may still attract ducks. Of note are the numerous white pine snags on the wetland edge. These are attractive perches for hawks such as the red-tailed hawk and red shouldered hawk, and owls such as the Great Horned Owl, barred owl and the Northern saw-whet owl, and potential nest sites for herons if the beaver dam was rebuilt. Unfortunately, it appears that the wetland has been invaded by phragmites at its northern end.
9. Gilman Pond, Beaver – The current depth of Gilman pond is the result of a beaver dam at the northern outlet. Advantageous construction against an original 19<sup>th</sup> century stone dam, it currently appears to retain 2 to 4 feet of water that would otherwise flow downstream. There is a large beaver den in the center of the ponds neck north end but we are not certain that it is currently occupied. The dam is in poor condition with little new construction activity apparent. This is probably a result of an inadequate hardwood tree food supply, as indicated by the dense growth of hemlock along the shores of the

pond. Old chewing marks are noticeable on less preferable hemlock and larger hardwoods along the shore.

10. Gilman Pond, Fish, Reptiles 7 Amphibians - Generally shallow with a maximum depth of 17 feet, the westerly side of the pond is currently inundated with meadow sedge peat. Fish species found in the pond include largemouth bass, chain pickerel, brown bullhead, and black crappie. The Pond is also home to several species of turtles including the Eastern painted turtle, spotted turtle and the wood turtle. Otters may also inhabit Gilman Pond and likely feed on the native species of fish found in the pond. Several species of snakes are also found in the vicinity of the pond including ribbon snakes and common water snakes. (Source NH Fish & Game)
  
11. Rock Outcrops –Area B on the easterly side of the pond has steep rock outcrops and ledges that provide nest and den opportunities for a variety of animals. These potentially include bobcats, fishers, bears, coyotes, and porcupines. Historically, rattlesnakes were once found in the ledges of the property and were eradicated when the land was cleared for farming in the 19<sup>th</sup> century. Rock outcrops are also found in Area N south of the Pond. As well as potential habitat, these sites support numerous large old age trees that are preserved by default from harvesting.

*Beavers, Natures Environmental Engineers –*

Beavers are unusual, but not unique, in that they play a major role in constructing their own habitat. Beaver ponds go through a cycle of dam creation, an open water stage, and eventually return to open meadow. This cycle is most often the result of dwindling hardwood tree food supply followed by the natural breach or abandonment of the dam. Through these stages, beavers have provided varying habitat conditions that serve more wildlife species - birds, mammals, reptiles, amphibians, and fish - than any other single forest landscape feature. Where beavers are not a nuisance or causing property damage, they are best left for their habitat enriching value. Forest managers can improve opportunities for beaver where food supplies have become scarce. Harvesting dense softwood cover on the edge of existing ponds or meadows, using patch cuts that encourage hardwood regeneration, will improve the chance for beaver to remain at or return to a site. The best terrain for a clearing is level and slightly wet terrain within 100 yards of the water high water mark.

**Landscape Level Habitat Evaluation** - Using the model developed by DeGraaf et al (2006), a *Landscape* level evaluation of wildlife habitat can generally be applied for properties larger than 250 acres. Using this method we classify the Gilman Pond Town Forest as a Habitat Opportunity Class II, as shown in Report A3. Under this classification, the goals for forest *size class distribution* and *cover type distribution* can be compared with the findings of the 2022 inventory. The goals are general targets for cover type and size classes that will best meet habitat requirements for the *broadest number* of native wildlife species in New England.

Opportunity Class II Composition Goals vs 2022 Inventory Findings

	Goals (% Cover)	2022 Findings
<b>Size Class Distribution</b>		
Regeneration	5-15	.1%
Sapling-pole	30-40	34%
Sawtimber	40-50	65%
Large Sawtimber	<10	.3%*
<b>Cover Type Distribution</b>		
Deciduous Short rotation	5-20	
Deciduous Long rotation	10-20	25%
Hard mast types (oak, beech)	1-15	47%
Coniferous	25-50	42%
Non-Forest Upland	5-10	.5%
Non-Forest Wetland	3-5	3.6%

\*Some large sawtimber (>24-inch DBH) are found as individual trees but no full stands of that type of timber were observed.

\*\* Mixed hemlock-hardwood cover type was observed on 49% of the sites but was allocated evenly between the hardwood and coniferous cover types.

The data show that the regeneration size class (early successional habitat) and non-forest upland are both functionally nonexistent within the property boundaries. These habitats support a large number of native species. Before rushing to a decision to begin creating these cover types with land clearing or, more feasibly, regeneration cutting, we can take a broader view of the landscape surrounding the GPTF (1+ mile radius from the property center). Zooming out on the 2015 aerial photos we can see signs of heavy cutting on adjacent properties that would for the near term meet the 5 to 15% cover goal. However even at that radius there is still a very small percentage of non-forest upland, (fields and other permanent openings), a habitat that would be hard to create in any case. The creation of additional log landings which are maintained open after logging by biannual mowing would contribute a small but worthwhile acreage to this cover type. Another opportunity would be to expand the non-forest cover in Area C by working in conjunction with the current owner of the old field on the abutting Seavey

**HABITAT OPPORTUNITY CLASSIFICATION AND COMPOSITION GOALS**

Gilman Pond Town Forest

**Compartment 1 of 1**

For properties larger than 250 acres, the cover characteristics described in the table below are suggested guidelines for maintaining habitat which will support the widest variety of New England's native species (DeGraff et al. 1992). For smaller properties, consideration can be given to available habitat on surrounding lands, and how the ownership fits into the larger landscape.

Reference: New England Wildlife: Management of Forested Habitats (Degraaf, Leak, Lanier, and Yamasaki) , 1992, USDA Forest Service, General Technical Report NE 144.

HABITAT  
OPPORTUNITY CLASS  
for this Compartment



HABITAT OPPORTUNITY CLASS

	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	
	-----	-----	-----	-----	
	-----	PERCENT	-----	-----	
<b>COMPOSITION</b>					
<b>Habitat Breadth:</b>					
Forest	>90	>90	70-90	70-90	
Non forest	0-10	<5	5-30	5-30	
Water	<5	>5	<5	>5	
Krummholz	P/A	P/A	P/A	P/A	(Present/absent)
<b>GOALS:</b>					
<b>Size Class Distribution:</b>					
Regeneration	5-15	5-15	5-10	5-15	
Sapling-pole	30-40	30-40	25-35	30-40	
Sawtimber	40-50	40-50	55-65	40-50	
Large Sawtimber	<10	<10	<10	<10	
<b>Cover Type Distribution:</b>					
Deciduous (not Oak)					
Short rotation	5-15	10-25	5-10	5-20	(aspen-birch)
Long rotation	20-35	15-30	20-40	10-20	(N hdwd, swamp hdwd)
Hard mast (oak types)	1-5	1-5	5-25	1-15	(oak pine, oak hickory)
Coniferous	35-50	35-60	10-35	25-50	(pines,hem,sp-fir, & mixes)
Non forest					
Upland openings	3-5	3-5	15-30	5-10	
Wetlands	1-3	1-3	1-3	3-5	

property. Clearing the incoming growth in that field and a small adjacent pine stand in Area B, the total opening could be expanded to about 6-8 acres.

As to the rest of the cover types the distribution of softwood and hardwood is generally well balanced and, under a sustainable timber management strategy, likely to remain in this condition.

*Wildlife: How many species are there?*

There are 199 species of wildlife that are native to New England. They are found in a variety of habitats varying from treeless, to heavily wooded; dry land to open water. Many species move between these habitats as we would move between rooms of a house – foraging, breeding, sheltering, and resting. In the large landscape model described above there is more opportunity to create or find spaces that meet the full range of habitat types. In dealing with subset of the landscape, where competing objectives call for more moderate harvesting, we may make compromises on the breadth of habitat variety. If the GPTF is to be heavily forested, we will be adopting what is termed an ‘uneven aged’ management model. For a White Pine – Oak forest type, as is typical of much of the GPTF, under an uneven age model, we could be meeting general habitat requirements for 133 of the native New England species. This is not to say that these species are present only that they could be. During the 2022 forest inventory, signs or sounds of the following species were observed: coyote, beaver, fox, deer, turkey, hare, fisher, bobcat, porcupine, long tailed weasel, and red and grey squirrel. Varying species of birds such as raven, crow, bluebird, and chickadees were also observed. A full list of potential species is contained in the Appendix of this report. (Degraaf Et Al. Landowners Guide to Wildlife Habitat)

## RECREATION & ESTHETICS

The GPTF provides recreational opportunities for walking, fishing, and hunting. Well marked and frequently used walking trails run from the Gilman’s Corner Road parking lot to the Drew Hill Road parking site and kiosk. In addition there are poorly marked ‘unofficial’ trails on the ridge in Area A that appear to have been created by abutting landowners for their personal use.

The best opportunity for creation of additional trails would be to have a trail starting at the Gilman’s Corner Road parking lot; crossing the brook at the dam; then running south the length of Area A; easterly across Area H; picking up the old farm or logging trail that diagonals upward through Area K; then crossing Area L near to the old farm house site; then onto the old road which runs through Area M to Drew Hill Road. The end of this trail would be at a proposed landing site in Area M.

To protect any existing or proposed recreation trails, as well as esthetic values of the forest, the following guidelines will be observed in the event of any timber harvest:

1. Not logging during periods where the ground is wet enough to cause major rutting by logging equipment.
2. Careful layout of trails to reduce residual stand damage, and visual impact.
3. Using directional felling to reduce stand damage.
4. Treating slash to reduce its visibility, and keep slash off of recreational trails.
5. Not operating equipment within wetland areas.
6. Retaining uncut portions of stands with dense volumes of trees to provide visual diversity and screening.
7. Build and maintain landing that are easily cleaned up after harvesting.
8. Follow the recommended schedule of smaller area harvests on shorter time intervals, to limit impacts at any given time.

Hunting is very popular in the forests surrounding the GPTF. In addition to being a cultural norm, safety awareness is high among hikers and the hunters. A beneficial effect of hunting is the reduction in deer herbivory, which is a threat to the small whorled pogonia (see R&E Species & Rare Plant Communities section below)

### **WATER QUALITY, WETLANDS, & RIPARIAN ZONES**

Protecting water quality and wetland integrity is the highest priority management objective. Achieving this is not so much about what can be done as what should not be done, beginning with the ‘elephant’, timber harvesting. If a harvesting program is initiated the operations will follow guidelines from the publication [Best Management Practices for Forestry: Protecting New Hampshire’s Water Quality](#). More specifically these additional actions/steps can be taken.

1. Although, some cutting of trees along wetland edges may be desirable to promote edge shrub growth, equipment will not be operated in the wetlands (Areas J&P)
2. Area B has been designated a pond buffer. Although there may be an exception for beaver habitat improvement (edge cutting to promote young hardwood growth) a setback of 100 feet minimum, up to 300’, from Gilman Pond will be maintained.
3. Logging operations will be timed in summer under dry conditions and winter under frozen conditions to minimize the risk of rutting, erosion, and sedimentation.
4. Where needed, permanent crossings and woods road can be hardened with erosion stone, or old field stone. Locations for this type of work are at the north end of Area A, just outside the proposed landing; and on the old farm road that leads from Drew Hill Road through Area M, up to the old farmhouse site in Area L.
5. For longer wetland crossings (potentially Area H) use a timber mat trail if there is a risk of rutting. Area H also has potential for creating a hardwood patch cut for improving beaver habitat.

Examples of artifact rock ford, Area A GPTF, and a hardened crossing, SPNHF Jennings Forest ,New Durham (2022).



## CULTURAL & HISTORIC FEATURES

Stone walls are the most common historic features that are found on the property. The walls are clearly visible on the GRANIT LIDAR imagery. In addition other historic features include:

1. The house foundation and well in Area L. This foundation has an unusually large base for the center chimney which occupies more than half the cellar hole. For safety, the nearby well is in need of a cover.
2. A foundation in Area F. The three sides of this feature indicates it was likely a barn with an open cellar. The house was likely across the street.
3. The dam at the outlet to the Pond.
4. The foundation of a mill site north of the dam on the brook. The type of mill that was there is unknown. No remnants of a penstock from the dam to the mill were observed. It may be that the water channel was made from lumber and not dug into the ground.
5. Numerous sites with evidence of rock quarrying. The drill holes observed in these cut stone were round, an indication that they were cut during the 1800's after 'star' drills were invented.

These features, particularly the walls, will be protected during any harvesting. Existing breaks in the walls will be used wherever feasible, and directional felling will be done with mechanized harvesters that can avoid felling and dragging fell timber across the walls.

## INSECT & DISEASE THREATS

No evidence of major disease or insect problems were observed during the 2022 forest inventory. However there are a number of threats to tree health which may become more significant, some in part due to warming climate. These include:

*Hemlock Wooley Adelgid* - HWD is an invasive scale insect that was introduced into the eastern US in early 1950's. The very small insect bores into the soft tissue of hemlock twigs, draws tree sap and thereby kills the hemlock foliage. Unlike hardwood species, once dropped hemlock leaves do not regenerate. The process of tree weakening is slow, possibly taking years, and during which time the hemlock may succumb to other causes of death. The HWD has spread slowly from the southeastern US to the northern range of eastern hemlock. HWD eggs are highly susceptible to mortality from extended extreme cold (subzero F temperatures for 2-3 days). As winters become milder it is not a question of will there be a problem, but when. Although some experimentation with introduced 'lady bug' predators has been used in Pennsylvania, the primary way to address the problem has been to do salvage harvesting, and leave more resistant, fuller crowned trees, to survive in the residual stand.

*Emerald Ash Borer* – EAB is also a more recently introduced pathogen, first found in Michigan in 2002. In 20 years it has spread across 30 states. The larval stage of this beetle eats the cambium layer of white ash effectively girdling the tree. Mortality is very rapid. Ash is currently only a small component of the GPTF, found adjacent to wetlands and on nutrient enriched sites at the base of rock ledges ( Areas B, A, N). By the end of the 2020's white ash is likely to have completely disappeared in the Lakes Region.

