



FOREST STEWARDSHIP PLAN
FOR PROPERTY OF
TOWNSHIP OF CHESTNUTHILL
CHURCH PROPERTY

**CHESTNUTHILL TOWNSHIP, MONROE COUNTY
PENNSYLVANIA**

PREPARED BY
RICHARD E. CARY
CERTIFIED FORESTER
2004

FOREST STEWARDSHIP PLAN

This is a forest management plan developed under current Federal and State forest stewardship guidelines.

Date Prepared: April 2004

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Property Owner: Township of Chestnuthill
Municipality: Chestnuthill Township, Monroe County

Address: Attn: David Albright, Planning Director
P.O. Box 243, Rt 715 So.
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DCNR
Bureau of Forestry: Jamie Leary, Service Forester
HC 1, Box 95A
Swiftwater, PA 18370

Phone: 570-895-4000
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Directions to Site: From route 209 in Broadheadsville, take Rt 715 North 1.5 miles, turn right on Effort/Neola road. Go left on Little Mexico Road and follow to Storm Rd/Alley. Follow Storm which ends at subject property.

TABLE OF CONTENTS

SUMMARY REPORT

- Foreward	4
- General information	5
- Topographic & general location map	7
- Aerial photo	8
- Plan map w/ management units	9
- Management Unit data summary	10
- Recommendations	11
- list by units	13
- listed by priority	14
Natural Areas – map	15
Trails – existing	16
Trails – proposed hiking trail system	17

SUPPORTING INFORMATION AND DATA

- Land Use Classifications & Description	18
- Acres by Land Use - table	20
- Soil Type Descriptions	21
- Soil Types - map	23
- Management units – map	24

MANAGEMENT UNIT DESCRIPTIONS & RECOMMENDATIONS.....25

APPENDIX

Photos	40
Data sheets <i>not included</i>	
Glossary <i>not included</i>	

Foreword

This report and plan is based on a reconnaissance of the subject property in January and February, 2004 by Richard E. Cary, Certified Forester. The general objective is to inventory forest resources and conditions sufficiently to establish a baseline of current forest conditions including photo documentation (some photos included herein) and develop a long-range plan to guide responsible stewardship of this property. The data collected and information provided shall meet requirements for inclusion of the property in the Pennsylvania Forest Stewardship program administered by the Pa DCNR Bureau of Forestry.

The plan delineates, as closely as practical, various vegetation cover types or special ecosystems where conditions are essentially the same. Each vegetation type, indicated as a management unit, is a manageable ecosystem for which a general description, management objective, and recommendation is provided. Management objectives and subsequent recommendations are based on the purpose for ownership of the property and general objectives and expectations for use and management of the property as expressed by the owner.

A general land use classification is determined for each unit reflective of the goals and expectations for use and management of the property. Management objectives and recommendations for a ten year management period are then provided for each unit in accordance with the land use goals. The various land use classifications and their management goals are described later.

Recommendations are made to protect, enhance or sustain a variety of benefits and values that are in general to:

- 1) protect areas of special or unusual natural diversity,
- 2) protect or enhance scenic, aesthetic and recreational values,
- 3) sustain or enhance the diversity of plants and animals, wildlife habitat, forest health and productivity.

Recommendations are based on general observations during this survey that was relatively cursory in nature. Recommendations are to serve as a guide to identifying areas and priorities where consideration should be given to directing resources for forest management over the next ten year management period. It is anticipated that before major recommendations are carried out, a more intensive study will be made of the project site to confirm, or alter if appropriate, recommendations made herein. Additions or revisions to the plan may be appropriate from time to time as more data and information is gathered that may identify new needs or to reflect changing goals that may be established by the owner.

GENERAL INFORMATION

Total Acres 125 Acres

Stewardship Plan Acres: 125 Acres

Landowner Objectives: This property has been acquired by Chestnuthill Township to be protected in perpetuity for open space and public recreation. In this park preserve area objectives are to sustain the diversity of plants and animals and the health of the forest over time for scenic protection or enhancement, recreation, nature enjoyment and habitat for a variety of wildlife. Protect areas of unique or special natural qualities and areas for old growth forest. Protect wetlands and water resources. Timber harvesting may be done in some areas when appropriate and consistent with forest sustainability goals but timber production per se is not an objective.

General property description: The primary entrance to this property is in a valley in the center of the property with view of wooded ridges on either side. The valley area is mostly abandoned fields separated by stone rows and narrow bands of trees. Numerous other stone fence rows in the forested hillside attest to the past agricultural use of a much larger extent of the property. It is estimated that many of the former fields were abandoned about 80 years ago and have since reforested from natural seeding. Most of the property was used for cropland or pasture. Areas that were left as woodland were cut heavily for timber. Therefore, there are very few large diameter old growth trees on the property and most of the forest is immature including some areas of mostly sapling growth. The surrounding area is mostly rural mixed woodland and agricultural land with scattered single family homes but becoming fragmented at an increasing rate by single family homes and residential development. Preservation of undeveloped open space is of high importance to sustaining the quality of this region and this property makes a significant contribution to those regional goals as well as providing opportunity for public outdoor recreation.

The forest type is predominantly mixed oak or oak-pine. Red maple is a common associated species in all areas. White pine is common in the overstory and in several areas white pine saplings form dense thickets in the understory, especially on the north ridge area. There are a few small areas dominated by pitch pine. Hemlock is present but not common.

There are no streams on the property. There is a significant spring on the hillside in the northeast part of the property from which there is a small flow of water. In the northwest corner of the property there are two significant wetland/vernal pond areas. These wetland depressions are mostly open vegetated with sphagnum moss, grasses and some highbush blueberry and red maple.

Forest health. Overall forest health is very good. There is a wide diversity of tree, shrub and herbaceous plant species represented in the variety of vegetative communities. This provides habitats for a wide variety of wildlife. The forest cover is mostly deciduous species with some evergreen areas of white pine, pitch pine or hemlock. In general, oaks are the predominant tree cover with scarlet and chestnut oak the most common associated with red, white and black oak.

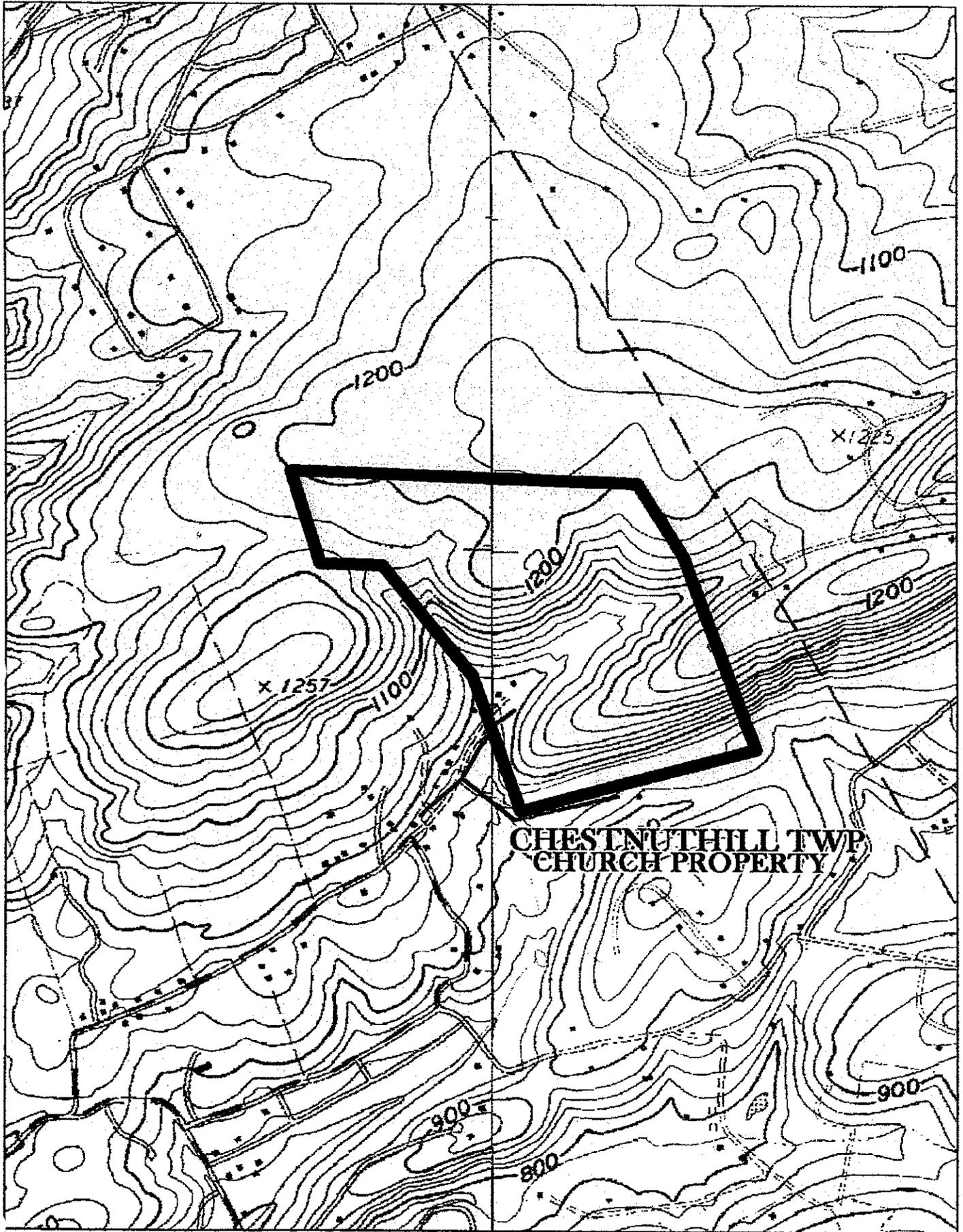
Insect and disease. No problems noted but there are some potential insect problems to look out for. In event that **gypsy moth** populations increase again to epidemic proportions in this area, this property will be vulnerable because of the high percentage of oak, the preferred target species of gypsy moth. Be vigilant for buildup of gypsy moth and in event that defoliation is severe contact forester for any remedial action such as timber salvage if needed. **Hemlock woolly adelgid** is another exotic insect that is killing hemlock in many nearby areas. Hemlock is not common at this property but occurs as an occasional species. A small grove of large hemlock observed on the north property line has been impacted and in a declining condition as result of hemlock woolly adelgid. Currently the adelgid is in remission due to severe weather conditions over the past two winters. **White pine weevil** is a common pest to white pine although damage from this insect was not common at this property even though there is a large amount of white pine sapling growth. Damage from this insect is most prevalent in open-sunny areas and usually not a problem to sapling trees in the shade of an overstory tree cover. This insect kills the top leader of pines. Although not usually fatal, it does cause distorted / deformed tree stems. This insect can be controlled by application of appropriate insecticide to the top portion of the tree in early spring at time of bud break, usually early to mid April. **Beech bark disease.** Although there are symptoms of this disease on some beech, most seem to be free of, or at least not severely impacted by, the disease which has potential to kill a large percentage of beech. Some beech are genetically resistant.

