V: SPECIAL MANAGEMENT AREAS

A. Ausable Marsh Wildlife Management Area

Preface

State lands are classified according to "their characteristics and capability to withstand use". Those lands administered by the Department of Environmental Conservation (DEC) are classified into nine basic categories: Wilderness, Primitive, Canoe Area, Wild Forest, Intensive Use, Historic, State Administrative, Wild Scenic and Recreational Rivers and Travel Corridors. Each classification carries an explicit set of guidelines which will, when implemented, provide the State lands of the Park with a unique blend of resource protection and public use.

The State lands of the Adirondack Park were categorized by the Adirondack Park State Land Master Plan (APSLMP) in 1972. The APSLMP was legislated as part of the Adirondack Park Agency Act and was designated to provide a unified and comprehensive mandate on how the State lands of the Adirondack Park should be managed and used. To accomplish this objective, the APSLMP mandates that DEC will conduct its oversight and management responsibilities of State lands through a formal unit management plan (UMP) specific to each land unit under its control. These UMP's translate the objectives of the APSLMP and related legislation, legal codes, rules, regulations, and policies to in-the-field management actions. Ordinarily, these plans are based on a five year time frame so that revisions can be made reflecting changes in resource and/or sociological conditions. Plans may also be amended or revised sooner if warranted.

The subject of this management plan is a WILDLIFE MANAGEMENT AREA (not part of the forest preserve) that is designated a Wild Forest. The APSLMP, in part, describes wild forest as an area where "..the resources permit a somewhat higher degree of human use than in Wilderness, Primitive or Canoe areas, while retaining an essentially wild character." A Wild Forest is further defined as an area lacking "...the sense of remoteness..." found in Wilderness areas and "...permits a wide variety of outdoor recreation." Areas classified as Wild Forest are generally less fragile, ecologically, than Wilderness or Primitive areas and can accommodate more human use. The APSLMP indicates that the primary Wild Forest management guideline will be "...to protect the natural Wild Forest setting and to provide those types of outdoor recreation that will afford public enjoyment without impairing the Wild Forest atmosphere." One of the biggest challenges in Wild Forest management is how to accommodate the growing numbers of people utilizing the variety of outdoor recreational opportunities provided by Wild Forests without degrading their character or natural resource quality.

Definition of Wild Forest

Adirondack Park State Land Master Plan

A Wild Forest area is an area where the resources permit a somewhat higher degree of human use than in wilderness, Primitive or Canoe areas, while retaining an essentially wild character. A Wild Forest area is further defined as an area that frequently lacks the sense of remoteness of Wilderness, Primitive or Canoe areas and that permits a wide variety of outdoor recreation.

To the extent the state lands classified as Wild Forest were given or devised to the state for silvicultural or wildlife management purposes pursuant to statutory provisions specifying that these lands will not

form part of the forest preserve (if such provisions are constitutional), the following guidelines are not to be interpreted to prevent silvicultural or wildlife management practices on these lands, provided that other guidelines for wild forest land are respected.

Management Goals

The overall intent of this management plan is to emphasize the dual purposes for which the Ausable Marsh Wildlife Management Area (AMWMA) was created, namely for the protection and management of the available natural resources and to provide recreational opportunities for the general public. The AMWMA UMP will provide a framework through which active management of the available natural resources will occur while allowing the public access to utilize the wide variety of outdoor recreational opportunities available at the site. AMWMA has twelve different ecological communities. This variety in habitat types allows for a great deal of diversity in fish and wildlife species and recreational activities. A concerted effort by all parties, public and private, is needed to implement the following management goals:

- To manage for the protection and enhancement of the available natural resources to ensure the perpetuation of indigenous fish and wildlife species.
- To provide for a variety of outdoor recreational opportunities without negatively impacting on the wild forest character of the area.
- To protect and manage if necessary, the two rare and two exemplary ecological communities and the rare species found at AMWMA to insure that they remain a part of New York State's biological diversity.

Section I: Introduction to Ausable Marsh Wildlife Management Area

Area Overview

The Ausable Marsh Wildlife Management Area (AMWMA) is composed of 577.6 acres of State land, classified as Wild Forest by APSLMP, along the western shore of Lake Champlain in the Town of Peru, Clinton County.

Ausable Marsh is located in the Ausable River delta and was created over thousands of years by water-borne materials being deposited by the Ausable River at its confluence with Lake Champlain. These depositions have created a fertile area at the river's mouth which has been utilized by flora, fauna and mankind for centuries. Humans have used this area for agriculture, timber harvesting, hunting, trapping and fishing.

Interest by the State in purchasing this marsh for the purposes of wetland protection and wildlife management began in the early 1940's. A large portion of the marsh, 571 acres, was owned by the Peru Development Corporation. In 1959 the Department of Environmental Conservation (DEC) purchased the Peru Development Corporation property, as well as an adjacent 69 acres from H.T. Fuller. Additional acquisitions of contiguous property occurred in 1965 when two parcels, 63.8 acres from Theresa Baggs and 9.8 acres from H. Hicks, were purchased. Also in 1965, the DEC Division of Fish and Wildlife transferred 136 acres of the property, the area known as Ausable Point, to the Division of Lands and Forests for the construction of a campsite complex. As a result, the wildlife management area consists of 577.6 acres - a significant portion of the Ausable River delta and its associated freshwater wetlands.

Since its inception, the natural resources of the Ausable Marsh Wildlife Management Area (AMWMA) have been actively managed with the primary goal being the protection and enhancement of waterfowl nesting and brood-rearing habitat. Prior to the creation of the Adirondack Park and APSLMP, management techniques such as shoreline clearing and landscape manipulation including the construction of dikes to control water levels, potholes, level ditching, and small islands - were utilized to enhance the available breeding and feeding habitat available to waterfowl. As a result of these measures, a variety of waterfowl including wood ducks, black ducks, mallards, green and blue winged teal, common and hooded mergansers, and common golden eye are readily observed on the management area. In addition, wood duck nest boxes have been erected throughout the area - these artificial nest locations mimic natural, but scarce, tree cavities.

The main purpose for the purchase of AMWMA was to protect habitat and manage for wildlife, it also provided individuals access to an area with diverse habitat types (there are twelve different ecological communities associated with AMWMA). This diversity in habitat allows the area to support not only diverse populations of flora and fauna but an assortment of unique outdoor recreational opportunities as well.

With the main geologic features of the management area being Lake Champlain, the Little Ausable River, the Ausable River, and a large emergent marsh, it is no surprise that anglers, trappers and bird watchers find the site of interest. It is not only the variety in habitats that bring people to the management area. The site is convenient. It is adjacent to Ausable Point State Campground, close to an urbanized area, and open to the public. The City of Plattsburgh is just 12 miles to the north. The shores of Lake Champlain have relatively few, public or private areas available to meet the growing interest of the general population in outdoor recreation, it is anticipated that because of this lack of access, public use of AMWMA will increase. This management plan will balance the needs of the natural resources with the desires of the general public.

Boundary

The wild forest lands within this unit consist of 577.6 acres situated in the Town of Peru, Clinton County. Within the wildlife management areas there are no private land in holdings. AMWMA follows public roads, water courses and individual property lines. It is bounded on the north by the Little Ausable River, on the east by the state operated Ausable Point Campground and Day Use Area, on the south by the Ausable River, and on the west by private landowners, the Delaware and Hudson Railroad Track, and forest preserve. The AMWMA property lines have been surveyed, blazed, painted yellow, and marked with Wildlife Management Area signs.

Primary Access

The primary points of entry to AMWMA are New York State Highway Route 9 (Rt. 9) and the Campground Road. A six car parking area is located on the northwest corner of the management area and is accessed from Rt. 9 by way of a dirt road - a large sign and standard indicate the entrance roadway. From the parking area individuals can walk along the dike running along the western side of the management area. Individuals can also access AMWMA from the Campground Road, a paved roadway which runs along the northeastern boundary of the management area. A six car parking area, belonging to Ausable Point Campground, is located at the confluence of Dead Creek and Lake Champlain. From this parking area canoeists can easily gain access to Dead Creek. There are no hiking trails leading from this site into the management area so foot access is limited by water levels. An ADA accessible wildlife viewing platform is located at this parking area.

Section II: Biophysical Resources

Geology

The land forms visible today throughout the Lake Champlain Valley are largely a product of ancient mountain building processes and the erosional forces of glaciers. The Champlain Valley was formed over 450 million years ago when the North American and European tectonic plates collided, forcing great blocks of land between what are now the Green Mountains and the Adirondacks to drop down.

Over time, the shape of the valley changed as glaciers plowed over the land, picking up sand, gravel and rock. This debris acted like sandpaper and scoured the mountains as it went, resulting in the "U-shaped" valleys characteristic of the region. During the Pleistocene Epoch 1.6 million years ago, huge ice sheets advanced and retreated several times over the Champlain Valley.

The last major glacier to affect the Champlain Valley, the Wisconsian, occurred over 21,000 years ago and was thick enough to bury the summit of Mt. Marcy (5,344 feet above present day sea level). As the glacier began to melt around 13,000 years ago, piles of sand, gravel, and rock were left along its edge. Streams of water from the melting glacier carried and deposited a large amount of these materials, as well as various silts and clays, into the Champlain Valley. Water and snow melt continue to shape the landscape, gradually wearing down the mountains and carrying sediments to Lake Champlain.

The melt water from a massive lobe of ice, left by the retreating glacier, within the valley, formed the ancient Lake Vermont - which extended from the Green Mountains to the Adirondacks. About 12,000 years ago, when Lake Vermont drained and the St. Lawrence Valley became ice free, salt water flooded the lake bed, forming an estuary to the Atlantic. The Champlain Sea, as this ocean arm is known, covered the same area as the lower levels of Lake Vermont. The marine invasion ended about 10,000 years ago as the land slowly rebounded from the weight of the glacial ice. The Champlain Sea became isolated and eventually became a separate freshwater basin.

Ausable Marsh is an example of a freshwater wetland associated with river deltas - what has been referred to as a deltaic wetland (Gruendling & Bogucki 1978). These wetlands are built upon depositional areas, located at the confluence of rivers with lakes, which protrude out into Lake Champlain. Deltaic wetlands have at least one major stream passing through the wetland. In the case of Ausable Marsh there are two - the Little Ausable River and the Ausable River (which branches into two distributaries within the marsh).

Rather than having a distinct basin or depression area like other freshwater wetland areas, deltaic wetlands have a convexly profiled surface as the materials that are deposited by the river slope out and away from the mouth. The upland border of the wetland is abrupt, especially when recent deposits abut an older, more elevated delta or beach ridge (Gruendling & Bogucki 1978).

Specific land forms found within the deltaic wetland include levees, meander scars, oxbows, point bars, and point bar swales. These create an irregular topography with shallow stagnant back water areas within the freshwater wetland.

Ausable Marsh
Wildlife Management Area
Peru, Clinton Co.
Ausable Pines Trailer Park
442
9
Lake Champlain
Ausable Point Campground
Jabez Allen Rd
Ausable River
Gray Rd
Deep Well Way
Sand Rd
Lakeside Rd
Plains Rd
LEGEND
Boat Launch (trailered)
Boat Launch (cartop)
Viewing Site
Kiosk
Parking Area
Gate
Trail
Dike
Administrative Road - vehicle access may be prohibited.
Major Road
Other Road
Railroad
Stream
Fields
Freshwater Wetlands
Managed Lands
DEC Fish & Wildlife
DEC Lands & Forests
No Hunting
0
2,000
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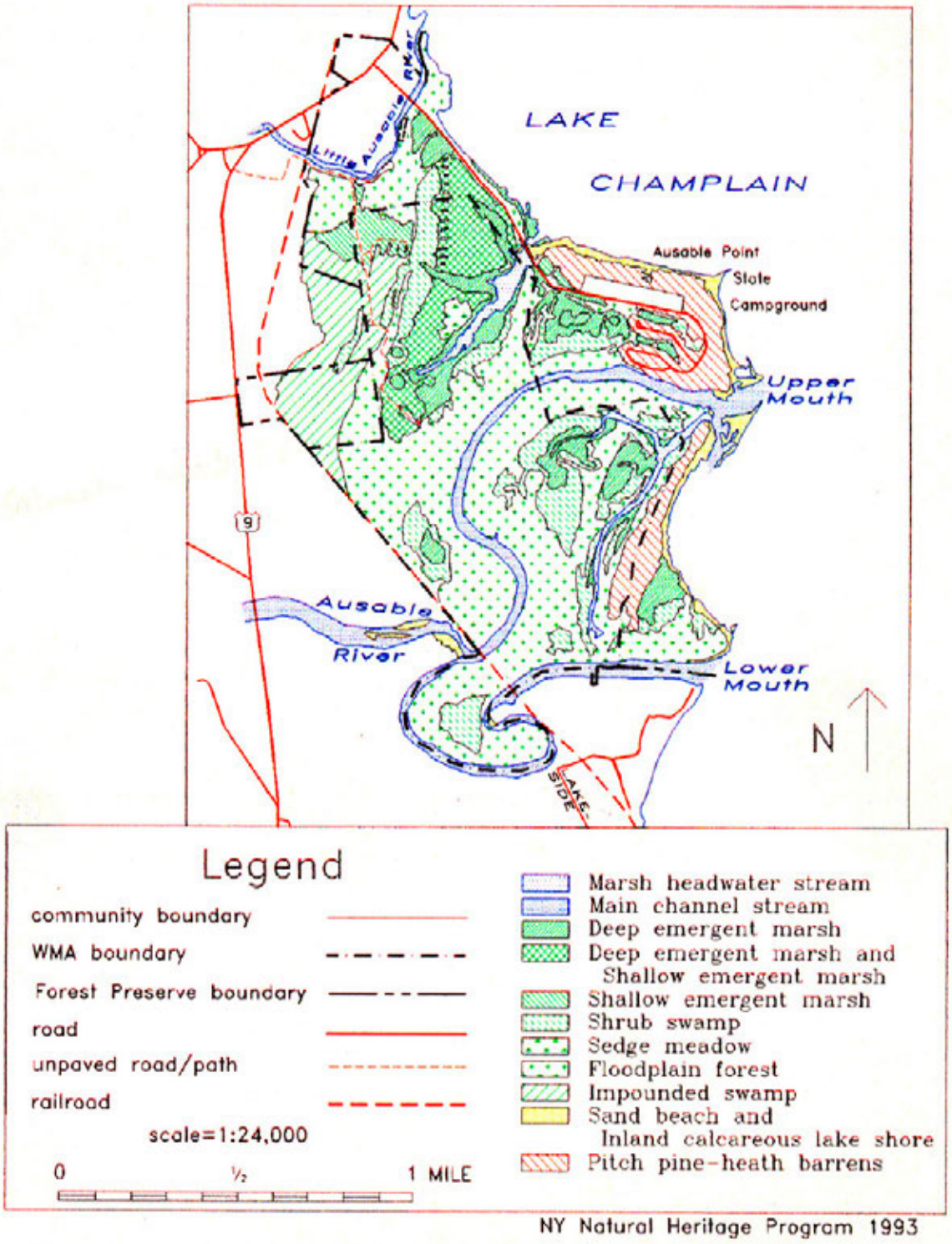
N

Ausable Marsh WMA

Map 1: ECOLOGICAL COMMUNITIES



NY Natural Heritage Program 1993

Soils

With deltaic wetlands along Lake Champlain the surface soils consist of post-glacial fluvial sands (soils produced by stream action) and alluvium (materials carried and dropped by running water) over glacial deposits. Soils maps and information were obtained from the U.S.D.A. Soil Conservation Service in Clinton County. Six different soil series have been identified at AMWMA:

Lovewell Very Fine Sandy Loam, Stratified Substratum - this very deep (60+ inches before bedrock), moderately well drained loamy soil is formed in medium alluvial sediments on nearly level flood plains. Lovewell soils are subject to common flooding for brief durations of two to seven days during the spring and fall The available water capacity (capacity of soils to hold water available for use by plants - expressed as inches of water/40 inches of soil) of Lovewell soils is high (5.2 inches+) and the permeability (ability of water and air to move through the soil - measured in inches of water/hour) is moderate (.6 to 2 inches/hr) in the surface and subsoil, and rapid (6 to 20 inches/hr) in the substratum. This soil type would be prime farmland in Clinton County.

Fluvaquents - Udifluvents Complex - these soils are very deep (60 inches+ before bedrock) and nearly level. They are formed in alluvial sediments that are highly variable in texture, reaction, and drainage. Fluvaquent soils are subject to frequent flooding for brief to long durations, lasting from two days to one month. The available water capacity and permeability are variable. This soil type is recognized as hydric soils in Clinton County.

Cornish Silt Loam - this very deep (60 inches+ before bedrock), somewhat poorly drained, loamy soil is formed in medium lime, alluvial sediments on nearly level flood plains. Cornish soils are subject to common flooding for brief durations, lasting from two to seven days, during the spring and fall. The available water capacity is high (5.2 inches+) and the permeability is moderate (.6 to 2 inches/hr). Cornish soils have possible inclusions of soils which are considered hydric in Clinton County. Only drained areas that are protected from flooding or not frequently flooded during the growing season would be considered prime farmland.

Saprists and Aquents, Ponded - this very deep (60inches+ before bedrock), very poorly drained organic and mineral soils are formed in depressions on lake plains and uplands (the common name for these areas is freshwater marsh). These soils are considered hydric in Clinton County.

Massena Fine Sandy Loam - this very deep (60 inches+ before bedrock), somewhat poorly drained loamy soil is formed in high lime glacial till. The available water capacity is moderate (3.2 to 5.2 inches). Permeability is moderate (.6 to 2 inches/hr) in the surface, and moderately slow (.2 to .6 inches/hr) or slow (.06 to .2 inches/hr) in the subsoil and substratum. Massena soils have possible inclusions of soils which are considered hydric in Clinton County. Only drained areas qualify as prime farmland.

Amenia Fine Sandy Loam, 3 to 8 percent slope - this very deep (60 inches+ before bedrock), moderately well drained loamy soil is formed in high lime glacial till. The available water capacity is moderate (3.2 to 5.2 inches). The permeability is moderate (.6 to 2 inches/hr) in the surface and subsoil, and slow (.06 to .2 inches/hr) in the substratum. This soil is considered as prime farmland in Clinton County.

Wetlands

Wetlands are transition areas between upland and aquatic habitats. Wetland ecosystems generally possess three essential characteristics: (1) hydrophitic (wetland) vegetation, (2) hydric soils (soils that are

saturated with water long enough to develop anaerobic conditions in the upper part), and (3) wetland hydrology (water).

There are more than 300,000 acres of freshwater wetlands associated with the Lake Champlain Basin. Most wetlands adjacent to Lake Champlain are essentially a product of the natural fluctuations that occur in the water level. The water level of Lake Champlain is not controlled by man-made structures, but is dependent on precipitation, runoff, groundwater, and temperature (impacting rates of evaporation). The lake is at its lowest levels in the winter, when ice and snow hold the precipitation on the land and it reaches its highest point in the spring and early summer, after snow melt and peak runoff (average variation in water levels is about six feet). The high spring water levels often inundate the low lying flood plain areas adjacent to the lake for extended periods of time - producing conditions favorable for the creation of freshwater wetlands.

Ausable Marsh is one of many freshwater wetlands associated with Lake Champlain and is a fine example of a deltaic wetland. Though impacted by the fluctuating water levels of the lake, this deltaic freshwater wetland is built upon the area of deposition located at the confluence of the Ausable and Little Ausable Rivers and Lake Champlain.

New York State's freshwater wetlands are protected under Article 24 of the Environmental Conservation Law (The Freshwater Wetlands Act - 1975). The Act directs the Department of Environmental Conservation and the Adirondack Park Agency to preserve, protect and conserve freshwater wetlands and their benefits, consistent with the general welfare and beneficial economic, social and agricultural development of the state. Under the Act, wetlands are defined as lands and submerged lands commonly known as swamps, sloughs, bogs and flats which support wetland vegetation. The Act identifies wetlands on the basis of vegetation because certain types of plants out-compete others when they are in wet soils, and so are good indicators of wet conditions over time.

Freshwater wetlands within the Adirondack Park are inventoried, mapped and protected by the Adirondack Park Agency. The official Clinton County freshwater wetland maps, for inside the Adirondack Park, were finalized in 1994. Based upon these maps, regulated freshwater wetlands cover the entire AMWMA (the management area is found on the Keeseville 7.5 minute quadrangle).

The freshwater wetlands of the AMWMA possess great ecological, aesthetic, recreational, and educational value. These are some of the functions and benefits that wetlands perform:

- Wetlands absorb, store, and slowly release rain and melt water, minimizing flooding by stabilizing water flow;
- In some places, wetlands are very important in recharging groundwater supplies;
- Wetlands slow water velocity and filter sediments, protecting reservoirs and navigational channels. They also buffer shorelines and agricultural soils from water erosion;
- Wetlands also clean water by filtering out natural and many man-made pollutants, which are then broken down and recycled back into the environment;
- Wetlands constitute one of the most productive habitats for fish and wildlife species;
- Wetlands afford abundant opportunities for fishing, hunting, trapping, and wildlife observation and photography;

- The variety of functions and benefits performed by freshwater wetlands, combined with the access afforded by state ownership, make AMWMA a perfect outdoor classroom for environmental education;
- Expanses of open space wetlands, such as the emergent marsh at AMWMA, provide the visitor with a visual contrast to more heavily forested areas and often provide scenic vistas - in this case an outstanding view of Lake Champlain (which abuts the management area) and Vermont.

Climate

The climate in the Lake Champlain Valley, and Ausable Marsh, is affected by four main factors: the location of the Lake relative to the North American Coast; air masses from other regions; the mountains to the east and west; and the moderating influence of the Lake itself. When the prevailing westerly winds reach the Adirondack Mountains, and rise to move over them, the air is cooled and able to hold less moisture, causing the excess to precipitate out in the form of rain or snow. Consequently, the higher elevations in the Adirondacks receive greater amounts of precipitation than the Lake Champlain Valley (average annual precipitation of over 50 inches for the mountains compared with about 30 inches for the valley).

The Lake itself also influences the climate. Summer sunshine warms the surface layer of the Lake. In fall and winter, the water releases this heat, moderating the temperatures in the valley (the growing season along the Lake is about 150 days compared with about 105 days in the mountains of the Adirondacks). Conversely, in the spring, warmer air and increased sunshine melt the snow and lake ice, but the Lake takes longer to warm than the surrounding land. As a result, the breezes off the Lake keep the shoreline areas cooler, extending cool conditions well into May.

Open Space

The natural landscape of AMWMA is an important element of the Wild Forest and affords individuals with interesting observations. The Abenakis Indians are known to have called Lake Champlain the name Petonbowk, meaning "water that lies between", a reference to the Adirondacks and Green Mountains rising to the west and east. With the AMWMA situated along the western shore of the lake and dominated by the low growing vegetation of the emergent marsh, individuals are pleasantly surprised at the surrounding landscapes observable while visiting the management area. Though there are no maintained scenic vistas within the AMWMA, there are two main aesthetic observation points associated with the site.

First, the Campground Road, a paved roadway that connects the Ausable Point State Campground to New York State Route 9, runs along the western shore of Lake Champlain and the eastern boundary of Ausable Marsh. From the six car parking area and wildlife viewing platform located along the road at the mouth of Dead Creek, an individual facing southwest looks out over the emergent marsh of the management area with the mountains of the High Peaks Region of the Adirondacks acting as a backdrop in the distance. When facing northeast, the visitor looks out over Lake Champlain at the rugged shoreline of Valcour Island with the Green Mountains of Vermont in the distance.

The second area which provides individuals with interesting landscape observation is the Ausable Marsh dike. This water control structure was built in the 1950's for the creation of additional waterfowl habitat. It also provides an excellent foot trail along the western edge of Ausable Marsh (an emergent marsh with low growing plants). From this vantage point facing east an individual looks out over the marsh to Lake Champlain, Valcour Island, and the Green Mountains of Vermont.

With twelve different ecological communities in relatively close proximity to each other, the interior sections of the AMWMA provide interesting landscape views on a less dramatic but no less rewarding scale. Following the dike or bushwhacking into the flooded deciduous forest can provide the AMWMA hiker with interesting scenery and ample opportunity for wildlife observation.

Vegetation

Ecological communities can be defined as a variable assemblage of plants and animals interacting with one another in a common environment, occupying a habitat, and often modifying the habitat (Reschke 1990). Twelve different ecological communities have been identified at AMWMA, including two which are considered rare (flood plain forest and pitch pine-heath barrens) and two exemplary (deep emergent marsh and sand beach) (New York Natural Heritage Program 1993). The state and global ranks for these rare and exemplary communities are contained in Appendix M. These communities are broken down from three system types: riverine (associated with rivers), palustrine (associated with wetland areas) and terrestrial (upland areas); and eight subsystems as shown in the table shown below:

SYSTEM	SUBSYSTEM	ECOLOGICAL COMMUNITY
Riverine System	*Natural Streams*	Marsh headwater stream
		Main channel stream
Palustrine System	*Open Mineral Soil Wetlands*	Deep emergent marsh
		Shallow emergent marsh
		Shrub swamp
		Inland calcareous lake shore
	Open Peatlands	Medium Fen
	Forested Mineral Soil Wetlands	Flood plain forest
	Palustrine Cultural	Impounded swamp
Terrestrial System	*Open Uplands*	Sand beach
	Forested Uplands	Pitch pine-heath barrens
	Terrestrial Cultural	Unpaved path / road

Marsh Headwater Stream (riverine) Dead Creek and Moon Marsh Creek

This is an aquatic community associated with a small, marshy brook that has a low gradient, slow flow rate, and cool water. The brook originates in, and flows through, emergent marsh areas. The brook substrate is gravel or sand, with silt, muck, peat, or marl deposits along the shore. With its slow flow rate and minimal slope these creeks are not major agents of erosion and therefore deposition is minimal (few

suspended sediments in the water). Dominant vegetation identified at this community includes the following floating and submergent plants:

Scientific Name	Common Name
Pontederia cordata	Pickerelweed
Nuphar variegatum	Coontail
Anacharis canadensis	Waterweed
Myriophyllum spp.	Water-Milfoil
Nymphaea tuberosa	Water Lily

Main Channel Stream (riverine) - Ausable River and Little Ausable River

This is an aquatic community associated with large, quite, base level sections of streams where there are no distinct riffles. These streams usually have clearly distinguished meanders and are characterized by considerable deposition with relatively minor amounts of erosion (suspended matter from upstream areas settle out in these slower velocity sections). Although the middle of a main channel stream is too deep for aquatic macrophytes to occur, the shallow shores and backwaters typically have rooted plants. Dominant vegetation identified at this community includes the following:

Scientific Name	Common Name
Ceratophyllum demersum	Coontail
Myriophyllum spicatum	Eurasian water milfoil
Vallisneria americana	Wild celery
Potamogeton pectinatus	Sago pondweed
Potamogeton crispus	Curly-leaf pondweed

Deep Emergent Marsh (palustrine)

This is an exemplary marsh community that occurs on mineral or fine grained organic soils (muck); the substrate is flooded by waters that are not subject to violent wave action. Water depths can range from six inches to six feet. The water level may fluctuate seasonally, but the substrate is rarely dry and there is usually standing water in the fall. Ausable Marsh is one of the best examples of this type of natural community documented in New York. This community also provides habitat for the state endangered slender bulrush (*Schoenoplectus heterochaetus)*. This population of the slender bulrush is one of the top three of the seven known populations in New York, having thousands of individuals. Dominant vegetation identified at this community includes the following:

Scientific Name	Common Name
Nuphar luteum	Yellow pond lily
Typha spp.	Cattails
Scirpus spp.[1]	Bulrushes
Sparganium eurycarpum	bur-reed
Zizania aquatica	Wild rice

[1] Including the state-endangered slender bulrush (*S. heterochaetus*)

Shallow Emergent Marsh (palustrine)

This marsh meadow community occurs on mineral or muck soils that are either permanently or seasonally flooded. This marsh is better drained than the deep emergent marsh, with water depths ranging from six inches to three feet during flood stages. Water levels usually drop by mid to late summer and the substrate is often exposed. Deep and shallow emergent marshes often integrate and may occur together in a complex mosaic in a large wetland. Such is the case with Ausable Marsh. Dominant vegetation identified in the deep and shallow emergent marshes of AMWMA include the following emergent plants:

Scientific Name	Common Name
Eleocharis spp.	Spike-rush
Sparganium eurycarpum	Bur-reed
Carex spp.	Sedges
Scirpus fluviatilis	River Bulrush
Scirpus cyperinus	Wool-grass
Scirpus acutus	Hardstem Bulrush
Equisetum spp.	Horsetail
Sium sauve	Water-parsnip
Typha angustifolia	Narrow-leaved Cat-tail

Shrub Swamp (palustrine)

This is an inland wetland community dominated by shrubs that occurs along the shores of a lake or river, in a wet depression not associated with lakes or rivers, or as a transitional zone between an emergent marsh and a flooded forest or upland community. The substrate is usually mineral soils or muck. A shrub is a perennial woody plant that differs from a tree by its low growth form and presence of multiple stems

or several branches starting at or near the ground. A shrub is usually less than sixteen feet tall at maturity and generally has a bushy appearance. Dominant vegetation identified at this community includes the following shrubs:

Scientific Name	Common Name
Cephalanthus occidentalis	Buttonbush
Acer spp.	Maples (saplings)
Fraxinus spp.	Ashes (saplings)

Inland Calcareous Lake Shore (palustrine)

This community consists of the gravelly, sandy, or muddy shore of an inland lake or pond with calcareous water and seasonally fluctuating water levels. The substrate is either saturated or flooded. Although vegetative cover may be sparse, the dominant species are herbaceous. Vegetation found within this community includes:

Scientific Name	Common Name
Eleocharis spp.	Spikerushes
Juncus spp.	Rushes
Scirpus spp.	Bulrushes

Medium Fen (palustrine)

A moderately minerotrophic peatland (intermediate between rich fens and poor fens) in which the substrate is a mixed peat composed of graminoids (true grasses, sedges and rushes), mosses, and woody species. Medium fens are fed by waters that are moderately mineralized, with pH values generally ranging from 4.5 to 6.5. Medium fens often occur as a narrow transition zone between an aquatic community and either a swamp or an upland community along the edges of streams and lakes. In medium fens, the herbaceous layer, dominated by the sedge *Carex lasiocarpa* typically forms a canopy that overtops the shrub layer.

In AMWMA, the site occurs within a mosaic of wetland and upland communities formed between the Little Ausable River and Dead Creek where they drain into Lake Champlain. Wetland communities include mature floodplain forests on the levees, deep and shallow emergent marshes, and shrub swamps. The medium fen in Dead Creek looks like a sea of slender sedge (*Carex lasiocarpa)* with "islands" of hardstem bulrush (*Schoenoplectus acutus)*, and is remote and quite beautiful.