*Beech Leaf Disease* - BLD is a newly described disease, first identified in Ohio in 2012, and in Massachusetts in 2020. It is yet to be reported in NH. The disease complex is associated with a foliar nematode species, *Litylenchus crenatae*. The disease causes damage to a tree's leaves, leading to reduced vigor and can eventually lead to tree mortality. There are still many unknowns about how the disease is spread, how new trees are infected, or how long it takes for symptoms to develop. However, we do know that American beech, European beech, and Oriental beech can be infected. Infected trees of all ages and in both urban and forested settings have been observed (Source <https://www.mass.gov/guides/beech-leaf-disease-in-massachusetts> ). The impact of a severe beech disease may be mixed. Beech has wildlife value as a mast tree (hard nut producer) but has very low economic value – it is worth more as firewood than sawlogs. It will stump sprout prolifically when cut and is extremely shade tolerant. As a consequence it is extremely well adapted to out competing more valuable tree growth, notably white pine and red oak. We cannot say if this disease will reduce that competitive edge or whether it will just result in thickets of beech that will produce poor quality firewood.

*Other Pathogens* - Other commonly found insect and disease problems occur in the forest, but these are so intractable as to be accepted risks of forest management. These include spongy moth (formerly gypsy moth) caterpillars, beech scale disease, and white pine weevil.

## INVASIVE & EXOTIC PLANT SPECIES

Three invasive plant species were observed during the 2022 forest inventory. These include:

*Honeysuckle* – Four species of Honeysuckle (*Lonicera* spp) are listed as invasive in the NH Administrative Rules AGR 3800 , being originally planted as ornamentals. By leafing out earlier and retaining leaves later than native species, it has a competitive advantage and easily forms dense thickets. This reduces the amount of sunlight reaching the forest floor, decreasing the abundance of native vegetation. This competition can inhibit forest regeneration. Honeysuckle also threatens bird populations. Songbirds that usually nest in native shrubs will also nest in honeysuckle. However, honeysuckle has thicker stems than native shrubs, which allows predators like raccoons and skunks to more easily access nests, resulting in increased predation. Honeysuckle berries are also readily eaten by birds, which also contributes to the plants' prolific spread. These berries, however, do not provide a high-fat, nutrient-rich diet required by migratory birds for their long flights. ( Sources: GFGS page 103 and <https://vtfishandwildlife.com/learn-more/landowner-resources/liep-invasive-species-program/terrestrial-invasive-plants/shrub-honeysuckle> )

*Phragmites australis* ssp *australis* (PAA) – North end of wetland Area P. PAA, Commonly called 'invasive common reed' is a non-native, highly aggressive, perennial wetland grass that rapidly outcompetes its native relatives (*Phragmites australis* ssp *americanus*), and other vegetation. It is a native of Europe and was introduced to the United States in the early 19th century. Control of the plant is complicated by its ability to reproduce by deep root growth, called rhizomes. Although there are native moths and other insects that feed on PA species generally, none are sufficiently aggressive to effectively reduce the spread of this variety. Physically controlling the plant by submerging the plant deep enough to cut off its oxygen supply is reported as effective in some references and not effective in others. Given that application of chemical herbicides (glycophosphate) is known to be the most effective means of control, it might be better to attempt to encourage the restoration of the beaver dam at the south end of Area P. (Source: <https://www.mass.gov/doc/phragmites-0/download> , <https://www.michigan.gov/-/media/Project/Websites/invasives/Documents/Response/Status/egle-ais-guide-phragmites.pdf>)

*Norway Maple* – *Acer platanoides*. Vicinity of Area C and parking lot. Another ornamental error, NM is extremely shade tolerant and will crowd out all native vegetation. Control of the plant by cutting is difficult due to aggressive stump sprouting. Herbicide application in combination with cutting, or mechanical remove of seedlings is the

most effective control strategy (Source:  
[https://www.maine.gov/dacf/mnap/features/invasive\\_plants/acerplat.htm](https://www.maine.gov/dacf/mnap/features/invasive_plants/acerplat.htm) )

Individual plans will be needed for controlling or eliminating each of these species. In addition, additional monitoring should continue for additional invasive plant such as buckthorn, barberry, knotweed, winged Euonymus, bittersweet, and multiflora rose.

## **RARE & ENDANGERED SPECIES, RARE PLANT COMMUNITIES**

A key reason that the Gilman Pond Forest was conserved is the presence of the orchid species *Isotria medeoloides* (small whorled pogonia). This species was listed as endangered in the early 1990's but was raised to 'threatened' status in 1994. The Gilman Pond lands and surrounding properties (Roberts Cove Inc., Ely, and Freese) have, or have had, some of the largest known occurrences of the plant.

The best short description of this orchid is that it is an elusive plant, the biology of which is not completely understood. For a better understand of the issues related to protecting the orchid, we reached out to;

The Native Plant Trust (formerly the New England Wildflower Society) (NPT)  
180 Hemenway Road, Framingham, MA 01701  
508-877-7630

Scott Young, Botanist and consultant to NH Department of Natural and Cultural Resources.  
Strafford NH, [sayoung603@outlook.com](mailto:sayoung603@outlook.com) ( See attached correspondence in the Appendix.)

We also did some sleuthing in an area where the orchids have been mapped and sampled trees to determine there age and how that relates to site history. Here is a summary of what we know from research, hypothesis based on observation, anecdotes and tree rings.

- SWP sites have been mapped on the GPTF. These sites have been monitored since the 1980's and records kept of plant counts.
- Decades long research indicated that the number of plants increased with partial removal of the forest canopy (thinning). It did not result in the plant spreading further.
- The plant occurs more frequently in association with rotting stumps of red maple, white pine, and white birch. All of which can grow on either wet or well drained sites.
- There appears to be an important relationship between the plant and fungal growth in the soil.
- Timber harvesting has negative effects – soil compaction, drainage alteration, competing regeneration (beech especially), and increase deer browse.
- Timber harvesting has positive effects – a number of which are also negative effects as described above, but the most important being the creation of rotting stumps.

## GPTF Compartment Description and Management Guidelines (continued)

- In Area O and M where the 'K' population is located we took cookies from two trees to determine stand age and history. In short 60-65 years ago (1960) this area was logged; White pine and white birch were cut; hemlocks were left; SWP were present at age 30-35 (1994, PF met with Carol Fyler NEWS).
- SWP has been found on a site on abutting land of Freese (Mount Bet) that was logged in 1988 and 2009.

This mix of information is indicative of the complicated relationship that SWP will have with timber management, wildlife management and water protection. To move cautiously in proceeding with a management program, we recommend the following protocol be observed:

1. That NH DNCR and NPT botanists be notified of any planned activity and that they review the harvest operations plan and have an opportunity to make protection/management recommendations well in advance of the harvest.
2. That permanent trail improvements be included in the harvest plan as needed to protect water quality and known SWP sites.
3. That if recommended by the botanists, funding for canopy thinning treatments in nearby SWP populations be set aside from timber revenue.
4. That prior to harvests in succeeding areas, the botanists be requested to inspect previously affected sites to evaluate changes in the condition of the SWP.

SWP occurrences were the only item included in the review of GPTF lands using the NH Natural Heritage Datacheck system. (NHB 22-3715).

However, we also noted the presence of a fairly unique habit associated with Gilman Pond itself. Near the westerly shore, and clearly evident on the aerial photography, is what appears to be a black spruce bog habitat. Surrounded by open water now, on the NH Fish & Game pond map (circa 1970's?) the bog area is contiguous with the upland shore line. It is not discernable how much of the bog may be floating at this time. This habitat will not be disturbed by any management activity, but it might be affected if the beaver dam were breached and water levels dropped.

## ADDITIONAL REFERENCES

EQIP Practices descriptions and specifications

<https://efotg.sc.egov.usda.gov/treemenuFS.aspx>

Best Management Practices for Forestry: Protecting New Hampshire's Water Quality. University of NH Cooperative Extension. <http://extension.unh.edu/forestry/Docs/FormBMP.pdf>

Coopers Rock Crop Tree Demonstration Area – 20 Year Results. Arlyn W. Perkey, Gary Miller, David L. Feicht. USDA Forest Service. General Technical Report NRS 83. 2011

[www.nrs.fs.fed.us/pubs/.../gtr\\_nrs83.pdf](http://www.nrs.fs.fed.us/pubs/.../gtr_nrs83.pdf)

Good Forestry in the Granite State: Recommended Voluntary Forest Management Practices for the State of New Hampshire. Second edition 2010. Copyright 2010 by the New Hampshire Department of Resources and Economic Development, Division of Forest and Lands, and UNH Cooperative Extension.

<http://extension.unh.edu/goodforestry/index.htm>

Leak, William B., et al. "Silvicultural Guide for Northern Hardwoods in the Northeast." U.S. Forest Service, Apr. 2014, doi:10.2737/nrs-gtr-132.

NH Natural Heritage Inventory [https://www2.des.state.nh.us/nhb\\_datacheck/](https://www2.des.state.nh.us/nhb_datacheck/)

<http://www.nhdf.org/library/pdf/Natural%20Heritage/TrackingList-AnimalGeneral.pdf>

Technical Guide to Forest Wildlife Habitat Management In New England. Richard M DeGraaf, Mariko Yamasaki, William B. Leak, Anna M. Lester. 2006 University of Vermont Press.

[http://www.wildlife.state.nh.us/Wildlife/Northeast\\_Hab\\_Mgt\\_Guide.htm](http://www.wildlife.state.nh.us/Wildlife/Northeast_Hab_Mgt_Guide.htm)

Insect Pest and Invasive Plant information links:

<https://extension.unh.edu>

<https://nhbugs.org/>

<http://www.invasivespeciesinfo.gov>

Landowner's Guide to Wildlife Habitat – Forest Management for the New England Region , Richard M. DeGraaf, et al. University Press of New England. [www.upne.com](http://www.upne.com) 2005

Matthew D. Tarr, Ph.D. Extension Professor & State Specialist, Wildlife Habitat University of New Hampshire Cooperative Extension [matt.tarr@unh.edu](mailto:matt.tarr@unh.edu) (603) 953-4425. Field consultation, January 2023



# AREA DESCRIPTIONS

## Gilman Pond Town Forest

This Section of the management plan contains descriptive information about each of the land areas that collectively make up a Compartment. Each Area was delimited based on key attributes which make it reasonable to treat that acreage as a management unit. The key attributes can be related to one or more of a variety of features from human defined land uses, to distinct or limiting natural features. Some examples are:

*Land Use Characteristics:* Timber management, Agriculture, Wildlife management, recreational use, reserve or buffer lands, historic and esthetic sites.

*Natural Features:* Soil types, terrain, accessibility, or biological features, such as plant communities, wetlands, water bodies, and habitat types.

The attributes are not necessarily exclusive, and are more frequently interrelated than discreet features. The size of the areas is also dependent on the key attributes. Generally the higher the value or importance of the attribute, the smaller the area can potentially be. For general timber management purposes the upper size is limited by what is a practical planning unit as determined by operations layout/timing and by the forester's ability to manage the area within a single operating interval. In simple terms the Area unit defines the "where" in the standard "where, what, how much, and when" management query.

# Gilman Pond Town Forest Compartment 1 of 1

Area Id **A**

Total Acres 39.4

Timber Mgmt Acres 33.4

Land Use Forest, Hardwood/Pine

Soil Type(s) 380C, 380D

Mgmt Priorities Aesthetics & Recreation, Wildlife

Restrictions Plant Community

**Timber Management Data**

Size Class	Pole Sawlog	% Seedling	Sapling	Pole	Sawlog	Lg Dia 26+	
		0%	1%	26%	73%	0%	
Crop Tree Stocking	Good						
Total Basal Area	146	Ba Ags	77	Ba Ugs	64	Mean Stand Diameter	9.2
Volume / Acre Mbf	14,164	Volume/acres Cords	16.0	Trees/acre	241.0		
Major Tree Species	RED OAK	Ba Ft2	49	% Total Ba	33%		
	WHITE PINE		44		30%		
	RED MAPLE		31		22%		
	BEECH		9		6%		
	SWEET BIRCH (BLACK)		7		5%		

**Narrative** The key attribute of this area is the hardwood-pine cover type. The site here has good potential for timber management, due to soil type and current stocking. Generally, the oak quality is better than the white pine, and the long range silvicultural goal would be focus on promoting primarily oak growth. This area was likely harvested in the early 1990s.

The Area also has excellent esthetic value with numerous large trees and some interesting steep ledges. There are some 'unofficial' trails created by abutters, but it would be a good site for a permanent trail leading across the length of the forest eventually to Drew Hill Road.

Access would be from a improved landing on Gilman's Corner Road.  
Hardened wetland crossings needed not far outside the landing.  
Record of SWP occurrence.

**Recommended Treatment(s)** No treatments are recommended at this time.

Area Id **B** Total Acres 30.8 Timber Mgmt Acres

Land Use Forest, Hemlock/Hardwood Soil Type(s) 380D, 77D

Mgmt Priorities Wildlife - Wetlands, Aesthetics

Restrictions Wetlands

Timber Management Data

Size Class	Pole Sawlog	% Seedling	Sapling	Pole	Sawlog	Lg Dia 26+
Crop Tree Stocking	Good	0%	1%	32%	66%	0%

Total Basal Area	159	Ba Acs	97	Ba Ugs	57	Mean Stand Diameter	8.3
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Volume / Acre Mbf	11,446	Volume/acres Cords	16.4	Trees/acre	339.0
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Major Tree Species	HEMLOCK	Ba Ft2	51	% Total Ba	32%
	RED OAK		45		28%
	WHITE PINE		20		13%
	RED MAPLE		14		9%
	BEECH		11		7%

**Narrative** The primary attribute of this area is that it serves as a buffer around the pond, protecting water quality and esthetics. Teh buffer is variable width, 100 to 300 feet depending on terrain, The acres here are not recognized as part of the timber management total, but harvesting may be considered for the purposes of beaver habitat improvement.

The most apparent opportunity for habitat improvement is at the south end of the pond, where it abuts Area H. This is a broad flat somewhat poorly drained site with a channel that feed directly into the pond. Clearing would need to be done during extremely dry or solidly frozen conditions.