Invasive plants: Currently exotic invasive plants are not a serious problem. Japanese barberry and some multiflora rose was noted in a few areas, especially around the valley fields and the spring outflow area. Although the population of this plant is at acceptable levels, it should be monitored and eradication measures taken if necessary to prevent further spread. The open fields in the valley are dominated by a grass of unidentified species (believed to be poverty grass) that has prevented development of a more diversified mix of herbaceous meadow plants that would be preferable. Occasional mowing is suggested to promote growth of other grasses and meadow flowers.

Deer browsing: Overbrowsing by deer is the greatest overall health problem to this forest. Deer feed primarily on woody growth provided by young seedlings and saplings. When this is excessive, it not only prevents natural regeneration and sustainability of the forest but eliminates many shrubs and wildflowers. This subsequently destroys habitat needed by certain birds and other wildlife. Aggressive hunting on, and around this property, is required to control the deer herd at acceptable levels. A hunting policy is one of the recreational use regulations that should be developed soon for this property. It is recommended that this property be kept open to public hunting, especially for deer as a management tool as well for recreational benefit. (see other discussion on this in the recommendations section of this report).

**Presence of rare,
threatened and**

endangered species: A search conducted by the DCNR Bureau of Forestry of the Pennsylvania Natural Diversity Inventory has not indicated any plants of special concern in the area of this property. During the course of this survey, the most unusual species observed was a few red spruce areas on top of the north ridge. Two small groups of saplings of this species were encountered. For the most part they were badly beat up from buck rubs so their survival is questionable. This species is common in the boreal/Canadian type forest (spruce-fir) cover of the central Pocono Plateau but is absent elsewhere in Pennsylvania except for a few remnant locations around glacial wetlands. It is not generally associated with the forest in this vicinity although, being relatively near to the Pocono Plateau, there may be other small pockets of this species in the surrounding area.



**CHESTNUTHILL TWP
CHURCH PROPERTY**

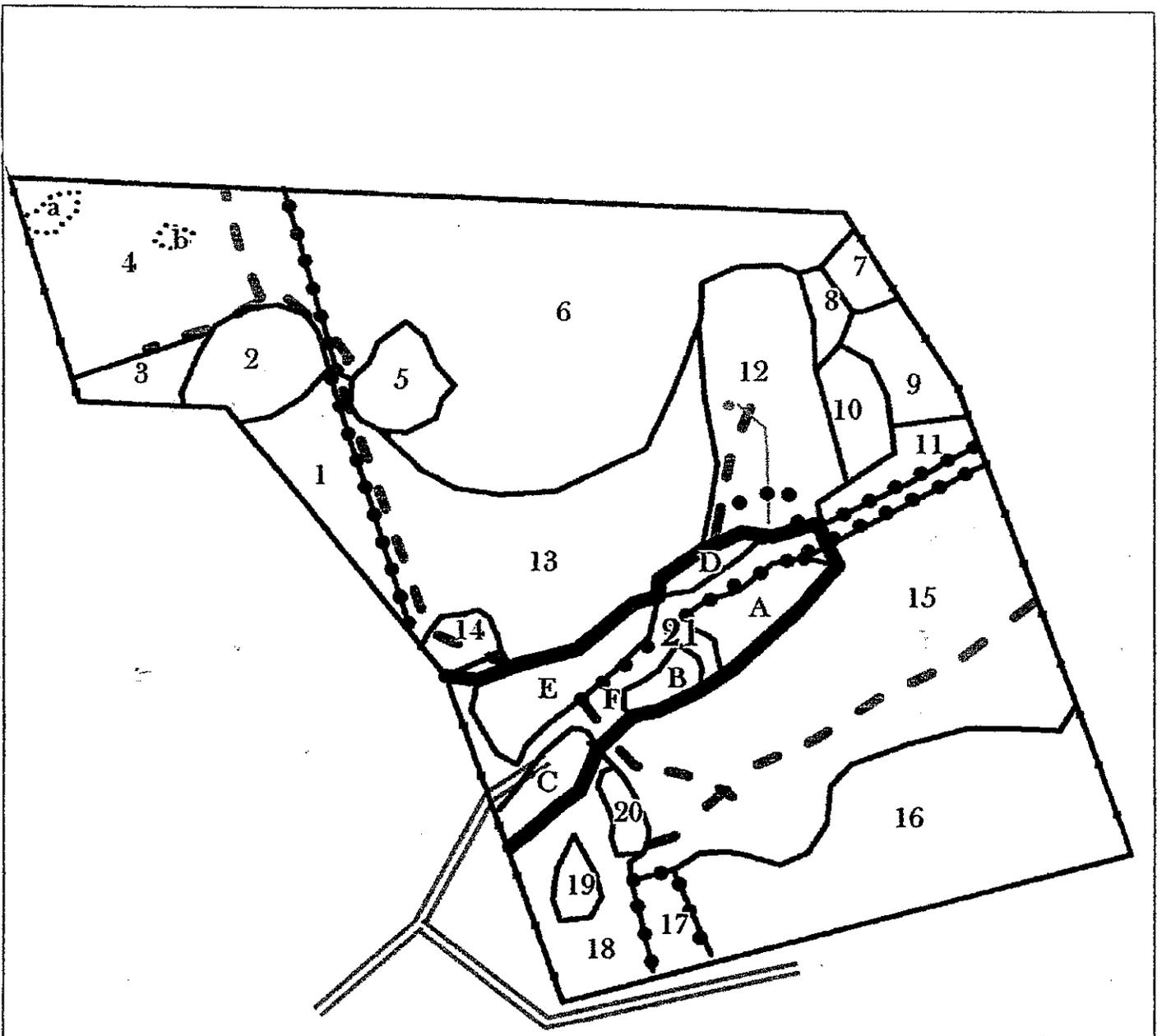


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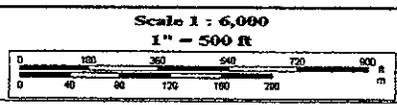


**CHESTNUTHILL TWP
CHURCH PROPERTY
MANAGEMENT UNITS**

 stone fence rows
 woods roads



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**CHESTNUT HILL TWP – CHURCH PROPERTY
MANAGEMENT UNIT DATA SUMMARY**

<u>Unit</u>	acres	type	ave diam	basal area	trees/acre	most common species	#1 %	# 2 species	#2 %	# 3 species	#3 %	mgt. objective
1	3	mixed deciduous	5.3	90	577	HY	33	ASP	33	SO	22	
2	2.7	pitch pine	3.9	115	1374	WP	15	RM	15	SO	15	SOG
3	1.4	mixed deciduous	4.2	70	725	WO	19	WP	19	SO	14	W
4	9.5	maple-pine	7.2	110	385	RM	38	PP	21	WP	17	NA
5	1.7	oak-maple-beech	6.3	83	382	CO	36	RM	27	AB	27	NA
6	23	oak-maple-pine	4.4	109	1031	RM	34	CO	30	WP	16	EA
7	0.7	pine plantation	ND	ND	ND	ND	ND	ND	ND	ND	ND	W
8	0.6	field-pine	ND	ND	ND	ND	ND	ND	ND	ND	ND	W
9	1.7	mixed oak	4.5	87	772	CO	31	SO	27	RM	19	EA
10	1.5	pine-oak	ND	ND	ND	PP	ND	ND	ND	ND	ND	NA
11	1.2	oak-maple	4.2	83	864	SO	36	RM	27	WO	18	NA
12	7	oak-hickory	6.6	88	375	HY	32	RM	23	CO	9	NA
13	12.5	mixed oak	6.1	84	420	CO	43	WO	24	AB	21	NA
14	0.8	old field	ND	ND	ND	ND	ND	ND	ND	ND	ND	W
15	21.5	mixed oak	5.4	104	661	CO	60	RM	10	WP	9	NA
16	13.3	mixed oak	5.9	80	429	CO	48	RM	13	WO	9	NA
17	1.2	pitchpine-oak	6.8	110	434	PP	55	SO	23	WA	9	NA
18	4	mixed deciduous	4.9	70	531	RM	29	SO	23	WO	11	NA
19	0.6	pine-oak	4.6	160	1386	WP	38	WO	19	WA	13	NA
20	0.6	pitch pine	4.3	140	1377	PP	71	RM	21	RO	7	NA
21A	1.7	field	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	W
21B	0.7	field	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	W
21C	1.3	field	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	W
21D	0.6	field	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA
21E	2.6	field	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	W
21F	10.2	mixed deciduous	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NE
21G	0.3	open	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	SU
	125.9											

SPECIES CODE

AB	american beech
ASP	aspens chestnut
CO	oak red
RM	maple
RO	red oak
WO	white oak Scarlet
SO	oak pitch pine
PP	pine white
WA	ash
WP	white pine

MANAGEMENT OBJECTIVE

ND=	no data	EA	Even aged
N/A=	not applicable	SOG	All aged-sustained old growth
		W	Wildlife habitat
		NA	Natural area - no management
		SU	Special use/developed
		NE	Natural environment

Recommendations

GENERAL COMMENTS AND RECOMMENDATIONS

Public recreation is an important use and purpose for this property. At present there are no plans for any significant development of facilities allowing for passive use recreation activities in a natural setting. However, if demand dictates in the future, some facility development could be done – mostly for family and group picnic outings – avoid development of athletic fields except possibly space for impromptu frisbee, volleyball, softball associated w/ picnic outings but not on a regular “league “ type basis.

The property can be an excellent example of a multiple use forest with opportunities for conservation, recreation, nature enjoyment and environmental education.

Conservation: In addition to preserving some areas as natural areas and bio-reserves for scenic protection as well as providing certain environmental and biodiversity values, various types of vegetation management is recommended in other areas. Most recommendations are for the purpose of sustaining a diversity of plants and animals. Timber production is not an objective but, over time, there may be some timber harvesting done in connection with achieving bio-diversity goals for certain areas.

