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Colgate University Forest and Open Lands Stewardship Plan

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About

This updated plan builds upon an earlier document by Bill Betts of A-Line Forestry.

The update was drafted by Steven Bick of Northeast Forests, LLC and then finalized by Ian Helfant and the Colgate University Environmental Council.

INTRODUCTION

This plan is an update to the management plan created by Bill Betts of A-Line Forestry in 1997. Following this ten-year cycle, it details Colgate's stewardship policies from 2007 until approximately 2017. It is based upon a draft created by Dr. Steven Bick of Northeast Forests LLC then revised by Colgate's Environmental Council in consultation with Dr. Bick and members of the Colgate community whose interests, expertise, or activities most directly involve these lands. The plan specifies a set of management objectives and goals, as well as a system of classification according to which individual land management units are categorized. It also endorses an overall philosophy of land stewardship. USGS topographic maps of all management units are included, as well as selected aerial views.

This updated plan incorporates and revises where necessary Mr. Betts' original description of most of the management units. Additional management units from the Parker Farm, Bonney Hill Tract and Bewkes property are included as well. The original management plan encompassed 859.3 acres. This total included 648.6 acres of woodlands and 210.7 acres in various forms of open lands. The removal of Unit B from open lands resulted in a loss of 6.7 acres. The inclusion of the Bewkes and Bonney properties, along with a portion of the Parker Farm, brings the new stewardship responsibility to a total of 1,137.8 acres (875.8 forest and 262 open). This total excludes the acres of Seymour Pond.

MANAGEMENT OBJECTIVES

The principal objectives of the management of Colgate University's forest and open lands are: a) to ensure a sustainable flow of benefits to the university community and b) to support the health and diversity of the flora and fauna that inhabit these lands and contiguous areas. Each management activity must contribute in some way to these intertwined objectives, and the institution must always attempt to keep them in proper balance with sustainability as the overriding priority. "Sustainability" means that these lands must retain their inherent productivity and capacity to function and produce benefits into the future. The flow of benefits is not constrained to mean identical or equivalent items or amounts annually, but rather a wide capacity that may require multiple years to quantify.

a) "Benefits to the university community" can mean a wide range of things. In general, these benefits are implied by the land classifications discussed in the following section: *preservation*, *research and teaching*, *recreation and aesthetics* and *timber and/or biomass production.* These more or less compatible uses are capable of producing, enhancing or protecting a range of things including peaceful settings for quiet enjoyment, a successful afternoon's lab class, revenue from timber sales, scenery, data for a scholarly publication, and biomass for energy production.

b) The Colgate community benefits from its ownership of these lands, but they also have an intrinsic value in and of themselves. They provide valuable habitat for a variety of

plants and animals, they serve a range of vital natural functions such as absorbing carbon and retaining water, and they contain and in some cases form parts of larger habitats and ecosystems. As Hamilton and surrounding areas continue to develop at a rapid pace, tracts of land like Colgate's play an increasingly important role in offsetting these changes for both the human and the non-human populations of our extended community.

Colgate's identity as an educational institution makes it all the more important that we highlight our respect for open and undeveloped lands and the priority we place upon stewarding them as a way of inculcating such values in our students and community. Hitherto, many of our landholdings have existed in a state of benign neglect. While this is not necessarily a bad thing, the institution should make a concerted effort to highlight the symbolic and practical values that these lands offer through educational signage, appropriate silviculture, and forward-thinking stewardship. In addition, strategic opportunities to incorporate additional acreage that would increase the ecological, recreational, educational and other values of our lands should be embraced.

Colgate's forested and open lands - especially those in close proximity to the campus - are utilized not just by members of the Colgate community but by the population of Hamilton and surrounding towns, as well as visitors to Colgate. Given the recreational and aesthetic value these lands represent, Colgate should be open to opportunities to cooperate with local individuals and groups in cases where this would produce a mutual benefit. Examples of potential partners for such creative cooperation are local conservation groups like the Southern Madison Heritage Trust (SMHT), local businesses with an emphasis upon non-motorized outdoor recreation, and local landowners who may be open to providing right-of-way through their land. In addition, the university should bear in mind that its institutional longevity may make it an attractive partner for landowners who seek a means of protecting their land from development by donating or deeding it to the university, or even wish to pursue conservation easements with the university as an intermediary or partner. In all such cases, the university should be aware of potential liability and act proactively to minimize any risks, but such concerns should not prevent the institution from seeking out opportunities for creative cooperation and the synergy that can result.

LAND CLASSIFICATIONS

For the purposes of the stewardship plan, Colgate's undeveloped landholdings are divided into approximately 65 management units. Each management unit is categorized according to the following system of classification:

- Preservation
- Research and Teaching
- Recreation and Aesthetics
- Timber Management

Every management units has a primary designation, as well as secondary designations. In most cases, a management unit can support multiple uses. The purpose of the primary designation is to identify the overriding use that must be accommodated in the event of conflicts. There are currently no units that are classified for development. Developed uses are options that would place the land outside the scope of a stewardship plan. It should be recognized that one important aspect of keeping lands in open space is to preserve options for the future growth and needs of the university. It should further be recognized that no primary classification should override the institution's overall obligation to serve as a steward of the natural systems on these lands as a whole. Each of these classifications is described in turn.

Each management unit's description contains a 1996 appraisal by Bill Betts followed by an updated evaluation conducted by Dr. Steven Bick in 2006. In cases where the two evaluations diverge, the later version should normally take precedence.

Preservation

This designation applies to management units where natural processes are desired as the primary agent of change over time. It is tempting to consider lands that are preserved to be unchanged over time, but the ecology of the land is contrary to this. In addition, preservation can be more or less compatible with changes that might arise from other secondary uses. Lands of distinctive character or cultural significance that are in close proximity to the campus are ideal candidates for preservation.

Low impact *recreation and aesthetic* enjoyment are secondary uses that are compatible with the preservation classification. Non-obtrusive *research and teaching* are also compatible uses. *Timber production* is not a compatible secondary use.

Preservation, in this context, should not imply that all management silvicultural activities are off limits. In the event of disease, insect infestations, or storm damage, the removal of damaged trees or even preventative treatments to certain stands, species, or specimens may be necessary to further preservation goals.

Designating individual areas for permanent preservation, excluding all future development, is beyond the scope of this plan and should be undertaken at a higher level of university oversight.

Research and Teaching

Research and teaching is the primary designation for areas with established and on-going research or teaching activities. Some units have this as their primary classification. This is a secondary classification for all other management units, other than a handful of inaccessible units. Individual research projects on any particular site can be reviewed on a case by case basis. Faculty members may request that a management unit or portion thereof be re-classified as primarily for research as new research opportunities arise. The use of management units for occasional teaching labs or lectures is subject only to safety limitations. If there is an on-going timber harvesting operation or time specific recreational use, an area may not be available for a teaching exercise. The size and diverse collection of management units ensures that some areas will always be available for use in teaching classes. Conflicts between research and teaching and other uses, especially timber management, should be anticipated and forestalled by the Colgate Forest and Open Lands Oversight Group.

