Otsego County Forest #5
William Dickson Memorial Forest
Forest Management Plan

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Table of Contents

Introduction, Biography, Property Attributes	3
County and Town Map	4
Desired Future Conditions, Goals and Objectives	5
Inventory Methodology	6
Otsego #5 Forest Stands	7
USDA NRCS Soils Chart	8
Soils Map	9
Forest Stand 5.1	10
Forest Stand 5.2	12
Forest Stand 5.3	14
Forest Stand 5.4	15
Forest Stand 5.5	17
Forest Stand 5.6	19
Forest Stand 5.7	21
Forest Stand 5.8	23
Forest Stand 5.9	25
Forest Stand 6.0	27
Forest Stand 6.1	29
Topographic Map	30

Introduction

Forest Management is a comprehensive science that allows for the maintenance of ecosystem health, sustainable growth and harvest of forest products, administration, aesthetics, and resource protection. Otsego County is dedicated to applying the principles of Silviculture to balance timber harvesting and forest growth to ensure the future viability of our forests. Otsego County forests are a public resource that is managed for timber production, outdoor recreation, wildlife, water, and natural resource conservation. By taking this multipurpose management approach we will be able to benefit the natural resources on county land and give residents the opportunity to enjoy their public land.

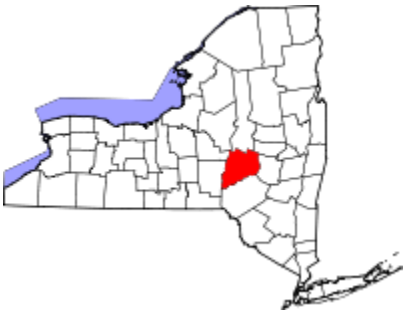
Forester Biography

Dan Zimmerman's experience revolves around procurement and consulting Forestry having worked extensively with landowners, timber harvesters, Foresters both public and private, trucking and construction firms, and the forest industry with over 35 years of experience. Presently, chapter chair of The New York Forest Owners Association's Central New York Chapter and past chapter chair of the Society of American Foresters Iroquois Chapter. Dan's education: Graduate of Morrisville State College, SUNY Polytechnic Institute, and the University of Phoenix.

Property Attributes

Otsego County Forest #5, William Dickson Memorial Forest is essentially a 102 acre +- of mixed hardwood (deciduous) and softwood (coniferous) stands located on Butternut Road, in the town of Unidilla, Otsego County, New York. There are no improvements to the property with access primarily road side throughout the entire road frontage facing Butternut Road. Two access road exist with one in the northern section (stands 5.3 & 5.4), and one in the southern section (stand #5.8). Within Stand #5.8 is an old access road that is used for access to neighboring properties. A tower exists on the old landing located in forest stand 5.9

Otsego County, New York



Town of Unadilla

Desired Future Conditions

The overall future condition of this property should focus on: 1) the continuous production of forest products from commercially viable softwood and hardwood species, and 2) recreation. Encouraging and promoting biodiversity helps overall forest and ecosystem health. Resiliency of the forest through diversity is another future benefit in the face of possible threats from invasive species, native pathogens, and possible climate change. It is envisioned a future forest in various succession stand stages with only one or two stands requiring harvesting or thinning.

Goals and Objectives

Forest Inventory

Complete a comprehensive inventory of 11 forest stands found in this parcel. Inventory was completed December 2019 that included assessment of commercially important timber species and also low grade or pulpwood.

Problem identification

Results of the inventory, together with observations of the Forester on any threats or impediments that would mitigate the overall effort to achieve the desired future condition of the parcel or stand are presented. The "Keep Forests Healthy" scorecard by The Nature Conservancy, Cornell Cooperative Extension of Onondaga County will be implemented also.

Trail Maintenance

There is a good set of skid roads on the property that are in good condition. A goal would be to continue the present condition and maybe mark possible hiking trails. Most of the trails connect to old landings and would require some work for connectivity. Overall, the property lies mostly flat lending itself to excellent winter hiking, snowshoeing, and cross country skiing. Access is excellent due to road frontage but lacks off road parking.

Recommendations

Prescriptions on individual forest stands and the overall parcel to be outlined. Recommendations to include implementation and alignment with the desired future forest condition. Prescriptions will include considerations for basal area and trees per acre but also for species, vigor, invasive species, wildlife, ecology, and Forester experience.

