# Chelsea Town Forest
# Stewardship Plan
# 2023-2035

Laird Farm parcel – 312 acres and George Tutherly parcel – 22.63 acres

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Adopted by the Chelsea Selectboard on October 1, 2024

**Laird Farm** - SPAN: 141-044-10199

**George Tutherly** – SPAN: 141-044-10192

**Biophysical Region**: Northern Vermont Piedmont

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**Forest Location:** The town of Chelsea has two parcels of town forest. The larger of the two is called the Laird Farm parcel and the smaller is called the George Tutherly parcel.
Laird Farm: both sides of Jenkins Brook Road, just before the town line with Vershire.
George Tutherly: East of County Road about halfway between Jenkins Brook Road and the Tunbridge town line.

**Parcel Boundaries**: The boundaries of these forests are marked on the ground with a combination of barbed wire, stone wall, old blazes, paint and ribbons. Neither parcel has been surveyed.

The boundaries of the Laird Farm parcel north of Jenkins Brook Road are marked and are in agreement with the town tax map and neighboring parcels.

The boundaries of the portion of the Laird Farm parcel south of Jenkins Brook Road are less clear. The eastern portion and southern boundaries appear to be clear. However, the western section has historically been mapped as extending to Brocklebank Road, with the road as the boundary, and now is mapped by the town as having an internal, straight-line boundary without benefit of road frontage. This line needs to be investigated on the ground, located with confidence and clearly marked. Boundary clarification and marking must preceed any forest management activity in this area.

The boundaries of the George Tutherley lot are marked on the ground and are in agreement with the tax maps and neighboring parcels.

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## *Introduction*

### *History*

The 312-acre Laird Farm parcel and the nearby 22.63-acre George Tutherly lot make up the combined Chelsea Town Forest. Both parcels have a long history of forest management and before that an agricultural history. Of course, the forest prior to agricultural use by early European-Americans was part of lands occupied by the Abenaki people for thousands of years. Their impact on the land was less dramatic, but it is important to remember that this land has been home to people, and has been used to supply the needs of people, since the glaciers receded.

The Chelsea Town Forest is at the edge of a large undeveloped area, known locally as Taylor Valley. The valley consists of several thousand acres of contiguous forest with few maintained roads. Much of the neighboring forest is privately owned and enrolled in the Vermont Current Use program. Much of it is actively managed for multiple benefits including sawtimber. The Chelsea town forest has been actively managed for nearly 80 years under the direction of several successive Orange County Foresters.

**Laird Farm**

1940-1945 41 acres of plantation planted:

| | |
|---|---|
| Red Pine | 21 acres; |
| Norway Spruce | 6 acres; |
| White Spruce | 5 acres; |
| Red Spruce | 4 acres; |
| Balsam Fir | 5 acres; |
| White Ash | 3 acres. |

1945 A note in the Orange County Forester file states "Ash cut". No other information is available.

1948 Timber sale marked by Orange County Forester. 74.3 mbf "mature and overmature hardwood".

1951-52 "Pulp cut". Again, no other information is available.

1955 6.00 mbf of paper birch and balsam fir, 6 cords firewood.

1964 Sale marked by the Orange County Forester and sold to W. Mattoon. Tallied volume was 100 cords of Spruce-Fir and scattered aspen. Stumpage sale for $4.01/cord. Net revenue **$384.96**.

Timber Stand Improvement (tsi) on 10 acres, and in another area, 7 acres "girdling of cull hardwoods".

1965 "Rogers Trespass" along SW boundary off Brocklebank Road. Stump cruise by the Orange County Forester estimates 8.131 mbf on approximately 20 acres. **Note: the current tax map shows this as no longer being part of the forest**.

1994-1997 The Orange County Forester marked a timber sale on much of the parcel north of Jenkins Brook Road. It was estimated that the sale included **216.8 mbf of Sruce-Fir and red pine**, with another **9.0 mbf of white pine, hemlock and tamarack**. In addition, there was an estimated **35.8 mbf of mixed hardwood logs**. Pulpwood was not tallied in this sale. This was a bid sale and logger, Keith

Wolstenholme of Thetford won the bid and did the work. In the end, the town received **$27,535.89**.

2011 The Orange County Forester marked a timber sale designed to harvest red pine plantations that were in rapid decline, and to thin surrounding stands to release high-quality trees with potential to grow in value. Longview Forest Contracting won the bid and harvested **478.732 mbf red pine, 15.16 mbf Norway spruce, 6.47 mbf white pine and 2.635 other logs (502.997 mbf total),** for which the town ultimately received **$85,889.91**.

**Note: total of the last two sales alone is approximately 765 mbf, with $113,426 in revenue**.

**George Tutherly lot**

1953 Aspen removed from approximately 10 acre hardwood stand at "Royce lot", aka George Tutherly lot.

2004-2005 The Orange County Forester marked a timber sale in the 15-acre Scotts pine portion of the parcel. George DeNagy of Topsham was the logger. He cut **113.525 mbf** of Scotts pine sawlogs, for which the town received **$5,407.20**. At the direction of the County Forester, the logger cleared and constructed a short truck road, cleared a landing, and built a main skid road up into the plantation. There was more Scott's pine to be cut, but markets closed and the logger could not sell the remainder, so it was left uncut.

2011-2012 The Orange County Forester marked a timber sale to complete the overstory removal of the 15-acre Scotts pine plantation and to do a selection harvest in the hardwood stand. Longview Forest Contracting did the work. They cut **34.770 mbf of Scotts pine sawlogs**, and **8.798 mbf mixed hardwood logs** (mostly ash, aspen and paper birch), for a total of **43.568 mbf**. They also harvested **12 cords of firewood, 30.27 tons softwood pulp (Scott's pine) and 29.69 tons of hardwood pulp,** for which the town received **$2,221.68**.

**Note: total of the last two sales is approximately 157.093 mbf, 39 cords, with $7,629 in revenue**.

## General Description

The Chelsea Town Forest lands are entirely forested, with productive soils and mostly gentle to moderate slopes. Both parcels have road frontage on town roads and internal trail systems that allow truck access and landing sites. Streams and wetlands are buffered from intensive management. The forest on both parcels is dominated by a mix of northern hardwood species on upland sites and softwoods or hardwood/softwood mix on wetter sites. The Laird Farm parcel has at least one abandoned cellar hole and both parcels have stone walls, either along the boundary or in the interior of the forest. It will be very important during any forest management activities to protect all stonewalls and historic features. The George Tutherly parcel has a small stream that flows parallel to the County Road. No internal streams were noted. The Laird Farm parcel has a major stream (Jenkins Brook) that flows parallel to Jenkins Brook Road, and numerous intermittent tributaries to the main stream. Stand 2 is largely an area of wet soils that are associated with these streams.

There is an established trail network that can be expanded, with internal trails connected into a recreational network. Some trails may be able to tie into trails on neighboring lands to provide additional recreational opportunities. With minor improvement, the landings can provide parking for visitors.

