Division of Lands & Forests

Proposed Final Amendment

to the

2010 Jay Mountain Wilderness Unit Management Plan

Essex County

July 2014

Andrew M. Cuomo, Governor

Joe Martens, Commissioner

Lead Agency: (in consultation with the Adirondack Park Agency)
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233

For further information contact:
Peter J. Frank
NYS DEC
Division of Lands and Forests
625 Broadway
Albany, NY 12233-4254
518/473-9518
lfadk@gw.dec.state.ny.us

This page intentionally left blank

ANDREW M. CUOMO
GOVERNOR

JOE MARTENS
COMMISSIONER

STATE OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY, NEW YORK 12233-1010

JUL - 7 2014

M E M O R A N D U M

TO: The Record

SUBJECT: Jay Mountain Wilderness Area UMP Amendment

The final Unit Management Plan Amendment for the Jay Mountain Wilderness Area has been completed and the Adirondack Park Agency found it to be in conformance with the Adirondack Park State Land Master Plan.

The Unit Management Plan Amendment is consistent with the State Constitution, Environmental Conservation Law, and Department Rules, Regulations and Policies and is hereby approved and adopted.

Joseph J. Martens

This page intentionally left blank

DRAFT
RESOLUTION ADOPTED BY
THE ADIRONDACK PARK AGENCY
WITH RESPECT TO AN AMENDMENT TO THE
JAY MOUNTAIN WILDERNESS AREA
UNIT MANAGEMENT PLAN

June 13, 2014

WHEREAS, Section 816 of the Adirondack Park Agency Act directs the Department of Environmental Conservation to develop, in consultation with the Adirondack Park Agency, individual management plans for units of land classified in the Master Plan for Management of State Lands and requires such management plans to conform to the general guidelines and criteria of the Master Plan; and

WHEREAS, in addition to such guidelines and criteria, the Adirondack Park State Land Master Plan prescribes the contents of unit management plans and provides that the Adirondack Park Agency will determine whether a proposed individual unit management plan complies with such general guidelines and criteria; and

WHEREAS, Article XIV of the New York State Constitution was amended by a vote of The People of the State of New York effective January 1, 2014 which amendment allows for exploratory mineral sampling on a tract of land located on the eastern edge of the Jay Mountain Wilderness Area; and

WHEREAS, the legal effect of the constitutional amendment is an amendment to the Adirondack Park State Land Master Plan and in particular the wilderness guidelines that apply to the Jay Mountain Wilderness Area; and

WHEREAS, the Department of Environmental Conservation has prepared an amendment to its June 2010 unit management plan for the Jay Mountain Wilderness Area in the Towns of Jay and Lewis, Essex County; the amendment contains proposed management actions relating to the activities authorized by the constitutional amendment taking place within the Jay Mountain Wilderness dated June, 2014; and

WHEREAS, the Department has filed a SEQR Negative Declaration and published a notice in the Environmental Notice Bulletin on June 11, 2014; and

WHEREAS, the Department of Environmental Conservation is the lead agency, and the Adirondack Park Agency is an involved agency whose staff have been consulted in the preparation of the proposed amendment to the UMP; and

WHEREAS, the Agency is requested to determine whether the Amendment to the Jay Mountain Wilderness Area Unit Management Plan, dated June, 2014, is consistent with the Standards and Guidelines of the Adirondack Park State Land Master Plan as those guidelines have been amended by the voter-approved constitutional amendment to Article XIV; and

WHEREAS, the Adirondack Park Agency has reviewed the proposed Amendment to the Jay Mountain Wilderness Unit Management Plan; and

WHEREAS, the amendment contains an inventory of the biological and natural resources of the area, an inventory of the projected use and an assessment of the effect of the exploratory activities on the resources of the Jay Mountain Wilderness Area; and

WHEREAS, the amendment through a Temporary Revocable Permit provides for adequate management oversight of the exploratory mineral sampling activities and limitation on the impacts of those activities outside the disturbed areas; and

WHEREAS, exploratory mineral sampling activities must be undertaken in compliance with the terms of a Temporary Revocable Permit containing standard and special conditions governing these activities.

NOW, THEREFORE, BE IT RESOLVED, that pursuant to Section 816 of the Adirondack Park Agency Act, the Adirondack Park Agency finds the Amendment to the Jay Mountain Unit Management Plan, dated June, 2014, conforms with the general guidelines and criteria of the Adirondack Park State Land Master Plan as those guidelines have been changed by the legal effect of the constitutional amendment to Article XIV effective January 1, 2014; and

BE IT FINALLY RESOLVED, that the Adirondack Park Agency authorizes its Executive Director to advise the Commissioner of Environmental Conservation of the Agency’s determination in this matter.

AYES: Chairwoman Lani Ulrich, Richard Booth, Sherman Craig, Karen Feldman, Arthur Lussi, William Thomas, William Valentino, Dan Wilt, Brad Austin (DED), Deidre Scozzafava (DOS), Robert Stegemann (DEC)

NAYS: None

ABSTENTIONS: None

ABSENT: None

This page intentionally left blank

UNIT MANAGEMENT PLAN AMENDMENT TO THE JAY MOUNTAIN WILDERNESS AREA

Introduction

The current Jay Mountain Wilderness area includes Lot 8, Stowers Survey, in the Town of Lewis, Essex County (Lot 8). This parcel of approximately 200 acres is adjacent to a long-standing wollastonite mine currently owned by NYCO Minerals (a description of these lands is outlined in Appendix A, attached.) As Forest Preserve, Lot 8 is governed by Article XIV, Section 1 of the State Constitution (Article XIV). The property is also subject to the provisions of the Adirondack Park State Land Master Plan (APSLMP) as outlined in the 2010 Unit Management Plan (UMP) for the Jay Mountain Wilderness area.

The intent and purpose of this amendment to the 2010 Jay Mountain Wilderness Area UMP is to: (1) recognize that a constitutional amendment approved by the voters on November 5, 2013 implicitly repeals the Adirondack Park State Land Master Plan (APSLMP) guidelines for Wilderness that would otherwise prohibit NYCO's mineral sampling operations within the Jay Mountain Wilderness area; (2) make the UMP consistent with the Constitutional amendment; and (3) note that detailed terms and conditions governing the mineral sampling operations will be set forth in a Temporary Revocable Permit (TRP) issued by the Department of Environmental Conservation (Department.)

Background

Lot 8 became Forest Preserve upon its acquisition in 1885. When the constitutional amendment protecting the Forest Preserve became effective on January 1, 1895, Lot 8 became subject to constitutional protection. The constitutional amendment, now found at Article XIV, provides in relevant part:

> The lands of the state, now owned or hereafter acquired, constituting the forest preserve as now fixed by law, shall be forever kept as wild forest lands. They shall not be leased, sold or exchanged, or be taken by any corporation, public or private, nor shall the timber thereon be sold, removed or destroyed.

Pursuant to the legislative mandate contained in the Adirondack Park Agency Act, then Governor Rockefeller approved the Adirondack Park State Land Master Plan (APSLMP) in July, 1972. The APSLMP sets forth a plan for the management of state lands, owned or hereafter acquired, located in the Adirondack Park. It defines a classification system and guidelines designed to guide the preservation, management and use of these lands by state agencies. The Jay Mountain area was classified as Primitive when the APSLMP was adopted in 1972. Lot 8 was located within the Jay Mountain Primitive Area at that time.

In 1985, then Governor Mario Cuomo reclassified the lands within the Jay Mountain Primitive Area—including Lot 8—to Wilderness and this area then became the Jay Mountain Wilderness Area. Wilderness is the most restrictive classification in the SLMP. The definition of Wilderness in the Master Plan is:

> A wilderness area, in contrast with those areas where man and his own works dominate the landscape, is an area where the earth and its community of life are untrammeled by man-where man himself is a visitor who does not remain. A wilderness area is further defined to mean an area of state land or water having a primeval character, without significant improvement or permanent human habitation, which is protected and managed so as to preserve, enhance and restore, where necessary, its natural conditions, and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least ten thousand acres of contiguous land and water or is of sufficient size and character as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological or other features of scientific, educational, scenic or historical value.

In 2010, the Department of Environmental Conservation (Department) prepared a Unit Management Plan (UMP) for the lands comprising the Jay Mountain Wilderness Area, consistent with SLMP Wilderness Guidelines. On June 10, 2010, the Adirondack Park Agency determined that the UMP conformed with those Guidelines. On August 2, 2010 former Commissioner of Environmental Conservation Alexander B. Grannis approved the UMP.

Both the 1985 reclassification of Lot 8 to Wilderness and the management actions set forth in the 2010 UMP were predicated on the fact that Lot 8 was Forest Preserve land subject to the Article XIV restrictions set forth above and the assumption that Lot 8 would indefinitely continue to be subject to those restrictions. On November 5, 2013, however, the voters approved an amendment to Article XIV which altered the restrictions with respect to Lot 8.