Inventory Methodology

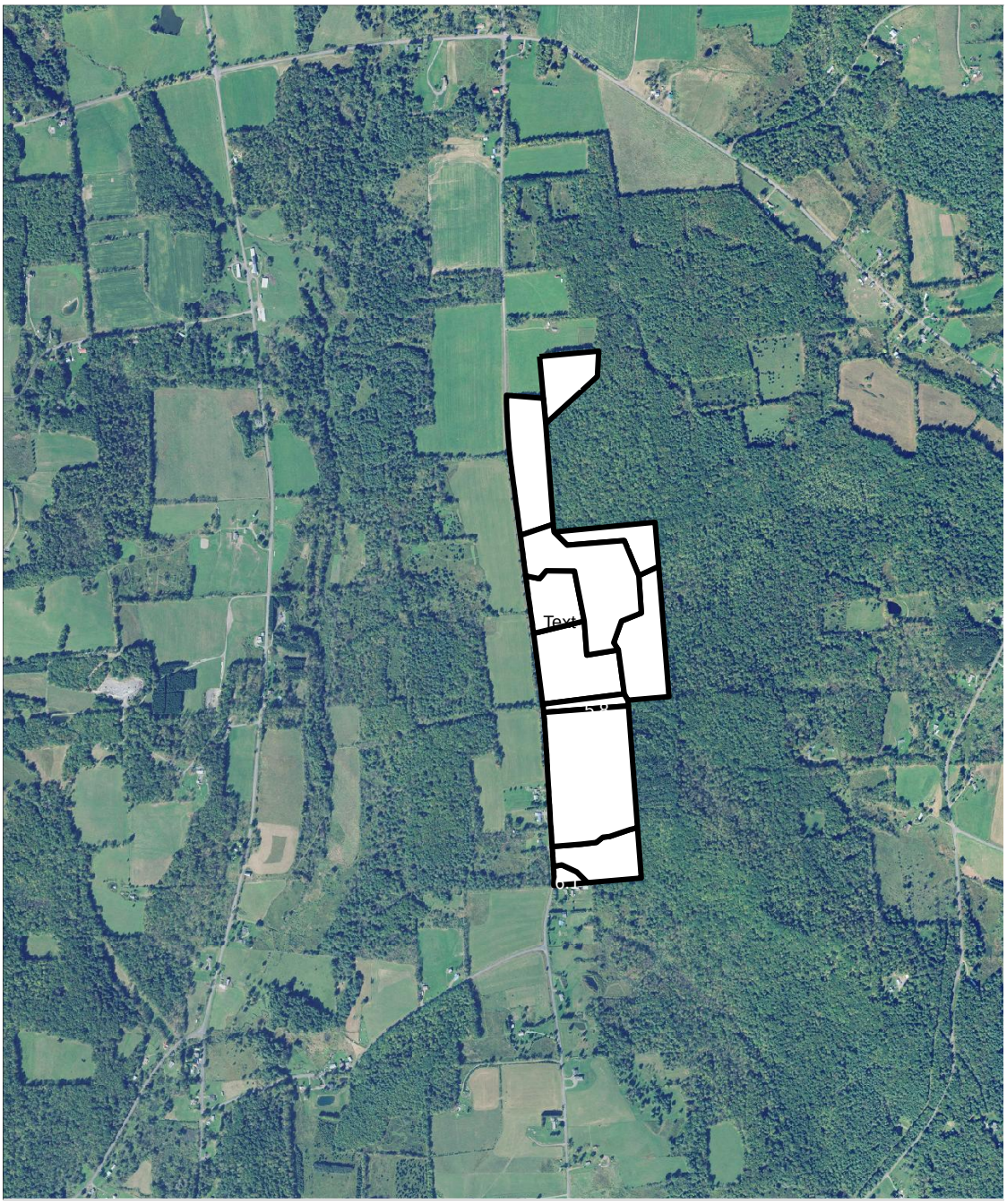
Forest inventory was conducted on the 11 forest stands that compromise Otsego County Forest #5. Forest Stands were constructed based on species composition, basal area, forest cover type, geological considerations, and past cutting history. See Page 7, Figure 1

Each stand will be inventoried by using variable plot radius data points with a 10 Basal Area Factor (**BAF**) wedge prism. Trees that fall into each data plot will be measured for Diameter at Breast Height (**DBH**) with a Biltmore stick and their height will be determined by the judgment of the Forester. Species of every tree in the data plot will also be recorded. Recorded data will be averaged throughout the stand to determine the stand's basal area, trees per acre, species composition and overall health. Each stand will have a different number of data plots based on their area measured in acres. The chart used to determine the number of data plots for each stand can be seen in **Table 1**.

Table 1 Ratio chart of plots in a stand

Acres	**# of Plots**
0 - 4	3
5 - 7	4
7 - 10	5
10 - 15	7
15 -25	10
26 - 30	14
40	15