**Recommended Treatment(s)** No treatments are recommended at this time.

Area Id **C**

Total Acres 2.1

Timber Mgmt Acres 0.0

Land Use Agriculture, Pasture

Soil Type(s) 378B,

Mgmt Priorities Aesthetics, Wildlife

Restrictions Aesthetic

Timber Management Data Not applicable

Size Class N/A

% Seedling	Sapling	Pole	Sawlog	Lg Dia 26+
0%	0%	0%	0%	0%

Crop Tree Stocking N/A

Total Basal Area

Ba Ags

Ba Ugs

Mean Stand Diameter

Volume / Acre Mbf

Volume/acres Cords

Trees/acre

Major Tree Species N / A

Ba Ft2

% Total Ba

**Narrative** Small area of non forest open field. Potential to work with neighboring property. Remove old field pine, stump and do large pollinator planting. Also cut an adjacent 1 acre pine stand in Area B and let grow to early successional. Total project area potential 6.4 acres.

If not part of a large project, the current scattered tree cover on this site should be removed.

**Recommended Treatment(s)** No treatments are recommended at this time.

Area Id **D**

Total Acres 19.6

Timber Mgmt Acres 17.6

Land Use Forest, Hardwood/Hemlock

Soil Type(s) 378B, 380D

Mgmt Priorities Esthetics & Recreation, Timber - Mixed Type

Restrictions Plant Community

Timber Management Data

Size Class	Pole Sawlog	% Seedling	Sapling	Pole	Sawlog	Lg Dia 26+
		<b>0%</b>	<b>4%</b>	<b>33%</b>	<b>63%</b>	<b>0%</b>
Crop Tree Stocking	Good					
Total Basal Area	123	Ba Ags	66	Ba Ugs	54	Mean Stand Diameter
						7.9
Volume / Acre Mbf	6,528	Volume/acres	Cords	16.4	Trees/acre	301.6
Major Tree Species	RED OAK	Ba Ft2	49	% Total Ba	40%	
	HEMLOCK		26		21%	
	RED MAPLE		26		21%	
	BEECH		6		5%	
	YELLOW BIRCH		6		5%	

**Narrative** The primary attribute of this area is that it has a dominant red oak and mixed hardwood cover type. The easterly facing slope is most operable but challenging to operate. Access to the area will be from Area E, with a skid trail crossing at the height of land. the lower edge of the area has poorly drained soils, on the boundary of Area A, and somewhat on the edge of wetland in Area P. This stand also has potential for beaver habitat improvement, as the cover type is already well developed hardwood.

The harvest prescription here would be to apply crop tree management to improve the spacing of the highest quality oaks.

Cutting and skidding layout would avoid disruption or damage to the hiking trail.

**Recommended Treatment(s)** No treatments are recommended at this time.

Area Id **D1**

Total Acres 4.0

Timber Mgmt Acres

Land Use Forest, Hardwood/Hemlock

Soil Type(s) 380B, 378B

Mgmt Priorities Wildlife, Aesthetics

Restrictions

Timber Management Data

Size Class	Pole Sawlog	% Seedling	Sapling	Pole	Sawlog	Lg Dia 26+	
		0%	0%	60%	40%	0%	
Crop Tree Stocking	Fair						
Total Basal Area	160	Ba Ags	60	Ba Ugs	100	Mean Stand Diameter	7.6
Volume / Acre Mbf	9,980	Volume/acres Cords	20.8	Trees/acre	357.5		
Major Tree Species	BEECH	Ba Ft2	60	% Total Ba	38%		
	HEMLOCK		40		25%		
	RED OAK		40		25%		
	SWEET BIRCH (BLACK)		20		13%		

**Narrative** The primary attribute of this forested area is the inoperable terrain. The site is very steep, and rocky. The soils are less productive here but still support a dense growth of hemlock beech and oak. In terms of cover and mast production all of these species contribute to good wildlife habitat. No treatment recommended. Adjacent trail location on Seavey property.

**Recommended Treatment(s)** No treatments are recommended at this time.

---

Area Id **E** Total Acres 48.0 Timber Mgmt Acres 43.0

Land Use Forest, White pine Soil Type(s) 647B, 379B

Mgmt Priorities Aesthetics & Recreation, Timber - Mixed Type

Restrictions Plant Community

Timber Management Data

Size Class	Sawlog	% Seedling	Sapling	Pole	Sawlog	Lg Dia 26+
Crop Tree Stocking	Fair	0%	4%	25%	70%	1%

Total Basal Area 155 Ba Ags 69 Ba Ugs 79 Mean Stand Diameter 8.3

Volume / Acre Mbf 17,746 Volume/acres Cords 16.4 Trees/acre 283.2

Major Tree Species	WHITE PINE	Ba Ft2	75	% Total Ba	48%
	RED MAPLE		34		22%
	WHITE ASH		14		9%
	RED OAK		11		7%
	SUGAR MAPLE		8		5%

**Narrative** The primary attribute of this area is the white pine cover type with an emerging hardwood understory. This area still has good potential for white pine management, but regeneration cutting will be oriented toward the inevitable conversion to a hardwood stand. Although the soil type mapped here is described as 'well drained', field evidence is somewhat to the contrary. This is more evident the close to the edge of Area P. Fine textured soil and shallower rooting result in a higher risk of windthrow. The quality of the white pine is variable, but on average moderate. There is a small but significant component of white ash which would be removed during any harvest.

There is no specific recreational resource within the area. SWP occurrences have been found near Gilmans Corner Road and near to the potential landing site.

Recommended Treatment(s) No treatments are recommended at this time.

Area Id **F**

Total Acres 19.2

Timber Mgmt Acres 17.2

Land Use Forest, White pine

Soil Type(s) 559C, 559B

Mgmt Priorities Aesthetics & Recreation, Timber - Mixed Type

Restrictions Aesthetic

Timber Management Data

Size Class	Pole Sawlog	% Seedling	Sapling	Pole	Sawlog	Lg Dia 26+
		<b>0%</b>	<b>1%</b>	<b>21%</b>	<b>77%</b>	<b>0%</b>
Crop Tree Stocking	Good					
Total Basal Area	134	Ba Ags	80	Ba Ugs	54	Mean Stand Diameter
						7.8
Volume / Acre Mbf	14,764	Volume/acres	Cords	13.1	Trees/acre	302.1
Major Tree Species	WHITE PINE	Ba Ft2	83	% Total Ba	62%	
	RED MAPLE		20		15%	
	BEECH		9		6%	
	RED OAK		9		6%	
	WHITE ASH		6		4%	

**Narrative** The primary attribute of this area is the white pine forest cover type. The area is divided in two parts joined by a stone ford causeway at the south end of Area P. The east side of the area has generally poor quality old field white pine. While a regeneration harvest (patch clearcut) would be a normal prescription here, its location at the trail head make that undesirable alternative esthetically. The site also has good wildlife habitat value for several reasons. The area experienced a significant windthrow, probably in 2016. While generally looking like a mess, the dead, down, and decomposing trees are a useful wildlife element. The low quality trees also have numerous nests in their crooked tops. The edge of the area has numerous standing snags from pines that were killed when the beaver dam was in place. Taken altogether, the best prescription for the eastern side of this area is to not make any silvicultural prescripton in this planning period. Although the westerly side of the Area has some of the same habitat features as the east side, the timber quality is better. Higher quality trees here would benefit from improved spacing without detracting as much esthetically or from habitat quality.

**Recommended Treatment(s)** No treatments are recommended at this time.

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Area Id **G** Total Acres 63.0 Timber Mgmt Acres

Land Use Open Water, N/A Soil Type(s) 894A, W

Mgmt Priorities Water Quality, Wildlife - Wetlands

Restrictions Water

Timber Management Data Not applicable

Size Class N/A % Seedling Sapling Pole Sawlog Lg Dia 26+

Crop Tree Stocking N/A

Total Basal Area Ba Ags Ba Ugs Mean Stand Diameter

Volume / Acre Mbf Volume/acres Cords Trees/acre

Major Tree Species Ba Ft2 % Total Ba

Narrative Open water and the Black spruce bog. No management activity in either part.

Recommended Treatment(s) No treatments are recommended at this time.

Area Id **H** Total Acres 8.9 Timber Mgmt Acres 4.0

Land Use Forest, Hemlock/Hardwood Soil Type(s) 394A, 559B

Mgmt Priorities Wildlife, Timber - Softwood

Restrictions

Timber Management Data

Size Class Pole Sawlog % Seedling Sapling Pole Sawlog Lg Dia 26+

Crop Tree Stocking Fair 0% 0% 25% 75% 0%

Total Basal Area 110 Ba Ags 40 Ba Ugs 70 Mean Stand Diameter 6.4

Volume / Acre Mbf 5,274 Volume/acres Cords 15.3 Trees/acre 401.3

Major Tree Species	HEMLOCK	Ba Ft2	40	% Total Ba	36%
	RED MAPLE		30		27%
	BEECH		10		9%
	OTHER HARDWOOD		10		9%
	RED OAK		10		9%

Narrative The key attribute of this area is the hemlock hardwood forest cover located on flat poorly drained soil. Located at the head of the Pond, this stand currently has low timber value, but would be suitable for improving beaver habitat by creating a patch cut. Only half the acreage has been included in the timber management category. The challenge on the site will be to conduct harvesting operations without harming water quality. This area would also have to be crossed to access Area K timber harvesting and completing the recreation trail from Gilman's Corner to Drew Hill Road. The narrowest high ground to high ground crossing is approximately 200'. Timber mats or pulp corduroy during freezing weather may be the best option.

Recommended Treatment(s) No treatments are recommended at this time.

Area Id **I** Total Acres 25.7

Timber Mgmt Acres 25.7

Land Use Forest, Hemlock/Hardwood

Soil Type(s) 559B, 394A

Mgmt Priorities Timber - Mixed Type, Wildlife

Restrictions

Timber Management Data

Size Class	Pole Sawlog	% Seedling	Sapling	Pole	Sawlog	Lg Dia 26+	
Crop Tree Stocking	Good	0%	3%	31%	66%	0%	
Total Basal Area	168	Ba Acs	83	Ba Ugs	85	Mean Stand Diameter	10.0
Volume / Acre Mbf	14,027	Volume/acres	Cords	18.8	Trees/acre	270.2	
Major Tree Species	HEMLOCK	Ba Ft2	93	% Total Ba	55%		
	RED MAPLE		23		13%		
	RED OAK		15		9%		
	WHITE PINE		13		7%		
	BEECH		10		6%		

Narrative The key attribute of this area is the hemlock-hardwood cover type. Soils are well drained and easily operable. The area has low recreational potential as it is isolated by wetlands and difficult to get to without going on to abutting lands. The prescription here will be intermediate harvesting of hemlock and low grade hardwood, reserving pine and red oak.

Recommended Treatment(s) No treatments are recommended at this time.

Area Id **J** Total Acres 26.5

Timber Mgmt Acres 5.0

Land Use Forest, Swamp Hardwood

Soil Type(s) 394A,

Mgmt Priorities Wildlife - Wetlands, Wildlife - Wetlands

Restrictions

Timber Management Data

Size Class	Sapling Pole	% Seedling	Sapling	Pole	Sawlog	Lg Dia 26+	
Crop Tree Stocking	Poor	1%	16%	44%	39%	0%	
Total Basal Area	82	Ba Acs	65	Ba Ugs	16	Mean Stand Diameter	7.7
Volume / Acre Mbf	3,773	Volume/acres	Cords	7.9	Trees/acre	224.3	
Major Tree Species	RED MAPLE	Ba Ft2	45	% Total Ba	56%		
	WHITE PINE		16		20%		
	HEMLOCK		11		13%		
	RED SPRUCE		9		11%		

Narrative The key attribute of this area is the red maple, swamp hardwood, cover type. This is a minimum timber management area, limited to some cutting on the edges of the site to promote shrub growth.

Recommended Treatment(s) No treatments are recommended at this time.

Area Id **K**

Total Acres 30.1

Timber Mgmt Acres 25.0

Land Use Forest, Hemlock/Hardwood

Soil Type(s) 77D, 380D

Mgmt Priorities Timber - Mixed Type, Wildlife

Restrictions Plant Community

Timber Management Data

Size Class	Pole Sawlog	% Seedling	Sapling	Pole	Sawlog	Lg Dia 26+	
		<b>0%</b>	<b>2%</b>	<b>29%</b>	<b>68%</b>	<b>2%</b>	
Crop Tree Stocking	Good						
Total Basal Area	138	Ba Acs	100	Ba Ugs	38	Mean Stand Diameter	7.8
Volume / Acre Mbf	10,520	Volume/acres	Cords	13.9	Trees/acre	333.6	
Major Tree Species	HEMLOCK	Ba Ft2	55	% Total Ba	40%		
	RED OAK		37		27%		
	SWEET BIRCH (BLACK)		15		11%		
	RED MAPLE		13		10%		
	WHITE PINE		8		6%		

**Narrative** The key attribute of this area is the hemlock hardwood cover type, on modertaly to very steep ground. Operability is partially limited by steepness and rock soil. Access can be back through Areas H and A for the north end, and across land of abutters to Area I on the south end. An old logging trail or farm road is located diagonally across the slope, and will be useful for harvesting and or integrating into the recreational trail system. Intermediate and Patch cutting are recommended.

A large cluster of SWP was found here in the 1990's but has since disappeared (Scott Young communication 2023)

**Recommended Treatment(s)** No treatments are recommended at this time.

Area Id **L**

Total Acres 64.6

Timber Mgmt Acres 64.6

Land Use Forest, Pine/Hardwood

Soil Type(s) 77D, 380D

Mgmt Priorities Timber - Mixed Type, Esthetics & Recreation

Restrictions Historic/cultural

Timber Management Data

Size Class	Pole Sawlog	% Seedling	Sapling	Pole	Sawlog	Lg Dia 26+	
Crop Tree Stocking	Good	0%	1%	29%	70%	0%	
Total Basal Area	129	Ba Acs	78	Ba Ugs	48	Mean Stand Diameter	8.0
Volume / Acre Mbf	11,876	Volume/acres	Cords	12.4	Trees/acre	284.0	
Major Tree Species	WHITE PINE	Ba Ft2	38	% Total Ba	30%		
	RED OAK		33		26%		
	HEMLOCK		17		14%		
	RED MAPLE		17		13%		
	BEECH		14		11%		

**Narrative** The key attribute of this area is the white pine- red oak forest cover type. The area has good timber management potential and good operability. Soils are deeper and more fertile on the lower slopes, less so on higher ground. Current stand quality is good and the timber objective will be to manage for the pine and oak. It is likely that this area was last harvested in 1960, with primary species being pine and birch.