The 2013 constitutional amendment provides that:

> Notwithstanding the foregoing provisions, the state may authorize NYCO Minerals, Inc. to engage in mineral sampling operations, solely at its expense, to determine the quantity and quality of wollastonite on approximately 200 acres of forest preserve land contained in lot 8, Stowers survey, town of Lewis, Essex county provided that NYCO Minerals, Inc. shall provide the data and information derived from such drilling to the state for appraisal purposes. Subject to legislative approval of the tracts to be exchanged prior to the actual transfer of title, the state may subsequently convey said lot 8 to NYCO Minerals, Inc., and, in exchange therefor, NYCO Minerals, Inc. shall convey to the state for incorporation into the forest preserve not less than the same number of acres of land, on condition that the legislature shall determine that the lands to be received by the state are equal to or greater than the value of the land to be conveyed by the state and on condition that the assessed value of the land to be conveyed to the state shall total not less than one million dollars. When NYCO Minerals, Inc. terminates all mining operations on such lot 8 it shall remediate the site and convey title to such lot back to the state of New York for inclusion in the forest preserve. In the event that lot 8 is not conveyed to NYCO Minerals, Inc. pursuant to this paragraph, NYCO Minerals, Inc. nevertheless shall convey to the state for incorporation into the forest preserve not less than the same number of acres of

> land that is disturbed by any mineral sampling operations conducted on said lot 8 pursuant to this paragraph on condition that the legislature shall determine that the lands to be received by the state are equal to or greater than the value of the lands disturbed by the mineral sampling operations.

As written, the 2013 constitutional amendment is to be implemented in two phases. In the first phase, the amendment authorizes the State to allow NYCO Minerals, Inc. (NYCO) to engage in mineral sampling operations on Lot 8 to determine the quantity and quality of wollastonite located on the property and directs NYCO to provide the data and information derived from such sampling to the State for appraisal purposes.[1] During this first phase, Lot 8 is still part of the Forest Preserve and remains subject to Article XIV's anti-alienation clause. However, for the limited purpose of conducting wollastonite sampling operations on Lot 8, the amendment implicitly suspends Article XIV's directives that (1) Forest Preserve lands must be "forever kept as wild forest land" and (2) that the timber situated thereon may not be "removed, sold or destroyed." This is because mineral sampling operations, by their very nature, require the creation of corridors and areas for the motorized transportation of equipment, the development of drill pads, and the use of mechanized mineral sampling equipment.

Proposed Action

This UMP amendment is based on the implicit repeal by the 2013 constitutional amendment of SLMP Wilderness guidelines that would otherwise prohibit NYCO's mineral sampling operations within the Jay Mountain Wilderness area. Consistent with the 2013 constitutional amendment, this UMP amendment authorizes the aforementioned activities and supersedes the provisions of the 2010 UMP which would prohibit such sampling operations. This amendment specifies that the detailed terms and conditions governing the mineral sampling operations and reclamation procedures will be set forth in a Temporary Revocable Permit (TRP) and Work Plan issued by the Department as referenced herein.

---

[1] The second phase, containing two options for land exchanges, will occur after the State has appraised the value of Lot 8 using the data and information derived from the exploratory mineral sampling operations. If, at that point, NYCO decides not to expand its existing wollastonite mine onto adjacent Lot 8, then NYCO is required to compensate the State for the disturbance done to Lot 8 by the mineral sampling operations. NYCO shall convey land to the State, subject to legislative approval, where the land coming into the Forest Preserve must exceed the acreage and value of those portions of Lot 8 that were disturbed by the sampling operations. If, however, NYCO decides to expand its mine onto Lot 8, then a land exchange is required, subject to legislature approval, where lands coming into the Forest Preserve must exceed both the acreage and value of Lot 8. At the end of the mine's life on Lot 8, the amendment requires NYCO to convey title to Lot 8 back to the State for inclusion in the Forest Preserve. If Lot 8 is ultimately conveyed to NYCO, an amendment to the SLMP's area description of the Jay Mountain Wilderness Area will then be appropriate to recognize that Lot 8 will no longer be contained in the Wilderness Area.

APPENDIX A

DESCRIPTIVE BACKGROUND ON LOT 8

Lot 8, as defined above, was assessed by the New York Natural Heritage Program in July 2013 (see Appendix B, attached) and inventoried by NYS DEC Staff in early 2014. The intent of these site visits was to determine if any significant natural communities or unique forest traits were present and to get a general assessment of the existing forest stand relative to surrounding forest areas. There was nothing observed on the site that looked unusual, or unique, especially when considered in the context of the surrounding state lands.

Research of historic maps and on-site observations indicate that timber from Lot 8 was harvested to feed charcoal kilns which supplied charcoal to local iron forges. In January 2014 DEC Staff discovered the foundations of two beehive Kilns in the south easterly corner of Lot 8. The kilns were set in a dugout portion of a hillside that had a large flat area above. The Kilns were each approximately 20' across. The location of the charcoal kilns at the lowest elevation point on lot 8, and the general topography in the area, indicates that the kilns would have been fed primarily with timber from Lot 8. Timber on most of the lot would have been easily transported to the kiln site. The 1903 USGS AuSable Forks, NY Quadrangle shows two structures at the location of the kilns.

A review of available records was conducted to determine if there was any specific historical documentation of the land use history of Lot 8. This research has produced the following information:

- Map of the Great Forest of Northern New York (New York State Forest Commission, 1891 [Same forest cover data as original Sargent Commission map of 1884])

  Map shows area of Lot 8 as forest that was logged for merchantable softwood (immediately adjacent to the area where valleys were farmed, and the hills were mostly covered with a second growth of hardwood, seldom large).

- Fire Protection Map of the Adirondacks (State of New York Conservation Commission, 1916 [Karl Schmitt]).

  Map shows area as unburned, green timber, virgin or second growth.

- Survey map of Lots 9 & 10, South Tracy (Department map #01753, 1931)

  Map shows roads entering property from south. One road enters property in close proximity to the charcoal kiln remains.

The information provided by the above referenced maps strongly indicates that Lot 8 was cleared for timber use. Known land use patterns of the 1800s would also indicate that the land was cleared due to its close proximity to the village of Lewis, an accessible location on the lower to mid slopes of Slip Mountain. However, the current composition of the forest provides the strongest evidence that the lot was likely cleared and started regenerating at some point in the mid to late 1800s.

There are natural landscape disturbances that can lead to a forest being mostly cleared and regenerated as a new stand. Fire and wind throw are the two most common in the Adirondacks. However, the site does not exhibit the typical pit and mound micro topography associated with large scale wind throw. No evidence of a large scale fire, such as charred stumps, was observed either.

In July, 2013 an initial assessment of Lot 8 was conducted by Natural Heritage staff to observe the general condition of the lot, and to determine if "old growth" forests were present. The conclusion of this assessment was that Lot 8 did contain maturing forests, but none of it could yet be considered "old growth."

On March 4, 2014 Department staff conducted a more in depth survey of Lot 8, sampling tree ages at 4 random points spaced across Lot 8. At each point the diameter at breast height (4.5 feet) of one or more dominant trees were measured. The age of each tree was also measured using an increment borer. The results are tabulated as follows:

Site #	Species	Diameter (inches)	Height (Feet)	Age (years) measured at 4.5 feet	Notes
1	Basswood	19	~70	~100	~ 2" Center hollow
1	Paper Birch	22	~70	~100	~2" Center hollow
2	Sugar Maple	14	~65	~85	
3	Paper Birch	16	~65	~130	
4	White Ash	19	~75	~115	

This table indicates that the dominant trees in the canopy are approximately 100-130 years old. This age range indicates that the forest as a whole, based on these sites, is generally the same age and got started from a clearing event about 130 years ago.

In March of 2014 Department staff again visited Lot 8, conducting a 22 point cruise on the 200 acres that make up Lot 8. There were 20 sample points spaced evenly in a grid across the lot and 2 additional points placed in a southern stand of forest that showed a heavy conifer component based on aerial photos. Using a 10 factor Prism all trees above 3" DBH, tallied at each point, were measured for diameter and height (see attached tally information).

Interpretation of the cruise data showed two different forest cover types on Lot 8. The larger stand, making up the majority of the lot was determined to be a Northern Hardwoods, Sugar Maple forest type. The smaller stand, towards the southeasterly corner, was determined to be a

Northern Forest Birch-Red Spruce-Balsam Fir forest type [Forest Cover Types of the United States and Canada, by FH Eyre, Society of American Foresters, 1980].