**MANAGEMENT GOALS**

The principal management goal of the town is to maintain a healthy, diverse, and resilient forest that can be used to achieve multiple public benefits, such as carbon sequestration, carbon storage, clean air, clean water, ecological integrity, outdoor recreation, natural resource education, natural beauty, sustainable production of forest products and the maintenance and improvement of wildlife habitat. Forest management is a tool that can be used to achieve these goals.

**CLIMATE CHANGE EFFECTS**

Climate change is affecting this forest in several ways. Rather than rain coming in mostly gentle events spread throughout the growing season, it now comes in fewer, more violent storms. Often these storms are accompanied by damaging winds. Less extreme cold, less snow and more ice constitute the new pattern in Winter weather. In total, we now receive more precipitation than we have historically, but due to the nature of the storms that bring the rain, much of the additional rainfall runs off rapidly as streamflow and is not available for tree growth. That is, there is more water moving into and out of the forest, but less water available for plant growth. Less snow and warmer winter temperatures often lead to early snowmelt and near drought conditions when trees break bud in the Spring and must rehydrate after winter dormancy. Less available water in the Spring and during the growing season leads to less photosynthesis, often resulting in less growth, even in the presence of an extended growing season. The warm season available for growth may be extended, but if available water is not present in sufficient quantities, the effective growth period may be shorter in our

new climate, not longer. Some species of trees adapt better than others to these changes in temperature and moisture, and that results in a shift of competitive advantage between species, which leads to a gradual shift in the species composition of the forest over time. When someone says something like “The range of sugar maple will move north over the next century”, this is what they are referring to. Sugar maple is expected to be less competitive in the new climate and so will be present in lesser proportions in the future forest.

**PUBLIC ACCESS**

There are two main access points along Jenkins Brook Road (Laird Farm) and one access point along the County Road (George Tutherly). These access points are all former (and future) landing areas for trucking access to harvested forest products. Since forest management activities occur on an irregular schedule, every 10-20 years, the landings can be used as visitor parking in the interim. From each landing a main trail enters the forest and often there are side trails off that main trail. There is potential for additional trails to be constructed that are primarily used for recreation, rather than transport of forest products and that would connect sections of the existing trail system into larger loops.

Following any future forest management activity, such as the treatments recommended in this document, any trails used to transport forest products will be cleared of large debris, smoothed, and drained to be in full compliance with Vermont water quality standards as outlined in **Vermont Water Quality, Acceptable Management Practices**, dated 2019.

**RARE, THREATENED AND ENDANGERED SPECIES**

There are no known significant natural communities, or rare, threatened and endangered species on the Chelsea Town Forest.

**WILDLIFE HABITAT**

The Chelsea Town Forest is quite diverse in species composition, age and structure. It is the intent of the town to maintain and enhance this forest complexity to provide quality wildlife habitat and to promote full ecological function.

Mast is defined as fruits or nuts that are valuable to wildlife. Throughout the forest there are mast bearing trees, such as beech, ironwood and black cherry. Mast bearing trees provide an important food source for birds and mammals. Maintaining a variety of mast bearing trees will increase the amount of wildlife on the property that rely on this food source. In this forest the most common mast bearing trees are beech.

There are several large, old trees on the property. Many of these older trees have holes and cracks. These cavity trees are very important to different species of birds and mammals. Northern Long-Eared Bat, a federally listed threatened species rely on trees with cracks and cavities. These bats will roost in these trees during the summer months. Trees like this should be preserved and promoted as much as possible.

Interior forest songbirds can be heard throughout the spring and summer. They are often neotropical migrants that rely on larger, diverse forest blocks in Vermont for their breeding habitat. Oven birds, red eyed vireos, scarlet tanagers and both black-throated green and black-throated blue warblers are just some of the birds that use interior forest habitats in the Town Forest. Some of Vermont's forest songbird populations are declining due to development in their Caribbean and Central and South American winter habitats. Making sure their summer breeding habitat is the best it can be is an important way to help these species. Improvements to forest structure, including keeping tall older trees, providing mid-story and understory layers of vegetation, and even creating patches of dense young trees are all activities that provide habitats for these often-very habitat-specific forest birds. Removing invasive plants and reducing forest fragmentation are also important ways to help our forest songbirds. More information on forest songbirds can be found at Vermont Audubon.

**RESOURCE CONCERNS**

The principal resource concern on this parcel is the presence of well-established populations of invasive plants. In order to maintain the ecological integrity of the forest and associated riparian areas, it will be necessary to treat these plants to keep their populations from expanding and ultimately controlling the site. The practice of treating invasive plants is not intended to eradicate them, as this is recognized to be impractical. Instead, by treating invasive plants, we reduce the amount of available growing space they occupy and thereby maintain sufficient growing space for native plant species. Healthy native plant communities provide the habitats necessary for healthy populations of native birds, animals, amphibians, insects and microbes.

**FOREST HEALTH**

Overall, the Chelsea Town Forest is healthy. Forest health issues are commonly divided into three groups: invasive plants, insects and disease. Invasive plants are well-established in areas of the forest and present a long-term threat to the ecological function of this forest. There are numerous native or naturalized forest health issues that commonly occur throughout Vermont found in the forest. Some level of insect and disease damage is normal in any forest. Insects and forest disease currently present at the Chelsea Town Forest occur at natural levels and are not considered serious forest health concerns at this time.

## Beech Bark Disease

Beech Bark Disease is unfortunately a common occurrence in the forests of Vermont. It was introduced in Nova Scotia in the early 1900's from Europe. It has worked its way west from there. The pathogen effects the vigor of beech and will eventually lead to mortality. Beech Bark Disease is an attack of a beech scale insect and a fungus in the *nectria* genus. Beech trees infected with Beech Bark Disease will have cankers on the bark. Some beech trees are resistant to this disease and should be protected and managed for. Genetic resistance is the best way to manage for this disease.

## Sugar Maple Borer

Sugar Maple Borer damage is caused by the larva of long-horned wood boring beetle, *Glycobius speciosus.* This beetle is 1 inch long and has yellow and black coloring, with a distinctive "W"

design on the wing cover. Sugar Maple Borer is a native beetle. It rarely causes mortality on its own. The damage is done by the larva of the beetle once the eggs hatch. The larva bores it's way through the cambium layer. This damage reduces the value of the tree as well as its structural integrity.

**REGIONAL FOREST HEALTH CONCERNS**

The following forest health issues are currently found in Vermont or in neighboring states but have not been found in the Chelsea Town Forest.

## Emerald Ash Borer

Emerald ash borer (EAB) is a beetle native to northern Asia. This insect was first discovered in Detroit in 2002. It has spread rapidly east since then, mostly being moved by humans. EAB will kill infected ash trees by effectively girdling the tree. The larva of EAB feed over the winter in the cambium layer of ash trees. Infested trees will normally die within 5 years. EAB kills 95-99% of the trees it infects. Native ash trees have very little resistance. EAB was found in Vermont in February of 2018 in the town of Orange. Since then, it has been found in more and more towns in Vermont. The nearest known EAB infestation is less than 10 miles away in Brookfield. Forest management activities planned in this document will seek to reduce (but not eliminate) the proportion of ash in this forest.