Recreation and Aesthetics

Some forest and open lands provide ideal locations for low impact, non-motorized, on-site recreation. A handful of specific areas are devoted to recreational developments. Others provide a backdrop for the aesthetic enjoyment of a scenic campus and views. *Recreation and aesthetics* is the primary classification for lands that are currently the site of established recreational activities, such as the trap range. Such use is compatible with all other uses as a secondary classification. Seasonal, topical or temporary restrictions may occasionally prevent recreational uses of areas with other primary classifications. Historically, a snowmobile trail has crossed the outskirts of our lands above campus and continued over the golf course, but the university does not favor any expansion of this network and remains wary of its potential to impact the experience of skiers and snow-shoers, particularly given an incident within the last five years in which a local snowmobiling club expanded the trail without informing Colgate of its activities (see appendix for photos of this illicit trailwork). No ATV use is permitted on Colgate lands except for work-related purposes.

Timber Management

Timber management implies a sustainable program following accepted and innovative silvicultural practices that will be used to grow and eventually harvest mature trees, as well as other forest products including wood that can be chipped for burning. Intermediate treatments in support of long-term timber production may be necessary, and in such cases the institution should balance forest health with the potential benefits of timber and/or biomass production. Management units that are separate or somewhat

removed from campus and have historically been devoted to timber management have received this primary classification. Since forest management operations are occasional and temporary in nature, *research and teaching*, as well as *recreation and aesthetics* are secondary classifications for all accessible timber management areas. In the course of the current ten-year plan, Colgate may wish to explore the option of planting willow biomass on some lands that are currently devoted to other uses – primarily former agricultural lands or land that is currently leased for agricultural use (e.g., the Parker Farm management unit). This plan does not yet, however, designate biomass production as one of its classificatory categories.

Timber management is an acceptable secondary classification for *some* management units devoted primarily to *research and teaching* or *recreation and aesthetics.* Timber management is not compatible with units classified for *preservation*.

Operational Goals

The following list of operational goals reflects the general management objectives described above.

- Maintain management units designated as open fields with periodic mowing.

- Enhance safety of highly used areas with hazardous tree assessment and removal.

- Add to the existing foot trail network and permit the judicious development or extension of existing mountain bike trails in certain units, keeping in mind that logging operations can provide a good opportunity to create new trails.

- Improve and enhance the condition of management units designated for timber management with appropriate silvicultural techniques.

- Investigate the use of wood chips (both hardwood and softwood) from timber stand improvement for use in energy production on campus, as well as the possibility of willow biomass production in appropriate management units.

- Survey and legally post the boundaries of the most heavily utilized parcels or those in which timber harvesting is planned.

- Resurrect the Colgate Forest and Open Lands Oversight Group to minimize conflicts and maintain open lines of communication. This group should include the Chair of the Environmental Council, the Director of Outdoor Education, the Associate Director of Facilities and Manager of Lands and Grounds, any faculty who are currently conducting or intend to begin field research on Colgate's lands, and the university's contracted forester. This group should meet at least annually.

The tentative work schedule at the end of this plan incorporates many of these goals in its list of recommended work activities for the individual management units. Additions to the work schedule during the upcoming ten-year period should reflect the institution's continued consideration of its overall objectives and the specific goals outlined above.

POLICIES

All of the policies outlined in this section are intended to further the management objectives of Colgate University and to ensure that sustainable practices are followed.

Consistency

All use and management activities on forest and open lands must be in compliance with Colgate University policies. In addition, Colgate should remain aware of potential liabilities associated with use of these lands and attempt to protect itself from such liabilities to a reasonable degree.

Best Management Practices for Water Quality

Protecting water quality goes a long way toward protecting the sustainability of open space and timber resources. All timber harvesting activities, as well as road and trail construction must comply with *New York State Forestry Best Management Practices for Water Quality BMP Field Guide*. The timing and location of forest operations will take water quality protection into account. These BMP requirements must be built in to all timber sale contracts. Careful contractor selection and monitoring will be necessary to insure compliance. Any crossings of New York State of classified streams or their tributaries will require a permit from the Department of Environmental Conservation.

Updates and the Planning Process

Updates to this stewardship plan are due at ten year intervals, while progress reports and minor revisions should be done at five year intervals. Regular updates to the plan provide a formal opportunity to review the completed work, examine any changes in policies that might be needed to ensure progress is directed to meeting management objectives, and to take advantage of emerging opportunities and markets.

Management plan updates, at a minimum, will require post-harvest cruises of treated stands and any necessary revisions to the forest operations work schedule, in five year blocks. New or potential new uses of any management unit should be addressed. An objective evaluation should be made of how specific actions have resulted in accomplishing any formally stated goals.

Unscheduled Opportunities

Unplanned activities should be allowed if already within the parameters of the work schedule (e.g. a treatment planned for Year 7 becomes cost effective in Year 4) or if they otherwise contribute to the overriding management objectives. Some of the silvicultural treatments desirable to improve certain stands will be difficult to accomplish commercially. If labor, equipment, or cost-share funding becomes available that would make these treatments easier to accomplish, it may be desirable to take advantage of the opportunity, even if a treatment can be only partially completed.

Protection of Forest Resources

Preventative treatments against invasive pests or other serious threats to forest health should be considered and permitted if deemed necessary and, in balance, ecologically sound. One example would be aerial treatments against "forest tent caterpillars" during severe cycles of infestation that have the potentially to severely degrade timber resources or forest health.

Certified Logger Training

Loggers who work on this property should have achieved Trained Logger Certification in New York State. Many aspects of working on this property are desirable to loggers. Loggers who have invested the time necessary to achieve certified status should be rewarded with the more desirable working situations. This requirement shows support for sustainable practices throughout the region.

Seasonal Limitations

Timber harvests and related activities should be scheduled in ways that minimize any potential conflicts with other uses of the property. In some management units logging may pose a conflict with other uses. Winter logging in some stands may be preferable from a resource protection standpoint. In some cases, wet soils or remote locations are accessible only in winter. Summer forest operations are preferable in other locations, as they pose less potential conflict with other university uses of the property.

Protection of Improvements during Harvesting Operations

Protection of gravel roads and multi-purpose trails on the property should be a primary consideration in any harvesting plan. Some roads and trails must be used out of necessity in accessing various stands. The proper construction and maintenance of winter roads should only enhance the trail system. Skidding on established trails should be kept to a minimum. Any trails that would be damaged beyond repair by skidding should not be used. Timber sale contracts should specify roads and trails that may only be used with advance permission, in a manner acceptable to the landowner, and should require that any ruts should be repaired with a bulldozer upon completion of the harvest.

Contractual Obligations

Contracts between the university and the timber purchaser should be used for all harvesting activities. These contracts should be approved according to Colgate University policy, though they may require significant input from a forester to protect the land and address all of the management concerns. The foregoing discussion addressed Best Management Practices, timing and location of harvests and protection of roads and trails. All of these items should be incorporated into the contract. Further contractual requirements will place as much of the liability as possible on the timber purchaser and specify requirements for liability insurance.

Similar to liability protection, another requirement calls for the loggers to be covered with worker's compensation insurance by the purchaser. Certificates proving liability and worker's compensation insurance should be provided to the institution before any harvesting takes place.

Contracts should specify cash penalties for littering or polluting the harvesting site. Requirements for post-harvest remedial work, such as bulldozing of ruts or seeding of landing sites should be spelled out in detail. The contract should require that the purchaser provide a cash performance bond to be held by Colgate University or its representative to ensure compliance with the contract. This important safeguard helps ensure compliance, particularly with the post harvest requirements.