Dominant vegetation identified at this community includes the following:

Scientific Name	Common Name
Carex lasiocarpa	Slender sedge
Dulicium arundivanceum	Three-way sedge
Potentilla palustris	Marsh cinquefoil
Sagittaria latifolia	Broadleaf arrowhead
Triadenum virginicum	St. John's wort

Flood plain Forest (palustrine)

This is a hardwood community that occurs on mineral soils on low terraces of river flood plains and deltas. These sites are characterized by their flood regime; low areas are annually flooded in spring and high areas are flooded irregularly. Some areas may be quite dry by late summer, whereas others may be flooded again in late summer or early autumn (usually caused by the heavy rains of a tropical storm). AMWMA provides an outstanding example of this community-type. Dominant vegetation identified at this community includes the following trees:

Scientific Name	Common Name
Acer saccharinum	Silver maple
Fraxinus pennsylvanica	Green ash
Acer rubrum	Red maple
Fraxinus nigra	Black ash
Populus deltoides	Eastern cottonwood
Salix nigra	Black willow
Quercus bicolor	Swamp white oak

Impounded Swamp (palustrine)

This is a swamp (with at least fifty percent cover of trees) where the water levels have been artificially manipulated or modified - in the case of AMWMA this included the construction of dikes for the purposes of improving waterfowl habitat. Dominant vegetation identified at this community includes the following:

Scientific Name	Common Name
Acer rubrum	Red maple
Alnus rugosa	Speckled alder
Cornus stolonifera	Red osier dogwood
Ilex verticillata	Common winterberry
Viburnum lentago	Nannyberry

Sand Beach (terrestrial)

This community consists of a sparsely vegetated community that occurs on unstable sandy shores of large freshwater lakes, where the shore is formed and continually modified by wave action and wind erosion. The sand beach community at AMWMA is considered exemplary. The pristine beach between the Upper and Lower Mouths of the Ausable River is the best example of this community on all of Lake Champlain, and it supports the largest population of the globally rare Champlain beachgrass (*Ammophila champlainensis*) in the world. Other species present include:

Scientific Name	Common Name
Lathyrus japonicus	Beach peavine
Eragrostis pectinacea	Purple lovegrass
Panicum dichotomiflorum	Fall panic grass
Elymus canadensis	Nodding wild-rye

Pitch Pine-Heath Barrens (terrestrial)

A shrub-savanna community occurs on well-drained, sandy or rocky soils. The most abundant tree is pitch pine (*Pinus rigida*) but the percent cover of trees is variable - ranging from thirty to sixty percent. Dominant vegetation identified at this community includes the following:

Scientific Name	Common Name
Pinus nigida	Pitch Pine
Pinus strobus	Eastern White Pine
Betula populifolia	Gray Birch
Quercus rubra	Northern Red Oak
Gaylussacia baccata	Black Huckelberry
Vaccinium angustifolium	Blueberries
Aralia nudicaulis	Wild sarsaparilla
Carex pensylvanica	Pennsylvania sedge
Gaultheria procumbens	Wintergreen
Maianthemum canadense	Canada mayflower
Trientalis borealis	American starflower

Unpaved Road / Path (Terrestrial)

This last ecological community of AMWMA can be found along the unpaved access roads and hiking paths found throughout the wildlife management area.

This community consists of sparsely vegetated roads and pathways of gravel, bare soil, or bedrock outcrop. These roads or pathways are maintained by regular trampling or scraping of the land surface. The substrate consists of the soil or parent material at the site, which may be modified by the addition of local organic material (woodchips, logs, etc.) or sand and gravel. One characteristic plant is the path rush (*Juncus tenuis*).

Rare Plants

Five state listed rare plants were discovered or identified on AMWMA during the 1992 biodiversity inventory by The Natural Heritage Program. These are Champlain beach grass (*Ammophila champlainensis*), Meadow horsetail (*Equisetum pratense*), Low sand-cherry (*Prunus pumila var. pumila*), Balsam willow (*Salix pyrifolia*), and Slender Bulrush (*Scirpus heterochaetus*).

Champlain beach grass is a colonial, clumping upright grass with coarse, stiff stems that flowers in late June to early July and bears fruit through the fall and into winter. It grows at the top and front of low lake sand dunes formed from river delta deposits. At AMWMA it was discovered on the sand beach and on the delta between the Upper and Lower Mouths of the Ausable River.

Meadow horsetail is rush-like, erect, jointed, and often branched herb with no flowers and rarely found in fruit. It grows in shady or filtered sunlight in mesic conditions characteristic of flood plain forests,

limestone woodlands, and red maple- hardwood swamps. At AMWMA it was found in the flood plain forest along the Ausable River.

Low sand-cherry is a diffusely branched, low or trailing shrub, with alternate, simple, deciduous leaves. It has white flowers in May and early June and bears a purple to blackish cherry from July to September. Usually found growing on sand dunes and open sandy, gravely, or rocky beaches, it was found at AMWMA growing on the ecotone between the pitch pine- heath barrens and the sand beach.

Balsam willow is a medium sized shrub with alternate, simple, deciduous leaves that have a strong balsam fragrance. The young branches are reddish- brown and shiny with older stems dark purplish- red to gray- brown. It can be found with reddish- brown flowers from mid May through August and bears fruit late June through August. This is a wetland plant and was reported at AMWMA growing on the Ausable River delta.

Slender Bulrush is a tall, erect, slender bulrush with few leaves that grows in colonies. It flowers late June through early July and bears fruit July through September. Usually found in swamps, shores, and shallow water habitats, it was discovered in several places at AMWMA in the deep emergent marsh communities.

Exotic and Invasive Plants

The New York Natural Heritage Program, during its 1993 biodiversity inventory of AMWMA, documented several species of exotic and/ or invasive plants including purple loosestrife (*Lythrum salicaria*), common reed (*Phragmites australis*), and two species of buckthorn (*Rhamnus cathartica* and *Frangula alnus*). These plants threaten the diversity of the ecological communities found at AMWMA and require removal and control. More information is needed about the distribution of these plants within AMWMA and we need to increase our efforts to monitor the spread of exotic and invasive plants, locate new infestations and document the occurrence of additional species.

Wildlife

AMWMA consists of twelve different ecological communities ranging from emergent marsh to flood plain forest. This variety in habitat allows the area to support diverse fish and wildlife populations. Field inventories of wildlife species have not focused specifically on AMWMA. However, various inventory projects undertaken by the Department of Environmental Conservation and others have included the AMWMA in their scope.

Birds

According to New York State Breeding Bird Atlas data, at least 125 species of birds breed within, or in close proximity to the AMWMA, including 16 birds considered game species, eight birds State listed as Special Concern, and two State listed Threatened species. Many more species of birds utilize AMWMA for feeding, resting and as a stop over during migration, including various species of waterfowl and raptors, such as Bald eagles (*Haliaeetus leucocephalus*). See Appendix K and L for a list of the 125 bird species documented by the Breeding Bird Atlas.

Game bird species known to breed at AMWMA include eight species of waterfowl and four upland game birds important to area sportsmen. These include the Wild turkey (*Meleagris gallopavo*), Ruffed grouse (*Bonasa umbellus*), Canada goose (*Branta canadensis*), Woodcock (*Scolopax minor*), Black duck (*Anas rubripes*), Goldeneye (*Bucephala clangula*), Mallard (*Anas platyrhynchos*), Gadwall (*Anas strepera*), and Wood duck (*Aix sponsa*).

The two Threatened species listed in the Breeding Bird Atlas data include Northern Harrier (*Circus cyaneus*) and Pied- billed grebe (*Podilymbus podiceps*). The Species of Special Concern include American Bittern (*Botaurus lentiginosus*), Common Nighthawk (*Chordeiles minor*), Coopers Hawk (*Accipiter cooperii*), Northern Goshawk (*Accipiter gentilis*), Osprey (*Pandion haliaetus*), Red Shouldered Hawk (*Buteo lineatus*), Sharp- shinned Hawk (*Accipiter striatus*), and Whip-poor-will (*Caprimulgus vociferus*).

Additionally, according to the New York Natural Heritage Program database, another bird species listed as Threatened has been documented at AMWMA. The Least Bittern (*Ixobrychus exilis*) has been observed at Ausable Marsh in the deep emergent marsh on both sides of the Campground road.

Though AMWMA provides habitat for a number of bird species, it is the water-dependent birds which are the most visible part of the ecosystem. Waterfowl utilize the wetland areas of AMWMA as breeding habitat, brood rearing, and as a critical stopover during spring and fall migration along the Atlantic Flyway. Over thirty species of waterfowl use Lake Champlain and its associated wetlands annually - including Mallards, Black Ducks, Wood Ducks, Common Goldeneye, Hooded Mergansers and Canada Geese. Between 20,000 and 40,000 ducks and geese are counted on migratory flights during early October.

Management techniques utilized by the DEC since the early 1950's, including the construction of potholes, islands, level ditches, and dikes, as well as shoreline clearing, have greatly increased the amount of waterfowl nesting and feeding habitat at AMWMA. In addition, wood duck nest boxes have been erected throughout the area by the Department to increase breeding success. These artificial nest locations mimic the natural, but scarce, tree cavities used by this species of duck. These nest boxes are monitored annually to determine utilization rates and productivity. As a result of these efforts, waterfowl productivity and use at AMWMA has increased substantially.

The plentiful supply of fish within the Marsh and the Ausable River (especially the landlocked Atlantic salmon) has lured not only anglers but osprey to AMWMA. The presence of a pair of osprey in the area of AMWMA during the breeding season, in conjunction with the abundant supply of food, prompted the construction of two artificial nest platforms along the emergent marsh to increase the chances of breeding. One of the nest platforms is used regularly.

Ospreys are not the only raptor lured to AMWMA by the plentiful supply of fish. Bald Eagles (*Haliaeetus leucocephalus*) utilize the marsh and lake shore to feed on northern pike, brown bullhead and yellow perch, especially during the winter months. Lake Champlain in the vicinity of AMWMA (south of Valcour Island but north of Westport) remains open late into the winter, providing an available food source for bald eagles - often migrants from Canada. Though the birds feed at AMWMA they often roost in the large White Pines of near-by Wickham Marsh Wildlife Management Area - these trees are located along a steep hill which faces east (providing cover from the predominately westerly winds). No bald eagle nesting activity has been observed at AMWMA.

Because of the unique and varied bird watching opportunities that AMWMA affords, it has been listed as a site along the Lake Champlain Birding Trail and named a Bird Conservation Area (BCA). Ausable Marsh is one of several WMA's included in the Lake Champlain Marshes Bird Conservation Area.

The Lake Champlain Birding Trail is a highway- based trail approximately 300 miles long that links 88 birding sites along the Lake Champlain shoreline through New York and Vermont. Many different bird species can be found throughout the Champlain Valley and the goal of the Trail is to make Lake

Champlain and the surrounding communities in New York and Vermont a premier national destination for birding, increase nature tourism in the Lake Champlain Region, and convey the value of conservation and recreation to community leaders and landowners. Uniform way-finding signs have been installed along the trail to help visitors find each site and interpretive signs and other improvements are being constructed at many of the sites including AMWMA.

The New York State Bird Conservation Area Program was established in 1997 to safeguard and enhance bird populations and their habitats on State lands and waters. The goal of the BCA program is to integrate interests into agency planning, management, and research projects, within the context of agency missions. Modeled after the National Audubon Society's Important Bird Areas Program, the BCA program applies the criteria developed under that program to state owned properties. To date, 49 BCA's have been designated throughout New York State.

The Lake Champlain Marshes Bird Conservation Area includes six Wildlife Management Areas along the western shore of Lake Champlain, including Kings Bay, Montys Bay, Ausable Marsh, Wickham Marsh, Putts Creek and East Bay. These WMAs extend from the Canadian border to the southern tip of the Lake and all include shoreline wetland complexes. The vision statement of the Lake Champlain Marshes BCA is to manage and conserve the high quality wetlands, grasslands, early successional habitats, and forests of the BCA to benefit the diverse bird species utilizing these areas (New York State Department of Environmental Conservation, 2002).

Mammals

The data concerning mammals of AMWMA is one area where insufficient data exists and the need for further study is apparent. To date, a comprehensive survey of mammals has not been conducted in New York State or at AMWMA. At least fifty-six species of mammals find their homes in the Lake Champlain Area. Larger mammals known to inhabit the AMWMA include white-tailed deer, black bear, bobcat, coyote, red fox, fisher, raccoon and striped skunk. Since AMWMA is dominated by open water and wetland habitats it is no surprise that populations of muskrat, river otter, beaver, mink and weasel are concentrated in this area. A variety of smaller mammals also reside in the area. They include bats, shrews, moles, mice, eastern chipmunks, and squirrels (red, gray and flying). No New York State listed endangered, threatened or special concern mammal species are known to inhabit the AMWMA.
The abundance and variety of natural foods, due to the diverse habitat types, as well as the close proximity of food produced by man (easily accessible food from campers at the adjacent Ausable Point State Campground) has led to high concentrations of mammal species which are adaptable and tolerant of humans - this includes raccoons, striped skunks, eastern chipmunks, mice and squirrels. These species often breed on the wildlife management area and forage at the campground.

Amphibians and Reptiles

Relatively short summers and long, cold winters limit the number of species of reptiles and amphibians located at AMWMA. Twenty-one species of amphibians and twenty species of reptiles have been identified in the Lake Champlain area. Little is known about the distribution or population status of either in the Lake Champlain area, however, a ten year effort to document the current distribution of New York's herpetofauna, known as the New York State Amphibian and Reptile Atlas Project, wrapped up in 1999. Although the data has not been confirmed or compiled due to staff retirement, the 23 species of herps found during field inspections in the vicinity of AMWMA are listed below:

Salamanders

Common Mudpuppy	*Necturus maculosus*
Spotted Salamander	*Ambystoma maculatum*
Red-spotted Newt	*Notophthalmus v. viridescens*
Northern Redback Salamander	*Plethodon c. cinereus*
Northern Two-lined Salamander	*Eurycea bislineata*

Toads and Frogs

Eastern American Toad	*Bufo a. americanus*
Gray Treefrog	*Hyla versicolor*
Northern Spring Peeper	*Pseudacris c. crucifer*
Bullfrog	*Rana catesbeiana*
Green Frog	*Rana clamitans melanota*
Mink Frog	*Rana septentrionalis*
Wood Frog	*Rana sylvatica*
Northern Leopard Frog	*Rana pipiens*
Pickerel Frog	*Rana palustris*

Snakes

Northern Water Snake	*Nerodia s. sipedon*
Common Garter Snake	*Thamnophis sirtalis*
Smooth Green Snake	*Liochlorophis vernalis*
Eastern Milk Snake	*Lampropeltis t. triangulum*
Timber Rattlesnake	*Crotalus horridus*

Turtles

Common Snapping Turtle	*Chelydra s. serpentina*
Wood Turtle	*Clemmys insculpta*
Common Map Turtle	*Graptemys geographica*
Painted Turtle	*Chrysemys picta*

Fish

A Biological Survey of the Champlain Watershed, a supplement to the 19th Annual Report of the New York State Conservation Department (1930), lists 73 species of fish inhabiting waters of the Lake Champlain watershed. Thirty-four species were recorded from the Ausable River. More recent surveys indicate the fish fauna of Lake Champlain and the Ausable River to still be diverse; 81 species have been identified in Lake Champlain and 23 species were captured in the River during surveys conducted in 1985 to investigate the distribution of the eastern sand darter. See Appendix U for a list of fish species known to occur at AMWMA.

Of fish species listed as endangered in New York State, four are now or were previously found in Lake Champlain, including: round whitefish (*Prosopium cylindraceum*), eastern sand darter (*Ammocrypta pellucida*), lake sturgeon (*Acipenser fulvescens*), and the mooneye (*Hiodon tergisus*). None of these species are known to occur in the AMWMA.

Nursery and Spawning Areas

Large rivers such as the Ausable and Little Ausable Rivers provide important fish spawning habitat for many fish species including trout and salmon, suckers, and a variety of minnows. Many fish species annually utilize the AMWMA for spawning and nursery habitat. Historically, the lower Ausable is believed to have supported the spawning of walleye (*Sander vitreus*) and occasionally, a few spawning walleye are found here during spring fisheries surveys. Certain fish species utilize flooded wetland vegetation for spawning, notably members of the pike family (Esocidae). Dead Creek, centrally located in the AMWMA, is known to provide important spawning and nursery habitat for northern pike, (*Esox lucius*), and may be important as a spawning area for grass and chain pickerel (*Esox americanus americanus* and *E. niger*) as well. The dikes which hold spring runoff waters thereby extending the waterfowl nesting season are important in retaining water until larval fish are sufficiently developed for life in the lake.

Landlocked Salmon

Currently Lake Champlain is the focus of a long term sea lamprey control program. Chief among the expected benefits of this program is a vastly improved fishery for landlocked Atlantic salmon (*Salmo salar*). Both the Ausable and Little Ausable Rivers historically supported runs of Atlantic salmon and both rivers are important nursery areas for larval sea lampreys (*Petromyzon marinus*). Sea Lamprey control treatments with the lampricide TFM occur every four years in the AMWMA sections of both rivers and future treatments will occur within the scope of this unit management plan. This may include the use of a granular Bayluscide formulation in the South Fork of the Ausable River in addition to both river deltas.

In some years, significant spring runs of landlocked salmon occur in the lower portions of the Ausable

River. The salmon may move upstream in pursuit of spawning minnows, particularly emerald shiners, or sucker roe. These fish pass through the AMWMA and continue upstream a short distance. The AMWMA section of the Ausable provides significant angling opportunity for early spring salmon and affords a protected environment for this important resource.

Section III: Man and the Ausable Marsh Wildlife Management Area

History & Cultural Resources

The history of Lake Champlain is long and varied. Spanning more than 10,000 years, it includes Native American settlements, early Euro-American settlements, French and British exploration and occupation, numerous military conflicts, and a dynamic period of commercial development in the 19th century. Prior residents of the Lake Champlain valley left behind rich cultural resources including historic structures and settlements, cultural landscape resources such as agricultural or wooded landscapes, archeological resources both on land and underwater, and Native American cultural properties. Many cultural sites are concentrated along the lakeshore and tributary waterways, where historic and prehistoric resources include ancient Native American villages, campsites and cemeteries. Fluctuating lake levels during the last 4000-6000 years have submerged, or buried, many lakeshore archeological sites, some of which remain undiscovered.

AMWMA has no standing prehistoric or historic buildings. Any evidence of Native American or early Euro-American activity in the area has been buried by sedimentation due to depositions from the Little Ausable and Ausable Rivers, as well as Fluctuating lake levels. In the recent past (prior to acquisition by the New York State), the lands which now encompass AMWMA were utilized for timber harvesting and agricultural production. The trees from the flooded deciduous forests were harvested for use in local wood stoves - heating individual residences. Drier upland areas were tilled and used for crop production, while wetter areas were often fenced as pasture. Undoubtedly, cranberries and blueberries were harvested and fishing, hunting and trapping were significant activities in the area - providing extra food (supplementing agricultural production) and income (through the sale of furs). The natural resources associated with the AMWMA have always been utilized by man, though the evidence of such use may not always be readily evident.

Historic Sites

Archaeological-historic research in the AMWMA has neither been extensive nor well defined. Native peoples traveled through the area, utilizing the available natural resources in their hunting and foraging expeditions, and may have established settlements in the area but no evidence of their presence has been revealed. There are no state or federally listed historic sites present on the AMWMA.

Economics

The economy of the Lake Champlain basin was traditionally rural and resource-based. In addition to agriculture, utilization of both renewable (such as timber, fishing, hunting, and maple syrup production) and non-renewable (mining) natural resources played a central role in the economic history of the basin. Settlement in the Champlain Valley by Euro-Americans began in earnest in the early 1800's - supporting the forest products and mining industries. The economic well-being of lakeshore residents quickly became dependent on the development of these natural resource industries - providing support services (transportation by rail or canal barge) and supplies (agricultural products). The boat building industry was one of many economic links in the natural resource-based economy.

The region's economy soon diversified beyond timber production and mining, but continued to depend on the natural resources. For example, vacationing around Lake Champlain (a non-consumptive use of the natural resource) became popular in the early 1800's and quickly had a positive impact on the local economy. This trend has continued to the present day. While agriculture and other natural resource based activities continue to make significant contributions to local economies, the economy of the Lake Champlain valley has diversified into service oriented industries (tourism, health, education, etc.), wholesale and retail trade, and manufacturing.

Although the impact of the AMWMA on the local economy has not been directly measured, a general picture can be drawn. Tourism is on the rise and is an important aspect of the Lake Champlain economy. Much of its success depends on the lake itself and the myriad of recreational opportunities it affords, but it is also enhanced by the state lands adjacent to Lake Champlain which often provide the public access to the water. The AMWMA provides additional and varied recreational opportunities that enhance the total experience. There is only one trail head register located at AMWMA, so the exact numbers of individuals which utilize the site are not known, but anecdotal inforamtion shows significant use. However, records are available for attendance at the adjacent Ausable Point State Campground - providing an indication of visitation to the site during the summer and early fall (the campground is closed during the winter and spring). In 1994, attendance at the campsite was 64,700 (camping and day-use).

Use and Users

With the creation of Ausable Point Campsite in 1965, the need for multiple use management has become more important. The area is now used extensively by wildlife viewers, boaters, fishermen, hikers, trappers and hunters.

The hiking trails are maintained each year by DEC Operations Unit and used frequently by the public during the summer months. The major trail begins on route 9 at the area identification sign and continues to a parking lot at the edge of the marsh. From there the trail winds through the marsh along the dike road and then through the stands of Silver Maple, Green Ash, and White Oak to the shore of the Ausable River.

Boaters can enjoy canoeing along the scenic Ausable and Little Ausable River. Many people picnic on and swim off the sand bars exposed during the dry summer months. Three small boat launching sites are maintained in the AMWMA. The first is located on the Ausable Point road and provides access to Lake Champlain. The second site is also located on the Ausable Point Road but is only for launching of cartop boats and provides access to Dead Creek. The third launching site accesses the Ausable River through SunLee Village. Since the exact location of the site is disputed by the adjacent land owner the facility is not shown on the curent facilities map. The parcel needs to be researched and surveyed.

Each fall, trappers harvest the bountiful crop of muskrats and mink and hunters enjoy some of the best waterfowl hunting in the region.

AMWMA is also a bird watcher's delight. During the fall and spring people come to view migrations of geese, ducks, and bluebirds. During summer months, Osprey, Marsh hawks, Blue Herons, Mallards, Wood Ducks, Redwing Blackbirds, Sparrows, Songbirds and Swallows can be seen on a regular basis. Bald Eagles can often be seen feeding off the ice shelf on Lake Champlain during the winter months. AMWMA is listed as a stop along the Lake Champlain Birding Trail and is one of several Wildlife Management Areas that make up the Lake Champlain Marshes Bird Conservation Area.

The Marsh has excellent fishing for Pike, Bass and Perch. Ice fishing for Perch is very popular during the winter at the marsh outlet to Lake Champlain. A parking lot is maintained and plowed through the winter months for fisherman parking.

Adjacent Land Users

The Division of Operations manages the Ausable Point Campground and the Ausable Point Road adjacent and contiguous to the north of the WMA. A few additional adjacent parcels are classified as Forest Preserve lands. The Canadian Pacific Railroad maintains and owns a right of way through the area with two large trestles that span the Ausable River. There are several active agricultural fields west of AMWMA. Corn, hay, and alfalfa are the main crops. The lands to the south are heavily forested and support active forest management practices. To the north of AMWMA, Route 9 runs along the shoreline of Lake Champlain and is heavily developed with residential housing. Lake Champlain borders AMWMA on the east.

Section IV: Management

Historic Management Activities

Early state management of Ausable Marsh began with the creation of the Ausable Marsh Game Management Area in 1949. In that year the Conservation Department's Division of Fish & Game purchased 571 acres of Ausable Marsh from the Peru Development Co., and 69 acres from H.T. Fuller, with the intent of protecting and enhancing local waterfowl populations through habitat management. In 1965 the Department purchased two additional parcels, 63.8 acres from Theresa Baggs and 9.8 acres from H. Hicks. However, also in 1965, 136 acres of Ausable Marsh were transferred from the Division of Fish and Game to the Division of Lands & Forests for the establishment of the Ausable Point Campground. Consequently, a total of 577.6 acres are within the jurisdiction of the Ausable Marsh Wildlife Management Area.

It is important to note that funding for these acquisitions came from the Federal Government via the Pittman- Robertson Act Program. The use of these federal funds mandates that New York State and the Bureau of Wildlife must utilize these lands for wildlife management or restoration.

With the creation of the Campground, extensive modifications of the beach and shoreline area occurred during the construction of the campsite's access road from Route 9. Modifications included a bridge across the Little Ausable River, a culvert in the mouth of Dead Creek, and raising and stabilizing the old access road. This shoreline hardening and filling impacted the hydrology and vegetation of the marsh. The road and beach now act as a water barrier between the marsh and Lake Champlain. Interspersion is now limited to the Dead Creek culvert (near the campground entrance), creating unusual water flows between the marsh and the lake. During periods of high water (floods and spring thaws) stream banks along the Ausable and Little Ausable Rivers have eroded, creating deep ditches and troughs to accommodate new flows of water.

Early management activities which occurred at AMWMA prior to the Adirondack Park State Land Master Plan were based on management plans designed to stimulate waterfowl utilization in the area. This was to be done by increasing waterfowl feeding, resting, breeding and brood rearing habitat by the following:

- Water level control through diking and channel connection.

- Creation of open water areas by ditching.
- Devegetation of shoreline and establish sod for ground nesting waterfowl.
- Construction of water control structures on Dead Creek Outlet and marsh outlet.
- Creation of potholes and channels in the unflooded portions.
- Erection of Wood Duck boxes and Canada Goose platforms.
- Planting upland areas with cereal grains and permanent pastures for geese.
- Stocking Mallard Ducks and other suitable species.

All major construction took place prior to 1972 and was done with bulldozer and drag line. By the time of the APSLMP inception, Ausable Marsh inventoried three dikes: combined total of 4,500 linear feet , 3,960 feet of level ditching, 15 nesting islands, over 80 Wood duck boxes installed, 1.8 miles of public road, 2 miles of administrative road, three banding sites, and two boat launches.

Brood census was carried out by the Bureau of Wildlife annually. In 1969, 40 different broods were observed by technicians and biologist (Gardephe 1970). In addition, Wood Duck boxes were checked each winter to determine usage. By looking at the contents of a box (mainly broken shells) the Bureau can determine species and success of nesting. Species that use the boxes are Wood Duck, Hooded Merganser and Common Golden Eye.

Waterfowl banding was done annually to assist the Federal Government in the setting of waterfowl hunting seasons. The primary ducks banded at AMWMA are Wood Ducks and occasionally Mallards and Black Ducks. In 1969, a record 306 ducks were banded at the marsh (Gardephe 1970)

Prior to 1970, predator control was deemed important by the Bureau of Wildlife. $1,000 - $1,250 (Gardephe 1970) was spent each year to control, by trapping and shooting, Raccoons, Snapping Turtles, feral dogs and cats.

Additional surveys included annual fall migrant estimates, active nest counts, and gizzard collections to determine lead shot intake.

Current Management Activities

Current management activities can be broken down to three categories: maintenance of existing structures, waterfowl management, and public use.

Maintenance of existing structures

Over the past thirty years inflation has decreased the value of the dollar. Unfortunately, Region 5's WMA budget has remained relatively consistent with 1960 spending levels. Consequently, new construction has taken a back seat. With a dwindling labor force and lack of new equipment the Bureau's primary concern is to maintain existing structures. Below is a list of current maintenance activities occurring on AMWMA. Possible techniques used for these maintenance activities include the use of excavation and fill, disking, plowing, sowing, planting, mowing and other agricultural practices.

- Replacement, repair and maintenance of wildlife nesting structures including nest boxes and nesting platforms.
- Maintenance, clearing, and repair of existing pot-hole ponds, dikes and level ditches for wildlife habitat management.
- Maintenance of nesting cover crops and wildlife food plots.

- Management of existing marsh vegetation including control of invasive species.
- Maintenance and repair of existing functional dikes
- Maintenance and repair of existing water level control structures including clearing debris and replacing boards.
- Maintenance and repair of existing access roads and driveways including filling and regrading of eroded sections.
- Use of motorized vehicles for various management, maintenance, repair and agricultural activities.
- Reasearch, suvey and mark the boundry lines on the SunLee Village cartop boat launch.
- Boardwalk, trail, and property boundary line maintenance and repair including replacing boards and pilings, refilling and re-grading eroded surfaces, and clearing, marking, painting and posting of trails and lines.

Waterfowl Management

At present the Bureau conducts three activities that involve waterfowl management: banding, breeding surveys, and habitat manipulation. These activities allow the department to assess the population and health of ducks on the marsh and to assist the Federal government in the setting of waterfowl hunting seasons.

Spring Banding/ Brood Surveys

Each year, one of the first surveys to be conducted is the spring nesting and banding survey. Wood ducks are the primary species of waterfowl found in the nesting boxes at AMWMA but hooded mergansers and goldeneye are also encountered in this survey. A wildlife staff person uses a ladder (nesting boxes are usually 10-12 feet off the ground, placed in trees) to determine if a female duck is nesting in the box. The nest box access hole is covered with a cloth and the box is opened from the bottom. The female, who is usually in a state of drowsiness, is taken from the box, banded and released. The banded duck soon returns to the nest box to settle on her eggs and resume brooding. Staff also keep track of the number of eggs found in each box and determine hatching success rates.

Late Summer Banding

As summer progresses the Bureau of Wildlife selects sites for banding and begins pre-baiting these sites. By now the young ducks have abandoned their nest box and are feeding in the marsh and are able to fly. Whole corn is placed at the banding site to lure the ducks. When ducks begin feeding at the site on a regular basis, preparations are made to set up a cannon net for future waterfowl capture. The cannon net consist of a large net that has rockets attached along its length. Each rocket is filled with an explosive propellant and electrically wired to a battery hidden in a blind. Wildlife staff arrives before day break and wait for the ducks to begin feeding at the site. While the ducks are feeding, the charges are exploded and the rockets carry the net over the ducks. The ducks are then taken from the net and placed in holding cages to await banding and release. Species, sex and age data are taken and recorded for future reference. Each year at Ausable Marsh the BOW will band between 70 and 100 ducks, primarily Wood Ducks with occasional Mallards and Black ducks.

Occasionally, large swim-in or land based clover traps are set in the marsh and baited to attract ducks. The ducks enter the trap through a one-way funnel to reach the bait and become trapped. These traps are baited the night before banding is to occur. Wildlife staff arrives early in the morning to remove the ducks from the trap and place them in holding cages to await banding and release. This technique is more labor intensive and catches fewer ducks at a time than the cannon net method described above

due to the size of the trap, and therefore requires more trap nights to band the same number of ducks. Additionally, predation by Great Horned Owls and other predators can sometimes become a problem at clover trap sites.

Winter Nest Box Evaluation

During the winter nest box surveys begin. Each box is cleaned of past nesting material. The egg fragments are looked at to determine successful nesting and species usage. Three inches of fresh wood shavings are placed in each box to mimic a natural cavity and produce a soft bed for eggs. At this time predator guards may be replaced and new boxes erected as needed.

Public Use

Management and maintenance activities take place at AMWMA to facilitate and encourage public use. Facilities and structures such as trails, vistas, parking areas, board walks, wildlife viewing platforms and boat launches are maintained and fish and wildlife habitat is managed to assist and promote the public use of the Wildlife Management Area for a variety of recreational and scientific purposes including small and big game hunting, trapping, fishing, hiking, bird watching, nature photography and natural resources education. In addition to management and maintenance activities, Forest Rangers and Environmental Conservation Officers from the DEC Office of Public Protection patrol AMWMA to insure the safe use of the management area by the public. DEC Wildlife and Operations Staff regularly inspect the facility and review trail head registers to analyze the levels of public use and determine additional management and maintenance needs.

Proposed Five Year Management Plan

The mission of the Bureau of Wildlife is “To provide the people of New York the opportunity to enjoy all the benefits of the wildlife of the state, now and in the future. This shall be accomplished through scientifically sound management of wildlife species in a manner that is efficient, clearly described, consistent with law, and in harmony with the public need". With this in mind, our primary objectives for the next five years for the future of AMWMA are the following:

Maintenance and Repair

We will maintain and repair existing structures such as dikes, level ditching, culverts, roads, trails, gates, barriers, boundary lines, signage, agricultural fields, board walks, parking areas, buildings, and boat launches. These projects will continue on an as needed basis, depending on monies available and priorities established by the Region 5 wildlife staff. Additionally, an effort will be made to map all existing structures and facilities with the use of a hand held GPS and update our inventories and facilities map.

The main dike road through AMWMA has come under disrepair in recent years and is no longer passable by vehicles. The repair of these dike roads is considered critical as they are utilized by the Bureau of Fisheries to facilitate the treatment of lampreys in the Ausable River.