## Hemlock Wooly Adelgid

Hemlock Wooly Adelgid (HWA) is an introduced insect from Asia. It was first found in the Pacific Northwest in the 1920's, then found in northern Virginia in the 1950's. It is currently in southern Vermont, slowly spreading north. HWA can be identified by the cotton like frass at the bottom of hemlock needles. HWA feeds on young twigs causing needles to dry out and fall off the tree prematurely. If infested, a hemlock tree can die within 4 to 6 years. Some trees can survive but have reduced live crowns making the tree less valuable to wildlife that depend on hemlock.

**CARBON MANAGEMENT**

Trees and plants sequester (absorb) carbon from the atmosphere, storing it in biomass (wood and plant tissue). This carbon is found in both living and dead biomass in the forest, and a large portion of stored carbon can be found below ground in forest soils. Forests are a major global carbon "sink," sequestering and storing huge amounts of carbon. Large, old trees with large, deep root systems store more carbon than smaller, younger trees, but sequester carbon more slowly. Young, densely stocked, fast-growing trees sequester carbon at a faster rate than large, old trees, but store less carbon because they have less collective biomass. Some believe that healthy natural forests best balance carbon storage and carbon sequestration, by having the full component of available species and a mix of tree sizes, forms and ages. This diversity of tree species, form and size is referred to as "forest structure" and the general thinking is that forests with more complex forest structure are more resilient to climate change and more likely to remain healthy in a changing future. Elements of forest structure can also include standing dead trees, coarse woody material on the forest floor, variation in overstory stocking levels, native shrub layers and herbaceous plants, mosses and lichens.

Forests can be managed intensively to maximize carbon sequestration by regular cutting and the creation of a vigorous, young forest. This management approach encourages rapid growth, and thus rapid absorption of carbon, but other benefits of the forest are sacrificed by having a simplified forest structure and repeated forest management entries on short intervals.

Forests can alternatively be managed passively to maximize carbon storage by minimizing harvest and allowing the forest to reach full stocking and to ultimately be populated by mostly large, old trees. This type of passive management will generally result in larger carbon stores, but limited carbon sequestration and reduced wildlife habitat benefits that are associated with active forest management.

The management at the Chelsea Town Forest will be a combination of the two approaches seeking balance while favoring development of larger trees and generally higher stocking. In the bulk of the forest, we propose to manage for both carbon storage and carbon sequestration by growing the forest at higher stocking and to larger individual tree diameters than the regional norm, while retaining some proportion of large trees as "legacy" trees to enhance structural complexity and to act as recruits for snags and coarse woody material. We propose a management approach that is less intensive than the norm, but not passive. We recommend active forest management that is both careful and conservative.

<u>Carbon sequestration and storage priorities:</u>

- Except in the case of removal on non-native trees from plantations, avoid creating large-scale disturbances, such as openings larger than 5 acres. Most openings created in the forest through harvesting will be less than 1 acre in size.
- Minimize soil disturbance during silvicultural activities.
- Retain dead biomass in the form of dead-standing and fallen trees and as much coarse and fine woody debris as possible during forest management.
- Employ multi-aged and low-impact silvicultural techniques as much as possible to encourage a healthy, diverse, resilient forest. In practice, this means use of smaller equipment, smaller trails, smaller landings, and the use of forwarders in preference to cable skidders and cable skidders in preference to grapple skidders.
- Encourage the development of large trees throughout the forest. Allow for some significant number of these large trees to naturally live out their life cycle in the forest as biological legacies.
- Manage for high quality, valuable trees that can be turned into durable wood products when removed from the forest. That is, minimize the removal of low-quality, low-value forest products with short carbon residence times, and focus management instead on early forest stand improvement practices that result in a higher proportion of high-quality, valuable trees, that produce forest products with longer carbon residence times.
- In stands to be managed for timber, extend cutting cylces (harvest re-entries) to an average of 20 years. This will result in higher stocking in the forest and greater carbon

storage per acre.

**TIMBER RESOURCE**

The current timber resource on this forest is significant. Eighty plus years of stewardship and improvement work, combined with rich soils, have resulted in considerable volumes of high-quality northern hardwood sawtimber, most notably, sugar maple. The objective of management activities recommended in this plan will be to capture value in this resource, while recognizing that the town owns this forest for more than just the revenue it can produce. It is expected that through conservative, long-term forest management designed to improve species composition and to reduce the proportion of trees with low vigor and low value, that the economic value of the forest will continue to increase over time. Having ongoing periodic revenue from future timber harvest is important because this forest is expected to be a self-sustaining entity that is not reliant on direct funding from the town for normal management or improvement expenses.

**ASH MANAGEMENT**

The Chelsea Town Forest is approximately 10 miles from a known Emerald Ash Borer (EAB) infestation in Brookfield. It is only a matter of time before EAB is found in this forest, and it may already be present, just not identified. When present, EAB is expected to kill most if not all of the ash present in the forest within 5-10 years. In some parts of the Chelsea Town Forest white ash makes up nearly 10-15% of the species composition, so the loss of this species will have a significant impact on the composition of the forest. The management of ash going forward will adhere to the following management goals:

- Maintain ash as a component throughout the forest for as long as possible.
- The most valuable ash trees will be harvested, but much of the immature or low-value ash present in the forest will remain.
- Promote a diverse mix of native species, so that what will naturally replace ash will be present and able to do so.
- Follow State of Vermont recommendations to slow the spread of EAB in the region.

**SPECIES AND AGE DIVERSITY**

Forests can be quite complex. Some forms of forest management (even-age management) intentionally seek to simplify forest structure, while other management approaches seek to enhance complexity (uneven-age management or multi-age management). All forest management recommended at the Chelsea Town Forest will utilize a multi-age management approach that embraces the enhancement of forest complexity in all components of the forest. The proportion of species will be managed, and those species proportions will vary from place to place, but all native species are part of this forest and all have an ongoing role in maintaining the ecological integrity of this forest, even though we do not, and never will, fully understand all of the hidden interactions between species.

In order to maintain a continuous developmental progression of all native species, with species proportions that fall within a natural range of variability, it will be necessary to maintain

individuals or groups of trees of various ages. A forest composed of the full suite of native species with multiple age classes represented, will result in a forest that is more structurally complex and more resilient to changing conditions associated with invasive insects, disease and plants and to climate change.