Safety Plans

Every harvesting site requires a safety plan and all those involved with operations should have a copy of it. This safety plan should be reviewed by everyone involved before work commences. The safety plan should contain, at a minimum, the contact phone numbers for the local fire department, the state police, the nearest forest ranger, the forest ranger dispatch number in Ray Brook, the logging contractor, any foresters involved and the landowner. Additionally, it should contain the coordinates (Lat/Long & UTM) of the nearest potential helicopter landing site and concise, accurate directions on how to access the property and the job site. The persons on the site should have instructions to flag a trail to the injured person and to unlock any gates and meet and lead the emergency personnel to the accident.

Professional Oversight

All planning and harvesting operations require oversight by trained resource management professionals. Minimal qualifications shall include membership in the Association of Consulting Foresters or individuals who have achieved Certified Forester status from the Society of American Foresters.

Revenue

The standing timber in the management units devoted to timber production represents a significant financial asset to Colgate University. Subject to sustainability and other constraints set forth in this plan, revenue will result from occasional timber sales, as well as from leasing certain lands for agricultural purposes. These revenues should flow into the Colgate Sustainability Fund overseen by the Environmental Council. Part of this fund will be devoted to the protection, management and enhancement of the University's forest and open lands (see appendix).

MANAGEMENT UNIT DESCRIPTIONS AND CLASSIFICATIONS

Most management unit descriptions are excerpted from the 1997 plan written by Bill Betts and updated here. The tentative classifications shown here are new. Lands that were not included in the original plan (Bewkes, Parker Farm, Bonney Hill) have original descriptions include here.

The original designation of management units distinguished between numbered forest management units and lettered stewardship areas. With the new classification system, the distinction between numbers and letters is no longer relevant. Management units retain a numbered or lettered name only for continuity of mapping between the two plans. The descriptions that follow are grouped by contiguous tracts, with aerial photos showing each of these tracts.

The map that accompanies this plan shows the location of each management unit.

Campus Tract

This tract includes 25 separate management units that are directly connected to the campus itself. One of the original management units is no longer in open space (Unit B). Two of the original management have been further divided into smaller units (Unit 7 and Unit 5). Most of these units have well established uses and are classified primarily for research and teaching or for recreation and aesthetics.

As a general principle, any timber management activities on the units of the campus tract should not be aimed primarily at logging revenue but at improving the health and beauty of these stands, given their proximity to campus and primary recreational/educational use.

Aerial Photo of Campus Management Units

Management Unit A

This 32.9 acre unit is the only naturally occurring wetland that occurs on this property. Wetlands are the most diverse and productive ecosystems that we have. They provide food, habitat, breeding areas and cover for innumerable plant and animal species. They are an integral part of the hydrologic cycle/providing sediment filters/regulating runoff and recharging aquifers. Most importantly/they ensure clean water for human consumption.

Notes from 2006 Inspection: The importance of this area's wetland function has increased due to residential development of the adjacent area.

Primary classification: Preservation

Secondary classifications: Recreation and Aesthetics; Research and Teaching

Management recommendations: The preservation classification implies minimal or no management activities; signage may be desirable.

Management Unit B

Notes from 2006 Inspection: This area has been developed in the interim since the original plan was written. It is no longer an open space area.

Management Unit C

This 3.0 acre parcel protects the site of the Olmstead House. Presently this area should remain in a protection status and no management is recommended.

Notes from 2006 Inspection: This area is too small to accommodate recreation uses. It probably provides minimal opportunities for research and teaching.

Primary classification: Preservation

Secondary classifications: Research and Teaching

Management recommendations: None

Management Unit D

This unit contains 1.2 acres of brush covered land. It provides good wildlife habitat as well as possibilities as a building lot. Presently this unit does not support any other units in the plan and could be disposed of if the University so deems.

Notes from 2006 Inspection: Preservation of this road front parcel keeps future options intact. The previous recommendation that this unit could be disposed of by the university something that is beyond the scope of this open space planning effort.

Primary classification: Preservation

Secondary classifications: Research and Teaching

Management recommendations: None

Management Unit E

This unit of 7.9 acres has been heavily encroached upon by brushy species. It also provides good wildlife habitat, however, the possibilities as a building lot are somewhat limited.

Primary classification: Recreation and Aesthetics

Secondary classifications: Research and Teaching

Management recommendations: None

Management Unit 1

This 12.3 acre pole timber stand is comprised of 55 percent Scotch pine and 45 percent black cherry. This stand is in need of a light thinning to encourage the growth and further regeneration of the black cherry component. The light thinning will also not encourage the proliferation of the honeysuckle that covers the forest floor. The gorge area in this stand should be protected.

Notes from 2006 Inspection: A 2006 inspection of this stand revealed the current growing stock has very low potential for timber management. The most desirable silvicultural option for this stand would removal of most stems, leaving only a few seed trees. Spatial and operational constraints make this option completely undesirable.

This unit is visible from the public roadway. It contains a portion of a larger trail system and serves as green space in close proximity to the campus.

Primary classification: Recreation and Aesthetics

Secondary classifications: Research and Teaching

Management recommendations: None

Management Unit 2

This 14.6 acre softwood pole timber stand is comprised of 90 percent red pine and 10 percent Norway spruce. The stand is heavily overstocked and in need, of management. A thinning in the form of a light saw timber harvest could be preformed in this stand. A heavy harvest cut could lead to stand instability and as a result it is recommended that a light saw timber harvest be scheduled in this stand on a 10 to 15 year basis. The thinning of this stand will not only encourage the growth of the residual trees but, will also encourage the regeneration of various hardwood species which will form an understory which will be highly valuable to various wildlife species.

Notes from 2006 Inspection: This stand is separated into two parts by an open area. There is ample evidence of on-going use for recreation, as well as teaching or research. It is visible from the public roadway. The red pine plantation was probably established to protect the steep slope and serve as a visual buffer, rather than for timber production. The close proximity of this stand to campus and cemetery pose a significant operational hurdle for silvicultural treatments.

Primary classification: Recreation and Aesthetics

Secondary classifications: Research and Teaching

Management recommendations: None

Management Unit 3

These 15.0 acres of mature woodland forms a protection area for the campus and no development or change of function of this unit is recommended.

Notes from 2006 Inspection: Concur with above

Primary classification: Preservation

Secondary classifications: Research and Teaching; Recreation and Aesthetics

Management recommendations: None

Management Unit 4

This 12.0 acre unit is comprised of northern hardwood saw timber. The stand is made up of 56 percent sugar maple and 37 percent white ash. The stand is severely overstocked and 25 percent of the trees are culls. Presently, there is little or no regeneration on the forest floor. This stand needs a cull removal operation where the large culls will be double ring girdled and be left to die in place and the smaller trees felled and left on the forest floor. As the larger trees die they will come down in pieces and will add to the woody material on the forest floor. Downed woody debris is an important component of the forest ecosystem. Downed wood stores moisture, provides habitat niches for insects, plants, fungi, and cycles nutrients as it decays. The snags that are created by the girdling operation will provide additional habitat for cavity producing and utilizing species of wildlife. Active den trees will be reserved up to 2 per acre. The cull removal will have several effects on the residual forest. First it will encourage the growth of the residual high value trees and second it will encourage the establishment of an understory regeneration layer which is completely lacking in this stand. The regeneration layer will form the new stand in the years to come and will be heavily utilized by native wildlife species as well as neo-tropical birds. Care must be taken during operations in this stand to protect the X-country trail system.

Notes from 2006 Inspection: This stand is somewhat of a unique setting and contributes to a set of diverse age classes within the larger block of green space. It is laced with trails and its boundary is marked with a sign designating it as a heavily used recreational area. There is evidence of research or teaching activities occurring here. While there is some quite valuable mature timber here, the limited size of the stand, coupled with its high visibility and the intensity of other uses, make timber management incompatible. As this stand continues to mature and inevitable mortality occurs, it will provide an interesting teaching opportunity.