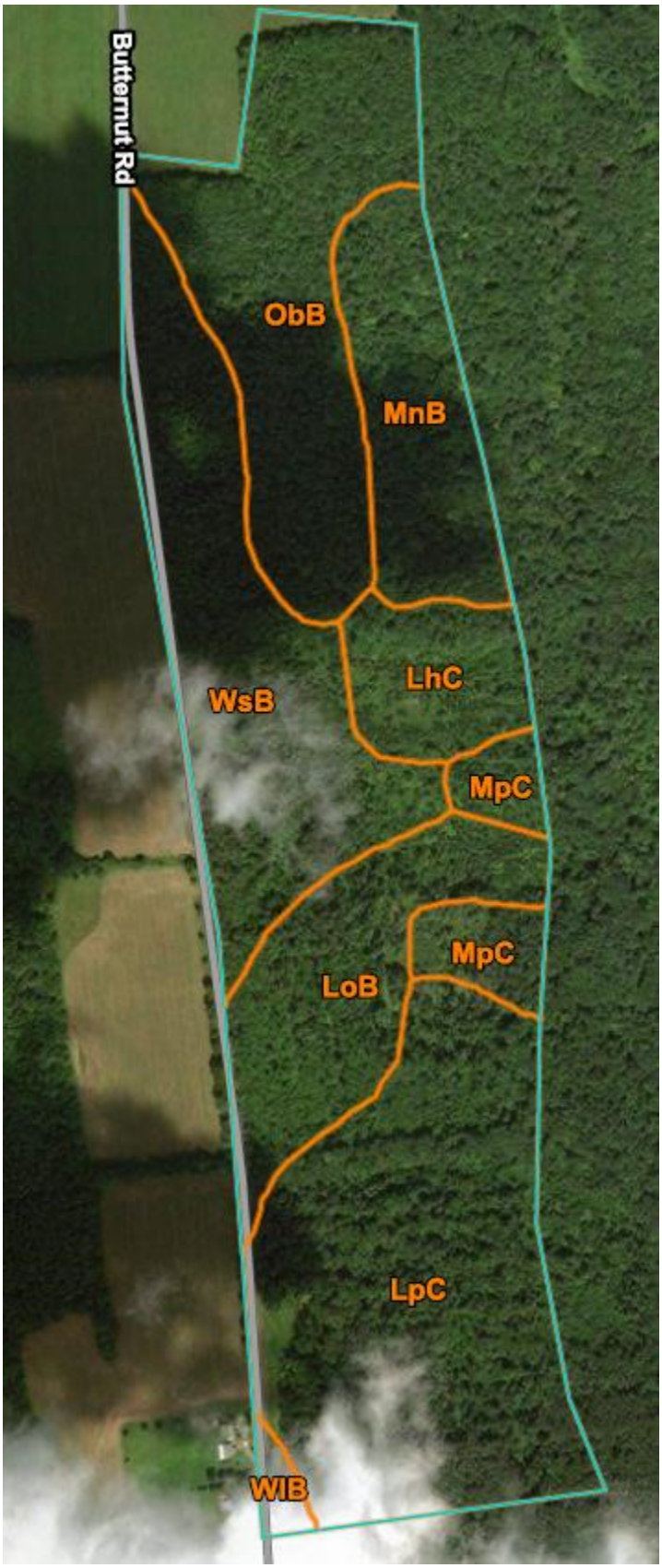
Otsego County Forest #5



USDA NRCS

Soil Resource Abbreviations and features for Soils Map Page 9

Abbreviation	Soil Name	Drainage Class	Water Storage capacity
LhC	Lewbeach channery silt loam	Well drained	Low to moderately low
LoB	Lordstown-Arnot complex	Well drained	low
LpC	Lordstown-Chadakoin complex	Well drained	low
MnB	Mongaup-Hawksnest complex	Well drained	low
MpC	Morris and Volusia	Poorly drained	Very low
ObB	Onteora channery silt loam	Poorly drained	Very low
WIB	Wellboro channery silt loam	Moderately well drained	low
WsB	Willowemoc channery silt loam	Moderately well drained	low


Butternut Rd
ObB
MnB
LhC
WsB
MpC
MpC
LoB
LpC
WlB

Forest Stand 5.1

This stand occupies the most northerly portion of the parcel Otsego #5, comprised of approximately 5.7 acres more or less. The dominant soil type is Onteora channery silt loam. This stand is poorly drained with some standing water making for poor conditions for working machinery.

Forest Diversity and Composition

Species diversity within this stand is moderately poor with four species most prominently represented. Red Maple (Acer rubrum) far exceeds the three other commercially important species. The overall quality is poor due to site characteristics.

General tree health is judged to be fair with slow growth and many stem/branching defects noted.

Insects and diseases: none observed

Forest Structure

Structural diversity is fairly good with trees of varying size as well as a developing multiple vertical layering. Standing dead trees are few along with down dead wood making this stand less likely to attract wildlife.

Tree crowns and spacing: crowed conditions developing

Regeneration

Red Maple and Eastern White Pine (Pinus strobes) regeneration is high on this site with both exhibiting natural seeding and dominating commercial, pulp, and seedling/sapling categories. Species suitability is good given the wet properties of this site. Interfering plants: none noted. Deer browse impacts are low.

Site level risks

Stand 5.1 would be most susceptible to flooding and extreme rainfall due to its soil type and flat topography. Shorter and milder winters would limit the availability of harvesting or thinning.