Regenerating pine and oak on this site will require timing of harvests with seed years, scarification, and additional silvicultural investment

The area has a house foundation and is crossed by many stone walls. Careful layout of logging trails is essential.

SWP was identified on one site, very near to the Area K cluster.

Connecting a new trail from the bulldozer trail in Area K to the old farm road in Area M will be very straight forward.

**Recommended Treatment(s)** No treatments are recommended at this time.

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Area Id **M**

Total Acres 38.2

Timber Mgmt Acres 38.2

Land Use Forest, Hardwood

Soil Type(s) 380D, 559C

Mgmt Priorities Aesthetics & Recreation, Timber - Hardwood

Restrictions Plant Community

Timber Management Data

Size Class	Pole Sawlog	% Seedling	Sapling	Pole	Sawlog	Lg Dia 26+	
		0%	3%	43%	55%	0%	
Crop Tree Stocking	Good						
Total Basal Area	128	Ba Ags	68	Ba Ugs	60	Mean Stand Diameter	7.1
Volume / Acre Mbf	5,711	Volume/acres	Cords	18.8	Trees/acre	372.6	
Major Tree Species	RED MAPLE	Ba Ft2	44	% Total Ba	34%		
	RED OAK		31		24%		
	HEMLOCK		17		14%		
	SWEET BIRCH (BLACK)		15		11%		
	WHITE PINE		9		7%		

**Narrative** The key attribute of this area is the mixed hardwood stand on a northeast facing slope. Soils here are deeper and richer, with abundant moisture for tree growth. Based on tree ring counts, this area was last harvested around 1960. At that time, red oak was not a valuable species. The current high quality oak sawtimber present now were left behind during that harvest. The openings created during that harvest regenerated to a mixture of red maple, birches, and some oaks. The site will continue to be occupied by hardwoods, but silvicultural investment will be needed to insure stand quality is improved and maintained.

The lower slopes of the area are more poorly drained, and the old farm road that runs across the area is in need of drainage improvement. If repaired and hardened This road can be part of a permanent SWP site, recreation and timber access trail. A landing site is recommended to be located in the small pasture on Drew Hill Road.

**Recommended Treatment(s)** No treatments are recommended at this time.

Area Id **N** Total Acres 3.8 Timber Mgmt Acres

Land Use Forest, Hardwood Soil Type(s) 380D, 559C

Mgmt Priorities Aesthetics & Recreation, Timber - Hardwood

Restrictions

Timber Management Data

Size Class	Pole Sawlog	% Seedling	Sapling	Pole	Sawlog	Lg Dia 26+	
		0%	0%	30%	70%	0%	
Crop Tree Stocking	Good						
Total Basal Area	80	Ba Ags	0	Ba Ugs	80	Mean Stand Diameter	11.4
Volume / Acre Mbf	9,858	Volume/acres Cords	8.2	Trees/acre	99.5		
Major Tree Species	WHITE PINE	Ba Ft2	60	% Total Ba	75%		
	BEECH		20		25%		

Narrative This area is steep and not operable for timber management. The small cruise point sample did not catch that the predominant species present is red oak. This will be a large timber reserve site by default..

Recommended Treatment(s) No treatments are recommended at this time.

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Area Id **O**

Total Acres 13.1

Timber Mgmt Acres 7.0

Land Use Forest, Hemlock

Soil Type(s) 559C, 380D

Mgmt Priorities Wildlife, Timber - Mixed Type

Restrictions

Timber Management Data

Size Class	Pole Sawlog	% Seedling	Sapling	Pole	Sawlog	Lg Dia 26+
		<b>0%</b>	<b>3%</b>	<b>35%</b>	<b>62%</b>	<b>0%</b>
Crop Tree Stocking	Good					
Total Basal Area	130	Ba Acs	87	Ba Ugs	43	Mean Stand Diameter
						8.1
Volume / Acre Mbf	9,989	Volume/acres	Cords	13.8	Trees/acre	301.1
Major Tree Species	HEMLOCK	Ba Ft2	73	% Total Ba	56%	
	YELLOW BIRCH		20		15%	
	RED MAPLE		17		13%	
	BEECH		7		5%	
	WHITE PINE		7		5%	

**Narrative** The key attribute of this area is the hemlock hardwood cover type. As with Area M, this forest type become dominant after harvesting in 1960. At that time white pine and probably white birch were clearcut but the hemlock and scattered low quality hardwood were left behind. The current stand has a wide mix of diameters and can be managed to retain the hemlock cover as winter deer habitat.

Due to poorly drained soil at the lowest elevations in the area, combined with the low timber value of hemlock, about 45% of the area was listed as inoperable and should be retained to help protect water quality.

**Recommended Treatment(s)** No treatments are recommended at this time.

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Area Id **P**

Total Acres 16.3

Timber Mgmt Acres

Land Use Unproductive, Wetlands

Soil Type(s) 894A,

Mgmt Priorities Wildlife - Wetlands, Esthetics & Recreation

Restrictions Aesthetic

Timber Management Data Not applicable

Size Class N/A

% Seedling	Sapling	Pole	Sawlog	Lg Dia 26+
0%	0%	0%	0%	0%

Crop Tree Stocking N/A

Total Basal Area

Ba Acs

Ba Ugs

Mean Stand Diameter

Volume / Acre Mbf

Volume/acres Cords

Trees/acre

Major Tree Species

Ba Ft2

% Total Ba

**Narrative** This area is a mixed wetland habitat ( sedge meadow, palustrine). It has a small amount of open water in a drainage network. A beaver dam was washed out or removed possibly a decade ago(?). The area is a valuable wildlife habitat for reptiles, amphibians, small mammals and numerous birds.

It appears that an invasive plant, *Phragmites australis ssp australis* (PAA), has emerged at the northern end of the wetland. Allowing beavers to return to this wetland and inundate the affected area may be a means of control and would alter but not damage wildlife habitat.

**Recommended Treatment(s)** No treatments are recommended at this time.

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## SOILS REPORT

### Gilman Pond Town Forest

The following soil types are found on this property:

#### *GROUP IA SOILS IN BELKNAP COUNTY, NH*

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.

**378B 378B** Dixfield fine sandy loam, 3 to 8 percent slopes

DRAINCLASS	Moderately well drained	HYDROLGRP	C
SHWT	18 - 30	BEDROCK	From >60 to >60in.

**559B 559B** Skerry fine sandy loam, 3 to 8 percent slopes, very stony

DRAINCLASS	Moderately well drained	HYDROLGRP	C
SHWT	18 - 30	BEDROCK	From >60 to >60in.

**559C 559C** Skerry fine sandy loam, 8 to 15 percent slopes, very stony

DRAINCLASS	Moderately well drained	HYDROLGRP	C
SHWT	18 - 30	BEDROCK	From >60 to >60in.

**77D 77D** Marlow fine sandy loam, 15 to 25 percent slopes, very stony

DRAINCLASS	Well drained	HYDROLGRP	C
SHWT	24 - 42	BEDROCK	From >60 to >60in.

#### *GROUP IB SOILS IN BELKNAP COUNTY, NH*

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 cutover, 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. Successful softwood regeneration is dependent upon hardwood control.

**380B 380B** Tunbridge-Lyman-Becket complex, 3 to 8 percent slopes, very stony  
 DRAINCLASS Well drained HYDROLGRP C  
 SHWT 24 - >60 BEDROCK From 10 to >60in.

**380C 380C** Tunbridge-Lyman-Becket complex, 8 to 15 percent slopes, very stony  
 DRAINCLASS Well drained HYDROLGRP C  
 SHWT 24 - >60 BEDROCK From 10 to >60in.

**380D 380D** Tunbridge-Lyman-Becket complex, 15 to 25 percent slopes, very stony  
 DRAINCLASS Well drained HYDROLGRP C  
 SHWT 24 - >60 BEDROCK From 10 to >60in.

**GROUP IIB SOILS IN BELKNAP COUNTY,NH**

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.

**647B 647B** Pillsbury sandy loam, 3 to 8 percent slopes, very stony  
 DRAINCLASS Poorly drained HYDROLGRP C  
 SHWT 0 - 18 BEDROCK From >60 to >60in.

**GROUP NC SOILS IN BELKNAP COUNTY,NH**

**394A 394A** Chocorua mucky peat, 0 to 1 percent slopes  
 DRAINCLASS Very poorly drained HYDROLGRP D  
 SHWT - BEDROCK

**894A 894A** Meadowsedge peat, 0 to 1 percent slopes  
 DRAINCLASS Very poorly drained HYDROLGRP A/D  
 SHWT - BEDROCK

# Recommended Treatment Report

## Gilman Pond Town Forest

### 2023 - 2037

By year, these are the recommended activities, with their estimated cash flow:

Comp	Area	Acres	Treatment Type, subtype Description	Net Cash Flow
<b>2023</b>				
All	All		Management Plan , New Plan <u>Recommended</u> First forest management plan on record. Funded by a Grant from Belknap County Conservation District. \$4,400	
All	All		Certification , FSC, Tree Farm, SFI <u>Recommended</u> Consider enrolling in a third party Forestry Certification Program. This will provide an objective review of management, similar to a financial audit for a corporation.	
1	All		Boundary , Blaze <u>Recommended</u> Adopt a consistent boundary marking method. Medallions are probably best given the variety/condition of blazes currently found. Use aluminum nails and allow for tree growth ! Volunteers with supervision	<u>-\$1,500</u>
1	All		Boundary , Locate,blaze <u>Recommended</u> Working with a surveyor and abutters, survey and establish corners for the Heidke lot.	<u>-\$5,000</u>
1	All		Inspection , Pre Treatment <u>Recommended</u> Review, consider, and select (or not) alternatives for active forest management. For harvesting, select an access plan.	
1	All		Inspection , Pre Treatment <u>Recommended</u> Contact NH DNCR, and NPT regarding harvest/access plan for their review and advice on SWP management	
1	All		Inspection , Pre Treatment <u>Recommended</u> Review and potential actions for Wildlife habitat improvements (Beaver habitat), recreation trail improvements, and invasive species control priorities.	

**2037**

All	All	Management Plan , Update <u>Recommended</u>	<u>-\$5,500</u>
		Review 2023 plan and subsequent work; new forest inventory, update recommendations	

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Estimated net cash flow from all compartments on this forest is: -\$12000

*This is a proposed plan of work and subject to change based on the owner’s needs and goals. Timing of activites may be changed based on market conditions or other influences. Dollar figures are based on “today’s dollars” and do not reflect changes due to inflation or market fluctuations. All figures are estimates, actual costs and income are subject to change based on detailed estimates, service work orders, and contracts.*

# GPTF Treatment Group Alternatives

2023 - 2038

This is a variation on a traditional recommended treatment schedule. Below are groups of treatments for discussion and prioritizing. Also see recommended protocol for SWP protection and management.

## Treatment Group 1

Areas A, H, K, B - 55 +/- Acres

Goals: Timber, Wildlife, Recreation/Esthetics. SWP

Landing – Area A north end, Gilman’s Corner Road.

Silviculture –

Area A light thinning of hardwood, group and patch cutting of white pine.

Scarification of patch cuts, timing in conjunction with or around a WP seed year

Area H – primarily trail crossing if Area L is to be accessed from this side. Patch cut for beaver habitat improvement, including a portion of Area B.

Area K – intermediate harvesting and group selection. On north half. Open old bulldozer trail.

Water quality – when constructing landing install 1 or 2 rock fords on small wetland crossings outside of landing. BMPs elsewhere. Crossing site through H is about 200 feet of potentially very wet ground.

Mats and or corduroy, dry summer or frozen winter crossing

Wildlife – Area B cutting to create patch of hardwood for improving beaver habitat. Also see Area H

Recreation – Dress up main skid trail with minor excavation. Improve side trails to ridges (?). Extend trail through Area K to eventually connect through Areas L and M to Drew Hill Road.

Revenue: Income producing from timber sale. \$25,000 - \$30,000

## Treatment Group 2

Areas C, B - 6 +/- acres (including abutting land)

*For economics and size of project we recommend working with the abutter who now owns the Seavey land. The total project area is about 6 acres. Either as a separate group or in conjunction with another treatment group.*

Goals: Wildlife habitat

Access: Temporary access on Seavey land, or GPTF parking lot with restoration

Silviculture: No objective, harvesting related to wildlife objective.

Whole tree chipping of old field pine on Area C. Similar on abutting property.

Addition of clearing adjacent white pine stand in Area B, approximately 1 acre.

Wildlife, Non Forest Upland: habitat improvement to improve and expand non forest upland cover. Clearing the trees in the old field will permit easier mowing maintenance. Not recommending stumping and clearing the pine stand, but allowing that to grow back as early successional cover.

Wildlife, Pollinator Habitat: On the GPTF portion of the site, we recommend improvement by preparing a site for wildflower planting.

Water Quality: Clearing may be adjusted to reduce impact on a seasonal drainage in Area B.

Recreation: Some disruption of trail head area, and potential esthetic impact. Mitigate visual impact by slash treatment and landing cleanup.

SWP: No known occurrence.

Revenue: No net income from small volume harvest, investment in pollinator planting (-\$3,000)

### Treatment Group 3

Areas E, D, F - 65 +/- Acres

Goals: Timber, Wildlife, Recreation/Esthetics. SWP

Landing: – Area E north end, Gilman’s Corner Road.

Silviculture:

Area E - intermediate thinning of pine, group and patch cutting of mature white pine.

Scarification of patch cuts, timing in conjunction with or around a WP seed year

Area D – intermediate thinning, red oak crop tree release. Single tree selection scattered white pine.

Area F – intermediate thinning and group selection. On west side.

Water quality: Portions of Area E soils have a high water table. Operate on dry or frozen ground. Crossing into D at height of land, less than 50’ wetland crossing.

Wildlife: Area B cutting to create patch of hardwood for improving beaver habitat.

Recreation: Protect existing trail through Area F and D. No new trails

SWP: Cluster of SWP in vicinity of proposed landing, and in edge of Area D

Revenue: Income producing from timber sale. \$25,000 - \$30,000

## Treatment Group 4

Areas L, M, O - 100 +/- Acres

*This group is significantly larger than the others, and could be divided into two phases. The objectives of the two phases would be the same.*

Goals: Timber, Wildlife, Recreation/Esthetics. SWP

Landing: – Area M Drew Hill Road

Silviculture:

Area M - intermediate thinning of hardwood, group and patch cutting of mature white pine.