Recreation Use Policy: Development of a public recreational use policy is the first priority for management of this park property. Currently there is a good amount of recreational use, especially by those living in close proximity to the property. This is primarily hunting, hiking and ATV / Snowmobile. As the site becomes publicized as a public park, it will be important to have a recreational use policy and regulations posted.

Not all uses are compatible. The policy is needed to address activities to be prohibited, regulated, or promoted especially related to the following:

- motorized vehicles –ATV’s and snowmobiles (prohibiting this use is recommended due to noise, erosion problems being exacerbated by this use, damage that could be done to proposed plantings in fields, etc.
- mountain bikes – if permitted, limit to designated trails
- equestrian – should horses be permitted?
- hunting . From the viewpoint of sustaining bio-diversity, deer hunting is important to control the deer population. Overbrowsing by deer prevents the natural regeneration of tree seedlings and a wide variety of shrubs and wildflowers. Other popular hunting would be for turkey and small game.
- hiking – this is an activity that should be promoted by establishing a system of blazed trails. Cross country skiing would be a compatible use but due to topography not well suited to this activity. Snowshoeing would be a good wintertime activity when there is deep snowcover.

- environmental education There are many opportunities for guided walks related to the cultural (past agricultural use) as well as natural features on the property. This is an activity to be promoted. Likely there are volunteers that could be recruited to do guided walks. Development of a self guided interpretive trail(s) could be done also, especially oriented around history of the site.

Hiking Trails: There is an extensive system of woods roads that provide a good opportunity for hiking, wildlife observation and nature enjoyment. However, there are some areas where additional hiking trails are suggested to provide access for enjoyment of some other areas and to form a system of loop trails. On the other hand, some of the existing trails should not be part of an official blazed hiking trail system. Although they may certainly be used casually by hunters or others who explore further, un-official trails should not be maintained (unless there is erosion or other problems) and their use should not be encouraged (especially along south edge of property adjacent to private residences). The development and blazing of a system of walking trails is envisioned as one of the most important resources to develop for public recreational use of the property. A trail guide map/ brochure should be developed when the trail plan is completed. Existing and proposed trails are shown on maps shown elsewhere in this report. The potential routes shown are conceptual and will need further investigation to finalize the route to take in the best diversity of scenic views or other features of interest and take advantage of topography to minimize steep grades to the fullest extent possible. A policy for trail use by others (i.e. equestrian, ATV, snowmobile, mountain bikes, cross country skiing) needs to be developed as mentioned above.

The following table summarizes the major recommendations made at this time. It is a guide to planning and directing resources for forest conservation.

To aid in setting priorities, a ranking is given to each recommendation based on its importance/ value to achieving forest conservation goals and the urgency of doing so. Projects having the highest priority will be those with a ranking of high (1) importance and high (1) urgency. While this ranking is subjective and preliminary, it provides an initial guide to planning and budgeting. This list of projects should be reviewed annually and adjusted as appropriate in the context of recommendations and priorities for the property as a whole and resources available to accomplish recommendations. To facilitate planning and periodic adjustment of priorities, this table is provided on a disc (Excel) included with this report. Using this tool, project importance and urgency can easily be adjusted and sorted as well as providing a tool for record keeping of jobs completed, cancelled, or in progress.

Recommendation table by units

CHESTNUT HILL TWP - RECOMMENDATIONS SUMMARY

see report for details

<u>Unit</u>	<u>u</u>	<u>i</u>	<u>s</u>	<u>ACTIVITY</u>
1	2p	2		periodic thinning and browse cut
2	2p	2		periodic thinning and browse cut
3	3	1		regeneration cut
4	1	1		clear loop hiking trail
6	1	1		clear loop hiking trail
6	3	1		do study; consider timber harvest
8	1	3		thin white pine
8	2	2		plant crabapple
9	3	1		further study
9	2p	1		cut/eradicate maple saplings
13	1	1		install erosion control measures on steep road
14	1	2		plant crabapple trees
14	2	1		thinning and care of specimen trees
14	2	2		eradicate invasive plants
15	1	1		erosion control on N slope road
15	2	1		clear hiking trail on N slope
21A	1p	1		mow 1/3rd annually
21B	2	2		plant wildlife trees
21B	1p	1		mow perimeter
21C	1	2		do plantings-see report for alternatives
21E(a)	1p	1		mow 2x annually
21E(b)	1	2		plant spruce
21F	3	1		clear hiking trail
gen	1	1		mark property boundary
gen	1	1		do recreational use policy/regs

u= urgency

1 if activity is to be done, do it soon

2 medium urgency

3 defer 7-10 years

P subscript indicates periodic or ongoing type project for an indefinite period.

i= importance to achieving overall management goals

1=highest importance

s=status (for record

keeping)

i=in progress, X cancelled, completed(insert date-mo/yr)

Recommendation table sorted by priority

CHESTNUT HILL TWP - RECOMMENDATIONS SUMMARY

see report for details

<u>Unit</u>	<u>u</u>	<u>i</u>	<u>s</u>	<u>ACTIVITY</u>
gen	1	1		mark property boundary
gen	1	1		do recreational use policy & regulations
21A	1p	1		mow 1/3rd annually
21B	1p	1		mow perimeter
21E(a)	1p	1		mow 2x annually
4	1	1		clear loop hiking trail
6	1	1		clear loop hiking trail
13	1	1		install erosion control measures on steep road
15	1	1		erosion control on N slope road
8	1	3		thin white pine
14	2	1		thinning and care of specimen trees
15	2	1		clear hiking trail on N slope
8	2	2		plant crabapple
14	2	2		eradicate invasive plants
21B	2	2		plant wildlife trees
3	3	1		regeneration cut
6	3	1		do study; consider timber harvest
9	3	1		further study
21F	3	1		clear hiking trail
9	2p	1		cut/eradicate maple saplings
1	2p	2		periodic thinning and browse cut
2	2p	2		periodic thinning and browse cut

u= urgency

1 if activity is to be done, do it soon

2 medium urgency

3 defer 7-10 years

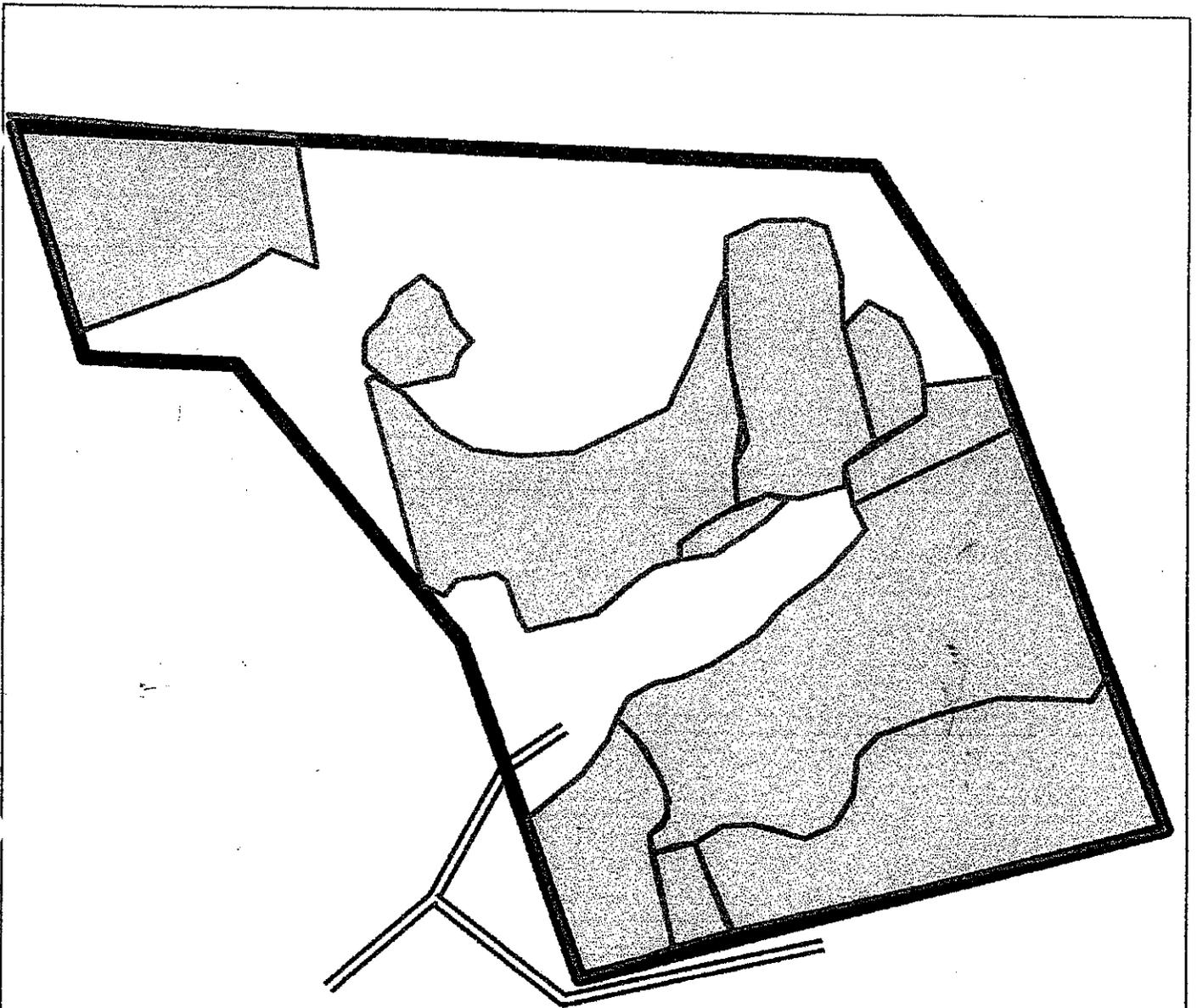
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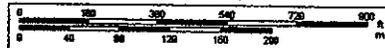
**CHESTNUTHILL TWP
CHURCH PROPERTY**