Stand 5.1 Prescription

Due in part to the low stand basal area it is recommended that no action be undertaken at this time. Letting succession factors prevail and this stand develop more fully is the best choice. Higher tree count per acre together with poor quality of the commercially viable crop trees present suggest a future timber stand improvement once basal area approaches a more acceptable level.

Stand 5.1 data

Species	Trees per Acre (TPA)	Basal area per acre (sq. ft)	Volume per acre (Bd Ft, Int.1/4) F.C. 78
Red Maple	51	16.2	3,081
Eastern White Pine	10.44	9.02	1,675
Black Cherry	10.11	2.4	437
Black Birch	6.38	1.94	423
Total	77.93	29.57	5616

Species	TPA	Basal area per acre (sq ft)	Volume standard chords per acre
White pine pulp	19.92	.545	.74
Hardwood pulp	78.48	6.03	3.83
Total	98.4	6.68	4.57

Forest Stand 5.2

This stand rests in the northerly section of parcel #5 and has road frontage. Stand 5.2 is comprised of approximately 10.7 acres. Soils present: north- Onteora channery silt loam, south- Willowemoc channery silt loam. The northerly portion is poorly drained and the southerly is moderately well drained. Northerly is dominated by Tamarack or Eastern Larch (Larix laricina) plantation, south Norway spruce (Picea abies). The south was cut a long time ago, apparently a seed cut that enabled Norway spruce seeding.

Forest Diversity and Composition

Species diversity in the north of this stand is poor as it is dominated by Tamarack plantation. South has good diversity of tree species. Species suitability and health is poor in the north with the Tamarack stagnating, growth negligible. South species suitability is good with tree growth and health suitable to the growing site. No insect or disease problems were noted.

Forest Structure

Structural diversity: North: poor, single age or size with evident tree crown crowding and uniform tree diameter. South: Good diameter differentiation and developing vertical layering. Standing and down deadwood wildlife considerations are poor in both sections of the stand.

Regeneration

North: Red Maple regeneration very pronounced in both the seedling and sapling succession stages. The Red Maple saplings are usurping the stagnating Tamarack. South: Norway spruce regeneration is doing well with adequate stocking together with Red Maple and Black Birch reproduction. Species suitability North: poor with the Tamarack not well suited to this site, however the Red Maple is well suited to this site and is doing well. South: All tree species well suited. No interfering plants were noted nor do any heavy deer browse impact.

Site level risks

North: risk is in excess rainfall or water due to poor drainage. Shorter or mild winters can adversely affect the workability of the site. South: has a history of logging and milder winters can have a lesser affect on workability of the site and excess rainfall or water can have a higher affect on the grounds workability.

Stand 5.2 Prescription

Due to the stagnation of the Tamarack plantation in the northern part of this stand it is recommended that liquidation of said stand be undertaken and stand conversion to hardwood be allowed to take place. Due to the low value of the Tamarack, this procedure is recommended to be done in conjunction with a timber harvest in other stands in this parcel. The southern section forest stand is establishing itself well with the only possible action would be the harvesting of the remaining Norway spruce seed trees.

Stand 5.2 data

Species	TPA	Basal area/acre (sq. ft.)	Volume per acre (Bd Ft, Int.1/4) F.C. 78
Red Maple	13.8	11.93	1611
Northern Red Oak	3.54	4.17	474
Total	17.34	16.1	2085

Species	TPA	Basal area/acre	Volume Standard cords per acre
Norway Spruce	12.57	10.55	3.51
Eastern White Pine	3.37	1.71	.41
Tamarack	17.1	3.49	1.34
Hardwood pulp	2.9	5.46	.28
Total	35.94	21.21	5.54

Forest Stand 5.3

This stand is centrally located within parcel Otsego #5 and is comprised by approximately 16.5 acres + or -. Soils present: Willowemoc channery silt loam and Lewbeach channery silt loam, most of the site is well drained and can be readily worked in most circumstances. A clear cut silvicultural system was employed many years ago and the resulting even aged stand is a direct result.

Forest diversity and composition

Species diversity is somewhat limited to Red Pine (Pinus resinosa), Red Maple, Paper Birch (Betula papyrifera), Gray Birch (Betula populifolia), and some pioneer brush. Red Pine regeneration is present in the sapling and pole stages naturally seeded, with Red Maple and the Birch's in the sapling stage. Intermittent open spaces exist also. It is surmised that the purpose of the clear cut was the seeding in of the Red Pine and to that extent; it was successful. Species suitability to the growing conditions is good, general tree health good also. No insect or disease threats were observed.

Forest Structure

Structural diversity is not a factor. The results of a clear cut are an even age stands creating a simple canopy and uniform sized trees. There are no standing or down deadwood thus limiting certain wildlife. However, with intermittent open spaces and Red Pine poles and saplings also present, early succession wildlife will benefit. Tree crowns and spacing have yet to fully occupy the site but are doing very well.

