

Managing Your Woodland:

Owner Name: _____

Owner Mailing Address: _____

Owner Phone Number: _____

Owner Email: _____

Owner Signature: _____

Plan Author: _____

Plan Author Mailing Address: _____

Plan Author Phone Number: _____

Plan Author Email: _____

Plan Author Signature _____

Date of Original Plan Completion June 2019 **Revision date(s)** _____

Please note: Informal updates to the plan can be made with handwritten notes. Be sure to include a date and initial these notes throughout the management plan.



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Management Activity Schedule and Tracking..... 3

Property Description

Legal property description

ALL THAT TRACT OR PARCEL OF LAND situate in the Town of Caroline, County of Tompkins, and State of New York, bounded and described as follows:

Nearest city or town Ithaca, NY

Tax Parcel Number (optional) _____

FSA Farm and Tract Numbers (if applicable) _____

GPS coordinates (optional) _____

Total ownership acreage 33.8 acres Total forested acreage 33.8 acres

Total acreage covered by this plan 33.8 acres

Number of unique stands of trees 3

Do you reside on the property? Yes No

Basic topography (estimate percent of total acreage that is)

Complex topography (many steep ravines and aspects)

Simple topography (few ravines and changes of aspect)

Percent of land that is Flat (<5% grade) 10 Gentle Slope (6 to 20% grade) 65

Steep Slope (> 21% grade) 25

Road Conditions (check): Excellent (80% accessible) Good (at least 50%)

Fair (at least 25%) Poor (less than 10%)

Estimated improved road length (bulldozed with graveled surface) 0 miles

Estimated unimproved road length (bulldozed with but original soil/bedrock) 0 miles

Which watershed is the property located in (include appropriate watershed unit for your state):

Watershed Name: Great Lakes - Seneca USGS Cataloging Unit: 04140201

Property History

This property was purchased by on 10/5/2018. The property consists of a wooded parcel mostly surrounded by other wooded parcels with the exception of a small boundary with a hayfield at the northern most section of the western boundary. This parcel and several adjacent properties were previously owned by a single owner who has likely never fully cleared all of the lands. At some point, likely 30 years ago, this property was logged, and the access trail was never properly maintained, with resultant severe gully-like erosion along the ruts running almost directly down slope. At the time, a portion of the adjacent property (southernmost property along the western boundary) was used as a landing and the trail also passed along the corner of this property (outside the bounds of the ownership). The harvest was likely at least somewhat exploitative, but did allow for a somewhat uneven-aged character of the property. In addition, the western aspect of the steep hillside was nearly clearcut, with a seed-tree like approach (albeit many of the trees were smaller beech). The flatter areas of the property appear to have gone through some land use changes, with open woodland pasture the most likely land use in the 1800s.

Forest Management Goals

The primary objective is to improve forest quality and address forest health concerns, with a desire to create managed diverse and desirable tree community that will provide timber, firewood, wildlife management opportunities, and a desirable recreational character. Additionally, an important objective is to create forest habitat for multiple bird species, which may also serve to create habitat for other (e.g. mammalian) wildlife. Another objective is to contain and reduce soil erosion along the access trail to the property, and additionally, maintain stream and streambank integrity.

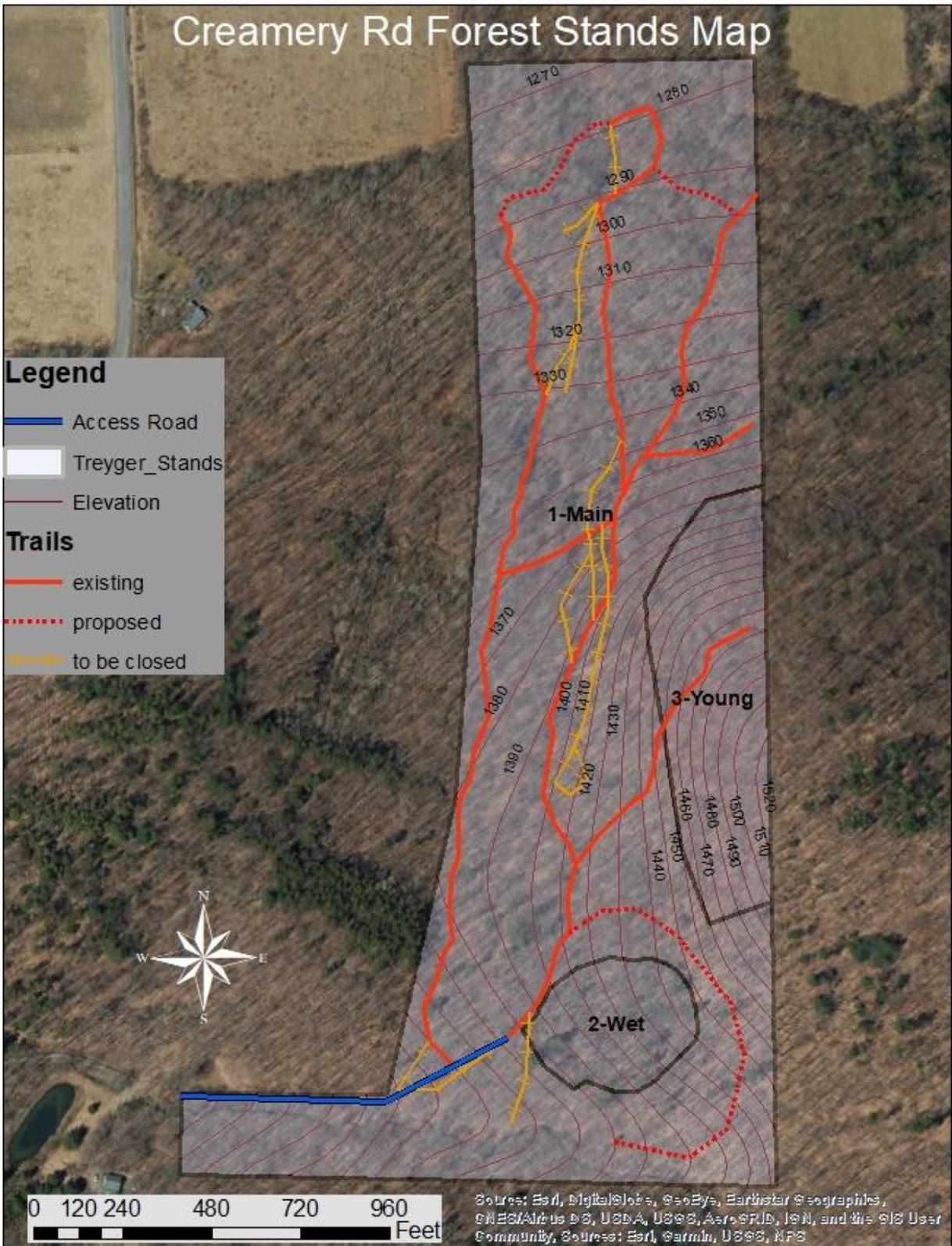
There are several ways to address this across three stands encompassing 33.8 acres, due to the varying density, composition and tree sizes. The largest stand has a high amount of shading and a near complete absence of an understory, which reduces its value from a recreational and wildlife aspect. In addition, there is a component of interfering vegetation and few openings for regeneration, as well as a component of ash. A wetter stand has a fairly ubiquitous, albeit somewhat sparse honeysuckle understory and a large presence of ash, and should undergo some level of forest stand improvement. A stand nearly clearcut approximately 20 years ago should be treated for interfering vegetation in the form of beech, and best tree saplings that are present in the stand should be promoted.

A secondary objective is to generate some income from timber production and create conditions for a periodic income into the future. This needs to be achieved within the constraint of maintaining the forested character, which could be accomplished by aligning the largest stand to an uneven-aged silvicultural system, while promoting the growth of desirable tree species in the two smaller stands. The wildlife habitat objective can be accomplished via creating openings in the canopy and other habitat features like coarse woody debris and brush piles.

Additionally, there is severe erosion along the main access route to the property (due to poor past logging practices), which should be mitigated and an improved access road installed in its place since there is no adequate access to the property or location for a log landing. This would also allow for maintaining the integrity of the streambank, as the access road would be along the stream.