Girdling trees provides the benefits explained above, but it creates a hazardous situation and should not be pursued.

Primary classification: Recreation and Aesthetics

Secondary classifications: Research and Teaching

Management recommendations: Hazard tree assessment and removal along trails in first five-year work block.

Management Unit 5a & 5b

These areas were originally designation Unit 5. Unit 5 was actually three divided areas, all of the same age and timber type. For convenience, the two northernmost plantations are designated 5a and the southernmost plantation is designation 5b.

This unit of 43.8 acres is a plantation of red pine and Norway spruce that was established in the late 1930's or early 1940's. The red pine, which comprises 87 percent of the stand, overtopped and killed the Norway spruce. This afforded some thinning of the red pine. The stand is heavily overstocked and should be thinned. The thinning will be similar to the one to be performed in Timber Management Unit 2 with the same objectives and outcomes. During the harvest operation in this stand special consideration will be given to the X-country trail system. A harvest cut is scheduled for the year 2000. Due to the variation of growth patterns in this stand some areas may be excluded from the harvest.

Notes from 2006 Inspection: The scheduled harvest has not taken place. Both 5a & 5b are part of the larger trail network.

Stand 5a is a particularly visible area, flanking both sites of the opening for the power line and uphill of one of the access points for the trail network.

Primary classification: Recreation and Aesthetics

Secondary classifications: Research and Teaching

Management recommendations: None

Stand 5b is clearly a hardwood site. It has experienced some wind-throw, creating openings for hardwood species that will take over. If timber management were its primary classification, it would desirable to remove all of the red pine stems at this point and allow the hardwoods to take over. Timber harvesting operations would be an operational challenge in this location. Making timber management a secondary classification would preserve the option of future management activities.

Primary classification: Recreation and Aesthetics

Secondary classifications: Research and Teaching; Timber Management

Management recommendations: None

Management Unit 6

This 20.2 acre northern hardwood pole timber stand shows the most variety of tree species occurring on the management plan area. The major species are sugar maple 29 percent, black cherry 20 percent and beech 18 percent. However, 8 other species are mixed in with the dominant species. This stand is grossly overstocked and needs to be thinned so that it can reach its greatest growth potential. The thinning should concentrate on the ironwood, beech and Scotch pine components of the stand The sugar maple, black cherry and white ash components should be favored. The hemlock will be saved for the wildlife benefits that it provides. Most of the trees to be removed from this stand should be felled and allowed to become woody debris. However, the larger trees will be double ring girdled and will be utilized as snags and cavity producing trees. This stand is scheduled to be thinned in 1999. The trail systems will be protected.

Notes from 2006 Inspection: This stand is part of a trail network. It contributes to the overall biodiversity of the large block of green space. Any eventual timber harvesting operations poses a significant operational challenge in terms of short term compatibility with other established uses. There is evidence that this stand has been used for teaching or research.

The primary classification of this unit should be Recreation and Aesthetics. Girdling of the cull trees as recommended above has not been done and could create a hazardous situation if it is pursued.

Primary classification: Recreation and Aesthetics

Secondary classifications: Research and Teaching

Management recommendations: None

Management Unit 7

This unit or stand contains 8 acres of over mature sugar maple. The sugar maple constitutes 63 percent of the stand and most of it is cull. This stand is an outstanding example of what happens to an over mature hardwood stand. The reduction of the crowns of the cull and dying overstory maples has let enough light in so that heavy maple regeneration is established on the forest floor. This is a climax stand and the regeneration will be the next crop. The stand is not heavily overstocked, however, it is recommended that 2 or 3 cull maples per acre be double ring girdled to serve as snag trees and to partially release the excellent sugar maple regeneration. Experience shows that a double ring girdled sugar maple may take as long as 10 years to die. The girdling of these trees will not be an aesthetic shock and will improve the ecosystem by the deposition of woody material on the forest floor. The releasing operation has been scheduled for 2001.

Notes from 2006 Inspection: This stand adjoins the cemetery and is very close to a campus. Unit 7a was severed from the original unit so that it can be preserved for quiet use next to the cemetery. There is ample evidence of research and teaching activities within this unit. Given the other established uses here and the access challenges of the location, timber management is an incompatible use.

Girdling trees provides the benefits explained above, but it creates a hazardous situation and should not be pursued.

Primary classification: Recreation and Aesthetics

Secondary classifications: Research and Teaching

Management recommendations: None

Management Unit 7a

This is a new management unit that was separated from Unit 7. It consists of a stand containing 1.8 acres of mature trees that adjoin the cemetery. These trees are a backdrop to the cemetery. The open understory provides a tranquil setting for quiet contemplation.

Primary classification: Preservation

Secondary classifications: Research and Teaching

Management recommendations: Periodic hazard trees assessment and removal.

Management Unit 8

This.8 acre unit is comprised of 100 percent white ash seedlings. This stand needs to grow for 20 to 30 years before any management recommendations are contemplated.

Notes from 2006 Inspection: Concur with above; this stand is too small to contemplate classifying it for timber management.

Primary classification: Research and Teaching

Secondary classifications: Recreation and Aesthetics

Management recommendations: None

Management Unit 9

This 4.5 acre, northern hardwood pole stand was classified as a seedling sapling stand some 20 years ago. It is comprised of 52 percent sugar maple and 46 percent white ash. The stand is heavily overstocked and in need of thinning to increase the growth and quality of the residual trees. This stand is easily accessible to the main campus and would become a good forest management teaching area. All trees to be thinned should be dropped to the ground to become woody debris. Most of this will rot away in 5 years. No trees will be double ring girdled in this stand. The thinning for this stand is scheduled for the year 2000.

Notes from 2006 Inspection: There is evidence of on-going research or teaching in this stand. The thinning scheduled for 2000 was not done. The close proximity of this stand to campus and its dedication to other uses preclude timber management here.

Primary classification: Recreation and Aesthetics

Secondary classifications: Research and Teaching

Management recommendations: None

Management Unit 10

This 26.7 acre stand is a northern hardwood saw timber stand. The major components are 47 percent sugar maple and 30 percent white ash. The stand is overstocked and 27 percent of the trees are culls. Heavy white ash mortality was observed in the stand. This stand can be managed by combining a light saw timber harvest with a cull removal operation. The saw timber harvest should concentrate in the 18 inch diameter class and up. The tops should remain in the woods as woody debris. The large culls should be double ring girdled and be allowed to die in place as snag trees and the smaller culls should be dropped. Active den trees will be reserved up to 2 per acre. There will be some temporary disruption of the walking trail system, however, this should not be a long term problem. Regeneration is lacking in this stand. The harvest and cull removal should help to alleviate this problem. Harvest and cull removal operations for this stand are projected for 1998.

Notes from 2006 Inspection: This stand contains an important part of the multiple-use trail network. The timber harvest scheduled for this stand was not done. Given the establish pattern of use present here, timber management can be only a secondary classification. Any harvesting activities here should involve access from Hamilton Street, rather than campus. A sawtimber harvest and cull removal remain desirable operations for this stand if it will contribute to rather than detract from its recreational and aesthetic value, but any timber management should be put off into the second five-year work block.

Girdling trees provides the benefits explained above, but it creates a hazardous situation and should not be pursued.