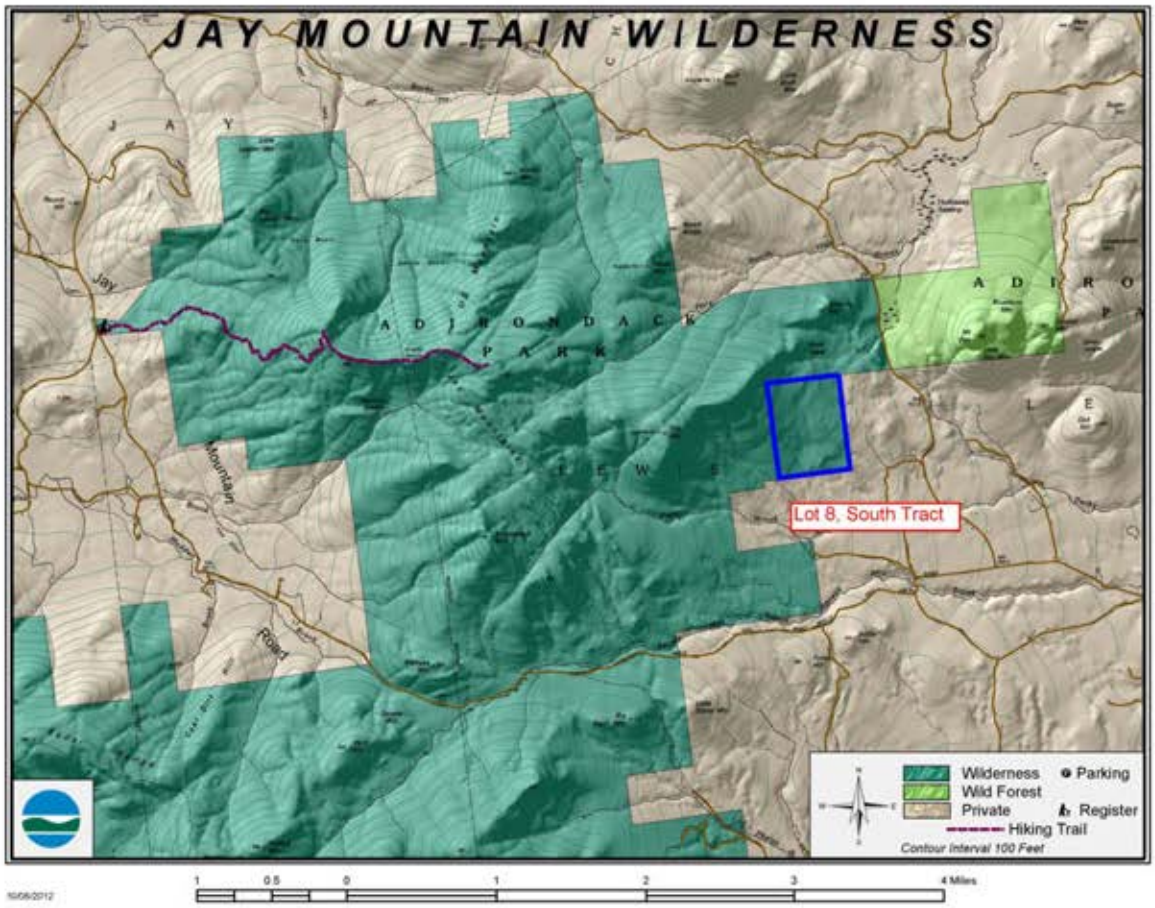
The Sugar Maple forest type had a 55% component of Sugar Maple trees. Other species components were: Paper Birch at 15%, White Ash at 10%, and American Beech 9%. Basswood, Yellow Birch, Ironwood, Red Spruce, White Pine, Hemlock, Aspen and Red Maple represented less than 3% each.

The Paper Birch-Red Spruce-Balsam forest type had a 43% component of Paper Birch trees, other species represented were: Red Spruce at 14%, Sugar Maple at 14%, Red Maple at 14%, American Beech 7%, and Balsam Fir 7%.

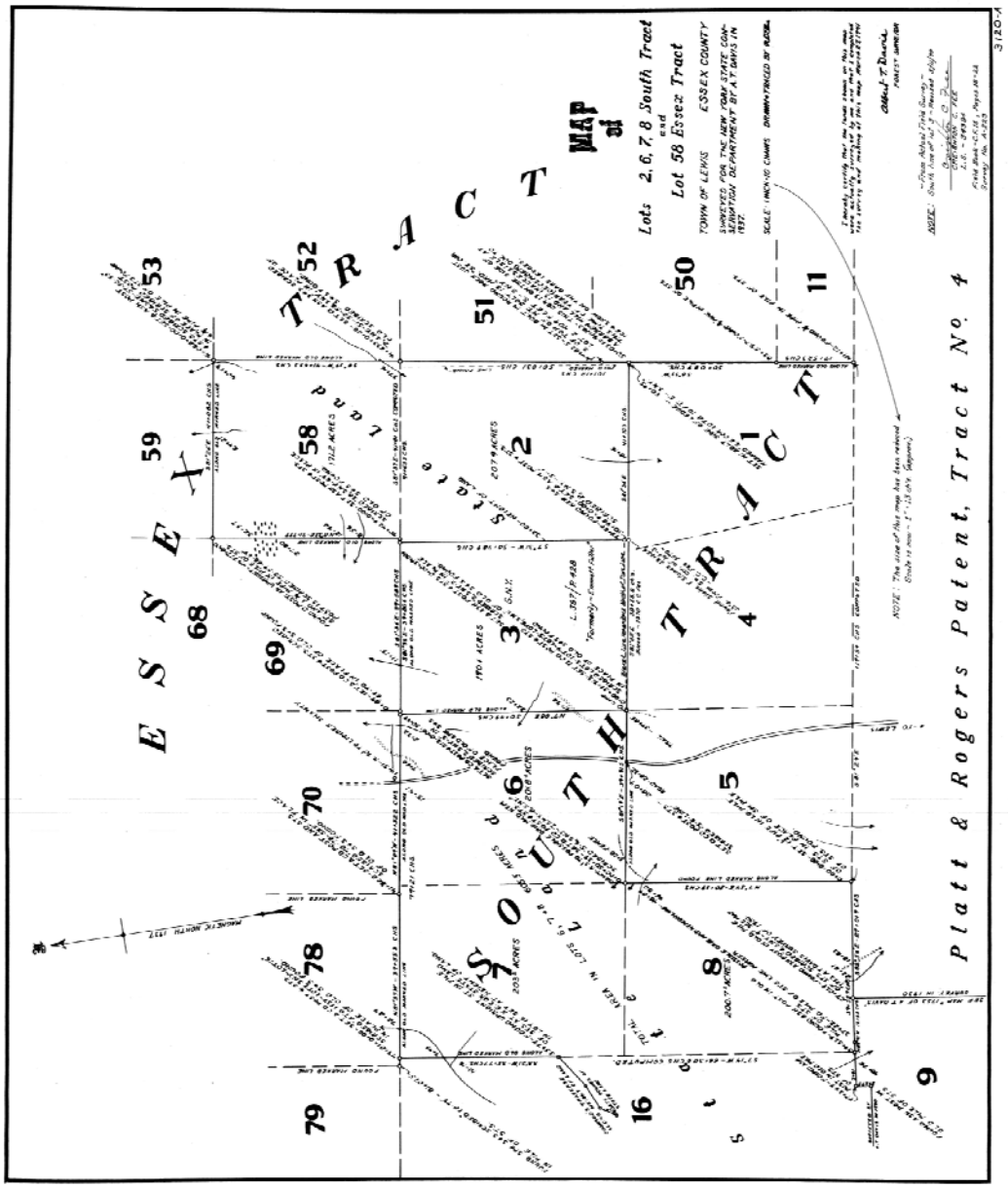
A wetlands assessment of Lot 8 was conducted by Adirondack Park agency Staff using aerial photography. From this assessment it was determined that there are approximately 1.3 acres of jurisdictional wetlands on Lot 8. These are located in the south central portion of the lot. Other, smaller wet areas were also mapped. These show possible locations of vernal pools. A map of these areas, dated 1/29/14, follows.

Based on current forest conditions, known historic forest clearing practices, and the presence of charcoal kilns, it is likely that most if not all of Lot 8 was cleared at least once before becoming part of the Forest Preserve. All observations by Department staff have supported the initial findings from the Natural Heritage report that Lot 8 did contain maturing forests, but none of it could yet be considered “old growth”. The forest composition includes a large paper birch component, which is indicative of an historic clearing event on most, if not all, of the lot.