The osprey nesting platforms at AMWMA are leaning and need to be addressed. The poles the platforms are on will be evaluated and if they are found to be in good shape, they will be straightened and cabled to anchors if necessary. If the poles are found to be rotten, they will be replaced.

Public Use

Three major public use related projects are planned for AMWMA. The first is to build two informational kiosks for brochures and an area location map which would display the marsh and nature trails. One kiosk will be placed at each of the two parking areas.

The second project will be to construct a five car parking area in the old agricultural field located between Route 9 and the railroad tracks, to provide access to the two old fields located there and the western edge of the marsh. The two old fields are currently in an advanced state of early succession and are very popular destinations for big and small game hunting. Hunters now park along the shoulder of Route 9 creating an unsafe situation for themselves and northbound traffic. The five car parking area will be surrounded on three sides by cedar posts or large boulders to prevent motor vehicle use in the fields. A standard facility sign and trail register will also be located here.

The third project will be to install signage on some of the natural sand beach areas to protect the communities of endangered Champlain beach grass found at AMWMA.

Wildlife Management:

The Bureau of Wildlife will continue to annually band waterfowl at its Ausable Marsh banding site, maintain nest boxes and check for usage during winter months, conduct annual spring banding of waterfowl from nest boxes, annually monitor osprey platforms and annually mow at least four acres to enhance waterfowl usage.

Osprey nesting platforms, blue bird nest boxes, wood duck nest boxes, puddle duck nesting structures (commonly known as "hen houses"), and goose nesting platforms will be constructed and installed as money becomes available. Priority should be given to the construction of two more osprey nesting platforms for the marsh.

The Bureau of Wildlife will continue to increase efforts to inventory and document the use of the Wildlife Management Area by fish and wildlife. Priority will be given to completing a comprehensive mammal survey.

Lamprey control will continue in both branches of the Ausable River and the on the Ausable River delta. The Bureau of Fisheries will continue to have the support of the Bureau of Wildlife and access throughout the WMA, including vehicular, to support every phase of this important program.

Controversy has continuously surrounded the culvert under the Ausable Point Road that connects Dead Creek to Lake Champlain. Although the Bureau of Wildlife does not own or control this road and culvert, we support the suggestion that a study be conducted to determine the impacts this culvert has on the hydrology and ecology of the marsh and Dead Creek. The hydrological connectivity the culvert affords allows fish to enter Dead Creek to spawn and in conjunction with the road causeway, holds spring flood water in the marsh to the benefit of the larval fish, nesting marsh birds, and osprey. Increasing the size of this culvert or replacing it with a bridge may potentially be detrimental to this benefit and will need to be carefully considered prior to reaching a decision about the fate of this culvert.

Vegetative Control

As years have passed, much of the open water space created by earlier construction has grown back to Cattails, Sedge and Lillypads. The cattails in particular have choked off the open water in the migratory

birds' breeding, nesting and feeding areas. At least once in the next five years the Bureau of Wildlife intends to thin some of the dense, monotypic cattail stands which have formed to create open water to benefit waterfowl and other marsh birds. Creation of open shallow water, fringed by cattail and other emergent vegetation, attracts not only waterfowl but other species as well such as great blue heron, green-backed heron, great egret, black-crowned night-heron, Virginia rail, sora, bitterns, common moorhen, black tern, king rail, sedge wren and pied-billed grebes.

Invasive and exotic species of vegetation (Phragmites, purple loosestrife, buckthorn) have been identified on the Wildlife Management Area. An intensive inventory of invasive species will be conducted efforts to track and control communities of invasive and exotic plants will increase. Currently, work plan's are submitted each year to the DEC Operations Unit to prevent the spread of these undesirable plant species, with the use of DEC operation and Student Conservation Association workers, volunteers, and prison crew labor from Moriah Shock who pull the vegetation by hand. The Bureau may also utilize techniques such as mechanical cutting, crushing, shearing, disking, application of herbicides, implementation of biological control, and water level manipulation or any of the other BMP's described in Appendix T (subject to necessary permits) for control and management of both invasive and overabundant native vegetation.

Several of the ecological communities present at AMWMA are fire and/or disturbance dependent. The Bureau plans to inventory the disturbance dependent species found at the management area and determine the management needs for these communities. Appropriate disturbance activities, such as controlled burning, mowing, thinning, selectively cutting trees, and clear-cutting, will be reviewed and implemented in accordance with the timber management handbook to promote the health of these species and the communities in which they are located.

Timber Management

A timber inventory was completed at AMWMA by Lands and Forests Staff in 2008. While most of the management area is too wet to withstand any intensive timber harvest, there are some forest stands that will be thinned for the benefit of wildlife. For example, much of the flood plain forest has a completely closed canopy with very little to no shrub or herbaceous layers. A small portion of the basal area made up of the mature trees in these stands will be girdled and left standing to serve as snags. This "thinning" will allow more sunlight to reach the ground and help to promote the growth of ground cover vegetation which will provide more varied food and shelter for wildlife species such as deer, woodcock, rabbits, turkey and ruffed grouse. Girdling large trees can be beneficial to wildlife because a snag (dead or dying tree) is created. Snags are important because they can provide feeding, nesting and roosting sites for a wide variety of wildlife. Overall, 35 species of eastern birds use tree cavities for cover and feeding, and many of these species will not nest elsewhere. Our target will be to achieve a density of approximately three snags of at least 12 inches diameter at breast height (dbh) or greater per acre, at least one of which will be a minimum of 15-inch dbh to serve as a den tree. All snags will remain in wildlife openings or within 100 feet of wetland or riparian areas. This timber management will be limited to that small portion (12 A) of the flood plain forest north of the north fork of the Ausable River, and only in the vicinity of the existing dike road. No forest management activities shall take place in the Flood Plain Forest, located along the Ausable River, unless such activities enhance native species habitat. Any harvest plan for this area must address safeguards for water quality and wetland protections. Prior to conducting any harvesting operations in the flood plain forest in Ausable Marsh WMA, the Dept will provide APA with an informational copy of our harvest plan. Additional wildlife management activities utilizing timber harvesting actions to improve wildlife habitat or increase wildlife productivity may be conducted when

and where feasible. A partial list of area birds and mammals known to utilize snags includes the following:

Birds species known to utilize snags	Mammals known to utilize snags
wood duck, kestrel, barn owl, screech owl, barred owl, chimney swift, common flicker, pileated woodpecker, hairy woodpecker, common merganser, hooded merganser, great crested flycatcher, black-capped chickadee, tufted titmouse, white-breasted nuthatch, house wren, Eastern bluebird, prothonotary warbler, downy woodpecker, red-headed woodpecker, tree swallow, wood-pewee, sapsucker, king bird, dark-eyed junco, turkey vulture, saw-whet owl, purple martin, brown creeper, three-toed woodpecker, red-breasted nuthatch	Opossum, little brown bat, Indiana bat, big brown bat, Northern bat, silver-haired bat, gray squirrel, red squirrel, flying squirrel, black bear, raccoon, bobcat, fisher, white footed mouse, chipmunk, porcupine, gray fox, ermine, skunk, mink

Permit Requirements

The Bureau of Wildlife will obtain all necessary Federal and State permits where necessary to accomplish the tasks and objectives outlined in this plan. Any regulated activity which may involve a freshwater wetland will not be undertaken prior to consultation and agreement with the Agency.

Schedule for Implementation and Estimated Budget

The following tables outline a schedule for implementation of the proposed management actions and their estimated costs. Accomplishments are contingent upon sufficient staffing levels and available funding. The estimated costs of implementing these projects are based on historical costs incurred by the Department for similar projects. Values for some projects are based on projected costs for service contracting. These cost estimates do not include capital expenditures for items such as equipment, nor do they include the value of program staff salaries.

Annual Maintenance and other Activities	Estimated Cost
Mow 4 acres of dike tops and 2 waterfowl banding sites.	$400
Perform general maintenance on 2 miles of administrative roads.	$700
Perform general maintenance on 2 miles of public access roads.	$2000
Perform general maintenance on 2 miles of foot/bike trails.	$250
Perform general maintenance on 50 feet of boardwalk and maintain universally accessible watchable wildlife platform.	$400
Paint, grease and replace signs, if needed, on the 2 WMA access gates.	$500
Perform general maintenance on the 3 WMA boat launches.	$1000
Perform general maintenance on 3 vehicle parking areas.	$400
Inspect, repair, control vegetation around and perform general maintenance as needed on 10 interpretive signs and 2 facility signs.	$3000 & 1 person day
Inspect and maintain 40 wood duck boxes, 12 blue bird boxes, and 3 osprey platforms.	$300 & 8 person days
Inspect and perform general maintenance on 12 culverts.	$300 & 1 person day
Inspect and perform needed repairs of 5000 feet of dike and spillway.	$1000 & 2 person days
Perform general maintenance on 400 feet of level ditches and 3 potholes including needed dredging and unwanted vegetation removal.	$5200 & 3 person days
Paint and sign 3 miles of AMWMA boundary lines.	$1000
Total	**$16,450 & 15 person days**

Year 1	Estimated Cost
Inventory invasive plant species	$6,000 & 5 person days
Research, survey and mark the boundary lines on the SunLee Village cartop boat launch parcel.	5 person days
Remove undesirable vegetation to create pockets of open water in marsh.	$ 10,000 & 5 person days
Reinstall 2 platforms / replace 1 osprey platform in entirety.	$ 2000 & 5 person days
Top-dress 5 miles of dike road with 2 inches crusher run stone including filling of sink holes and potholes (350 yards).	$ 40,000 & 5days
Total	**$58,000 & 25 person days**

Year 2	Estimated Cost
Implement invasive plant species controls as determined appropriate from inventory.	$ 9000 & 10 person days
Construct 5 car parking area.	$ 4000 & 2 person days
Develop and build Champlain beach grass signs.	$350 & 2 person days
Total	**$13,350 & 14 person days**

Year 3	Estimated Cost
Construct and install two kiosks	$3000
Install Champlain beach grass signs along beach.	$1000
Perform timber stand improvement (TSI) cutting and tree girdling on section of flood plain forest that is accessible.	15 person days
Inventory disturbance-dependent plant species.	$6,000 & 5 person days
Total	**$10,000 & 20 person days**

Year 4	Estimated Cost
Conduct comprehensive mammal survey.	$7000 & 5 person days
Implement management of disturbance-dependent plants as determined appropriate from inventory completed in year 2.	$ 7000 & 10 person days
Total	**$14,000 & 15 person days**

Year 5	Estimated Cost
Re-inventory invasive plant species.	$6000 & 5 person days
Implement 2nd phase of management of disturbance-dependent plants as determined appropriate from inventory completed in year 2.	$7000 & 10 person days
Conduct environmental impact reveiw of impacts related tp replacing culverts constricting flows at Dead Creek Marsh with a bridge.	5 person days

Year 5	Estimated Cost
Total	**$13,000 & 20 person days**

Cost Summary

Annual Maintenance Costs: **$ (5 years @ 16,450)=82,250 and (5 years @ 15 person days) = 75 person days.**

Five Year Specific Projects Total: $ **108,350 and 94 person days.**

Total Costs for AMWMA for 5 years: $ **190,600 and 169 person days**

B. Pauline Murdock Wildlife Management Area

Preface

State lands are classified according to "their characteristics and capability to withstand use". Those lands administered by the Department of Environmental Conservation (DEC) are classified into nine basic categories: Wilderness, Primitive, Canoe Area, Wild Forest, Intensive Use, Historic, State Administrative, Wild Scenic and Recreational Rivers and Travel Corridors. Each classification carries an explicit set of guidelines which will, when implemented, provide the State lands of the Park with a unique blend of resource protection and public use.

The State lands of the Adirondack Park were categorized by the Adirondack Park State Land Master Plan (APSLMP) in 1972. The APSLMP was legislated as part of the Adirondack Park Agency Act and was designated to provide a unified and comprehensive mandate on how the State lands of the Adirondack Park should be managed and used. To accomplish this objective, the APSLMP mandates that DEC will conduct its oversight and management responsibilities of State lands through a formal unit management plan (UMP) specific to each land unit under its control. These UMP's translate the objectives of the APSLMP and related legislation, legal codes, rules, regulations, and policies to in-the-field management actions. Ordinarily, these plans are based on a five year time frame so that revisions can be made reflecting changes in resource and/or sociological conditions. Plans may also be amended or revised sooner if warranted.

The subject of this management plan is a Wildlife Management Area (not part of the forest preserve) that is designated a Wild Forest. The APSLMP, in part, describes wild forest as an area where "..the resources permit a somewhat higher degree of human use than in wilderness, primitive or canoe areas, while retaining an essentially wild character." A wild forest is further defined as an area lacking "...the sense of remoteness..." found in wilderness areas and "...permits a wide variety of outdoor recreation." Areas classified as wild forest are generally less fragile, ecologically, than wilderness or primitive areas and can accommodate more human use. The APSLMP indicates that the primary wild forest management guideline will be "...to protect the natural wild forest setting and to provide those types of outdoor recreation that will afford public enjoyment without impairing the wild forest atmosphere." One of the biggest challenges in wild forest management is how to accommodate the growing numbers of people utilizing the variety of outdoor recreational opportunities provided by wild forests without degrading their character or natural resource quality.

Definition of Wild Forest

Adirondack Park State Land Master Plan

A wild forest area is an area where the resources permit a somewhat higher degree of human use than in wilderness, primitive or canoe areas, while retaining an essentially wild character. A wild forest area is further defined as an area that frequently lacks the sense of remoteness of wilderness, primitive or canoe areas and that permits a wide variety of outdoor recreation.
To the extent the state lands classified as wild forest were given or devised to the state for silvicultural or wildlife management purposes pursuant to statutory provisions specifying that these lands will not form part of the forest preserve (if such provisions are constitutional), the following guidelines are not to be interpreted to prevent silvicultural or wildlife management practices on these lands, provided that other guidelines for wild forest land are respected.

Management Goals

The overall intent of this management plan is to emphasize the dual purposes for which the Pauline Murdock Wildlife Management Area (PMWMA) was created, namely for the protection and management of the available natural resources and to provide recreational opportunities for the general public. The PMWMA UMP will provide a framework through which active management of the available natural resources will occur while allowing the public access to utilize the wide variety of outdoor recreational opportunities available at the site. PMWMA has seven different ecological communities. This variety in habitat types allows for a great deal of diversity in fish and wildlife species and recreational activities. A concerted effort by all parties, public and private, is needed to implement the following management goals:

- To manage for the protection and enhancement of the available natural resources to ensure the perpetuation of indigenous fish and wildlife species.
- To provide for a variety of outdoor recreational opportunities without negatively impacting on the wild forest character of the area.

Section I: Introduction to the Pauline Murdock Wildlife Management Area

Area Overview

The 68.5 acre Pauline Murdock Wildlife Management Area (PMWMA) is located in Essex County, Town of Elizabethtown. The property is located approximately one-half mile east of the village of Elizabethtown and is accessible by Essex County Route 8, also known as the Elizabethtown-Wadhams Road.

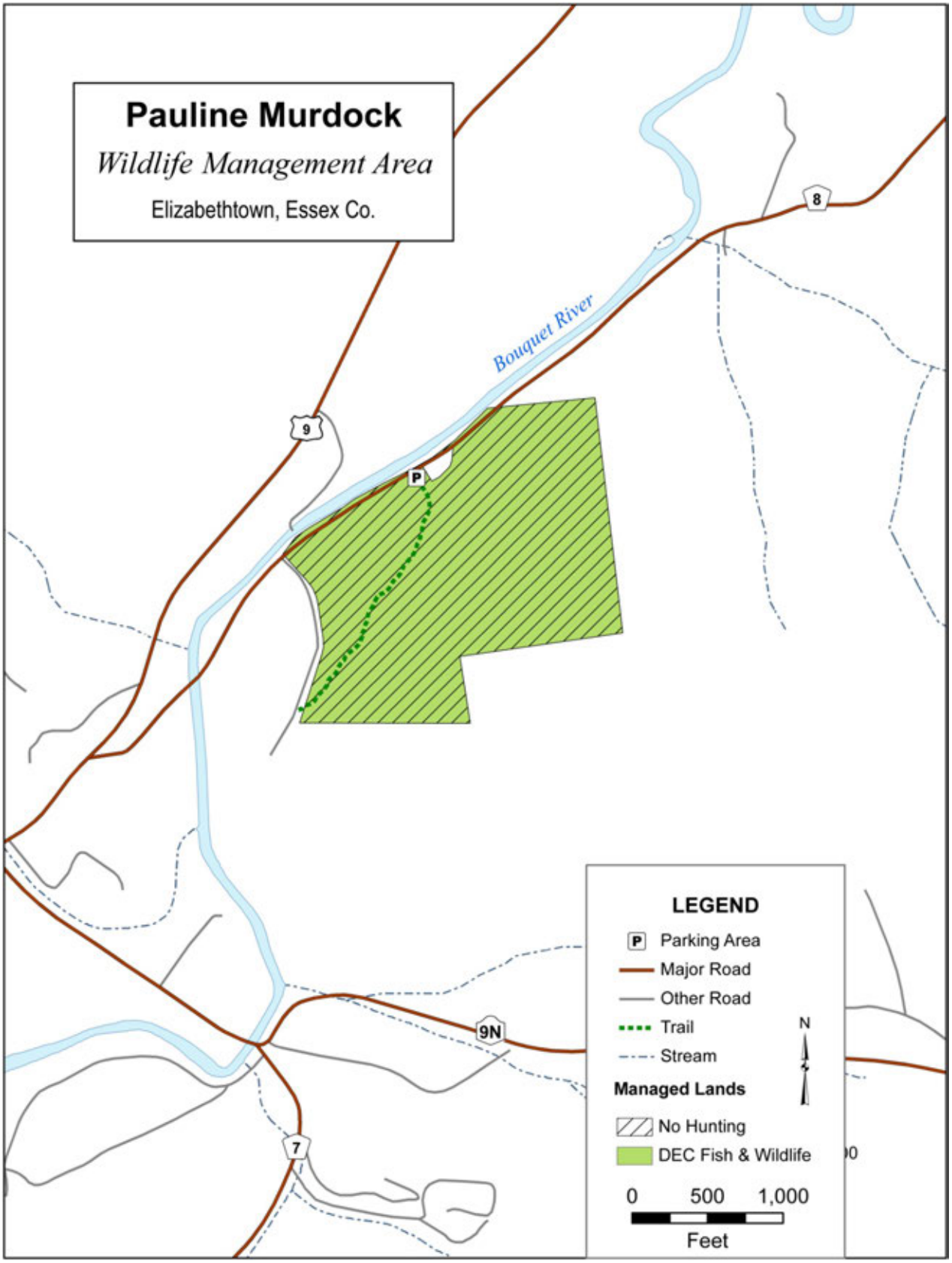
Access to PMWMA is gained from a six car parking area located near the center of the north western boundary along County Route 8, adjacent to a residence on a private parcel. A large sign and standard indicate the parking area.

The property is classified as Wild Forest under the Adirondack Park State Land Master Plan (APSLMP) classifications. In 1974, the property was received as a gift from Mr. Robert B. Murdock, in memory of his wife Pauline. It was accepted as a state refuge to enhance and perpetuate local wildlife. When gifting the lands to the State Mr. Murdock retained the hunting rights on the property. His retention of the hunting rights precludes public hunting on the lands.

The PMWMA is home to seven different ecological communities. Although no rare or significant communities are present, the northern white cedar rocky summit contains some impressive rock outcrops and steep slopes. An impressive view of the surrounding Adirondack Mountains and the Village of Elizabethtown below can be gained from here and is well worth the short hike from the parking area.

Boundary

The wild forest lands within this unit consist of 68.5 acres situated in the Town of Elizabethtown, Essex County. Within the wildlife management areas there are no private land in-holdings. PMWMA follows public roads, water courses and individual property lines. It is bounded on the north by the Boquet River, on the east by State Forest Preserve, and on the south and west by private landowners. The PMWMA property lines have been surveyed, blazed, painted yellow, and marked with Wildlife Management Area signs.


Pauline Murdock
Wildlife Management Area
Elizabethtown, Essex Co.
Bouquet River
8
9
P
9N
7
LEGEND
Parking Area
Major Road
Other Road
Trail
Stream
Managed Lands
No Hunting
DEC Fish & Wildlife
N
0
500
1,000
Feet

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The computed acreage, compiled by Kenneth F. Yousey, licensed land surveyor of the NYSDEC, Bureau of Real Property Services at Ray Brook, is 68.5 acres. A survey of the area was completed in 1974 by Mr. Yousey. The deed reference is: Pauline L. Murdock, Liber 288, page 477.

The adjacent properties surrounding PMWMA include

North - The northerly boundary, Iron Ore Tract Lot 220 consists of: The Boquet River, Essex County Route 8, the properties now or formerly of Mr. Carl Lindeman (formerly of the Rex Smith property) and Mr. Herman B. Burz.

East - The easterly boundary, Iron Ore Tract Lot 219 consists of the property now or formerly of Mr. Herman B. Burz.

South - The southerly boundary, Iron Ore Tract Lot 214 consists of the properties now or formerly of Mrs. Nide Kennedy and Juliette B. Murdock.

West - The westerly boundary consists of the High Meadows Road, the property now or formerly Mr. Robert B. Murdock and Adirondack Forest Preserve (Q-AFP, Essex 256B).

Primary Access

The primary points of entry to PMWMA are Essex County Route 8 and the High Meadows Road.

A six car parking area is located on the northwest corner of the management area and is accessed from Co Rt. 8 - a large sign and standard indicate the parking area. From the parking area individuals can hike the trail that crosses the old canal and leads up a steep slope into the forest. A staircase made of log cribbing makes the climb a little easier but is not suitable for universal access. This trail eventually leads to the High Meadows Road, however there is no parking area located there.

Section II: Biophysical Resources

Geology

The United States Geologic Survey Reference Map, 15 minute series, is entitled, Elizabethtown. The parcel is composed of 5.1 acres of flood plain and 63.4 acres of moderately steep mountain slope. A manmade canal clearly accentuates the terminus of the flood plain and base of the mountain. This canal now directs snow melt and rainfall to a very small manmade pond which is impounded by a log-crib dam. After the water leaves the pond it quickly makes its way to the Boquet River. In flood situations water from the river will sometimes back up to the log-crib dam.

Most of the property faces a northwesterly aspect and the range of elevation is 540-900 feet above sea level.

The property lies on the edge of the precambrium shield which consists of granitic bedrock. Land formations were carved by glaciers and the eroding movement of what is now the Boquet River.

Soils

The well-drained flood plain is characterized by deep, sandy, friable sediments of the Colton, and to a lesser degree, the Windsor Soil Associations (USDA, 1975). A pH test was made in 1975 and determined

to be 5.8 by Essex County Soil Conservation Service. The Canaan-Rock outcrop association predominates the property acreage and characterizes the moderately steep, well-drained and shallow soils (USDA, 1975). Soil depth can vary from 10-20 inches to exposed boulders. A small portion of the northeast section of the property is classified in the Herman Association. Also, well-drained they differ from Canaan-Rock outcrop in formation and the obvious presence of numerous cobblestones and boulders (USDA, 1975). The productivity of the soil in this area for forest growth is considered low by Stout (1958).

Wetlands

Wetlands are transition areas between upland and aquatic habitats. Wetland ecosystems generally exhibit three essential characteristics: (1) hydrophitic (wetland) vegetation, (2) hydric soils (soils that are saturated with water long enough to develop anaerobic conditions in the upper part), and (3) wetland hydrology (water).

Approximately 5 acres of the management area located at the base of the moderately steep mountain slope is flood plain. A manmade canal located at the toe of the mountain clearly accentuates the terminus of the flood plain. This canal now directs snow melt and rainfall to a very small man made pond which is impounded by a log crib dam. After passing the dam the waters continue for a short distance to the Boquet River. The soils in this flood plain do not support hydric characteristics, therefore there are no wetlands on the property.

Climate

Mordoff (1949) indicates an approximate 135-day period when this area will be free of frost. Furthermore, annual snowfall and precipitation is expected to be 60-80 inches and 35-40 inches, respectively.

Open Space

The natural landscape of PMWMA is an important element of the Wild Forest and affords individuals with interesting observations. The 5 acre flood plain is a regnerating old field that currently supports a variety of grasses and wild flowers. Numerous species of birds, butterflies, dragonflies and damselflies can be observed on the PMWMA.

PMWMA is home to seven different ecological communities. Although no rare or significant communities are present, the northern white cedar rocky summit contains some impressive rock outcrops and steep slopes. An impressive view of the surrounding Adirondack Mountains and the Village of Elizabethtown below can be gained from here and is well worth the short hike from the parking area along the 700 yard nature trail. The trail begins with a steep climb after crossing the log crib dam but then levels off for the remaining distance. It offers hikers pleasant views of songbirds as it winds through the boreal northern forest. A short bushwhack is required to explore the rock outcrops.

Vegetation

Ecological communities can be defined as a variable assemblage of plants and animals interacting with one another in a common environment, occupying a habitat, and often modifying the habitat (Reschke 1990). Seven different ecological communities have been identified at PMWMA (New York Natural Heritage Program 1993). These communities are broken down from two system types: palustrine

(associated with wetland areas) and terrestrial (upland areas); and eight subsystems. The four subsystems found in the unit are displayed in the table below:

System	Subsystem	Ecological Community
Palustrine	Forested Mineral Soil Wetlands	Red maple- hardwood swamp
		Hemlock- hardwood swamp
Terrestrial	Open Peatlands	Successional old field
	Barrens and Woodlands	Northern white cedar rocky summit
	Forested Uplands	Hemlock- northern hardwood forest
		Pine- northern hardwood forest
		Successional northern hardwood forest

The flood plain currently exists in a pioneer old field successional stage. A variety of grasses and wildflowers compliment the area and provide seasonal color change. Wild grape vines cling to the remaining fence posts and wire. Raspberry, lilac and red barberry bushes denote buried building foundation sites. White pine, quaking aspen, speckled alder and fire cherry are the primary woody plants.

The mountain slope is a mature white pine-northern hardwood forest. The primary forest species include white pine, eastern hemlock, sugar maple, beech, red pine and red oak. The vegetative species found on the WMA to date includes; 31 woody plants, 7 shrubs, 8 ferns and 30 wildflowers.

Wildlife

PMWMA consists of seven different ecological communities ranging from successional old field to mature hardwood forests. This variety in habitat allows the area to support diverse fish and wildlife populations. Field inventories of wildlife species have not focused specifically on PMWMA. However, various inventory projects undertaken by the Department of Environmental Conservation and others have included the PMWMA in their scope.

Fish

The northern boundary of the property is the Boquet River. The River provides excellent brown and rainbow trout fishing. Stocked and naturally produced fish are found in good numbers. A stream survey was conducted a short distance downstream in July 1965 by the NYSDEC Fisheries Unit in Ray Brook. The survey revealed the presence of several species including the relatively rare trout perch. A fishing access parking area is located adjacent to PMWMA but in times of heavy use parking sometimes overflows into the PMWMA parking area.

Section III: Man and the Pauline Murdock Wildlife Management Area

History and cultural resources

The history of the Adirondack Mountains is long and varied. Spanning more than 10,000 years, it includes Native American settlements, early Euro-American settlements, French and British exploration and occupation, numerous military conflicts, and a dynamic period of commercial development in the 19th century. Prior residents of the Adirondacks left behind rich cultural resources including historic structures and settlements, cultural landscape resources such as agricultural or wooded landscapes, archeological resources both on land and underwater, and Native American cultural properties. Many cultural sites are concentrated along the lakeshores and tributary waterways, where historic and prehistoric resources include ancient Native American villages, campsites and cemeteries.

PMWMA has no standing prehistoric or historic buildings. In the recent past (prior to acquisition by the New York State), the lands which now encompass PMWMA were utilized for timber harvesting and agricultural production. The trees from the deciduous forests were harvested for use in local wood stoves - heating individual residences. Drier upland areas were tilled and used for crop production, while wetter areas were often fenced as pasture. Undoubtedly, cranberries and blueberries were harvested and fishing, hunting and trapping were significant activities in the area - providing extra food (supplementing agricultural production) and income (through the sale of furs). The natural resources associated with the PMWMA have always been utilized by man, though the evidence of such use may not always be readily evident.

Similar to other portions of the Adirondacks the first users of this property were Indians. Arrowheads and hatchets have been found in the area by local residents.

The Village of Elizabethtown was settled in 1795. The initial industries of the area consisted of lumbering and mining, which contributed greatly to the development of the village. Eventually mining of ore led to the development of several foundries and forges. The Valley Forge and Sawmill were established in 1846 by Messrs. Whallon and Judd on the flood plain of the property. Grey's Atlas of 1876 indicates four dwellings on the property.

Remnants of the old forge are still visible today and approximately 600 feet of the one mile canal remains on the property. At one time this canal diverted water upstream on the Boquet River to the forge and provided the necessary water for the operation of the forge's hammer. The water passed through the waterwheel and was quickly returned to the Boquet.

In 1910 the forge was dismantled and the owner of the property at that time, Mrs. Hale, had instructed Mr. Clark, the caretaker, to create a small pasture on the property. After this work was completed Mrs. Hale maintained approximately six head of cattle for a number of years. At approximately the same time a forest fire struck the property. Several fire-scarred trees and stumps are still visible today.

Historic Sites

Archaeological-historic research in the PMWMA has neither been extensive nor well defined. Native peoples traveled through the area, utilizing the available natural resources in their hunting and foraging expeditions, and may have established settlements in the area. No state or federally listed historic sites are present at PMWMA.

Similar to other portions of the Adirondacks, the first users of this property were Native Americans. Historically arrowheads and hatchets were found on the land by local residents denoting the properties historical inhabitants.

Economics

The Village of Elizabethtown was first settled in 1795. The initial industries of the area consisted of lumbering and mining, which contributed greatly to the development of the Village. Eventually mining of ore led to the development of several foundries and forges. The Valley Forge and Sawmill were established in 1846 by Messrs. Whallon and Judd on the flood plain of the property. The Essex County Historical Society located in Elizabethtown has French's Atlas of 1858 which identifies the Whallon Foundary and Saw Mill. In 1864, Whallon and Judd sold their company to the owners of Essex and Lake Champlain Ore and Iron Company. This was verified by review of Grey's Atlas - 1876 and indicated four dwellings.

In July 1975, during an interview with Mr. Virgil Clark, a 95-year old native resident of the Village, he indicated he helped in dismantling the forge in 1910. The owner of the property at that time, Mrs. Hale, had instructed Mr. Clark to create a small pasture on the property. After this work was completed, Mrs. Hale maintained approximately six head of cattle for a number of years. At approximately the same time a forest fire struck the property. Several fire-scarred trees and stumps are still visible today.

From 1920 to 1949 the property had little, if any, human disturbance and remained unchanged. Two or three very small private dumps were established during this period. In 1950 a selective timber harvest was conducted. Great care was taken by the logger to remove trees as evidenced by several switchback logging trails existing on the mountain slope.

In 1953 Mr. and Mrs. Robert B. Murdock purchased the property and did little to change its appearance. Shortly after the death of his wife, Mr. Murdock donated to the People of New York State 68.5 acres of land in her name (Pauline).

Use and Users

Local residents use the area for nature study, horse-back riding, parking to access the Boquet River for fishing, bird watching and photography. The 700 yard long nature trail is used during all seasons of the year and the management area is a popular destination for local birders. Teachers from the Elizabethtown Lewis Central School utilize the property for Environmental Education classes and green way access. Interest in further development of the trail system on PMWMA has been expressed by both recreational users and local government.

Adjacent Land Users

Industrial or commercial property is not in close proximity to the property. Neighborhood properties show similar rural, well landscaped characteristics. An adjacent parcel is classified as State Forest Preserve.

Section IV: MANAGEMENT

Historic Management Activities

During the spring of 1976, an attempt was made to create a shrub buffer between the county highway and the property. A planting of 250 hazelnut (*Corylus americana*) and 30 highbush cranberry (*Viburuum trilobum*) shrubs was made, however, due to adverse soil and weather conditions only a few shrubs survived. These efforts were not considered successful.