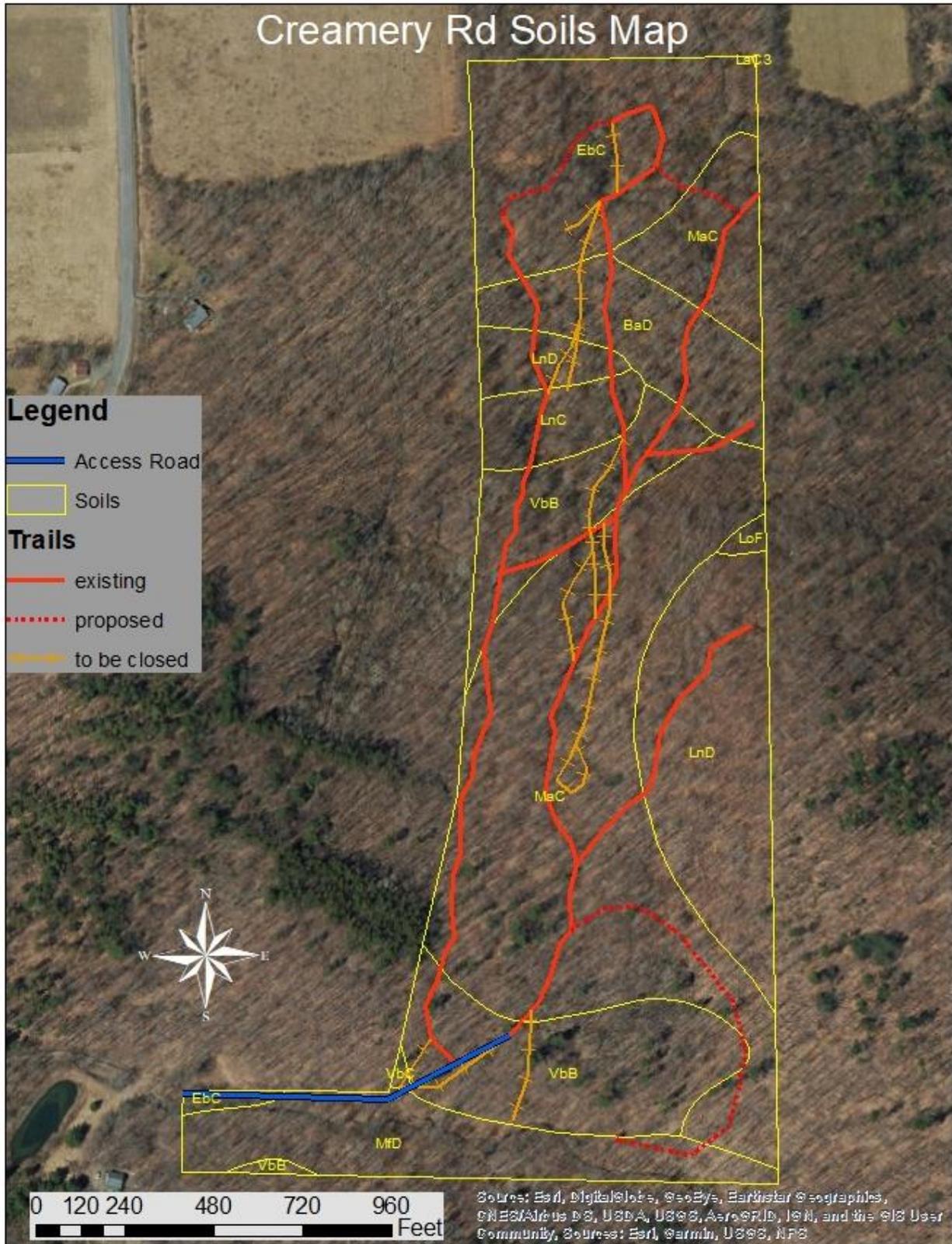
This property contains stands that range in basal area from 124.0 to 139.2 with a weighted average of 136.6 square feet per acre. It contains stands that range in relative density from 94 to 133 with a weighted average of 115 percent relative density. Total timber volume on the entire management unit is 131,167 board feet of sawtimber, or 26,051 cubic feet of sawtimber, plus 40,885 cubic feet of pulp. The board feet per acre of stands within the management unit ranges from 1,201.6 to 4,427.9, with an area-weighted average of 3,880.7. The total value of standing timber, estimated based on Winter 2017 prices, presently on the entire management unit is \$62,556.34 dollars. The dollars per acre of stands within the management unit ranges from \$428.59 to \$2,141.94, with an area-weighted average of \$1,850.78.

Property Map



Soils Map

Creamery Rd Soils Map



Soils Map Legend and Soil Types

The soil abbreviations below use symbols found on the map on previous page. The information has been collected from the Soil Survey of Otsego County, New York.

BaD Bath channery silt loam, 15 to 25 percent slopes

This moderately steep soil is mainly within the drier half of the drainage range for the series. It is typically steep enough that use of machinery is very difficult. Though some areas have hilly, complex topography, most are on hillsides that slope dominantly in one direction. Intermittent streams cross many areas at right angles to the contour. Spots of wet soil occur along these small streams. Some erosion is evident in most cleared areas. Predominantly, this soil is uneroded or only slightly eroded, but in some areas it has lost a significant part or all of the original surface soil. Even the uneroded areas have less than 24 inches of porous soil above the fragipan. This soil can be used for crops, pasture, or forest. Runoff is rapid, and erosion is a potential problem in all areas.

EbC Erie channery silt loam, 8 to 15 percent slopes

This soil is in the drier half of the drainage range for the series. It is saturated for shorter periods after rains than the less strongly sloping soils, because the slope is strong enough that a significant amount of water runs off the surface. This soil typically occurs on the sides of valleys, adjacent to better drained soils at higher elevations. Its wetness is caused partly by seepage water and runoff from the higher soils. This soil is suited to crops, pasture, or forest. Both wetness and erosion are critical problems. A large volume of water crosses the area and the rate of runoff is relatively rapid.

LaC3 Langford channery silt loam, 8 to 15 percent slopes, eroded

This soil is typical of the drier two-thirds of the drainage range for the series. In this respect it is similar to Langford channery silt loam. This soil, however, has lost most of its original plowed layer through erosion on about three-fourths of its acreage. In the uneroded spots the top of the fragipan is at a depth of 15 to 24 inches. In the eroded parts the fragipan is only 10 to 15 inches below the surface. This soil occupies uniformly sloping areas or areas that have complex, rolling topography.

LnC Lordstown channery silt loam, 5 to 15 percent slopes

This is the best of the Lordstown soils in Tompkins County. Depth to bedrock ranges mainly from 20 to 40 inches. Soil conditions are typical of those described for the Lordstown series. This soil occurs in sloping areas in the valleys, where it is associated with steeper and more stony Lordstown soils. This soil is well suited to crops, pasture, or forest. Bedrock imposes some limitations on some nonagricultural uses. This soil is permeable and absorbs water well, but the slope is steep enough to make erosion a moderate problem. The soil has good capacity to supply moisture for plants and has the potential to be highly productive.

LnD Lordstown channery silt loam, 15 to 25 percent slopes

This is a moderately deep, well-drained soil in which depth to bedrock ranges from 12 to more than 40 inches. The dominant soil is like that described for the Lordstown series. The slopes are steep enough that farm machinery can be used only with difficulty. They are also steep enough that runoff is rapid and erosion is a serious problem. This soil occurs mainly on the sides of the valley in association with other Lordstown soils. The layers of bedrock below this soil lie almost horizontally. Hard thin layers appear to have resisted ice action. On the slopes, they are covered with only a thin mantle of soil. Between such hard layers, the softer shales have been worn away, leaving a step-like bedrock surface. Soil material has partly filled these step-like spaces between adjacent hard layers of rock. Consequently, the depth to bedrock ranges from 12 to more than 40 inches within a few feet in many of the areas. Many of the steepest of these areas are probably best used for forests. The soil is suited to a wide variety of trees.

LoF Lordstown soils, 35-70 percent slopes

The very steep, forested valley sides that are conspicuous in the southern half of the county are the main areas of this mapping unit. The bedrock typically forms a series of huge steps on the very steep slopes. A thin mantle of soil covers most of the area, but bedrock ledges crop out in many places. The depth of soil ranges from none to as much as 4 or 5 feet within short distances. The dominant soil condition is within the range described for the Lordstown series. These soils are too steep for uses other than forestry, wildlife, or recreation.

MaC Mardin channery silt loam, 8 to 15 percent slopes

This sloping soil is within the middle half of the drainage range for the Mardin series. Runoff is rapid. Depth to the fragipan ranges from 15 to 20 inches. Spring wetness is a less serious problem than on gently sloping Mardin soils, but midsummer drought and erosion are more serious problems. The slope is generally in one direction, but the landform is commonly a series of slight dips and rises at right angles to the general slope. Water crossing these areas is concentrated in the low places, but it is not confined to channels. This soil is suited to crops, pasture, or forest.

MfD Mardin and Langford soils, 15 to 25 percent slopes

Any given area of this mapping unit may consist of moderately steep Mardin soils, of moderately steep Langford soils, or a mixture of the two. The difference between the two soils that are significant on more gentle slopes have little significance on moderately steep slopes. This unit is steep enough that machinery can be used only with great difficulty. If unlimed, the soils in it are strongly acid or very strongly acid. They have moderate water-holding capacity, are moderately well drained, and have a fragipan less than 20 inches below the surface. This unit is suited to pasture and forest. It can be used for crops only with great difficulty. Much water is lost as runoff. Runoff is rapid; sheet erosion and shallow gulying can occur if the water runs unimpeded.

VbB Volusia channery silt loam, 3 to 8 percent slopes

This soil is typical of the middle half of the drainage range for the series. The depth to the fragipan is about 12 inches. This soil slopes mainly in one direction. The slope is strong enough that runoff is a significant factor. In some areas the slope is so nearly uniform that runoff moves across the entire area. In many areas this soil is adjacent to Mardin soils and receives runoff from them. In some places it is on gentle slopes at the foot of steep or moderately steep hillsides dominated by Lordstown soils. Runoff concentrates on these areas, and additional water from higher land accumulates. This soil is used for crops, including corn, small grain, and hay. It is also suited to forest, though wetness limits its suitability for some species. Red pine, for example, does very poorly. Simple structures that help remove water can be highly beneficial. The slopes are steep enough, however, that erosion can become a problem if such structures are built up and down the slope.

