Otsego County Forest #14
Forest Management Plan

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Introduction

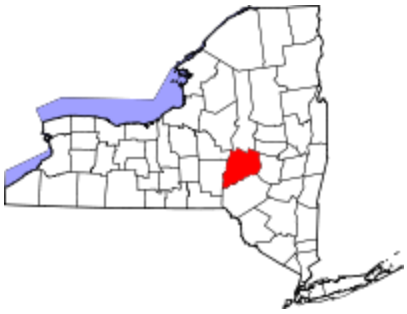
Forest Management is a comprehensive science that allows for the maintenance of ecosystem health, sustainable growth and harvest of forest products, administration, aesthetics, and resource protection. Otsego County is dedicated to applying the principles of Silviculture to balance timber harvesting 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 #14 is essentially a 70 acre +- hardwood forest located on County Route 33 in the Town of Middlefield, Otsego County, New York. There are no improvements to the property with access primarily located in the south eastern midpoint near the corner with County Route 33. Access is an old log landing with limited parking. While there are differences in the three stands that make up #14, they share a commonality or cohesiveness that affectively promotes management of the entire property at the same time or under the same time frame.



Desired Future Conditions

The overall future condition of this property should focus on the continuous production of high quality forest products from commercially important hardwood species. 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 with three or more succession stages of forest stands with a rotational period of 15 to 20 years.

Goals and Objectives

Forest Inventory

Complete a comprehensive inventory of the three forest stands found in this parcel. Inventory was completed November 2019 that included assessment of commercially important timber species and also low grade or pulpwood that also includes interfering vegetation.

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. 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 excellent condition. A goal would be to continue the present condition and maybe mark possible hiking trails. Overall access is limited through a small access point that would handle very limited parking. To expand this access to accommodate more parking would be cost prohibitive.

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

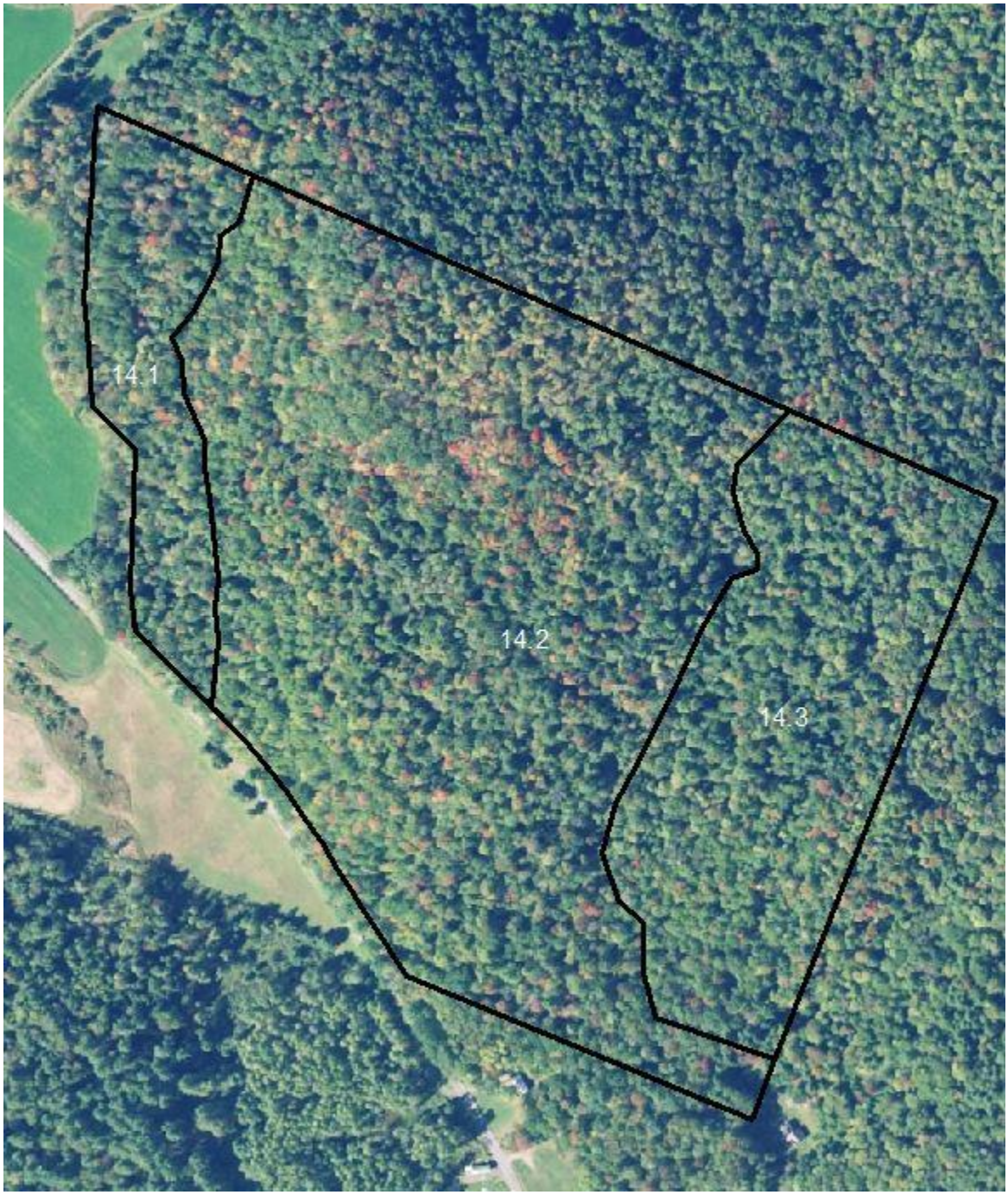
Forest inventory was conducted on the three forest stands that compromise Otsego County Forest #14. Forest Stands were constructed based on species composition, basal area, forest cover type, geological considerations, and past cutting history. See Page 7, Figure 1