Regeneration

The Red Pine regeneration is a direct result of a past clear cut and is very remarkable as to its success and desirability. Interfering plants have not been noted, deer browse damage negligible.

Site level risks

Risk is mainly from excess rainfall in a short period of time. Site is well drained and it is felt can recover well from excess moisture threats.

Stand 5.3 data

Due to the early succession stage of this stand, no data was collected.

Forest Stand 5.4

This stand is comprised of 5 acres + or -. Soils present include Lordstown-Arnot complex and Morris and Volusia. Drainage ranges from good to poor. Stand 5.4 is comprised of two distinct subsets: 1) an entry dirt road with old rock fence and border deciduous trees and 2) fully developed Eastern White Pine stand containing merchantable timber.

Forest diversity and composition

There is good species diversity within the deciduous component and contrast with the White Pine stand. All species exhibit good suitability to the growing site. General tree health is questionable with some of the large deciduous trees growing alongside the road and rock fencing. These trees are over mature and will be losing value with time. Their value lies in protection of the rock fence and access road but could be harvested in conjuncture with another stand harvest. The White Pine overall health is good with the stand at full maturity. No insect or disease threats were observed.

Forest Structure

Structural diversity is low in both the deciduous and coniferous subcomponents. Standing dead and down dead wood is low in both components and tree spacing and crowns are good with some questionable in the deciduous component. It is surmised that the White Pine stand though mature and containing merchantable timber be left in its present state for wildlife benefits. The inherent value lies in the contrast of habitat with the surrounding deciduous stands and the volume needed for harvesting within this stand is negligible.

Regeneration

There is little to no regeneration in both subcomponents of stand 5.4 due to maturity. Little to no interfering plants was noted, minimal deer browsing noted.

Site level risks

Risks to stand 5.4 are mainly wind and ice storms because of the maturity of the deciduous and coniferous trees present. Excess rain is a minimal threat. Shorter and milder winters can impact accessibility.

Stand Prescription

Allow the White Pine subcomponent to remain in present state for wildlife contrast habitat. Harvest hardwood in conjuncture with other stand harvesting but not cutting any trees that would damage the rock fence.

Stand 5.4 Data

Species	TPA	Basal area/acre (sq. ft.)	Volume per acre (Bd Ft, Int.1/4) F.C. 78
Northern Red Oak (Quercus rubra)	6.75	13.6	1690
Red Maple	12.1	6.22	1181
Eastern White Pine	6.25	16.00	2527
Norway Spruce	1.59	1.58	442
Total	26.69	37.40	5840

Species	TPA	Basal area/acre (sq. ft)	Volume standard chords per acre
Red Pine	2.71	.922	.57
Softwood pulp	2.34	1.07	.31
Hardwood pulp	24.38	1.96	1.4
Total	29.43	3.92	2.28

Forest Stand 5.5

Approximately 6 acres of mixed softwood and hardwood make up this stand. Soils found here are primarily Willowemoc channery silt loam and Lordstown-Arnot complex and as a result fairly well drained and can be worked with machinery in many circumstances. Red Pine plantation dominates the majority of the landscape with mature hardwoods taking a lesser role. Good access with road frontage onto Butternut road. Excellent quality Red Pine.

Forest diversity and composition

Over six commercial species were tallied resulting in good species diversity and all exhibited good growth characteristics lending to the surmise of good species suitability to the growing site. No problems were noted with insect or disease manifestations.

Forest Structure

This stand has moderate structural diversity with a mature plantation and hardwood complex but a relatively lesser developed understory. Very few standing and down dead wood was observed thus limiting wildlife that requires that habitat. Tree crowns and spacing in both hardwood and Red Pine plantation were adequate with signs of good growth.

Regeneration

There is a significant lack of acceptable species regeneration present. Park like conditions exist, canopy closure limiting sunlight penetration of the forest floor. Problems with interfering plants were not observed. Lack of browse (regeneration) means lack of deer impact.

Site level risks

Stand 5.5 is moderately to well drained with a slight hill that aids in drainage. Wind damage could be a problem with the Red Pine plantation that faces a westerly compass direction. Milder winters should not impact this stand due to proximity to the road.

Stand Prescription

Due to the basal area, health, and tree stocking it is felt that the stand should continue to grow and be revisited in ten years.

Forest Stand 5.5 data

Species	TPA	Basal area/acre (sq. ft.)	Volume per acre (Bd Ft, Int.1/4) F.C. 78
Red Maple	7.95	5.31	1059
Northern Red Oak	8.44	3.65	660
White Ash (Fraxinus Americana)	1.15	2.18	340
Black Cherry (Prunus serotina)	4.59	.55	459
Total	22.13	11.69	2518

Species	TPA	Basal area/acre (sq. ft.)	Volume Standard cords per acre
Red Pine	121.78	14.7	9.19
Hardwood pulp	9.18	1.09	1.88
Total	130.96	15.79	11.07

Forest Stand 5.6

This stand contains 11.2 acres more or less, has good road frontage and access, and has been cut heavily in the past. Silvical system employed: seed tree cutting with the estimated objective of Norway spruce regeneration. Majority soils present: Lordstown-Arnot complex, ground is relatively well drained, flat, and lends itself to forestry activities well.