VbC Volusia channery silt loam, 8 to 15 percent slopes

This somewhat poorly drained soil is steep enough that farm machinery can be used only with some difficulty. It is representative of the drier two-thirds of the drainage range for the series. Runoff is moderately rapid. Large amounts of water are received as runoff and seepage from adjacent higher land. This soil commonly occurs on foot slopes on the uplands. This soil can be used for crops, pasture, or forest. Wetness limits the choice of crops but less than on gently sloping Volusia soils. Diversion of the water that runs onto this soil is important, both to control wetness and to reduce the erosion hazard. Although erosion has not been general, many areas have had some erosion in watercourses where small channels have been cut to the fragipan. These channels are covered with flat stones left when fine material was washed away.

Forest Natural Resources Enhancement and Protection

Special sites

There are no archeologically, geologically, biologically or ecologically special sites located at this ownership. A farmer's stone pile is located along the southern portion of the western boundary of the property, possibly created during pasturing or land clearing – this location does not warrant any special care. There are two sections that have potential for visual and possibly recreational appeal: the intermittent creek has appeal due to somewhat steep gradient, somewhat steep banks and intact woods, as well as the top portion of the steep hillside, except that currently there is extensive canopy cover that prevents a good view.

Adjacent stand or ownership concerns

This is a rural setting ownership with eight parcels held by seven owners bordering the property. There are three residences located somewhat adjacent to the parcel, with one located near the right-of-way entry to the parcel and two more residences located along Creamery Rd, but separated by woods. The only residence that may be impacted by forest management activities on the property is near the entrance to the property, and it is a good idea to give advance warning prior to any extensive work taking place and discuss any concerns that may exist regarding the use of the driveway.

Recreation

There is no formal access to the property with an unmaintained grown-in logging road system that also suffers from severe erosion near the entrance to the property. There is a shallow ravine with a creek that has an appealing visual quality with the main entry to the property leading to it. In addition, property hillside (mostly Stand 3 – young) has the potential to have good views of the adjacent valley, due to steep slopes and a rapid decrease in elevation. However, it is currently obscured by a dense young canopy and may be improved with strategically located group cuts. Owners would like to improve the trail system in order to hike and access all parts of the property. Forest management activities should improve accessibility to foot traffic via creating a navigable logging trail system, and will create sufficient access for the owners.

Access

The landowner has full legal access to the property. The boundary of the property is incompletely posted or otherwise delineated. There is no desired public access to the property. The relative remoteness of the location, steep terrain, and lack of a road/vehicular access to the majority of the property are likely sufficient to keep out unwanted vehicular and foot traffic. There may be access via adjacent properties: there is an open field near the northwestern corner of the property, which may be an entry point for hunters, and a trail that borders the eastern portion of the property on top of the hill, which may allow neighbors to access the property.

Air, Water, and Soil Protection

Soil protection

All state Best Management Practices (BMPs) applicable to soil protection on wet soils, and on steep, gentle and flat slopes shall be followed. Due to seasonally wet soils on parts of the ownership, harvesting activities in these sections shall be undertaken during the winter, when the soils are frozen or sufficient snow cover will prevent severe rutting, or alternatively during late summer, contingent upon lack of recent rainfall, when soils will be at their driest. The access skid trail layout shall minimize repetitive entries by increasing access to all parts of the stand. Any perennially wet areas should be avoided and if not possible due to layout, either temporary bridging or permanent construction will be implemented, such as culverts, geotextile and gravel, etc.

Roads

There is a need for a permanent well-constructed access road to the property, as there is currently no access for mechanized equipment – the previously utilized main access trail is deeply rutted and in parts eroded to gullies up to 4 feet in depth. In addition, a small portion of it (barely usable to unusable) passes across the corner onto the neighboring property. Existing logging trails (mostly a set of ruts) shall be utilized as the primary access, with a clear need to update sections, with some closed, moved or maintained as appropriate based on soil conditions. The updated trails will have permanent features installed as necessary, including culverts, geotextile, gravel and water bars.

Streams, wetlands, ponds, lakeshore

There is an intermittent stream on the property, running primarily parallel to the southern property line. If there is a need, the stream shall be crossed by equipment using temporary crossing structures,

permanently constructed bridges in place, or over a rocky bottom, so as not to create rutting, erosion or persistent sedimentation. The seasonally wet soils within stands shall be addressed by appropriate road layout, and following proper BMPs during road construction and forest management operations.

Effects of Natural Disasters

Regionally and locally, natural disasters that will most likely impact this ownership are severe wind storms, such as severe straight line winds or less likely, tornadic events, and ice storms. The impact of windthrow on the shallower or wetter soils is likely to be severe. The most appropriate course of action to prevent these effects from being magnified as a result of forest management activities on this portion of the ownership is to reduce compaction of soil by appropriate seasonal timing (i.e. winter) of equipment entries, and utilizing proper BMPs during entries. Additionally, the regeneration or thinning activities undertaken should not allow for leaving 'hard' contiguous edges or severe reductions in basal area (such as thinning to 'C level' or shelterwood regeneration strategies) on wet soils that would allow most trees to fail during a severe weather event. Ice storms are difficult to safeguard against; however, their impact is typically limited to form and tree value damage with relatively low tree mortality. The best course of action for ice and wind storms would be to evaluate the impact on the forest and adapt the management strategy to recoup the value via a salvage operation and adjust the planned re-entry times to fit the reality of stand conditions. Fires are unlikely in the region, and if they do occur, they are likely to be a relatively low temperature surface fire, with low mature tree mortality.

Fish, Wildlife and Biodiversity

Fish & Wildlife

The primary landowner objective regarding wildlife is to improve habitat for a suite of forest bird species. Currently, the property has a fairly dense forest canopy, which presents an opportunity to increase vertical and horizontal structural diversity for species with a preference for an open canopy and high vertical structural diversity component, which includes most mature forest wildlife species, such as breeding and year-round resident birds, as well as small and medium-sized mammals, and some amphibians such as salamanders. It is very likely that any forest management activities undertaken will increase deer presence on the property, due to the increase in edge and cover habitat. Due to negative effects of deer on

regeneration density and quality, adequate regeneration is likely to be only possible with measures that would either effectively prevent most deer from entering the regeneration areas (such as fencing or intensive hunting), or at the minimum reduce the deer's ability to move into and within these areas (such as leaving large woody debris and slash to block entry). From wildlife and nutrient management perspectives, leaving coarse woody debris and tree tops at the edges of regeneration areas is the preferred approach, however, access to fencing is the only way to ensure a successful outcome.

There are no fish on the property, due to a lack of a permanent water body, with only a small intermittent stream.

State and Federal threatened or endangered species - plants or animals

There are no known State and Federal threatened or endangered species populations on this property. There are no known hibernacula or roost trees for the northern long-ear or Indiana bats in the county or vicinity of the property.

Management of Forest Resources

Protection from Pests

There are several pests of concern present in the region that could have an impact on the forest. Beech Bark Disease (BBD) is a complex of the beech scale insect (*Cryptococcus fagisuga*), which when feeding, introduces at least two fungi (*Neonectria* spp.) that produce cankers and over time kill individual stems. Beech trees, as a root suckering species, produce multiple stems around the parent tree, which will then be able to suppress any other species regeneration due to their high shade tolerance and connection to a root system with energy stores. These new stems retain their susceptibility to BBD, and perpetuate the cycle, which will eventually allow shrubby beech to dominate the stand. The most appropriate approach is to chemically control non-resistant beech. On a statewide level, up to 10% of beech are resistant to some degree and around 1% have almost complete resistance. However, the resistance is apparently somewhat irregular: some areas have a high proportion of trees that are resistant to BBD, while other areas have almost none that are resistant. This property has very few individuals that show resistance – these trees should be retained whenever found during forest management practices.

There are several pests of concern present in the region that could have an impact on the forest. The most imminent threat in the region is the Emerald Ash Borer (*Agrilus planipennis*). It is highly likely to

be present on the property, with some mortality evident among the ash (although another pest or pathogen may be the source, e.g. ash yellows). Currently, it is economically feasible to treat only individually important trees – visually or due to location, with very few trees in this category on the property.

Sirex woodwasp (*Sirex noctilio*) is another invasive pest that could have impacts on the property due to presence of a white pine component. While typically attracted to suppressed and stressed trees, at larger concentrations of the woodwasp populations, it can attack healthy trees as well. A measure of protection from impacts would include proper forest management, which would promote growing healthier trees. In case of an infestation at the ownership, a biological control measure should be undertaken – introduction of a parasitic nematode (*Deladenus siricidicola*).

Another possible concern for white pine growth form and mortality is white pine blister rust (*Cronartium ribicola*), which needs presence of a *Ribes* spp. (gooseberries or currants) to complete its life cycle. There is no obvious presence of *Ribes* spp. within 300 yards of the white pines (approximate transmission distance of the spores), but continued monitoring for these plants and symptoms of disease, particularly on new tree regeneration is necessary. Most white pines on the property are open grown, poor timber quality trees, and thus, the above concerns are primarily for any future regeneration.

There are additional plant health concerns on a statewide basis (e.g., Asian longhorned beetle, sudden oak wilt, hemlock wooly adelgid, etc.), but at present, these pests do not pose a problem either due to a lack of proximity, tree species' absence, or both.