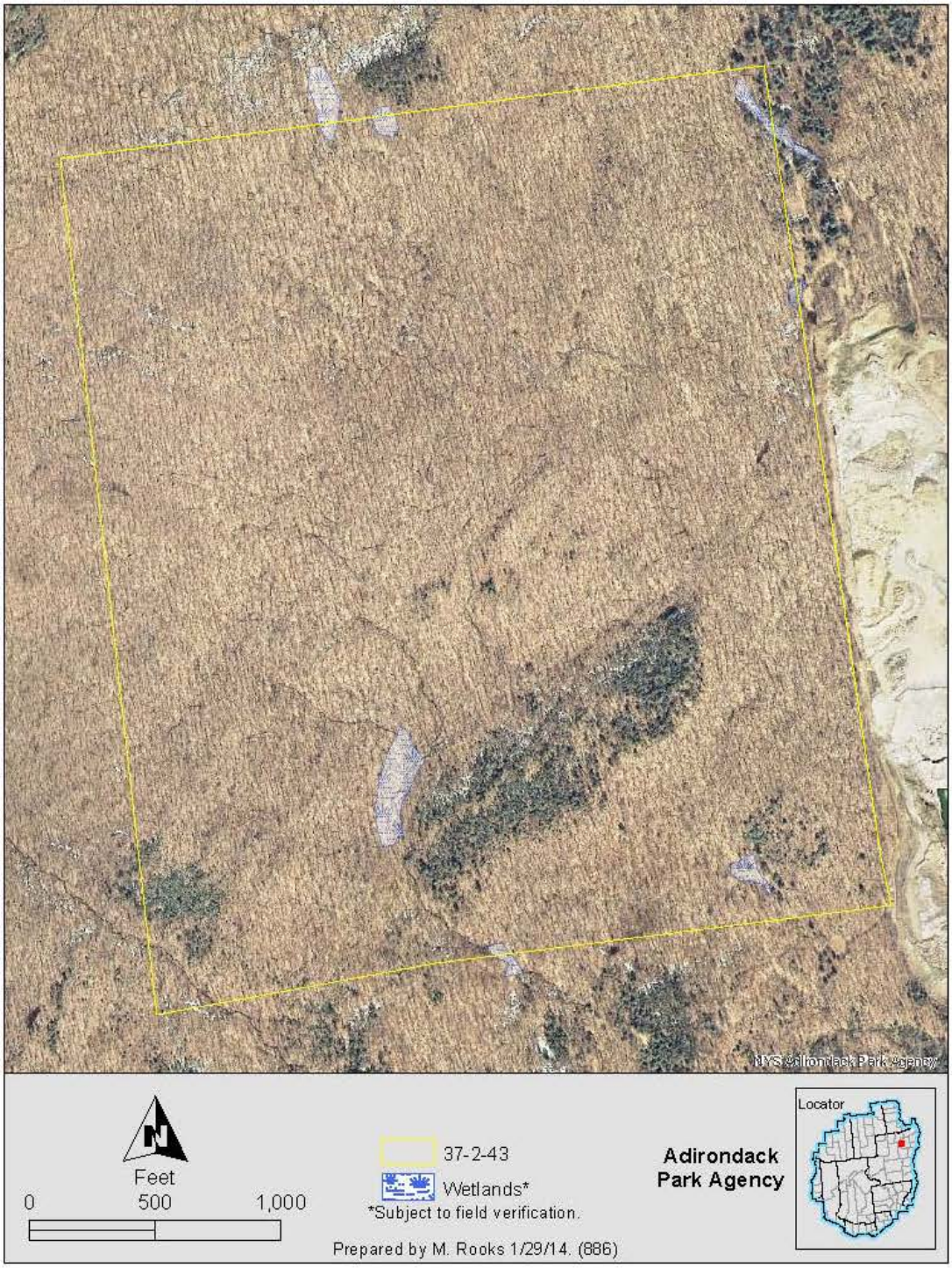
Lot 8 Location Map



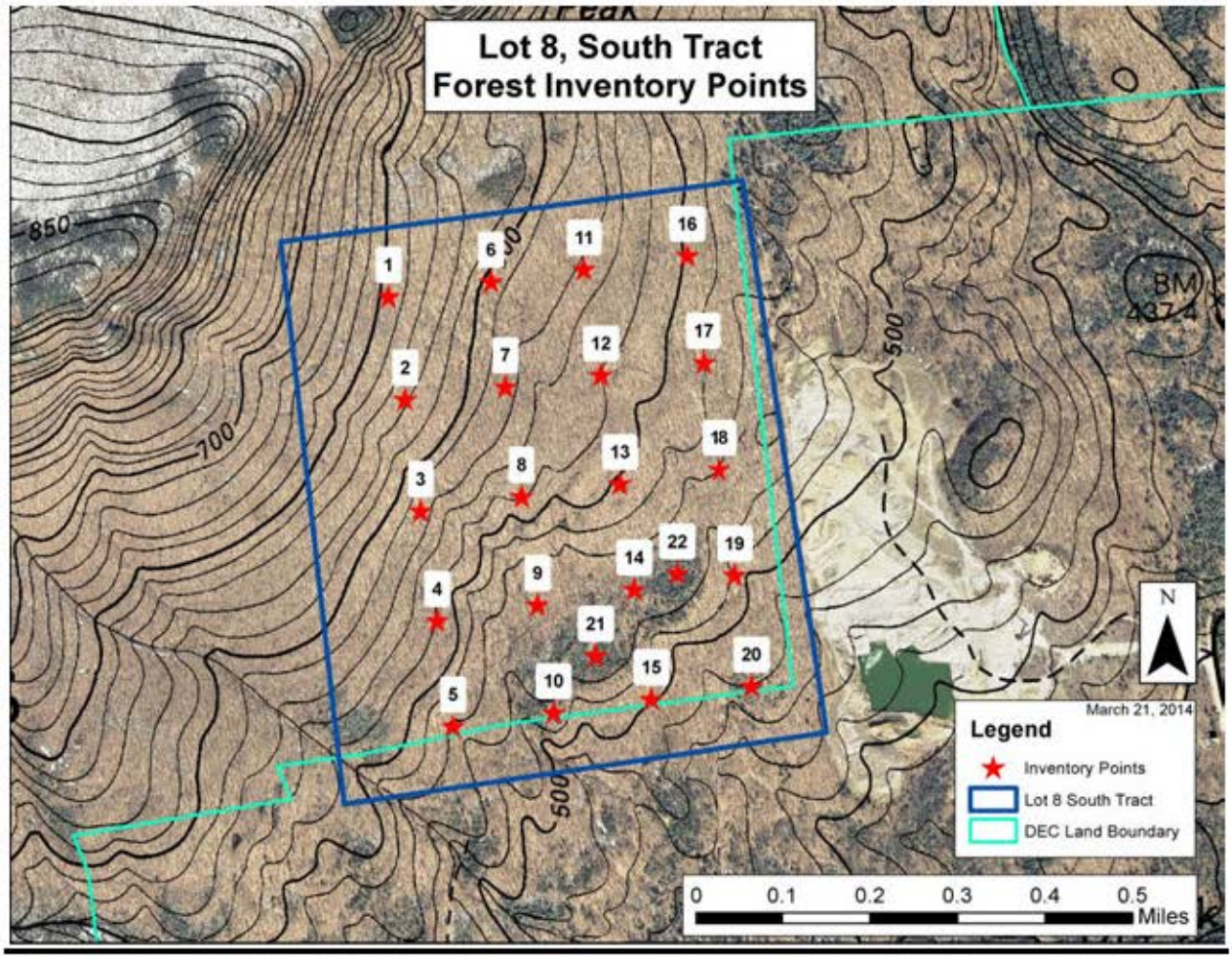
LOT 8 SURVEY MAP



Wetlands Map



Lot 8 Forest Inventory



Lot 8 Forest Inventory

Plot# 1				**Plot# 13**			
Species	DBH	Height	notes	Species	DBH	Height	notes
Basswood	6	29		Sugar	6	15	
Beech	2	8		Sugar	8	15	
Sugar Maple	8	36		Sugar	8	25	
Sugar Maple	10	40		Sugar	10	15	
Sugar Maple	10	40		Sugar	10	20	
Sugar Maple	10	44		Sugar	10	20	
Sugar Maple	14	48		Sugar	12	20	
White ash	14	40		Sugar	14	42	
White ash	20	54		White	10	20	
White Birch	8	15	dead	White	12	20	dead
White Birch	8	30		White	16	40	
Yellow Birch	18	40					
Plot# 2				**Plot# 14**			
Species	DBH	Height	notes	Species	DBH	Height	notes
Beech	12	46		Red	8	30	
Beech	16	44		Sugar	6	30	
Sugar Maple	4	25		Sugar	8	35	
Sugar Maple	18	40		Sugar	8	30	
White Birch	6	10	dead	White	8	10	dead
White Birch	8	30	dead	White	12	40	dead
White Birch	10	6	dead	White	12	15	dead
White Birch	12	36		White	12	32	
White Birch	12	40		White	14	40	dead
White Birch	12	30	dead				
Plot# 3				**Plot# 15**			
Species	DBH	Height	notes	Species	DBH	Height	notes
Beech	4	20		Sugar	6	18	
Beech	8	25		Sugar	14	30	
Beech	8	30		Sugar	14	30	
Beech	18	40		Sugar	14	25	
Beech	20	36		White Ash	8	30	
Sugar Maple	18	48		White Ash	14	30	
Sugar Maple	24	60		White	18	45	
Yellow birch	8	30					