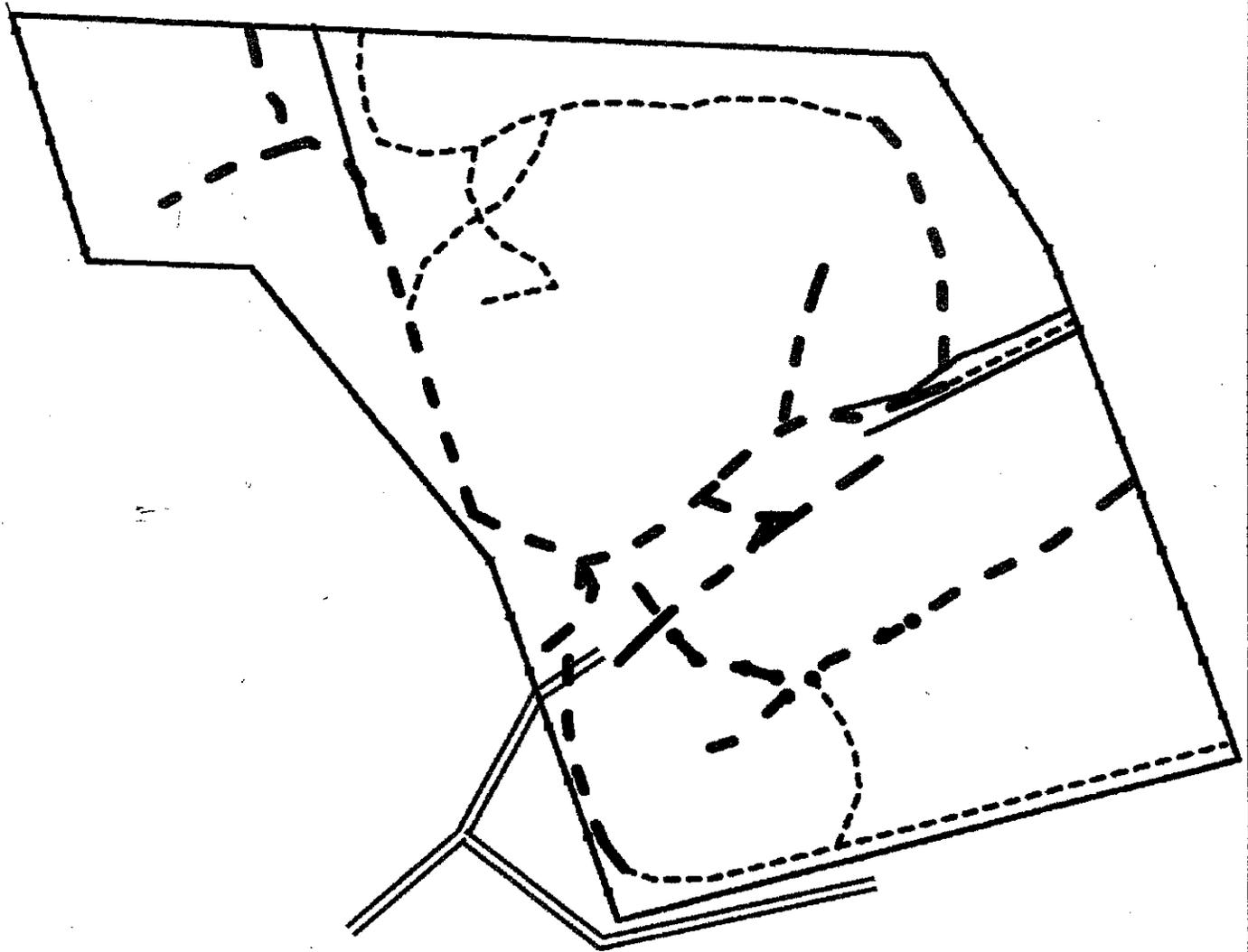
NATURAL AREAS / BIO-RESERVES



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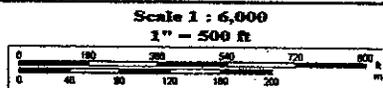


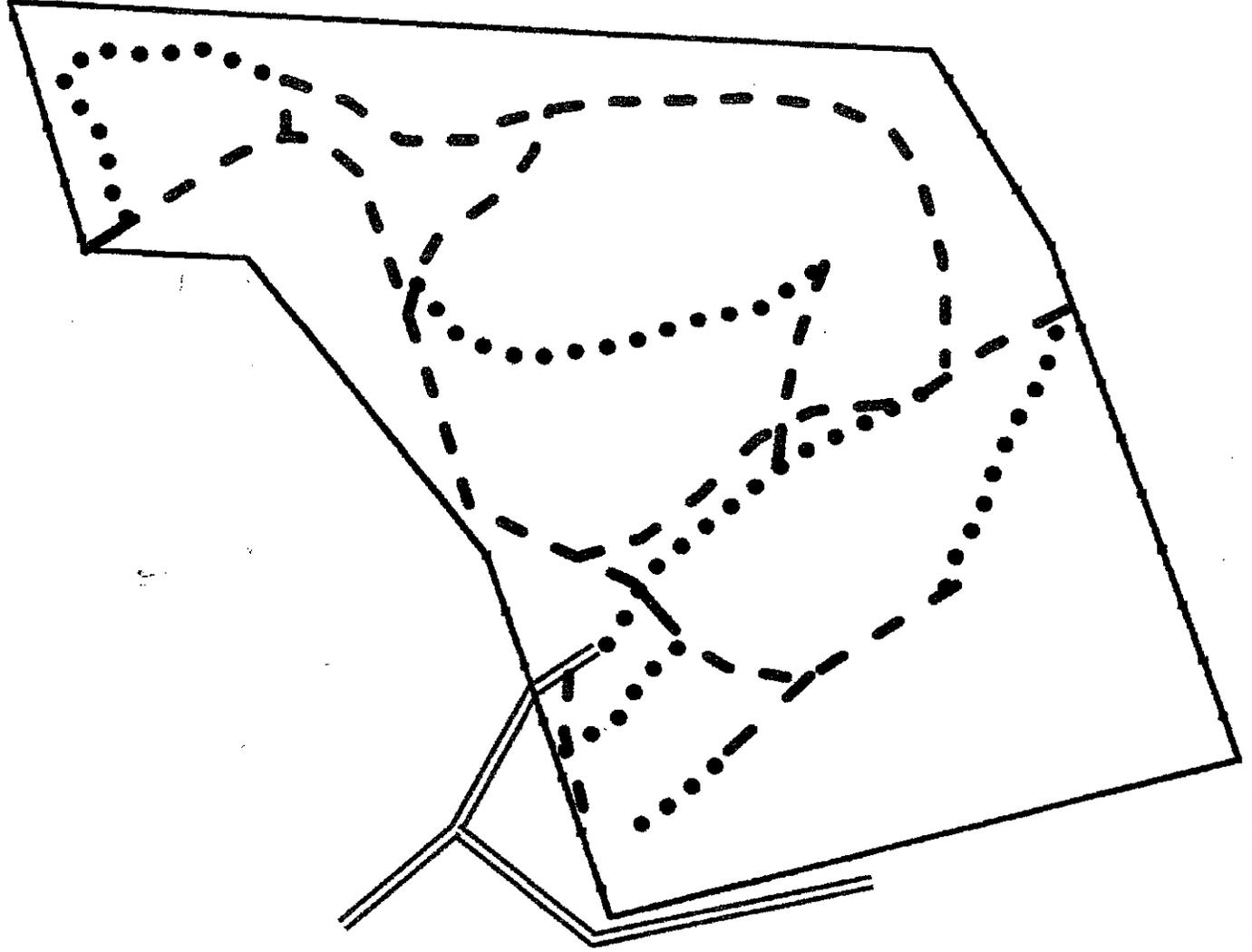


**CHESTNUTHILL TWP
CHURCH PROPERTY
EXISTING ROADS AND TRAILS**

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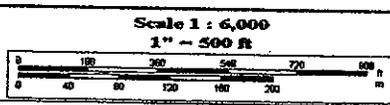




**CHESTNUTHILL TWP
CHURCH PROPERTY
PROPOSED BLAZED HIKING TRAILS**

 Existing
  Proposed

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LAND USE CLASSIFICATIONS

The individual management units identified in the plan are classed as one of the following land use classifications each of which has a different management objective. Recommendations are then made on the basis of these land use objectives. These categories are as follows:

Natural Areas / Bioreserves: This category is primarily to identify special ecological niches of natural diversity and areas containing rare or unusual plants, animals, geologic features or other features of special interest. Also, it may include areas of high scenic and wild recreation value or even areas disturbed in the past by human events such as logging or farming where there is no intent for remedial action or further human intervention in the foreseeable future. This land use provides a biological preserve and a forever wild "mini wilderness" system. The management objective is preservation in a natural condition by operation of physical or biological processes usually without human intervention. No timber harvesting or other management activities shall be done except that timber salvage may be considered in event of severe catastrophe such as fire, wind or insect damage where tree mortality is extremely high and large economic loss would result by not salvaging the affected trees. Under normal circumstances dead or windthrown trees will not be cleaned up or salvaged but this may be undertaken where aesthetics is of more importance. Remedial action may be taken in natural areas when it is necessary to sustain a particular plant or animal species of special concern that is confined to the natural area. The establishment of hiking or nature trails to provide access for full appreciation and enjoyment of these areas is also a compatible and recommended use to achieve maximum human benefit from these protected areas.

Natural Environment Forest lands to be maintained in a semi protected natural appearing condition primarily for scenic protection and buffer zones in high visibility areas such as along roads and around general use areas. Although management will be infrequent and of low intensity, over time these areas may receive some management as appropriate to maintain an aesthetic naturalistic environment. This can include selective tree removal for thinning or release of more desirable trees. Hazard trees can be removed and fallen limbs or other debris may be cleaned up after such operations to improve appearance. Fallen trees and limbs from natural causes may also be removed. Native trees and shrubs or approved substitutes may be planted if needed for aesthetic enhancement or forest sustainability.

Forest Sustainability & Biodiversity Management Areas. Lands that may be periodically devoted to intensive management when appropriate to sustain or enhance the diversity of plants and animals, wildlife habitat, or forest health and productivity. Various management techniques can be utilized where it is recommended for meeting management objectives or to prevent significant economic loss provided such activities can be accomplished without adversely impacting other forest values and objectives.

Management activities for forest sustainability and biodiversity management include the commercial harvest of timber and non-commercial cutting to thin dense stands, sustain certain trees or plants and wildlife habitat, or to provide conditions for regeneration. Regeneration practices may involve tree planting and/or special measures to promote natural regeneration such as fencing or other protection from deer and the application of herbicides when needed to control or eradicate undesirable interfering plants such as fern and beech brush or exotic invasive species.

Objectives for forest sustainability/biodiversity management areas usually fall into one of the following types of management. Occasionally there may be other management objectives such as special management needed to maintain habitat critical to the survival of a specific plant or animal species.