**LEGACY TREES, CAVITY TREES, SNAGS AND COARSE WOODY MATERIAL**

Legacy trees will be retained as part of all recommended forest management activities. These are trees that will be left to complete their life cycle naturally. While some will be retained simply because they are healthy specimens of their species, most will be large, old trees and many will be defective. In the ecological sense, being defective is not a negative characteristic. Seams, cracks, large broken branches and cavities provide multiple habitat niches for wildlife. If large trees are healthy, they spread copious amounts of seed. As they become less and less healthy with age, they will exhibit more and more breakage, rot and cavities. All of these conditions are common in well-developed, natural forests and are necessary to provide the full range of natural habitats in a functioning forest ecosystem. As all living things will, the legacy trees we leave behind will ultimately die. They will provide habitat value as large standing dead trees (snags), and different habitat value when they find their way to the forest floor as coarse, woody material. All stages of life of large, legacy trees have value and provide critical and varied habitat for multiple organisms, large and small, that live in the Chelsea Town Forest.

**INVASIVE PLANT MANAGEMENT**

Invasive plants are present in this forest and in the surrounding landscape. Populations of new plants (and also insects and diseases) are often slow to establish, then enter a rapid (exponential) growth phase. Eradication of invasive plants is really not a practical option. What we strive for instead is that as these species naturalize, they are not permitted to take up so much of the available growing space that they preclude the presence of the native plant communities. We recommend treatment of invasive plants early in their establishment, in order to suppress their populations to levels low enough that native tree species are able to successfully regenerate and native plants are able to persist in the new natural mix in what are meaningful proportions.

Forest management activities or natural disturbances such as insect defoliation, wind, snow or ice damage result in canopy openings and allow more light to reach the forest floor. This provides an opportunity for the establishment and growth of invasive plants. Following all forestry activities, insect defoliations or storm events, impacted areas should be monitored for new infestations of invasive plants and any plants detected should be promptly treated.

**WATER QUALITY**

There are many water resources on the Chelsea Town Forest. Most are small seeps, intermittent or perennial streams. All streams on the Laird Farm flow to Jenkins Brook and then into the First Branch of the White River and eventually into the Connecticut River. The small stream on the George Tutherly parcel flows into Bicknell Brook and then into the First Branch of the White River. All the water resources on the Chelsea Town Forest will be protected during forest management activities. This will be accomplished primarily by

employing respectful (100-foot) buffers with clearly defined boundaries on all significant water resources. All forest management activities will fully adhere to the Vermont Acceptable Management Practices (AMPs), as detailed in the booklet **Vermont Water Quality, Acceptable Management Practices, Manual for Logging Professionals (2019).** Stream crossings will be avoided where possible and all roads and trails used during logging operations will be properly closed out to the standard of the AMP manual.

**SAMPLING INFORMATION**

During April and May of 2022, stand information was gathered at 84 variable radius sample plots, randomly located throughout the forest. This resulted in a sampling intensity of one point every four acres. At each sample plot, trees to be measured were determined using a 10-BAF glass prism. Measured trees were tallied by species, crown position, and stem quality. Diameter at breast height (dbh) was measured for each tree and notes on tree health, coarse woody material, invasive plants and regeneration were made at each plot. The data was then processed in FOREX, an FPR developed forest inventory software. This information was used to determine the proportions of species composition, mean stand diameters, and total and acceptable growing stock basal areas by stand. Basal area is a measure related to crown closure and thus the degree of crowding. "Acceptable" growing stock is defined as that portion of total stocking that has the potential to develop commercially valuable product. Economic value is certainly not the only value in a forest, but it does dictate our management options, so it is important to have some sense of what it may be. Four forest stands were identified on the Laird Farm parcel and two stands on the George Tutherley lot, with stocking levels and recommended treatments determined by referencing U.S. Forest Service silvicultural guides for mixedwood (25-65% softwood) and northern hardwood forest types.

**STAND 1 (Laird Farm)**

**Forest Type**: Northern Hardwood

**Area**: 109 Acres

**Stand Description:** This stand is located on the northeast facing slopes on the upland portions of the Laird Farm parcel, south of Jenkins Brook Road. It has the potential to grow a high-quality northern hardwood forest. Regeneration is not well-established due to a closed canopy.

**Natural Community**: Northern Hardwood, Rich Northern Hardwood.

**Species Composition**: Sugar Maple (58%); White Ash (15%); Yellow Birch (9%); Paper Birch (5%); with lesser amounts of American Beech, Aspen spp., Red Spruce, White Pine, Ironwood, Basswood and Black Cherry.

**Terrain**: Gently to moderately sloping with northeast aspect.

**Sampling Information**: 24 sample plots, 10 BAF prism, April 2022.

**Total Basal Area**: 118 sq.ft./acre

**Acceptable Growing Stock Basal Area**: 82 sq.ft./acre

**Trees/Acre**: 190

**Quadratic Mean Stand Diameter**: 10.7 inches

**Stocking Level**: Just below A-level. USDA Research Paper NE-603.

**Site Class**: I,II

**Soil Series**: Pomfret very stony loamy fine sand, 8-25% slope. These soils tend to be deep, generally with greater than 40 inches to bedrock, and are often found on convex side slopes. They have moderate available water holding capacity, medium fertility and can sometimes be excessively well drained. These are productive soils for northern hardwood forest.

**Stand Structure**: Two-aged, or possibly three-aged. The overstory is dominated by trees 10-18 inches in diameter with many smaller trees and an average of 9 trees per acre 20-inches or greater in diameter. Ash makes up 15% of stocking in this stand and the forest is within 10 miles of a confirmed Emerald Ash Borer infestation, so with or without treatment, the stand structure is about to change.

The classification of “unacceptable” or “acceptable” are forestry terms that refer solely to potential timber quality. Much “unacceptable” growing stock has great ecological value. Acceptable growing stock was tallied in trees from 6-24 inches dbh. Regeneration is variable, with a mix of northern hardwood seedlings and saplings, including sugar maple, common at most plots. Rich site indicators were noted at some sample plots. Invasive plants were not noted in this stand. Overall, coarse woody material (CWM) abundance is considered moderate in this stand and managing for additional CWM would be desirable. It would be desirable to manage for additional snags and cavity trees, as these trees have wildlife value while they stand and will be recruited as CWM when they fall. There is potential in this stand to retain 2-5 large trees/acre as legacy trees for structural diversity, and recruitment as future snags and CWM.

**Stand History**: This area was once open agricultural land, that was abandoned approximately a century ago. Saddled prominent, a leaf-feeding caterpillar defoliated the higher elevations in the southern part of this stand in the 1980s. Scattered stumps provide an indication that forest management has occurred in the past, but no significant activity has taken place in the last 35 years.

**Access**: Terrain allows access to this stand for forest management but there is essentially no developed access at this time. Trails will need to be developed and one or two landings along Jenkins Brook Road will be needed, since road frontage on Brocklebank Road has been lost. The boundary of this stand should be fully understood, confirmed on the ground and marked to confirm that traditional access to Brocklebank Road is no longer available.

**Stand Health**: This stand is quite healthy, although aspen, paper birch, spruce and fir are in natural decline. Hardwood species are healthy and vigorous. Of course, EAB is nearby and the situation will soon change dramatically for ash. Invasive plants constitute the largest long-term threat to ecological integrity on the forest. Luckily, none were noted in this stand during our inventory.