In 1977 construction of a small log-crib dam was completed to create a three-quarter acre marsh. Unfortunately, the drainage properties of the soil were underestimated and the construction did not result in optimum marsh development.

The most recent management activities undertaken by the Bureau of Wildlife include the construction of the parking area, the hiking trail, and the placement of a foot bridge and three blue bird nesting boxes. Due to the natural process of forest regeneration the open field that was once habitat for blue birds no longer exists. The blue bird boxes that were installed no longer serve the purpose they were intended for and have been allowed to naturally degrade. The other facilities will be replaced, upgraded and maintanined as needed.

Current Management Activities

The Bureau of Wildlife plans to install a kiosk at the parking area and trail head with a large map that shows the trails and facilities of the WMA with information about the wildlife and habitats that can be observed there.

In addition to the kiosk a new multiple use trail is planned to be developed in cooperation with local governments and other interested parties on PMWMA. The new trail will include relocation of the old canal crossing bridge and log stairs. From the starting point the hiking trail will wind its way up to the summit of the property ending above the rock outcropping. This trail will provide access to the summit of teh property which provides exspansive scenic views of the adjacent community and surrounding area.

Proposed Five Year Management Plan

The mission of the Bureau of Wildlife is “To provide the people of New York the opportunity to enjoy all the benefits of the wildlife of the state, now and in the future. This shall be accomplished through scientifically sound management of wildlife species in a manner that is efficient, clearly described, consistent with law, and in harmony with the public need". With this in mind, our primary objectives for the next five years for the future of PMWMA are the following:

Maintenance Repair and New Construction

We will maintain and repair existing structures such as wildlife openings, dams, level ditches, culverts, trails, boundary lines, signage, board walks, bridges and parking areas. These projects will continue on an as needed basis, depending on monies available and priorities established by the Region 5 wildlife staff. Additionally, an effort will be made to map all existing structures and facilities with the use of a hand held GPS and update our inventories and facilities map.

The multiple use trail at PMWMA utilizes a log and fill staircase to make the assent up the steep slope and reduce erosion. A few of the log timbers have come out of place and need to be repaired and a few

have rotted and need to be replaced. The Division of Operations may use a crew from Moriah Shock Facility and hemlock harvested on site to repair this staircase and return its function or reroute the trail to a better location which would require removal of the old stair case.

The second project we have planned for PMWMA is to blaze and mark a spur off the hiking trail up to the summit of the rock outcropping since this is such a unique and interesting part of the management area. Lastly, The Bureau of Wildlife plans to install a kiosk at the parking area with a large map that shows the trails and facilities of the WMA with some information about the wildlife and habitats that can be observed there.

Public Use

Currently, this property recieves less use than other WMA's since hunting is not allowed due to deed restrictions that were placed on the property when it was given to the State. Since the use levels are so low on this property the Bureau has focused its energies on other WMA units. The PMWMA has not been actively managed except to maintain existing facilities. In order to provide additional recreational oportunities on this property the Department in coordination with local government and other interested parties, plans to expand the multiple use trail system which is currently the main draw to the area.

Permit Requirements

The Bureau of Wildlife will obtain all necessary Federal and State permits where necessary to accomplish the tasks and objectives outlined in this plan. Any regulated activity which may involve a freshwater wetland will not be undertaken prior to consultation and agreement with the Agency.

Schedule for Implementation and Estimated Budget

The following tables outline a schedule for implementation of the proposed management actions and their estimated costs. Accomplishments are contingent upon sufficient staffing levels and available funding. The estimated costs of implementing these projects are based on historical costs incurred by the Department for similar projects. Values for some projects are based on projected costs for service contracting. These cost estimates do not include capital expenditures for items such as equipment, nor do they include the value of program staff salaries.

Annual Maintenance and other Activities	Estimated Cost
Mow 1 acre of grassland.	$100
Perform general maintenance on 1.5 miles of foot/bike trails.	$200
Perform general maintenance on timber filled steps.	$400
Perform general maintenance on 1 vehicle parking area and 1 vehicle pull off.	$400

Annual Maintenance and other Activities	Estimated Cost
Inspect and perform general maintenance on 1 foot bridge	$200 & 1 person day
Inspect and perform general maintenance on 1 culvert.	$100 & 1 person day
Inspect, repair, control vegetation around and perform general maintenance as needed on facility signs.	$200 & 1 person day
Work with local government and other interested parties to maintain the multiple use trail system to the summit of the property.	$100 & 2 person days
Inspect and perform needed repairs of 2050 feet of level ditch and spillway.	$1000 & 2 person days
Paint and sign 0.5 miles of PMWMA boundary lines.	$100
Total	**$2800 &** **7 person days**
Year 1	**Estimated Cost**
Inventory invasive plant species.	$6000 & 5 person days
Work with local government and other interested parties to expand the multiple use trail system to the summit of the property.	$3000

Year 1	Estimated Cost
Total	**$9,000 &** **5 person days**

Year 2	Estimated Cost
Implement invasive plant species controls as determined appropriate from inventory.	$9000 & 10 person days
Construct a 1/2 mile of new foot trail from existing trail along rock outcropping.	$1000 & 3 person days
Total	**$10000 &** **13 person days**

Year 3	Estimated Cost
Construct and install 1 kiosk	$1500
Total	**$1500**

Year 4	Estimated Cost
Conduct comprehensive mammal survey.	$7000 & 5 person days
Total	**$7000 & 5 person days**

Year 5	Estimated Cost
Re-inventory invasive plant species.	$6000 & 5 person days
Total	**$6000 & 5 person days**

Cost Summary

Annual Maintenance Costs: **$ (5 years @ 2,800) =14,000 and (5 years @ 7 person days) = 35 person days.**

Five Year Specific Projects Total: $ **33,500 and 28 person days.**

Total Costs for PMWMA for 5 years: $ **47,500 and 63 person days**

C. Wickham Marsh Wildlife Management Area

Preface

State lands are classified according to "their characteristics and capability to withstand use". Those lands administered by the Department of Environmental Conservation (DEC) are classified into nine basic categories: Wilderness, Primitive, Canoe Area, Wild Forest, Intensive Use, Historic, State Administrative, Wild Scenic and Recreational Rivers and Travel Corridors. Each classification carries an explicit set of guidelines which will, when implemented, provide the State lands of the Park with a unique blend of resource protection and public use.

The State lands of the Adirondack Park were categorized by the Adirondack Park State Land Master Plan (APSLMP) in 1972. The APSLMP was legislated as part of the Adirondack Park Agency Act and was designated to provide a unified and comprehensive mandate on how the State lands of the Adirondack Park should be managed and used. To accomplish this objective, the APSLMP mandates that DEC will conduct its oversight and management responsibilities of State lands through a formal unit management plan (UMP) specific to each land unit under its control. These UMP's translate the objectives of the APSLMP and related legislation, legal codes, rules, regulations, and policies to in-the-field management actions. Ordinarily, these plans are based on a five year time frame so that revisions can be made reflecting changes in resource and/or sociological conditions. Plans may also be amended or revised sooner if warranted.

The subject of this management plan is a WILDLIFE MANAGEMENT AREA (not part of the forest preserve) that is designated a WILD FOREST. The APSLMP, in part, describes wild forest as an area where "..the resources permit a somewhat higher degree of human use than in wilderness, primitive or canoe areas, while retaining an essentially wild character." A wild forest is further defined as an area lacking "...the sense of remoteness..." found in wilderness areas and "...permits a wide variety of outdoor recreation." Areas classified as wild forest are generally less fragile, ecologically, than wilderness or primitive areas and can accommodate more human use. The APSLMP indicates that the primary wild forest management guideline will be "...to protect the natural wild forest setting and to provide those types of outdoor recreation that will afford public enjoyment without impairing the wild forest atmosphere." One of the biggest challenges in wild forest management is how to accommodate the growing numbers of people utilizing the variety of outdoor recreational opportunities provided by wild forests without degrading their character or natural resource quality.

Definition of Wild Forest

Adirondack Park State Land Master Plan

A wild forest area is an area where the resources permit a somewhat higher degree of human use than in wilderness, primitive or canoe areas, while retaining an essentially wild character. A wild forest area is further defined as an area that frequently lacks the sense of remoteness of wilderness, primitive or canoe areas and that permits a wide variety of outdoor recreation.

To the extent the state lands classified as wild forest were given or devised to the state for silvicultural or wildlife management purposes pursuant to statutory provisions specifying that these lands will not form part of the forest preserve (if such provisions are constitutional), the following guidelines are not to be interpreted to prevent silvicultural or wildlife management practices on these lands, provided that other guidelines for wild forest land are respected.

Management Goals

The overall intent of this management plan is to emphasize the dual purposes for which the Wickham Marsh Wildlife Management Area (WMWMA) was created, namely for the protection and management of the available natural resources and to provide recreational opportunities for the general public. The WMWMA UMP will provide a framework through which active management of the available natural resources will occur while allowing the public access to utilize the wide variety of outdoor recreational opportunities available at the site. WMWMA has seventeen different ecological communities, including three rare communities. This variety in habitat types allows for a great deal of diversity in fish and wildlife species and recreational activities. A concerted effort by all parties, public and private, is needed to implement the following management goals:

- To manage for the protection and enhancement of the available natural resources to ensure the perpetuation of indigenous fish and wildlife species.
- To provide for a variety of outdoor recreational opportunities without negatively impacting on the wild forest character of the area.
- To protect and manage if necessary, the three rare ecological communities found at WMWMA to insure that they remain a part of New York State's biological diversity.

Section I: Introduction to Wickham Marsh Wildlife Management Area

Area Overview

The Wickham Marsh Wildlife Management Area (WMWMA) is composed of 683 acres of State land, classified as Wild Forest by APSLMP, along the western shore of Lake Champlain in the Town of Chesterfield, Essex County.

Wickham Marsh is located in a deep basin behind a man-made earthen berm at its confluence with Lake Champlain. The water levels in the marsh are controlled by the adjustable height railroad tie dam (tie dam) upstream of the Lake Street Bridge. The basin has been filled over thousands of years by eroded material carried from the steep sided ridges that surround the marsh on three sides. Additionally the spring flood waters carrying silt from Lake Champlain back feed into the marsh depositing new material. These depositions have created a fertile area at the Lake's edge which has been utilized by flora, fauna and mankind for centuries. Humans have used this area for agriculture, timber harvesting, hunting, trapping and fishing.

Interest by the State in purchasing this marsh for the purposes of wetland protection and wildlife management began in the early 1940's. In 1950 the Department of Environmental Conservation (DEC) purchased 176 acres from the Watson Estate. Additional acquisitions of contiguous property occurred in 1970 when two parcels, 136 acres from Loyola Villa and 371 acres from the Mattig Corporation, were purchased. As a result, the wildlife management area consists of 683 acres of upland forest and freshwater wetlands.

Since its inception, the natural resources of the Wickham Marsh Wildlife Management Area (WMWMA) have been actively managed with the primary goal being the protection and enhancement of waterfowl nesting and brood-rearing habitat. Prior to the creation of the Adirondack Park and APSLMP, management techniques such as shoreline clearing and landscape manipulation including the construction of a water level control structure at the outlet of the marsh, potholes, level ditching, and

small islands - were utilized to enhance the available breeding and feeding habitat available to waterfowl. As a result of these measures, a variety of waterfowl including wood ducks, black ducks, mallards, green and blue winged teal, and common and hooded mergansers are readily observed on the management area. In addition, wood duck nest boxes have been erected throughout the area - these artificial nest locations mimic natural, but scarce, tree cavities.

Though the main purpose for the purchase of WMWMA was to protect habitat and manage for wildlife, it also provided individuals access to an area with diverse habitat types (there are seventeen different ecological communities associated with WMWMA). This diversity in habitat allows the area to support not only diverse populations of flora and fauna but an assortment of unique outdoor recreational opportunities as well.

With the main geologic features of the management area being Lake Champlain, hardwood forest and a large emergent marsh, it is of little or no surprise that hunters, anglers, trappers and bird watchers find the site of interest. It is not only the variety in habitats that bring people to the management area. The site is convenient. It is adjacent to two campgrounds, close to two urbanized areas, and open to the public. The City of Plattsburg is 18 miles to the north and the Village of Port Kent is just 0.5 miles away. The shores of Lake Champlain have relatively few , public or private areas available to meet the growing interest of the general population in outdoor recreation, it is anticipated that because of this lack of assess, public use of WMWMA will increase. This management plan will balance the needs of the natural resources with the desires of the general public.

Boundary

The wild forest lands within this unit consist of 683 acres situated in the Town of Chesterfield, Essex County. Within the wildlife management area there is one private land in holding, a large parcel of upland forest cuts into WMWMA from the northern boundary on Giddings Road (or Back Road). WMWMA follows public roads, water courses and individual property lines. It is bounded on the north by Giddings Road, on the east by Giddings Road and private landowners, on the south by State Route 373 and a private road, and on the west by private landowners. The WMWMA property lines have been surveyed, blazed, painted yellow, and marked with Wildlife Management Area signs.

Primary Access

The primary points of entry to WMWMA are Giddings Road (also known as Back Road) and State Route 373. Giddings Road comes off State Route 9 just south of the Ausable River and runs east to Lake Champlain. It turns south along the shoreline and becomes Lake Street just south of WMWMA and enters the Village of Port Kent. Lake Street continues through the Village and intersects with State Route 373. Traveling west on Route 373 from Port Kent leads back to Route 9.

A six car parking area is located on the eastern corner of the management area and is accessed from Giddings Road - a large sign and standard indicate the parking area. From the parking area individuals can walk along the hiking trail that crosses the cattail marsh to gain access to the upland forests on the western side of the management area. Individuals can also access WMWMA from State Route 373 which runs along the southern boundary of the management area. A short dirt road leads to another six car parking area, and the additional hiking trails that are located there. A trail from the Campground of America, located to the west of the Wildlife Management Area on State Route 373, also provides access to WMWMA.

An ADA compliant wildlife observation platform, along with another six car parking area, is located along the northern boundary of the management area on Giddings Road. A large sign and standard indicate the parking area. From the parking area a short walk along a flat, stone dust path leads to the wildlife observation platform. A Lake Champlain Marshes Bird Conservation Area kiosk is located in the center of the trail tread along the path. Although there aren't any hiking trails in this section of WMWMA, access to the marsh and a northern white cedar swamp can be gained from here by traversing down a steep slope on foot from the parking area.

The launching of car top boats is possible from several vehicle pull-off spots along Giddings Road and the six car parking lot, on the eastern boundary of the WMWMA.

Section II: Biophysical Resources

Geology

The land forms visible today throughout the Lake Champlain Valley are largely a product of ancient mountain building processes and the erosional forces of glaciers. The Champlain Valley was formed over 450 million years ago when the North American and European tectonic plates collided; forcing great blocks of land between what are now the Green Mountains and the Adirondacks to drop down.

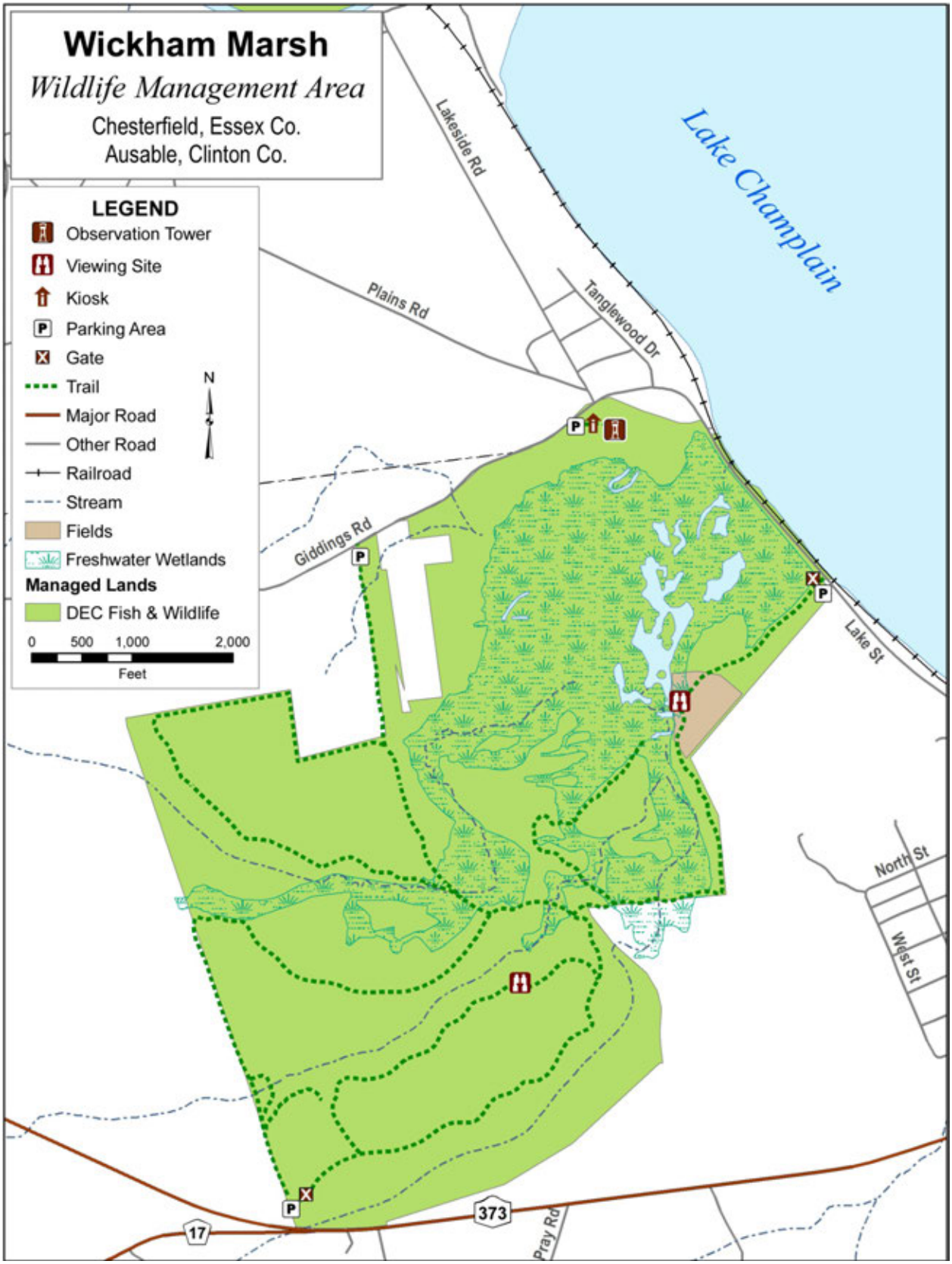
Over time, the shape of the valley changed as glaciers plowed over the land, picking up sand, gravel and rock. This debris acted like sandpaper and scoured the mountains as it went, resulting in the "U-shaped" valleys characteristic of the region. During the Pleistocene Epoch 1.6 million years ago, huge ice sheets advanced and retreated several times over the Champlain Valley.

The last major glacier to affect the Champlain Valley, the Wisconsian, occurred over 21,000 years ago and was thick enough to bury the summit of Mt. Marcy (5,344 feet above present day sea level). As the glacier began to melt around 13,000 years ago, piles of sand, gravel, and rock were left along its edge. Streams of water from the melting glacier carried and deposited a large amount of these materials, as well as various silts and clays, into the Champlain Valley. Water and snow melt continue to shape the landscape, gradually wearing down the mountains and carrying sediments to Lake Champlain.

The melt water from a massive lobe of ice, left by the retreating glacier, within the valley, formed the ancient Lake Vermont - which extended from the Green Mountains to the Adirondacks. About 12,000 years ago, when Lake Vermont drained and the St. Lawrence Valley became ice free, salt water flooded the lake bed, forming an estuary to the Atlantic. The Champlain Sea, as this ocean arm is known, covered the same area as the lower levels of Lake Vermont. The marine invasion ended about 10,000 years ago as the land slowly rebounded from the weight of the glacial ice. The Champlain Sea became isolated and eventually became a separate freshwater basin.

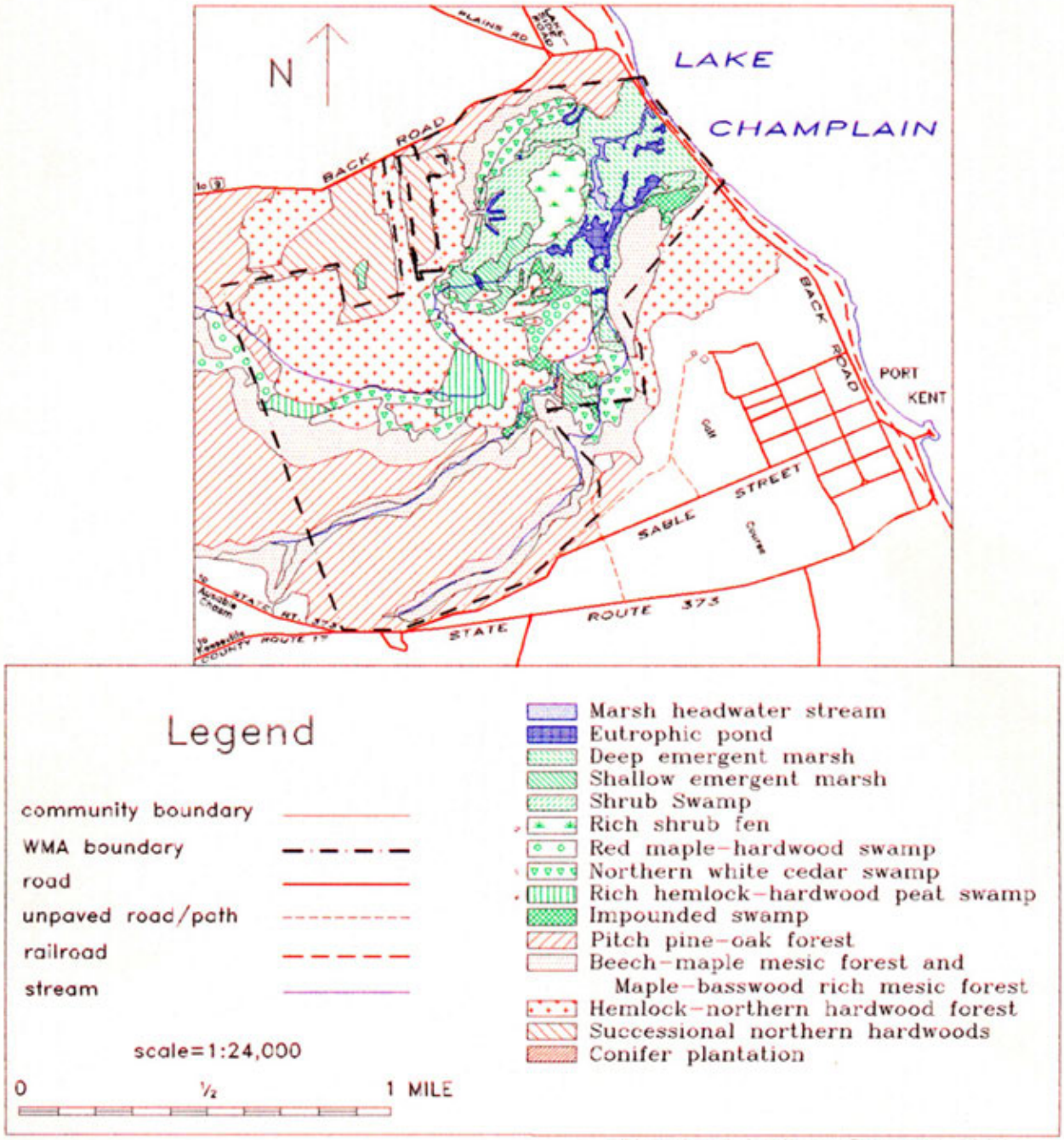
The Lake Champlain shoreline from the vicinity of WMWMA south is comprised of what is known as ancient "basement" rock, which once lay below the mountains where the Adirondack Mountains now stand. These rocks, which have been exposed to tremendous amounts of heat and pressure, are over 1 billion years old.

The wetlands of WMWMA consist of approximately 250 acres at the bottom of a 100 to 150 foot deep basin scooped out of post- glacial (Champlain Sea) deltaic sands along the shore of Lake Champlain by the Ausable River during the Pleistocene Age. No longer connected to the Ausable River, the small


Wickham Marsh
Wildlife Management Area
Chesterfield, Essex Co.
Ausable, Clinton Co.
LEGEND
Observation Tower
Viewing Site
Kiosk
Parking Area
Gate
Trail
Major Road
Other Road
Railroad
Stream
Fields
Freshwater Wetlands
Managed Lands
DEC Fish & Wildlife
0 500 1,000 2,000
Feet
N
Lake Champlain
Lakeside Rd
Plains Rd
Tanglewood Dr
Giddings Rd
Lake St
North St
West St
Pray Rd
373
17

Wickham Marsh WMA

Map 1: ECOLOGICAL COMMUNITIES



NY Natural Heritage Program 1994

watershed of Wickham Marsh now consists of three unnamed, spring- fed brooks which enter through deep, forested ravines from the west.

Wickham Marsh is one of many freshwater wetlands associated with Lake Champlain. Most Lake Champlain wetlands are essentially a product of the natural fluctuations in the water level of the lake, but considerable variability exists in the make-up and characteristics of the numerous wetland areas.

Although characterized as a typical Lake Champlain bay-head wetland by Gruendling and Bogucki (1978), Wickham Marsh is an open mineral soil wetland that shows the characteristics of a deltic wetland and a bay-head wetland. Originally formed as the delta of the Ausable River, it became a bay head wetland when the River turned north. The marsh was later disconnected from Lake Champlain by a natural formation of a barrier beach, and was then further cut off from the Lake by the construction of a road berm and the Delaware and Hudson Railroad causeway. Only one culvert was placed under the road and causeway to allow for a hydrologic exchange between the Lake and wetland. This disconnect has allowed the natural deposition of organic material and alluvial soils from the three main spring- fed tributaries that feed the marsh. The installation of an outlet dam at the culvert for water level manipulation has served to keep the marsh inundated for waterfowl production.

Specific land forms found within the wetland include pot holes, levees, meander scars, oxbows, point bars, and point bar swales. These create an irregular topography with shallow stagnant back water areas within the freshwater wetland.

Soils

With deltaic wetlands along Lake Champlain, the surface soils consist of post-glacial fluvial sands (soils produced by stream action) and alluvium (materials carried and dropped by running water) over glacial deposits. Soils typical of bay-head wetlands consist of muck over Champlain Sea marine clay (Gruendling and Bogucki 1978). Soils maps and information were obtained from the U.S.D.A. Soil Conservation Service in Essex County. Eleven different soil series have been identified at WMWMA:

<u>Carlisle muck</u> - ponded - this is a very deep, level, very poorly drained, medium lime soil formed in deposits of organic material deeper than 50 inches. Surface runoff is very slow or ponded. Permeability is moderately slow to moderately rapid. Available water capacity is high. This soil type is considered to be hydric soil in Essex County.

<u>Limerick silt loam</u> - 0 to 3% slopes. This is a very deep, nearly level, poorly drained, medium lime, loamy soil formed adjacent to streams from recent alluvium. Surface runoff is very slow. Permeability is moderate. Available water capacity is high. Most areas are flooded for periods of several days each year. This soil type is recognized as a hydric soil in Essex County.

<u>Rippowam fine sandy loam</u> - 0 to 3% slopes. This is a very deep, nearly level, poorly and somewhat poorly drained, low to medium lime, loamy soil formed in recent alluvium. Surface runoff is very slow. Permeability is moderate to moderately rapid in the surface layer and subsoil and rapid in the substratum. Available water capacity is high. Flooding frequency is common to frequent. This soil type is known as New York farmland of statewide importance.

<u>Kars very cobbly sandy loam</u> - 3 to 8% slopes. This is a very deep, gently sloping, well to excessively drained, high lime, gravelly soil formed in glacial outwash deposits. Surface runoff is slow. Permeability is

moderate or moderately rapid in the surface, moderately rapid in the subsoil, and rapid in the substratum. This is another soil of New York farmland of statewide importance.

Hinckley loamy sand - 0 to 3% slopes. This is a very deep, nearly level, excessively drained, low lime, sandy and gravelly soil formed in glacial outwash deposits. Surface runoff is very slow. Permeability is rapid or very rapid in the surface and subsoil, and very rapid in the substratum. Available water capacity is very low. This soil type is also considered a soil of statewide importance to New York farmland.

Nellis silt loam - 3 to 8% slopes. This is a very deep, gently sloping, well drained, high lime, loamy soil formed in glacial till deposits. Surface runoff is slow. Permeability is moderate in the surface and subsoil, and moderately slow or moderate in the substratum. Available water capacity is high. This soil type is prime farmland in New York.

Willette muck - This is a very deep, level, very poorly drained, medium lime soil formed in deposits of organic material 16 to 50 inches thick over clayey soil material. Surface runoff is very slow or ponded. Permeability is moderately slow to moderately rapid in the mucky upper part and slow to very slow in the substratum. Available water capacity is high.

Dunkirk silt loam - 25 to 45 % slopes. This is a very deep, steep, well drained, high lime, silty clay soil formed in lake-laid sediments. Surface runoff is very rapid. Permeability is moderate in the surface and upper soil, and moderately slow below. Available water capacity is high.

Plainfield loamy sand - 0 to 3% slopes. This is a very deep, nearly level, excessively drained, medium lime, sandy soil formed in deltaic and stream terrace deposits. Surface runoff is very slow. Permeability is rapid or very rapid. Available water capacity is low. New York farmland of statewide importance.

Plainfield loamy sand - 3 to 8% slopes. This is a very deep, nearly level, excessively drained, medium lime, sandy soil formed in deltaic and stream terrace deposits. Surface runoff is very slow. Permeability is rapid or very rapid. Available water capacity is low. New York farmland of statewide importance.

Plainfield loamy sand - 25 to 45% slopes. This is a very deep, nearly level, excessively drained, medium lime, sandy soil formed in deltaic and stream terrace deposits. Surface runoff is very slow. Permeability is rapid or very rapid. Available water capacity is low.

Wetlands

Wetlands are transition areas between upland and aquatic habitats. Wetland ecosystems generally possess three essential characteristics: (1) hydrophitic (wetland) vegetation, (2) hydric soils (soils that are saturated with water long enough to develop anaerobic conditions in the upper part), and (3) wetland hydrology (water).

There are more than 300,000 acres of freshwater wetlands associated with the Lake Champlain Basin. Most wetlands adjacent to Lake Champlain are essentially a product of the natural fluctuations that occur in the water level. The water level of Lake Champlain is not controlled by man-made structures, but is dependent on precipitation, runoff, groundwater, and temperature (impacting rates of evaporation). The lake is at its lowest levels in the winter, when ice and snow hold the precipitation on the land and reaches its highest point in the spring and early summer, after snow melt and peak runoff (average variation in water levels is about six feet). The high spring water levels often inundate the low lying floodplain areas

adjacent to the lake for extended periods of time - producing conditions favorable for the creation of freshwater wetlands.

Wickham Marsh is one of many freshwater wetlands associated with Lake Champlain and is a fine example of an open mineral soil wetland dominated by emergent marsh. Ten freshwater wetland communities are present within Wickham Marsh including three rare communities. These include marsh headwater stream, eutrophic pond, deep emergent marsh, shallow emergent marsh, shrub swamp, red maple-hardwood swamp, impounded swamp, and the rare communities of rich shrub fen, northern white cedar swamp, and rich hemlock- hardwood peat swamp. The boundaries between these communities and the adjacent upland communities are largely transitional and can be hard to define.

New York State's freshwater wetlands are protected under Article 24 of the Environmental Conservation Law (The Freshwater Wetlands Act - 1975). The Act directs the Department of Environmental Conservation and the Adirondack Park Agency to preserve, protect and conserve freshwater wetlands and their benefits, consistent with the general welfare and beneficial economic, social and agricultural development of the state. Under the Act, wetlands are defined as lands and submerged lands commonly known as swamps, sloughs, bogs and flats which support wetland vegetation. The Act identifies wetlands on the basis of vegetation because certain types of plants out-compete others when they are in wet soils, and so are good indicators of wet conditions over time.