- 1) **wildlife area.** Here management is focused almost exclusively on maintaining or improving habitat diversity for benefit of wildlife. Usually these are woodlands unproductive for other forest uses and existing or proposed forest openings to be maintained in an open or semi open condition or early succession stage. Old fields are usually classed as wildlife land. Native plants of food or nesting value to wildlife will be nurtured and supplemental trees, shrubs or herbaceous cover may be planted. Ferns may be eradicated or other measures taken to promote more diversified ground cover of grasses, low blueberry, blackberries and other herbaceous and woody plant growth of value for food and cover.
- 2) **All aged.** (Referred to in the plan as **sustained old growth**) A unit to be developed over time so there is a mixture of age classes of trees within the unit. Ultimate objective is to maintain a high percentage of old growth trees on a sustained basis. Natural or created small openings will be utilized for nurturing naturally occurring seedlings or with planting of seedling species to be available for replacement of old trees when they die. Small fenced plots or individual tree protectors will usually be needed to protect young trees from deer. Some timber harvesting or other tree cutting may be appropriate in certain situations in order to release and nurture trees intended to remain for old growth or to create small openings necessary for the establishment of natural regeneration or planted trees.
- 3) **Even aged.** Woodland units where all trees will be approximately the same age or possibly two aged stands such as areas of mature trees with a stand of young saplings in the understory. This woodland, and most other forest areas, is of this even aged type. All aged forests rarely occur naturally, especially with the overbrowsing by deer that is common in most of northern Pennsylvania. Even aged management areas will produce the greatest diversity of tree and plant species. At some point in time when these stands are understocked, mature, in a declining condition, or lack species diversity, measures should be taken to regenerate the stand. This will usually involve a combination of timber harvesting, control of interfering plants and fencing to exclude deer. Prior to reaching the stage where total regeneration is recommended, there may be densely stocked stands where thinning, usually by commercial timber harvesting, will be appropriate without the need for fencing or control of interfering plants.

LAND USE ACRES

LAND USE ACRES

<u>Land Use</u>	<u>Acres</u>	<u>Percent</u>
Biodiversity Management	40.2	32%
Natural Area	75.2	60%
Natural environment	10.2	8%
TOTAL	125.6	100%

**BIDIVERSITY
MANAGEMENT**

Acres by management objective

	<u>Acres</u>	<u>Biodiversity %</u>	<u>% of all (125 Ac.)</u>
Even aged	24.7	61%	20%
Sustained old growth	2.7	7%	2%
Wildlife habitat	12.8	32%	10%
	40.2	100%	32%

CHESTNUTHILL TWP – CHURCH PROPERTY
SOIL DESCRIPTIONS

BaB Bath Channery silt loam, 3 – 8% slopes. Gently sloping, deep, well drained soil on ridgetops and lower foot slopes of ridges. Permeability is moderate above the fragipan and slow in the fragipan. Available water capacity is low to moderate. A temporary perched water table is sometimes present in wet seasons. Surface runoff is medium. The rooting depth is restricted by the fragipan in the subsoil

BaC Bath Channery silt loam, 8 – 15% slopes. Sloping, deep, well drained soil on upper side slopes and upper foot slopes of ridges. Permeability is moderate above the fragipan and slow in the fragipan. Available water capacity is low to moderate. A temporary perched water table is sometimes present in wet seasons. Surface runoff is medium. The rooting depth is restricted by the fragipan in the subsoil.

BbB Bath very stony silt loam, 0-8% slopes. Deep, nearly level and gently sloping soil on ridgetops and upper parts of sides of ridges. Permeability is moderate above the fragipan and slow in the fragipan. Available water capacity is low to moderate. A temporary perched water table is sometimes present in wet seasons. Surface runoff is slow. The rooting depth is restricted by the fragipan in the subsoil.

LaC Lackawanna channery loam, 8-15% slope. Sloping, well drained soil on broad areas on ridgetops and plateaus. Permeability is moderate above the fragipan and slow in the fragipan. Available water capacity is low to moderate. A temporary perched water table is present in wet seasons. Surface runoff is medium to rapid. The rooting depth is restricted by the fragipan in the subsoil.

LbB Lackawanna extremely stony loam, 0-8 percent slopes. Nearly level and gently sloping, extremely stony, well drained soil on tops of broad ridges and plateaus. Permeability is slow and available water capacity is low to moderate. Surface runoff is slow. The subsoil has a very firm fragipan. Rooting depth is restricted by the fragipan.

LbC . Lackawanna extremely stony loam, 8-25% slopes. Sloping and moderately steep, extremely stony, well drained soil on the sides of broad ridges and plateaus. Permeability is slow and available water capacity is low to moderate. Surface runoff is slow. The subsoil has a very firm fragipan. Rooting depth is restricted by the fragipan.

LxC Lordstown extremely stony silt loam, 8-25% slope. Sloping to moderately steep, extremely stony, well drained soil on sides of ridges and mountains and in sloping areas on broad plateaus. Permeability is moderate and available water capacity is low to moderate. Surface runoff is medium. Bedrock at depth of 30 inches.

LyE Lordstown and Oquaga extremely stony soils, 25-70% slopes. Steep and very steep, moderately deep, well drained soils on steeper sides of ridges, mountains and plateaus. Bedrock at depth of 28 inches. Numerous surface stones. Permeability is moderate and available water capacity is very low to moderate. Surface runoff is very rapid. Rooting depth is restricted by bedrock.

MaB *Mardin channery silt loam, 2-8 % slopes. Nearly level and gently sloping, moderately well drained soil on crests and upper parts of sides of hills and ridges on uplands. Permeability is slow, and available water capacity is low to moderate. Surface runoff is slow. The subsoil has a firm slowly permeable fragipan. A high seasonal water table is at a depth of 18-36 inches for long periods during wet seasons. Rooting depth is restricted by the fragipan

MaC *Mardin channery silt loam, 8-15 % slopes. This sloping, deep, moderately well drained soil is on sides of hills and ridges on uplands. Permeability is slow, and available water capacity is low to moderate. Surface runoff medium. The subsoil has a firm to very firm fragipan. A high seasonal water table is at a depth of 18-36 inches during wet seasons. Rooting depth is restricted by the fragipan

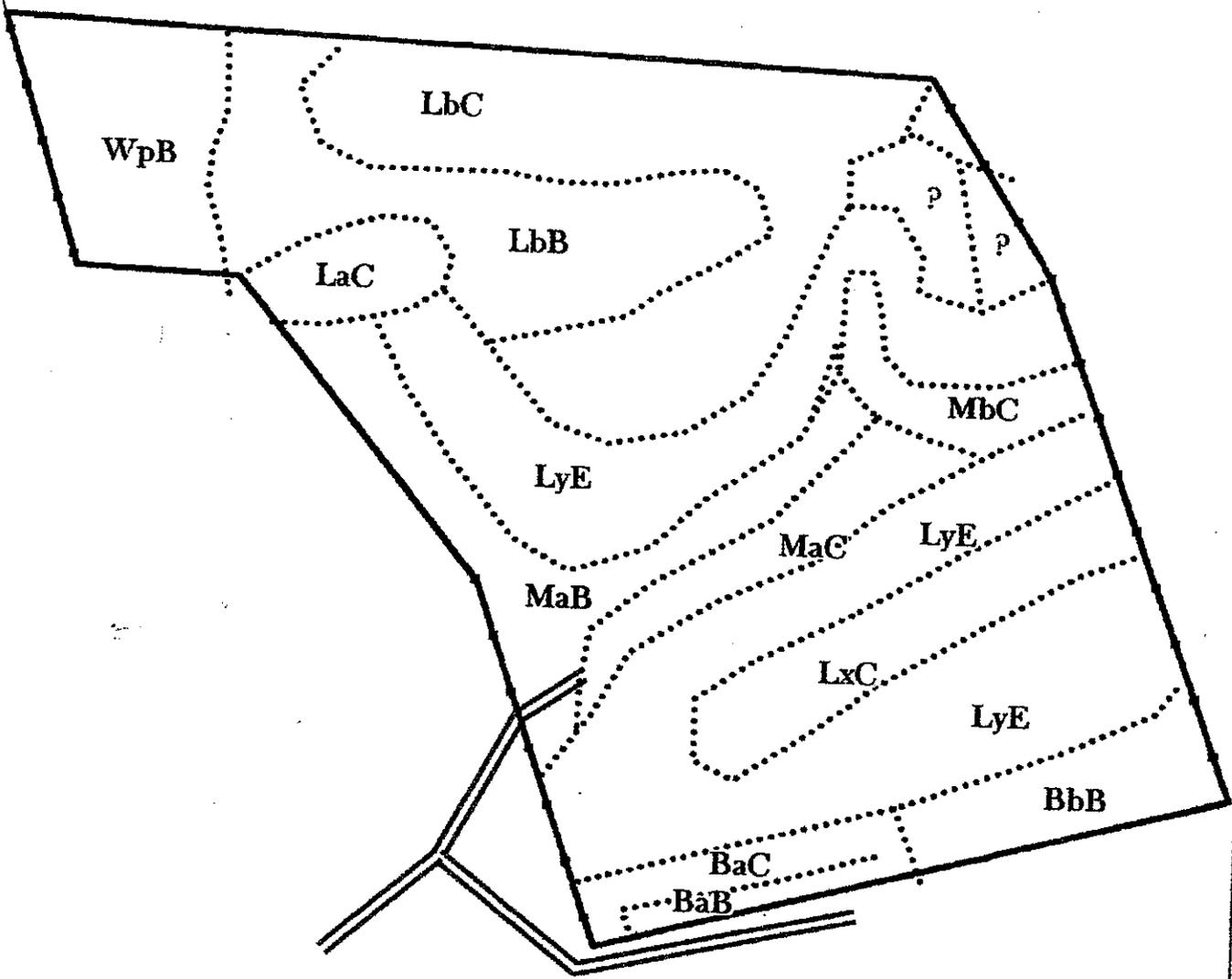
MbC *Mardin very stony silt loam, 8-25% slopes. Sloping and moderately steep, very stony, moderately well drained soil on the sides and tops of ridges and on plateaus. Permeability is slow, and available water capacity is low to moderate. Surface runoff medium. The subsoil has a firm to very firm fragipan. A high seasonal water table is at a depth of 18-36 inches during wet seasons. Rooting depth is restricted by the fragipan.