Forest Diversity and Composition

This stand is slowly becoming a hardwood stand with pioneer or early succession hardwood species becoming prominent in the seeding and sapling stages. Heavy, old seed tree cutting with residual Norway spruce present growing modestly in the upper crown classifications. Species suitability is good especially in the deciduous regeneration; it appears the spruce is only moderately suitable. Overall tree health looks to be good. No insect or diseases were observed.

Forest Structure

Structural diversity is good with developing complexity of trees of different sizes and vertical layering. Standing dead trees and down dead trees observed was in the low to moderately low occurrence. Tree crowns and spacing of the upper canopy was relatively large with slowly developing large crowns on the dominant trees.

Regeneration

Desirable regeneration of Norway spruce occurred only close to Butternut Road, with the interior of this stand containing little to no reproduction. Pioneering hardwood species were very pronounced and represent the future forest of this stand. Regeneration suitability to the site is good with little interfering plants noted. Deer browse was noted but the impact appears to be light and not much of a factor.

Site Level Risks

Fairly well drained soils on flat topography makes this stand relatively resistant to many risks. Drought conditions and extreme moisture conditions represent the most risk. Shorter and milder winters can affect accessibility.

Stand Prescription

With relatively low basal area and trees per acre it is recommended that this stand be left to develop into a hardwood stand. Norway spruce and some Red Pine will continue to moderately grow and occupy certain parts of the canopy with most in the dominant/codominent classifications. In about ten years, another inventory should be undertaken and development of the hardwood stand and residual Norway spruce and Red Pine should be evaluated.

Stand 5.6 Data

Species	TPA	Basal area/acre (sq. ft.)	Volume per acre (Bd Ft, Int.1/4) F.C. 78
Red Oak	1.48	4.54	311
Red Maple	2.63	2.55	212
Black Cherry	3.64	1.57	237
Total	7.75	8.66	760

Species	TPA	Basal area/acre (sq. ft.)	Volume Standard cords per acre
Norway Spruce	17.13	17.10	4.26
Red Pine	8.86	7.01	2.25
Hardwood pulp	7.39	3.93	.73
Total	33.38	28.04	7.24

Forest Stand 5.7

10.2 acres more or less make up this forest stand. Two components are found within this stand: 1) upland transition and 2) wet land. The upland component contains mostly commercially valuable species like the Red Maple, Red Oak, and White Ash. Trembling Aspen or Popple (Populus tremuloides) is found here also. The wetlands portion of stand 5.7 contains Eastern White Pine, and the majority of the Hardwood pulp. Soils present are Lordstown-Arnot complex in the upland transition and Morris and Volusia in the wetlands. Due to the nature of the wetland, this stand should not be worked with heavy machinery.

Forest Diversity and Composition

Both components have an average representation of flora that is diverse with many species present especially in the seedling, sapling, and brush stages. The transition from upland is readily apparent in the species occupying the growing space. General tree health in the upland transition zone is good. The wet lands naturally seeded Eastern White Pine health and hardwood pulp tree health is not good with poor form, quality, and growth characteristics. No insect or disease infestations were observed. Upland transition also has a representation of mature Trembling Aspen.

Forest Structure

Structural diversity in the upland transition zone is lacking with mature trees and some seedlings resulting in a park like appearance. The wetlands exhibit more structure with varying size trees and poorer growth. Interspersed in wet lands is a significant amount of open and brushy space ideal for wildlife. Standing dead and down dead wood is not common throughout the stand.

Regeneration

Red Maple seedlings are most prominent throughout most of the stand. There are some Eastern White Pine seedlings mostly in wet areas. Regeneration suitability is good with both previously mentioned species well adapted to moist sites. There were no interfering plants noted in this stand. Deer browse not a factor in the wetlands. Some browse was noted in the upland transition.

Site Level Risks

Extreme rainfall would be the most significant site level risk to this stand and would adversely affect both components. Shorter and milder winters and the high water content of the site effectively make this stand unworkable.

Stand Prescription

Upland transition component has mature Trembling Aspen that if harvested or cut would benefit wildlife such as Ruffed Grouse, cottontail rabbit, and woodcock (all species of concern). Due to time of year of inventory, the sex of the Aspen (dioecious) could not be ascertained. Cutting of male Aspen would provide the largest benefit long term for wildlife through stump and root sprouting. Otherwise, it is recommended that this stand not be harvested and be managed for maximum wildlife benefit.