Plot# 4				**Plot# 16**			
Species	DBH	Height	notes	Species	DBH	Height	notes
Sugar Maple	14	48		Sugar	12	32	
Sugar Maple	16	45		Sugar	14	40	
Sugar Maple	16	15	dead	Sugar	16	30	
Sugar Maple	18	56		Sugar	16	30	
Sugar Maple	18	50		Sugar	16	48	
Sugar Maple	20	52		Sugar	16	48	
Yellow Birch	8	28		Sugar	20	55	
				Sugar	22	64	
				White Ash	18	50	
				White Ash	22	50	
				White	14	20	
				White	16	15	dead
Plot# 5				**Plot# 17**			
Species	DBH	Height	notes	Species	DBH	Height	notes
Beech	8	32		Sugar	14	52	
Sugar Maple	8	30		Sugar	14	55	
Sugar Maple	14	32		Sugar	14	48	
Sugar Maple	40	48		Sugar	14	48	
Sugar Maple	18	30		Sugar	16	40	
Sugar Maple	18	46		Sugar	20	55	
Sugar Maple	18	47		Sugar	22	55	
Sugar Maple	18	30	dead	White Ash	16	48	
White Birch	14	36		White Ash	22	32	
White Birch	14	44		White Ash	24	40	
White Birch	18	48					
Plot# 6				**Plot# 18**			
Species	DBH	Height	notes	Species	DBH	Height	notes
Beech	4	18		Ironwood	4	15	
Ironwood	8	30		Sugar	8	20	
Sugar Maple	6	28		Sugar	10	20	
Sugar Maple	12	40		Sugar	12	60	
Sugar Maple	12	40		Sugar	12	18	
Sugar Maple	14	40		Sugar	16	60	
Sugar Maple	14	42		Sugar	20	48	
Sugar Maple	14	34		White Ash	14	32	
White Birch	12	30					

Plot# 7				**Plot# 19**			
Species	DBH	Height	notes	Species	DBH	Height	notes
Basswood	14	48		Basswood	14	55	
Beech	8	34		Basswood	16	60	
Ironwood	2	18		Basswood	18	60	
Sugar Maple	14	44		Beech	10	15	dead
Sugar Maple	14	40		Sugar	16	55	dead
Sugar Maple	14	40		Sugar	16	55	
Sugar Maple	16	50		Sugar	18	80	
Sugar Maple	16	40		Sugar	22	72	
Sugar Maple	18	50		White Ash	16	50	
Sugar Maple	18	50					
White Ash	14	40					
Plot# 8				**Plot# 20**			
Species	DBH	Height	notes	Species	DBH	Height	notes
Basswood	16	40		Aspen	26	60	
Sugar Maple	8	34		Beech	6	20	
Sugar Maple	10	38		Hemlock	8	20	
Sugar Maple	12	34		Hemlock	8	15	
Sugar Maple	12	36		Red	8	30	
Sugar Maple	16	38		Red	8	30	
White ash	10	34		Sugar	8	30	
White ash	10	24	dead	Sugar	8	15	
White birch	10	28		Sugar	10	30	
White birch	12	30	dead	Sugar	10	25	
White birch	12	20	dead	Sugar	10	25	
White birch	12	40		Sugar	12	30	
				White	12	40	
Plot# 9				**Plot# 21**			
Species	DBH	Height	notes	Species	DBH	Height	notes
Sugar Maple	8	28		Balsam Fir	2	15	
Sugar Maple	14	42		Balsam Fir	4	15	
Sugar Maple	14	40		Beech	2	15	
Sugar Maple	16	48		Beech	10	15	
Sugar Maple	16	34		Red	8	35	
Sugar Maple	16	48		Red	8	55	
White Ash	24	60		Red	14	30	
				Red	4	15	
				White	10	60	

Plot# 10				**Plot# 22**			
Species	DBH	Height	notes	Species	DBH	Height	notes
Beech	12	36		Red	8	25	
Beech	14	32		Red	10	40	
Red spruce	8	36		Red	14	62	
Red spruce	10	40		Sugar	6	20	
Sugar Maple	6	30		White	8	20	dead
White Birch	12	25	dead	White	10	30	
White Pine	24	64		White	12	55	
				White	12	50	
				White	14	50	
				White	14	45	
Plot# 11							
Species	DBH	Height	notes				
Ironwood	4	15					
Sugar Maple	6	15					
Sugar Maple	6	15					
Sugar Maple	8	20					
Sugar Maple	22	20	dead				
Sugar Maple	26	65					
White Ash	14	20	dead				
White Ash	22	30					
White Birch	14	50					
Plot# 12							
Species	DBH	Height	notes				
Beech	12	25					
Sugar Maple	10	25					
Sugar Maple	12	65					
Sugar Maple	14	70					
Sugar Maple	16	65					
Sugar Maple	16	70					
Sugar Maple	18	70					
White Ash	22	70					
White Birch	12	60					
White Birch	14	30					

Lot 8 Forest Inventory Plot Photos

Point 1

Point 2

Point 3

Point 4

Point 5

Point 6

Point 7

Point 8

Point 9

Point 10

Point 11

Point 12

Point 13

Point 14

Point 15

Point 18

Point 19

Point 20

Point 21

Point 22

Appendix B

New York Natural Heritage Program

A Partnership between the New York State Department of Environmental Conservation and the State University of New York College of Environmental Science and Forestry

625 Broadway, 5th Floor Albany, NY 12233-4757 (518) 402-8935 Fax (518) 402-8925 www.nynhp.org

1 August 2013

To: Rob Davies, Fran Sheehan

From: Tim Howard, Greg Edinger

CC: Rob Daley

Re: Lot 8 Assessment

On July 25, 2013, Greg Edinger, Tim Howard, and Rob Daley (DEC Region 5) visited DEC Forest Preserve "Lot 8" to assess forest condition in general, and assess specifically whether this stand fits into the definition of old-growth forest. In the following memo we describe our methods and findings.

Introduction

NYS Conservation Law (45-0105) uses this definition:

"6. The term "old-growth forest" shall mean a parcel of at least ten acres which includes all of the following: an abundance of late successional tree species, at least one hundred eighty to two hundred years of age in a contiguous forested landscape that has evolved and reproduced itself naturally, with the capacity for self perpetuation, arranged in a stratified forest structure consisting of multiple growth layers throughout the canopy and forest floor, featuring canopy gaps formed by natural disturbances creating an uneven canopy and a conspicuous absence of multiple stemmed trees and coppices. Typically, old-growth forest sites also are characterized by an irregular forest floor containing an abundance of coarse woody materials which are often covered by mosses and lichens, show limited signs of human disturbance since European settlement, have distinct soil horizons that include definite organic, mineral, alluvial accumulation, and unconsolidated layers, and have an understory that displays well developed and diverse surface herbaceous layers."

This paragraph can be parsed into these components:

1. At least 10 acres in size
2. Abundance of late successional tree species, at least 180-200 years old
3. Contiguous forested landscape with natural, self perpetuating reproduction
4. With stratified forest structure
5. Mosaic of canopy gaps and mature patches
6. Abundance of coarse woody debris, often covered with mosses and lichens
7. Limited signs of human disturbance
8. Distinct soil horizons
9. Diverse herbaceous understory

In the following, we discuss our methods for assessing each of these components and what we found. We then tie all these factors together in a final discussion section.

Methods + Results

1. **Patch Size**

Based on a GIS calculation of the parcel as reported by the County tax map, the size of the parcel is about 220 acres, far larger than the minimum size based on the definition. While the forest nearby is fragmented by a dirt road (70 Lane) and the wollastonite mine to the east, this parcel is also just a small part of the very large forest that makes up the Jay Mountain Wilderness.

2. **Late successional tree species**

We collected three detailed observation points on July 25th, one at each corner of the triangle we walked through the lot (Figure 1). We also kept a running list of all other plant species encountered. Printouts of these data are attached as Appendix 1 to this document.

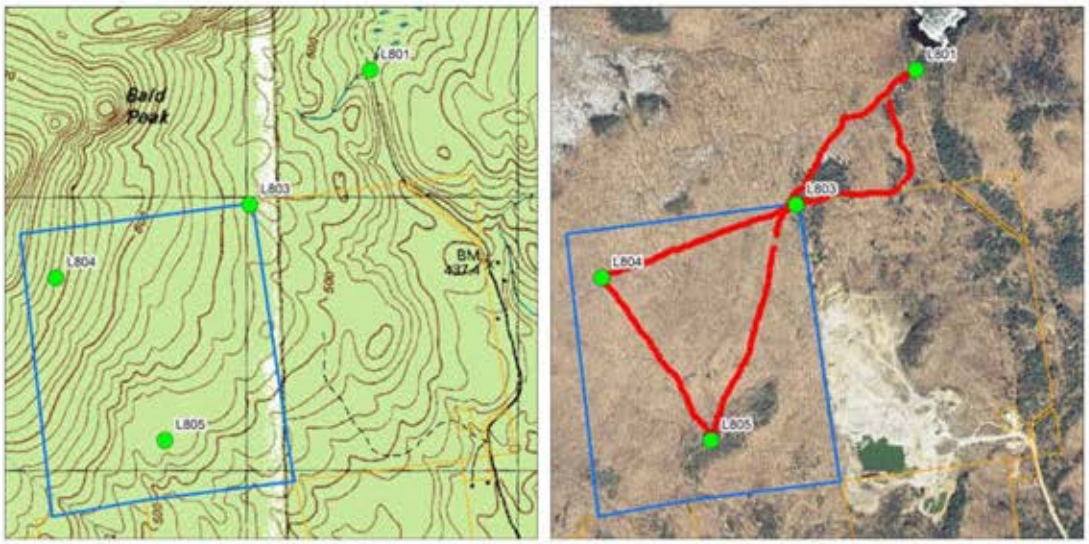


Figure 1. Map of Lot 8 (blue line), with observation points labeled (green dots) and route indicated (GPS track; red line) during this survey. The left panel shows the USGS 7.5 minute topographic map as background, the right panel uses 2009 true color ortho-imagery. The line that travels W, uphill, from the NE corner is where CWD measurements were taken. Gold lines indicate NYCO property.