Freshwater wetlands within the Adirondack Park are inventoried, mapped and protected by the Adirondack Park Agency. The official Essex County freshwater wetland maps inside the Adirondack Park were finalized in 1994. Based upon these maps, regulated freshwater wetlands cover approximately 50% of the entire WMWMA (the management area is found on the Keeseville 7.5 minute quadrangle)

The freshwater wetlands of the WMWMA possess great ecological, aesthetic, recreational, and educational value. These are some of the functions and benefits that wetlands perform:

- Wetlands absorb, store, and slowly release rain and melt water, minimizing flooding by stabilizing water flow;
- In some places, wetlands are very important in recharging groundwater supplies;
- Wetlands slow water velocity and filter sediments, protecting reservoirs and navigational channels. They also buffer shorelines and agricultural soils from water erosion;
- Wetlands also clean water by filtering out natural and many man-made pollutants, which are then broken down and recycled back into the environment;
- Wetlands constitute one of the most productive habitats for fish and wildlife species;
- Wetlands afford abundant opportunities for fishing, hunting, trapping, and wildlife observation and photography;
- The variety of functions and benefits performed by freshwater wetlands, combined with the access afforded by state ownership, make WMWMA a perfect outdoor classroom for environmental education;
- Expanses of open space wetlands, such as the emergent marsh at WMWMA, provide the visitor with a visual contrast to more heavily forested areas and often provide scenic vistas - in this case an outstanding view of Lake Champlain (which abuts the management area) and Vermont.

Climate

The climate in the Lake Champlain Valley, and Wickham Marsh, is affected by four main factors: the location of the Lake relative to the North American Coast; air masses from other regions; the mountains to the east and west; and the moderating influence of the Lake itself. When the prevailing westerly winds reach the Adirondack Mountains, and rise to move over them, the air is cooled and able to hold less moisture, causing the excess to precipitate out in the form of rain or snow. Consequently, the higher elevations in the Adirondacks receive greater amounts of precipitation than the Lake Champlain Valley (average annual precipitation of over 50 inches for the mountains compared with about 30 inches for the valley).

The Lake itself also influences the climate. Summer sunshine warms the surface layer of the Lake. In fall and winter, the water releases this heat, moderating the temperatures in the valley (the growing season along the Lake is about 150 days compared with about 105 days in the mountains of the Adirondacks). Conversely, in the spring, warmer air and increased sunshine melt the snow and lake ice, but the Lake takes longer to warm than the surrounding land. As a result, the breezes off the Lake keep the shoreline areas cooler, extending cool conditions well into May.

Open Space

The natural landscape of WMWMA is an important element of the Wild Forest and affords individuals with interesting observations. The Abenakis Indians are known to have called Lake Champlain the name Petonbowk, meaning "water that lies between", a reference to the Adirondacks and Green Mountains rising to the west and east. With the WMWMA situated along the western shore of the lake and dominated by the low growing vegetation of the emergent marsh, individuals are pleasantly surprised at the surrounding landscapes observable while visiting the management area. There are two maintained scenic vistas within the WMWMA, an ADA accessible observation platform is located along the northern edge of the management area off Giddings Road, and a scenic overlook is located on higher ground in the center of the WMA and is accessible only by hiking trails.

From these scenic vistas, visitors can obtain incredible views of the marsh, Lake Champlain, Burlington, Vermont and the Green Mountains to the east and the Adirondack Mountains to the west. Additional views can be obtained from various other unmaintained, natural vistas along the high ridge that surrounds the wetland.

With seventeen different ecological communities in relatively close proximity to each other, the interior sections of the WMWMA provide interesting landscape views on a less dramatic but no less rewarding scale. Following the hiking trails or bushwhacking along the top of the ridge can provide the WMWMA hiker with interesting scenery and ample opportunity for wildlife observation.

Vegetation

Ecological communities can be defined as a variable assemblage of plants and animals interacting with one another in a common environment, occupying a habitat, and often modifying the habitat (Reschke 1990). Seventeen (17) different ecological communities have been identified at WMWMA, including three which are considered rare (New York Natural Heritage Program 1993). The state and global ranks for these rare communities are contained in Appendix M. These communities are broken down from four system types - riverine (associated with rivers), lacustrine (associated with lakes), palustrine (associated with wetland areas) and terrestrial (upland areas); and nine subsystems as in the table shown below:

SYSTEM	SUBSYSTEM	ECOLOGICAL COMMUNITY
Riverine System	*Natural Streams*	Marsh headwater stream
Lacustrine System	*Natural Lakes and Ponds*	Eutrophic pond
Palustrine System	*Open Mineral Soil Wetlands*	Deep emergent marsh
		Shallow emergent marsh
		Shrub Swamp
	Open Peatlands	Medium fen
	Forested Mineral; Soil Wetlands	Red maple-hardwood swamp
	Forested Peatlands	Northern white cedar swamp
		Rich hemlock-hardwood peat swamp
	Palustrine Cultural	Impounded swamp
Terrestrial System	*Forested Uplands*	Pitch pine-oak forest
		Beech-maple mesic forest
		Maple-basswood rich mesic forest
		Hemlock-northern hardwood forest
		Successional northern hardwoods
	Terrestrial Cultural	Conifer plantation
		Unpaved path/road

The ecological community descriptions are taken from Wickham Marsh Wildlife Management Area Biodiversity Inventory Final Report prepared by New York Natural Heritage Program, 1993.

Marsh Headwater Stream (riverine)

There are two marsh headwater streams which flow through the Wickham Marsh basin and enter Lake Champlain under the road and railroad berm through one culvert.

This is an aquatic community associated with a small, marshy brook that has a low gradient, slow flow rate, and cool water. The brook originates in, and flows through, emergent marsh areas. The brook substrate is gravel or sand, with silt, muck, peat, or marl deposits along the shore. With its slow flow rate and minimal slope these creeks are not major agents of erosion and therefore deposition is minimal (few

suspended sediments in the water). Dominant vegetation identified at this community includes the following floating and submergent plants:

Scientific Name	Common Name
Pontederia cordata	Pickerelweed
Nuphar variegatum	Coontail
Anacharis canadensis	Waterweed
Myriophyllum spp.	Water-Milfoil
Nymphaea tuberosa	Water Lily

Eutrophic Pond (lacustrine)

Several eutrophic ponds are located within the wetland complex of WMWMA, surrounded by deep emergent marsh and shrub swamp.

This is an aquatic community consisting of a shallow, nutrient-rich pond. Aquatic vegetation is abundant and the water is usually green with algae. Bottom sediments are muck. Eutrophic ponds are too shallow to become stratified in the summer; they are winter stratified, monomictic ponds. Characteristic vegetation identified at this community typically includes the following floating and submergent plants:

Scientific Name	Common Name
Lemna minor, L. Trisulca	Duckweeds
Ceratophyllum demersum	Coontail
Nuphar luteum	Yellow Water Lilly
Elodea canadensis	Waterweed
Potamogeton spp.	Pondweeds
Nymphaea odorata	White Water Lily

Deep Emergent Marsh (palustrine)

Deep emergent marsh occurs in the Wickham Marsh basin throughout the wetland complex.

This is an exemplary marsh community that occurs on mineral or fine grained organic soils (muck); the substrate is flooded by waters that are not subject to violent wave action. Water depths can range from six inches to six feet. The water level may fluctuate seasonally, but the substrate is rarely dry and there is usually standing water in the fall. Dominant vegetation usually found in deep emergent marshes include:

Scientific Name	Common Name
Typha angustifolia, T. Latifolia	Cattails
Scirpus spp.	Bulrushes
Carex spp.	Sedges
Sparganium eurycarpum	Bur-reed
Peltandra virginica	Arrowleaf
Juncus spp.	Rushes
Zizania aquatica	Wild rice

Shallow Emergent Marsh (palustrine)

In the Wickham Marsh wetland complex, shallow emergent marsh occurs in a few areas along the marsh headwater stream.

This marsh meadow community occurs on mineral or muck soils that are either permanently or seasonally flooded. This marsh is better drained than the deep emergent marsh, with water depths ranging from six inches to three feet during flood stages. Water levels usually drop by mid to late summer and the substrate is often exposed. Deep and shallow emergent marshes often integrate and may occur together in a complex mosaic in a large wetland. Such is the case with Ausable Marsh. Dominant vegetation identified in the shallow emergent marshes of WMWMA includes the following emergent plants:

Scientific Name	Common Name
Phalaris arundinacea	Reed canary grass
Leersia oryzoides	Rice cutgrass
Carex spp.	Sedges
Scirpus spp.	Bulrushes
Scirpus cyperinus	Wool-grass
Acorus americanus	Sweetflag
Iris versicolor	Wild iris
Polygonum amphibium	Water smartweed
Juncus spp.	Rushes

Shrub Swamp (palustrine)

Shrub swamp communities occur along the northwestern edge of the Wickham Marsh basin, in the area between the rich shrub fen and the northern white cedar swamp, and in a few places along the southeastern edge of the marsh.

This is an inland wetland community dominated by shrubs that occurs along the shores of a lake or river, in a wet depression not associated with lakes or rivers, or as a transitional zone between an emergent marsh and a flooded forest or upland community. The substrate is usually mineral soils or muck. A shrub is a perennial woody plant that differs from a tree by its low growth form and presence of multiple stems or several branches starting at or near the ground. A shrub is usually less than sixteen feet tall at maturity and generally has a bushy appearance. Shrub swamps are very common and quite variable. Dominant vegetation identified at this community includes the following shrubs:

Scientific Name	Common Name
Viburnum recognitum	Arrowwood
Spiraea alba	Meadowsweet
Salix spp.	Willows
Alnus spp.	Alders

Medium Fen (palustrine)

The medium fen is one of three rare community types found at WMWMA. A large medium fen is located in the center of the wetland complex of Wickham Marsh, surrounded by deep emergent marsh and shrub swamp.

A moderately minerotrophic peatland (intermediate between rich fens and poor fens) in which the substrate is a mixed peat composed of graminoids (true grasses, sedges and rushes), mosses, and woody species. Medium fens are fed by waters that are moderately mineralized, with pH values generally ranging from 4.5 to 6.5. Medium fens often occur as a narrow transition zone between an aquatic community and either a swamp or an upland community along the edges of streams and lakes. In medium fens, the herbaceous layer, dominated by the sedge *Carex lasiocarpa* typically forms a canopy that overtops the shrub layer.

The dominant species are low shrubs that collectively have 80 to 90% cover in the community and include:

Scientific Name	Common Name
Vaccinium macrocarpon	American Cranberry
Salix pedicillaris	Bog willow
Chamaedaphne calyculata	Leatherleaf

Andromedea glaucophylla	Downy bog rosemary
Alnus incana	Speckled alder
Cornus stolonifera	Red osier dogwood
Myrica gale	Sweetgale
Toxicodendron vernix	Poison sumac
Spirea latifolia	Broad leaf meadowsweet
Carex aquatilis	Water sedge
Carex lasiocarpa	Woolly-fruit sedge
Lycopus uniflorus	Northern bugleweed
Triadenum virginicum	Marsh St. Johns wort
Sphagnum spp.	Peat moss and other mosses

Red maple- hardwood swamp (palustrine)

Red maple- hardwood swamp can be found in two places in WMWMA; at the western end of the northern tributary and in the southwestern part of the marsh basin.

This is a hardwood community that occurs in poorly drained depressions, usually on inorganic soils. This is a broadly defined community with many regional and edaphic variants. Red maple (*Acer rubrum*) is either the only canopy dominant, or is co-dominant with one or more hardwoods. The shrub layer is well developed and quite dense. Dominant vegetation identified at this community includes the following:

Scientific Name	Common Name
Acer rubrum	Red maple
Fraxinus nigra	Black ash
Ulmus americana	American Elm
Quercus bicolor	Swamp white oak
Lindera benzoin	Spicebush
Ilex verticillata	Winterberry
Vaccinium corymbosum	Highbush blueberry
Osmunda regalis	Royal fern
Symplocarpus foetidus	Skunk cabbage
Impatiens capensis	Jewelweed

Northern White Cedar Swamp (palustrine)

The northern white cedar swamp community occurs in three locations in the Wickham Marsh wetland complex. It can be found: 1) at the base of the ridge that defines the northern most boundary of the wetland complex running southwest toward the northern tributary, 2) further upstream in the northern tributary, and 3) in the southeastern edge of the wetland basin.

The northern white cedar swamp is another one of three rare communities found at WMWMA. This community consists of a conifer or mixed swamp that occurs on organic soils in cool, poorly drained depressions, and along lakes and streams. These swamps are often spring fed or enriched by seepage of cold, minerotrophic groundwater, resulting in a stable water table and continually saturated soils. Soils are often rich in calcium and at some sites; these soils have developed above a marl substrate. The characteristic tree is northern white cedar (*Thuja occidentalis*) which makes up more than 30% of the canopy cover and may form pure stands or be mixed with other conifers and hardwoods. The shrub layer is sparse while the ground layer is very diverse with a variety of bryophytes and boreal herbs growing on the many hummocks formed by decaying downed trees or tip up mounds. Vegetation identified in this community at WMWMA includes:

Scientific Name	Common Name
Thuja occidentalis	Northern white cedar
Fraxinus nigra	Black ash
Acer rubrum	Red maple
Tsuga canadensis	Eastern hemlock
Pinus strobus	White pine
Alnus incana	Speckled alder
Ledum groenlandicum	Labrador tea
Nemopanthus mucronatus	Catberry
Carex spp.	Sedges
Coptis groenlandica	Alaska goldthread
Equisetum scirpoides	Dwarf scouring rush
Eupatoriadelphus maculatus	Spotted Joe- pye weed
Mitella nuda	Naked bishop's cap
Osmunda cinnamomea	Cinnamon fern
Rubus pubescens	Dwarf blackberry
Thelypteris thelypteroides	Marsh fern
Sphagnum centrale	Peat moss

Rich Hemlock- Hardwood Peat Swamp (palustrine)

A rich hemlock- hardwood peat swamp is located at two locations in the northern tributary of WMWMA and is contiguous with the northern white cedar swamp.

The rich hemlock- hardwood peat swamp is the last of the three rare communities found at WMWMA. It is a mixed swamp that occurs in depressions or concave slopes which receive groundwater discharge, typically in areas where the groundwater flows through calcareous gravels of glacial deposits. These swamps usually have a fairly open canopy (50 to 70% cover), scattered shrubs, and a diverse groundlayer with sedges, mosses, and forbs. The characteristic canopy trees are eastern hemlock (*Tsuga canadensis*) which usually has at least 20% cover. Dominant vegetation identified at this community includes the following:

Scientific Name	Common Name
Tsuga canadensis	Eastern hemlock
Thuja occidentalis	Northern white cedar
Betula alleghaniensis	Yellow birch
Fraxinus nigra	Black ash
Acer spicatum	Mountain maple
Adiantum pedatum	Northern maiden-hair fern
Aralia nudicaulis	Wild sarsaparilla
Athyrium filix-femina	Subartic lady fern
Cypripedium pubescens	Lady's slipper
Onoclea sensibilis	Sensitive fern

Impounded Swamp (palustrine)

This community is located throughout the WMWMA wetland basin.

The impounded swamp is a wetland community with at least 50% cover of trees where the water levels have been artificially manipulated or modified, often for the purpose of improving waterfowl habitat. Often there are many dead standing tree trunks. Several areas of northern white cedar swamp and red maple- hardwood swamp along the marsh headwater streams at Wickham Marsh have been dammed and flooded by beaver. Additionally, the water level control structure located at the outlet of the marsh allows The Department to artificially manipulate the water levels of the entire wetland complex. Vegetation identified within this community at WMWMA includes:

Scientific Name	Common Name
Acer rubrum	Red maple
Thuja occidentalis	Northern white cedar
Typha spp.	Cattails
Lemna minor	Duckweed

Pitch Pine- Oak Forest (Terrestrial)

The pitch pine- oak forest occurs on the hills south of the Wickham Marsh basin.

This community is a mixed forest that typically occurs on well drained, sandy soils of glacial outwash plains or moraines. It also occurs on thin, rocky soils of ridge tops. The dominant trees are pitch pine (*Pinus rigida*) mixed with one or more species of oak (*Quercus*). The relative proportions of pines to oaks are quite variable within this community type. The shrub layer is well developed and the herbaceous layer is relatively sparse.

This forest community at Wickham Marsh was mapped as pitch pine-oak forest by The Natural Heritage Program but they also identified elements of pine-northern hardwood forest and Appalachian oak- pine forest communities. It is successional, has been logged extensively in the past, and may have historically been a pitch pine-heath barrens which developed into its present community due to a lack of fire or recent logging. Dominant vegetation within this community includes:

Scientific Name	Common Name
Pinus rigida	Pitch pine
Pinus strobus	White pine
Quercus alba	White oak
Quercus rubra	Red oak
Quercus velutina	Black oak
Quercus ilicifolia	Scrub oak
Gaylussacia baccata	Black huckleberry
Pteridium aquilinum	Bracken fern

Beech- Maple Mesic Forest (Terrestrial)

The beech-maple mesic forest can be found in the valleys of the two marsh headwater streams at WMWMA. This community is blended with the maple- basswood rich mesic forest.

This forest cover type consists of a codominance of sugar maple (*Acer saccharum*) and beech (*Fagus grandifolia*), with several regional and edaphic variants. These forests occur on moist, well drained, usually acid soils. There are relatively few shrubs and typically the shrub layer consists of seedlings and saplings of the tree layer. The herbaceous layer contains many spring ephemerals which bloom before the canopy trees leaf out. Hemlock (*Tsuga canadensis*) ravines may be present as an occasional feature of this forest cover type. The dominant vegetation of this community includes:

Scientific Name	Common Name
Acer saccharum	Sugar maple
Fagus grandifolia	Beech
Ostrya virginiana	Eastern hop hornbeam
Carpinus caroliniana	American hornbeam
Acer pensylvanicum	Striped maple
Polystichum acrostichoides	Christmas fern
Arisaema triphyllum	Jack-in-the-pulpit
Allium tricoccum	Wild leek

Maple- Basswood Rich Mesic Forest (Terrestrial)

A variant of the rare maple- basswood rich mesic forest community occurs at WMWMA in the valleys of the two marsh headwater streams mixed with beech- maple mesic forest as noted above.

The maple- basswood rich mesic forest is a hardwood forest community that typically occurs on middle to lower elevation, concave slopes with north or east aspects. Soils are rich, moist, well drained and usually have a circumneutral pH. The dominant canopy trees are sugar maple (*Acer saccharum*), basswood (*Tilia americana*), and white ash (*Fraxinus americana*) with several regional and edaphic variants. The shrub layer is sparse and spring ephemerals dominate the herbaceous layer. Hemlock (*Tsuga canadensis*) ravines may be present as an occasional feature of this forest cover type. Vegetation present within this community includes:

Scientific Name	Common Name
Acer saccharum	Sugar maple
Tilia americana	Basswood
Fraxinus americana	White ash
Carya cordiformis	Bitternut hickory
Hamamelis virginiana	Witch hazel

Trillium erectum	Purple trillium
Sanguinaria canadensis	Bloodroot
Erythronium americanum	troutlily

Hemlock- Northern Hardwood Forest (Terrestrial)

The hemlock- northern hardwood forest occurs in several large areas in the northwest, central and northern sections of the WMWMA.

This is a mixed forest community that typically occurs on middle to lower slopes of ravines, on cool, mid-elevation slopes, and on moist, well drained sites at the margins of swamps. Hemlock (*Tsuga canadensis*) is co-dominant with one to three species of hardwood. The relative cover of hemlock is quite variable, ranging from pure stands of hemlock to 20% of the canopy cover. The shrub and herbaceous layers are often sparse and consist of shade tolerant species. Dominant vegetation found in this community includes:

Scientific Name	Common Name
Tsuga canadensis	Eastern hemlock
Acer saccharum	Sugar maple
Fagus grandifolia	Beech
Prunus serotina	Black cherry
Viburnum acerifolium	Maple- leaf viburnum
Rubus spp.	Raspberries
Maianthemum canadense	Canada mayflower
Dryopteris intermedia	Common wood fern
Oxalis acetosella	Common wood- sorrel
Mitchella repens	Partridge berry

Successional Northern Hardwoods (Terrestrial)

The successional northern hardwoods community can be found on the WMWMA in two places along the northern property lines off Giddings Road. This cover type exists mostly on the two parcels of private land that lie between the management area and the road and are maintained by active logging.

This community is a hardwood or mixed forest that occurs on sites that have been cleared or otherwise disturbed. The dominant trees are light-requiring, wind dispersed species that are well adapted to establishment following disturbance. This is a broadly defined community that may consist of a variety of locally abundant pioneer species in various stages of succession. A shrub layer may or may not be present but would consist of more shade tolerant species. The herbaceous layer may consist of many species characteristic of successional old fields or may include species that occurred on or near the site prior to disturbance. Vegetation found in this community typically includes:

Scientific Name	Common Name
Populus grandidentata	Big tooth aspen
Populus tremuloides	Quaking aspen
Prunus pensylvanica	Pin cherry
Betula papyrifera	Paper birch
Pinus strobus	White pine
Lonicera spp.	Honeysuckles
Rubus spp.	Raspberries
Daucus carota	Queen Ann's lace
Cichorium intybus	Chicory
Solidago spp.	Goldenrods

Conifer Plantation (Terrestrial)

The conifer plantation on WMWMA is located along the main hiking trail in the southern part of the wetland basin section of the management area. It falls between a red maple- hardwood swamp and a shallow emergent marsh.

This community consists of a stand of softwoods planted for the cultivation and harvest of timber products, or to provide wildlife habitat, soil erosion control, windbreaks, or landscaping. This is a broadly defined community that excludes stands in which pine, spruce, or firs are dominant, although they may be present in low densities. Herbaceous ground-layer vegetation is usually sparse, apparently because of the dense accumulation of leaf litter and the low light intensities on the forest floor. Vegetation found within this community includes:

Scientific Name	Common Name
Thuja occidentalis	Northern white cedar
Sphagnum centrale	Peat moss
Carex spp.	Sedges

Unpaved Road / Path (Terrestrial)

This last ecological community of WMWMA can be found along the unpaved access roads and hiking paths found throughout the wildlife management area.

This community consists of sparsely vegetated roads and pathways of gravel, bare soil, or bedrock outcrop. These roads or pathways are maintained by regular trampling or scraping of the land surface. The substrate consists of the soil or parent material at the site, which may be modified by the addition of local organic material (woodchips, logs, etc.) or sand and gravel. One characteristic plant is the path rush (*Juncus tenuis*).

Rare Plants

Two rare plants were discovered at WMWMA during the 1992 biodiversity inventory by The Natural Heritage Program. These are Houghton umbrella sedge (*Cyperus houghtonii*) and Meadow horsetail (*Equisetum pratense*). Houghton umbrella sedge was found along a sandy road in degraded pitch pine-oak forest. Meadow horsetail was found growing in three locations on the WMA. It was located on the edge of a northern white cedar plantation, on the lower slope of a rocky bank, and in a moist swale on the edge of a red maple- hardwood swamp.

The Houghton umbrella sedge is tall, erect, slender sedge that flowers in June and bears fruit from July to October. It grows in open, sandy, disturbed habitats such as old fields, pitch pine- heath woodlands, pitch pine- heath barrens, and pitch pine- oak forests. At Wickham Marsh, it grows along a sandy path in a pitch pine- oak forest. The lack of fire in this community has allowed the understory to grow in, reducing the amount of open sandy habitat required for survival of this species.

The meadow horsetail is rush-like, erect, jointed, and often branched herb with no flowers and rarely found in fruit. It grows in shady or filtered sunlight in mesic conditions characteristic of flood plain forests, limestone woodlands, and red maple- hardwood swamps. At Wickham Marsh, it grows in three locations in a relatively large and stable population. Flooding, potentially as a result of beaver activity, and logging could threaten the continued survival of this rare plant.

Exotic and Invasive Plants

The New York Natural Heritage Program, during its 1993 biodiversity inventory of WMWMA, documented several species of exotic and/ or invasive plants including purple loosestrife (*Lythrum salicaria*), common reed (*Phragmites australis*), and buckthorn (*Frangula alnus*). These plants threaten the diversity of the ecological communities found at WMWMA and require removal and control. More information is needed about the distribution of these plants within WMWMA and we need to increase efforts to monitor the spread of exotic and invasive plants, locate new infestations and document additional species.

Wildlife

WMWMA consists of seventeen different ecological communities ranging from emergent marsh to hardwood forests. This variety in habitat allows the area to support diverse fish and wildlife populations. Field inventories of wildlife species have not focused specifically on WMWMA. However, various inventory projects undertaken by the Department of Environmental Conservation and others have included the WMWMA in their scope.

Birds

According to New York State Breeding Bird Atlas data, at least 113 species of birds breed within, or in close proximity to the WMWMA. Seven of these are state listed special concern species and include: American Bittern (*Botaurus lentiginosus*), Sharp-shinned Hawk (*Accipiter striatus*), Common Nighthawk (*Chordeiles minor*), Cooper's hawk (*Accipiter cooperii*), Osprey (*Pandion haliaetus*), Red-shouldered Hawk (*Buteo lineatus*), and Whip-poor-will (*Caprimulgus vociferus*). Fourteen of these are considered game species including ten species of waterfowl and four upland gamebirds. See Appendix K and L for a list of the 113 bird species documented by the Breeding Bird Atlas.

In addition, the Natural Heritage Program's Active Inventory list has documented the occurrence of one endangered bird species; the Short-eared Owl (*Asio flammeus*) on lands adjacent to the Wickham Marsh WMA. Although a nest was never found on the property of the documented occurrence, it is possible that the nest was located within the marsh area of WMWMA as the marsh was certainly part of their foraging area. Short-eared Owls nest on the ground in marshes and grassland areas where small mammals, especially meadow voles (*Microtus pennsylvanicus*) are abundant.

Though WMWMA provides habitat for a number of bird species, it is the water-dependent birds which are the most visible part of the ecosystem. Waterfowl utilize the wetland areas of WMWMA as breeding habitat, brood rearing, and as a critical stopover during spring and fall migration along the Atlantic Flyway. Over thirty species of waterfowl use Lake Champlain and its associated wetlands annually -including Mallards, Black Ducks, Wood Ducks, Common Goldeneye, Hooded Mergansers and Canada Geese. Between 20,000 and 40,000 ducks and geese are counted on migratory flights during early October.

Management techniques utilized by the DEC since the early 1950's, including the construction of potholes, islands, level ditches, and dikes, as well as shoreline clearing, have greatly increased the amount of waterfowl nesting and feeding habitat at WMWMA. In addition, wood duck nest boxes have been erected throughout the area by the Department to increase breeding success. These artificial nest locations mimic the natural, but scarce, tree cavities used by this species of duck. These nest boxes are monitored annually to determine utilization rates and productivity. As a result of these efforts, waterfowl productivity and use at WMWMA has increased substantially.

The plentiful supply of fish within the Marsh and Lake Champlain has lured not only anglers but osprey to WMWMA. The presence of a pair of osprey in the area of WMWMA during the breeding season, in conjunction with the abundant supply of food, demonstrates the need for construction of artificial nest platforms along the emergent marsh to increase the chances of breeding.

Ospreys are not the only raptor lured to WMWMA by the plentiful supply of fish. Bald Eagles (*Haliaeetus leucocephalus*) utilize the marsh and lake shore to feed on northern pike, brown bullhead and yellow perch, especially during the winter months. Lake Champlain in the vicinity of WMWMA (south of Valcour Island but north of Westport) remains open late into the winter, providing an available food source for

bald eagles - often migrants from Canada. The birds often roost in the large White Pines of the Wildlife Management Area - these trees are located along a steep hill which faces east (providing cover from the predominately westerly winds). No bald eagle nesting activity has been observed to date at WMWMA.

Because of the unique and varied bird watching opportunities that WMWMA affords, it has been listed as a site along the Lake Champlain Birding Trail and has been named a Bird Conservation Area (BCA). Wickham Marsh is one of several WMA's included as a BCA in the Lake Champlain Marshes Bird Conservation Area.

The Lake Champlain Birding Trail is a highway- based trail approximately 300 miles long that links 88 birding sites along the Lake Champlain shoreline through New York and Vermont. Many different bird species can be found throughout the Champlain Valley and the goal of the Trail is to make Lake Champlain and the surrounding communities in New York and Vermont a premier national destination for birding, increase nature tourism in the Lake Champlain Region, and convey the value of conservation and recreation to community leaders and landowners. Uniform way-finding signs have been installed along the trail to help visitors find each site and interpretive signs and other improvements are being constructed at many of the sites including WMWMA (Lake Champlain Birding Trail, 2007).

The New York State Bird Conservation Area Program was established in 1997 to safeguard and enhance bird populations and their habitats on State lands and waters. The goal of the BCA program is to integrate interests into agency planning, management, and research projects, within the context of agency missions. Modeled after the National Audubon Society's Important Bird Areas Program, the BCA program applies the criteria developed under that program to state owned properties. To date, 49 BCA's have been designated throughout New York State.

The Lake Champlain Marshes Bird Conservation Area includes six Wildlife Management Areas along the western shore of Lake Champlain, including Kings Bay, Montys Bay, Ausable Marsh, Wickham Marsh, Putts Creek and East Bay. These WMAs extend from the Canadian border to the southern tip of the Lake and all include shoreline wetland complexes. The vision statement of the Lake Champlain Marshes BCA is to manage and conserve the high quality wetlands, grasslands, early successional habitats, and forests of the BCA to benefit the diverse bird species utilizing these areas (New York State Department of Environmental Conservation, 2002).

Mammals

The mammals of the WMWMA are one area where insufficient data exists and the need for further study is apparent. To date, a comprehensive survey of mammals has not been conducted in New York State or at WMWMA. At least fifty-six species of mammals find their homes in the Lake Champlain Area. Larger mammals known to inhabit the WMWMA include white-tailed deer, black bear, bobcat, coyote, red fox, fisher, raccoon and striped skunk. Since WMWMA is dominated by open water and wetland habitats it is no surprise that populations of muskrat, river otter, beaver, mink and weasel are concentrated in this area. A variety of smaller mammals also reside in the area. They include bats, shrews, moles, mice, eastern chipmunks, and squirrels (red, gray and flying). No New York State listed endangered, threatened or special concern mammal species are known to inhabit the WMWMA.

The abundance and variety of natural foods, due to the diverse habitat types, as well as the close proximity of food produced by man (easily accessible food from campers at the adjacent Ausable Chasm Campground and Kampground of America) has led to high concentrations of mammal species which are adaptable and tolerant of humans - this includes raccoons, striped skunks, eastern chipmunks, mice and

squirrels. These species often breed on the wildlife management area and forage at the campgrounds and residential areas of near-by Port Kent.