Scarification of patch cuts, timing in conjunction with or around a WP seed year

Area L – intermediate thinning, patch cutting in low quality areas.

Area O – intermediate thinning and group selection only in a small portion of this area due to poor drainage.

Water quality: Limit operations in Area O. Repair, improve drainage, and harden artifact trail for harvesting access and permanent hiking trail.

Wildlife: Oak and pine management. Conserve hemlock cover in Area O, while creating hardwood browse.

Recreation: Improve and dress up skid trail to tie into old bulldozer road through Area K, and complete thru-way to Gilmans Corner Road.

SWP: SWP in Areas L , M, and O

Revenue: Income producing from timber sale. \$45,000 - \$55,000.

## Treatment Group 5

Areas I, K- 35 +/- Acres

*This group is located in a section of the forest that is only accessible by crossing abutting land over a private road and an existing skid trail the circles around the wetland in Area J.*

Goals: Timber, Wildlife

Landing: – Area I, existing landing on Town land.

Silviculture:

Area I & K - intermediate thinning, and group and patch cutting of hemlock hardwood cover type.

Scarification of patch cuts, timing in conjunction with or around a WP seed year

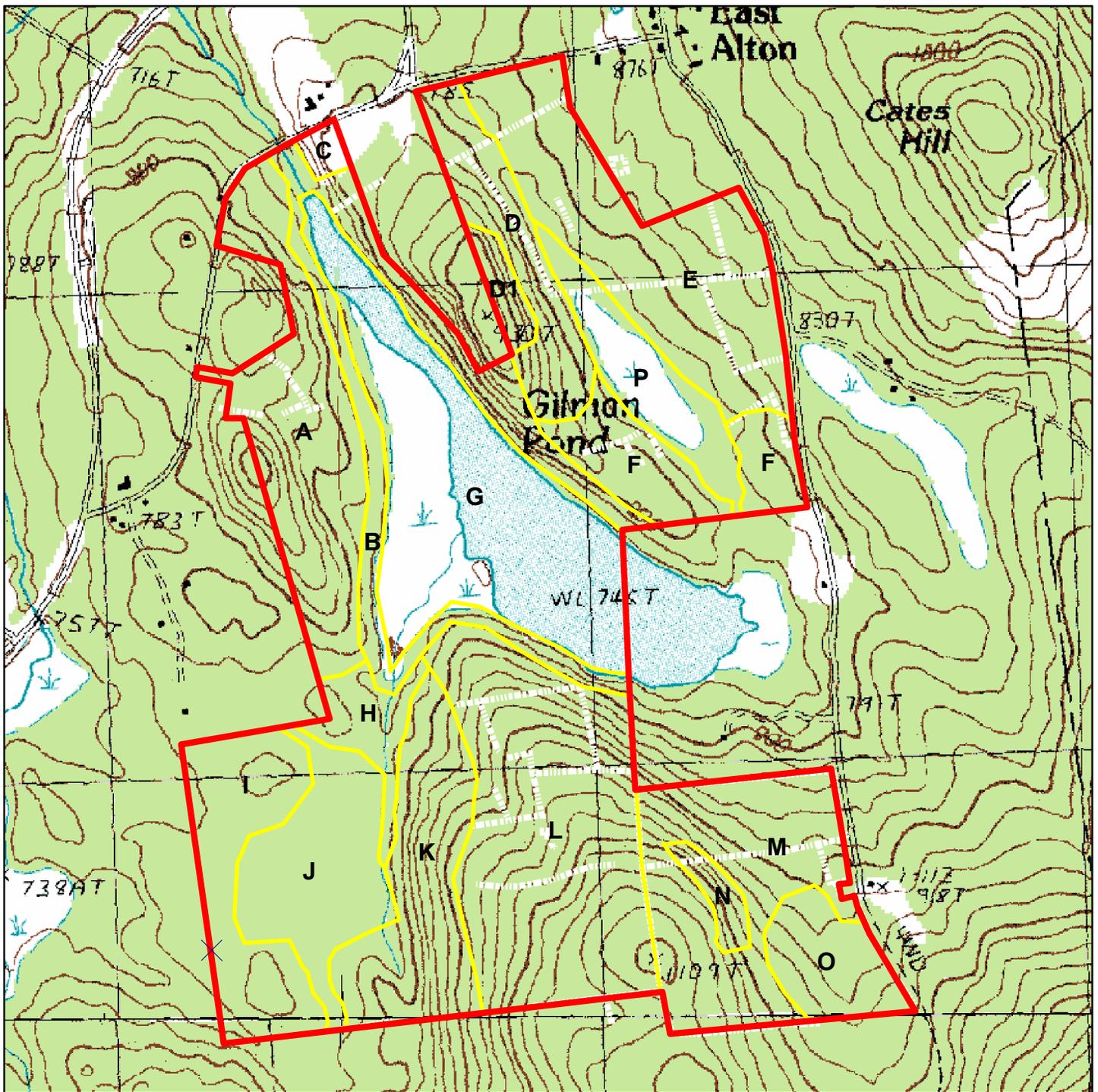
Water quality: Limit operations on edge of Area J. Bridge crossings using BMP over abutters land to access south end of Area K

Wildlife: Focus on oak and pine management. Maintain hemlock cover, while creating hardwood browse.

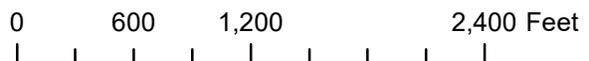
Recreation: No trails present or planned. Normal esthetic protection practices.

SWP: No known occurrences.

Revenue: Income producing from timber sale. \$10,000 - \$15,000. Net

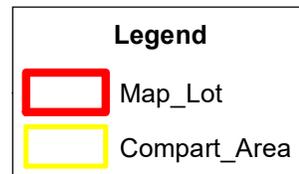


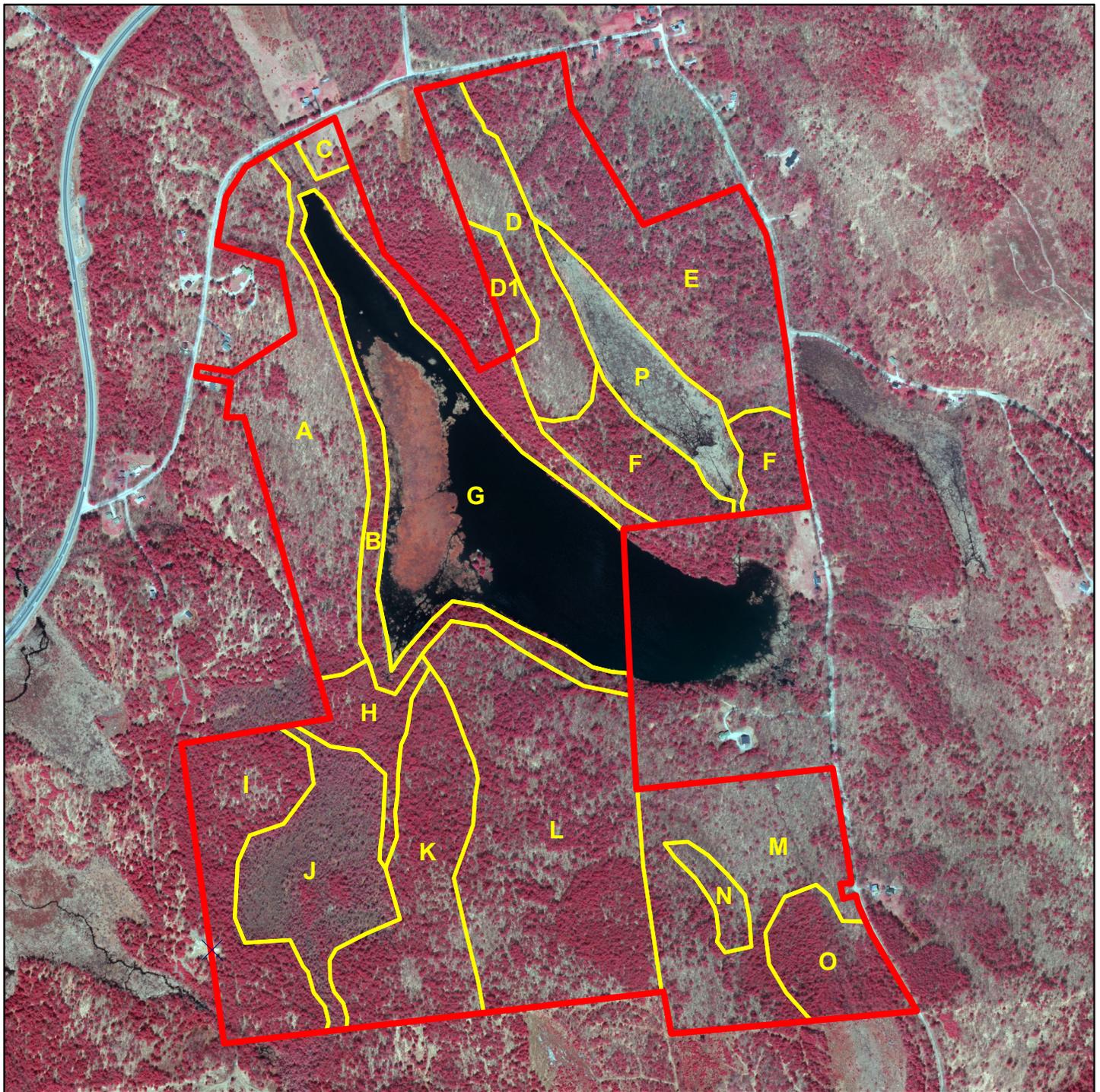
# Gilman Pond Town Forest Alton, NH



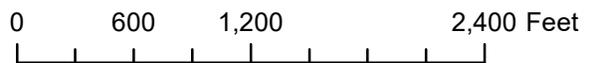
## USGS Topographic Map

Map Drawn by Peter Farrell, NHLF #85  
January 2023.  
Data from NH GRANIT. This is not a survey.



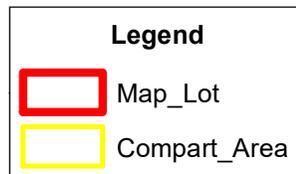


Gilman Pond Town Forest  
Alton, NH

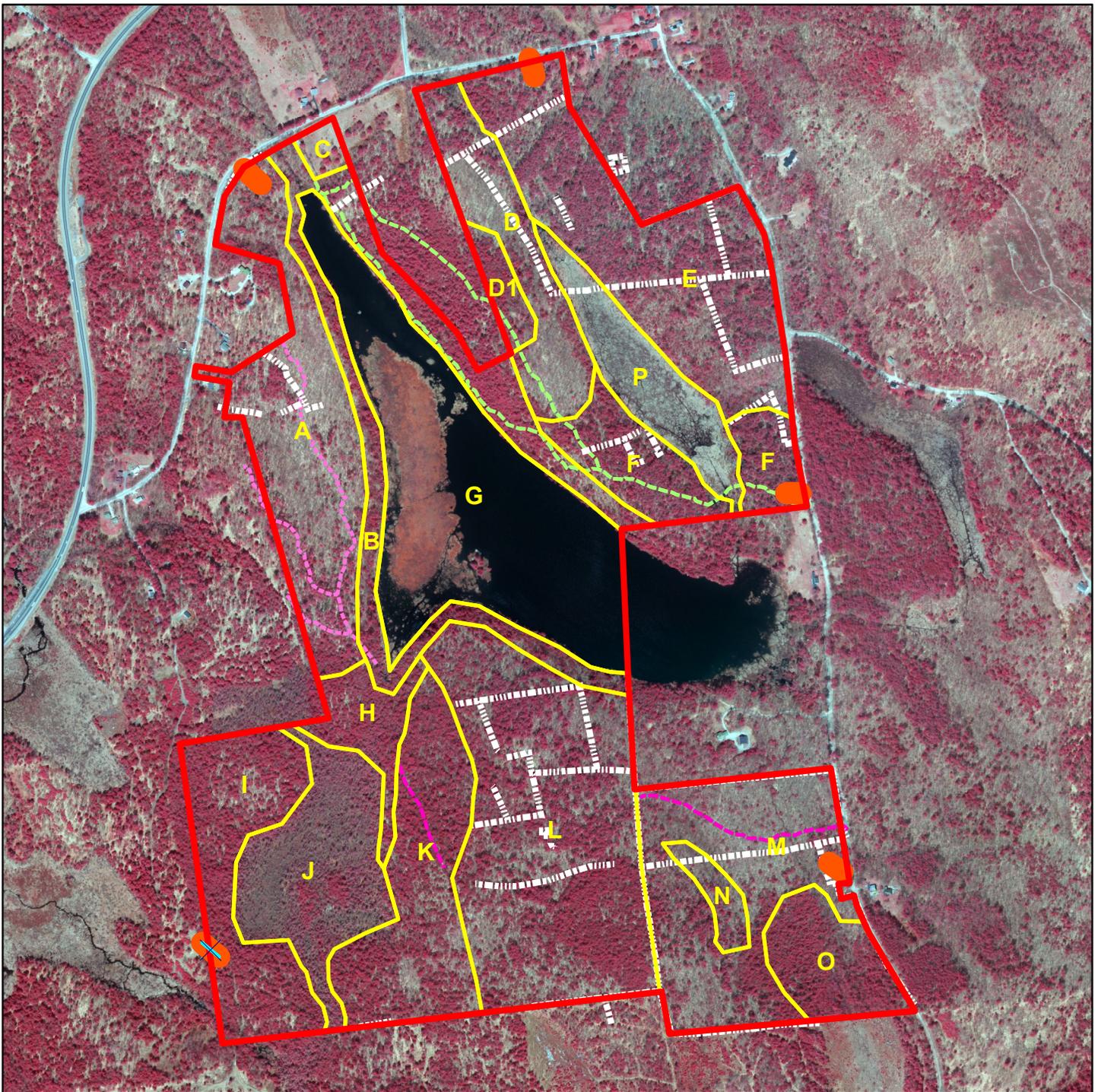


Forest Areas Map

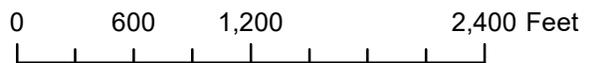
Map Drawn by Peter Farrell, NHLF #85  
January 2023.  
Data from NH GRANIT. This is not a survey.