Reforestation and Afforestation

There is no additional area within the ownership that would require afforestation. Reforestation is most likely to be achieved via natural means, with sufficient seed source from the mature trees. There are interfering native and invasive plants in the stands, including honeysuckle, multiflora rose, goldenrod, graminoids (i.e. grasses and sedges), ferns, hawthorns, hophornbeam and musclewood, and striped maple. These achieve their highest density in or near the wet stands, and in a few small openings in the northern part of the main stand, but should be treated as necessary. As stated previously, tops and other coarse woody debris, should be retained to create a barrier to deer movement within the stand, as well as placing temporary fencing or electrified fencing to prevent their entry.

Management Plan Implementation Constraints

The primary constraint to the management plan implementation is access to the property, as there is currently no means of driving onto the property with mechanized equipment (as small as an All-Terrain Vehicle) without trespassing across the neighboring property for a considerable distance. Access across the property is also somewhat lacking, but erosion across several trails would necessitate a concerted effort to mitigate this by closing the trails and installing water diversion and gully mitigation/filling measures.

Permits

No permits are required in the Town of Caroline or Tompkins County for any of the activities to be undertaken at the property.

Stand Level Information

Stand 1 - Main

Stand 1 Objectives

Stand 1 Mesic mixed pine-hardwoods – small sawtimber **Acres** 28.5

Objectives: The primary objective is to move the stand to a well-regulated uneven-aged stand via a hybrid single tree-group selection system. This would also satisfy the secondary objective – increasing wildlife habitat via improving vertical and horizontal structural diversity, with any associated wildlife practices, such as coarse woody debris and brush piles.

Stand 1 Current Conditions

General description

It is unlikely that this stand was ever completely cleared for agriculture, although some clearing and pasturing may have occurred in this stand – this stand is mostly two-aged in nature, although there is some evidence of more than two age classes. There was a harvesting cut approximately 20-25 years ago, which was likely at least somewhat exploitative in nature, without associated stand improvement, judging by the number of beech stems. Average site index for sugar maple is 65, based on approximate age of 60 years and average dominant and co-dominant height of 70-75 ft. The elevation of the stand is 1270 to 1500 ft above sea level, and there is variable topography across the stand with an intermittent stream channel and associated relatively steep banks, an associated and somewhat continuous elevation increase from west to east in the southern part of the stand with a steep section immediately adjacent to the eastern boundary, and a continuous moderate to gentle slope down to the north in the northern part of the stand. Generally, the tree form and timber quality is average to above average for most tree species, due to high tree density. The total basal area of the overstory and understory combined is 139.2 square feet per acre. For the overstory only, acceptable growing stock for timber (AGS) is 104.6 square feet per acre and the basal area of unacceptable growing stock for timber (UGS) is 34.6 square feet per acre. There are 1,192.3 stems/ac for all species.

The stand relative density is 115% of the average maximum stocking expected in undisturbed stands of similar size and species. This density is well above the range for best individual tree growth. At this relative density, growth rate of the biggest trees is probably moderate, while growth rate of the medium

and smaller-sized trees is probably poor and mortality due to crowding high. Trees of acceptable quality for future growing stock provide a fully stocked stand by themselves (84% of AGS relative density). The trees included in these figures include live trees of acceptable and unacceptable growing stock. Total timber volume on this 28.5 acres stand is approximately 25,248 cubic feet of sawtimber plus 36,574 cubic feet of pulpwood for a total of 61,821 cubic feet. The net boardfoot volume averages 4,427.9 board feet per acre. The net pulpwood volume averages 1,283.3 cubic feet per acre. The net cubic volume averages 2,169.2 cubic feet per acre.

Timber value is an estimate of the total dollar value of the trees where they are standing, before they are cut and transported to market, based on the New York State Department of Environmental Conservation Stumpage Report for Winter 2019. The median prices for average price range were used with Grade 2 logs. These figures include all live trees of acceptable and unacceptable growing stock. The total value of the 28.5 acre stand is estimated at \$61,045.30.

Composition

	All species	sugar maple	red maple	American basswood	northern red oak	white ash	other species
Basal area (sq.ft./ac.)	139.2	57.7	22.3	11.5	10.8	10.0	27.0
Percent of stand basal area (%)	100.0	41.4	16.0	8.3	7.7	7.2	19.6
Stems/area (stems/ac.)	1,192.3	296.0	49.5	34.6	6.3	10.7	795.2

Diameter

	All species	sugar maple	red maple	American basswood	northern red oak	white ash	other species
Medial DBH (in.)	11.4	11.1	10.6	12.4	19.9	15.2	6.6
Merchantable Medial DBH (in.)	13.1	12.2	10.6	13.7	19.9	15.2	7.1
Quadratic Mean DBH (in.)	4.6	6.0	9.1	7.8	17.7	13.1	5.8
Merchantable Quadratic DBH (in.)	10.9	10.7	9.1	11.7	17.7	13.1	6.7

Mean DBH (in.)	3.0	4.2	8.7	6.4	17.2	12.4	5.6
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Relative Density

	All species	sugar maple	red maple	American basswood	northern red oak	white ash	other species
Relative density (%/ac.)	114.6	50.9	15.3	5.8	9.3	3.9	29.3
Percent of stand (%)	100.0	44.4	13.4	5.1	8.1	3.4	25.7

Timber volume

	All species	sugar maple	red maple	American basswood	northern red oak	white ash	other species
Gross sawtimber volume (bd.ft.)	126,194	42,316	9,402	12,775	23,735	20,345	17,621
Net sawtimber volume (bd.ft.)	126,194	42,316	9,402	12,775	23,735	20,345	17,621
Gross pulpwood volume (cu.ft.)	45,717	20,501	11,389	3,252	3,659	2,653	4,264
Net pulpwood volume (cu.ft.)	36,574	16,400	9,111	2,601	2,927	2,122	3,411
Gross total volume (cu.ft.)	77,277	32,171	13,664	6,992	8,430	7,260	8,761
Net total volume (cu.ft.)	61,821	25,737	10,931	5,593	6,744	5,808	7,008

Timber value

	All species	sugar maple	red maple	American basswood	northern red oak	white ash	other species
Sawlog value (\$)	57,462.28	27,505.50	2,820.56	1,916.25	13,054.24	11,189.85	975.88
Pulpwood value (\$)	3,583.02	1,640.05	911.12	260.14	292.74	212.22	266.74
Timber value (\$)	61,045.30	29,145.55	3,731.68	2,176.39	13,346.98	11,402.07	1,242.62

Current forest type and current age

Forest Type

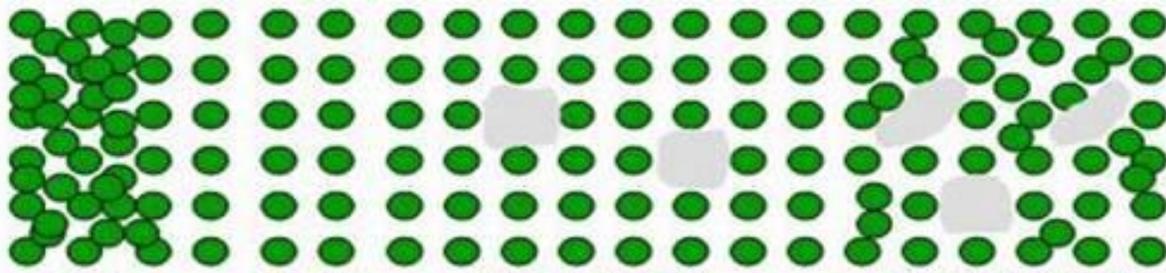
Mesic mixed pine-hardwoods

Age

60+- uneven aged

Bird's-eye view of current stand condition (check one)

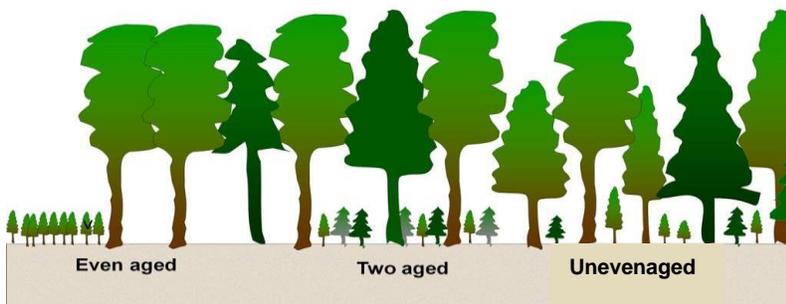
- Wild stand Evenly spaced Evenly spaced with openings Variable density spaced with openings



Current spacing (in feet) Large (>9"DBH) 10 (ft) Pole (5-8"DBH) 8 (ft) Seedling (<5"DBH) 5 (ft)

Size and shape of openings single tree to small tree groups – up to 0.05 ac

Current structure:



- One canopy layer Two canopy layer Multi-layer/Unevenaged

Stand 1 Desired Future Stand Condition

Desired forest type and expected longevity

Forest Type

Age

Mixed mesic pine - hardwoods _____

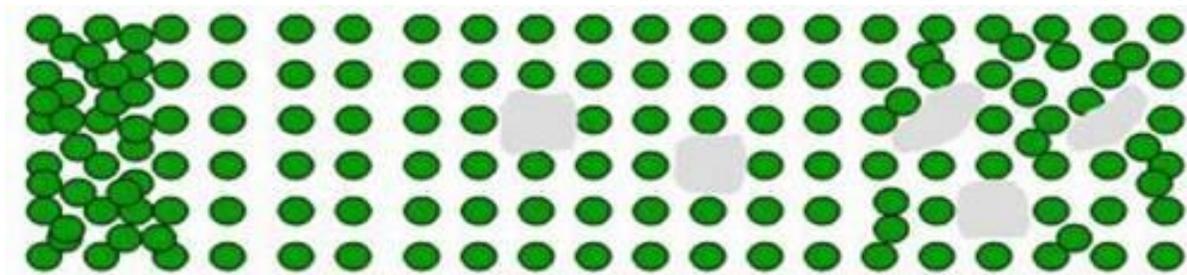
90-uneven aged _____

Desired species to naturally regenerate sugar maple, red oak, basswood, white pine, hickory