Primary classification: Recreation and Aesthetics

Secondary classifications: Timber Management; Research and Teaching

Management recommendations: Timber harvest and cull removal in second five-year work block.

Management Unit 11

This 3.0 stand is comprised of 63 per-cent white pine and 37 percent white ash. The stand is in need of a light cull removal. This can be accomplished at the time Timber Management Unit 10 is harvested. The work will be done as a trade off. The culls should be girdled to promote soft snags and promote the growth and quality of the residual trees. The work in this stand is scheduled for 1998. The stand is affording excellent winter wildlife cover.

Notes from 2006 Inspection: The work scheduled for this stand was not done. The situation here is the same as in Unit 10. The work should be done at some point, in connection with the work in the other stands.

Girdling trees provides the benefits explained above, but it creates a hazardous situation and should not be pursued.

Primary classification: Research and Teaching

Secondary classifications: Timber Management

Management recommendations: None

Management Unit 12

This 11.2 acre area is occupied by a pole timber sized northern hardwood stand. The stand has good mix of high value tree species present with 61 per-cent white ash and 30 percent being sugar maple. Though overstocked the stand is too young to thin. The thinning of this stand is scheduled for 2010.

Notes from 2006 Inspection: The work scheduled for this stand should be done in connection with work in the adjacent stands (11 &12)

Primary classification: Research and Teaching

Secondary classifications: Timber Management

Management recommendations: None

Management Unit 13

This unit contains 118.0 of northern hardwood seedling sapling which is invading old pasture land. Several small plantations of Norway spruce and larch have been included in this unit and are located along the south eastern boundary of the stand. These small stands afford escape cover and thermal protection for the rest of the stand and no thinning has been projected for them. The residual part of the stand is excellent wildlife habitat at this time and with time will mature into a good quality pole timber stand similar to Unit 12. No work has been projected for this stand for 20 to 30 years. The releasing of existing apple trees and patch clear cutting of some of the aspen to encourage aspen regeneration are two viable wildlife management opportunities.

Notes from 2006 Inspection: Concur with most of the above. As this stand grows and matures, it may be desirable to expand the trail network from adjacent areas into it. Manipulation of the vegetation should be done in connection with research or teaching activities.

Primary classification: Research and Teaching

Secondary classifications: Recreation and Aesthetics

Management recommendations: None

Management Unit F

This unit of 26.0 acres is part of the abandoned Seven Oaks Golf Course. The unit's cover consists of several small groupings of planted conifers and a ground cover of grasses and weeds. Also the upper end of the gorge that starts in Management Unit 1, extends up through and bisects the unit.

Notes from 2006 Inspection: This unit contains one of the primary sections of the trail network. Travel through here is necessary for access to many of the other management units.

Primary classification: Recreation and Aesthetics

Secondary classifications: Research and Teaching

Management recommendations: Continued partial mowing

Management Unit G

This 1.9 acre area is the University stone quarry. This area has unique recreational and geological characteristics. Also included on the quarry floor is a unique wetland area that could be improved with little work and some thought. Recommendations for this area should be coordinated with the Colgate Outdoor Education, Biological Sciences and Geology departments by the Forest and Open Lands Oversight Committee.

Notes from 2006 Inspection: Concur with all of the above.

Primary classification: Research and Teaching

Secondary classifications: Recreation and Aesthetics

Management recommendations: None

Management Unit H

This 15.2 acre parcel is made up of old crop and pasture lands that are being invaded by brushy species. This combination is ideal wildlife habitat. This area will slowly be populated to forest trees through the process of natural succession. The recommendation for this unit is to do nothing and let the natural succession occur.

Notes from 2006 Inspection: Concur with all of the above.

Primary classification: Recreation and Aesthetics

Secondary classifications: Research and Teaching

Management recommendations: None

Management Units I, J, K

These stewardship management units comprise 30.5 acres of open meadows that have recently been removed from agricultural production, Unit I contains 17.6 acres, Unit J contains 7.1 acres and Unit K contains 5.8 acres. All three areas should be periodically mowed to enhance wildlife habitat and to function as fire breaks. The fire breaks are especially critical in Units I and J which are located close to residential areas.

Notes from 2006 Inspection: The threat of fire and need for a firebreak seems highly unlikely.

Primary classification: Research and Teaching

Secondary classifications: Recreation and Aesthetics

Management recommendations: Periodic moving, perhaps allowing a local farmer to produce hay.

Hamilton Street Tract

This tract fronts on Hamilton Street in two sections and consists of 12 separate management units. In general, this tract is used less for research, teaching and recreation than the campus tract. Some timber management activities have taken place here as called for in the 1997 plan.

Aerial Photo of Hamilton Street Tract

Management Unit 14

This unit is represented by a 6.6 acre red pine plantation. The stand presently is still in the seedling sapling classification and is too young to thin. At this stage of development the stand is very valuable to wildlife and not only as escape cover but as thermal protection during the cold of winter. This stand will probably need to be thinned in the next 15 to 20 years. The adjoining hedge rows should be left to function as wildlife corridors.

Notes from 2006 Inspection: This stand has progressed from the seedling-sapling to the poletimber size class. A thinning of this stand in the second or third five-year work block would enhance the growth of sawtimber. At present, the only option for thinning this type of stand is if softwood tree chips could be used by the university for its energy needs.

Primary classification: Timber Management

Secondary classifications: Research and Teaching

Management recommendations: Eventual thinning when possible.

Management Unit 15

This 6.5 acre unit was a fallow field when the 1976 management plan was written. Today it is fully occupied with a sugar maple seedling sapling stand. The stocking level of this stand is close to 5,000 stems per acre. This stand may be ready for thinning in 25 to 30 years. Presently the stand, due to its density, is providing outstanding wildlife escape cover.

Notes from 2006 Inspection: This stand is progressing nicely with a desirable species mix. This stand just needs time to grow and develop.

Primary classification: Timber Management

Secondary classifications: Research and Teaching

Management recommendations: None.

Management Unit 16

This 5 acre, unit has been newly gifted to Colgate and is part of the old Dart Farm. It is classified as a northern hardwood saw timber stand. The stand is characterized by a population of 52 percent sugar maple and 38 percent beech. The stand is overstocked and in need of thinning. Most of the beech in the stand are infected with the beech scale-nectria complex and should be salvaged at this time. A harvest has been scheduled for this stand in the year 2002.

Notes from 2006 Inspection: The harvest scheduled in the last management was completed. There is no need for further activity here within the current planning horizon.

Primary classification: Timber Management

Secondary classifications: Research and Teaching

Management recommendations: None.

Management Unit 17

This 6.3 acre unit is a northern hardwood saw timber stand that is overstocked and in need of thinning. The predominant species are sugar maple, 78 percent, and beech, 16 percent. This stand is scheduled for harvest in 2002 along with Stand 16. During harvest operations all culls will be double ring girdled to provide snag trees and active den trees will be saved.

Notes from 2006 Inspection: The scheduled harvest was not completed. The primary need in this stand is removal of culls. All of the cull trees in this stand could be removed and chipped to help meet Colgate's energy needs. This work would have to be done in connection with work in nearby stands (especially Unit 21) to make it a large enough operation to accomplish.

Girdling trees provides the benefits explained above, but it creates a hazardous situation and should not be pursued.

Primary classification: Timber Management

Secondary classifications: Research and Teaching

Management recommendations: Cull removal in first five-year work block.