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# Gilman Pond Town Forest Alton, NH



## Recreation & Cultural Features

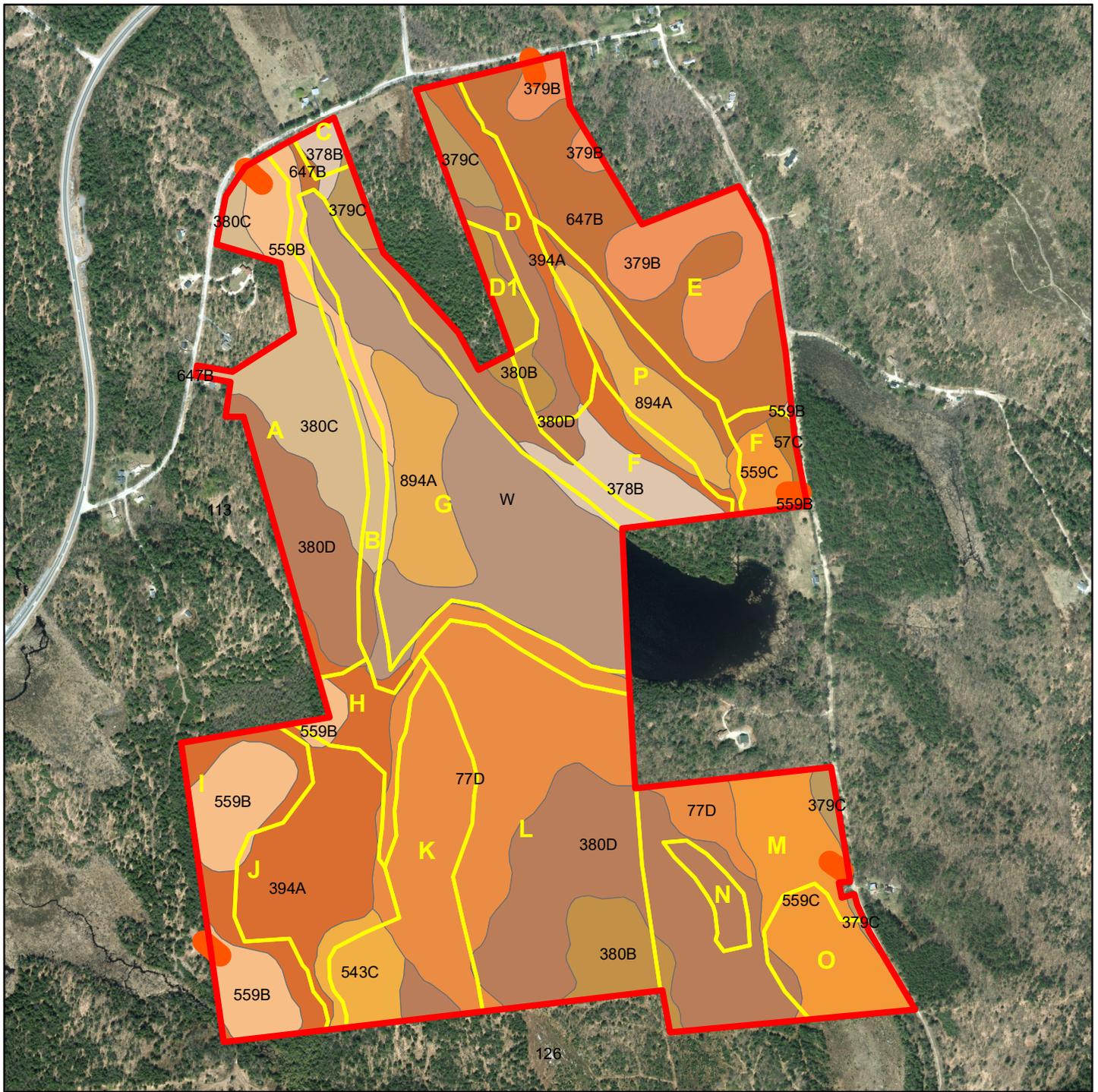
Map Drawn by Peter Farrell, NHLF #85  
January 2023.  
Data from NH GRANIT. This is not a survey.



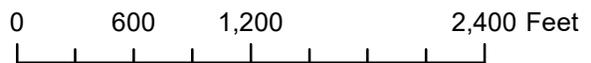
**New England  
Forestry Consultants, Inc.**  
*neforestryconsultants.com*

Legend	
	Map_Lot
	Compart_Area
Access Features	
Class	
	Landing

Legend	
	Stone Walls
Hiking Trails	
Type	
	Abutter
	Artifact
	ConCom



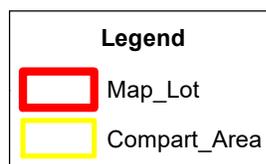
# Gilman Pond Town Forest Alton, NH



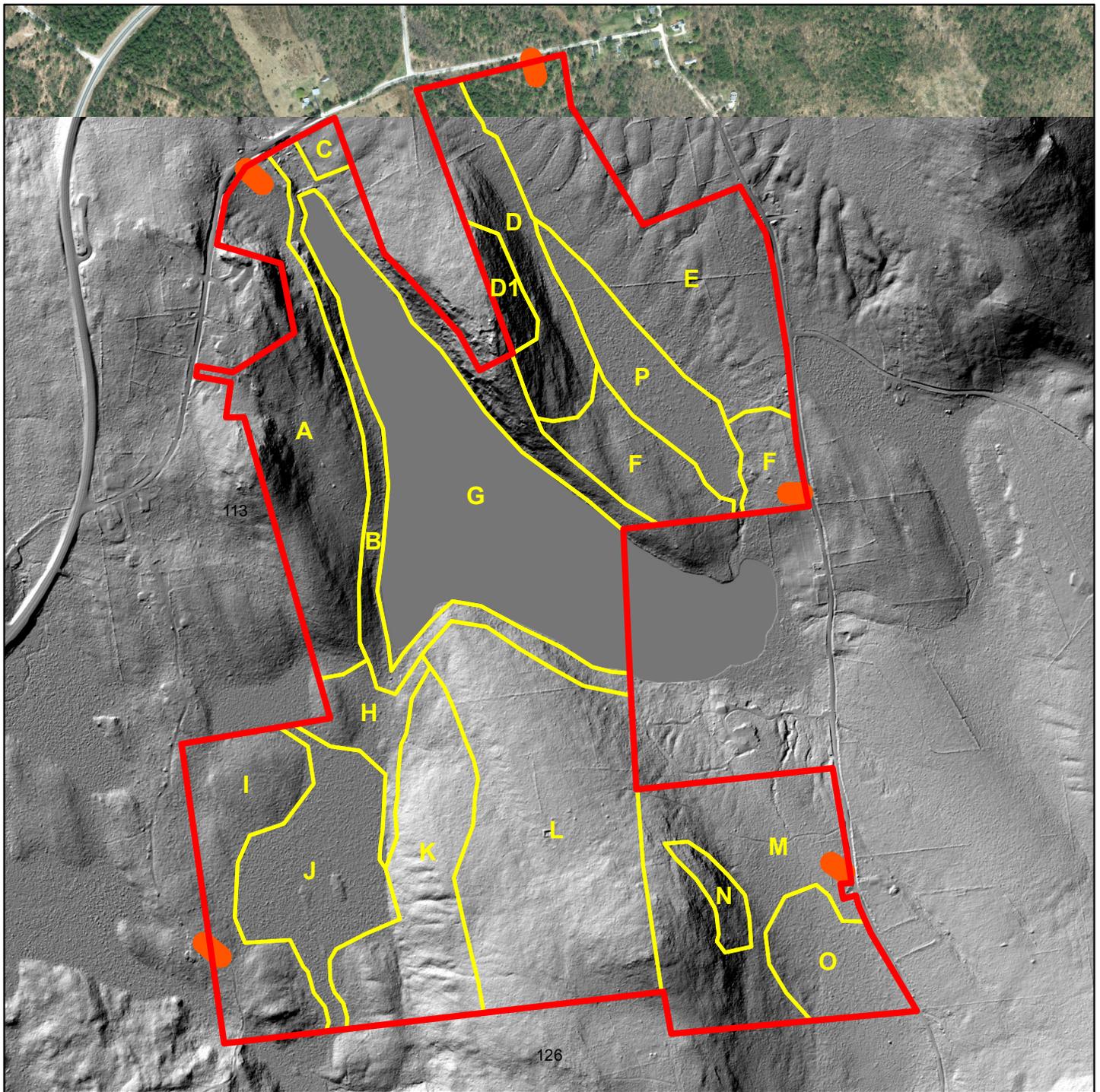
## Belknap County Soils Map



Map Drawn by Peter Farrell, NHLF #85  
January 2023.  
Data from NH GRANIT. This is not a survey.



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# Gilman Pond Town Forest Alton, NH

0 600 1,200 2,400 Feet

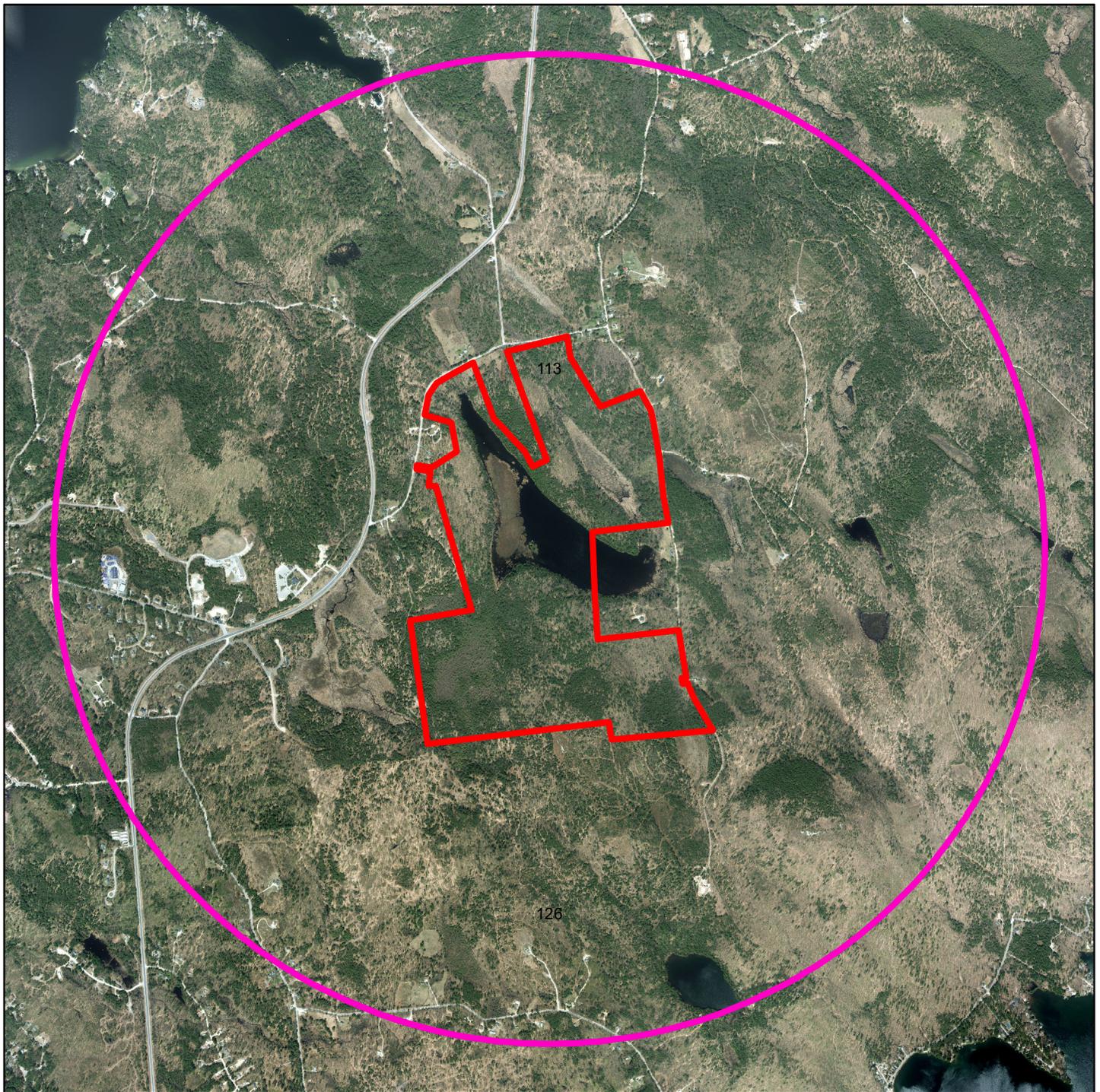
GRANIT Lidar Imagery



Map Drawn by Peter Farrell, NHLF #85  
January 2023.  
Data from NH GRANIT. This is not a survey.



Legend	
	Map_Lot
	Compart_Area
Access Features	
Class	
	Landing



# Gilman Pond Town Forest Alton, NH

0 1,450 2,900 5,800 Feet



## 1 Mile Habitat Radius 2015 Aerial Photo

Map Drawn by Peter Farrell, NHLF #85  
January 2023.  
Data from NH GRANIT. This is not a survey.



**Legend**

-  Habitat\_Radius
-  Map\_Lot

For fishing regulation information, please refer to the NHFGD Freshwater Fishing Digest.