WpB *Wellsboro extremely stony loam, 0-8% slopes. Nearly level and gently sloping, extremely stony, moderately well drained soil on broad plateaus and ridgetops. Permeability is slow and available water capacity is moderate. Surface runoff is slow. A high water table is at a depth of 18-30 inches during wet seasons. The subsoil has a firm and brittle fragipan, which restricts rooting depth.

* Soils with wetland inclusions

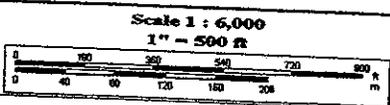
** Hydric (wetland) soils

SOURCE: Soil Survey of Monroe County, Pennsylvania, USDA Soil Conservation Service



**CHESTNUTHILL TWP
CHURCH PROPERTY
SOIL TYPE MAP**

DE LORME
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Zoom Level: 14-2 Datum: WGS84



UNIT 18

Potential

Picnic area

(potential picnic area)

mow

(potential arboretum)

Parking

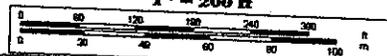
CHESTNUTHILL TWP. - CHURCH PROPERTY

UNIT 21 ENLARGEMENT

DELORME

Scale 1 : 2,400
1" = 200 ft

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Zoom Level: 16-0 Datum: WGS84



UNIT 1
Old field-young growth mixed deciduous
3 Acres

Description: This is an abandoned cropland field. Old stone row is along east side of unit. White pine saplings common. Gray birch also noted. Some mountain laurel and green briar.

Tree Species: hickory and aspen 33% each, scarlet oak 22%, red maple and white pine 6% each.

Tree Diameters: Average = 5.3 inches. 2-6 inches = 22%, 6-12/ 44 %, 12-18/33 %, 18-24/ %

Basal Area: 90 square feet /acre overall trees 12 inches + = 30

Trees per acre: 577 overall. Trees 12 inches and more = 35

Soil Type: Mardin channery silt loam, 2-8% slopes

Management Objective: Promote growth of dominant trees and sustain young growth and shrubs for wildlife habitat diversity. Manage primarily for wildlife values.

Recommendations: Do thinning, especially crop tree release thinning to release dominant oaks. Maintain hickories and aspen. Release white pine saplings. Deciduous saplings to be removed can be cut also to provide deer browse benefit. Cut stems partially through and push tree over. This attachment to the stump will keep trees green for a few more years. Good fall or winter activity.

UNIT 2
Old field - pine
2.7 acres

Description: Former agricultural field now dominated by pitch pine with white pine and deciduous species.

Tree Species: pitch pine 48%, white pine, red maple, scarlet oak 15% each, sassafras 4%, white oak 2%.

Tree Diameters: Average = 3.9 inches. 2-6 inches = 33%, 6-12/30%, 12-18/37%, 18-24/0 %, 24+/0%

Basal Area: 115 square feet /acre overall. Trees 12 inches + = 43

Trees per acre: 1374 overall. Trees 12 inches and more = 47

Soil Type: (LaC) Lackawanna channery loam, 8-15% slopes.

Management Objective: Sustain for development into old growth dominated by pitch pine.

Recommendations: Do periodic thinning to release and promote the growth of pitch pine primarily and secondarily favor white pine. Understory saplings can be cut to provide deer browse also.

UNIT 3

UNIT 3
Old field-mixed young growth
1.4 Acres

Description: Sapling and small pole growth of mixed deciduous species. Some larger trees in perimeter, especially along property line. Adjacent property is semi open with grassland-herbaceous openings and scattered sapling growth.

Tree Species: white pine and white oak 19%, scarlet oak 14%, red maple, aspen, black birch, chestnut oak 10% each, red oak and gray birch 5% each.

Tree Diameters: Average = 4.2 inches. 2-6 inches= 38%, 6-12/29%, 12-18/19%, 18-24/14%, 24+=)%

Basal Area: 70 square feet /acre overall. Trees 12 inches + = 23

Trees per acre: 725 overall. Trees 12 inches and more = 47

Soil Type: Mostly WpB. Wellsboro extremely stony loam, 0-8% slopes

Management Objective: Biodiversity management, especially wildlife habitat.

Recommendations: Over time, maintain as border cutting of young growth. Do periodic thinning and browse cutting. In 5-10 years consider a seed tree type cutting where a few selected trees of various species are retained for seed source, wildlife food value or aesthetics and all other trees are then cut. This will stimulate new young growth from both stump sprouts as well as from seeds.

UNIT 4
Red maple – pine
9.5 Acres

Description: Primarily red maple mixed with pitch pine and white pine. Maple and white pine saplings common. Area of dense pine saplings in south east part of unit. Scattered shrubs of mountain laurel, witch hazel, highbush blueberry. Club mosses common. There are two wetland areas of interest (blueberry swamp type) designated a & b on the unit map.

Tree Species: red maple 38%, pitch pine 21%, white pine 17%, chestnut oak and aspen 5% each, sassafras 4%, whit oak, hemlock and black gum 3% each, beech and juneberry 1% each

Tree Diameters: Average 7.2 = inches. 2-6 inches= 10%, 6-12/27%, 12-18/56%, 18-24/5%, 24+ = 1%.

Basal Area: 110 square feet /acre overall trees 12 inches + = 69

Trees per acre: 385 overall. Trees 12 inches and more = 65

Soil Type: Mostly Wellsboro extremely stony loam with Lackawanna extremely stony loam in east part of unit.

Management Objective: Recreation, old growth, wetland preservation.

Recommendations: Keep as natural area. To enhance recreational use, clear a hiking trail to form a return loop through this unit. Route trail along south side of wetland areas that are features of special interest in this unit.

UNIT 5
Beech-maple-oak
1.7 Acres

Description: Lightly stocked area predominantly chestnut oak, beech and red maple. White pine seedlings and saplings common along with some beech saplings. Shrubs of mountain laurel and low blueberry. This area, that is distinctively different from surrounding areas, provides aesthetic diversity as well as important diversity of wildlife habitat.

Tree Species: chestnut oak 36%, red maple and beech 27% each, black birch, white pine and scarlet oak 3% each.

Tree Diameters: Average = 6.3 inches. 2-6 inches = 12%, 6-12/21%, 12-18/45%, 18-24/21%, 24+ = 0%

Basal Area: 83 square feet /acre overall trees 12 inches + = 55

Trees per acre: 382 overall. Trees 12 inches and more = 49

Soil Type: Lackawanna channery loam, 8-15% slope

Management Objective: aesthetics and old growth

Recommendations: Keep as natural area preserve to develop into old growth

UNIT 6
Oak-maple-pine
23 Acres

Description: Dominant tree cover lightly stocked, predominantly mixed oak (mostly chestnut oak) with red maple and white pine. White pine saplings are common in the understory throughout and in some areas form dense almost impenetrable thickets. Some mountain laurel scattered throughout and lowbush blueberry. Site is level to gently sloping. There are several trails through the area (mostly where equipment has run through the woods) some of which could be designated as hiking trails.

Tree Species: red maple 34%, chestnut oak 30%, white pine 16%, white oak 6%, beech 3%, pitch pine, black gum, scarlet oak and juneberry 2% each, hemlock, sassafras and red oak 1%.

Tree Diameters: Average = 4.4 inches. 2-6 inches = 23%, 6-12/30%, 12-18/38%, 18-24/8%, 24+ = 0%

Basal Area: 109 square feet /acre overall trees 12 inches + = 51

Trees per acre: 1031 overall. Trees 12 inches and more = 48

Soil Type: Lackawanna extremely stony loam

Management Objective: Maintain aesthetic forest growth. Promote white pine saplings to be important component of future forest.

Recommendations: While dense white pine sapling areas would benefit from thinning, this is not generally practical at this time. Some natural thinning will take place over the next several years. It is more important for the young white pine to receive more sunlight needed to sustain their growth. It is recommended that this area be designated for

silvicultural treatment, including harvest of timber, that will thin the overstory and provide added sunlight needed to sustain the young growth of pine. Some thinning of pine saplings will occur during the logging process. Suggest allowing the area to grow undisturbed for ten years. This will also provide some added growth to harvestable trees that will help make a timber sale more economically feasible. Do intensive study in ten years to develop a management prescription that may include timber harvest primarily for the purpose of releasing young growth of pine as well as for thinning the overstory trees to remain for old growth development. Over time, continue to manage as a two aged stand. Scattered dominant trees will be left for old growth mixed with the younger white pine that is now in the understory. If logging is planned, access may be a constraint due to steep terrain in reaching this area but seems feasible from the east end of the unit.

Trails: (see trail map for approximate location) Suggest a hiking trail that would more or less follow the contour around the south side of this unit where the terrain drops off steeply along the edge of unit 13. Utilize existing trails to complete a loop through the north part of unit.

UNIT 7

Pine plantation

.7 Acres

Description: Old field area that was planted to white pine. Trees now mostly 8-14 inches in diameter. Very limby, with dead limbs reaching to ground.

Management Objective & recommendations: Leave as is for wildlife. Provides thermal cover and nesting cover.

UNIT 8

Old field-early successional grass & pine

1.7 Acres

Description: This formerly cleared agricultural land remains as semi-open grassland with young trees that have seeded in naturally, mostly white pine with some gray birch and pitch pine. Other ground cover includes sheep laurel and lowbush blueberry. White pine weevil damage is common on young white pine. This site offers good diversity for wildlife value.

Management Objective: Manage for wildlife habitat

Recommendations: Keep in semi open condition to sustain grasses and diversity of ground cover as well as some young trees. Periodically cut white pine to thin dense groups. Allow a few good specimens to remain. Also cut some gray birch. Supplement with plantings of some crabapples or similar species of wildlife food value (will need protection from deer).

UNIT 9
Mixed oak
1.7 Acres

Description: South facing slope. Chestnut oak mixed with other oaks and red maple. Saplings dense in many areas in the understory, especially red maple 1-2 inches in diameter with some black birch and white pine.

Tree Species: chestnut oak 31%, scarlet oak 27%, red maple 19%, white oak 15%, red oak and beech 4% each.