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 #14. Figure 1



A note on soils

Soils on the parcel appears to be Lordstown, Chadakoin, and Manlius Soils, 25 to 59% slopes, very rocky; Lordstown, Chadakoin complex, 15 to 25 percent slopes; and Valois gravelly loam. Well drained, frequency of flooding is very low, and the ability to work the site is high.

Forest Stand 14.1

This stand contains 8.6 acres plus or minus and occupies the most we sternly portion of the parcel. The most prominent feature is geologic. The northerly portions of this stand contain the steepest ground and thinnest soils. Harvesting in this area will be lightest in the steepest ground. Logging/skid roads exist and are in good shape and this stand is accessible.

Forest diversity and Composition

Species diversity: good, with a good representation of commercial species.
Species suitability: good, all present exhibiting good growth and suitability
General tree health: judged to be good to exceptional
Insects and diseases: Beech bark disease very pronounced with mortality present. No other observed.

Forest Structure

Structural diversity: good vertical, horizontal, and varying diameter.
Standing dead trees: very few. Poor for certain wildlife
Down dead wood: little, poor for wildlife.
Tree Crowns and spacing: Trees have adequate growing space that leads to healthy crowns.

Regeneration

Desirable regeneration: poor. Tree seedlings and saplings of commercial species few.
Interfering plants: Beech
Deer Browse: believed to be significant

Site Level Risks

Moisture stress: could be significant in severe, prolonged drought conditions.

Extreme weather: other than drought; wind or ice damage could occur. Stand slope and westerly facing compass direction can lead to susceptibility.

Stand 14.1 Prescription:

In addition to the following overall parcel prescription, it is recommended that timber marking be very light on the steep slopes, centering on trees that can be easily reached with minimal ground disturbance. Essentially focusing on trees easily cabled or directionally felled to facilitate skidding.

Otsego County Forest #14

Stand Data: 14.1

8.6 acres+-Hardwood and Hemlock saw timber.