Amphibians and Reptiles

Relatively short summers and long, cold winters limit the number of species of reptiles and amphibians located at WMWMA. Twenty-one species of amphibians and twenty species of reptiles have been identified in the Lake Champlain area. Little is known about the distribution or population status of either in the Lake Champlain area, however, a ten year effort to document the current distribution of New York's herpetofauna, known as the New York State Amphibian and Reptile Atlas Project, wrapped up in 1999. Although the data has not been confirmed or compiled due to staff retirement, the 33 species of herps found during field inspections in the vicinity of AMWMA are listed below:

Salamanders

Necturus maculosus	Common Mudpuppy
Ambystoma jeffersonianum	Jefferson Salamander
Ambystoma maculatum	Spotted Salamander
Notophthalmus v. viridescens	Red-spotted Newt
Desmognathus fuscus	Northern Dusky Salamander
Desmognathus ochrophaeus	Allegheny Dusky Salamander
Plethodon c. cinereus	Northern redback Salamander
Gyrinophilus p. porphyriticus	Northern Spring Salamander
Eurycea bislineata	Northern Two-lined Salamander

Toads and Frogs

Bufo a. americanus	Eastern American Toad
Hyla versicolor	Gray Treefrog
Pseudacris c. crucifer	Northern Spring Peeper
Pseudacris triseriata	Western Chorus Frog
Rana catesbeiana	Bullfrog
Rana clamitans melanota	Green Frog
Rana septentrionalis	Mink Frog
Rana sylvatica	Wood Frog
Rana pipiens	Northern Leopard Frog
Rana palustris	Pickerel Frog

Turtles

Chelydra s. serpentina	Common Snapping Turtle
Clemmys insculpta	Wood Turtle
Graptemys geographica	Common Map Turtle
Chrysemys picta	Painted Turtle

Lizards and Snakes

Eumeces fasciatus	Five-lined Skink
Nerodia s. sipedon	Northern Water Snake
Storeria d. dekayi	Northern Brown Snake
Storeria o. occipitomaculata	Northern Redbelly Snake
Thamnophis sirtalis	Common Garter Snake
Thamnophis sauritus	Eastern Ribbon Snake
Diadophis punctatus edwardsii	Northern Ringneck Snake
Liochlorophis vernalis	Smooth Green Snake
Lampropeltis t. triangulum	Eastern Milk Snake
Crotalus horridus	Timber Rattlesnake

Fish

The fishes of WMWMA are yet another area where inadequate information exists and there is a need for further study. A Biological Survey of the Champlain Watershed, a supplement to the 19th Annual Report I. FISH of the New York State Conservation Department (1930), lists 73 species of fish inhabiting waters of the Lake Champlain watershed. More recent surveys indicate the fish fauna of Lake Champlain to still be diverse; 81 species have been identified in Lake Champlain. The Bureau of Fisheries, however, has no data on Wickham Marsh or its tributaries and no records of surveys ever being conducted.

Of fish species listed as threatened or endangered in New York State, four are now or were previously found in Lake Champlain, including: round whitefish (*Prosopium cylindraceum)*; eastern sand darter (*Ammocrypta pellucida*); lake sturgeon (*Acipenser fulvescens*); and the mooneye (*Hiodon tergisus*). None of these species are known to occur in the WMWMA.

Nursery and Spawning Areas

Large wetland complexes such as Wickham Marsh provide important fish spawning habitat for many fish species including trout and salmon, suckers, and a variety of minnows. Many fish species likely utilize the WMWMA for spawning and nursery habitat. Certain fish species utilize flooded wetland vegetation for spawning, notably members of the pike family (Esocidae). WMWMA, contains the vegetative communities known to provide important spawning and nursery habitat for northern pike (*Esox lucius)*,

and may be important as a spawning area for grass and chain pickerel as well. The tie dam which holds spring runoff waters, thereby extending the waterfowl nesting season, is important in retaining water until larval fish are sufficiently developed for life in the lake.

Section III: Man and the Wickham Marsh Wildlife Management Area

History & Cultural Resources

The history of Lake Champlain is long and varied. Spanning more than 10,000 years, it includes Native American settlements, early Euro-American settlements, French and British exploration and occupation, numerous military conflicts, and a dynamic period of commercial development in the 19th century. Prior residents of the Lake Champlain valley left behind rich cultural resources including historic structures and settlements, cultural landscape resources such as agricultural or wooded landscapes, archeological resources both on land and underwater, and Native American cultural properties. Many cultural sites are concentrated along the lakeshore and tributary waterways, where historic and prehistoric resources include ancient Native American villages, campsites and cemeteries. Fluctuating lake levels during the last 4000-6000 years have submerged, or buried, many lakeshore archeological sites, some of which remain undiscovered.

WMWMA has no standing prehistoric or historic buildings. Any evidence of Native American or early Euro-American activity in the area has been buried by sedimentation due to depositions from the surrounding uplands and fluctuating lake levels. In the recent past (prior to acquisition by New York State), the lands which now encompass WMWMA were utilized for timber harvesting and agricultural production. The trees from the upland forests and flooded wetland forests were harvested for use in local wood stoves - heating individual residences. Drier upland areas were tilled and used for crop production, while wetter areas were often fenced as pasture. Undoubtedly, cranberries and blueberries were harvested and fishing, hunting and trapping were significant activities in the area - providing extra food (supplementing agricultural production) and income (through the sale of furs). The natural resources associated with the WMWMA have always been utilized by man, though the evidence of such use may not always be readily evident.

Historic Sites

Archaeological-historic research in the WMWMA has neither been extensive nor well defined. Native peoples traveled through the area, utilizing the available natural resources in their hunting and foraging expeditions, and may have established settlements in the area but no evidence of their presence has been revealed. No state or federally listed historic sites are present at WMWMA.

Economics

The economy of the Lake Champlain basin was traditionally rural and resource-based. In addition to agriculture, utilization of both renewable (such as timber, fishing, hunting, and maple syrup production) and non-renewable (mining) natural resources played a central role in the economic history of the basin. Settlement in the Champlain Valley by Euro-Americans began in earnest in the early 1800's - supporting the forest products and mining industries. The economic well-being of lakeshore resident quickly became dependent on the development of these natural resource industries - providing support services (transportation by rail or canal barge) and supplies (agricultural products). The boat building industry was one of many economic links in the natural resource-based economy.

The region's economy soon diversified beyond timber production and mining, but continued to depend on the natural resources. For example, vacationing around Lake Champlain (a non-consumptive use of the natural resource) became popular in the early 1800's and quickly had a positive impact on the local economy. This trend has continued to the present day. While agriculture and other natural resource based activities continue to make significant contributions to local economies, the economy of the Lake Champlain valley has diversified into service oriented industries (tourism, health, education, etc.), wholesale and retail trade, and manufacturing.

Although the impact of the WMWMA on the local economy has not been directly measured, a general picture can be drawn. Tourism is on the rise and is an important aspect of the Lake Champlain economy. Much of its success depends on the lake itself and the myriad recreational opportunities it affords, but it is also enhanced by the state lands adjacent to Lake Champlain which often provide the public access to the water. Though WMWMA does not possess a boat launch site for access to the lake, it does provide additional and varied recreational opportunities that would enhance the total experience. There is a trailhead register located at WMWMA, but the exact numbers of individuals which utilize the site are not known.

Use and Users

WMWMA is used extensively by wildlife viewers, boaters, fishermen, hikers, cross country skiers, trappers and hunters. WMWMA is a site on the Lake Champlain Birding Trail and is one of several Bird Conservation Areas (BCA) that make up the Lake Champlain Marshes Bird Conservation Area.

The hiking trails are maintained each year by the DEC Operations Unit and used frequently by the public year round. The network of trails begins at the parking areas and connects in the center of the management area at the scenic overlook. The trails wind along the southern edge of the marsh and then through the various stands of upland and wetland forest, accessing most of the ecological communities present at WMWMA. Many people also enjoy hiking and skiing the blazed property lines around the Wildlife Management Area.

Boaters can enjoy canoeing throughout much of the marsh. Many people picnic on the large grassy field located along the south eastern shore of the marsh. Two small cartop boat launching sites are maintained. One is along Giddings Road at the outlet of the marsh; the other is down the hiking trail from the parking area on Giddings road. Both cartop launches provide access to the marsh only, the only access to Lake Champlain from WMWMA is across the rail road tracks and down a steep bank of large boulders.

Each fall, trappers harvest the bountiful crop of beavers, muskrats and mink and hunters enjoy pursuing waterfowl, whitetailed deer, ruffed grouse and squirrels.

WMWMA is also a bird watcher's delight. During the fall and spring people come to view migrations of geese, ducks, and bluebirds. During summer months, Osprey, Marsh hawks, Blue Herons, Mallards, Wood Ducks, Redwing Blackbirds, Sparrows, Songbirds and Swallows can be seen on a regular basis. Bald Eagles can often be seen feeding off the ice shelf on Lake Champlain during the winter months.

The wildlife viewing platform off Giddings Road overlooks the marsh and Lake Champlain from the top of a steep ridge along the northern boundary of WMWMA. The platform is ADA accessible and provides panoramic views of most of the marsh and the broad lake portion of Lake Champlain. From the viewing platform, a visitor can look across the Lake to Vermont and see North Burlington, the Winooski River delta,

and the old rail road causeway across Mallets Bay that connected Burlington to South Hero Island. It is a pleasure to watch the large rafts of migrating waterfowl on the Lake each spring and fall.

Adjacent Land Users

Most of the lands that border WMWMA to the north are actively logged and managed for the harvest of forest products. To the east lies Lake Champlain, cut off from the marsh by the rail road causeway and Giddings Road. A single culvert under the road bed and causeway empties the marsh into the Lake. The Bureau of Wildlife annually pays a rental fee to the Delaware and Hudson Rail Road for access to WMWMA and the placement of the water control structure at the culvert.

A golf course, water bottling plant, and the small, historic village of Port Kent lie to the south east of WMWMA. The lands to the west contain some campgrounds associated with Ausable Chasm, with hiking trails that connect to the trails of WMWMA.

On a grander scale, large agricultural fields exist to the west while the land to the south remains mostly forested and Ausable Marsh Wildlife Management Area is just a few miles to the north, with the City of Plattsburgh beyond that.

Section IV: Management

Historic Management Activities

Early state management of Wickham Marsh began with the creation of the Wickham Marsh Game Management Area in 1950. In that year the New York State Conservation Department, Division of Fish & Game, purchased 176 acres of Wickham Marsh from the Watson Estate and leased 96 acres from Loyola Villa - with the intent of protecting and enhancing local waterfowl populations through habitat management. In 1970 the Department purchased two additional parcels, 136 acres from Loyola Villa and 371 acres from the Mattig Corporation. Currently, a total of 683 acres are within the jurisdiction of the Wickham Marsh Wildlife Management Area.

It is important to note that funding for these acquisitions came from the Federal Government via the Pittman- Robertson Act Program. The use of these federal funds mandates that New York State and the Bureau of Wildlife must utilize these lands for wildlife management or restoration.

Early management activities which occurred at WMWMA prior to the Adirondack Park State Land Master Plan were based on management plans designed to stimulate waterfowl utilization in the area. This was to be done by increasing waterfowl feeding, resting, breeding and brood rearing habitat by the following:

- Water level control through diking and channel connection.
- Creation of open water areas by ditching.
- Devegetatation of shoreline and establish sod for ground nesting waterfowl.
- Construction of a water control structure at the marsh outlet.
- Creation of potholes and channels in the unflooded portions.
- Erection of Wood Duck boxes and Canada goose platforms.
- Planting upland areas with cereal grains and permanent pastures for geese.
- Stocking Mallard Ducks, Canada Geese and other suitable species.
- Planting wild rice to supplement the existing rice bed.

All major construction took place prior to 1972 and was done with bulldozer and drag line. By the time of the APSLMP inception, Wickham Marsh inventoried one half mile of access road, 13 wood duck nest boxes installed, one thousand feet of level ditches, a tie dam at the mash outlet, and two boat launches.

A Brood census has been carried out by the Bureau of Wildlife annually. Multiple broods have been observed historically each spring by technicians and biologists. In addition, Wood Duck boxes are checked each winter to determine usage. By looking at the contents of a box (mainly broken shells) the Bureau can determine species and success of nesting. Species that use the boxes are Wood Duck, Hooded Merganser and Common Golden Eye.

Waterfowl banding was done annually to assist the Federal Government in the setting of waterfowl hunting seasons. The primary ducks banded at WMWMA are Wood Ducks and Goldeneye with the occasionall Mallard and Black Duck.

Prior to 1970, predator control was deemed important by the Bureau of Wildlife. $1,000 - $1,250 (Gardephe 1970) was spent each year to control, by trapping and shooting, raccoons, snapping turtles, feral dogs and cats. Additional surveys included annual fall migrant estimates, active nest counts, and gizzard collections to determine lead shot intake.

Current Management activities

Current management activities can be broken down to three categories: maintenance of existing structures, waterfowl management, and public use.

Maintenance of existing structures

Over the past thirty years inflation has decreased the value of the dollar. Unfortunately, Region 5's WMA budget has remained relatively consistent with 1960 spending levels. Consequently, new construction has taken a back seat. With a dwindling labor force and lack of new equipment the Bureau's primary concern is to maintain existing structures. Below is a list of current activities occurring on our Wildlife Management Area. Possible techniques used for these maintenance activities include the use of excavation and fill, disking, plowing, sowing, planting, mowing and other agricultural practices.

- Replacement, repair and maintenance of wildlife nesting structures including nest boxes and nesting platforms.
- Maintenance, clearing, and repair of existing pot-hole ponds, dikes and level ditches for wildlife habitat management.
- Maintenance of nesting cover crops and wildlife food plots.
- Management of existing marsh vegetation including control of invasive species.
- Maintenance and repair of existing functional dikes
- Maintenance and repair of existing water level control structures including clearing debris and replacing boards.
- Maintenance and repair of existing access roads and driveways including filling and re-grading of eroded sections.
- Use of motorized vehicles for various management, maintenance, repair and agricultural activities.
- Boardwalk, trail, and property boundary line maintenance and repair including replacing boards and pilings, refilling and re-grading eroded surfaces, and clearing, marking, painting and posting of trails and lines.

Waterfowl Management

At present the Bureau conducts three activities that involve waterfowl management: banding, breeding surveys, and habitat manipulation. These activities allow the department to assess the population and health of ducks on the marsh and to assist the Federal government in the setting of waterfowl hunting seasons.

Spring Banding/ Brood Surveys

Each year, one of the first surveys to be conducted is the spring nesting and banding survey. Wood ducks are the primary species of waterfowl found in the nesting boxes at WMWMA but hooded mergansers and goldeneye are also encountered in this survey. A wildlife staff person uses a ladder (nesting boxes are usually 10-12 feet off the ground, placed in trees) to determine if a female duck is nesting in the box. The nest box access hole is covered with a cloth and the box is open from the bottom. The female, who is usually in a state of drowsiness, is taken from the box, banded and released. The banded duck soon returns to the nest box to settle on her eggs and resume brooding. Staff also keep track of the number of eggs found in each box and determine hatching success rates.

Late Summer Banding

As summer progresses the Bureau of Wildlife selects sites for banding and begins pre-baiting these sites. By now the young ducks have abandoned their nest box and are feeding in the marsh and are able to fly. Whole corn is placed at the banding site to lure the ducks. When ducks begin feeding at the site on a regular basis, preparations are made to set up a cannon net for future waterfowl capture. The cannon net consist of a large net that has rockets attached along its length. Each rocket is filled with an explosive propellant and electrically wired to a battery hidden in a blind. Wildlife staff arrives before day break and wait for the ducks to begin feeding at the site. While the ducks are feeding, the charges are exploded and the rockets carry the net over the ducks. The ducks are than taken from the net and placed in holding cages to await banding and release. Species, sex and age data are taken and recorded for future reference. Each year at Wickham Marsh the BOW will band between 70 and 100 ducks, primarily Wood Ducks with occasional Mallards and Black ducks.

Occasionally, large swim-in or land based clover traps are set in the marsh and baited to attract ducks. The ducks enter the trap through a one-way funnel to reach the bait and become trapped. These traps are baited the night before banding is to occur. Wildlife staff arrives early in the morning to remove the ducks from the trap and place them in holding cages to await banding and release. This technique is more labor intensive and catches fewer ducks at a time than the cannon net method described above due to the size of the trap, and therefore requires more trap nights to band the same number of ducks. Additionally, predation by Great Horned Owls and other predators can sometimes become a problem at clover trap sites.

Winter Nest Box Evaluation:

During the winter nest box surveys begin. Each box is cleaned of past nesting material. The egg fragments are looked at to determine successful nesting and species usage. Three inches of fresh wood shavings are placed in each box to mimic a natural cavity and produce a soft bed for eggs. At this time predator guards may be replaced and new boxes erected as needed.

Public Use

Management and maintenance activities take place at WMWMA to facilitate and encourage public use. Facilities and structures such as trails, vistas, parking areas, board walks, wildlife viewing platforms and boat launches are maintained and fish and wildlife habitat is managed to assist and promote the public use of the Wildlife Management Area for a variety of recreational and scientific purposes including small and big game hunting, trapping, fishing, hiking, bird watching, nature photography and natural resources education. In addition to management and maintenance activities, Forest Rangers and Environmental Conservation Officers from the DEC Office of Public Protection patrol WMWMA to insure the safe use the management area by the public. DEC Wildlife and Operations Staff regularly inspect the facility and review trail head registers to analyze the levels of public use and determine additional management and maintenance needs.

Proposed Five Year Management Plan

The mission of the Bureau of Wildlife is "To provide the people of New York the opportunity to enjoy all the benefits of the wildlife of the state, now and in the future. This shall be accomplished through scientifically sound management of wildlife species in a manner that is efficient, clearly described, consistent with law, and in harmony with the public need". With this in mind, our primary objectives for the next five years for the future of WMWMA are the following:

Maintenance and Repair

We will maintain and repair existing structures such as dikes, level ditching, culverts, roads, trails, gates, barriers, boundary lines, signage, agricultural fields, board walks, parking areas, buildings, and boat launches. These projects will continue on an as needed basis, depending on monies available and priorities established by the Region 5 wildlife staff. Additionally, an effort will be made to map all existing structures and facilities with the use of a hand held GPS and update our inventories and facilities map.

Three large scale trail repair projects are proposed. The foot bridge over the stream along the west boundary line trail that connects the parking area accessed off of Route 373 to the KOA Campground trail needs to be repaired or replaced. It is currently unusable and forces hikers to wade the stream or venture off-trail to find a narrow place to cross. The second project will be to replace a 48" culvert in the KOA Campground trail toward the eastern end of the trail near where it intersects the main trail. Beavers had this culvert plugged for a few years, causing it to fail. Lastly, the main trail that connects the two southern parking areas disappears into the cattail marsh because a large beaver dam has the water level a few feet higher than the existing trail surface. During normal and low water levels a few adventurous hikers will cross the beaver dam to continue along the trail but this is dangerous and undesirable causing most hikers to turn around. During periods of heavy water flow, the dam is impassable. A timber catwalk will be constructed over the marsh to reconnect the trail sections.

Public Use

We intend two major projects in the area of public use. The first project is to build three informational kiosks for brochures with a large area identification map displaying the marsh, nature trails, and special regulations. One kiosk will be placed at each parking area.

The second project is to add another length of hiking trail that provides access from Giddings Road to the rest of the trail system through the hardwood forest along the northwest side of the marsh.

Wildlife Management

The Bureau of Wildlife will continue to annually band waterfowl at its Wickham Marsh banding site, maintain nest boxes and check for usage during winter months, conduct annual spring banding of waterfowl from nest boxes, and annually mow at least four acres to enhance waterfowl usage.

Osprey nesting platforms, blue bird nest boxes, wood duck nest boxes, puddle duck nesting structures (commonly known as "hen houses"), and goose nesting platforms will be constructed and installed as money becomes available. Priority should be given to the construction of two osprey nesting platforms for the marsh.

The Bureau of Wildlife will continue to increase efforts to inventory and document the use of the Wildlife Management Area by fish and wildlife. Priority will be given to completing a comprehensive mammal survey and a fisheries survey.

Timber Management

A forest inventory was completed at WMWMA by the Division of Lands and Forests staff in 2008. Some timber management activities will be conducted in combination with other wildlife management activities in order to improve wildlife habitat or increase wildlife productivity.

In the past, timber management, in the form of firewood sales, was used at WMWMA to enhance wildlife habitat. Oak was thinned from the pitch pine - oak forests to keep the canopy open and increase the production of acorns, an important food source for a variety of wildlife species. The selective harvest of trees for wildlife habitat enhancement is being planned for the near future for WMWMA.

Early successional forest is an important habitat type vital for the successful breeding and foraging of numerous species of wildlife. This type of habitat is rarely found on State owned lands other than Wildlife Management Areas. The Bureau of Wildlife plans to employ another timber management technique at WMWMA to improve wildlife breeding and feeding conditions by providing a variety of early successional forest cover types. We plan to utilize patch clear-cuts consisting of a number of 2.5 to 5 acre plots cut on a 40 year rotational basis to produce a mosaic of forest canopy levels on the Management Area. These cuts will take place in the northern hardwood areas away from the marsh.

Ducks such as Mallards, Black ducks, Gadwall, Teal, and Pintail's construct their nests in grasslands consisting of tall grasses and forbes close to marshes or open water. The large grassy field found along the southeastern shore of the marsh was originally cleared for this purpose but has not been maintained recently and has become too small due to natural revegetation of shrubs that have been allowed to grow up along the shoreline of the marsh. The lack of quality grassland at or near WMWMA appears to be a limiting factor in the number of these types of ducks that nest here. The Bureau of Wildlife plans to expand this grassland by clearing a section of the adjacent northern hardwood forest and planting alfalfa. Recent studies have shown that alfalfa provides the most effective dense nesting cover for increasing waterfowl production and is beneficial to other species of wildlife such as Wild Turkey, White-tailed Deer, and numerous songbirds.

Vegetative Control

As years have passed, much of the open water space created by earlier construction has grown back to Cattails, Sedge and Lillypads. This vegetation has choked off the open water in the migratory birds' breeding, nesting and feeding areas. At least once in the next five years the Bureau of Wildlife intends to

thin some of the dense, monotypic cattail stands which have formed to create open water to benefit waterfowl and other marsh birds. Creation of open shallow water, fringed by cattail and other emergent vegetation, attracts not only waterfowl but other species as well such as great blue heron, green-backed heron, great egret, black-crowned night-heron, Virginia rail, sora, bitterns, common moorhen, black tern, king rail, sedge wren and pied-billed grebes.

Invasive and exotic species of vegetation (Phragmites, purple loosestrife, buckthorn) have been identified on the Wildlife Management Area. An intensive inventory of invasive species will be conducted, efforts to track and control communities of invasive and exotic plants will increase. Currently, work plans are submitted each year to the DEC Operations Unit to prevent the spread of these undesirable plant species, with the use of DEC Operations and Student Conservation Association workers, volunteers, and prison crew labor from Moriah Shock who pull the vegetation by hand. The Bureau may also utilize techniques such as mechanical cutting, crushing, shearing, disking, application of herbicides, implementation of biological control, and water level manipulation or any of the other BMP's described in Appendix T (subject to necessary permits) for control and management of both invasive and overabundant native vegetation. However, one stand of Phragmites near the south-central boundary of the WMA is so large that the BMPs described in Appendix T may be impractical. This stand, measuring some five acres in size, may necessitate use of motorized equipment or a motorized vehicle to apply herbicide over this large an area, possibly via a mounted boom wick applicator. This activity will require both a Pesticides and an APA Wetlands permit.

There is a very small portion of the marsh that is not currently owned by the State that has been identified as being the largest stand of Phragmites in the area. Removal and control of these plants will depend upon landowner cooperation. If this stand is not controlled, it will be a continuous source of Phragmites for WMWMA requiring perpetual control efforts by DEC for which funding and personnel are both in short supply. If funding from sources such as the North American Wetlands Conservation Act, Lake Champlain Wetlands Phase III Grant become available, the boundary of WMWMA should be expanded to include the entire wetland. This will guarantee the protection of the entire wetland complex.

Several of the ecological communities present at WMWMA are fire and/or disturbance dependent. The Bureau plans to inventory the disturbance dependent species found at the management area and determine the management needs for these communities. Appropriate disturbance management activities, such as controlled burning, mowing, thinning, selectively cutting trees, and clear- cutting, will be reviewed and implemented when applicable in accordance with the timber management handbook to promote the health of these disturbance dependent species and the communities they are found in.

Permit Requirements

The Bureau of Wildlife will obtain all necessary Federal and State permits where necessary to accomplish the tasks and objectives outlined in this plan. Any regulated activity which may involve a freshwater wetland will not be undertaken prior to consultation and agreement with the Agency.

Schedule for Implementation and Estimated Budget

The following tables outline a schedule for implementation of the proposed management actions and their estimated costs. Accomplishments are contingent upon sufficient staffing levels and available funding. The estimated costs of implementing these projects are based on historical costs incurred by the Department for similar projects. Values for some projects are based on projected costs for service

contracting. These cost estimates do not include capital expenditures for items such as equipment, nor do they include the value of program staff salaries.

Annual Maintenance and other Activities	Estimated Cost
Mow 3 acres of grassland and 1 waterfowl banding site.	$300
Perform general maintenance on 2.5 miles of administrative roads.	$850
Perform general maintenance on 4 miles of foot/bike trails.	$500
Perform general maintenance on the universally accessible wildlife watching platform.	$400
Paint, grease and replace signs if needed on the 2 WMA access gates.	$500
Perform general maintenance on the 2 WMA boat launches.	$750
Perform general maintenance on 4 vehicle parking areas.	$500
Inspect, repair, control vegetation around and perform general maintenance as needed on 3 facility signs.	$300 & 1 person day
Inspect and maintain 11 wood duck boxes, 2 blue bird boxes, and 1 osprey platform.	$200 & 6 person days
Inspect and perform general maintenance on 2 culverts.	$100 & 1 person day
Inspect and perform needed repairs of 1000 feet of dike and spillway.	$500 & 1 person days
Perform general maintenance on 2000 feet of level ditches including needed dredging and unwanted vegetation removal.	$5200 & 3 person days
Paint and sign 3 miles of WMWMA boundary lines.	$1000
Total	**$11,100 & 12 person days**

Year 1	Estimated Cost
Inventory invasive plant species	$6000 & 5 person days
Remove undesirable vegetation to create pockets of open water in marsh.	$ 10,000 & 5 person days
Conduct timber sale to expand grassland area and/or improve wildlife habitat.	15 person days
Replace foot bridge on west boundary line trail	$3000 & 2 person days
Install osprey platform	$2000 & 2 person days
Total	**$21,000 &** **29 person days**

Year 2	Estimated Cost
Implement invasive plant species controls as determined appropriate from inventory.	$9000 & 10 person days
Replace 48" culvert in KOA Campground trail and repair trail	$5000 & 2 person days
Conduct timber sale to construct forest openings and/or improve wildlife habitat.	15 person days
Total	**$14000 &** **17 person days**

Year 3	**Estimated Cost**
Construct and install two kiosks	$3000
Perform timber stand improvement (TSI) cutting	15 person days
Inventory disturbance-dependent plant species.	$6000 & 5 person days
Construct catwalk over the marsh on main hiking trail	$10,000 & 5 person days
Total	**$19000 & 25 person days**

Year 4	**Estimated Cost**
Conduct comprehensive mammal survey	$6000 & 5 person days
Install second osprey platform	$5000 & 4 person days
Implement management of disturbance-dependent plants as determined appropriate from inventory completed in year 2.	$ 1000 & 10 person days
Total	**$12000 & 19 person days**

Year 5	Estimated Cost
Re-inventory invasive plant species.	$6000 & 5 person days
Implement 2nd phase of management of disturbance-dependent plants as determined appropriate from inventory completed in year 2.	$ 7000 & 10 person days
Total	**$19000 & 20 person days**

Cost Summary

Annual Maintenance Costs: **$ (5 years @ 11,100)=55,500 and (5 years @ 12 person days) = 60 person days.**

Five Year Specific Projects Total: $ **79,000 and 105 person days.**

Total Costs for WMWMA for 5 years: $ **134,500 and 165 person days**

D. State Forests

It is the policy of the Department to manage state forest lands for multiple benefits to serve the People of New York State. This State Forest Timber Management Plan is the first step in carrying out that policy. This plan has been developed to address timber management activities on this unit for the next 10 year period, with a review due in 5 years. Some management recommendations may extend beyond the 10 year period. Factors such as budget constraints, wood product markets, and forest health problems may necessitate deviations from the scheduled management activities.

General Description

State Reforestation and Multiple Use Areas such as Terry Mountain and Burnt Hill State Forests are publicly owned commercial forest lands managed to achieve optimum levels of timber production, wildlife habitat, watershed protection, public recreation and kindred uses commensurate with the capabilities of the site and forest environment. The areas include Clinton State Forests 2, 3 and 4, Terry Mountain and Burnt Hill. Both of these areas consist of a mix of lands which were designated either as Multiple Use or Reforestation Areas at the time of acquisition. Clinton State Forest numbers 3 and 4 make up the area known as Terry Mountain State Forest while Burnt Hill State Forest consists of Clinton State Forest number 2. Probably the most imposing feature on the landscape is an 891 foot tall radio broadcast tower located on a local government in holding on the top of Terry Mountain owned and operated by Essex County.

The most recent timber inventory for Terry Mountain State Forest was completed during the summer of 2006. Some small salvage cutting and Timber Stand Improvement operations were performed in the years following the 1998 ice storm. Many of the timber stands on Clinton 2, 3 and 4 have large volumes of dead and dying trees. The roads and access routes are in need of maintenance and have been blocked by fallen trees, a private gate, overgrowth and erosion.

General History

In New York State much of the State Forest lands owe their present character to the impact of pioneer settlement, which resulted in land clearing for agricultural purposes following the close of the Revolutionary War. Prior to pioneer settlement the major forces that shaped the forest and set back succession were fires both natural and those intentionally set by natives. Next to fire, wind storms and beavers were the largest forces changing forests. By the late 1800's much of these (future) State Forest areas were open farm lands. Up to 91% of the woodlands were cleared for cultivation and forage by the pioneer settlers. Early farming efforts met with limited success and as the less fertile soils proved unproductive, the farms were abandoned and settlers moved farther west, in search of more productive sites. New forests of young saplings re-occupied the ground once cleared. After the turn of the century (1900), due to better transportation (for out-of-state products), depleted soils and other factors, farm land abandonment became widespread in New York.

One solution to this problem of land abandonment was a proposed massive reforestation effort. This would help assure a supply of timber for future generations, as well as getting land that was often unsuited for agriculture, back on the tax roles. The New York State Legislature responded to these concerns by passing the State Reforestation Act of 1929 and the Hewitt Amendment of 1931. This legislation authorized the Conservation Department to begin acquiring land for the purpose of reforestation with an emphasis on timber production. Parcels had to be purchased in blocks of at least 500 acres and be suitable for planting trees. The state was also required to pay both town and school taxes on these lands commonly referred to as Reforestation Areas.

In 1930, Forest Districts were established and land acquisition and reforestation were started. In 1933 the Civilian Conservation Corps (CCC) was begun. Thousands of young men were assigned to plant millions of trees on the newly acquired State lands. In addition to tree planting, these men were engaged in road and trail building, erosion control, watershed restoration, forest protection and other conservation projects. CCC camps were present in locations across the state.

During the war years of 1941-1945, very little was accomplished on State lands. Plans for further planting, construction, facility maintenance and similar tasks had to be curtailed. One lesson learned as a result of this war (and World War I) was the demand for lumber and related forest products put a tremendous strain on the forests of the United States. However, through postwar funding, forest conservation ideas and projects once again received needed attention. The initiation of the Forest Practice Act in 1947, which allowed State Foresters to provide assistance to private landowners, is one such example.

The Park and Recreation Land Acquisition (PRLA) Act of 1960, and the Environmental Quality Bond Acts of 1972 and 1986, contained provisions for the acquisitions of additional State Forest lands. These lands would serve multiple purposes involving the conservation and development of natural resources, including the preservation of scenic areas, watershed protection, forestry and recreation, and are commonly referred to as “Multiple Use Lands.” Today, there are over 750,000 acres of State Forest lands which provide multiple benefits to the people of New York State. The use of these lands for a variety of purposes such as timber production, hiking, skiing, fishing, trapping and hunting is of tremendous importance to the health and well-being of the people of the state.

Access

Access into the Terry Mountain State Forest is currently poor. One State constructed and maintained road called the Red Road is approximately 4.3 miles in length. It starts at the Patent Road and proceeds west. Travel by four-wheel drive beyond the half-way point of the road for an additional mile or so is possible. In addition, a town road, referred to as the Mud Pond Road (Military Pond Road or Patent Road on old maps), is located in the southern portion of the area and can be traversed by four-wheel drive or high ground clearance two-wheel drive if weather conditions are favorable.