Desired species to plant walnut, hemlock

Bird's-eye view of desired future stand condition (check one)

- Wild stand
 Evenly spaced
 Evenly spaced with openings
 Variable density spaced with openings

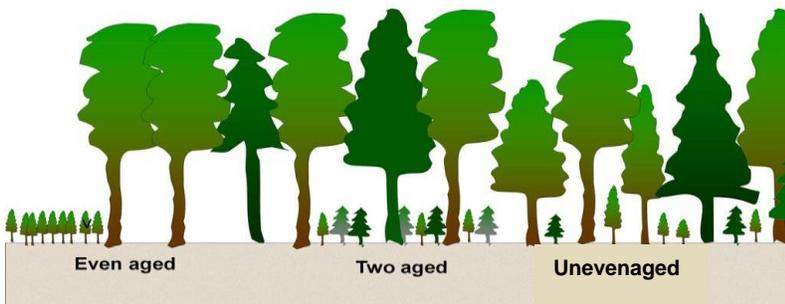


Desired spacing (in feet)

Large (>9"DBH) 15 (ft) Pole (5-8"DBH) 10 (ft) Seedling (<5"DBH) 5 (ft)

Size and shape of openings group openings, 0.1-0.25 acres, up to 2+ acres

Desired structure:



- One canopy layer
 Two canopy layer
 Multi-layer/Unevenaged

Other Desired Stand Descriptions: The preferred method of stand and tree development is via natural regeneration, which can be achieved with an uneven aged silvicultural system, specifically hybrid single tree-group selection. The stand can also benefit from creating openings with young tree seedlings that would provide for wildlife, specifically forest bird habitat.

Stand 1 Forest Management Activities

Forest Health Management

The primary concern for this stand is development of interfering vegetation – primarily American beech, but also hophornbeam, musclewood, striped maple, honeysuckle, and multiflora rose – which should be controlled via mechanical and chemical means prior to future harvest activities. Any beech resistant to BBD should be retained in order to promote the genotype. There is a white ash component to the stand, which should also be included in the thinning/group removals.

Harvesting

All beech saplings and seedlings, and all other interfering vegetation should be cut and chemically treated, with the exception of any large (>12" DBH) healthy beech. In order to bring this stand to a well-regulated uneven-aged stand structure within the pole (6-12 inches) size class, all UGS and AGS that interfere with appropriate spacing should be cut, which can be as much as 64% of trees, although 50-55% should also be sufficient. Within the small sawtimber (12-18 inches) size class, as much as 60% of trees can be cut for appropriate Arbogast structure, although recent northern hardwood guides suggest leaving more within this size class, so 50% should be sufficient. Within large sawtimber (18-24" DBH), approximately 32% of trees can be cut, which should focus mostly on UGS. From a wildlife perspective, it is important to leave 1-2 trees/ac larger than 24" DBH. In this stand, there are 0.4 trees/ac larger than 24", which should not be cut, although some of the UGS may be girdled. Harvesting priority should be: American beech, UGS of desirable tree species, and lastly, any trees that interfere with spacing in denser sections of the stand should be targeted for removal.

Group cuts should mostly be 0.1-0.25 acre in size, with exception of two or three that are 1+ acre in size. Stand 1 should have *at most* 15% of area regenerated under a group selection approach, with opening diameter near single tree height (approximately 100 ft diameter gaps, between 0.1-0.25 acres,

equivalent to 17 ¼-acre openings), which will allow sufficient sunlight to reach the forest floor to regenerate hardwoods. To balance the hybrid selection approach, it is best to limit the cut to 10 groups.

Slash management

Slash retention allows for recycling of nutrients contained in the wood, bark, leaves and needles back into the organic layer of the forest soils, and if left whole reduces the ability of deer to impact new seedlings. Due to landowner preference, wildlife concerns, and maximization of financial benefits, tops will remain on site and will not be lopped down.

Post harvest activities

Access trails will need to be regraded and recovered to their original or better condition, creating water bars as necessary. Additionally, at the discretion of landowner and availability of deer fencing, it can be placed around group cuts in near proximity to quality seed trees.

Best Management Practices

There is an ephemeral stream in the stand, which must be accessed via bridging (temporary or permanent) or going around it along southeastern corner of the stand (it may still require bridging). Any harvesting and work in this stand shall be done when soils are relatively dry or frozen, during summer, early fall or after freeze-up over winter.

Monitoring

Continued monitoring for growth of interfering plants should be undertaken at least every five years. Additionally, monitoring for new regeneration and its ability to survive due to overstory competition and deer browse should be undertaken at the same time.

Resource Concerns

There are two primary resource concern in this stand: soil erosion and degraded plant condition. Soil erosion is due to concentrated flow erosion along previous access trail, with classic gully development,

and no management in place. Degraded plant condition is due to severe canopy closure, moderate (patchy) species diversity, one/two canopy heights present in the stand, and low amount of woody debris, snags and den trees (Forest Ecological Index is approximately 2.2). Concurrently with the degraded plant condition, wildlife habitat is also a resource concern (mature forest habitat index is approximately 0.3). Additional concerns are soil compaction and excess water along trails and areas where trails should not have been placed, which should be closed and recovered.

Additional practices

There may be a need to promote tree/shrub establishment by controlling herbaceous/woody competition and providing barriers to deer entry, in the form of deer fencing or, alternatively, slash wall exclosures.

Stand 2 - Wet

Stand 2 Objectives

Stand 2 maple –pole Acres 1.6

Objectives: The primary objective is to control invasive species, and improve residual tree species and quality, maintain a component of wildlife habitat, i.e. retain some low growing shrubby and herbaceous species, and protect wetter soils.

Stand 2 Current Conditions

General description

This stand is located along wet soils in the southern portion of the main stand, and consists primarily of red maple, with a number of dying white ash, and a relatively persistent low cover of honeysuckle, multiflora rose, graminoid and herbaceous vegetation. Site index for the red maple is 55, based on approximate age of 50 years and average dominant and co-dominant height of 55 ft. The elevation of the stand is 1380 to 1440 ft above sea level, and there is a gentle slope across the stand. Generally, the tree form and timber quality is average for most species.

The total basal area of the overstory and understory combined is 125.0 square feet per acre. For the overstory only, acceptable growing stock for timber (AGS) is 85.0 square feet per acre and the basal area of unacceptable growing stock for timber (UGS) is 40.0 square feet per acre. There are 540.6 stems/ac.

The stand relative density is 94% of the average maximum stocking expected in undisturbed stands of similar size and species. This density is higher than the range for best individual tree growth. At this relative density, growth rate of the biggest trees is probably moderate, while growth rate of the medium and smaller-sized trees is probably fair and mortality due to crowding moderate. Trees of acceptable quality for future growing stock provide a fully stocked stand by themselves (70 % of AGS relative density).

The trees included in these figures include live trees of acceptable and unacceptable growing stock. Total timber volume on this 1.6 acres stand is approximately 442 cubic feet of sawtimber plus 2,030 cubic feet of pulpwood for a total of 2,472 cubic feet. The net boardfoot volume averages 1,447.1 board feet per acre. The net pulpwood volume averages 1,268.5 cubic feet per acre. The net cubic volume averages 1,544.9 cubic feet per acre. Timber value is approximately \$880.30.

Composition

	All species	red maple	white ash	sugar maple	eastern white pine
Basal area (sq.ft./ac.)	125.0	75.0	35.0	10.0	5.0
Percent of stand basal area (%)	100.0	60.0	28.0	8.0	4.0
Stems/area (stems/ac.)	540.6	427.9	99.5	11.8	1.4

Diameters

	All species	red maple	white ash	sugar maple	eastern white pine
Medial DBH (in.)	8.8	7.1	8.9	12.5	26.0
Merchantable Medial DBH (in.)	10.0	8.3	9.5	12.5	26.0
Quadratic Mean DBH (in.)	6.5	5.7	8.0	12.5	26.0
Merchantable Quadratic DBH (in.)	8.5	7.6	9.4	12.5	26.0
Mean DBH (in.)	5.9	5.2	7.7	12.5	26.0

Relative Density

	All species	red maple	white ash	sugar maple	eastern white pine
Relative density (%/ac.)	93.7	63.8	20.2	8.1	1.5
Percent of stand (%)	100.0	68.1	21.6	8.6	1.6

Timber volume

	All species	red maple	white ash	sugar maple	eastern white pine
Gross sawtimber volume (bd.ft.)	2,315	593	0	647	1,075
Net sawtimber volume (bd.ft.)	2,315	593	0	647	1,075
Gross pulpwood volume (cu.ft.)	2,537	1,324	993	161	60
Net pulpwood volume (cu.ft.)	2,030	1,059	794	129	48
Gross total volume (cu.ft.)	3,090	1,509	993	361	227
Net total volume (cu.ft.)	2,472	1,207	794	288	182

