

**Massachusetts Department of Conservation and Recreation
Division of Water Supply Protection, Office of Watershed Management
*Forest Management Project Summary***

Project Title: Lot 5245

DWSP Harvest Permit Number: 5245

DWSP Proposal ID: WA-10-262

DCR Forest Cutting Plan File Number: 241-7007-14

Site Information

Watershed: Wachusett

Town(s): Princeton

Acres: 66

Nearest Road: East Princeton Road (Rt. 31)

Natural Heritage Atlas overlap?: No

Public Drinking Water Supply Watershed?: Yes

Forest Types: Mixed-hardwood; Oak-hardwood; White pine-hardwood

Area of Critical Environmental Concern (ACEC)?: No

Soils: Woodbridge-Paxton, Charlton-Chatfield associations. These are soils of till origin and are extremely stony on this site.

Wetland Resources: There is a small wetland in the south end of the sale area associated with an intermittent tributary to East Wachusett Brook. There is also a small isolated wetland also adjacent to Rt. 31.

Vernal Pools: The wetland adjacent to Rt. 31 has a pool that is nearly perennial and wood frogs have been observed in it. While it has not positively been identified as a productive vernal pool, it will be assumed that it is and treated as such.

Harvest Information

Harvest Start Date: 7/1/2014

Harvest End Date: 7/1/2016

Number of Wetland Crossings: None

Number of Stream Crossings: None

Best Management Practices Applied

Stream Crossings: There are no stream crossings.

Filter Strips: No trees are being cut in the filter strips.

Wetland Crossings: There are no wetland crossings.

Harvesting in Wetlands: There is no harvesting in wetlands.

DWSP Forester supervising this harvest

Name: Greg Buzzell

Forester License number: 025

Phone number: 774-261-1841

Email: greg.buzzell@mass.gov

Narrative

General Description/Forest Composition/History

This sale area is located on property purchased by the MDC (predecessor to the DCR) in 1998 to the north of East Princeton Road (Rt. 31) in Princeton. It is bounded by stone walls, East Princeton Road and a subwatershed boundary line. This very rocky hillside was used as pasture until it was eventually abandoned starting in the 1920's. This parcel's past is evident in the very large, open-grown trees (mostly oak, hickory and white pine) that are widely scattered throughout the area as well as the small, straggling junipers which struggle to survive in the shade of the forest which has re-grown to occupy the hillside.

This property was logged in the 1980's. The focus seems to have been the removal of white pine. Whether intending to or not, the result was the establishment of good regeneration. Unfortunately that operation was performed with a skidder and a significant number of trees have large, unhealed wounds at their bases.

This is a very rocky hillside with a wide variety of species in the overstory. The primary tree species are white pine, red oak and shagbark hickory along with red maple, black birch, black cherry, black oak, white oak, American beech, white ash, eastern hemlock, yellow birch and bitternut hickory. Also present are sassafras and eastern hophornbeam. The removal of some of the white pine in the 1980's resulted in small, irregular openings in the overstory and a diverse layer of species in the understory. Most of the tree species present in the overstory are also represented in varying amount in the understory along with numerous shrub species such as witch-hazel, hazelnut, mountain laurel and blueberry (high and low bush). Even though there is some poor quality white pine present, fortunately the logging in the 1980's didn't remove all of the good quality white pine.

Site Selection

The ideal watershed protection forest is one which best serves the function of the land as a producer of high quality drinking water in both short- and long-term. This forest must be vigorous and diverse in tree species and ages, be actively accumulating biomass and actively regenerating. Such a forest will be ideally suited to be resilient to, and quickly recover, from small- and large-scale disturbances such as diseases, insect infestations, ice storms and hurricanes.

None of the forest in this management area is less than 60 years old. Given the goal to have multiple age classes on every area, now is the ideal time to begin the establishment of a young forest. A combination regeneration and terrestrial invasive plant survey found no invasive species present while advance regeneration was found on 73% of the plots.

Silvicultural Objectives

Given the adequate advance regeneration throughout this area, openings will be made in the overstory to release young trees from the shade of older, taller trees, thereby creating a more diverse forest. Throughout this area, openings have been marked totaling 9.6 acres, ranging in size from 0.2 to 0.5 acres with an average size of 0.4 acres. These openings are well distributed throughout the working unit with adequate spacing between the patches to allow for future patches of a similar range of sizes (See Figure 2). Standards regarding green retention (live trees left within patches for structure and seed) have been followed.