Species	Trees/Acre (TPA)	Basal Area/acre (Sq. Ft)	Volume/acre (Bd Ft, Int.1/4) F.C. 78
Basswood	6.5	11.52	1570
Northern Red Oak	10.9	13.53	1506
Red Maple	6.6	12.10	1497
Sugar Maple	11.5	8.84	1162
White Ash	9.1	8.51	1319
Eastern Hemlock	9.71	11.78	1158
Total	54.31	66.28	8212

Hardwood Pulp wood

Species	Trees/Acre TPA)	Basal Area/acre	Volume (standard cords) per acre
Hardwood	24.67	10.6	.97

Stand 14.2

This stand occupies the central portion of the parcel and also compromises the most acreage with approximately 49.1 acres. In the most northerly portion of this stand there is a short, steep slope running along the contour line that bisects the stand for a short distance. Access to the top of the hill is excellent with skid roads present. The overall area lies flat to gently sloping. Considerable forestry work has occurred here with prior timber harvesting resulting in two distinct timber classes and leading to significant beech regeneration (both sprouting and seedling) where cuts have occurred. Pole sized beech exists here also, most in varying stages of decline.

Forest diversity and composition

Species diversity: Good

Species Suitability: Good

General tree health: excellent except for beech

Insects and diseases: beech bark disease, none other observed

Forest Structure

Structural diversity: stand contains trees of different sizes as well as three vertical layers

Standing dead trees: few standing dead trees observed, wildlife impediment.

Down dead wood: low amount observed. Low wildlife attractor

Tree crowns and spacing: excellent, most trees have healthy and vigorous crowns.

Regeneration

Desirable regeneration: a distinct problem, none observed!

Species suitability: no commercially valuable tree regeneration. Site should support or be suitable to those trees found in the canopy.

Interfering plants: very high density of beech

Deer browse: some noted on beech seedlings indicating an overall lack of good browse found in this stand.

Site level risks

Moisture stress or drought: Mostly well drained and it is felt that excess rain fall or a heavy snow pack is not a high risk. Drought conditions and wind throw, ice storm damage could be significant

Stand 14.2 Prescription

In addition to the following overall parcel prescription it is recommended that a slightly higher commercial valuable tree take be undertaken near the top of the hill in the most northerly section with the goal of infusing more sun light into the stand to encourage regeneration. At the same time it is recommended that ground disturbance within this vicinity (skidder dropping blade) be done judicially. Presently no regeneration in this area. There is a small stream or intermittent brook found within this stand and it is recommended that as much hemlock as possible in close proximity be left for shading purposes.

Stand Data 14.2

49.1 acres+- Hardwood and Hemlock Saw timber

Species	Trees/Acre (TPA)	Basal Area/Acre (sq.Ft.)	Volume/Acre (BdFt, Int. ¼) F.C. 78
Red Maple	7.7	29.58	1387
Northern Red Oak	5.6	27.79	1134
White Ash	4.7	20.11	1024
Sugar Maple	5.7	20.68	989
Eastern Hemlock	3.4	19.4	765
Black Birch	3.4	7.9	374
White Birch	.4	1.76	70
Black Cherry	.5	1.39	69
Total	31.4	128.61	5812

Hardwood Pulp Wood

Species	Trees/Acre (TPA)	Basal Area/Acre (Sq. Ft.)	Volume/Acre Standard Cords per acre
Hardwood	127	33.42	2.94

Stand 14.3

This stand occupies the most easterly section of Otsego County Forest #14 and is comprised of approximately 12.3 acres. In many ways it mirrors stand 14.2 in having considerable forestry work performed in the past. Topography lies from flat to gentle sloping with excellent access. Significant beech regeneration and occupation of the growing site is occurring here also. This stand seems to have a significant amount of higher quality individual crop trees. Forest diversity and composition, Forest structure, Regeneration, and site level risks are essentially the same as Stand 14.2

Stand 14.3 Prescription

In addition to the following overall parcel prescription it is recommended that a slightly higher harvesting of Hemlock occur to encourage more hardwood regeneration and diversity. Care to be undertaken in this marking as to first identify any possible deer and wildlife wintering and roosting (turkey) areas.