Management Unit 18

This unit is a 10.2 acre Norway spruce plantation which is too young to thin at this time. Presently the stand affords wildlife escape cover and thermal protection during the winter months. This stand will be ready to thin in 10 to 15 years. The first thinning should be a pulpwood harvest which will provide access for further harvests and recreational opportunities.

Notes from 2006 Inspection: In addition to Norway spruce, this stand contains a smaller section of fir (probably white fir). It can be managed as a single unit. If a thinning can be accomplished here in connection with work in adjacent stands, it should be done.

Primary classification: Timber Management

Secondary classifications: Research and Teaching

Management recommendations: Eventual thinning when possible.

Management Unit 19

This 44.2 acre unit is comprised of several old pastures and a portion of an old crop field which have been colonized by pioneer northern hardwood species such as sugar maple, red maple, black cherry, white ash, aspen and apple. The stand also includes several spring seeps and tributaries to the main stream, which should be protected. Presently the stand is optimum wildlife habitat. As the stand matures the wildlife values will decrease. No work is projected for this stand for 30 to 40 years.

Notes from 2006 Inspection: Concur with above.

Primary classification: Research and Teaching

Secondary classifications: Recreation and Aesthetics; Timber Management

Management recommendations: None

Management Unit 20

This 1.7 acre parcel is a pure sugar maple stand with an average diameter of 22.5 inches. The sugar maples in this stand are open grown and as a result are very limby and of very low saw log quality. It is recommended that this stand be dedicated to recreational activities.

Notes from 2006 Inspection: Concur with above (though there is some sawtimber value). This stand makes a nice destination for a hike and could be as site for recreational improvements such as a leanto or picnic area.

Primary classification: Recreation and Aesthetics

Secondary classifications: Research and Teaching

Management recommendations: None

Management Unit 21

This 100.8 acre stand is classified as a northern hardwood saw timber stand. The major species in the stand are sugar maple, 63 percent and white ash 12 percent. The stand is overstocked and in need of thinning. The southern portion of the stand has been scheduled for a harvest in 1997 and the northern portion of the stand has been scheduled for a harvest in 1998. During the harvest most of the cull trees will be double ring girdled to create snags. The hemlock component will not be cut and will be reserved for wildlife escape cover and thermal cover. The main log roads created during the process will be able to be used for recreational access in the future. Very little regeneration is present on the forest floor. The harvest should alleviate this problem as well as to increase the growth and quality of the residual trees.

Notes from 2006 Inspection: Approximately half of this stand was harvested. All of the lower quality stems could be removed from the remaining half and chipped for use in Colgate's energy production. This operation would make operations in other nearby stands possible. It is possible that hardwood chips from this stand could be mixed with softwood chips from nearby stands to create a mix that is suitable for Colgate's boiler.

Girdling trees provides the benefits explained above, but it creates a hazardous situation and should not be pursued.

Primary classification: Timber Management

Secondary classifications: Research and Teaching

Management recommendations: Commercial thinning in first five-year work block.

Management Unit L

This unit of 69.3 acres was in pasture land and crop land when the Murphy Farm was in operation. Most of the pasture land has deteriorated to a brushy condition and it should remain in its present state as a buffer for the stream that flows through the property and as a valuable wildlife habitat area. The small cropland fields should be mowed periodically after the first of August as a wildlife management measure and to provide a firebreak for the adjacent red pine and Norway spruce plantations.

Notes from 2006 Inspection: This unit is clearly being used for research or teaching activities. Mowing should occur only if it is compatible with these activities.

Primary classification: Research and Teaching

Secondary classifications: Recreation and Aesthetics

Management recommendations: None

Management Unit M

This 4.2 acre area has been utilized to provide topsoil for various University projects, When there is no further need for this area the existing mounds should be leveled and the area reseeded.

Notes from 2006 Inspection: Concur with above.

Primary classification: Recreation and Aesthetics

Secondary classifications: Research and Teaching

Management recommendations: None

Management Unit 23

This 18.6 acre parcel is poorly drained and is in the process of reverting to pioneer northern hardwood species. If enough valuable hardwood species appear on the site during the next 10 years management recommendations will be given. At this point it is best to let nature take her course.

Notes from 2006 Inspection: If timber management is compatible for any emerging uses of this area, management recommendations will be made in a future update to this plan.

Primary classification: Research and Teaching

Secondary classifications: Recreation and Aesthetics

Management recommendations: None in current planning horizon.

Management Unit N

This 11.9 acre unit is an abandoned hay field. Like many of the before mentioned stewardship management units it should be periodically mowed to enhance the wildlife characteristics of the area. The close proximity to Timber Stand 23 makes this unit highly valuable to various species of wildlife.

Notes from 2006 Inspection: Concur with above.

Primary classification: Recreation and Aesthetics

Secondary classifications: Research and Teaching

Management recommendations: None

Beattie Reserve Management Units

The 149 acre Beattie Reserve is located close to campus, with frontage on both sides of the Bonney Road. This proximity to campus has lent itself to a variety of teaching and recreational uses. The six management units in this tract are all classified in ways that recognize established uses. Timber management is a secondary classification in some cases, but as with the campus tract recreational and aesthetic criteria should prevail over logging income in management decisions.

Aerial Photo of Beattie Reserve

Management Unit 22

This 21.5 acre stand was part of the Walter Beattie property which was gifted to the university. The stand has been managed and is in optimum growing condition. Though classified as a northern hardwood saw timber stand the stand will not be ready for another harvest for about 20 years. The Colgate Outing Club utilizes this stand for some of its activities.

Notes from 2006 Inspection: This unit contains a yurt, climbing wall and another smaller storage structure. While it is valuable and easily management northern hardwood stand, teaching and recreational uses are well established here. Timber management can occurs as long as it does interfere with other uses.

Primary classification: Recreation and Aesthetics

Secondary classifications: Research and Teaching

Management recommendations: None in current planning horizon.

Management Unit 24

This unit is comprised of 61.0 acres of spruce plantation. Its size class is seeding sapling. The stands greatest asset now is to provide escape cover, breeding cover and thermal protection for wildlife. It will probably be 15 to 20 years before this stand matures enough to be able to sustain a pulp-wood harvest which will constitute a first thinning. In the meantime the Outing Club has asked to use this unit and it is recommended that its wishes be granted.

Notes from 2006 Inspection: This stand needs more time to grow before any timber management activities are necessary. The stand adjoins management unit 22 (an important recreation and teaching area) and includes the access road to it. Any timber management should be secondary to recreational use.

Primary classification: Recreation and Aesthetics

Secondary classifications: Timber Management, Research and Teaching

Management recommendations: None in current planning horizon.

Management Unit 25

This unit of 24.2 acres of spruce is very similar to Unit 24 and should be treated in the same manner.

Notes from 2006 Inspection: The stand is essentially identical to Unit 24, but it is much further removed from the recreational and developments in Unit 22. For this reason, timber management could be more intensive in this unit.

Primary classification: Timber Management

Secondary classifications: Recreation and Aesthetics; Research and Teaching

Management recommendations: None in current planning horizon.

Management Unit 26

This 21.0 acre unit consists of scrub apple and pioneer hardwood trees and presently is being used as the impact area of the Outing Club's trap range. The area should be posted with warning signs, and peripheral areas should be planted with spruce to dissipate shot and muffle noise. Any expansion of range facilities should be done in this area. Many of the scrub apple trees are being overtopped and shaded out by the more aggressive pioneer hardwoods. The releasing of the healthy apple trees would benefit many wildlife species.

Notes from 2006 Inspection: Concur with all of the above. Posting warning signs for the trap range would be prudent.