A second goal is to remove some of the overstory trees in the forest between the new patches. This will target individual trees of poorest vigor and form to reduce competition for healthier trees. Partial cutting will occur in several areas throughout the sale area totaling 9.0 acres. About a quarter of the stocking (total volume of trees in the area) will be removed in these areas.

Of the 66 acres in this timber sale, trees are being removed from 18.6 acres.

Cultural Resources

This lot was reviewed by the DCR archaeologist and all recommendations will be followed. There is no known cultural significance to this former pasture, either historically or pre-European contact. All stone walls on DCR property are valued as a cultural resource, so the stone walls on this property will be protected from damage to the extent possible.

Rare or Endangered Species

DWSP's Conservation Management Practices regarding vernal pools are being followed. Otherwise, there are no critical habitats or known rare or endangered plants or wildlife. There are numerous trees throughout this area that fit the general description of a "wildlife tree". These tend to be the widely scattered, large-crowned trees that pre-date the abandonment of the pasture but other younger trees (60-85 years old) should also be considered as valuable to wildlife due to being hollow to varying degrees. All of the large-crowned older trees are being retained and the vast majority of the younger variety will be kept as well.

Figures

- Figure 1. Forest Cutting Plan
- Figure 2. Maps of harvest area showing approximate boundary, proposed openings and other features
- Figure 3. General locus map showing the location of the proposed timber harvest
- Figure 4. Pre-Harvest Photographs, A-C
- Figure 5. Post-Harvest Photographs, A-C

Figure 1. Forest Cutting Plan

Forest Cutting Plan

and Notice of Intent under M.G.L. Chapter 132 – The Forest Cutting Practices Act, 304 CMR 11.00 (Effective Date: 1/1/04)

MAY 19 2014

For DCR Use Only:

File Number	24-2007-14	Case No.	
Date Rec'd	5-19-14	Nat. Hert.	NO
Earliest Start	6-30-14	Nat. Hert. Imp.	NO
River Basin	Sudbury	Pub. Dr. Wat.	NO
Gen. Obj.	L-T	ACEC	NO

Site Information

Location Lot 5245

Town Princeton
 Road East Princeton Road (Rt. 31)
 Acres 66 Proposed Start Date 6/30/14
 Vol. MBF 75.7 Vol. Cds. 101 Vol. Tons 119

Landowner

Name DCR/DWSP/OWM Wachusett/Sudbury
 Mailing Address 180 Beaman St.
 Town, State, Zip West Boylston, MA 01583
 Phone 608-792-7806
 Ch61 Ch61A Stew *Case # _____
 Est. Stumpage Value _____

Plan Preparer

Name Gregory S. Buzzell
 Address 180 Beaman Rd.
 Town, State, Zip West Boylston, MA, 01583
 Phone 508-792-7806 Ext 317
 Type of Preparer Mass. Licensed Forester
 *Mass. Forester License # 25
 *Required for land under Ch61, Ch61A or Forest Stewardship

Licensed Timber Harvester**

Name To be supplied when known.
 Address _____
 Town, State, Zip _____
 Phone _____
 Mass. Lic. Harvester # _____
 **This information may be supplied after the plan is approved, but before work begins.

Best Management Practices

Stream Crossings

Indicate location on map	SC-1	SC-2	SC-3	SC-4
Type of Crossing				
Existing Structure				
Type of Bottom				
Bank Height (ft)				
Stabilization				

Wetland Crossings

Indicate location on map	WC-1	WC-2	WC-3	WC-4
Length of Crossing				
Mitigation				
Stabilization				

Filter Strips

Indicate location on map	FS-1	FS-2	FS-3	FS-4
Width (50', 100', or VA)	VA	VA		

Harvesting in Wetlands

Indicate location on map	HW-1	HW-2	HW-3	HW-4
Forest Type (see pg 2)				
Acres to be Harvested				
Resid. Basal Area (>50%)				

Service Forester Comments

Codes

Type of Preparer	Type of Crossing	Stabilization	Mitigation	Type of Bottom	Note:
LF Mass. Lic. For.	CU Culvert	SE Seed	FR Frozen	LE Ledge	Applicant must provide DCR with all relevant information before plan may be approved and cutting may begin. Some forestry activities, such as prescribed burning and pesticide or fertilizer application may require additional permits. Consult MA Forestry BMP Manual for further information.
TH Lic. Tim. Har	BR Bridge	MJ Mulch	DR Dry	ST Stony	
TB Timber Buyer	FO Ford	CO Corduroy	OT Other	MU Mud	
LO Landowner	PO Poled	ST Stone		GR Gravel	
OT Other	OT Other	HB Hay Bales		OT Other	
		OT Other			

If Other (OT) is used in any category an explanation must be given on an attached narrative page

Forest Products

Products to be Harvested*

Table with 4 columns: Species, Mbfs/Cds, Species, Mbfs/Cds. Rows include White Pine, Red Pine, Pitch Pine, Hemlock, Spruce, Other Sftwd., White Ash, Beech, White Birch, B & Y Birch, Black Cherry.