Timber value

	All species	red maple	white ash	sugar maple	eastern white pine
Sawlog value (\$)	679.25	178.03	0.00	420.61	80.61
Pulpwood value (\$)	201.06	105.91	79.43	12.86	2.86
Timber value (\$)	880.30	283.93	79.43	433.47	83.47

Current forest type and current age

Forest Type

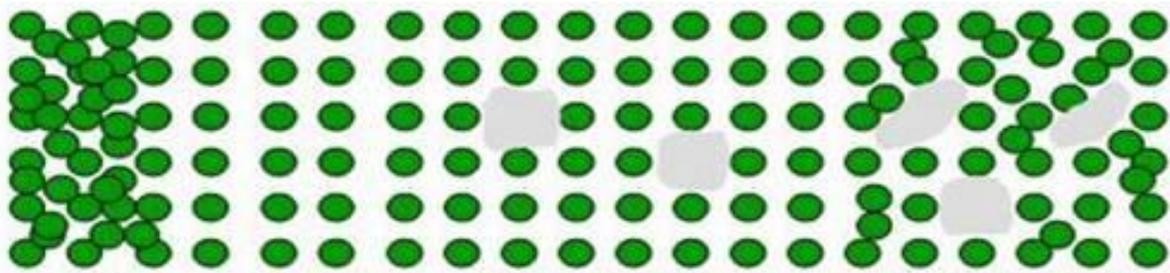
Maple _____

Age

~50 _____

Bird's-eye view of current stand condition (check one)

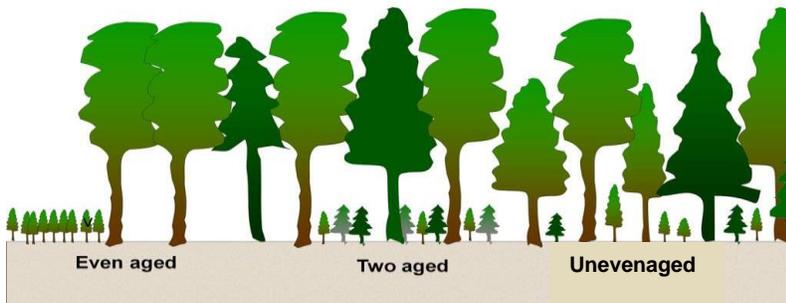
- Wild stand Evenly spaced Evenly spaced with openings Variable density spaced with openings



Current spacing (in feet) Large (>9"DBH) 15(ft) Pole (5-8"DBH) 10(ft) Seedling (<5"DBH) 20(ft)

Size and shape of openings single tree, near mortality on ash _____

Current structure:



- One canopy layer Two canopy layer Multi-layer/Unevenaged

Stand 2 Desired Future Stand Condition

Desired forest type and expected longevity

Forest Type

Maple

Age

90 - uneven aged

Desired species to naturally regenerate red maple, sugar maple, white pine

Desired species to plant walnut, yellow birch

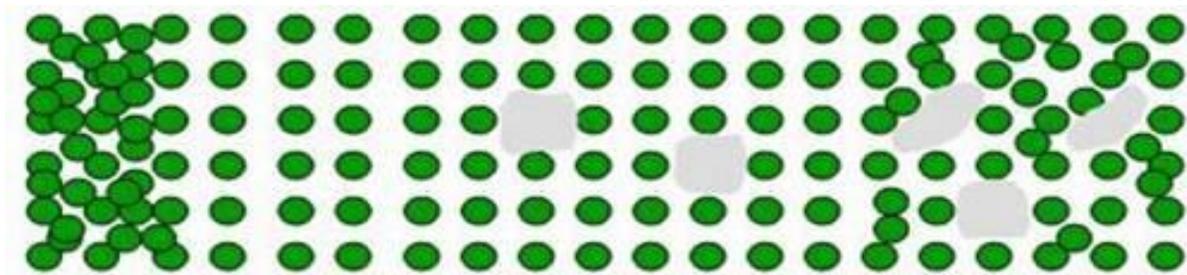
Bird's-eye view of desired future stand condition (check one)

Wild stand

Evenly spaced

Evenly spaced with openings

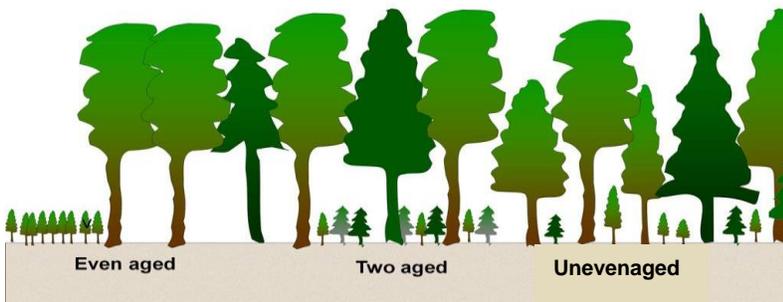
Variable density spaced with openings



Desired spacing (in feet) Large (>9"DBH) 15 (ft) Pole (5-8"DBH) 20 (ft) Seedling (<5"DBH) 5 (ft)

Size and shape of openings none

Desired structure:



One canopy layer Two canopy layer Multi-layer/Unevenaged

Other Desired Stand Descriptions: The preferred method of stand and tree development is via natural regeneration, which can be achieved with reducing and managing interfering species at ground level, and some thinning in the overstory. Currently, the stand is not mature, and unlikely to be mature for another 30 years. Reduction in interfering plants would allow for additional regeneration to become established and allow this stand to be the primary wildlife management stands.

Stand 2 Forest Management Activities

Forest Health Management

There are a number of interfering – herbaceous species – and non-native invasive species, such as honeysuckle species and multiflora rose - these should be managed via combined mechanical and chemical means. White ash is already apparently suffering mortality, possibly as a combination of substandard site conditions, ash yellows and EAB – these can be cut or left as snags. Sirex woodwasp (*Sirex noctilio*) and white pine blister rust (*Cronartium ribicola*) are two concerns for successful regeneration of white pine in the stand – there are a few potential seed trees that should be treated as crop trees, i.e. competition should be thinned on 3 or 4 sides of these. Continued monitoring of these plants, symptoms of disease, Sirex woodwasps, and damage, particularly on new tree regeneration, is necessary.

Harvesting

Due to ash mortality, trees in Stand 2 do not have to be harvested for at least another 15+ years – after ash dies, the stand density will be sufficient for continued good growth. A crop tree release should be conducted for best quality red maple and white pine, in order to promote growth of maple and improve the vigor of pine and possibly allow for some additional pine regeneration. Honeysuckle and multiflora rose must also be treated at the same time.

Slash management

Slash retention allows for recycling of nutrients contained in the wood, bark, leaves and needles back into the organic layer of the forest soils, and if left whole reduces the ability of deer to impact new seedlings. Due to landowner preference, wildlife concerns, and maximization of financial benefits, tops or material felled in the future should remain on site and should not be lopped down.

Post harvest activities

Access trails, if any, will need to be regraded and recovered to their original or better condition, using seeding, geotextile/gravel and creating water bars as necessary. Additionally, at the discretion of landowner and availability of deer fencing, it can be placed around group cuts in near proximity to quality seed trees.

Best Management Practices

There is no permanent water, but this stand has persistent wet soils. Any harvesting or other work in this stand (particularly when using heavy equipment), shall be done when soils are dry or frozen, during summer, early fall or after freeze-up over the winter.

Resource Concerns

The primary resource concern in this stand is degraded plant condition, with moderate canopy closure (somewhat less than 95% canopy closure), relatively low species diversity, two canopy heights present in the stand, and low amount of woody debris, snags and den trees (Forest Ecological Index is approximately 3.3). Concurrently with the degraded plant condition, wildlife habitat is also a resource concern (mature forest habitat index is approximately 0.3).

Additional practices

There may be a need to promote tree/shrub establishment by controlling herbaceous/woody competition and providing barriers to deer entry, in the form of deer fencing or, alternatively, slash wall exclosures.

Stand 3 - Young

Stand 3 Objectives

Stand 3 beech maple – pole **Acres** 3.7

Objectives: The primary objective is to have improved residual tree species and quality, and to increase vertical and horizontal structural diversity in order to improve wildlife habitat.

Stand 3 Current Conditions

General description

The elevation of the stand is 1380 to 1520 ft above sea level, and there is a steep slope across the stand. Generally, the tree form and timber quality is average to above average. This stand was likely nearly completely clear cut approximately 20 years ago, with a few seed trees left behind. Most of the trees in this stand are primarily 20 years old, while red oak, red maple, and some of the beech are considerably older – up to 80 years old. Most of the trees are not yet financially or ecologically mature, and unlikely to be mature for another 40+ years; and the stand is dominated by beech and sweet birch regeneration. Site index for beech is 50, based on approximate age of 20 years and average dominant and co-dominant height of 25 ft. The total basal area of the overstory and understory combined is 124.0 square feet per acre. For the overstory only, acceptable growing stock for timber (AGS) is 58.0 square feet per acre and the basal area of unacceptable growing stock for timber (UGS) is 66.0 square feet per acre. There are 6,203.4 stems/ac.