In general, late-successional species are the most abundant species at our observation points (Appendix 1). This includes sugar maple (*Acer saccharum*), white ash (*Fraxinus americana*), American beech (*Fagus grandifolia*), yellow birch (*Betula alleghaniensis*), and northern hemlock (*Tsuga canadensis*). This was most pronounced at the first two observation points in the parcel (L803, L804). The third observation point was collected on a shelf near the southern end of the parcel and includes red spruce (*Picea rubens*), a species we would expect in late-successional forests in the region, but also red pine (*Pinus resinosa*), red maple (*Acer rubrum*), and white pine (*Pinus strobus*), species we might expect in more recently disturbed forests but could also occur in more mature forest stands. We also encountered a considerable amount of paper birch (*Betula papyrifera*); it was present in the canopy at all three observation points and also commonly encountered as we walked through the lot. Specimens were often quite large, including three 30 cm DBH individuals at L804, a 37 cm DBH individual at L803, and a 55 cm DBH individual encountered while walking between these two points. This species often regenerates after large disturbances or cleared canopies. Similarly, very large big-toothed aspen (*Populus grandidentata*) were present in the parcel, both standing and as downed logs (see coarse-woody debris, below). With its wind-dispersed seeds and requirements for high-light conditions, big-toothed aspen is even more likely to have germinated at the site when the site had a very open canopy.

To get an idea of tree age, we cored three trees; two trees at L804 (sugar maple, white ash) and one tree at L805 (red pine). The white ash has about 100 rings in the core and the red pine has 121 rings, making both of these just over a century old. The sugar maple core has at least 179 rings and thus is a few years older, bringing it up to the age bracket specified in the definition.

3. Contiguous forested landscape with natural, self perpetuating reproduction

This forest parcel is on the edge of a contiguous forested landscape, with forest extending to the west and northwest for many miles. Viable, self-perpetuating reproduction was evident at the observation points (American beech and sugar maple seedlings and saplings were common) and throughout the site.

4. Stratified forest structure

The three observation points collected on the parcel show a strongly stratified structure, with tree species present (and common) in the canopy and sub-canopy layers as well as in the 'shrub' layers (2-5m, 0.5-2m, and 0-0.5 m). Shrubs, such as hobblebush (*Viburnum lantanoides*), beaked hazel (*Corylus cornuta*), and American fly-honeysuckle (*Lonicera canadensis*) were also common, adding to the stratified nature of the forest.

5. Mosaic of canopy gaps and mature patches

We encountered at least one canopy gap and evidence of other small canopy disturbances such as downed trees and tip-up mounds. There was variation in the canopy openness and evident variation in mean tree size as we walked throughout the parcel. We targeted the most mature patches to sample so additional survey would be needed to better capture and quantify the variation in patch maturity throughout the site.

6. Coarse woody debris

The amount of coarse woody debris (CWD) is an oft-cited measure of stand maturity. To estimate the amount and structure of CWD on the site we used the line intercept method described by Marshall et al. (2000) with the following modification. Instead of randomly placing many short line transects throughout the site, we followed a single, long line transect. We recognize the potential loss in accuracy and complete representativeness the single line may have for the entire site, but also recognize the efficiency required for obtaining an estimate during this single sampling event. Sampling more CWD transects would likely have reduced the time available for sampling detailed observation pts needed to address the other criteria discussed here. Beginning at the first detailed observation point (L803), Rob Daley used a compass (Silva Ranger) to navigate a line 250 degrees from true north. Greg Edinger followed, using a Biltmore stick to measure the diameter of all downed trees greater than 10 cm crossed by the line. The cross section of decayed logs or other logs that were not round was estimated using length X width measurements rather than diameter. Tim Howard classified each piece into one of five decay classes following the FIA field guide (USDA Forest Service 2003) and entered information into a data collection device. We completed this transect at our second detailed observation point (L804), for a distance of 742 meters.

The line transect crossed 65 logs with a diameter (or calculated diameter) greater than 10 cm (Table 1.). The most abundant species was paper birch, followed by sugar maple and beech. Seven of the logs were lacking bark remains and so degraded we could not identify them.

Table 1. The number of coarse woody debris logs encountered on a line transect in Lot 8, split up by species.

Species	Common name	Logs
Acer pennsylvanica	Striped maple	3
Acer rubrum	Red maple	1
Acer saccharum	Sugar maple	12
Betula alleghaniensis	Yellow birch	2
Betula papyrifera	Paper birch	25
Fagus grandifolia	American beech	10
Fraxinus americana	White ash	4
Populus grandidentata	Big-tooth aspen	1
Unknown		7

An excellent study that included coarse woody debris (CWD) estimates for different forest types in the Adirondacks was published by Greg McGee, Don Leopold, and Ralph Nyland in 1999 (McGee *et al.* 1999). In this study, they sampled six old-growth stands, six stands under selective cutting regimes ('partially cut'), and four even-aged stands ('maturing') of about 90-100 years old (as a result of fire).

Following the formula provided by Marshall et al (2000), we estimated the volume of coarse woody debris overall and by size class. The CWD estimates derived from this method are comparable to those reported by McGee et al (1999, Table 2). We estimated the total CWD for the site to be 44.8 m^3/ha, slightly higher than McGee's findings for the maturing and partially cut stands but far below the old growth calculation of 122.6 m^3/ha. This discrepancy is strongest in the larger diameter logs, both the 25-49 cm size class and the >50 cm size class (Table 2).

Table 2. The volume of CWD (m^3 / ha) over 10 cm diameter for three known forest types as reported by McGee et al (1999, their Table 4), and as estimated for Lot 8.

	McGee et al 1999			This study
Diameter	Maturing	Partially Cut	Old growth	Lot 8
≥ 50	2.1	4.7	23.2	4.7
25-49	10.8	15.8	69.8	18.6
10-24	27.9	20.2	29.6	21.6
Total	40.8	40.7	122.6	44.8

The definition for old growth also mentions mosses and lichens as indicators. We noted one log that was moss covered. Some of the larger live trees, however, did have some of the indicator species for old-growth forests on their trunks (Cooper-Ellis 1998). This included the lichen *Lobaria pulmonaria*, the moss *Neckera pennata*, and the liverwort *Porella platyphylla*.

7. Limited signs of human disturbance

Aside from persistent noise throughout the day from the adjacent mine, we saw minimal signs of human disturbance. No cut stumps of any age were observed throughout the day.

8. Distinct soil horizons

Unfortunately, time constraints did not permit much assessment of soil characteristics of the site. We did dig into the soil at our final observation point (L805) and noted a very light-colored layer, possibly a leached E horizon, but did not investigate further.

9. Diverse herbaceous understory

The site contains a very diverse understory, as exemplified by the species lists in Appendix A. We noted about 50 species of herbaceous plants, including ten species of ferns, four different lycopods, orchids such as checkered rattlesnake plantain (*Goodyeara tesselata*) and pink ladyslipper (*Cypripedium acaule*), and many other flowing plants. One non-native species (eastern helleborine; *Epipactus helleborine*) was also present throughout the site, but only as widely scattered single stalk individuals.

Interpretation and Discussion

Many of our findings for these nine factors fit the criteria for the definition of old-growth forest. The site is far over 10 acres in size (#1) within a contiguous forested landscape (#3) and contains a patchwork of gaps and mature patches (#5). The forest is well-stratified in structure (#4), with a diverse herbaceous understory (#9) and with limited notable human disturbance (#7).

However, our findings on other criteria point to a forested plot that is maturing and perhaps on the threshold of becoming old growth, but not quite there yet.

First, it is worth noting the known history of the site. In 1885 the state held a sale of land in which back payments for taxes were due. This lot was in the batch as part of the "South Tract, Stower's Survey" and was sold to the state with the final transfer from the Comptroller to the People of New York recorded in the Essex County clerk's office in 1891 (imprint of original tax deed available from DEC

Real Property). Thus, this lot has been in state hands (and likely relatively undisturbed) since at least 1891 and perhaps since 1885, or 122-128 years ago. What this information does not tell us is the status of the forest on this lot at the time of the transfer. A survey map from 1937 notes corner posts set in stone piles and does not mention any witness trees, but that does not mean that trees were absent.

Our findings suggest Lot 8 was not mature forest at the time of transfer, perhaps partially cleared. With tree-ring ages from only three trees, we cannot present a fully representative age distribution for the site. However, the three cores are instructive: we tried to core very large trees and two of these are the approximate age of the land transfer. The third, a sugar maple, is a bit older than the transfer, indicating that there may have been at least some younger trees on the site at the time of the transfer.