*Note: Volumes and values indicated in the Plan are as reported by the plan preparer and have not been independently verified by the service forester upon approval. Mbf = thousand board feet.

Stand Treatment

Cutting Standards

Table with 5 columns: Indicate location on map, ST-1, ST-2, ST-3, ST-4. Rows include Forest Type, Acres, Landowner Objective, Designation of Trees, Type of Cut, Source of Regeneration.

Landowner

Landowner Signature

The most important information on a cutting plan is the Landowner's objective, as this will determine which trees will be harvested and which will remain; this decision will also determine the future condition of the forest for decades to come.

[X] LT - Long-term Forest Management

Planned management of the forest to achieve one or more of the following objectives: produce immediate and maximize long-term income, enhance wildlife habitat, improve recreational opportunities, protect soil and water quality, or produce forest specialty products.

[] ST - Short-term Harvest

Harvest of trees with the main intention of producing short-term income with minimal consideration given to improving the future forest condition, which often results in a forest dominated by poor quality and low value species.

I (we) have read the Massachusetts Cutting Plan Information Sheet, and am aware of my (our) management options. I (we) hereby certify that I (we) have the legal authority to carry out the operation described above. I (we) certify that I (we) have notified the Conservation Commission in the town in which the operation is to take place and the abutters of record within two hundred feet of the area to be harvested. I (we) understand that the volumes and values (Cb61 only) in this plan have not been independently verified by the service forester upon approval and will report final values and volumes to the Director or his/her agent if the final figures differ from those reported.

Handwritten signature of landowner(s)

Handwritten date: 5/19/14

Signature of landowner(s)

Date

Service Forester

Determination and Status

Form with checkboxes for Approved, Disapproved, Expires, Cutting Plan, and Signature of Service Forester/Director's Agent.

Final Report and Comments

I hereby certify that the afore described Forest Cutting Plan and all relevant statutes have been substantially complied with.

Signature of Service Forester/Director's Agent Date

Codes

Table with 4 columns: Forest Types, Designation of Trees, Type of Cut, Source of Regeneration. Lists various codes and their corresponding tree types or treatments.

*If Other (OT) or a non-standard system is used an explanation must be given on attached narrative page.

Forest Cutting Plan

Narrative Page

Use only if further explanation is required of information on pages one or two or if "other" was used in any category.

Landowner: _____

Town: _____

File Number: _____

BMPs	<p><u>There are no trees being cut in either FS-1 or FS-2.</u> <u>Less than 50% of the basal area is being removed from the 50 ft. buffer strip associated with Rt. 31.</u></p>
Silviculture	<p><u>This property was logged in the 1980's long prior to DCR acquisition. That operation, which seems to have targeted primarily white pine, led to the establishment of advance regeneration. It also resulted in the basal wounding of many of the residual trees. In order to release this advance regeneration, 22 openings in the overstory are being created that total 9.6 acres. These openings range from 0.2 to 0.5 acres in size with an average of 0.4 acres. They are well distributed throughout the area taking advantage of the advance regeneration comprised of red, black and white oak, white pine, hickory, red maple, black birch and black cherry. A thinning will occur on an additional 9.0 acres where 25-30% of the stocking will be removed. The goal of this partial cutting is to remove the trees of poorest vigor, including many of the trees with unhealed basal wounds, while benefiting the better quality hickory, red oaks and white pines.</u></p>
Objectives	<p><u>The objective of this operation is to diversify the age structure of the forest in this 66 acre working unit by removing the overstory in patches thereby releasing the advance regeneration. There is currently very little diversity in age structure as 0% of the forest is less than 60 years old with most of it originating in the 1920's through the 1940's following the abandonment of this former pasture.</u></p>
Other	<p><u>Given the location of the landing off of Rt. 31 and concerns regarding the sightline for traffic traveling in the southbound lane, the timber harvester will be required to place traffic warning signs well to the north of the landing whenever trucks or trailers will be accessing the landing.</u></p>