Primary classification: Recreation and Aesthetics

Secondary classifications: Research and Teaching

Management recommendations: If the Outing Club is interested in doing the work, some hand thinning around the healthy apple trees sometime in the first five-year work block would be beneficial for wildlife.

Management Unit 27

This unit is a 16.7 acre hemlock-northern hardwood saw timber stand. The stand is slightly overstocked and could support a light saw timber harvest. Presently the markets for hemlock saw timber are poor, however, if a market does appear it should be taken advantage of. A tentative harvest has been scheduled for this stand in 2001. There is a classified trout stream running through the eastern portion of this stand. It should be protected and no disturbance should be created within 50 feet of its banks.

Notes from 2006 Inspection: This stand consists of both sides of a ravine, with a tranquil, classified stream running through it. The site and location would make timber harvesting operations difficult. This site is unique among the adjoining units in that it is relatively undisturbed forestland. Protection of the riparian zone is important. Timber management should be foregone here in preference for other values.

Primary classification: Preservation

Secondary classifications: Recreation and Aesthetics; Research and Teaching

Management recommendations: Possible establishment of a foot trail.

Management Unit 28

This unit is a 4.6 acre northern hardwood small pole timber stand. The stand has only recently evolved and no work has been contemplated for this stand until after the 10 year management plan update. At that time work should be scheduled for this unit.

Notes from 2006 Inspection: The close proximity of this unit to the trap range and the preserve area in Unit 27 make Recreation and Aesthetics the most desirable primary classification for this unit. Some timber management could eventually take place, after the stand has developed further.

Primary classification: Recreation and Aesthetics

Secondary classifications: Research and Teaching; Timber Management

Management recommendations: None

Bewkes Property Management Units

These management units were not part of the original plan. This 163 acre property is primarily a site for recreation, with a beach on Seymour Pond, and for research and teaching. Some timber management is possible here.

Most of the road frontage of this property is posted against trespass. The remaining boundary lines should be posted as well.

It appears that the donor of the Bewkes property may be interested in working more closely with Colgate to explore Teaching and Research and other uses of the property more intensively. This should be pursued by the Forest and Open Lands Oversight Committee.

Aerial photo of Bewkes Tract

Management Unit Bewkes-1

This unit of 17 acre sawtimber stand on the northernmost portion of the property and is readily accessible. This stand is in the *sugar maple* type. The stand is well-stocked, though there is some unacceptable growing stock that could be removed.

There was no direct evidence of on-going recreation or teaching and research activities in this stand.

Primary classification: Timber Management

Secondary classifications: Research and Teaching

Management recommendations: Sawtimber harvest and cull removal in the second five-year work block a ten year time frame.

Management Unit Bewkes-2

This 58 acre unit includes open fields on both sides of the public roadway. These fields appear to have been mowed regularly. There is some evidence of on-going research or teaching occurring here, with weather station equipment in the field. The minimal use of this unit can be continued indefinitely. Maintaining open fields preserve a wide range of options for future uses.

Primary classification: Research and Teaching

Secondary classifications: Recreation and Aesthetics

Management recommendations: Continued periodic mowing.

Management Unit Bewkes-3

This unit is a 12 acre sawtimber stand and is readily accessible. This stand is in the *sugar maple* type. It is well stocked, with the vast majority of the timber is acceptable growing stock. The sawtimber is of very high quality. Timber Management could be a secondary classification for this management unit. There is no reason that any silvicultural activities must take place within the next ten years, so the timber management option decision could be deferred in this case.

There is ample evidence here of on-going research or teaching activities in this stand. The roadway leading to Seymour Pond travels through this area.

Primary classification: Research and Teaching

Secondary classifications: Timber Management (if compatible with research and teaching)

Management recommendations: Sawtimber harvest and cull removal in the second five-year work block.

Management Unit Bewkes-4

This unit includes several different poletimber size plantations that total 55 acres. Norway spruce, larch and red pine are planted here, in separate blocks and strips. Each of these small plantations appears to be in the same age class. The Norway spruce has the greatest potential to reach sawtimber size. The larch is doing well, but there are limited markets for it. The red pine is not doing particularly well on this site. Thinning these plantations would improve growth of the residual stands and stimulate some regeneration. Trees removed in these thinnings could supply wood chips to meet some of Colgate's energy needs, if softwood chips could be used in the boiler. Any thinning would require a visual buffer of near roadways and trails.

Primary classification: Research and Teaching

Secondary classifications: Recreation and Aesthetics; Timber Management

Management recommendations: Thinning as the opportunity arises in the second five-year work block

Management Unit Bewkes-5

This management unit is a 25 acre hemlock sawtimber stand. This is a poorly drained site that includes much of Seymour Pond's shoreline and contains its outlet. It provides a scenic backdrop from the beach area. This is a good location for a foot trail or perhaps an interpretive nature trail.

Primary classification: Recreation and Aesthetics

Secondary classifications: Research and Teaching

Management recommendations: Establish a foot trail around the pond.

Management Unit Bewkes-6

This 4-acre management unit includes the Seymour Pond beach and building area, along with a small adjacent field and a small grove of mature trees.

Primary classification: Recreation and Aesthetics

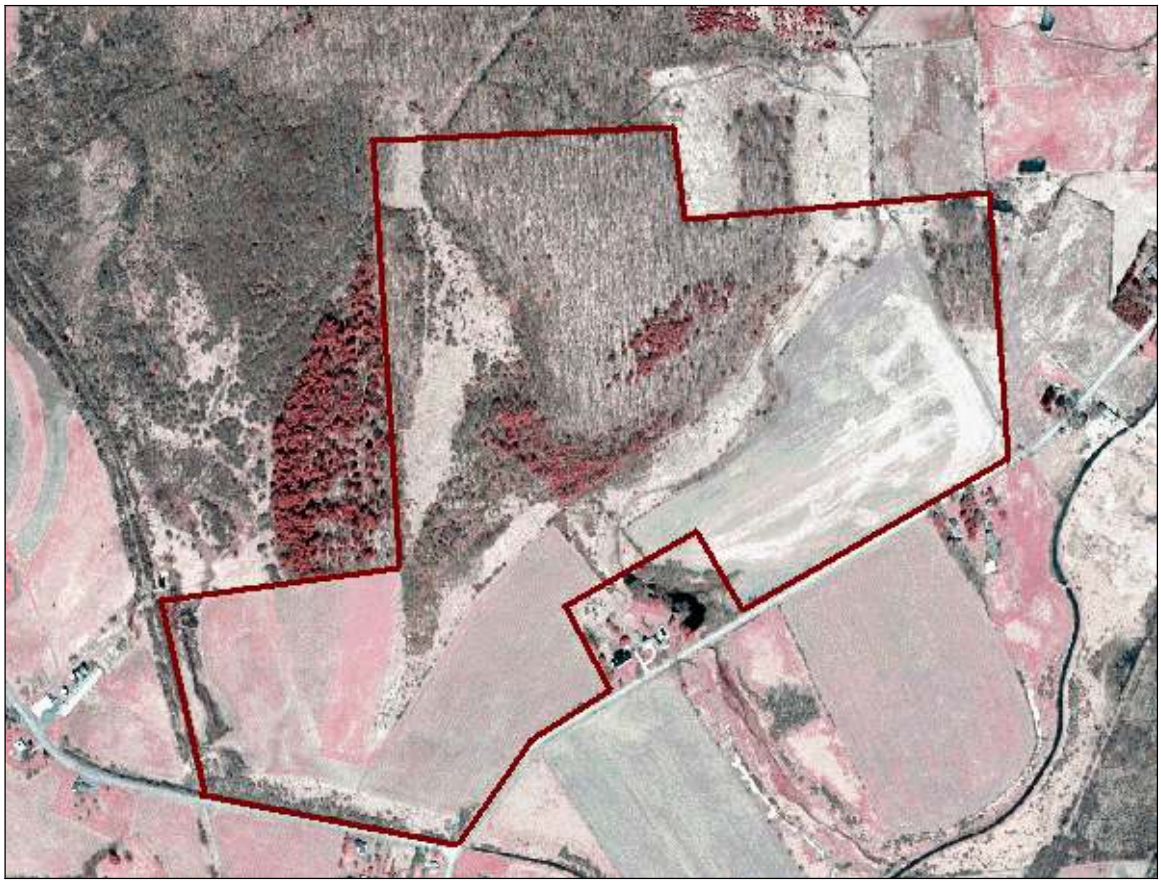
Secondary classifications: Research and Teaching