**Wildlife Habitat**: This stand is remote, located just above the major stream that runs through the parcel and has a high degree of structural complexity due to varied species composition and a wide range of diameter classes. These factors all contribute to quality wildlife habitat.

**Long-term Objective**: The long-term objective is to maintain or enhance structural complexity, improve species composition, and promote the best quality, most healthy individuals of all species represented, using a multi-age silvicultural system with a 20-year cutting cycle. Current stocking is high and natural mortality is occurring in shade-intolerant species and softwoods. Ash mortality is expected to follow, as EAB sweeps through the forest.

**Treatment Recommendation**:
2023-2024 Confirm and mark the western boundary of this stand in the vicinity of Brocklebank Road. Plan forest management access into the stand based on the location of the boundary.

Winter 2024-25: Individual tree and group selection to favor Northern Hardwoods with good long-term potential. Mature aspen, paper birch, spruce, fir, white ash, unhealthy beech and trees of other species that are unhealthy, at risk, or have exceeded diameter objectives will be harvested. This forest management activity will generate a significant amount of hardwood sawtimber, a smaller amount of softwood sawtimber, hardwood pulp, and firewood.

Individual tree selection will seek to improve species composition and quality through harvest of mature, at-risk trees and unacceptable growing stock while favoring and releasing sugar maple and yellow birch of quality. Residual basal area between groups will vary between 40-100 sq.ft./acre, but is expected to average 80 sq.ft./ac . Residual basal area within groups is expected to be 10-20 sq.ft./ac.. Use a 14-inch diameter objective for healthy Paper Birch, Aspen spp., Red Spruce, and Balsam Fir, 16-inch diameter objective for White Ash and Yellow Birch, and 20-inch diameter objective for Sugar Maple. Legacy trees of all species will be left to enhance stand structure.

Three or four groups will be created, with group size varying from ¼ acre to as large as 2-3 acres. Groups will be placed in areas of mature, declining or at-risk trees and will be designed to establish or release northern hardwood regeneration.

**STAND 2 (Laird Farm)**

**Forest Type**: Mixedwood (25-65% softwood)

**Area**: 98 Acres

**Stand Description:** This stand is located in the valley bottom that is formed by Jenkins Brook and is bisected by Jenkins Brook Road. This stand has variable soil conditions from moderately well-drained to areas of saturated soils near the brook. Terrain is generally gentle, and operability varies with wetness. There are several small streams here that feed Jenkins Brook that must be avoided in any forest management activity. The forest itself is highly variable with respect to species composition, quality, tree size, accessibility and productivity. Regeneration is moderately well-established in the same mix of species as the overstory.

**Natural Community**: Red Spruce-Northern Hardwood Forest.

**Species Composition**: Sugar Maple (30%); Eastern Hemlock (11%); Yellow Birch (10%); Balsam Fir (9%); White Ash and White Pine (8% each); Red Spruce (7%); Paper Birch (6%); with lesser amounts of Northern White Cedar, Aspen spp., Red Maple, American Beech, Red Pine, Striped Maple, Basswood and Eastern Larch.

**Terrain**: Gently to moderately sloping with northeast and southwest aspect.

**Sampling Information**: 25 sample plots, 10 BAF prism, April 2022.

**Total Basal Area**: 116 sq.ft./acre

**Acceptable Growing Stock Basal Area**: 68 sq.ft./acre

**Trees/Acre**: 250

**Quadratic Mean Stand Diameter**: 9.2 inches

**Stocking Level**: Just above B-level. USDA Research Paper NE-603.

**Site Class**: II,III

**Soil Series**: Buckland very stony loam, 8-25% slope. These soils are underlain by a restrictive layer (fragipan) at 18-30 inches. The fragipan perches water so these soils can be quite wet at times. During periods of drought they can be quite dry too, as the fragipan restricts root access to water deeper in the ground. Where the fragipan is deeper, hardwoods dominate. Where it is shallow, softwoods dominate. This soil is described as having moderate available water capacity and have high natural fertility, often with an abundance of calcium. These soils can be productive for tree growth, but site productivity and operability varies greatly.

**Stand Structure**: Mostly two-aged. This expresses in two ways: large, old trees over and among trees of medium size; or as medium sized trees over and among regeneration. The overstory is dominated by trees 6-14 inches in diameter with many smaller trees and an average of 16 trees per acre 16-inches or greater in diameter. Ash makes up 8% of stocking in this stand and the forest is within 10 miles of a confirmed Emerald Ash Borer infestation, so with or without treatment, the stand structure is about to change.

The classification of “unacceptable” or “acceptable” are forestry terms that refer solely to potential timber quality. Much “unacceptable” growing stock has great ecological value. Acceptable growing stock was tallied in trees from 4-26 inches dbh. Regeneration is variable, with a mix of hardwood and softwood seedlings and saplings, including sugar maple, common at most plots. Overall, coarse woody material (CWM) abundance is considered moderate in this stand and managing for additional CWM would be desirable. It would be desirable to manage for additional snags and cavity trees, as these trees have wildlife value while they stand and will be recruited as CWM when they fall. There is potential in this stand to retain 2-5 large trees/acre as legacy trees for structural diversity, and recruitment as future snags and CWM.

**Stand History**: This area was once open agricultural land, that was abandoned approximately a century ago. There is an old stone foundation near the central landing, a stone culvert near the northwest landing, an old cemetery at the entrance to the parcel north of Jenkins Brook Road and stonewalls here and there in the stand. This stand is the likely location of Balsam Fir and White Ash plantations (1940-45), and saw forest management activity in the mid-1990s, and then lighter cutting around the landings in 2011. No work has been done since then.

**Access**: Terrain and long road frontage allows access to this stand for forest management from multiple points, but wet soils limit access in places. Other than the main skid trails leading out of the two established landings, and one side trail off the eastern trail paralleling the brook, there is not a well developed trail system. Trails will need to be developed and one or two landings along Jenkins Brook Road will be needed, primarily for access to stand 1, but also for future access to this stand.

**Stand Health**: This stand is quite healthy, although aspen, paper birch, spruce and fir are in natural decline. Since these species make up almost 25% of total stocking there is quite a bit of natural mortality and in places, coarse woody material. Hardwood species are healthy, but often lack good stem quality due to the lower quality growing site (compared to stand 1). Of course, EAB is nearby and the situation will soon change dramatically for ash. Invasive plants constitute the largest long-term threat to ecological integrity on the forest. Luckily, none were noted in this stand during our inventory.

**Wildlife Habitat**: This stand is remote, located just above the major stream that runs through the parcel and has a high degree of structural complexity due to varied species composition and a wide range of diameter classes. These factors all contribute to quality wildlife habitat. This area has long road frontage, but also has a significant softwood component that limits visibility into the stand and therefor increases security for animals moving through or coming to the stream for water.

**Long-term Objective**: The long-term objective is to maintain or enhance structural complexity, improve species composition, and promote the best quality, most healthy individuals of all species represented, using a multi-age silvicultural system with a 20-year cutting cycle. Current stocking is not high and natural mortality is occurring in shade-intolerant species and softwoods. Ash mortality is expected to follow, as EAB sweeps through the forest.