Figure 2. Maps of harvest area showing approximate boundary, proposed openings and other features

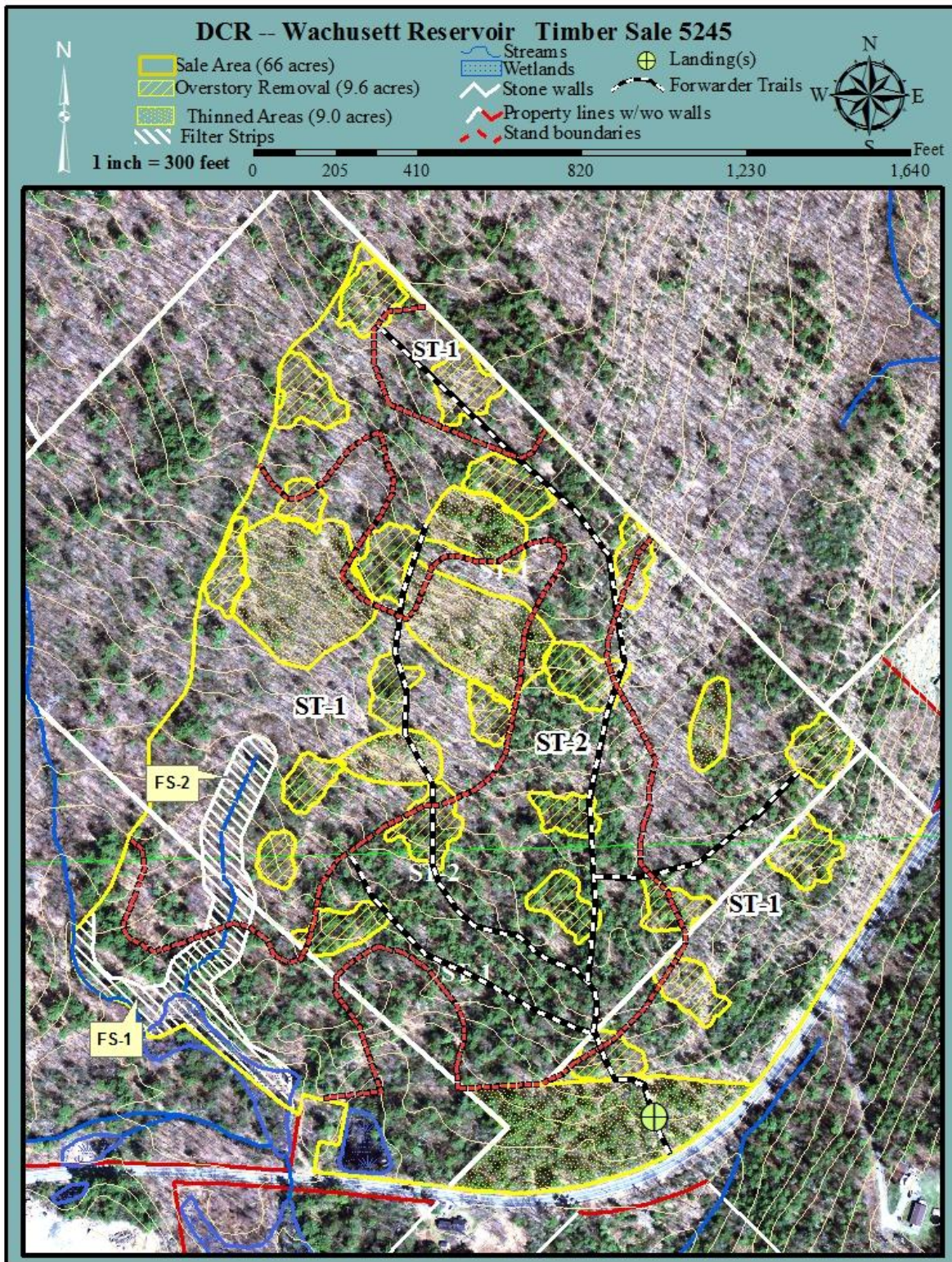


Figure 3. General locus map showing the location of the proposed timber harvest

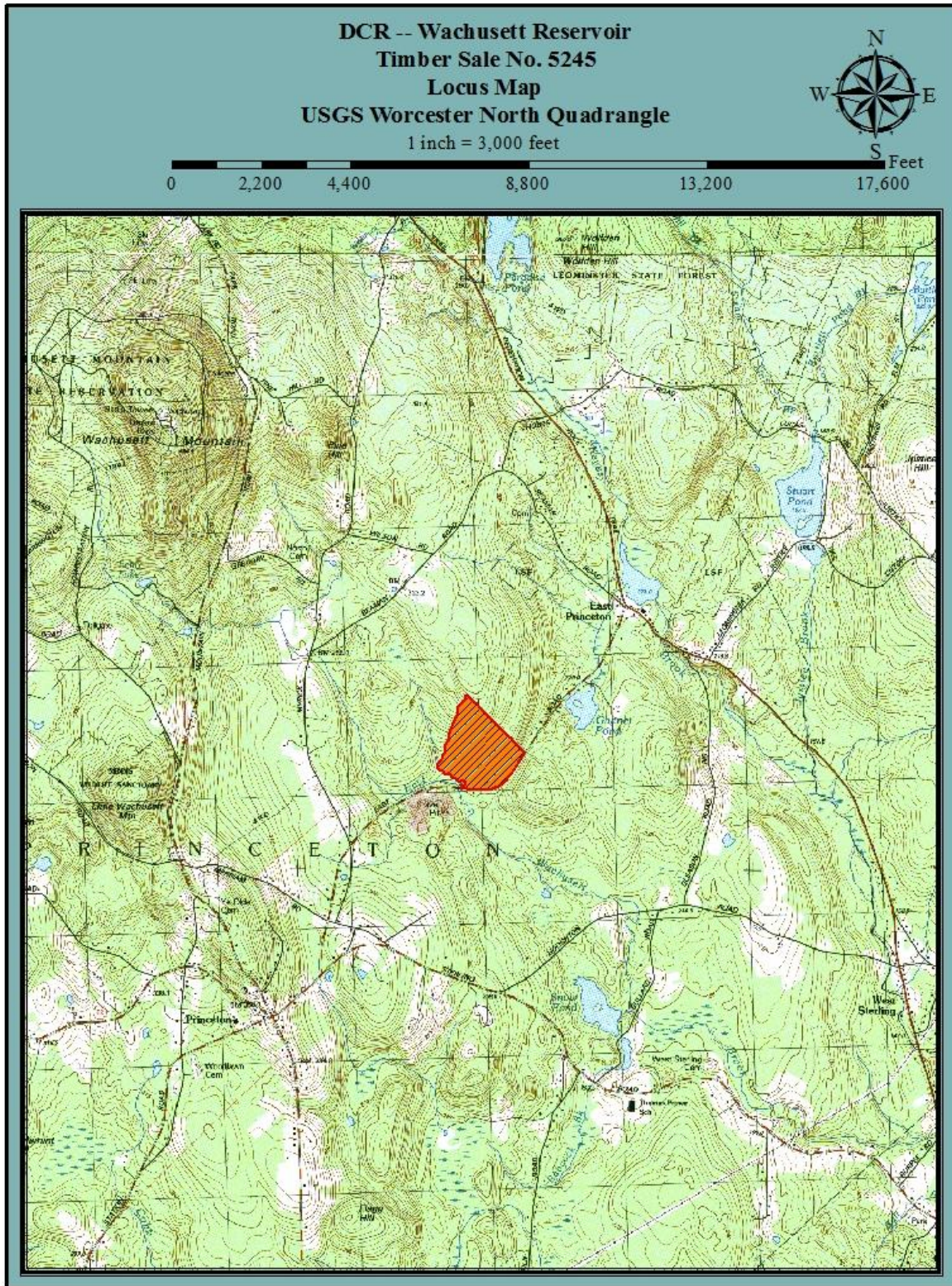


Figure 4. Pre-Harvest Photographs, A-C



A. One of the large-crowned trees that pre-dates the abandonment of the pasture. This white oak is being retained in this opening where otherwise the overstory is being removed to release the understory of white pine and hardwood saplings.



B. An area being thinned; the excellent quality red oak and shagbark hickory are being kept while the red oak in the background is marked for removal.



C. A typically rocky scene on this hillside.

Figure 5. Post-Harvest Photographs, A-C



A. Most of the overstory has been removed to release this understory of white pines and hardwoods. Two consecutive excellent acorn crops have resulted in many oak seedlings becoming established.



B. Another opening made on this extremely rocky hillside.



C. This open-grown white oak was growing on this hillside when it was still a pasture in the early 20th century. Trees such as this are routinely retained as biological legacies and are allowed to grow to the maximum potential life-span for the species.