Management recommendations: Periodic mowing; Periodic hazard tree assessment and removal.

Parker Farm Tract

The Parker Farm tract is located on the Hamilton Road in the Town of Lebanon. Most of this 354 acre tract is active farm land and is leased to a local farmer for this purpose. Only the wooded portion of this tract is addressed in this plan.

The Parker Farm should be posted against trespass, either by the lessee or the university. In general, the property boundary is marked by old wire fences or other defining characteristics in the landscape. This property was surveyed in 2007.



Aerial photo of Parker Farm Tract

Management Unit PF-1

This unit is a small 2.5 acre northern hardwood sawtimber stand, close to the Hamilton Road. This stand has some undesirable growing stock that could be removed. It appears that the lessee is using this stand in connection with bee keeping and honey production. If so, any management activities that would interfere with this are undesirable.

Primary classification: Timber Management

Secondary classifications: Research and Teaching

Management recommendations: Possible commercial thinning to remove unacceptable growing stock, to be done in connection with work on nearby unit PF-2.

Management Unit PF -2

This is a mature northern hardwood sawtimber stand, approximately 44 acres in size. This stand has a mixture of species, with hard maple dominating the stocking. Red oak, white ash, and black cherry are also present. A small grove of hemlock trees is located within this unit, providing important cover for wildlife. This stand is close to being overstocked and a timber harvest would be desirable here. Removal of a portion of the understory would release and enhance some of the regeneration in the understory. There is a modest amount of unacceptable growing stock that could be removed from the stand.

Primary classification: Timber Management

Secondary classifications: Research and Teaching

Management recommendations: Timber harvest and cull removal in the first five-year work block.

Management Unit PF -3

This management unit is a 5 acre red pine plantation poletimber stand. This stand should be re-evaluated in the next update to the plan to see if a thinning is advisable or possible at that time.

Primary classification: Timber Management

Secondary classifications: Research and Teaching

Management recommendations: None

Management Unit PF -4

This management unit is a 6 acre stand of pioneer hardwoods with a canopy that has just begun to close. In its current condition, this is a valuable stand for wildlife, providing a transition between the farm fields and more mature stands nearby. At present, this stand needs time to grow and develop before any timber management recommendations are necessary.

Primary classification: Timber Management

Secondary classifications: Research and Teaching

Management recommendations: None

Bonney Hill Tract

The Bonney Hill Tract is a 64.5 acre landlocked parcel, located near Newton Road in the Town of Madison. McCormick Road is an overgrown and abandoned town road the runs through the property. This parcel consists of three softwood plantations and a northern hardwood stand. There is currently no way to access the property, except with the permission of a neighboring landowner. One of the neighboring landowners is a friendly alumnus who is open to allowing access across his property for timber harvesting operations.

There are indications of trespassing problems on this property. The boundary lines should be posted against trespass. Most of the boundary is fairly marked with wire fence and the posted signs on adjacent properties. If some of the boundary proves difficult to locate, a survey may be necessary.

Each of the four stands on this parcel has been given a tentative primary classification of Timber Management. No secondary classification has been made at this time because of the access situation.

Colgate University may have a legal right to access the property via McCormick Road. If expanded uses of the property are contemplated, the university should pursue securing and improving access by this route.

The land also adjoins the 160 acre property of John Bartholomew of Newton Road, who has expressed interest in establishing a conservation easement and who has a long history of enlightened timber management. The university may wish to explore possibilities for cooperation with Bartholomew, whose land provides another potential access point.

Aerial photo of Bonney Hill Tract

Management Unit BH-1

This management unit is a 43.5-acre northern hardwood stand of the sugar maple type. This hardwood stand could be furthered divided into smaller units, based on diverse of conditions that include small pockets of sawtimber, poletimber and seedling-saplings. This is a well-stocked stand that includes mature sawtimber, good crop trees and low value stems that should be removed. This stand has strong management potential.

Primary classification: Timber Management

Secondary classifications: None at present.

Management recommendations: Sawtimber harvest and cull removal first or second five-year work block.

Management Unit BH-2

This management unit is a 10-acre red pine plantation in transition from the poletimber to sawtimber size class. There was significant windthrow in a portion of the stand in the past, which served to accomplish an adequate thinning of the stand. There is outstanding regeneration of hard maple in portions of the understory. In connection with timber harvesting in other stands, a thinning of this stand could release this advanced hard maple regeneration.

Primary classification: Timber Management

Secondary classifications: None at present.

Management recommendations: Commercial thinning, when possible.

Management Unit BH-3

This management unit is a 6-acre larch plantation in transition from the poletimber to sawtimber size class. A commercial thinning of this stand, if it could be accomplished in connection with other harvesting on this parcel, would enhance the growth of the existing growing stock and promote establishment of regeneration in the understory.

Primary classification: Timber Management

Secondary classifications: None at present.

Management recommendations: Commercial thinning, when possible.

Management Unit BH-4

This management unit is a 5-acre white spruce poletimber plantation. This stand has not fared as well as the other two plantations. A commercial thinning of this stand (again, in connection with work on other stands), if a whole-tree chip market presents itself, could be used to open space to for regeneration of hardwood species, particularly hard maple. Openings along the border between the northern hardwood and red pine stands may accomplish this goal.

Primary classification: Timber Management

Secondary classifications: None at present.

Management recommendations: Commercial thinning, when possible.

TENTATIVE WORK SCHEDULE

This tentative work schedule is subject to approval of the plan and the land classifications. Suggested recreational improvements have not been placed on the schedule, but can be as funding and interest allows. These should be addressed by the Forest and Open Lands Oversight Committee.

The schedule is divided into two five year blocks. Scheduled work activities can take place any time within the five year period, as circumstances and scheduling opportunities allow.

First Five-Year Work Block

- Periodic mowing of Units F, I, J, K, Bewkes-2, Bewkes 6
- Hazard tree assessment and removal in Units 4, 7a, Bewkes-6 & any others close to high use areas
- Sawtimber harvest & cull removal Units PF2
- Commercial thinning (accomplished jointly) Units, 14, 17, 19, 21 (potential source of wood chips for some of Colgate's energy needs)

Second Five-Year Work Block

- Periodic mowing of Units F, I, J, K, Bewkes-2, Bewkes 6
- Hazard tree assessment and removal in Units 4, 7a, Bewkes-6 & any others close to high use areas
- Sawtimber harvest & cull removal Units 10, Bewkes-1, Bewkes-3,