Indications that Lot 8 had an episode of heavy clearing are more evident in the species representation and the distribution of CWD recorded at the site. Finding a relatively high proportion of paper birch in the canopy (as large trees) but not as understory trees, saplings, or seedlings (Appendix 1), and also as the highest proportion of logs on the ground (Table 1) indicates paper birch is on its way out as a component of the forest. As commonly happens throughout the Adirondacks after large fires or other large disturbances, a large canopy-opening event likely allowed paper birch to seed in but it is now slowly becoming less common. Even more telling would be the very large logs and few remaining big-tooth aspen noted at the site. The one log crossed on the CWD transect was 53 cm in diameter – quite large for an aspen. These trees require very high light conditions to germinate and grow (USDA Silvics Manual: http://www.na.fs.fed.us/spfo/pubs/silvics_manual/volume_2/populus/grandidentata.htm) and their presence indicates that there were at least patches of cleared land for these trees to seed into.

The analysis of coarse woody debris points towards the same findings. The total CWD was far less than what is found in 'first growth' old-growth forests (Table 2), but perhaps slightly higher than forests that had had some management and forests that had been cleared 90-100 years ago. Most lacking are the logs in the larger size classes (e.g., ≥ 50 cm diameter). However, the CWD at Lot 8 does seem to have higher volume of CWD in the large size classes than the 'maturing' stands of McGee et al. (1999). Perhaps reading too deeply into these values, this may support the idea that the land was not completely cleared at the time of transfer to the state – that trees and saplings may have been scattered through the site, either in patches or a sparse distribution.

Finally, although we found moss, liverwort, and lichen species that tend to be good indicators for old-growth forest, these species seemed to be just getting started and present in scattered, low densities, rather than covering the older tree trunks at the site. Nor were many downed logs covered in mosses as one is likely to find in even older forest stands.

In conclusion, it appears that the forest in Lot 8 is in very good condition and maturing well. The species more likely to be encountered in younger forests are on their way out and the shade tolerant species are becoming more abundant with excellent structural stratification. There are, however, too few very large and very old trees in the canopy, and the volume of coarse woody debris in this stand is less than expected for it to be classified as an old-growth forest.

Literature cited

Cooper-Ellis, S. 1998. Bryophytes in old-growth forests of western Massachusetts. Journal of the Torrey Botanical Society 125:117–132.

Marshall, P. L., G. Davis, and V. M. LeMay. 2000. Using line intersect sampling for coarse woody debris. Vancouver Forest Region, B.C. Ministry of Forests, Nanaimo, BC, Canada. 34 pages.

McGee, G. G., D. J. Leopold, and R. D. Nyland. 1999. Structural characteristics of old-growth, maturing, and partially cut northern hardwood forests. Ecological Applications 9:1316–1329.

USDA Forest Service. 2003. Forest inventory and analysis national core field guide, field data collection procedures for phase 3 plots: down woody material field manual. USDA Forest Service, North Central Research Station. On file with: U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis, 201 14th St., Washington, D.C., 20250., St. Paul, MN. 36 pages.

4407335
LEWIS
Lot 8

Community Form 1: Transect Observation Points

F13EDI09NYUS

Reviewed by the New York Natural Heritage Program: date: initials:

A. Identifiers / Location (general EOR information) For transects that continue onto more pages minimally fill in numbers 1,2,3,7,8,11

Primary Managed Area: Adirondack Park

1. Survey site name: Lot 8

Quads (Filequad checked)	County	Town	Surveyors (principal Surveyor checked)	7. Sourcecode:
☑ LEWIS(4407335)	ESSEX	LEWIS	☑ Gregory J. Edinger	F13EDI09NYUS
			☐ Timothy G. Howard	8. Surveydate: 7/25/2013
			☐ Robert Daley	9. State: NY

10 Directions: From Village of Lewis head north on U.S. 9 N 0.6 mi. toward Fire House Lane. Turn west (left) onto Wells Hill Rd. and go about 2.0 mi. Take slight right onto 70 Lane/Seventy Rd. and go about about 0.4 mi. Take sharp right to stay on 70 Lane/Seventy Rd. and go about 0.5 mi. passing quarry entrance on west (left) side of road. Park at DEC parking pullover on east (right) side of road just past quarry entrance. The northeast property corner of Lot 8 is about 645 m southwest of DEC parking area.

11 Comments: Birds heard include black-throated blue warbler, red-eyed vireo. Observation points L803, L804, and L805 form a triangular transect within the square Lot 8 property boundary. Coarse woody debris was sampled along the transect between L803 and L804. Additional species observed between observation points were added to the optional plant list for the survey site.

B. Topography On another piece of paper, draw a cross-section sketch of the observation point and show scale.

C. Vegetation / Habit Record % cover and height in meters for each strata and % cover of dominant species within each strata.

Obs. pt. L801 Form 3: ☐ Form 2 occ #:

Community: Parking Area
CEGL code: Alliance code:
UTM: zone 18 610487 E, 4907691 N
Position method GPS
GPS average 200 readings WAAS ☐
Comments: Reference point. Plant cover data not collected. DEC pullover parking area on east side of road.
Photo ☐ Photo name:

Obs. pt. L802 Form 3: ☐ Form 2 occ #:

Community: Hemlock-northern hardwood forest
CEGL code: Alliance code:
UTM: zone 18 610060 E, 4907206 N
Position method GPS
GPS average 200 readings WAAS ☐
Comments: Reference point. Plant cover data not collected. GPS point collected at Lot 8 northeast property corner iron pin.
Photo ☐ Photo name:

Obs. pt. L803 Form 3: ☐ Form 2 occ #:

Community: Beech-maple mesic forest
CEGL code: Alliance code:
UTM: zone 18 610024 E, 4907183 N
Position method GPS
GPS average 0 min, 0 sec. WAAS ☐
Comments: Measured dbh of selected large trees in T2. East starting point of CWD transect. Small stream drainage near point.
Photo ☑ Photo name: 2506

B. Topography On another piece of paper, draw a cross-section sketch of the observation point and show scale.

C. Vegetation / Habit Record % cover and height in meters for each strata and % cover of dominant species within each strata.

Stratum		Species		comments	Collection	Unsure of ID
T2	55%, 25m	Acer saccharum	24%	28.5"		
T2		Fagus grandifolia	18%			
T2		Betula alleghaniensis	6%			
T2		Fraxinus americana	6%	22"		
T2		Tsuga canadensis	6%	21"		
T2		Betula papyrifera	5%			
T3	36%, 15m	Fagus grandifolia	25%			
T3		Acer pensylvanicum	6%			
T3		Acer spicatum	6%			
T3		Tsuga canadensis	4%			
TS1	18%, 4.5	Fagus grandifolia	10%			
TS1		Acer spicatum	5%			
TS1		Acer pensylvanicum	3%			
TS2	15%, 1.5	Fagus grandifolia	6%			
TS2		Acer pensylvanicum	3%			
TS2		Acer saccharum	3%			
TS2		Acer spicatum	3%			
TS3	5%, 0.25	Acer saccharum	3%			
TS3		Fagus grandifolia	1%			
TS3		Fraxinus americana	1%			
TS3		Sorbus americana	<1%	sor		
TS3		Tsuga canadensis	<1%			
SS1	2%, 2.2m	Viburnum lantanoides	2%	alnifolium		
SS2	15%, 1.5	Viburnum lantanoides	15%	alnifolium		
SS3	30%, 0.3	Viburnum lantanoides	30%	alnifolium		
H	10%, 0.25	Huperzia lucidula	2%			
H		Dryopteris intermedia	1%			
H		Gymnocarpium dryopteris	1%			
H		Oxalis montana	1%			
H		Uvularia sessilifolia	1%			
H		Aralia nudicaulis	<1%			
H		Botrychium virginianum	<1%			
H		Clintonia borealis	<1%			
H		Epipactis helleborine	<1%			
H		Galium sp.	<1%			ID uncertain
H		Maianthemum racemosum	<1%			
H		Medeola virginiana	<1%			
H		Mitchella repens	<1%			
H		Oclemena acuminata	<1%	acuminatus		
H		Phegopteris hexagonoptera	<1%			
H		Prenanthes trifoliolata	<1%			
H		Ranunculus sceleratus	<1%			
H		Tiarella cordifolia	<1%			
H		Trillium erectum	<1%			
H		Viola pallens	<1%			ID uncertain
H		Viola rotundifolia	<1%			

B. Topography On another piece of paper, draw a cross-section sketch of the observation point and show scale.

C. Vegetation / Habit Record % cover and height in meters for each strata and % cover of dominant species within each strata.

Obs. pt. L804 Form 3: ☐ Form 2 occ #:

Community: Beech-maple mesic forest

CEGL code:

Alliance code:

UTM: zone 18 609324 E, 4906931 N

Position method GPS

Comments: GPS: +/- 2.6 m 2189 elev. Measured dbh of selected large trees in T2. West ending point of CWD transect. Several large tip-up mounds and pits observed along transect between L803 and L804. Lobaria pulmonaria and Neckera pennata collected from large Acer saccharum trunk (75cm DBH) along transect between L803 and L804 (ID confirmed by Aissa Feldmann). Tentative ID of caterpillar photographed by Rob Daley at L804: wavy-lined Heterocampa (Heterocampa biundata). Other trees with DBH measured along this transect: betpap: 55cm; faggra: 58cm; acesac: 70cm.