Tree Diameters: Average = 4.5 inches. 2-6 inches = 19%, 6-12/35%, 12-18/38%, 18-24/8%, 24+ = 0%

Basal Area: 87 square feet /acre overall trees 12 inches + = 40

Trees per acre: 772 overall. Trees 12 inches and more = 37

Soil Type: south part of unit, south slope area, is Lordstown and Oquaga extremely stony soils 25-70% slopes

Management Objective: Sustain oak

Recommendations:

Ideally the proliferation of red maple saplings should be eliminated in order to prevent the stand from converting over time to red maple which is less desirable, especially from a wildlife and timber viewpoint. It would be good to cut red maple seedlings for deer browse and elimination of red maple from the stand understory if resources are available. Given limited resources, this is probably not practical at this time. Otherwise, allow stand to grow for about ten years. Review in about ten years to develop a more specific plan/prescription. At that time, removal of red maple saplings by cutting and / or basal chemical treatment should be undertaken. The goal will be to remove competing vegetation in order to provide conditions for regeneration of oak seedlings. If activity is undertaken that results in the establishment of advanced oak seedlings, then overstory trees should be thinned such as in a shelterwood type cut.

If nothing is done to minimize the red maple sapling growth in the understory and to establish oak seedlings in place of the maple, then no harvest of the overstory trees should be conducted and the areas left basically as a natural area to develop into old growth. This would be the default management for this unit.

UNIT 10
Pine-oak
1.5 Acres

Description: Much of this south facing slope is dominated by pitch pine generally 6-12 inches in diameter. Associated species in the small pole and sapling sizes are scarlet oak, white oak and red maple. White pine saplings are common. Lowbush blueberry is common.

Management Objective: Aesthetic buffer. Maintain pitch pine

Recommendations: Keep as natural area. No activity planned.

UNIT 11
Mixed oak – maple
1.2 Acres

Description: Area of young growth in former field areas along base of slope.

Tree Species: scarlet oak 36%, red maple 27%, white oak 18%, gray birch 6%, pitch pine, aspen, sassafras and chestnut oak 3% each.

Tree Diameters: Average = 4.2 inches. 2-6 inches = 36%, 6-12/48%, 12-18/15%, 18-24/0%, 24+ / 0%

Basal Area: 83 square feet /acre overall trees 12 inches + = 13

Trees per acre: 864 overall. Trees 12 inches and more = 14

Soil Type: Lordstown and Oquaga extremely stony soils.

Management Objective: Scenic, well stocked woodland buffer along trail.

Recommendations: No activity at this time. Class as natural area.

UNIT 12
Hickory-Maple-Oak
7 Acres

Description: This unit is in a small hollow. For the most part it is distinctly different from other adjacent and typical vegetation types on this property. There is a spring along with a small impoundment at a former spring house and some spring seep areas. Most of the area is very rocky. Dominant tree cover of red maple and oaks. Witch hazel common. Barberry is common in the central area. Some dogwood and hawthorn noted; also some grape. Scattered white pine saplings. Low blueberry common ground cover on upper slopes. This is a different/important area for wildlife habitat. There is a woods road up the slope to the spring.

Tree Species: hickory 33%, red maple 23%, chestnut oak and white oak 10%, red Oak 8%, black oak, scarlet oak, white pine and sassafras 4% each, gray birch 2%.

Tree Diameters: Average = 6.6 inches. 2-6 inches = 13%, 6-12/25%, 12-18/47%, 18-24/13%, 24+ / 2%

Basal Area: 88 square feet /acre overall trees 12 inches + = 55

Trees per acre: 375 overall. Trees 12 inches and more = 49

Soil Type: bottom area and lower slope area is Mardin channery silt loam 8-15% slopes. Upper slope area is mostly Lordstown and Oquaga extremely stony soils 25-70% slopes.

Management Objective: Protect springs and aquatic resources, watershed protection, wildlife habitat diversity

Recommendations: Preserve as natural area.

UNIT 13
Mixed Oak
12.5 Acres

Description: Steep south facing slope area. Mixed oak, predominantly chestnut oak with white oak. Beech relatively common. This hillside is highly visible and provides an important scenic attribute to the property as it is first entered.

The west edge of this unit is delineated by an interesting old stone fence row. Along this stone row is a steep road that provides the primary access to the hilltop area. This is very stony and eroded. Erosion is exacerbated by ATV vehicles that commonly use this road.

Tree Species: chestnut oak 43%, white oak 24%, beech 21%, red oak, scarlet oak, hickory, red maple, black gum 2% each.

Tree Diameters: Average = 6.1 inches. 2-6 inches = 12%, 6-12/24%, 12-18/52%, 18-24/12%, 24+/0%

Basal Area: 84 square feet /acre overall trees 12 inches + = 54

Trees per acre: 420 overall. Trees 12 inches and more = 50

Soil Type: Lordstown and Oquaga extremely stony soils 25-70% slopes &, on upper slope, Lackawanna extremely stony loam 8-25% slope.

Management Objective & Recommendations: Keep forest as natural area primarily for preservation of scenic, forested hillside but also to ultimately develop into old growth undisturbed forest.

A hiking trail is proposed along the upper rim of this unit and/or adjacent unit 6. Erosion control measures are needed on the access road to the upper slope part of the property. Water diversions and possibly some broad based dips should be constructed to divert, and/or slow down storm water that is currently funneled down this old road. It is anticipated that this road will be important to maintain as public access for hikers to reach the proposed trail system on top of the hill. Public vehicle use, including mountain bikes, should be prohibited. The road should be kept passable with ATV or 4x4 vehicles for emergency or official administration and management uses.

UNIT 14
Old field-semi open
0.8 Acres

Description: Small area of former field that is in early successional stage of natural reforestation that is retarded by deer browsing that prevents development of many tree seedlings that emerge from natural seeding. The old road leading up the mountainside passes through this unit making it the gateway or entrance area to the mountain for

recreational use. East of the road is most open with poverty grass and other grasses and a few saplings of oak, mostly scarlet oak. Some multiflora rose and barberry. West of the road, tree and shrub cover is more dense. Trees of white pine, red maple and oak saplings. Shrubs of highbush blueberry, witch hazel, low blueberry.

Soil Type: Mardin channery silt loam 2-8% slopes

Management Objective: Wildlife habitat & aesthetic enhancement. Classed as wildlife habitat management area which will be the primary benefit/objective for this unit.

Recommendations: In the area east of the road, control/eradicate multiflora rose and barberry. Although these plants are of wildlife value, they are also highly invasive in this area so should be controlled to help eliminate the seed source. Maintain selected oak saplings to be nurtured over time primarily as specimen trees to provide aesthetic value to this area. Do thinning (remove undesirable trees) pruning and other tree care as needed. Suggest also planting some crabapple or hawthorn that will enrich the unit for wildlife as well as visually. These will need protection from deer. If planted as seedlings, will need protection by wire cages to prevent deer browsing. Trees of sapling size will need stems protected to prevent buck rubs.

West of the road, thin white pine as needed to nurture specimen trees. Maintain shrubs. Thin sapling growth areas.

UNIT 15
Mixed oak
21.5 Acres

Description: This unit includes the northslope and upper part of the north facing slope on this ridge that forms the scenic backdrop on the south part of the property. It is predominantly chestnut oak mixed with other oaks. White pine saplings are common to dense in many areas of the north slope and ridgetop. Red maple and juneberry saplings also common. Shrubs of witch hazel and low blueberry. Most diversity of species occurs on the bottom part of the north slope. There is a road along the ridgetop from adjoining property at the east end of unit through to the end of this unit and also a road up the north slope from the western end of this unit.

Tree Species: chestnut oak 60%, red maple 10%, white pine 9%, red oak 7%, white oak and scarlet oak 4% each, beech 3%, black birch, hickory, black gum, juneberry and pitch pine < 1% each.

Tree Diameters: Average = 5.4 inches. 2-6 inches = 14%, 6-12/30%, 12-18/49%, 18-24/7%, 24+/0%

Basal Area: 104 square feet /acre overall trees 12 inches + = 58

Trees per acre: 660 overall. Trees 12 inches and more = 57

Soil Type: Lordstown and Oquaga extremely stony soils, 25-70% slopes on the sides of the ridge and Lordstown extremely stony silt loam 8-25% slope on the ridgetop.

Management Objective: Keep forest as natural area primarily for preservation of scenic, forested hillside but also to ultimately develop into old growth undisturbed forest.

Provide for hiking as a primary recreational use. Exclude vehicles. Install erosion control measures on the north slope road.

UNIT 16
Mixed oak
13.3 Acres

Description: This is the lower portion and bottom of the south facing slope. Predominantly chestnut oak mixed with other oaks and red maple. There is an old road/trail, not well defined, in western part of unit from ridge down to base of slope and there is an old road/trail along the base of the slope. There are private residences on adjacent property along the western part of this unit.

Tree Species: chestnut oak 48%, red maple 13%, white oak and scarlet oak 9% each, red oak and beech 5% each, black birch 4%, white pine 2%, juneberry, hickory and sassafras <2% each.

Tree Diameters: Average = 5.9 inches. 2-6 inches= 18%, 6-12/38%, 12-18/36%, 18-24/9%, 24+/0%.

Basal Area: 80 square feet /acre overall trees 12 inches + = 36

Trees per acre: 429 overall. Trees 12 inches and more = 35

Soil Type: Lordstown and Oquaga extremely stony soils, 25-70% slopes and along the lower part and bottom of slope is Bath very stony silt loam, 0-8% slope.

Management Objective: Keep forest as natural area primarily for preservation of scenic, forested hillside but also to ultimately develop into old growth undisturbed forest.

Recommendations: Preserve as natural area. Although there are some existing trails, the formal blazing and designating hiking trails in this area is not recommended in order to avoid conflict with adjacent residents.

UNIT 17
Pitch pine-oak
1.2 Acres

Description: Former agricultural field delineated by old stone fence row. Pitch pine is most common species. Some white ash and black cherry, species generally absent on this property, is found here and adjacent units. Some hawthorn also noted.

Tree Species: pitch pine 55%, scarlet oak 23%, white ash & black cherry 9% each, red maple 5%.

Tree Diameters: Average = 6.8 inches. 2-6 inches= 9%, 6-12/23%, 12-18/64%, 18-24/5%, 24+ / 0%

Basal Area: 110 square feet /acre overall. Trees 12 inches + = 75

Trees per acre: 434 overall. Trees 12 + inches = 82

Soil Type: Bath channery silt loam

Management Objective: Keep forest as natural area primarily for preservation of scenic, forested hillside but also to ultimately develop into old growth undisturbed forest. Preservation of pitch pine to develop into old growth is especially important.

UNIT 18
Young growth-mixed deciduous

Description: Old field or former pasture on north facing slope at west end of ridge. Young growth, early successional stage. Predominantly oak mixed with red maple and other deciduous species and some white and pitch pine.