The stand relative density is 133% of the average maximum stocking expected in undisturbed stands of similar size and species. This density is well above the range for best individual tree growth. At this relative density, growth rate of the biggest trees is probably moderate, while growth rate of the medium and smaller-sized trees is probably poor and mortality due to crowding high. Trees of acceptable quality for future growing stock provide a fully stocked stand by themselves (62% of AGS relative density).

Total timber volume on this 3.7 acres stand is approximately 727 cubic feet of sawtimber plus 2,291 cubic feet of pulpwood for a total of 3,018 cubic feet. The net boardfoot volume averages 1,201.6 board feet per acre. The net pulpwood volume averages 619.1 cubic feet per acre. The net cubic volume averages 815.5 cubic feet per acre. Timber value of the stand is \$1,585.79.

Composition

	All species	American beech	sweet birch	northern red oak	pin cherry	red maple
Basal area (sq.ft./ac.)	124.0	64.0	50.0	6.0	2.0	2.0
Percent of stand basal area (%)	100.0	51.6	40.3	4.8	1.6	1.6
Stems/area (stems/ac.)	6,203.4	1,122.4	5,062.4	2.5	14.7	1.4

Diameters

	All species	American beech	sweet birch	northern red oak	pin cherry	red maple
Medial DBH (in.)	6.3	7.9	2.0	21.3	5.0	16.0
Merchantable Medial DBH (in.)	11.6	10.0	0.0	21.3	0.0	16.0
Quadratic Mean DBH (in.)	1.9	3.2	1.3	21.1	5.0	16.0
Merchantable Quadratic DBH (in.)	9.6	9.0	0.0	21.1	0.0	16.0
Mean DBH (in.)	1.4	2.2	1.2	21.0	5.0	16.0

Relative Density

	All species	American beech	sweet birch	northern red oak	pin cherry	red maple
Relative density (%/ac.)	133.1	69.3	55.6	5.1	1.9	1.1
Percent of stand (%)	100.0	52.1	41.8	3.8	1.5	0.8

Timber volume

	All species	American beech	sweet birch	northern red oak	pin cherry	red maple
Gross sawtimber volume (bd.ft.)	4,446	1,979	0	2,071	0	396
Net sawtimber volume (bd.ft.)	4,446	1,979	0	2,071	0	396
Gross pulpwood volume (cu.ft.)	2,863	2,523	0	254	0	86
Net pulpwood volume (cu.ft.)	2,291	2,018	0	203	0	69
Gross total volume (cu.ft.)	3,772	2,951	0	625	0	196
Net total volume (cu.ft.)	3,018	2,361	0	500	0	157

Timber value

	All species	American beech	sweet birch	northern red oak	pin cherry	red maple
Sawlog value (\$)	1,356.72	98.97	0.00	1,139.06	0.00	118.69
Pulpwood value (\$)	229.07	201.85	0.00	20.32	0.00	6.90
Timber value (\$)	1,585.79	300.81	0.00	1,159.38	0.00	125.59

Current forest type and current age

Forest Type

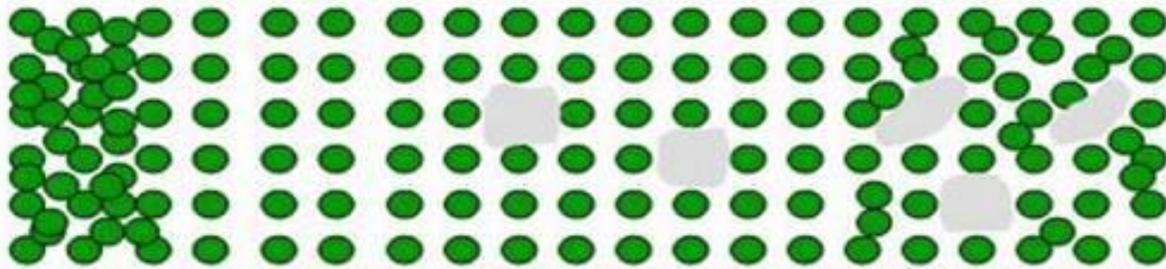
Beech maple

Age

20 (80 for some overstory trees)

Bird's-eye view of current stand condition (check one)

- Wild stand Evenly spaced Evenly spaced with openings Variable density spaced with openings



Current spacing (in feet) Large (>9"DBH) 60 (ft) Pole (5-8"DBH) 25 (ft) Seedling (<5"DBH) 5 (ft)

Size and shape of openings none

Current structure:



- One canopy layer Two canopy layer Multi-layer/Unevenaged

Stand 3 Desired Future Stand Condition

Desired forest type and expected longevity

Forest Type

Age

Oak-birch-maple _____

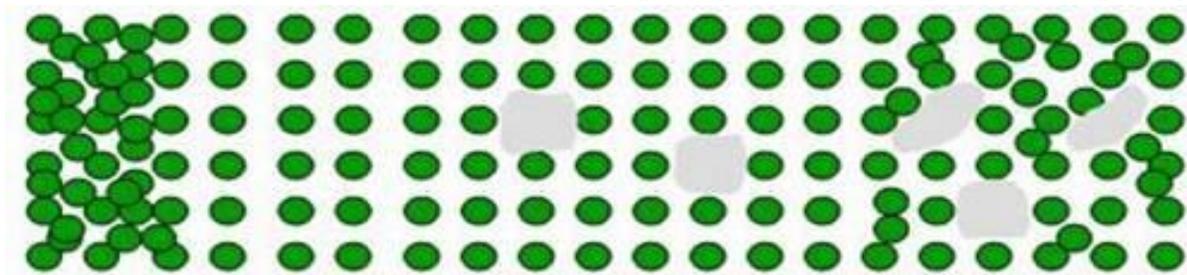
80-90 _____

Desired species to naturally regenerate red maple, red oak

Desired species to plant none

Bird's-eye view of desired future stand condition (check one)

- Wild stand Evenly spaced Evenly spaced with openings Variable density spaced with openings



Desired spacing (in feet) Large (>9"DBH) 20 (ft) Pole (5-8"DBH) 10 (ft) Seedling (<5"DBH) 5 (ft)

Size and shape of openings circular (0.1 ac)

Desired structure:



- One canopy layer Two canopy layer Multi-layer/Unevenaged

Other Desired Stand Descriptions: The preferred method of stand development is to allow the trees to continue accreting height and volume, while improving the residual tree quality and improve the growth rates, which can be achieved by reducing UGS, primarily beech. Reducing UGS and creating a few openings (up to 0.1 acres) would allow for an increase in vertical and horizontal structural diversity, which would improve the habitat quality for forest birds and other wildlife.

Stand 3 Forest Management Activities

Forest Health Management

The primary concern for this stand is development of interfering vegetation – primarily American beech – which should be controlled via mechanical and chemical means. Any beech resistant to BBD (>9" DBH) should be retained in order to promote the genotype. Continued monitoring for beech regrowth, other interfering or invasive species, and symptoms of other disease should occur every 5-10 years.

Harvesting

Stand 3 should undergo a timber stand improvement, specifically a variable density thinning, in order to reduce UGS (mostly beech), and create increased vertical and horizontal structural diversity. This can be achieved by thinning to an overall stand relative density of 65-70%, or approximately 75-80 ft²/ac basal area. The intensity of thinning should vary across the stand, with some sections with predominant UGS to be fully cleared (up to 0.1 acre). These groups should be limited to only those locations with UGS, and likely not to exceed 2-3 total. Sections with high quality hardwood stocking should be thinned somewhat minimally in order to improve height and quality (to be thinned in another 10-15 years), and remaining sections thinned to the average stocking (i.e. 75-80 ft²/ac basal area).

Slash management

Slash retention allows for recycling of nutrients contained in the wood, bark, leaves and needles back into the organic layer of the forest soils, and if left whole reduces the ability of deer to impact new seedlings. Due to landowner preference, wildlife concerns, and maximization of financial benefits, tops or material felled in the future should remain on site and should not be lopped down.

Post-harvest activities

Access trails or any areas with rutting will need to be regraded and recovered, using seeding, geotextile/gravel and creating water bars as necessary per NYS DEC BMP guide. Additionally, at the

discretion of landowner and availability of deer fencing, it can be placed around group cuts in near proximity to quality seed trees.

Best Management Practices

There is a steep slope in this stand and the access trail will need to have water bars installed on it. Any harvesting or other work in this stand should be done when soils are dry or frozen, during summer, early fall or after freeze-up over the winter.

Monitoring

Continued monitoring for growth of interfering plant species should be undertaken annually, and damaging insects/diseases should be checked for at least every five years. Additionally, monitoring the regeneration areas and seedlings' ability to survive due to deer browse should be undertaken at the same time.

Resource Concerns

The primary resource concern in this stand is degraded plant condition, with severe canopy closure, low species diversity, two canopy heights present in the stand, and low amount of woody debris, snags and den trees (Forest Ecological Index is approximately 2.5). Concurrently with the degraded plant condition, wildlife habitat is also a resource concern (young forest habitat index is approximately 0.2).

Additional practices

There may be a need to promote tree/shrub establishment by controlling herbaceous/woody competition and providing barriers to deer entry, in the form of deer fencing or, alternatively, slash wall exclosures.