Contact: NHFGD Region 2 (Lakes Region), New Hampton  
E-mail: [reg2@wildlife.nh.gov](mailto:reg2@wildlife.nh.gov) Phone: 603-744-5470

## GILMAN POND Alton

**FISHERY:** Warmwater **ACRES:** 48

**TROPIC LEVEL:** EUTRO

**AVG. DEPTH:** 7 **MAX. DEPTH:** 17

**SPECIES:** LMB,ECP,BBH,BC

**ADDITIONAL INFO:** no motors

**ACCESS:** Carry-in

Please contact NH Dept of Safety, Marine Patrol for info. on water body/boat/motor restrictions: (603) 293-2037 [www.nh.gov/safety](http://www.nh.gov/safety)

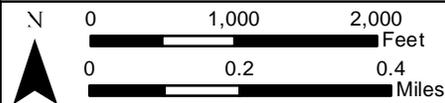
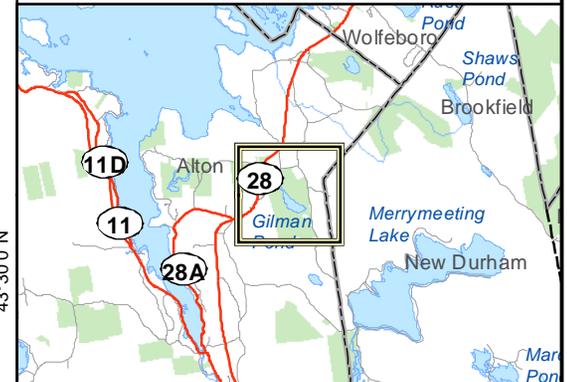
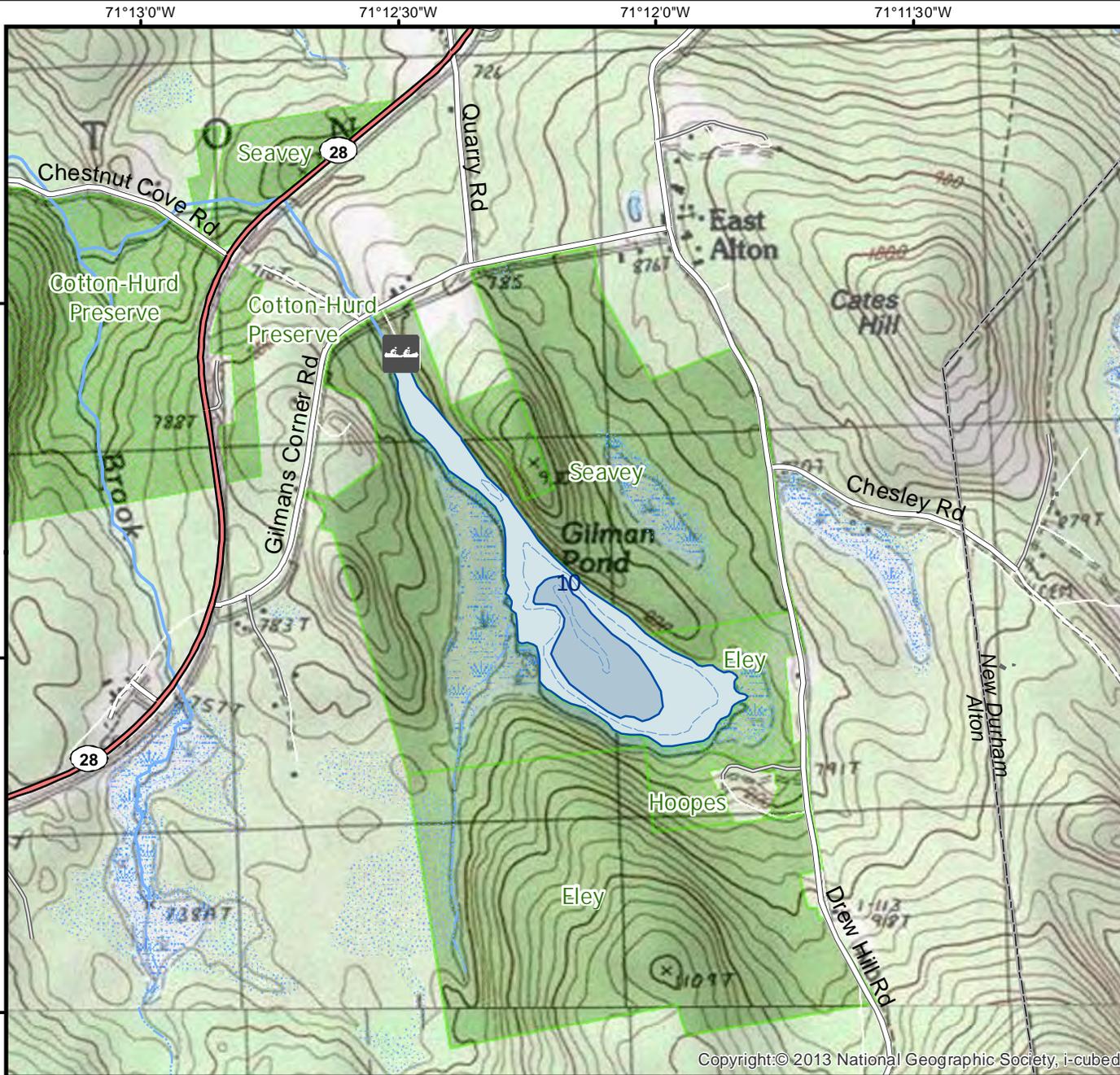
### Public Water Access site

-  Canoe/cartop
-  Shorebank
-  Ramp

 Bathymetric contour (feet)

Bathymetry provided by the NH Department of Environmental Services, Watershed Mgt Bureau

-  Town boundary
  -  Primary Route
  -  Road or Street
  -  Trail or other
  -  Stream or Shoreline
  -  Surface Water
  -  Wetland
  -  Conservation or Public land
  -  Cleared Forest
  -  Contour
  -  Building
  -  Restricted Access Conservation
- Source: USGS



Base map data from NH GRANIT at Earth Systems Research Center (UNH) and Open Street Map contributors. UNH, NH Fish & Game and the cooperating agencies make no claim as to the validity or reliability of, or to any implied uses of these data. NOT INTENDED FOR BOAT NAVIGATION.

**Directions:**

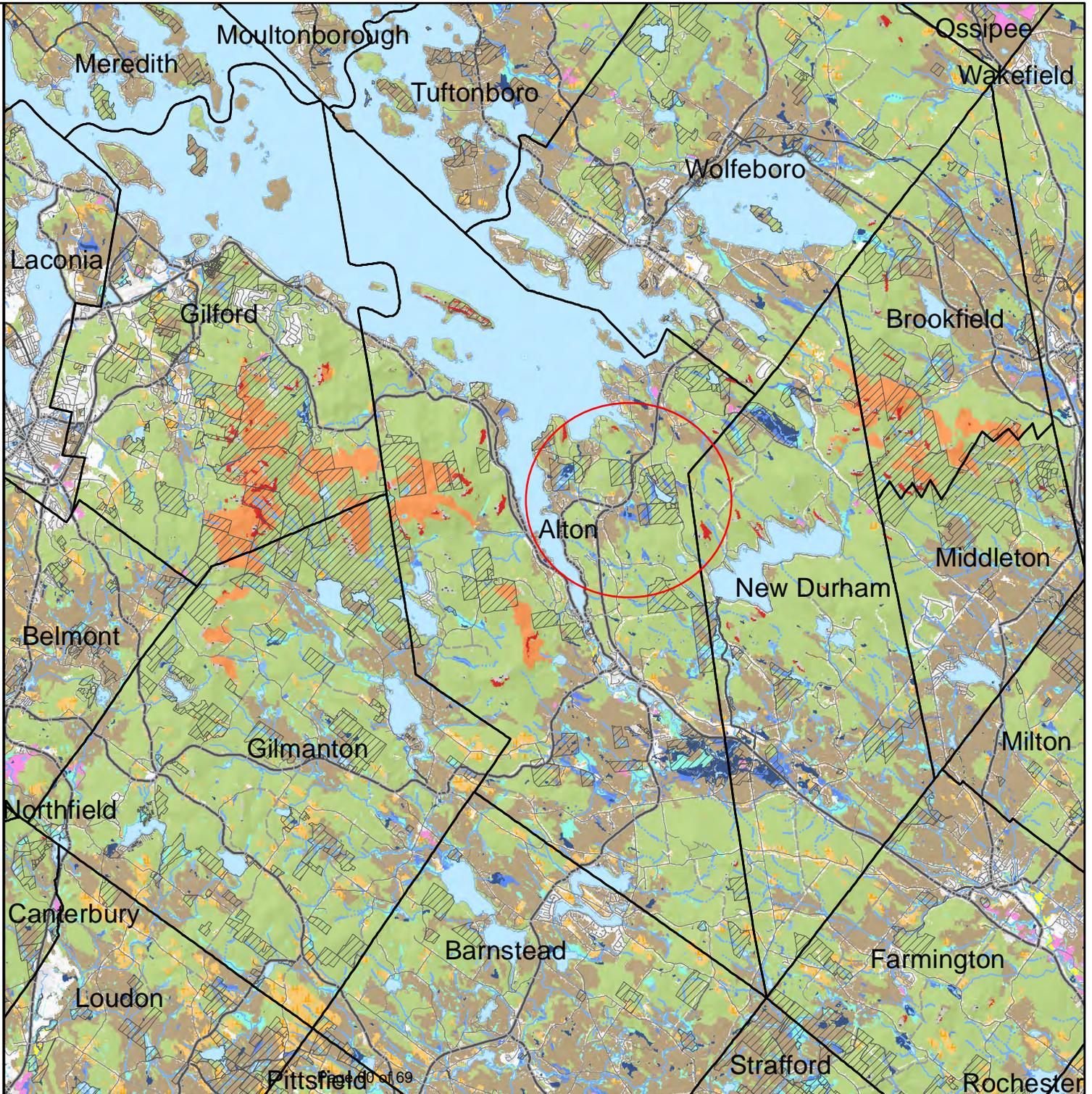
# 2020 NH WILDLIFE HABITAT LAND COVER

-  Coastal Island/Rocky coast
-  Dune
-  Salt marsh
-  Peatland
-  Marsh and Shrub wetland
-  Northern or Temperate Swamp
-  Floodplain Forest
-  Grassland
-  Pine barren
-  Cliff or Talus slope
-  Rocky ridge
-  Alpine
-  High-elevation Spruce-fir
-  Low-elevation Spruce-fir
-  Northern hardwood-conifer
-  Appalachian oak-pine
-  Hemlock-hardwood-pine
-  Open Water
-  Sand/Gravel
-  Developed Impervious
-  Developed or Barren
-  Conservation or public land

Base map data provided by NH GRANIT at UNH May 2020. Intended for planning use only.

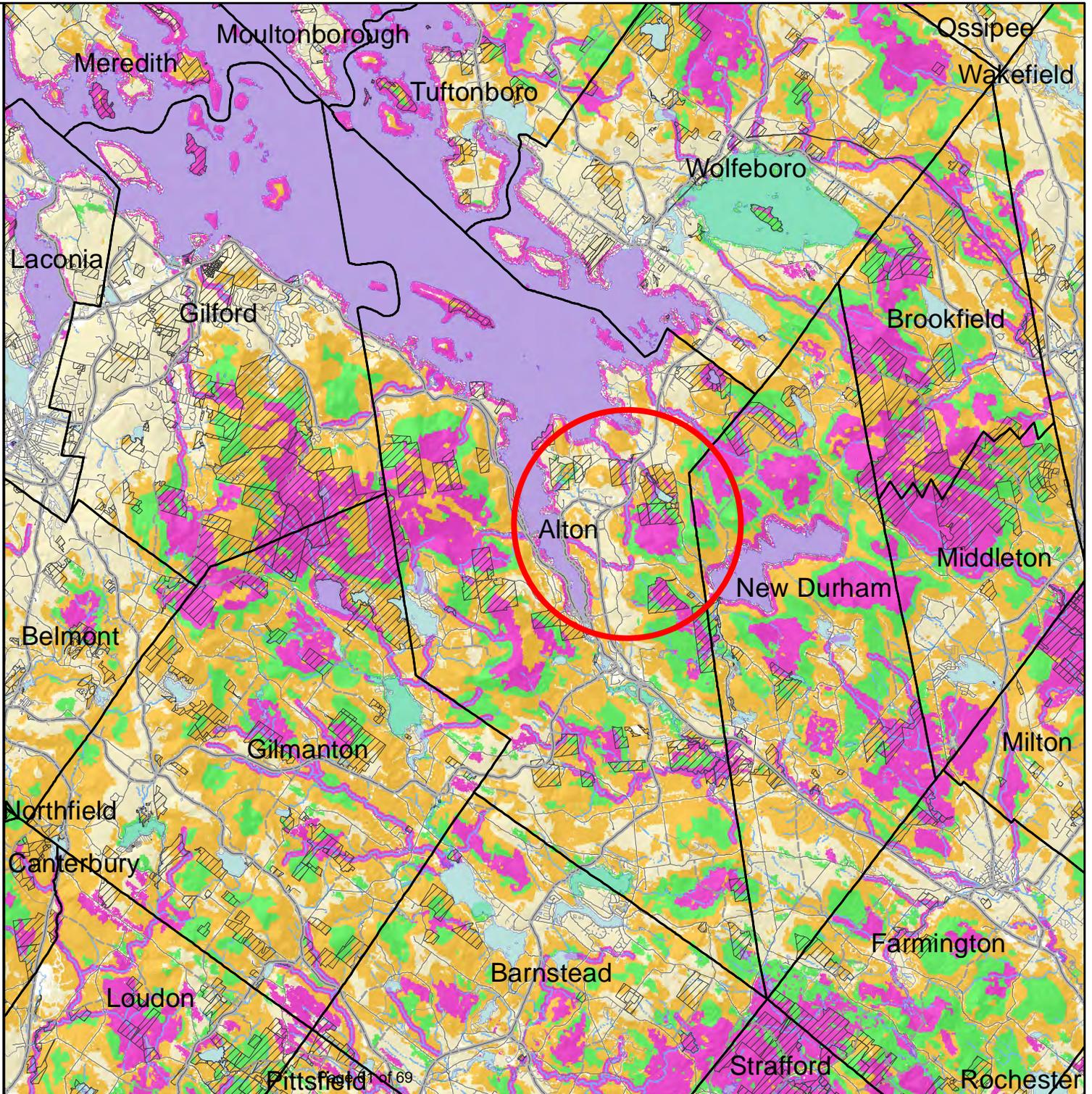


Sept. 2015, spatial data Apr. 2020



# 2020 HIGHEST RANKED WILDLIFE HABITAT BY ECOLOGICAL CONDITION

- Highest Ranked Habitat in New Hampshire
- Highest Ranked Habitat in the Biological Region
- Biological region = TNC ecoregional subsection for terrestrial habitats or Aquatic Resource Mitigation region for wetlands and floodplain forest.
- Supporting Landscapes
- Conservation or public



Base map data provided by NH GRANIT at UNH May 2020. Intended for planning use only.