Tree Species: red maple 29%, scarlet oak 23%, white oak 11%, white ash 9%, black gum 7%, white pine, black cherry, gray birch and hickory each 4%, chestnut oak, sassafras and pitch pine 2% each.

Tree Diameters: Average = 4.9 inches. 2-6 inches = 23%, 6-12/48%, 12-18/27%, 18-24/2%, 24+/ 0%

Basal Area: 70 square feet /acre overall. Trees 12 inches + = 20

Trees per acre: 531 overall. Trees 12 inches + = 22

Soil Type: North, upper slope, Lordstown and Oquaga extremely stony soils 25-70% slope. Lower slope area is Bath channery silt loam, 0-15% slope.

Management Objective: Maintain fully forested area important for aesthetic and recreational use.

Recommendations: Allow natural succession to proceed without management. Preserve as natural area.

UNIT 19
Pine & Oak
0.6 Acres

Description: This is a variation within the unit 18 area. Young growth dominated by white pine.

Tree Species: white pine 38%, white oak 19%, red oak and white ash 13% each, pitch pine, red maple and black cherry 6% each.

Tree Diameters: Average = 4.6 inches. 2-6 inches = 25%, 6-12/25%, 12-18/44%, 18-24/6%, 24+/ 0%

Basal Area: 160 square feet /acre overall. Trees 12 + inches = 80

Trees per acre: 1388 overall. Trees 12 inches + = 90

Soil Type: Mostly Lordstown and Oquaga extremely stony soils.

Management Objective: Maintain fully forested area important for aesthetic and recreational use.

Recommendations: Allow natural succession to proceed without management. Preserve as natural area.

UNIT 20
Pitch pine
0.6 Acres

Description: Small area dominated by dense stocking of pitch pine with red maple saplings in the understory.

Tree Species: pitch pine 71%, red maple 21%, red oak 7%.

Tree Diameters: Average =4.3 inches. 2-6 inches= 25%, 6-12/57%, 12-18/18%, 18-24/0 % , 24+ / 0%

Basal Area: 140 square feet /acre overall. Trees 12 inches + = 25

Trees per acre: 1377 overall. Trees 12 inches + = 30

Soil Type: Lordstown and Oquaga extremely stony soils.

Management Objective & Recommendations: Leave as is for wildlife. Provides thermal cover and nesting cover. Preserve as natural area.

UNIT 21
Open fields
10.4 acres

Description: This unit is comprised of several fields divided by narrow woodland strips and fencerows. Fields and woodlands have been indicated as subunits and described separately (see map enlargement of this area) Most field areas are grass covered (poverty grass primarily) with an occasional pine seedling. Most trees that seed in are eliminated by deer browsing that prevents the fields from regenerating with woody growth and maintains herbaceous cover.

General Management Objectives and recommendations: Abandoned open fields offer a number of alternatives for management ranging from doing nothing to plantings for wildlife habitat development, reforestation, landscaping/beautification, or development of recreational facilities. Suggestions for management of each field are given which provide for a combination of these alternatives for recreation and wildlife habitat improvement as follows:

NOTE: Deer browsing and other deer damage is a serious problem to be dealt with in any planting scheme. Spruces are generally not browsed by deer. Other species will need protection. If planted as seedlings, white pine may be protected in wire cages. Deciduous species should be treated the same or more effectively by use of specially designed tree shelter tubes. If sapling size trees are planted where most limbs and foliage are above deer reach, protection of the stem is still recommended, at least in the Fall, to

prevent damage from buck antler rubs. Also, control of grass and weeds around planted trees, especially seedlings, will be needed until trees are well established and above the height of grass or other competing vegetation. Herbicide application will be effective for this.

A. 1.7 ACRES: Level to gentle slope. Soil type is Mardin channery silt loam. Grass covered.

Recommendations:

For wildlife habitat development, mow 1/3rd of field annually on a rotational basis. Mow in late July and again in late August-early September. Allow for some regrowth of mowed areas before going into dormancy.

If recreational facilities are needed in the future, this would be a good/potential site for a group picnic area including pavilion / shelter

B. 0.7 Acres: Mostly level to gentle slope. Soil type is Mardin channery silt loam. Among the dense grass cover, there are some white pine seedlings and low blueberry shrubs and some exotic invasive plants.

Recommendations: Establish a mowed strip about 20-25 foot in width around the perimeter. Mow two times per year-late July and late August-early September. The interior portion of unit should be allowed to develop naturally with the addition of controlling exotic invasive plants and supplemented with plantings of wildlife food value such as crabapple, apple, chokecherry, dogwood, etc. (protect from deer).

C. 1.3 Acres: North part of field (a) is steeply sloped. South part of field (b) is gentle slope. Soil type is Mardin channery silt loam. There are some oak saplings in east end of b and a few pine saplings throughout along with a few barberry shrubs. This site is highly visible, especially the north facing slope (b), upon entry to the property. Recommendations are to improve the site visually as visitors enter the park property. Any of these alternatives will also be of benefit to wildlife habitat improvement.

Recommendations: several alternatives are suggested as follows:

- 1) plant (a) with Norway spruce seedlings at a reforestation type spacing (weed/grass control needed by use of herbicides around planted seedlings) and allow (b) to remain meadow and develop naturally through natural succession (control exotic invasive plants such as barberry and multiflora rose if these plants threaten to take over the site). Maintain and nurture existing oak saplings- thin and prune as needed.
- 2) In (a) plant a variety of species at random and very wide spacing that would simulate a field/meadow regenerating with scattered trees (this does not happen here due to deer browsing that eliminates survival of most natural seedlings that seed in and dense grass cover is also an inhibiting factor to natural regeneration of this site, as well as the other abandoned field sites.) Suggest Norway spruce, white pine and possibly some larch (primarily for attractive light green summer

foliage and yellow fall color) and eastern red cedar for conifers and for broad-leafed deciduous species sugar maple, red maple and red oak. Allow (b) to develop naturally as described in 1 above.

- 3) Develop this entire site as an arboretum that would provide plantings of a wide variety of native tree species, especially those found on this property. This would not only enhance the visual aspects of this site, but would add to the recreational/educational benefits of this property. This alternative would require more upfront planning and more maintenance over time, but could be done relatively inexpensively using saplings, or even seedlings, over a period of years to establish the plantings. It would also provide opportunity for memorial trees that could be donated by Township constituents (to include planting cost). Species identification tags should be attached to trees.

D. 0.6 acres. Grass covered field . Mostly level to gentle slope. Soil type is Mardin channery silt loam.

Recommendation: Allow field to remain idle/undisturbed to develop naturally as old field meadow.

E. 2.6 acres: North part of field level to gentle slope. South part of unit has medium slope.

Soil type is Mardin channery silt loam.

Recommendation:

- a) Mow 2 times annually (late July and late August-early September)

(If facility development is needed in the future, this site could be used as a picnic area and possibly using wooded area at base of slope in adjacent unit 13

- b) Plant with Norway spruce seedlings at 10x10 foot spacing for reforestation.

F 3.2 acres: This is the woodland area that separates the various open fields. Mostly young growth with a wide diversity of tree species including mixed oaks, aspen, white ash, hickory, red maple, white pine, sassafras, black cherry, black waknut, butternut. Barberry often common in some areas.

Recommendations: These areas will be managed as scenic buffers (natural environment) between fields. Little or no management needed over time but occasional thinning or other tree removal or other measures, including control of invasive plants, may be needed to sustain naturalistic forest appearance. Potential for a hiking trail as indicated on map to connect with other trails.

G. 0.3 acres: Parking area and trail head.

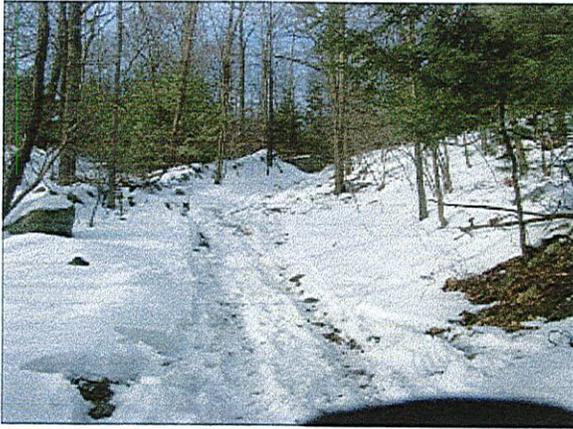


Unit 1



UNIT 2





Road looking uphill. Unit 1 left, 13 on Rt



View down (south) Unit 1 on Rt, 13 on left



Unit 4



UNIT 4



4a



4b



4b



Unit 5



UNIT 5



Unit 6



Unit 6



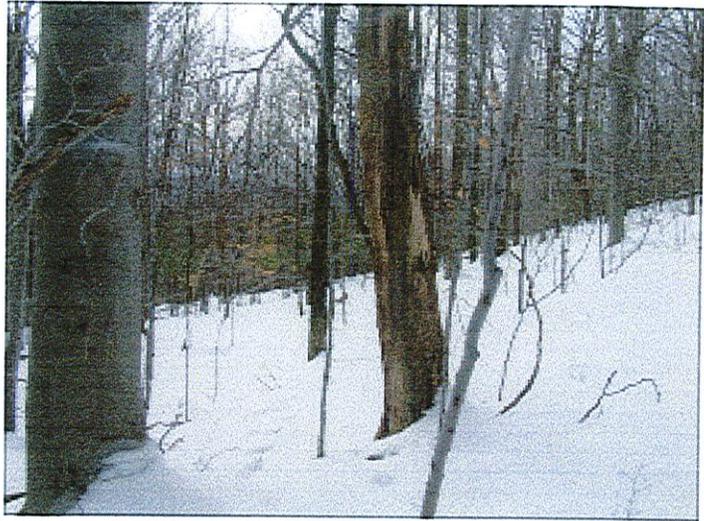
Unit 8



UNIT 12



Bear claw scars on beech Unit 13



Unit 14 view north



Unit 14 view south



Unit 15 North slope



Unit 15 South slope



Unit 15 Ridgetop Road



Unit 20



North end of unit 17 (19 in background)



Unit 15 Road up north slope



Field 21 A View west to east



Field 21 B View west from 21A



Field 21 C- a



View south across Field 21 E
Field 21 C in distance



Field 21 E. a



Field 21 E. b



21 F South end near parking area



Pines in field 21 B



Unit 21F central area. View east. Field 21B on right