**Treatment Recommendation**:
Winter 2024-25: Individual tree and small group selection to favor Northern Hardwoods with good long-term potential. Mature aspen, paper birch, spruce, fir, white ash, unhealthy beech and trees of other species that have exceeded diameter objectives will be harvested. This forest management activity will be concentrated along the trails passing through the stand from the landings and along the edges with stands 1,3 and 4. This stand is not a candidate for intensive forest management but can be improved at the edges while working in neighboring stands.

Individual tree selection will seek to improve species composition and quality through harvest of mature, at-risk trees and unacceptable growing stock while releasing sugar maple, yellow birch, white pine and red spruce of quality. Any groups will be small. Perhaps one or two that do not exceed a half-acre each. Residual basal area between groups will not be significantly reduced and will remain above 100 sq.ft./acre in most areas. Use a 14-inch diameter objective for healthy Paper Birch, Aspen spp., Red Spruce, and Balsam Fir, 16-inch diameter

objective for White Ash and Yellow Birch. Sugar Maple will be retained whenever possible. Legacy trees of all species will be left to enhance stand structure.

One or two groups may be created, with group size varying from 1/4 acre to 1/2 acres. Groups will be placed in areas of mature, declining or at-risk trees and will be designed to establish or release mixed hardwood and softwood regeneration.

**STAND 3 (Laird Farm)**

**Forest Type**: Northern Hardwood

**Area**: 81 Acres

**Stand Description:** This stand is located on the southwest facing slopes on the upland portions of the Laird Farm parcel, north of Jenkins Brook Road. It has the potential to grow a high-quality northern hardwood forest but is not as good a growing site as stand 1. Regeneration is moderately well-established and consists of seedlings and saplings of a mix of hardwood and softwood species. Sugar maple is present in the understory, but there is more beech, striped maple and softwood in the regeneration mix here than what is present in stand 1.

**Natural Community**: Northern Hardwood Forest

**Species Composition**: Sugar Maple (45%); Paper Birch (14%); White Ash (10%); Red Maple and American Beech (5% each); with lesser amounts of Balsam Fir, Aspen spp., Yellow Birch, Black Cherry, Striped Maple, Eastern Larch, Black Ash, Red Spruce, White Pine, Ironwood, Hemlock, White Spruce and Serviceberry.

**Terrain**: Gently to moderately sloping with southwest aspect.

**Sampling Information**: 19 sample plots, 10 BAF prism, April and May 2022.

**Total Basal Area**: 106 sq.ft./acre

**Acceptable Growing Stock Basal Area**: 63 sq.ft./acre

**Trees/Acre**: 228

**Quadratic Mean Stand Diameter**: 9.2 inches

**Stocking Level**: Just below A-level. USDA Research Paper NE-603.

**Site Class**: II

**Soil Series**: Pomfret very stony loamy fine sand, 8-25% slope. These soils tend to be deep, generally with greater than 40 inches to bedrock, and are often found on convex side slopes. They have moderate available water holding capacity, medium fertility and can sometimes be excessively well drained. These are productive soils for northern hardwood forest.

**Stand Structure**: Two-aged, or possibly three-aged. Diameters tallied range from 2 inches to 30 inches (with one outlier of 50-inches) along the western boundary. Most overstory trees are between 10-16 inches in diameter with many smaller trees and an average of 12 trees per acre 18-inches or greater in diameter. White Ash makes up 10% of stocking in this stand and the forest is within 10 miles of a confirmed Emerald Ash Borer infestation, so with or without treatment, the stand structure is about to change.

The classification of "unacceptable" or "acceptable" are forestry terms that refer solely to potential timber quality. Much "unacceptable" growing stock has great ecological value. Acceptable growing stock was tallied in trees from 6-24 inches dbh. Regeneration is variable, with a mix of northern hardwood seedlings and saplings, including sugar maple, common at most plots. Rich site indicators were noted at some sample plots. Invasive plants were not noted in this stand. Overall, coarse woody material (CWM) abundance is considered moderate in this stand and managing for additional CWM would be desirable. It would be desirable to manage for additional snags and cavity trees, as these trees have wildlife value while they stand and will be recruited as CWM when they fall. There is potential in this stand to retain 2-5 large trees/acre as legacy trees for structural diversity, and recruitment as future snags and CWM.

**Stand History**: This area was once open agricultural land, that was abandoned approximately a century ago. Scattered stumps provide an indication that logging has occurred in the past, most recently in 2011 when an individual tree selection was conducted in part of the stand.

**Access**: Terrain allows access to this stand for forest management. Recent work has been focused in stand 4 which is adjacent to this stand and access is well developed to each of the blocks of stand 4, and can readily be extended into much of the western portion of this stand. There is a substantial stonewall on the boundary of stands 3, 4 that will need to be protected as access is expanded. The southern and western sections of the eastern portion of stand 3 are also readily accessible from existing trails with minor improvement work, but the northeast corner of the stand has wetter soils and has never been thoroughly treated. Careful trail layout will be required to access this area.

**Stand Health**: This stand is healthy, although aspen, paper birch, spruce and fir are in natural decline. Hardwood species are healthy and vigorous, but often with rough stem quality. Of course, EAB is nearby and the situation will soon change dramatically for ash. Invasive plants constitute the largest long-term threat to ecological integrity on the forest. Luckily, none were noted in this stand during our inventory.

**Wildlife Habitat**: This stand is quite remote, located just above the major stream that runs through the parcel and has a moderately high degree of structural complexity due to varied species composition and a range of diameter classes. These factors all contribute to quality wildlife habitat. Moose browse is evident in places.

**Long-term Objective**: The long-term objective in stand 3 is to maintain or enhance structural complexity, improve species composition, and promote the best quality, most healthy individuals of all species represented, using a multi-age silvicultural system with a 20-year cutting cycle. Current stocking is high and natural mortality is occurring in shade-intolerant species and softwoods. Ash mortality is expected to follow, as EAB sweeps through the forest.

**Treatment Recommendation**:
Winter 2024-25: Individual tree selection to favor Northern Hardwoods with good long-term potential. Mature aspen, paper birch, spruce, fir, white ash, unhealthy beech and trees of other species that have exceeded diameter objectives will be harvested. This forest management activity will generate a significant amount of hardwood sawtimber, a smaller amount of softwood sawtimber, hardwood pulp, and firewood.

Individual tree selection will seek to improve species composition and quality through harvest of mature, at-risk trees and unacceptable growing stock while releasing sugar maple and yellow birch of quality. Residual basal area will vary between 60-80 sq.ft./acre, and is expected to average 70 sq.ft./acre. Use a 14-inch diameter objective for healthy Paper Birch, Aspen spp., Red Spruce, and Balsam Fir, 16-inch diameter objective for White Ash and Yellow Birch, and 20-inch diameter objective for Sugar Maple. Legacy trees of all species will be left to enhance stand structure.