The Mud Pond Road which accesses portions of the area is no longer maintained by the Town. When the town stopped maintaining the road, the local residents gated the road since they were maintaining it to access their property. This road is the Department’s only access route to reach many of the timber stands within this forest. Generally, this Mud Pond Road is in extremely poor repair and upgrading would be an expensive process. The Mud Pond Road is the public access for Mud Pond and Military Pond. A new trail called the Cliff Trail, a hiking, biking, horse-back-riding and cross-country ski trail that will also provide fishing access will be built to connect Military and Mud Pond with the Red Road. A second trail called the Summit Trail has been laid out and will be built to connect the Cliff Trail and Red Road to the Tower Road. For these facilities to be accessed by the public, the illegal gate must be removed, since it blocks the only legal access to one side of the trails. The proposed Mud Pond Road trail would provide a snowmobile trail from Fern Lake to Peru utilizing a section of Terry Mountain State Forest from Military Pond to Mud Pond to the Red Road where it intersects with the Patent Road. Sections of trail along the Red Road will be included as small ski and bike loops.

Two additional access points to Terry Mountain exist. The first is known as the Tower Road. This road is approximately 1.9 miles in length and located on the northern edge of the area. The road accesses an inholding with a radio tower on it as well as state owned lands. The second is a right-of-way located near

the northwest corner of the property which is now overgrown and only traversable by foot.

A snowmobile connection from Clinton 4 (Terry Mountain) to Fern Lake was originally planned to be completed through a private snowmobile club agreement with International Paper Company, Inc. (IP). Since that time the IP lands were acquired by Lyme Adirondack Timber Lands LLC. (LATL). The Department has purchased easement rights on these LATL lands and plans to open the roads on this parcel to snowmobiles but can not do so until recreation plans have been completed. This connection will provide Wilmington, Taylor Pond and Silver Lake with a good connection to Peru and Plattsburgh. This connection will supply the needed trail to make a day-trip type loop, which is what most snowmobilers in the area have expressed interest in. The Department plans to open the logging access roads between Fern Lake and Military Pond for snowmobile access. The majority of these trails are already in place and used as logging roads. Some small connections may need to be developed or improved.

The roads in Burnt Hill State Forest have been closed to motor vehicles for many years now. Due to the lack of maintenance, the roads became unsafe and a culvert accessing the property was removed to close the roads to the public. A parking lot was built and access past the parking area was effectively limited to non-motorized use and snowmobiling. The roads, if brushed out, could be used by hikers, bird watchers, mountain bikers, horse-back riders, cross country skiers, and other recreationalists. In order to reopen the roads for public use, as well as for forest management practices, the roads will need extensive rehabilitation.

Topography

The topography in the area of Clinton State Forests 2, 3 and 4 ranges from gentle to very steep and elevation varies from 720 feet above sea level to 2,067 feet above sea level on the top of Terry Mountain. Soils range from very well drained on the steep side hills and mountain tops to poorly drained in the old beaver flow areas along the southern border of Terry Mountain (Clinton 3 and 4) and southerly access to Burnt Hill (Clinton 2) from the Strackville Road.

Permanent and Ongoing Uses

The uses and activities listed below are of a permanent nature and allowed by deeded rights.

- Electrical Transmission and Telephone Lines (Liber 447, Page, 957 and Liber 452, Page 300).
- Access to the Radio Tower and inholding (Liber 447, Page 957 and Liber 452, Page 300).

Timber Harvesting and Silvicultural Practices

Timber Resources

There is an expressed demand for a variety of wood products coming from state lands. In recent years the demand for saw timber has increased. The demand for fuel wood has also increased with the rising energy costs associated with oil. A consistently increasing demand for wood products is expected during this UMP planning and implementation period.

The ice storm that struck the North Country and southern Canada in January 1998 severely impacted forests. The ice storm's long-term effects are not known. Few studies have followed an event of this nature over a long period of time. Timber stands are being monitored to determine the long-term effects of the storm on trees and forests. Most forest ecosystems are resilient, and will recover over time.

There was considerable variation regarding the degree of damage to the forests associated with the storm. Some differences involved physical features such as geography and aspect, while others related to the tree species, size classes and stand densities.

Site aspect seemed to be the determining factor as far as the amount of damage an area recieved. Northeastern exposures were most severely damaged, while southern and western slopes seemed to be somewhat protected. The edges of stands were damaged heavily, as were recently thinned stands in comparison to fully stocked, un-thinned stands.

Generally, conifers weathered the storm better than deciduous species. The exceptions to this were scotch pine and red pine stands which were exceptionally hard hit. Spruce, hemlock, and white pine suffered the least damage. In areas of intense damage like Burnt Hill and Terry Mountain, no species escaped damage; however, the hardwoods that were most severely damaged included, aspen, black cherry, ash, basswood, birch and maple. Pole size trees (6"-8" DBH) seemed to suffer heavier damage than seedling-sapling (1"-5" DBH) or larger saw timber size trees.

In the hardest hit stands, many trees lost most or all of their crowns. Coniferous species that had either bent over or had severely broken tops, and lost 25-50% of their crowns, were expected to die. If conifers had merely lost their top leader at a 4" diameter or less, without substantial crown loss, they were expected to live and generally have.

The broadleaf trees were also heavily damaged, but trees with less than 50% crown damage generally live. Typically, there are dormant buds beneath the bark that sprout to form new branches and leaves following ice damage. Almost all the damage in hardwood saw timber-size trees occurred in the tops where branches were broken, usually at the 1-6" diameter size.

Wildlife Habitat

It is expected that the ice storm has provided a great benefit to wildlife. The damage from the storm created browse for deer and habitat cover for small mammals, amphibians, and ground nesting bird species.

The ice storm created a lot of dead, downed wood and debris which has increased wildlife habitat. The downed trees created holes in the canopy for more light to reach the forest floor. Over the last few years, wild flowers, grasses, shrubs, and tree seedlings have emerged in these sunlit openings.

A greater number of tree cavities were created in the damaged trees which serve as nesting sites for wildlife. The amount of dead wood increased insect activity creating a greater food source for those species that prey upon the insects.

Fisheries Habitat

The ice storm has not had a major impact on the fisheries habitat. The exception may be the loss of shade to some trout streams. Trees and woody debris that had fallen into the streams and lakes also created structure and cover to improve habitat.

Watersheds

Protection of the various streams from water quality degradation will be accomplished by adhering to Silvicultural Best Management Practices as detailed in the Timber Management Handbook, Chapter 200 -

Environmental Harvesting Standards. These practices restrict the use of heavy equipment and logging within certain distances of streams based on the steepness of adjacent slopes, soils, and condition of the stream channel as well as how and where stream crossings should occur. Bridging of streams may be required based on individual circumstances. Consideration will be made to layout future logging operations so that stream crossings are minimized.

Wetlands

The many benefits of protected wetlands will be maintained by adhering to the requirements of ECL §3-0301 and §24-130 the Freshwater Wetlands Laws. In addition, Silvicultural Best Management Practices will be followed.

Forest Health

Fire, insects and disease are probably the biggest threats to forest lands aside from damaging storms. The most recent large forest disturbance was the 1998 Ice Storm. The storm increased fuel loads drastically as well as weakened and/or killed many trees. While in this part of the state there would have to be a major drought to cause any real fire threats, many insects and diseases present a real risk to the forests. The health of plant populations will be monitored and maintained through integrated pest management. New species outbreaks such as the Sirex Wood Wasp (Sirex noctilio), and potentially Emerald Ash Borer (Agrilus planipennis) will be carefully monitored. Observations and/or inventory of potential insect or disease outbreaks will be recorded. When warranted, appropriate control strategies will be developed to reduce health and aesthetic impacts. More common problems, such as beech bark disease, ash decline and blister rust of pine will be controlled through harvesting. Access roads still need to be cleared of debris in case there is a fire or emergency. An adequate level of fire protection will be maintained so as to assure minimum risk of loss to the forest, land resources, facilities and to the public.

Soil and Water Protection

The 1998 Ice Storm damaged many trees causing the deposition of woody material on the forest floor. Decaying debris will add nutrients to the soil. Salvage operations and stand management should follow the Timber Harvesting Guidelines and Best Management Practices (BMP's) for New York State. Culverts and bridges should be maintained so debris does not plug them.

Recreation and Aesthetics

Wildlife populations have increased since the 1998 ice storm. Thinning of damaged and lower quality trees will help to improve access and aesthetics and the repair of skid trails and roads will increase access for the public.

Timber Stand Inventory

The stands in Burnt Hill State Forest were all heavily damaged by the 1998 ice storm and many of the stands have been in need of management since that storm. The cutting plans on the following pages are reflective of the timber stand inventory that was conducted in 2006. All stands depicted in the following charts as being sites I or II will be managed on a 20-year cutting interval. Site III stands will be managed on a 30-year cutting interval. The inventory data is included at the end of this forest management plan and the timber stand inventory maps can be found in Appendix Z. Much like Burnt Hill State Forest, Terry Mountain State Forest which is located next door was also hard hit by the 1998 ice storm and it is still recovering.

Land Management

It will be the goal of the Department to manage state lands for multiple benefits to serve the needs of the People of New York State. This management will be considered on a landscape level, not only to ensure the biological diversity and protections of the ecosystem, but also to optimize the many benefits to the public that these lands provide.

The land management objectives outlined in the "Clinton 2, 3 & 4 Management Objectives" section below will be accomplished using a range of timber management actions. The forests contained on Terry Mountain and Burnt Hill State Forests are certified under the Forest Stewardship Council (FSC) and the Sustainable Forestry Inititive (SFI). Sustained wood production will be achieved through the establishment of cutting schedules which will utilize intermediate and final harvest cuts. These practices will be applied in an environmentally sound, silviculturally proven manner in accordance with the NYS Timber Management Handbook, BMP's and State Forest Wildlife Management Handbook.

Temporary Revocable Permits

Permits may be issued for the temporary use of State Lands by the public. This is authorized by Section 9-0105 of the Environmental Conservation Law (ECL) and by provisions of the Policy and Procedures Manual, Section 8426, "Temporary Revocable Permits for the use of State Lands".

State Forest Timber Management

Burnt Hill (Clinton 2)

The Burnt Hill State Forest consists of 1,575 acres. Of these 1,575 acres, 40 acres are considered non-forest. Due to rounding done by the inventory program, the program outputs stand data with a total acreage for Burnt Hill to be 1,576 acres. The inventory program acreages will be used for this section of the UMP. The 1,536 acres of inventoried timber lands will be managed as uneven-aged stands. The stands are all currently two and three aged stands other than the three small plantations.

One hundred seventy-six (176) acres in stands 2, 9 and 13, site class III, will be managed on a 30- year cutting interval. The balance of the stands (1,360 acres) 1, 3, 4, 5, 7, 8, 10, 14, 15, 16 site class I and stands 6 and 12 site class II will be managed on a 20-year cutting cycle.

Stocking tables are used to determine the growth opportunity for trees in specific stands using basal area and trees per acre measurements. In stocking tables, areas above the "B" line and below the "A" line show adequately stocked stands with basal area densities ideal for tree growth. Areas above the "A" line show stands that are over stocked and in need of commercial or non-commercial thinning.

According to the combined 1998 and 2006 inventory, stands 1, 4, 6, 12 and 13 fall between the A and B line in the stocking tables. The trees in these stands all need to grow. Once the stocking level has reached a level above the "A" line the stands will be harvested. Stands 1, 4, 6, 12 and 13 are all adequately stocked and should be re-inventoried in 2016. A specific cutting plan should be devised at that time with a goal of uneven-aged management. Stands 5, 7, 8, 9, 10, 14 and 15 all need to undergo a thinning. Specifically stands 5, 7, 8, 9 and 10 are overstocked and should have a significant portion of their basal area removed bringing their stocking level or basal area density down closer to the "B" line. By reducing the stand densities with a thinning, the trees are released and this allows for growth at a faster pace.

Stands 14 and 15 are adequately stocked, but due to their poor species composition should be thinned. In these stands the high percentages of aspen and white birch are not desirable. These stands should have up to a third of their basal area removed. For this thinning, marking should be conducted with the removal of the aspen and white birch in mind as well as uneven-aged management.

Stands 2, 3 and 16 are plantations that should have been thinned ten years ago. These stands have undergone some past management, but the lack of recent management has left them in poor shape. A part of these stands have undergone a third row thinning and parts a selection thinning. Stands 2 and 3 are adequately stocked and stand 16 is overstocked. Even though stands 2 and 3 are not overstocked, they should be thinned because of the small size class of the stands , poor tree taper and poor form. A third row and selection thinning is the removal of every third row in a plantation and selective thinning in the remaining rows to reach the prescribed basal area. This thinning will release the stands. The trees in the three plantations have poor taper and will likely be damaged by storms if exposed in the first two years after thinning. Since the plantations receive some wind protection from the surrounding stands they will be thinned. The plantations have some natural regeneration that should be encouraged.

Burnt Hill Cutting Plan

Stands 5, 7, 8, 9, 10, 14, 15 and plantations 2, 3 and 16 will undergo a thinning that will bring the stands' stocking levels down closer to the "B" line.

Terry Mountain (Clinton 3 & 4)

The 4,802 acres that make up Clinton 3 and 4 were inventoried during the summer of 2006. The cutting plan for these lands outlines all timber management activities. Some of the stands need a selection thinning due to the damage caused by the 1998 ice storm. The stands have not been managed since before the ice storm. Many of the stands are nearing readiness for a commercial cutting. All the stands in this forest not being cut commercially should undergo a non-commercial selection thinning in order to improve the growing stock. The recommendations outlined in the cutting plan will be implemented as prescribed.

All of the stands in the following tables A3, B3, C3, A4, B4 and C4 site class III will be managed on a 30-year cutting interval. The balance of the stands in the tables A3, B3, C3, A4, B4 and C4 which are class I and II will be managed on a 20-year cutting cycle.

Stocking tables are used to determine the growth opportunity for trees in specific stands using basal area and trees per acre measurements. In stocking tables, areas above the "B" line and below the "A" line are adequately stocked stands with basal area densities ideal for tree growth. Areas above the "A" line are stands that are over-stocked and in need of commercial or non-commercial thinning.

According to the 2006 inventory the stands in tables B3, C3, B4 and C4 are adequately stocked. The trees in these stands all need to grow. Once the stands in these tables have reached a level above the "A" line they will be harvested. All of the stands in tables B3 and B4 are adequately stocked and should be re-inventoried in 2016. A specific cutting plan should be devised at that time with a goal of uneven-aged management. The recommendations outlined in that cutting plan will be implemented as prescribed. The stands located in tables A3 and A4 need to be thinned. The stands are overstocked and should have a substantial portion of their basal area removed. By reducing the stand densities, the remaining trees are released which allows tree growth at a faster rate. The stands located in tables C3 and C4 are all understocked and need to grow.

All of the stands in tables B3 and B4 are adequately stocked, but due to their poor species composition, some stands need to be thinned. In the stands which need thinning, the high percentages of aspen, white birch and poor form trees are not desirable. The selective thinning of these stands will focus on the removal of the aspen and white birch and work toward uneven-aged management. In general stands that have high percentages of poor form trees and unwanted species, should undergo a timber stand improvement thinning (TSI). A TSI thinning removes poor form trees and unwanted species to allow better form trees to have less competition.

Clinton 3 - Terry Mountain			
Table A3 - Over Stocked			
State Forest #	**Compartment # - Stand #**	**Site Class**	**Stocking Table**
3	3-12	1	Hardwood
Table B3 - Adequately Stocked			
State Forest #	**Compartment # - Stand #**	**Site Class**	**Stocking Table**
3	1-2	1	Hardwood
3	1-3	1	Mixed Wood
3	1-4	1	Hardwood
3	1-5	1	Mixed Wood
3	1-12	1	Mixed Wood
3	1-13	1	Hardwood
3	1-14	1	Hardwood
3	1-16	1	Hardwood
3	1-17	2	Mixed Wood
3	1-18	1	Mixed Wood
3	1-21	2	Spruce - Fir
3	2-4	1	Mixed Wood
3	2-7	1	Hardwood
3	2-10	2	Hardwood
3	2-12	1	Spruce - Fir
3	2-14	1	Hardwood
3	2-16	2	Mixed Wood
3	2-18	2	Mixed Wood
3	2-19	2	Hardwood
3	2-20	2	Hardwood
3	2-22	3	White Pine
3	2-23	1	Mixed Wood
3	2-911	3	Hardwood
3	3-3	3	Hardwood
3	3-5	1	Hardwood
3	3-6	2	Mixed Wood
3	3-7	1	Hardwood
3	3-8	3	Hardwood
3	3-9	3	Mixed Wood
3	3-10	2	Mixed Wood
3	3-11	3	Mixed Wood
3	3-14	3	Mixed Wood
3	3-15	1	Hardwood
3	3-16	1	Hardwood
3	3-17	1	Mixed Wood
3	3-19	2	Hardwood
3	3-21	3	Mixed Wood

3	4-2	3	White Pine
3	4-6	3	Spruce - Fir
3	4-7	3	Mixed Wood
3	4-9	1	Mixed Wood
3	4-10	3	Hardwood
3	4-12	1	Mixed Wood
3	4-13	1	Hardwood
3	4-14	1	Hardwood
3	4-15	1	Hardwood
3	4-17	2	Mixed Wood
3	4-21	2	Mixed Wood
3	5-3	1	Hardwood
3	5-5	1	Spruce - Fir

Table C3 - Under Stocked

State Forest #	Compartment # - Stand #	Site Class	Stocking Table
3	1-6	1	Mixed Wood
3	1-7	1	Mixed Wood
3	1-8	1	Mixed Wood
3	1-10	1	Spruce - Fir
3	1-11	1	Spruce - Fir
3	1-15	1	White Pine
3	1-19	1	Mixed Wood
3	1-20	3	Mixed Wood
3	2-5	1	Mixed Wood
3	2-6	2	Mixed Wood
3	2-8	1	Mixed Wood
3	2-11	1	Spruce - Fir
3	2-13	2	Spruce - Fir
3	2-15	1	Spruce - Fir
3	2-17	1	Mixed Wood
3	2-24	1	White Pine
3	2-25	1	Mixed Wood
3	3-1	2	Mixed Wood
3	3-2	1	Mixed Wood
3	3-4	1	Mixed Wood
3	3-13	3	Mixed Wood
3	3-18	1	Mixed Wood
3	3-22	3	Mixed Wood
3	4-1	1	Spruce - Fir
3	4-3	1	Mixed Wood
3	4-4	1	Mixed Wood
3	4-5	1	Mixed Wood
3	4-8	1	Mixed Wood
3	4-16	3	Mixed Wood
3	4-18	3	Mixed Wood
3	4-22	3	Mixed Wood
3	5-4	1	Mixed Wood

Clinton 4 - Terry Mountain

Table A4 - Over Stocked

State Forest #	Compartment # - Stand #	Site Class	Stocking Table
4	2-10	1	Mixed Wood
4	2-13	2	Spruce - Fir
4	2-14	1	Mixed Wood
4	3-1	1	Mixed Wood
4	3-2	1	Mixed Wood
4	3-4	1	Mixed Wood
4	4-1	1	Hardwood
4	4-18	1	Mixed Wood
4	4-19	1	Mixed Wood
4	4-21	1	Hardwood
4	4-28	1	Mixed Wood
4	5-3	1	Hardwood
4	5-4	1	Hardwood
4	5-5	2	Hardwood
4	5-6	1	Hardwood
4	5-14	1	Hardwood
4	5-25	1	Hardwood
4	5-31	1	Hardwood
4	6-1	1	Hardwood
4	6-3	1	Hardwood
4	7-8	1	Hardwood

Table B4 - Adequately Stocked

State Forest #	Compartment # - Stand #	Site Class	Stocking Table
4	1-1	3	White Pine
4	1-2	1	Hardwood
4	1-3	1	Red Pine
4	1-4	2	Red Pine
4	2-1	1	Hardwood
4	2-2	3	White Pine
4	2-3	1	Hardwood
4	2-4	1	Mixed Wood
4	2-5	3	Hardwood
4	2-6	3	Hardwood
4	2-7	3	Hardwood
4	2-9	3	Hardwood
4	2-11	1	Spruce - Fir
4	2-12	1	Mixed Wood
4	3-3	1	Hardwood
4	3-5	1	Hardwood

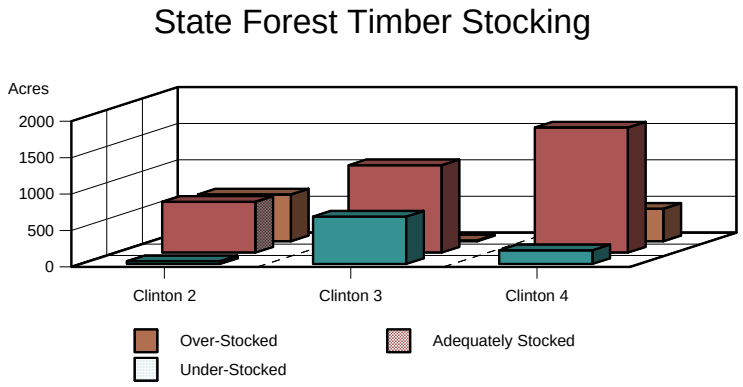
4	3-6	1	Hardwood
4	3-8	1	Mixed Wood
4	3-9	1	Mixed Wood
4	4-3	1	Mixed Wood
4	4-7	1	Hardwood
4	4-8	2	Red Pine
4	4-9	3	Red Pine
4	4-10	1	Hardwood
4	4-11	2	Red Pine
4	4-14	2	Hardwood
4	4-15	1	Hardwood
4	4-17	1	Mixed Wood
4	4-20	1	Hardwood
4	4-22	1	Hardwood
4	4-23	1	Mixed Wood
4	4-24	1	Hardwood
4	4-26	1	Hardwood
4	4-31	1	Hardwood
4	5-1	1	Hardwood
4	5-7	1	Spruce - Fir
4	5-9	1	Mixed Wood
4	5-11	1	Mixed Wood
4	5-12	1	Hardwood
4	5-13	1	Mixed Wood
4	5-15	1	Spruce - Fir
4	5-18	1	Hardwood
4	5-19	1	Hardwood
4	5-21	2	Mixed Wood
4	5-22	1	Mixed Wood
4	5-26	1	Hardwood
4	5-27	1	Hardwood
4	5-28	1	Hardwood
4	5-30	1	Mixed Wood
4	6-2	1	Spruce - Fir
4	6-14	1	Mixed Wood
4	6-20	1	Mixed Wood
4	6-21	1	White Pine
4	7-1	1	Mixed Wood
4	7-4	1	Mixed Wood
4	7-5	1	Hardwood

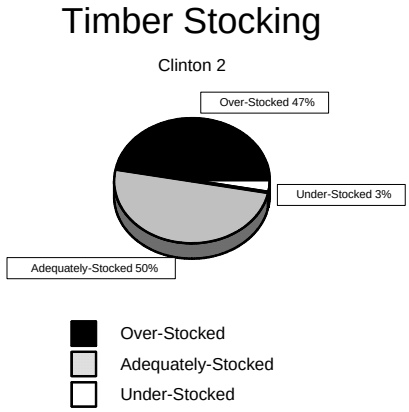
Table C4 - Understocked

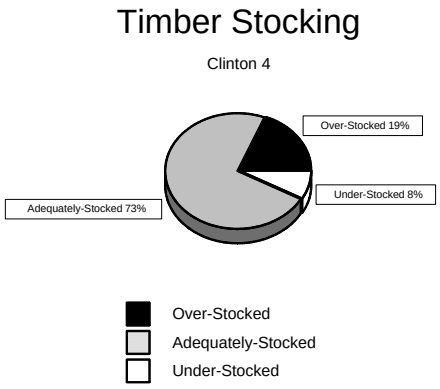
State Forest #	Compartment # - Stand #	Site Class	Stocking Table
4	2-8	3	Spruce - Fir
4	3-7	1	Mixed Wood
4	4-27	1	Spruce - Fir
4	5-16	3	Mixed Wood
4	5-17	1	Spruce - Fir
4	5-20	1	Spruce - Fir

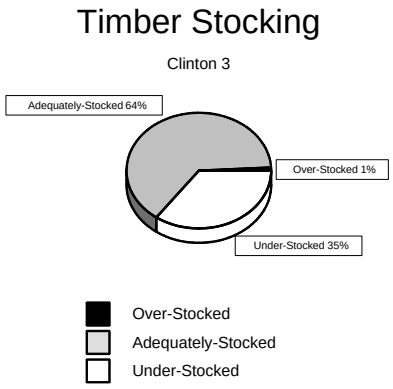
4	5-23	1	Mixed Wood
4	5-29	1	Mixed Wood
4	6-15	1	Mixed Wood
4	6-16	1	Mixed Wood
4	7-2	1	Spruce - Fir
4	7-3	1	Spruce - Fir
4	7-6	1	Mixed Wood
4	7-7	1	Mixed Wood

Terry Mountain (Clinton 3 & 4) Cutting Plan:
The stands found in tables A3 and A4 need a thinning that will remove a substantial portion of their basal area. In addition to the overstocked stands, some stands found in tables B3 and B4 need to be thinned in order to remove the poor quality growing stock. These stands should be thinned as soon as possible in order to maximize growth of merchantable timber species.









Clinton 2, 3 and 4 Management Objectives

- Manage State Forests in a manner as to keep them in compliance with FSC & SFI standards of the Green Certification Program and insure utilization of the lands are maximized under the multiple use concept.

- Clinton State Forests 2, 3 and 4 will be managed as publicly owned commercial forest lands and maintained to achieve the optimum levels of timber production, wildlife habitat, watershed protection and public recreation, commensurate with the capabilities of the site and forest environment.

- Generate income through product sales, contribute to the stabilization of forest product industry, and contribute to alternate energy concerns by use of wood resources.

- All management practices will provide a high degree of environmental protection in addition to improving public lands and resources.

- Provide access to these lands to enable expansion of the forest product sales program and enhance public use opportunities.

- Maintain access routes and woods roads.

- Maintain a current timber inventory.

Clinton 2, 3 and 4 Management Actions

Implementing management actions are dependant upon several factors:

(1) The delay of stand treatments due to a lack of markets at the time of a scheduled treatment. The development of markets for products from stands presently considered noncommercial, the plan may be amended to include these stands in the cutting schedule.

(2) Disease, insect or storm damage may necessitate unscheduled salvage actions.

(3) The lack of funding and manpower could cause a delay or shift of scheduled management. These actions will be completed as soon as possible within approved budgets.

- Re-inventory both Terry Mountain and Burnt Hill State Forests (Clinton 2, 3 and 4) in 2016 (every ten years).

- Install State Forest entrance signs. Two on Clinton 3 and two on Clinton 4 (both are part of Terry Mountain State Forest).

- Rehabilitation of approximately 4.3 miles of truck trail on Clinton 3, which would include hauling fill, replacing two culverts, road crowning, rut and pothole filling, cleaning ditches, brushing and other labor.

- Install a pipe gate on the access road to Clinton 2 on the Strackville road side.
- Conduct timber stand improvement cuttings on stands with poor form trees and heavy stand damage from storms.
- Maintain all current access routes and facilities.
- Seek volunteer groups that would like to maintain access routes and woods roads under AANR agreements.
- Facilitate upgrades and repairs as they are needed and defined during the timber management and inventory processes.
- Re-establish the boundary line on Clinton 3 along the Tower Road.
- Develop a brochure outlining locations, recreational opportunities, history and other features on Clinton 2, 3 and 4 State Forests in Clinton County.
- Repaint all State Forest boundary lines every seven years.