Stand Data 14.3

12.3 Acres +- Hardwood and Hemlock Saw Timber

Species	Trees /Acre (TPA)	Basal Area/Acre (SQ.FT.)	Volume/Acre (Bd.Ft. Int ¼) F.C. 78
Hemlock	26.62	20.24	2338
Sugar Maple	13.11	20.48	2166
Black Cherry	3.82	6.41	671
Red Maple	3.18	7.57	636
Northern Red Oak	1.46	3.95	515
Black Birch	1.62	3.53	260
White Ash	1.02	1.39	192
Yellow Birch	1.02	1.39	142
Total	51.85	64.96	6920
Species	Trees/Acre (TPA)	Basal Area/Acre (SQ. FT.)	Volume (Standard Cords)/acre
Hardwoods	22	20.4	3.29

Otsego County Forest #14 Overall Parcel Prescription

In order to attain the stated desired future conditions for this property, strategy should encompass two distinct undertakings.

The first undertaking is to attempt to resolve the lack of commercial tree regeneration. This is a significant threat to the overall health and productivity of the forest and the forest ecosystem. It is judged that at least two distinct harvest of timber has occurred on this property. The regeneration results have essentially proper gated American Beech (Fagus grandifolia). In most areas where timber has been harvested, beech seedlings have taken root. In areas where beech itself has been cut, extensive or vigorous root and stump sprouting has occurred. There are two distinct pole sized beech "stands" (occurring randomly across much of the parcel due to past cutting history). The most prevalent is infected with the beech bark disease that is slowly killing these individuals; the succumbing trees are reproducing extensively within their proximity (a common trait of beech). The few "stands" of no infected beech poles seem to be reproducing at a much slower rate. Whether these trees are resistant to the disease is only a guess, experience shows it is only time until infection.

It is proposed that in concert with a commercial timber harvest, extensive cutting/removal of beech group pole sized trees occur. The risk of stump/root sprouting is substantial but doing nothing will result in a future beech dominated landscape. Beech is a tolerant loving tree and bringing in more sunlight to the forest floor would give other tree species a better chance of reproducing. There is a possibility of herbicide treatment following cutting but it is surmised it maybe cost prohibitive.

Another factor affecting tree regeneration would be White-tailed Deer density in the area. It has been shown that deer can have a high negative impact and their density should be understood. Releasing more sunlight to the forest floor will hopefully result in higher numbers of regeneration that may be able to with stand lower deer density browsing.