Stand 5.7 Data

Species	TPA	Basal area/acre (sq. ft.)	Volume per acre (Bd Ft, Int.1/4) F.C. 78
Red Maple	14.24	5.5	966
Red Oak	1.67	4.82	649
White Ash	11.02	7.01	1194
Total	26.89	17.33	2809

Species	TPA	Basal area/acre (sq. ft.)	Volume Standard cords per acre
Eastern White Pine	10.68	7.58	2.19
Trembling Aspen	8.57	9.56	2.65
Hardwood pulp	9.89	1.88	0.8
Total	29.14	19.02	5.64

Forest Stand 5.8

Essentially a forest road access to 1) portions of the middle and southern stands of Otsego #5 and also 2) access to private lots on the eastern border. Comprised of approximately 1.8 acres, this "stand" contains some mature hardwood timber mainly existing as old border/property line trees. Soils present: Lordstown-Chadakoin complex and are listed as well drained.

Forest Diversity and Composition

5.8 has good species diversity, many commercial tree species (hardwood: 5) throughout the 1.8 acres stand. Species suitability to the growing site is good, mostly upland growing conditions. General tree health is questionable due to over maturity of some individual hardwood trees. There were no insect or disease problems observed.

Forest Structure

Structural diversity of the stand contains mostly trees of similar size and age, tending to over maturity creating a simplistic canopy. Many of the older property or stand border trees would lend themselves to cavity nesting and insect feeding wildlife. Little to no standing or down dead wood thus limiting certain wildlife attracted to such conditions. Tree crown spacing is crowded with very large crown dominating the forest.

Regeneration

There is a lack of suitable commercial regeneration due to the large tree over story. Interfering plants within this stand were not observed and deer browse is not a factor.

Site Level Risks

Due to the over maturity of many individual trees in this stand it is felt that wind damage and ice storm damage represent the highest risk to stand 5.8. Extreme rainfall can be a tertiary level threat also. Shorter and milder winters can affect accessibility, leading to significant rutting by vehicles using the roadway.

Stand Prescription

Essentially, leave as is, the main usage as a roadway access. Limitation of usage to dry months of the year should be encouraged to limit rutting and the development of recreational trail (s) emanating from this access could be advantageous.

Stand 5.8 Data

Species	TPA	Basal area/acre (sq. ft.)	Volume per acre (Bd Ft, Int.1/4) F.C. 78
Northern Red Oak	16.37	8.73	2301
White Ash	11.6	7.95	2887
White Oak (Quercus alba)	4.37	7.71	849
Shag Bark Hickory (Carya ovata)	13	1.58	956
Black Cherry	2.29	2.18	678
Total	47.63	28.15	7671

Species	TPA	Basal area/acre (sq. ft.)	Volume Standard cords per acre
Norway Spruce	4.7	2.18	.63
Hard wood pulp	26.84	1.06	1.36
Total	31.54	4.14	1.99

Forest Stand 5.9

24.3 acres + or – of forest land comprises this mixed specie stand. Soil type is Lordstown-Chadakoin complex and is categorized as well drained. Topography varies between flat and rolling hillside. There is an old landing on this stand that has a tower and also presents excellent access for timber harvesting. Several skid roads from a thinning many years ago emanate from the landing affording quick and easy accessibility to the stand. Norway spruce, White Pine and Red Pine (southerly section) dominate in volume and tree count the available commercial species.

Forest Diversity and Composition

Seven commercial species occupy this stand resulting in excellent species diversity. Specie suitability and tree health relationships to the growing site are excellent, showing remarkable growth characteristics, especially in the coniferous species. No insect or disease manifestations were observed. One invasive species was observed: Multiflora Rose. Two individuals separated by 3 to 4oo feet, overtopped, and in poor health were observed.

Forest Structure

Structural diversity was limited with the Spruce and Pine occupying much of the canopy and not much multiple vertical layers present. These trees are mature with some room for future growth but occupy much of the growing space limiting the establishment of a residual successive stand. One exception is in openings scattered throughout the stand that exhibit both hardwood (including pulp) and Norway spruce regeneration. There is also abundance of standing dead trees and down dead wood offering good habitat/shelter for certain wildlife species. Tree crowns and spacing is crowded, competition for growing space is intensifying, slowly diminishing crown size.

Regeneration

Reproduction of commercially important tree species is largely occurring in scattered openings created by wind throw, long ago cutting, or tree death. Indications of conditions highly favorable for Norway spruce regeneration are good. Interfering plants and deer browse were not noted to be factors.

Site Level Risks

Because of the rolling hill topography and the aspect of the stand, it is surmised the highest risk being wind throw and icing damage. Shorter and milder winters should not impede the workability of this stand.

Stand 5.9 Prescription

A commercial timber harvest of Norway spruce, Red Pine, and hardwoods is proposed not to exceed 50 square feet (30% of stand Ba) removed from the stand. Exception would be if market conditions or logging feasibility required more volume, but care to encourage the proper residual basal area for optimum tree growth to be maintained. Secondary objective is to encourage Norway seeding/regeneration and the establishment of a viable new stand. Observed excellent quality of Norway spruce (saw log) and Red Pine (relatively high proportion of utility pole stock) will help to expedite the timber sale. Attention to multiflora rose with herbicide within several years after harvest is recommended.