Management Activity Schedule and Tracking

Stand	Unit (Acres/ Feet, etc)	NRCS Practice Code*	Treatment Activity Short Description (or reference to description in Plan)	Dates		Assistance Program (s) Used?	Net Cash Flow (optional)	
				Planned	Completed		Cost	Income
1	926 ft	560	Access Road	2019				
1	20 ea	587	Structure for Water Control	2019				
1	28.5 ac	666	Forest Stand improvement	2019				
1	3637 ft	654	Road/Trail/Landing Closure and Treatment	2020				
1	1955 ft	655	Forest Trails and landings	2020				
1	5 ac	612	Tree/Shrub establishment	2021				
2	3.7 ac	666	Forest Stand improvement	2020				
2	0.5 ac	612	Tree/Shrub establishment	2021				
3	3.7 ac	666	Forest Stand improvement	2020				
3	1.5 ac	612	Tree/Shrub establishment	2021				

Signatures and Approvals

Landowner

I have reviewed this plan and believe the management recommendations will help me meet my goals and objectives for my property. I agree to follow this plan to ensure the sustainability of my management.

Landowner

Date

Forest Stewardship Program

I certify that this Forest Management Plan meets the requirements of the federal Forest Stewardship Program.

Plan Author

Date

I certify that this Forest Management Plan meets the requirements of the federal Forest Stewardship Program.

State Forestry Representative

Date

Forest Stewardship Tracking Number: (if necessary) _____

NRCS Assistance Programs

I certify that this Forest Management Plan meets the requirements of the USDA Environmental Quality Incentives (EQIP) Program and/or the Quality Criteria for forest activity plans in Section III of the USDA NRCS Field Office Technical Guide.

Technical Service Provider

Number

Date

District Conservationist

Date

American Tree Farm Program

I certify that this Forest Management Plan meets the requirements of the American Forest Foundation's American Tree Farm System.

ATFS Inspecting Forester

Number

Date

Certified Tree Farm Number: (e.g. AL 1234) _____

Date of ATFS Certification: _____

Plan Addendum

Property Owner:

Property Location:

Town of Caroline

Tompkins County

Prepared By:

March 13, 2020

General

This addendum identifies several additions and corrections to the Forest Management Plan. As an example, there is a reduction in the number of trails to be closed and waterbars installed. In addition, in order to improve wildlife habitat, locations of 16 early successional openings to be created were identified, and up to 2 brush piles per acre were added as an additional wildlife habitat feature.

Stand 1 (28.5 acres)

This is the main stand of the property, which is well described in the original plan. We identified 5.5 acres to be used for early successional wildlife openings, as identified on the map below: 2 patch openings that are approximately 1 ac each, and 14 group openings ¼ ac each. In addition, the remaining 23 acres require a forest stand improvement treatment to improve forest and tree health and improve growth among desirable species, such as sugar maple, red oak, and basswood, among others. This will require tree marking, tree felling and/or girdling for snag creation, and basal/cut stump/hack&squirt chemical treatment of beech trees and root suckers and brush (honeysuckle, multiflora rose). In addition, subsequent to creating the openings, a tree/shrub planting should happen with a protection area (e.g. deer fencing) that would prevent deer entry, which would allow for successful growth of the plantings and natural regeneration. This stand contains 921 feet of trail to be closed, including 504 ft at the southwestern portion of the property, which are creating very deep runnels/gullies and eroding soil at the location where the only access to the property can be effectively placed. An access road, as mentioned in the plan, must be created in order to gain access to the property near this location. In addition, 12 waterbars should be placed throughout the property per the map, instead of 20 identified in the original plan. Finally, up to 2 brush piles per acre may be created in this stand, for a total of 56 brush piles.

Stand 2 (1.6 acres)

This is a small stand in the southern portion of the property, which is well described in the original plan. The only exception is that the original Management Activity Schedule and Tracking has 3.7 ac of forest stand improvement for this stand, which should have been 1.6 acres – the actual size of the stand. In addition, the entirety of the stand is covered by honeysuckle, which is more appropriately treated under the brush management practice, rather than forest stand improvement. Finally, there is an increase to 0.75 ac of supplemental hardwood planting with tree shelters, in locations identified on the map.

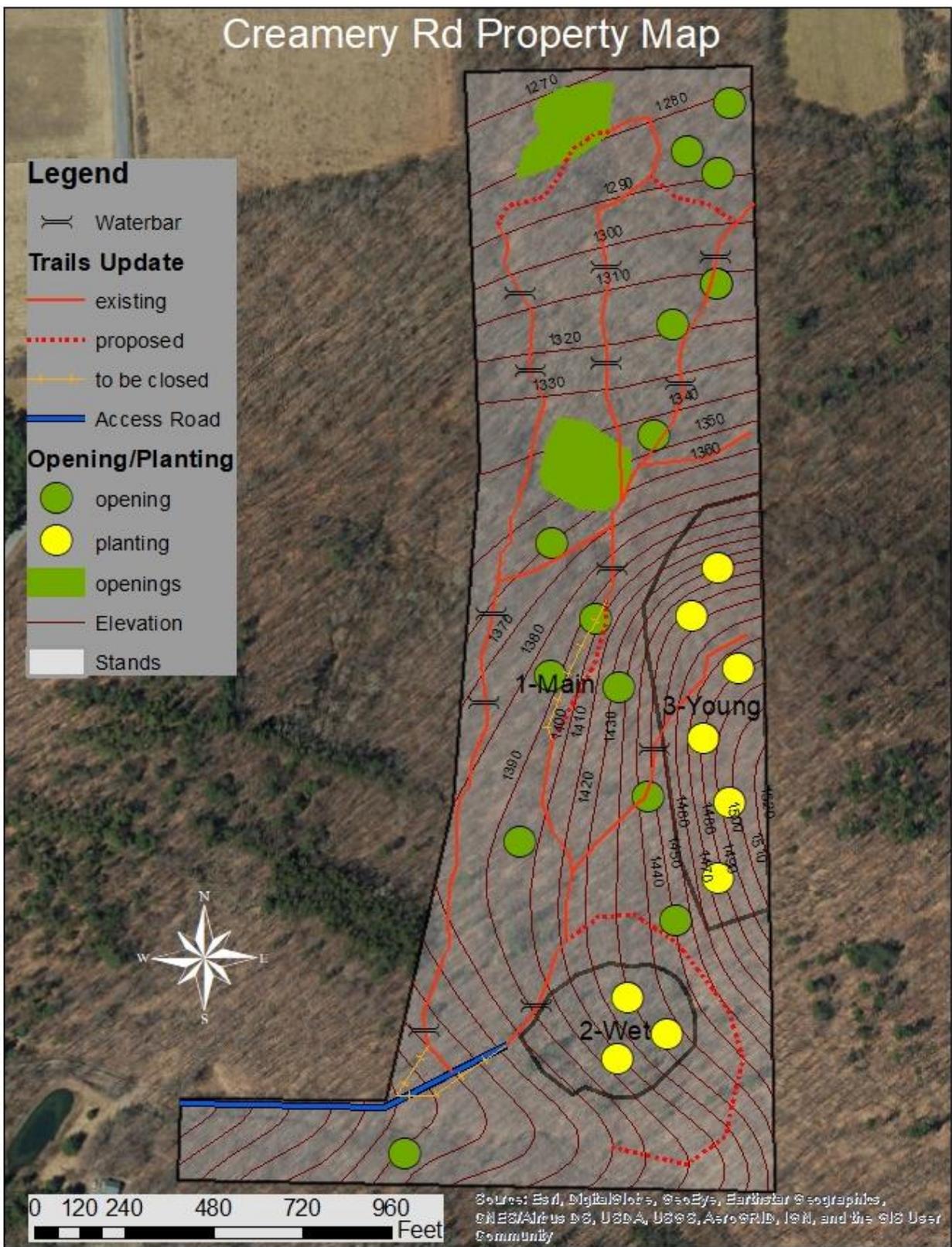
Stand 3 (3.7 acres)

This is a young stand in the eastern portion of the property, located along the hillside and well-described in the original plan. There is a persistent amount of pole- and seedling/sapling-sized beech throughout the stand, which will require a combination of hand thinning with marking and individual chemical stem treatment via basal/cut stump/hack&squirt application. As described in the plan, there is 1.5 ac of supplemental hardwood planting with tree shelters.

Creamery Rd Property Map

Legend

- Waterbar
- Trails Update**
 - existing
 - proposed
 - to be closed
 - Access Road
- Opening/Planting**
 - opening
 - planting
 - openings
 - Elevation
 - Stands



Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Management Activity Schedule and Tracking

Stand	Unit (Acres/ Feet, etc)	NRCS Practice Code*	Treatment Activity Short Description (or reference to description in Plan)	Dates		Assistance Program (s) Used?	Net Cash Flow (optional)	
				Planned	Completed		Cost	Income
1	926 ft	560	Access Road	2019				
1	12 ea	587	Structure for Water Control	2019				
1	23 ac	666	Forest Stand improvement	2019				
1	5.5 ac	647	Early Successional Habitat Development/ Management	2019				
1	921 ft	654	Road/Trail/Landing Closure and Treatment	2020				
1	2368 ft	655	Forest Trails and landings	2020				
1	5.5 ac	612	Tree/Shrub establishment	2021				
1	58 ea	649	Structures for Wildlife	2021				
2	1.6 ac	314	Brush Management	2020				
2	0.75 ac	612	Tree/Shrub establishment	2021				
3	3.7 ac	666	Forest Stand improvement	2020				
3	1.5 ac	612	Tree/Shrub establishment	2021				