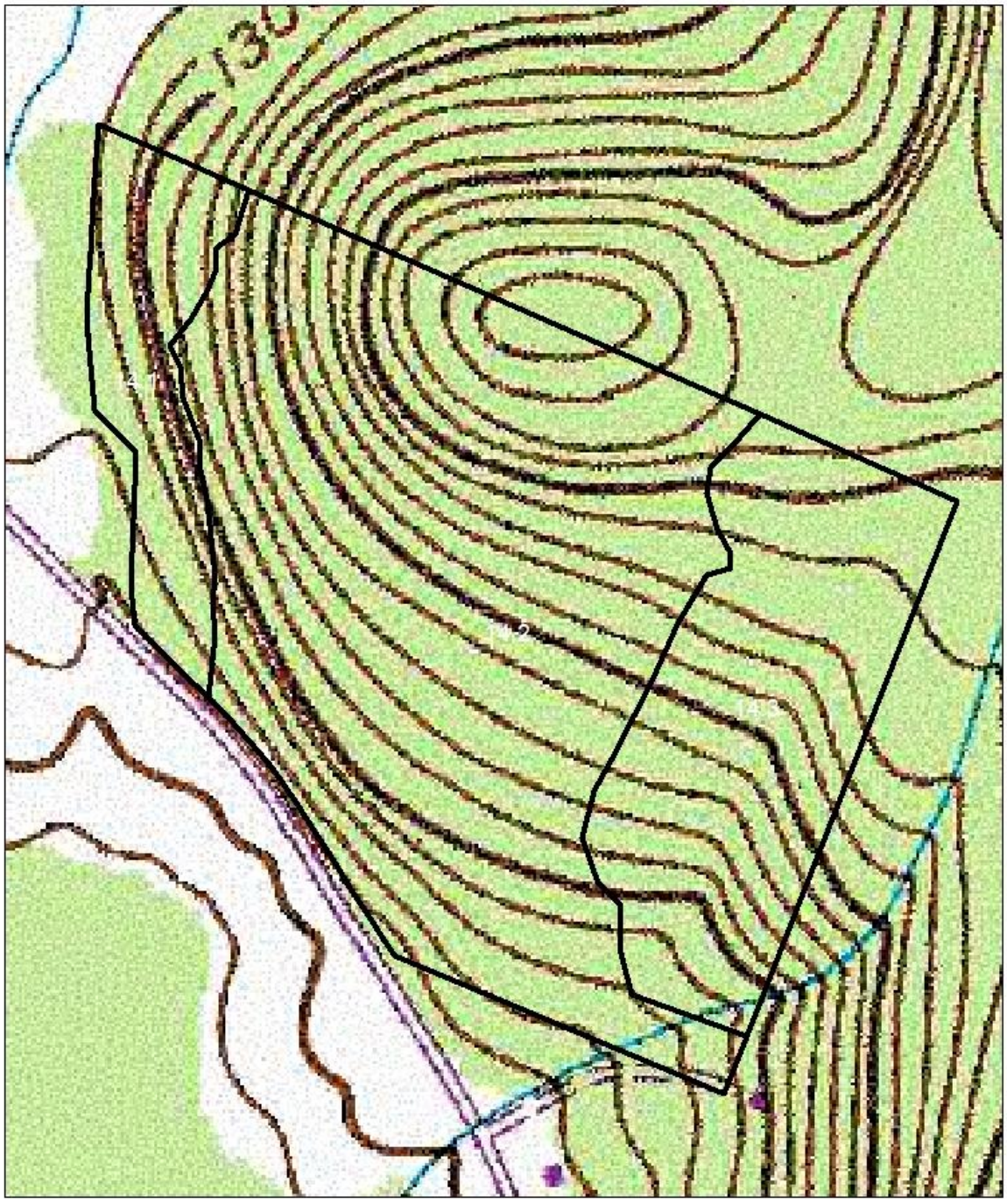
Otsego County Forest #14 Overall Parcel Prescription

The second strategic undertaking or prescription to be implemented at the same time as the first is a commercial timber harvest. Individual tree selection silvicultural method is to be employed. There are significant individual trees throughout the whole parcel that are at their economic and ecological maturity. These trees will not significantly increase in value due to size and maturity and they may over time start to decrease in value. It is proposed that these trees be harvested. This would constitute a rather light harvest as to tree numbers and may result in a more scattered harvest. No more than one third of the basal area is to be removed, mostly less than that. One exception would be removal of all ash saw timber due to the emerald ash borer threat.

The quality of the trees to be sold would be high along with their size should sell well in good economic times. Products from this harvest would be hardwood slicer veneer, hardwood rotary veneer, bat logs, relatively high grade hardwood saw logs, hardwood pallet logs (beech), hardwood firewood (beech, tops), hemlock saw logs, and possible hemlock pulp wood. The determination as to product and quality relates directly to tree characteristics and the Foresters extensive experience in the forest industry.

It is important to note that timing of the sale with good economic viability within the forest industry is imperative and as such will result in the highest monetary return and utilization of the resource.

Employing the two strategic initiatives for prescription of cutting beech/encouraging better regeneration and a light commercial timber harvest should go a long way to obtain the stated future conditions for an outstanding forest property!



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