Stand 5.9 Data

Specie	TPA	Basal area/acre (sq. ft.)	Volume Standard cords per acre
Norway Spruce	34.78	110.63	5.74
Red Pine	10.18	20.14	4.43
Eastern White Pine	8.9	22.97	3.07
Hardwood pulp	26.3	2.51	1.36
Total	80.16	156.25	14.6

Specie	TPA	Basal area/acre (sq. ft.)	Volume per acre (Bd Ft, Int.1/4) F.C. 78
Red Maple	7.6	12.94	1059
White Ash	2.28	4.79	341
Yellow Birch	1.53	2.62	178
Black Cherry	.57	1.77	78
Total	11.98	22.12	1656

Forest Stand 6.0

Stand 6.0 is comprised of approximately 7 acres more or less of mixed wood/species. Topography is hill side with Lordstown-Chadakoin complex soils present. This site is well drained and would present good equipment working conditions.

Forest Diversity and Composition

Species diversity is good with at least six different coniferous and deciduous commercial species present. Species suitability to the growing site was moderate with Red Pine exhibiting excellent growth characteristics and Norway Spruce showing the opposite – poorer growth characteristics. General Tree health was also moderate with no insect or disease vectors observed.

Forest Structure

Structural diversity was varied within this stand. In areas that had a history of disturbance good vertical layers were present; mainly hardwood seedlings, saplings, poles, and pulp. In plantation areas with little to no disturbance, structural diversity was very limited with some areas slowly approaching stagnation. Standing dead trees and down dead wood were moderately represented throughout stand 6.0 thereby offering credible wildlife habitat.

Regeneration

Desirable regeneration mostly in hardwood form (Red Maple dominating) occurs in disturbed areas. No regeneration within the undisturbed Red Pine and Norway spruce plantations. Regeneration suitability is good in more open areas with hardwoods occupying these areas. Overall, a lack of interfering plants affecting the hardwood reproduction. Deer browse was noted to a minimal degree in the hardwood regeneration areas.

Site Level Risks

Hillside topography together with well drained soil considerably lessons risk of extreme moisture and/or rainfall. Azimuth for this stand faces the prevailing wind direction thus lending more credence to wind and ice threats to this stand. Warmer or shorter winter's effects on timber management of this stand are largely negligible.

Prescription

The basal area of this stand does not support any harvesting activities at this point in the stand rotation. With a future inventory in 7 to 10 years, it is contemplated this stand having a thinning done judiciously to favor the Red Pine and discriminate against the Norway spruce. The growth and quality characteristics of both species are polarized. Encouragement of the hardwood species should be undertaken as it is opinionated this stand is essentially a hardwood site. Any White Ash mature timber tree should be harvested if its location is optimal to adjacent stand 5.9's harvesting.

Forest Stand 6.0 Data

Species	TPA	Basal area/acre (sq. ft.)	Volume per acre (Bd Ft, Int.1/4) F.C. 78
Red Maple	23.61	16.3	3725
White Ash	3.16	7.25	896
Total	26.77	23.55	4621

Species	TPA	Basal area/acre (sq. ft.)	Volume Standard cords per acre
Red Pine	24.37	10.63	8.23
Norway Spruce	23.25	7.76	3.71
Eastern White Pine	1.1	2.18	.48
Trembling Aspen	3.83	2.62	1.05
Hardwood pulp	15.01	458	1.6
Total	67.56	27.77	15.07

Forest Stand 6.1

One acre of hardwoods comprises Forest Stand 6.1. Soils found were Wellboro channery silt loam, moderately well drained. This stand has some mature high quality Sugar Maple however the Basal area does not support harvesting the whole stand, neither does the acreage.

Forest Diversity and Composition

The stand has moderate diversity with three main commercial species noted. Species suitability to the growing site is excellent. General tree health is excellent also with no insect or disease observed.

Forest Structure

Structural diversity is average with a struggling understory of tolerant seedlings and saplings. Standing dead trees and down dead wood is practically nonexistent. Tree crowns and spacing is good with adequate growing space resulting in large, healthy crowns.

Regeneration

Desirable reproduction is poor to average with tolerant Sugar Maple regeneration struggling to establish itself. Deer browsing is a notable negative factor.

Site Level Risks

Extreme rainfall could be a risk with this stand located at the base of a hill. Shorter and milder winters would have a negligible effect on this stand.

Prescription

Propose a few Sugar Maple trees to be harvested when stand 5.9 is logged.

Forest Stand 6.1 Data

Species	TPA	Basal area/acre (sq. ft.)	Volume per acre (Bd Ft, Int.1/4) F.C. 78
Sugar Maple	46.65	9.38	6652
White Ash	4.58	2.18	655
Black Cherry	37.44	2.91	439
Total	88.67	14.47	7746

Topographic Map Otsego #5