**STAND 4 (Laird Farm)**

**Forest Type**: Softwood Plantation

**Area**: 24 Acres

**Stand Description:** This stand is found in three main areas. Two, that are located in the valley bottom that is formed by Jenkins Brook and will eventually become part of stand 2, and a larger portion in the northcentral portion of the forest that will ultimately become a part of stand 3. This stand has variable soil conditions but is generally moderately well-drained. Terrain is moderate to gentle, and operability is not limited. All of this stand was planted to various softwood species in the 1940s. Some small areas have been left largely untended, some areas have been thinned and some were clearcut in 2011.

**Natural Community**: Red Spruce-Northern Hardwood Forest, Northern Hardwood Forest.

**Species Composition**: Norway Spruce (91%); White Pine (7%); White Ash (2%).

**Terrain**: Gently to moderately sloping with southwest aspect.

**Sampling Information**: 6 sample plots, 10 BAF prism, April 2022.

**Total Basal Area**: 113 sq.ft./acre

**Acceptable Growing Stock Basal Area**: 112 sq.ft./acre

**Trees/Acre**: 97

**Quadratic Mean Stand Diameter**: 14.6 inches

**Stocking Level**: Just above the Managed B-level. USDA Research Paper NE-41 and NA-TP-01-99.

**Site Class**: II

**Soil Series**: Buckland very stony loam, 8-25% slope. These soils are underlain by a restrictive layer (fragipan) at 18-30 inches. The fragipan perches water so these soils can be quite wet at times. During periods of drought they can be quite dry too, as the fragipan restricts root access to water deeper in the ground. Where the fragipan is deeper, hardwoods dominate. Where it is shallow, softwoods dominate. This soil is described as having moderate available water capacity and have high natural fertility, often with an abundance of calcium. These soils can be productive for tree growth, but site productivity and operability varies greatly. Both of the portions of this stand that are on this soil are productive and operable. The forest in this area is likely to regenerate to a mix of hardwoods and softwoods.

Pomfret very stony loamy fine sand, 8-25% slope is found in the large section along the northern boundary. These soils tend to be deep, generally with greater than 40 inches to bedrock, and are often found on convex side slopes. They have moderate available water holding capacity, medium fertility and can sometimes be excessively well drained. These are productive soils for northern hardwood forest.

**Stand Structure**: Mostly even-aged, with two age classes in the areas that have not been clearcut. Thinned areas have well-spaced overstory trees with dense, mixed regeneration below. Unthinned areas have variable, but generally well-established regeneration and clearcut areas have poorly established regeneration that has been nearly destroyed by extremely heavy moose browse. Most overstory trees are considered acceptable growing stock, but many are quite rough. Norway Spruce is not native and it is holding back the development and growth of native regeneration.

The classification of “unacceptable” or “acceptable” are forestry terms that refer solely to potential timber quality. Much “unacceptable” growing stock has great ecological value. Acceptable growing stock was tallied in trees from 4-26 inches dbh. Regeneration is variable,

with a mix of hardwood and softwood seedlings and saplings, including sugar maple, common at most plots. Overall, coarse woody material (CWM) abundance is considered moderate in this stand and managing for additional CWM would be desirable. It would be desirable to manage for additional snags and cavity trees, as these trees have wildlife value while they stand and will be recruited as CWM when they fall. There is potential in this stand to retain 2-5 large trees/acre as legacy trees for structural diversity, and recruitment as future snags and CWM.

**Stand History**: This area was once open agricultural land, that was abandoned 80-100 years ago and planted to Norway Spruce, Red Pine and White Pine in the 1940s. The plantations were thinned 1994-1997. In 2011, the Red Pine was in severe decline and was clearcut, while the Norway Spruce and White Pine were thinned in most areas. No work has taken place since then.

**Access**: Terrain is gentle and well-established trails are in place from the 1994-1997 thinnings and 2011 harvests. A landing is centrally located at the southern edge of the large block of stand 4. A significant temporary stream crossing will need to be installed to access this internal landing.

**Stand Health**: This stand is healthy, but has reached the peak of value growth. Many of the trees are rough, while others are crowded with small crowns. Dense regeneration is established below Norway Spruce in most areas. Non-native invasive plants are well established in this stand. Barberry, Honeysuckle and Autumn Olive were all noted.

**Wildlife Habitat**: Other than the small patch of stand 4 south of Jenkins Brook Road, the stand is remote. Dense regeneration in most areas provides hiding and travel cover for wildlife. Browse damage on young hardwoods is heavy to extremely heavy.

**Long-term Objective**: The long-term objective is to maintain or enhance structural complexity, improve species composition, and promote the best quality, most healthy individuals of all native species represented, using a multi-age silvicultural system with a 20-year cutting cycle. Current stocking varies from 0 sq.ft./ac. in clearcut areas to 40-110 sq.ft./ac. in thinned areas to 170-230 sq.ft./ac. in unthinned areas. Regeneration is well-established in most areas, but has been severely browsed in the clearcuts.

**Treatment Recommendation**:
Winter 2024-25: Overstory removal of all remaining Norway Spruce and any residual Red Pines. White Pine of quality should be reserved from harvest at this time. Care should be taken to minimize damage to established regeneration. In 2011, when the bulk of the Red Pine was clearcut, there was little established regeneration in the understory. After the Red Pine was harvested, and as regeneration established, it was quickly obliterated by moose browse. In the areas of Norway Spruce that are recommended for overstory removal in this prescription, there is generally well-established regeneration in place that will be released in the harvest and should be able to withstand the browse pressure.

Summer 2025:  Follow forest management activity with invasive plant treatment.

**STAND 5 (George Tutherly parcel)**

**Forest Type**: Northern Hardwood

**Area**: 7.1 Acres

**Stand Description:**  This stand is located on the west and southwest facing slopes above and east of County Road.  It has the potential to grow a high-quality northern hardwood forest.

**Natural Community**: Northern Hardwood Forest

**Species Composition**: Sugar Maple (74%); Paper Birch (7%); White Ash (5%); American Beech (5%); with lesser amounts of Basswood, Aspen spp., Yellow Birch, Red Maple, and Ironwood.

**Terrain**: Gently to moderately sloping with west and southwest aspect.

**Sampling Information**: 4 sample plots, 10 BAF prism, April and May 2022.

**Total Basal Area**:  143 sq.ft./acre

**Acceptable Growing Stock Basal Area**: 75 sq.ft./acre

**Trees/Acre**: 200

**Quadratic Mean Stand Diameter**: 11.5 inches

**Stocking Level**: Above A-level.  USDA Research Paper NE-603.

**Site Class**: I,II

**Soil Series**: Pomfret very stony loamy fine sand, 8-25% slope.  These soils tend to be deep, generally with greater than 40 inches to bedrock, and are often found on convex side slopes. They have moderate available water holding capacity, medium fertility and can sometimes be excessively well drained.  These are productive soils for northern hardwood forest.