Photo ☑ Photo name: 2507 2508

GPS average 500 readings WAAS ☐

Stratum		Species		comments	Collection	Unsure of ID
T2	55%, 30m	Acer saccharum	32%	179 year ring count from core - actual age older.		
T2		Fraxinus americana	20%	100 year ring count from core - actual age older.		
T2		Betula papyrifera	15%			
T3	60%, 15m	Acer saccharum	25%			
T3		Fagus grandifolia	24%			
T3		Betula alleghaniensis	15%			
T3		Acer pensylvanicum	10%			
T3		Ostrya virginiana	8%			
TS1	42%, 4.5	Fagus grandifolia	20%			
TS1		Acer pensylvanicum	10%			
TS1		Acer saccharum	10%			
TS1		Acer spicatum	2%			
TS2	60%, 1.2	Acer saccharum	25%			
TS2		Fagus grandifolia	20%			
TS2		Acer pensylvanicum	15%			
TS2		Acer spicatum	2%			
TS3	32%, 0.25	Acer saccharum	25%			
TS3		Acer spicatum	5%			
TS3		Fagus grandifolia	2%			
SS2	12%, 2.25	Viburnum lantanoides	12%	alnifolium		
SS3	27%, 0.4	Viburnum lantanoides	25%	alnifoliu		
SS3		Corylus cornuta	2%	smooth twig		
SS3		Lonicera canadensis	<1%			
H	12%, 0.25	Uvularia sessilifolia	8%			
H		Mitchella repens	1%			
H		Aralia nudicaulis	<1%			
H		Arisaema triphyllum	<1%			
H		Athyrium filix-femina	<1%			
H		Carex sp.	<1%	sp		ID uncertain
H		Clintonia borealis	<1%			
H		Dryopteris intermedia	<1%			
H		Epipactis helleborine	<1%			
H		Galium sp.	<1%			ID uncertain
H		Goodyera tesselata	<1%			
H		Gymnocarpium dryopteris	<1%			

B. Topography On another piece of paper, draw a cross-section sketch of the observation point and show scale.

C. Vegetation / Habit Record % cover and height in meters for each strata and % cover of dominant species within each strata.

H	Huperzia lucidula	<1%		
H	Medeola virginiana	<1%		
H	Monotropa uniflora	<1%		
H	Oxalis montana	<1%		
H	Polystichum acrostichoides	<1%		
H	Prenanthes trifoliolata	<1%		
H	Tiarella cordifolia	<1%		
H	Trientalis borealis	<1%		
H	Trillium erectum	<1%		
H	Trillium undulatum	<1%		
H	Viola rotundifolia	<1%		
N	Porella platyphylla	<1%	on large sugar maple, ID confirmed by Aissa Feldmann	ID uncertain

Obs. pt. L805 Form 3: ☐ Form 2 occ #:

Community: Pine-northern hardwood forest

CEGL code: Alliance code:

UTM: zone 18 609740 E, 4906337 N

Position method GPS

Comments: On step in slope. GPS: +/- 2.8 m 1798' elevation. Measured dbh of one large tree in T1.

Photo ☑ Photo name: 2509, 2510

GPS average 400 readings WAAS ☐

Stratum		Species		comments	Collection	Unsure of ID
T1	12%, 32m	Pinus resinosa	12%	100 year ring count from core - actual age older.		
T2	52%, 25m	Picea rubens	25%			
T2		Acer rubrum	15%			
T2		Acer saccharum	10%			
T2		Betula papyrifera	10%			
T2		Tsuga canadensis	5%			
T2		Pinus strobus	3%			
T3	30%, 10m	Acer pensylvanicum	18%			
T3		Fagus grandifolia	8%			
T3		Acer rubrum	5%			
T3		Abies balsamea	3%			
TS1	35%, 4m	Acer pensylvanicum	24%			
TS1		Abies balsamea	6%			
TS1		Fagus grandifolia	4%			
TS1		Ostrya virginiana	1%			
TS2	22%, 1.5	Abies balsamea	12%			
TS2		Acer pensylvanicum	5%			
TS2		Fagus grandifolia	3%			
TS2		Picea rubens	2%			
TS3	3%, 0.3m	Abies balsamea	1%			
TS3		Acer pensylvanicum	<1%			
TS3		Acer saccharum	<1%			
TS3		Picea rubens	<1%			
TS3		Quercus rubra	<1%			
TS3		Tsuga canadensis	<1%			
SS3	1%, 0.15	Lonicera canadensis	<1%			

B. Topography On another piece of paper, draw a cross-section sketch of the observation point and show scale.

C. Vegetation / Habit Record % cover and height in meters for each strata and % cover of dominant species within each strata.

H	45%	Dendrolycopodium obscuru	20%
H		Aralia nudicaulis	15%
H		Maianthemum canadense	5%
H		Diphasiastrum digitatum	2%
H		Oclemena acuminata	2%
H		Chimaphila umbellata	<1%
H		Cypripedium acaule	<1%
H		Huperzia lucidula	<1%
H		Lycopodium clavatum	<1%
H		Trientalis borealis	<1%
H		Uvularia sessilifolia	<1%

B. Topography On another piece of paper, draw a cross-section sketch of the observation point and show scale.

C. Vegetation / Habit Record % cover and height in meters for each strata and % cover of dominant species within each strata.

D. Map

4407335
LEWIS

Optional Plant List

F13EDI09NYUS

Lot 8

Surveysite: Lot 8

sourcecode: F13EDI09NYUS

surveydate: 7/25/2013

Quads (Filequad checked)	County	Town	Surveyors (principal Surveyor checked)
✔ LEWIS(4407335)	ESSEX	LEWIS	✔ Gregory J. Edinger
			☐ Timothy G. Howard

Community: Beech-maple mesic forest

	Growthform:	Dominant?	Exotic?	Collection number:	Photo taken?	Comments:
Abies balsamea	T					
Acer pensylvanicum						
Acer saccharum						
Acer spicatum						
Actaea pachypoda	H					
Actaea rubra	H					
Adiantum pedatum	H					
Ageratina altissima var. altissima	H					
Apocynum	H					sp.
Aralia nudicaulis						
Arisaema triphyllum						
Athyrium filix-femina						
Betula alleghaniensis						
Betula papyrifera						
Botrychium virginianum						
Brachyelytrum erectum	H					
Carex gracillima	H					
Carex intumescens	H					
Carex sp.						sp
Clintonia borealis						
Corylus cornuta						smooth twig
Dendrolycopodium dendroideum	H					
Diphasiastrum digitatum	H					
Dirca palustris	S					
Dryopteris intermedia						
Dryopteris marginalis	H					
Epipactis helleborine						
Fagus grandifolia						
Fraxinus americana						
Galium sp.						
Goodyera tesselata						
Gymnocarpium dryopteris						
Hieracium paniculatum	H					
Huperzia lucidula						
Lobaria pulmonaria				Y		on sugar large maple between L803 and L804
Lonicera canadensis						
Lycopodium clavatum	H					
Maianthemum canadense	H					
Maianthemum racemosum						
Medeola virginiana						
Mitchella repens						
Monotropa uniflora						

4407335
LEWIS

Optional Plant List

F13EDI09NYUS

Lot 8

Surveysite: Lot 8

sourcecode: F13EDI09NYUS

surveydate: 7/25/2013

Quads (Filequad checked)	County	Town	Surveyors (principal Surveyor checked)
☑ LEWIS(4407335)	ESSEX	LEWIS	☑ Gregory J. Edinger
			☐ Timothy G. Howard

Community: Pine-northern hardwood forest

	Growthform:	Dominant?	Exotic?	Collection number:	Photo taken?	Comments:
Abies balsamea		☐	☐		☐	
Acer pensylvanicum		☐	☐		☐	
Acer rubrum		☐	☐		☐	
Acer saccharum		☐	☐		☐	
Aralia nudicaulis		☐	☐		☐	
Betula papyrifera		☐	☐		☐	
Chimaphila umbellata		☐	☐		☐	
Cypripedium acaule		☐	☐		☐	
Dendrolycopodium obscurum		☐	☐		☐	
Diphasiastrum digitatum		☐	☐		☐	
Fagus grandifolia		☐	☐		☐	
Huperzia lucidula		☐	☐		☐	
Lonicera canadensis		☐	☐		☐	
Lycopodium clavatum		☐	☐		☐	
Maianthemum canadense		☐	☐		☐	
Oclemena acuminata		☐	☐		☐	
Ostrya virginiana		☐	☐		☐	
Picea rubens		☐	☐		☐	
Pinus resinosa		☐	☐		☐	100 year ring count from core - actual age older.
Pinus strobus		☐	☐		☐	
Quercus rubra		☐	☐		☐	
Trientalis borealis		☐	☐		☐	
Tsuga canadensis		☐	☐		☐	
Uvularia sessilifolia		☐	☐		☐	