Sept. 2015, spatial data Apr. 2020

0 4 8 Kilometers

0 3 6 Miles

**Memo**

NH Natural Heritage Bureau  
NHB DataCheck Results Letter

Please note: portions of this document are confidential.  
Maps and NHB record pages are confidential and should be redacted from public documents.

**To:** Peter Farrell  
PO Box 111  
Alton, NH 03809

**From:** NHB Review, NH Natural Heritage Bureau  
**Date:** 12/8/2022 (valid until 12/08/2023)  
**Re:** Review by NH Natural Heritage Bureau  
**Permits:** OTHER - Forest Management Plan

**NHB ID:** NHB22-3715                      Town: Alton    Location: Gilman Corner Road  
Description: Forest management plan

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

**Comments**    **NHB: For informational purposes. Management could benefit this species, selective cutting and thinning is beneficial. Even aged (clear cutting) management is not recommended.**  
**F&G: No comments at this time.**

Plant species	State <sup>1</sup>	Federal	Notes
small whorled pogonia ( <i>Isotria medeoloides</i> )	T	T	Primary threat is habitat destruction for residential or commercial development or forestry; other threats such as herbivory, recreational use of habitat, and inadvertent damage from researcher activities have also been identified. At the present time “natural” factors such as slug damage, mammal grazing, or forest succession do not appear to be significant threats to the larger populations. US Fish & Wildlife Service (see below).

<sup>1</sup>Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list. An asterisk (\*) indicates that the most recent report for that occurrence was more than 20 years ago.

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Disclaimer: A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed

## Memo

## NH Natural Heritage Bureau NHB DataCheck Results Letter

Please note: portions of this document are confidential.

Maps and NHB record pages are confidential and should be redacted from public documents.

for certain species. An on-site survey would provide better information on what species and communities are indeed present.

---

### **IMPORTANT: NHFG Consultation**

If this NHB Datacheck letter DOES NOT include ANY wildlife species records, then, based on the information submitted, no further consultation with the NH Fish and Game Department pursuant to Fis 1004 is required.

If this NHB Datacheck letter includes a record for a threatened (T) or endangered (E) wildlife species, consultation with the New Hampshire Fish and Game Department under Fis 1004 may be required. To review the Fis 1000 rules (effective February 3, 2022), please go to <https://wildlife.state.nh.us/wildlife/environmental-review.html>. All requests for consultation and submittals should be sent via email to [NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov) or can be sent by mail, and **must include the NHB Datacheck results letter number and “Fis 1004 consultation request” in the subject line.**

If the NHB DataCheck response letter does not include a threatened or endangered wildlife species but includes other wildlife species (e.g., Species of Special Concern), consultation under Fis 1004 is not required; however, some species are protected under other state laws or rules, so coordination with NH Fish & Game is highly recommended or may be required for certain permits. While some permitting processes are exempt from required consultation under Fis 1004 (e.g., *statutory permit by notification*, *permit by rule*, *permit by notification*, *routine roadway registration*, *docking structure registration*, or *conditional authorization by rule*), coordination with NH Fish & Game may still be required under the rules governing those specific permitting processes, and it is recommended you contact the applicable permitting agency. For projects not requiring consultation under Fis 1004, but where additional coordination with NH Fish and Game is requested, please email: Kim Tuttle [kim.tuttle@wildlife.nh.gov](mailto:kim.tuttle@wildlife.nh.gov) with a copy to [NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov), and include the NHB Datacheck results letter number and “review request” in the email subject line.

Contact NH Fish & Game at (603) 271-0467 with questions.

NHB22-3715



0 0.1250 250.375 0.50 625  
Miles

## New Hampshire Natural Heritage Bureau - Plant Record

### small whorled pogonia (*Isotria medeoloides*)

#### Legal Status

Federal: Listed Threatened  
State: Listed Threatened

#### Conservation Status

Global: Imperiled due to rarity or vulnerability  
State: Imperiled due to rarity or vulnerability

#### Description at this Location

Conservation Rank: Excellent quality, condition and landscape context ('A' on a scale of A-D).  
Comments on Rank: 2021: Re-evaluated all sub-EOs together to establish overall EO rank. This is the parent EO, with the largest documented population among all the sub-EOs. 2008: One of the largest sites in the state.

Detailed Description: 2019: Group A: 41 stems, 14 with seed capsules (34%). Area D: 1 vegetative stem. Group Q: 46 stems, 9 with seed capsules (20%). Group R: 6 stems, 5 with seed capsules (83%). Group S: 2 stems, 1 with a seed capsule (50%). Groups X, Y, Z: 78 stems, 16 with seed capsules (21%). 2018: Group A: 34 stems, 14 with seed capsules (41%). Groups X and Y: 78 stems, 22 with seed capsules (28%). 2017: Group A: 44 stems, 19 with seed capsules (43%). Groups X, Y, Z: 92 stems, 28 with seed capsules (30%). 2016: Group A: 55 stems, 33 with seed capsules (60%). Groups X and Y: 90 stems, 37 with seed capsules (41%). 2015: Group A: 49 stems, 19 with seed capsules (39%). Groups X and Y: 86 stems, 28 with seed capsules (33%). 2014: Group A: 45 stems, 11 with seed capsules (24%). Groups X and Y: 89 stems, 24 with seed capsules (27%). 1982-2013: Group A: 36 stems, 15 with seed capsules (42%) in 2013. This may be a leveling-off or slight increase after a long-term decline from counts as high as 68 stems in 1982-1992. 1986-2013: Groups X and Y: Group Y had 71 stems and 18 seed capsules (25%) in 2013. Both the number of stems emerging and total seed capsules produced have increased since canopy clearing occurred in the winter of 1997/1998. Nearby Group X, which was not cleared, has had persistently low numbers of stems and capsules (12 stems and 0 capsules in 2013). 1982-2008: From 66 to 265 stems (64 to 223 plants) have been found between 1982 and 2008 (114 stems in 2008), in nine groups (A-I) that have been censused annually. An additional 15 groups (J-Z) are counted in different years. Total stem counts among all groups have been as high as 591 in 1988, and were 176 in 2004. In the "study" groups (A-I), high counts in 1983-1988 (around 200 plants) declined to less than 100 plants in 1993 and 1994, slowly climbed back to 145 as of 1999, then dropped to 122-130 in 2000-2002, and continuing to drop to 94 in 2003 and 64 in 2004 before rebounding: 88, 105, 89, and 114 in the next four years. In groups with at least 10 plants, the percent of plants producing one or more capsules per year has ranged from 0% to 66% (1985). In 2008, 16% of the stems in the nine study groups produced a capsule.

General Area: 1982: Large pines (old field). Associated species include *Trientalis borealis* (starflower), *Rubus* sp. (blackberry), *Acer rubrum* (red maple), *Betula populifolia* (gray birch), *Aster acuminatus* (whorled aster), *Gaultheria procumbens* (wintergreen), and *Pinus strobus* (white pine).

General Comments: --

Management Comments: 2009: Experimental removal of small trees (dbh < 4") at Group A, with herbicide applied to cut stumps (11/6). 1997/1998: Experimental removal of canopy initiated at one group (Y).

#### Location

Survey Site Name: East Alton  
Managed By: Seavey

County: Belknap  
Town(s): Alton  
Size: 31.2 acres

Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

**CONFIDENTIAL – NH Dept. of Environmental Services review**

Directions: East Alton. Scattered locations on slopes west of East Alton west to Gilman Pond and draining stream. For Groups X and Y (canopy thinned in 1997-1998), take Rte. 28 north to 0.25 mile north of Chestnut Cove Road. Park on the west side of the road at a road sign saying "Camp Brookwoods Camp Deer Run". Walk directly uphill and into the woods ca. 100 meters.

**Dates documented**

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First reported: 1982

Last reported: 2019

The U.S. Fish & Wildlife Service has jurisdiction over Federally listed species. Please contact them at 70 Commercial Street, Suite 300, Concord NH 03301 or at (603) 223-2541.

Note: The following is a reply to questions PF posed to Scott Young, Botanist regarding the current status of SWP on the GPTF

1. What is the most recent information regarding the health and size of the SWP population on the GPTF= **Gilman Pond Town Forest**

2.

2019	2020	2021	2022	Group ID
41/14	45/20	46/18	41/18	AgN
0/0/0	-	-	-	BgN
0/0/0	-	-	-	CgN
1/0/0	-	-	-	DgN
0/0/0	-	-	-	EgN
0/0/0	-	-	-	FgN
0/0/0	-	-	-	HgN
0/0/0	-	-	-	IgN
-	-	-	-	group J
<b>12/1/1</b>	-	-	-	group K
0/0/0	-	-	-	KEgN
1/0/0	-	-	-	KLgN
0/0/0	-	-	-	KLRgN
11/1/1	-	-	-	KMgN
0/0/0	-	-	-	KUgN
-	-	-	-	group L
-	-	-	-	group M
-	-	-	-	group N
0/0/0	-	-	-	OgN
-	-	-	-	Group P
4/1/2	-	-	-	QEgN
42/8/8	-	-	-	QWgN
6/5/7	-	-	-	RgN
0/0/0	-	-	-	SLgN
2/1/1	-	-	-	SUgN

3. Although it is accepted that increased forest floor light from tree thinning improves the growth and reproduction of SWP what is the available information regarding commercial timber harvesting and its effect on SWP survival?

Negative effects: increased herbivory, damage to plants by trammeling or disrupting the duff layer, soil compaction, heavy slash suppresses growth, unintentional re routing of drainage channels both surface and sub-surface, promotion of undesirable species dominating re growth (beech, black birch). promotion of dense stands of understory species, invasive plant colonization, greater deer herbivory. Being too timid harvesting.

Positive effects: The bottom half of the tree begins to decay-often promoting the right type of fungi (Russulaceae species mostly) to thrive, greater moisture retention, less smothering leaf litter, unintentional rerouting of drainage channels, soil compaction, re

growth of desirable tree species, promotion of moderate to thin stands of understory species, less foliar blight, less slug herbivory.

4. Following a harvest, would silvicultural investment treatments including hardwood sprout control be necessary to successfully maintain the presence of SWP? Probably yes. SWP do Herbicide beech sprouts, be sure to adequately address drainage restoration of drainage patterns, don't leave compressed slash in well defined drainage corridors or skidder trails, be sure to make adequately large cobbled swales along logging roads (not subtle passages for the water that are easily clogged in a few fall seasons), any steep sloped ruts should be filled with compressed slash to slow drainage,

Herbicide beech sprouts, reduce black birch colonization, promote deer hunting

\*\*\*Favored tree species are Red Maple, White Birch and White Pine

Witch hazel can be pruned back or thinned. Large specimens are often found associated with SWP. Probably because of prolonged canopy gaps and ample moisture.

5. What would be the preferred method of vegetation control mechanical (repeated cutting) or herbicide?

My experience with repeated cutting of beech is that ground level produces even more sprouts, hand pruning about waist high slows it down with less sprouting, chainsaw at waist height for larger beech with hand pruning follow ups. The down side is that this has to be done fairly regularly. Herbicide treatment has been done by Bill Brumback and to me seems to have been beneficial. Not much herbiciding has been done as of yet throughout SWP range. Herbiciding using Glyphosate needs to be done soon after making a cut with a squeeze bottle applicator.

### **Herbicide Brumback Group A July 2009**

Immediately after cutting (within 2-3 minutes of cutting), all stumps were carefully herbicided with 50% Accord herbicide (active ingredient glyphosate – 52% concentration) mixed with a purple dye. The purple dye marks stumps that had been treated. The herbicide was usually totally absorbed within minutes of application, and many stumps were given a second treatment that same day. The herbicide was applied with Nalgene 500 ml. drip bottles, and one liter total of herbicide was applied to the site.

initial results (2009 and 2010):

Much more light was able to reach the floor of the group after cutting in 2009. The opening of the canopy in Fall 2009 did not have a great effect on the number of stems or bloom in 2010 (see report of Brumback and Korecki, 2010.) No effects of herbicide on the orchids could be determined. Only one or two of the trees and shrubs treated at the site in 2009 had resprouted in 2010. No repeat herbicide application was needed. Monitoring showed a slight decrease in *Isotria* plants after the cutting, but the plants appeared to be increasing slowly in subsequent years.

2022: No management action is needed at this site at this time.

A recent recommendation for beech control:

Auger- mentioned that beech is being controlled by spraying Garlon 4 in oil on trunk of beech 6" diameter or less to kill them. No need to cut or scarify bark in aid uptake.

Triclopyr            12 hour restricted entry

Mix with Water or oil/water mixture with a surfactant

July-September full band up to 6" diameter woodies.

Phil writes in plans:

"Sapling and small pole sized beech understory trees should be treated with herbicides before harvests. Research and elsewhere ([https://www.nrs.fs.fed.us/pubs/qtr/qtr\\_nrs96.pdf](https://www.nrs.fs.fed.us/pubs/qtr/qtr_nrs96.pdf)) has shown that basal bark herbicide applications on stems under 6 inches in diameter at breast height are effective. In Pennsylvania (<https://extension.psu.edu/using-basal-bark-herbicide-applications-to-control-understory-tree-species>) summer applications of a 1% solution of the herbicide Garlon 4, have been shown to kill more than 90% of beech understory trees. Sprouting from beech stumps is also problematic. Here again herbicides can be effective but timing is critical. Stump surfaces need to be treated within four days of cutting and this treatment method is only effective from June through early to mid-October."

\*\*\* This method has not been attempted within SWP colonies. I think it has the potential to drift onto SWP plants at suggested time of year for application.

## 5. What are the other threats to SWP

I would route hiking trails away from SWP colonies

Climate change (though you could argue that the disruptions will be opportunities) The Disappearance of the duff layer by warming temps could negatively affect our populations (which exist only in the duff).

Anecdotally, I believe that mature red oaks (> 60 years age) by producing large acorn mast can promote huge increase in vole populations that readily herbivore the underground roots and corms of the SWP. I would harvest or girdle large oaks in close proximity to colonies.