**Stand Structure**: Two-aged, or possibly three-aged.  Diameters tallied range from 4 inches to 26 inches.  Most overstory trees are between 14-16 inches in diameter with many smaller trees and an average of 13 trees per acre 18-inches or greater in diameter.  White Ash makes up 5% of stocking in this stand and the forest is within 10 miles of a confirmed Emerald Ash Borer infestation, so with or without treatment, the stand structure is about to change.

The classification of “unacceptable” or “acceptable” are forestry terms that refer solely to potential timber quality. Much “unacceptable” growing stock has great ecological value. Acceptable growing stock was tallied in trees from 6-24 inches dbh. Regeneration is variable, with a mix of northern hardwood seedlings and saplings, including sugar maple, common at most plots. Rich site indicators were noted at some sample plots. Invasive plants were not noted in this stand. Overall, coarse woody material (CWM) abundance is considered moderate in this stand and managing for additional CWM would be desirable. It would be desirable to manage for additional snags and cavity trees, as these trees have wildlife value while they stand and will be recruited as CWM when they fall. There is potential in this stand to retain 2-5 large trees/acre as legacy trees for structural diversity, and recruitment as future snags and CWM.

**Stand History**: This area was once open agricultural land, that was abandoned approximately a century ago. Aspen was removed from this stand in 1953. It was thinned in 2012 where 8.798 mbf of mostly ash, aspen and paper birch was harvested along with 12 cords of firewood and 29.69 tons of hardwood pulp.

**Access**: This stand is moderately steep in some areas, but is accessible from the main skid trail in at least two locations as it passes through the adjoining stand. The landing is presently blocked by debris brought in from elsewhere. In order for any forest management activities to occur here in the future, the landing and truck road will need to be cleared of debris.

**Stand Health**: This stand is healthy, although aspen and paper birch are in natural decline. Hardwood species are healthy and vigorous, but many have rough stem quality. EAB has been confirmed in Brookfield and remaining ash will soon be infested. The 2012 harvest removed most of the large, valuable ash and what is left is either small diameter or of low-quality. Invasive plants constitute the largest long-term threat to ecological integrity on the forest. Luckily, none were noted in this stand during our inventory.

**Wildlife Habitat**: This stand is quite remote, located just above the major stream that runs through the parcel and has a moderately high degree of structural complexity due to varied species composition and a range of diameter classes. These factors all contribute to quality wildlife habitat. Moose browse is evident in places.

**Long-term Objective**: The long-term objective is to maintain or enhance structural complexity, improve species composition, and promote the best quality, most healthy individuals of all species represented, using a multi-age silvicultural system with a 20-year cutting cycle. Current stocking is high and natural mortality is occurring in shade-intolerant species and Ash mortality is expected to follow, as EAB sweeps through the forest.

**Treatment Recommendation**:
No treatment is recommended at this time. Stocking is high, but natural mortality of Paper Birch, Aspen and Ash will reduce stocking to just below the A-level. This stand is small, and

while a light thinning would be desirable now, it is unlikely to be commercially viable. Re-evaluate in 10 years.

**STAND 6 (George Tutherly parcel)**

**Forest Type**: Regeneration

**Area**: 15.53 Acres

**Stand Description:** This stand was a Scotts Pine plantation that was partially clearcut in 2004-2005, with the clearcut completed in 2012. The total harvest was 148.295 mbf of Scotts Pine sawlogs. Pulpwood was not tallied.

**Natural Community**: Northern Hardwood Forest.

**Species Composition**: Mixed hardwood and softwood.

**Terrain**: Gently to moderately sloping with west and southwest aspect.

**Sampling Information**: 6 sample plots, 10 BAF prism, April and May 2022.

**Total Basal Area**: 43 sq.ft./acre

**Acceptable Growing Stock Basal Area**: 2 sq.ft./acre

**Trees/Acre**: 362

**Quadratic Mean Stand Diameter**: 4.7 inches

**Stocking Level**: Understocked. USDA Research Paper NE-41 and NA-TP-01-99.

**Site Class**: I,II

**Soil Series**: Pomfret very stony loamy fine sand, 8-25% slope is found in the large section along the northern boundary. These soils tend to be deep, generally with greater than 40 inches to bedrock, and are often found on convex side slopes. They have moderate available water holding capacity, medium fertility and can sometimes be excessively well drained. These are productive soils for northern hardwood forest.

**Stand Structure**: Even-aged, mixedwood regeneration, overtopped by scattered hardwood legacy trees. Regeneration is well-established in most areas as a mix of ash, paper birch, beech, ironwood, Scotts pine, white pine and striped maple, most with exceptionally poor stem

quality. This regeneration mix is the unhappy confluence of low-stocking, poor species composition and poor quality and it is unclear if it will develop into a viable stand in the future. As with the Red Pine clearcut on the Laird Farm parcel, this Scotts Pine clearcut appears to be a regeneration failure.

**Stand History**: This area was once open agricultural land, that was abandoned 80-100 years ago and planted to Scotts Pine in the 1940s. The plantation actually developed well, considering that Scotts Pine is particularly susceptible to damage by the white pine weevil. The Scotts Pine was clearcut in two entries, 2004-2005 and 2012. Regeneration is mixed and largely undesirable.

**Access**: The stand is easily accessed by a main skid trail and associated side trails. The landing and truck access are blocked by woody debris that has been brought in from elsewhere.

**Stand Health**: This stand is healthy and growing well.

**Wildlife Habitat**: This stand should be excellent habitat for Chestnut Sided Warblers. A porcupine was seen in beech trees along the edge of this stand during the inventory.

**Long-term Objective**: The long-term objective is to maintain or enhance structural complexity, improve species composition, and promote the best quality, most healthy individuals of all native species represented, using a multi-age silvicultural system with a 20-year cutting cycle.

**Treatment Recommendation**:
No treatment is recommended at this time. Allow the stand to develop for another 20-30 years, then re-evaluate. By then, it may be possible to have a firewood sale in this stand that is combined with an individual tree selection in stand 1. It is hoped that sugar maple regeneration will eventually establish under the cover of the current regeneration and that this sugar maple regeneration may eventually be released by firewood cutting to become the new stand.

**MANAGEMENT SUMMARY**

| | | |
|---|---|---|
| Stand 1 | 2023-2024 | Confirm and mark the western boundary of stand in the vicinity of Brocklebank Road. Plan forest management access into the stand based on the location of the boundary. |
| Stand 1 | Winter 2024/2025 | Individual tree and group selection. |
| Stand 2 | Winter 2024/2025 | Individual tree and small group selection. |

| | | |
|---|---|---|
| Stand 3 | Winter 2024-2025 | Individual tree selection. |
| Stand 4 | Winter 2024-2025<br>Summer 2025 | Overstory removal of Norway spruce.<br>Invasive plant treatment. |
| Stands 5,6 | | Allow to grow and develop. |
| All | Ongoing | Monitor for invasive plants and treat as they are found. |
| | 2035 | Update forest management plan. |