Clinton State Forest #2 Inventory Data Clinton

Region	County	State Forest	Compartment
Region 5 - [5]	Clinton - [47]	CLINTON 2 - [2]	5470201 - [1]

Plantation - 3

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
2	40	C	SST	3	RP:89%	ASP:8%	WP:3%	--	--	190	110	4378	14.40	14.40	299	0%	10.80	3	1	1	1	1963	2006
3	40	C	PT	2	RP:94%	WB:3%	RM:3%	--	--	175	20	3360	0	0	411	NA	8.8	1	1	1	1	1988	2006
16	41	C	PT	5	WP:90%	RM:4%	ASP:2%	HM:2%	BC:1%	162	18	2799	1.4	1.4	360	0%	8.9	1	1	3	1	1966	2006
			Total	10					Status Average:	175.67	49.33	3512.33	0.47	0	356.67								

Wetlands (Open) - 10

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
11	99		Null	12	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	5	1	2	2000	2006
			Total	12					Status Average:	0	0	0	0	0	0								

Other - 12

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
4	99		Null	2	ASP:50%	WP:25%	GB:25%	--	--	40	0	0	0	0	0	NA	0	0	5	1	2	2000	2006
17	99		Null	26	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	5	1	1	2000	2006
			Total	28					Status Average:	20	0	0	0	0	0								

Natural Forest - 1

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
1	32	C	PT	128	RM:28%	WB:17%	HEM:12%	HM:12%	BE:8%	130	36	3841	6.1	6.1	212	0%	9.8	1	1	2	1	1993	2006
5	25	C	PT	2	WC:33%	HEM:27%	BF:18%	YB:13%	WB:3%	120	36	1290	4.7	4.7	210	0%	9.7	1	1	1	2	2000	2006
6	32	C	PT	412	HM:45%	BE:22%	RM:15%	HEM:7%	BUT:5%	120	42	2821	4.8	4.8	192	0%	10	2	1	2	1	1995	2006
7	32	C	PT	570	BE:43%	WB:23%	RM:16%	RS:14%	ASP:3%	140	48	4331	5.5	5.5	204	0%	10	1	1	1	1	1992	2006
8	32	A	S-S	11	--	--	--	--	--	10	0	194	0	0	0	NA	0	0	1	1	2	2000	2006
9	32	C	S-S	40	YB:34%	RM:27%	BE:16%	STM:10%	BF:6%	140	48	3872	5.8	5.684	127	2%	10.90	3	1	1	1	1975	2006
10	32	C	PT	14	BF:32%	WB:24%	RM:24%	RS:15%	BE:6%	170	50	6474	9.4	9.4	209	0%	10	1	1	1	1	2000	2006
12	13	C	PT	17	BF:30%	WB:18%	RS:17%	BE:11%	WP:8%	142	26	3458	4	4	224	0%	9.3	2	1	1	1	1988	2006
13	32	C	S-S	134	WB:37%	BE:19%	RM:14%	WP:12%	ASP:11%	114	24	2066	2.8	2.8	81	0%	10.40	3	1	2	1	1995	2006
14	32	A	S-S	84	--	--	--	--	--	10	0	194	0	0	0	NA	0	0	1	2	1	1996	2006
15	32	C	SST	114	RM:35%	BE:28%	ASP:18%	WB:8%	YB:5%	133	63	4572	9.5	9.5	137	0%	11.40	1	1	2	1	1980	2006
			Total	1526					Status Average:	111.73	33.91	3010.27	0.86	0	145.09								

Clinton State Forest #3 Inventory Data

Region	County	State Forest	Compartment
Region 5 - [5]	Clinton - [47]	CLINTON 3 - [3]	5470301 - [1]

Natural Forest - 1

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
2	21	C	PT	12	WP:36%	RP:22%	ASP:11%	WB:11%	RM:8%	184	42	5034	5.6	5.6	322	0%	9.5	1	1	2	1		2006
3	20	C	PT	70	HEM:48%	RO:10%	IWD:10%	RS:7%	WB:7%	146	76	4709	14.60	14.60	213	0%	10.90	1	1	2	1		2006
4	32	C	SST	31	HM:45%	BE:27%	BAS:5%	WB:5%	HEM:4%	112	56	4914	13.30	13.30	150	0%	10.90	1	1	2	1		2006
5	32	C	PT	12	BF:20%	HEM:18%	WP:11%	RS:11%	HM:11%	132	56	3732	7.5	7.5	204	0%	10.40	1	1	2	1		2006
6	13	C	PT	62	BF:28%	RM:24%	WB:17%	RS:9%	ASP:5%	116	30	3400	3.1	3.1	189	0%	9.5	1	1	2	1		2006
7	32	D	SST	2	HM:50%	BF:25%	RM:13%	STM:13%	--	80	40	3368	6.1	6.1	80	0%	11.70	1	1	2	1		2006
8	32	C	PT	39	WB:29%	RM:23%	BF:13%	STM:10%	HEM:7%	153	45	6218	7	7	200	0%	10	1	1	2	1		2006
9	32	C	PT	7	WB:19%	RS:16%	BF:13%	RP:13%	ASP:11%	160	43	6854	8.3	8.3	286	0%	9.6	1	1	3	1		2006
10	32	C	PT	9	BF:46%	HEM:8%	RS:8%	RM:8%	RP:7%	142	18	4798	2.7	2.7	232	0%	9.1	1	1	3	1		2006
11	32	C	PT	26	BF:30%	WB:19%	HEM:14%	RS:12%	ASP:6%	154	54	5651	9.9	9.9	221	0%	10.10	1	1	3	1		2006
12	32	C	PT	10	HM:43%	RM:18%	BE:13%	ASP:10%	HEM:3%	122	40	5205	7.9	7.9	220	0%	9.7	1	1	2	1		2006
13	13	C	PT	18	RM:17%	ASP:16%	WB:16%	HEM:12%	RS:12%	116	46	5209	11	11	181	0%	10.20	1	1	1	2		2006
14	13	C	PT	2	RM:17%	ASP:16%	WB:16%	HEM:12%	RS:12%	116	46	5209	11	11	181	0%	10.20	1	1	1	2		2006
15	21	C	PT	4	WP:32%	RP:25%	STM:11%	HEM:8%	RO:8%	118	50	2989	6.6	6.6	158	0%	10.60	1	1	3	1		2006
16	32	C	SST	57	RM:23%	HM:20%	RO:15%	HEM:9%	RS:8%	130	76	5121	12.20	12.20	167	0%	11.40	1	1	2	1		2006
17	11	C	SST	24	HEM:33%	RS:11%	RM:11%	WB:9%	BAS:8%	150	82	6474	16.20	16.20	217	0%	11	2	1	3	1		2006
18	32	C	PT	32	WB:30%	RM:25%	HEM:15%	BE:11%	ASP:8%	142	62	6799	12	12	205	0%	10.50	1	1	2	1		2006
19	32	C	PT	21	WB:26%	IWD:23%	RO:13%	RM:11%	HM:10%	122	38	4684	7	7	153	0%	10.20	1	1	2	1		2006
20	20	C	SST	29	HEM:35%	RO:17%	IWD:17%	WB:11%	RS:8%	130	60	3195	7.9	7.9	165	0%	10.90	3	1	2	1		2006
21	20	C	SST	21	HEM:27%	WP:15%	RS:15%	RO:13%	BF:9%	150	76	4262	11.80	11.80	190	0%	11.10	2	1	3	1		2006
			Total	488					Status Average:	133.75	51.8	4891.25	0.59	0	196.7								

Region	County	State Forest	Compartment
Region 5 - [5]	Clinton - [47]	CLINTON 3 - [3]	5470303 - [3]

Natural Forest - 1

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
1	32	C	PT	12	RO:28%	RM:17%	WP:13%	WB:13%	ASP:9%	108	42	2854	4.2	4.2	171	0%	10.10	2	1	2	1		2006
2	32	C	PT	10	RO:22%	HEM:20%	WP:15%	RS:11%	RM:11%	110	36	3866	4.7	4.7	157	0%	10	1	1	2	1		2006
3	32	D	SST	7	HM:44%	BA:13%	ASP:13%	RM:10%	BE:8%	78	56	2670	7.2	7.2	99	0%	11.90	3	1	2	1		2006
4	30	C	SST	23	RO:43%	WP:38%	HM:9%	RS:4%	HEM:2%	94	50	3075	7.9	7.9	138	0%	10.80	1	1	2	1		2006
5	32	C	SST	39	HM:31%	RO:24%	WA:21%	RM:13%	WB:6%	124	76	5351	18.10	18.10	176	0%	11.30	1	1	2	1		2006
6	11	C	SST	77	RO:40%	HEM:24%	HM:9%	RM:9%	BE:7%	134	80	4227	8.4	8.4	179	0%	11.30	2	1	2	1		2006
7	32		SST	33	RO:28%	RM:18%	IWD:18%	HM:13%	BA:7%	120	62	4725	10.20	10.20	131	0%	11.50	1	1	3	1		2006
8	12	C	SST	4	RM:33%	WP:21%	HEM:12%	WB:10%	IWD:10%	84	42	2125	3.9	3.9	115	0%	10.90	3	1	1	2		2006
9	21	C	PT	7	WP:72%	WB:7%	RM:6%	IWD:6%	ASP:3%	134	64	3190	8.5	8.5	195	0%	10.70	3	1	1	1		2006
10	32	C	PT	2	RO:33%	RM:22%	WA:11%	WB:8%	WP:6%	130	72	4416	8.3	8.3	169	0%	11.40	2	1	2	1		2006
11	32	C	SST	33	RO:33%	HEM:24%	WP:13%	RS:10%	BF:6%	126	68	3366	7.2	7.2	180	0%	11	3	1	2	1		2006
12	32	C	PT	11	RO:48%	RM:24%	BE:15%	HM:9%	WP:3%	132	60	5034	6.4	6.4	222	0%	10.30	1	1	2	1		2006
13	32	C	SST	5	RO:67%	HEM:11%	RM:9%	WP:5%	BE:2%	110	58	3204	4	4	162	0%	10.70	3	1	2	1		2006
14	12	C	PT	29	WP:38%	RO:28%	RM:17%	BE:11%	WA:4%	152	68	4062	7.5	7.5	218	0%	10.50	3	1	2	1		2006
15	32	C	PT	2	RM:31%	RO:31%	WP:9%	ASP:9%	WB:6%	117	40	3307	5.6	5.6	169	0%	10.10	1	1	1	2		2006
16	32	C	SST	12	RM:29%	RO:21%	HM:14%	BE:10%	WB:7%	116	50	3162	6	6	165	0%	10.40	1	1	2	0		2006
17	32	C	PT	24	RO:36%	RM:26%	WP:18%	IWD:7%	BE:4%	148	64	4062	7.1	7.1	196	0%	10.70	1	1	2	1		2006
18	21	C	PT	16	WP:35%	RS:22%	RO:15%	BF:7%	SHR:7%	92	24	2120	3.2	3.2	175	0%	9.5	1	1	3	1		2006
19	32	C	SST	26	HM:48%	RM:14%	BE:11%	BF:5%	RS:5%	126	62	4935	11.70	11.70	159	0%	11	2	1	2	1		2006
20	13	C	PT	18	RM:27%	WP:21%	BF:16%	RO:15%	RS:8%	124	40	3316	5.7	5.7	164	0%	10.10	1	1	2	1		2006
21	21	C	PT	8	WP:24%	RO:24%	RM:18%	BF:11%	RS:6%	144	42	2405	4.4	4.4	203	0%	10	3	1	2	1		2006
22	30	C	SST	8	RO:55%	WP:29%	SHR:4%	BF:2%	RP:2%	112	50	2508	4	4	131	0%	11	3	1	3	1		2006
			Total	406					Status Average:	118.86	54.82	3544.55	0.18	0	167								

Region	County	State Forest	Compartment
Region 5 - [5]	Clinton - [47]	CLINTON 3 - [3]	5470302 - [2]

Wetlands (Open) - 10

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
26	99		Null	3	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
			Total	3			Status Average:			0	0	0	0	0	0								

Natural Forest - 1

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
1	26	C	PT	14	RP:34%	WP:27%	RO:11%	RM:10%	WB:7%	117	45	3173	7.9	7.9	184	0%	10.10	2	1	3	1		2006
3	26	C	PT	24	RP:73%	RM:8%	BF:5%	WP:5%	JP:3%	128	62	2900	8.1	8.1	198	0%	10.50	3	1	2	1		2006
4	32	C	PT	96	HM:27%	WB:23%	WP:17%	ASP:10%	BE:10%	100	33	4937	9.2	9.2	147	0%	10	1	1	2	1		2006
5	32	C	PT	32	BF:31%	RP:29%	RM:16%	WB:13%	STM:5%	110	42	4423	7.5	7.5	123	0%	10.80	1	1	2	1		2006
6	26	D	SST	36	RP:49%	WP:12%	BE:11%	BF:9%	WB:7%	114	70	3152	12.40	12.40	124	0%	12	2	1	3	1		2006
7	32	C	PT	6	BE:38%	HM:19%	RM:14%	YB:11%	WB:8%	123	50	6072	10.10	10.10	175	0%	10.40	1	1	2	1		2006
8	13	C	PT	19	BF:30%	WB:20%	RM:16%	RS:14%	RP:8%	100	20	3286	3	3	178	0%	9.3	1	1	2	1		2006
10	32	D	SST	20	HM:35%	RM:33%	BE:12%	HEM:7%	WB:5%	86	54	3421	9.6	9.6	102	0%	12	2	1	2	1		2006
11	32	C	PT	41	BF:27%	HEM:25%	RS:23%	RP:12%	WB:6%	168	70	6331	12.10	12.10	245	0%	10.50	1	1	2	1		2006
12	32	C	PT	33	BF:31%	RP:25%	RS:13%	HEM:8%	RM:8%	122	56	4867	9.1	9.1	189	0%	10.60	1	1	2	1		2006
13	26	C	PT	54	RP:33%	RS:30%	BF:14%	WB:7%	BE:5%	86	42	2303	6.5	6.5	130	0%	10.60	2	1	2	1		2006
14	32		SST	34	HM:43%	BAS:14%	RO:14%	WP:5%	WA:5%	116	78	4111	11	11	157	0%	11.60	1	1	4	1		2006
15	32	C	PT	31	RS:29%	BF:23%	WP:17%	RM:9%	RO:9%	130	40	5512	8.3	8.3	195	0%	9.9	1	1	3	1		2006
16	13	D	SST	11	HM:28%	BF:24%	RO:14%	BE:13%	RS:5%	166	82	6099	16.40	16.40	154	0%	11.80	2	1	2	1		2006
17	32	C	S-S	36	BF:26%	RM:15%	HEM:14%	RS:14%	WP:12%	130	44	4320	7.5	7.5	130	0%	10.80	1	1	1	1		2006
18	13	D	SST	13	HM:31%	RM:23%	BF:14%	BE:10%	WB:7%	142	88	5187	17.20	17.20	163	0%	11.80	2	1	1	1		2006
19	32	C	SST	2	HM:45%	IWD:15%	RM:10%	WA:7%	BAS:7%	134	72	4649	11	11	192	0%	10.90	2	1	2	1		2006
20	32	C	SST	53	HM:45%	IWD:15%	RM:10%	WA:7%	BAS:7%	134	72	4649	11	11	192	0%	10.90	2	1	2	1		2006
21	20	C	PT	3	HEM:53%	HM:11%	RM:11%	RO:7%	YB:5%	203	63	1850	4.8	4.8	394	0%	9.6	3	1	2	1		2006
22	21	D	SST	32	WP:52%	HEM:36%	RO:3%	IWD:3%	RC:1%	174	126	4109	19.50	19.50	191	0%	12.50	3	1	2	1		2006
23	32	C	PT	8	RM:36%	WB:26%	HEM:17%	BF:10%	BE:4%	154	24	5145	3.1	3.1	242	0%	9.2	1	1	2	1		2006
24	21	C	PT	13	WP:41%	WB:24%	HEM:9%	ASP:7%	RM:6%	136	28	3917	4.9	4.9	215	0%	9.4	1	1	2	1		2006
25	32	C	PT	3	WB:29%	RM:23%	BF:13%	STM:10%	HEM:7%	153	45	6218	7	7	200	0%	10	1	1	2	1		2006
911	32	C	PT	3	WB:29%	RM:29%	BE:18%	BF:12%	STM:12%	170	40	4613	3.1	3.1	213	0%	9.7	3	1	2	1		2006
			Total	617					Status Average:	133.17	56.08	4385.17	0.13	0	184.71								

Region	County	State Forest	Compartment
Region 5 - [5]	Clinton - [47]	CLINTON 3 - [3]	5470305 - [5]

Natural Forest (Seedling/Sapling) - 2

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
2	32	B	PT	30.40	RM:20%	ASP:18%	WA:11%	WB:11%	HM:11%	122	58	4734	10	10	262	0%	6.7	1	1	2	1		2006
6	32	B	PT	7	RM:57%	BF:14%	BE:14%	IWD:10%	HM:5%	105	25	2062	0	0	452	NA	5.7	3	1	2	1		2006
			Total	37.40					Status Average:	113.5	41.5	3398	5	0	357								

Wetlands (Open) - 10

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
7	99		Null	8	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
8	99		Null	10	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
			Total	18					Status Average:	0	0	0	0	0	0								

Natural Forest - 1

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
3	32	C	PT	20	RM:46%	BE:25%	BAS:8%	HM:8%	YB:4%	80	30	2533	0	0	123	NA	10.20	1	1	2	1		2006
4	13	C	PT	13	BF:26%	RM:21%	ASP:12%	WB:12%	HM:11%	114	36	5321	7.8	7.8	188	0%	9.9	1	1	2	1		2006
5	13	C	PT	6	BF:53%	RM:17%	HEM:12%	ASP:5%	YB:5%	150	42	5575	7.4	7.4	256	0%	9.7	1	1	2	1		2006
			Total	39					Status Average:	114.67	36	4476.33	2.47	0	189								

Region	County	State Forest	Compartment
Region 5 - [5]	Clinton - [47]	CLINTON 3 - [3]	5470304 - [4]

Null - -99

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
11	99	A	Null	4	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	-99	-99	-99		2006
			Total	4				Status Average:		0	0	0	0	0	0								

Natural Forest - 1

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
1	99	C	Null	15	BF:29%	HEM:18%	WP:12%	RM:12%	ASP:8%	98	36	2258	4.8	4.8	154	0%	10.10	0	1	1	2		2006
2	21	D	SST	15	WP:38%	BF:19%	HEM:15%	RM:6%	WB:5%	158	106	4126	16.40	16.40	188	0%	12	3	1	1	2		2006
3	13	C	PT	5	BF:23%	IWD:18%	HM:15%	RM:8%	ASP:6%	132	46	4239	3.6	3.6	165	0%	10.40	1	1	1	2		2006
4	32	C	SST	32	RM:29%	HM:16%	HEM:14%	WB:12%	IWD:10%	102	42	3097	6.7	6.7	137	0%	10.50	1	1	2	2		2006
5	12	C	PT	12	RM:34%	WP:21%	HM:9%	IWD:9%	WA:5%	116	32	4765	5.3	5.3	181	0%	9.8	1	1	1	2		2006
6	21	D	SST	20	WP:60%	RO:11%	HEM:6%	RM:6%	RS:4%	140	98	3441	15.30	15.30	156	0%	12.50	3	1	2	1		2006
7	32	D	SST	8	RM:51%	BF:13%	WA:13%	WP:6%	HEM:4%	136	84	3915	7	7	170	0%	11.70	3	1	1	2		2006
8	32	C	PT	4	HM:44%	HEM:16%	WP:11%	RO:9%	WA:7%	114	56	4533	7.5	7.5	174	0%	10.70	1	1	2	1		2006
9	32	C	PT	19	BE:23%	RM:19%	WP:16%	BL:12%	RO:10%	146	72	4668	10.80	10.80	232	0%	10.50	1	1	2	1		2006
10	12	D	SST	30	WP:29%	RO:27%	BE:16%	BF:10%	WB:6%	102	58	3934	7.4	7.4	106	0%	11.90	3	1	1	1		2006
12	32	C	PT	8	RM:18%	HEM:17%	HM:17%	BE:13%	ASP:9%	154	66	5756	12.30	12.30	216	0%	10.50	1	1	2	1		2006
13	32	C	PT	31	BE:24%	RO:16%	IWD:16%	RM:11%	WP:9%	110	42	3987	5.7	5.7	133	0%	10.60	1	1	1	1		2006
14	32	C	SST	22	RM:36%	RO:30%	WP:8%	HM:8%	BE:6%	128	58	3416	5.9	5.9	149	0%	11	1	1	1	1		2006
15	32	C	SST	2	RM:36%	RO:30%	WP:8%	HM:8%	BE:6%	128	58	3416	5.9	5.9	149	0%	11	1	1	1	1		2006
16	21	C	SST	9	WP:72%	RM:9%	RO:9%	RP:6%	HM:2%	130	60	2608	7.9	7.9	168	0%	10.80	3	1	2	1		2006
17	30	D	SST	15	RO:40%	WP:39%	HM:6%	RM:4%	HEM:3%	140	92	5007	18.20	18.20	163	0%	12.10	2	1	2	1		2006
18	12		SST	9	WP:38%	RM:25%	ASP:11%	BE:6%	WB:6%	106	52	3791	7.9	7.9	112	0%	11.60	3	1	2	1		2006
19	32	D	SST	89	RO:56%	HM:19%	RM:19%	WP:3%	WA:2%	126	88	4280	14.70	14.70	131	0%	12.50	2	1	2	1		2006
20	32	C	PT	19	RM:29%	RO:21%	WP:13%	BE:13%	IWD:7%	152	66	5019	11.40	11.40	236	0%	10.40	1	1	2	1		2006
21	12	C	PT	20	RO:47%	WP:24%	BE:16%	RM:6%	HM:4%	136	58	3320	5.6	5.6	210	0%	10.30	2	1	2	1		2006
22	21	C	SST	22	WP:47%	RO:28%	RM:11%	RS:6%	BE:5%	128	62	2236	6.5	6.5	153	0%	11.20	3	1	2	1		2006
			Total	406					Status Average:	127.71	63.43	3895.81	0.31	0	165.86								

Clinton State Forest #4 Inventory Data

Region	County	State Forest	Compartment
Region 5 - [5]	Clinton - [47]	CLINTON 4 - [4]	5470401 - [1]

Natural Forest - 1

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
1	12		SST	63	WP:58%	HEM:10%	HM:10%	YB:6%	IWD:4%	144	90	4964	14.50	14.50	189	0%	11.60	3	1	2	1		2006
2	32	C	PT	77	HM:22%	BAS:19%	IWD:17%	RO:13%	WB:10%	138	58	4952	8.5	8.5	197	0%	10.50	1	1	3	1		2006
3	26	C	PT	50	RP:45%	RM:14%	WP:12%	BF:7%	WA:7%	116	50	2350	6.6	6.6	162	0%	10.50	1	1	3	1		2006
4	26	C	PT	22	RP:46%	WB:15%	ASP:11%	RM:9%	HM:7%	108	22	1783	1.7	1.7	178	0%	9.4	2	1	2	1		2006
			Total	212					Status Average:	126.5	55	3512.25	0.43	0	181.5								

Region	County	State Forest	Compartment
Region 5 - [5]	Clinton - [47]	CLINTON 4 - [4]	5470402 - [2]

Plantation - 3

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
2	41	D	SST	2	WP:100%	--	--	--	--	160	112	1935	11.70	11.70	169	0%	12.50	3	1	1	1		2006
			Total	2					Status Average:	160	112	1935	11.7	0	169								

Wetlands (Open) - 10

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
15	99		Null	3	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
17	99		Null	2	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
			Total	5					Status Average:	0	0	0	0	0	0								

Wetlands (Alder) - 11

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
16	99		Null	2	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
			Total	2					Status Average:	0	0	0	0	0	0								

Region	County	State Forest	Compartment
Region 5 - [5]	Clinton - [47]	CLINTON 4 - [4]	5470404 - [4]

Null - -99

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
16	99	A	Null	9	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	-99	-99	-99		2006
			Total	9			Status Average:			0	0	0	0	0	0								

Natural Forest - 1

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
1	32	C	PT	43	BE:70%	RM:10%	ASP:8%	WB:7%	HEM:1%	166	28	8006	5.7	5.7	314	0%	9.1	1	1	2	1		2006
2	13		SST	13	ASP:16%	BF:13%	RM:13%	HEM:10%	YB:10%	124	76	6573	19.90	19.90	159	0%	11.60	1	1	2	1		2006
3	32	C	PT	75	RM:23%	BE:18%	BF:15%	ASP:11%	HM:11%	130	44	5743	7.7	7.7	212	0%	9.9	1	1	2	1		2006
7	32	C	PT	10	HM:42%	WB:14%	ASP:13%	BAS:12%	WA:9%	138	72	6236	16.10	16.10	214	0%	10.70	1	1	3	1		2006
8	26	C	PT	73	RP:34%	WP:27%	RO:11%	RM:10%	WB:7%	117	45	3173	7.9	7.9	184	0%	10.10	2	1	3	1		2006
9	26	C	PT	3	RP:73%	RM:8%	BF:5%	WP:5%	JP:3%	128	62	2900	8.1	8.1	198	0%	10.50	3	1	2	1		2006
10	32	C	SST	57	BE:27%	HM:27%	WB:14%	RM:8%	STM:8%	102	48	4129	10.20	10.20	124	0%	11	1	1	3	1		2006
11	26	C	PT	13	RP:33%	RS:30%	BF:14%	WB:7%	BE:5%	86	42	2303	6.5	6.5	130	0%	10.60	2	1	2	1		2007
12	32		SST	6	HM:43%	BAS:14%	RO:14%	WP:5%	WA:5%	116	78	4111	11	11	157	0%	11.60	1	1	4	1		2006
14	12	C	PT	6	WP:26%	RM:26%	WB:12%	ASP:11%	RS:8%	146	58	5987	11.10	11.10	188	0%	10.60	2	1	2	1		2006
15	32	C	SST	30	HM:36%	WB:22%	RM:19%	ASP:8%	BE:6%	120	57	5010	12	11.16	147	7%	11	1	1	2	1		2006
17	13	C	PT	12	BF:28%	WB:15%	RM:13%	WA:9%	ASP:7%	134	32	5346	4.6	4.6	210	0%	9.5	1	1	2	1		2006
19	13	C	PT	103	BF:23%	RM:23%	WB:12%	WP:9%	BE:9%	162	44	7220	7.9	7.9	273	0%	9.6	1	1	2	2		2006
20	32	C	PT	16	BE:38%	RM:26%	HM:11%	WA:8%	ASP:6%	130	42	5743	6.4	6.4	232	0%	9.7	1	1	2	1		2006
21	13	C	PT	30	BF:45%	RM:26%	YB:11%	RS:9%	WB:7%	148	32	5782	3.3	3.3	272	0%	9.3	1	2	1	2		2006
22	32	C	PT	78	RM:23%	BAS:15%	WB:15%	ASP:12%	YB:8%	100	38	3934	5.3	5.3	154	0%	10.20	1	1	3	1		2006
23	13	C	PT	6	BF:30%	RM:21%	YB:16%	WB:14%	BE:4%	154	20	6262	3	3	256	0%	9	1	1	2	1		2006
24	32	C	PT	13	HM:41%	WA:19%	BE:15%	WB:7%	RM:7%	136	40	5999	7.6	7.6	197	0%	9.8	1	1	2	1		2006
26	32	C	PT	21	BE:46%	RM:15%	HM:14%	ASP:11%	IWD:5%	130	22	5921	4	4	222	0%	9.2	1	1	1	1		2006
28	32	C	PT	8	BE:59%	RM:15%	ASP:14%	BF:3%	YB:3%	148	22	6187	3.8	3.8	278	0%	9	1	1	2	1		2006
			Total	616					Status Average:	130.75	45.1	5328.25	0.19	0	206.05								

Region	County	State Forest	Compartment
Region 5 - [5]	Clinton - [47]	CLINTON 4 - [4]	5470403 - [3]

Natural Forest - 1

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
1	13	C	PT	3	BF:20%	HM:19%	ASP:14%	RM:12%	HEM:11%	148	56	6430	11.70	11.70	260	0%	9.9	1	1	2	1		2006
2	32	C	PT	17	ASP:38%	RM:24%	BF:18%	WP:10%	WB:4%	156	56	7194	10.30	10.30	248	0%	10	1	1	2	1		2006
3	32	C	SST	54	ASP:31%	RM:18%	RO:17%	HM:14%	WB:8%	144	68	6301	13.60	13.60	200	0%	10.70	1	1	2	1		2006
4	13	C	PT	7	HM:29%	BF:21%	RM:15%	ASP:13%	WB:12%	164	68	7755	12.80	12.80	263	0%	10.20	1	1	2	1		2006
5	32	C	SST	117	WB:20%	ASP:18%	HM:15%	BAS:11%	RM:10%	140	75	5812	17	17	183	0%	11.10	1	1	3	1		2006
6	32	C	PT	218	WB:21%	ASP:18%	HM:15%	RM:15%	RO:12%	111	27	4386	4	4	190	0%	9.5	1	1	3	1		2006
7	21	C	PT	9	WP:39%	RO:19%	WB:9%	RM:9%	BF:7%	108	26	2281	3.4	3.4	151	0%	9.7	1	1	3	1		2006
8	13	C	PT	10	RM:39%	BE:23%	BF:17%	WB:9%	HM:4%	138	22	6085	2.9	2.9	237	0%	9.1	1	1	2	1		2006
9	13	C	PT	137	BF:27%	RM:25%	ASP:19%	YB:9%	WB:7%	112	35	4054	4.6	4.6	202	0%	9.7	1	1	2	1		2006
			Total	572					Status Average:	135.67	48.11	5588.67	0.51	0	214.89								

Region	County	State Forest	Compartment
Region 5 - [5]	Clinton - [47]	CLINTON 4 - [4]	5470404 - [4]

Natural Forest (Seedling/Sapling) - 2

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
13	97	A	S-S	8	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	1	2	1		2006
18	13	B	PT	7.2	RM:38%	BF:32%	WP:10%	RS:6%	ASP:4%	162	30	6134	3.4	3.4	758	0%	5.7	1	1	2	1		2006
31	32		SST	5	ASP:42%	RM:25%	IWD:25%	HM:8%	--	120	60	5448	13.40	13.40	152	0%	8.5	1	1	1	2		2006
			Total	20.2					Status Average:	94	30	3860.67	4.47	0	303.33								

Wetlands (Open) - 10

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
25	99		Null	2	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
29	99		Null	20	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
30	99		Null	21	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
			Total	43					Status Average:	0	0	0	0	0	0								

Other - 12

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
27	99		Null	3	RS:36%	TAM:22%	RM:22%	BF:7%	HEM:5%	138	10	3366	0.70	0.70	282	0%	8.7	0	2	1	2		2006
			Total	3					Status Average:	138	10	3366	0.7	0	282								

Region	County	State Forest	Compartment
Region 5 - [5]	Clinton - [47]	CLINTON 4 - [4]	5470402 - [2]

Total 2 Status Average: 0 0 0 0 0 0

Natural Forest - 1

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
1	32	C	S-S	17	GB:27%	RM:24%	BAS:16%	BF:9%	RS:7%	90	34	2066	2.8	2.8	87	0%	11.10	1	1	1	1		2006
3	13	C	S-S	5	RS:64%	RM:16%	ASP:9%	BF:3%	BC:3%	134	16	3274	1.7	1.7	161	0%	9.2	1	1	1	1		2006
4	32	C	PT	2	RS:52%	BF:13%	ASP:13%	GB:10%	WP:6%	104	26	2585	2.8	2.8	133	0%	9.8	1	1	1	2		2006
5	32	C	PT	4	HM:24%	IWD:24%	YB:14%	BE:10%	HEM:6%	98	32	3198	5.1	5.1	147	0%	10	3	1	1	1		2006
6	20	C	PT	2	HEM:33%	BF:20%	GB:9%	RS:7%	STM:7%	110	40	2577	6.2	6.2	157	0%	10.30	3	1	2	1		2006
7	11	C	PT	8	HEM:21%	ASP:14%	BE:14%	HM:12%	RS:9%	86	30	2830	4.8	4.8	123	0%	10.20	3	1	2	1		2006
8	20	C	PT	7	HEM:33%	BF:20%	GB:9%	RS:7%	STM:7%	110	40	2577	6.2	6.2	157	0%	10.30	3	1	2	1		2006
9	32	C	PT	54	HM:24%	IWD:24%	YB:14%	BE:10%	HEM:6%	98	32	3198	5.1	5.1	147	0%	10	3	1	2	1		2006
10	13	C	PT	18	BF:43%	RM:40%	ASP:5%	WA:3%	WB:3%	176	36	8862	6.3	6.3	322	0%	9.3	1	1	2	1		2006
11	13	C	PT	138	BF:57%	RM:20%	ASP:14%	WB:4%	YB:2%	178	40	7757	3.1	3.1	316	0%	9.4	1	1	2	1		2006
12	13	C	PT	92	ASP:30%	RM:25%	RP:19%	BF:16%	WP:4%	135	57	5858	11.10	11.10	196	0%	10.40	1	1	2	1		2006
13	32		PT	14	OTH:100%	--	--	--	--	10	0	248	0	0	25	NA	8.6	2	1	2	1		2006
14	32	C	PT	3	BF:45%	RM:20%	HEM:14%	ASP:6%	WB:6%	160	58	6433	7	7	296	0%	9.8	1	2	1	1		2006

Total 364 Status Average: 114.54 33.92 3958.69 0.54 0 174.38

Region	County	State Forest	Compartment
Region 5 - [5]	Clinton - [47]	CLINTON 4 - [4]	5470403 - [3]

Wetlands (Open) - 10

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
10	99		Null	2	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
11	99		Null	2	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
18	99		Null	2	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006

Total 6 Status Average: 0 0 0 0 0 0

Wetlands (Alder) - 11

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
14	99		Null	2	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006

Total 2 Status Average: 0 0 0 0 0 0

Region	County	State Forest	Compartment
Region 5 - [5]	Clinton - [47]	CLINTON 4 - [4]	5470406 - [6]

Natural Forest (Seedling/Sapling) - 2

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---	Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
17	21		PT	2	WP:100% -- -- -- --	10	0	0	0	0	25	NA	8.6	3	5	2	1		2006
			Total	2	Status Average:	10	0	0	0	0	25								

Wetlands (Open) - 10

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---	Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
22	99		Null	53	-- -- -- -- --	0	0	0	0	0	0	NA	0	0	2	1	2		2006
23	99		Null	21	-- -- -- -- --	0	0	0	0	0	0	NA	0	0	2	1	2		2006
25	99		Null	2	-- -- -- -- --	0	0	0	0	0	0	NA	0	0	2	1	2		2006
26	99		Null	2	-- -- -- -- --	0	0	0	0	0	0	NA	0	0	2	1	2		2006
			Total	78	Status Average:	0	0	0	0	0	0								

Natural Forest - 1

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
1	32	C	PT	2	ASP:33%	RM:24%	BE:16%	WB:13%	BF:3%	168	55	7928	8	8	289	0%	9.8	1	1	2	1		2006
2	13	C	PT	3	BF:43%	RM:28%	ASP:11%	WB:6%	BC:3%	202	32	5555	2.1	2.1	332	0%	9.2	1	1	1	1		2006
3	32	C	PT	8	ASP:26%	RM:26%	WB:18%	HM:9%	YB:8%	148	44	6795	5.7	5.7	276	0%	9.6	1	1	2	1		2006
5	13	C	PT	2	BF:39%	RM:36%	WB:11%	WP:8%	BC:5%	152	26	6641	3.9	3.9	287	0%	9.1	1	5	2	1		2006
6	13	C	PT	2	BF:39%	RM:36%	WB:11%	WP:8%	BC:5%	152	26	6641	3.9	3.9	287	0%	9.1	1	5	2	1		2006
7	13	C	PT	2	BF:39%	RM:36%	WB:11%	WP:8%	BC:5%	152	26	6641	3.9	3.9	287	0%	9.1	1	5	2	1		2006
8	13	C	PT	2.5	BF:39%	RM:36%	WB:11%	WP:8%	BC:5%	152	26	6641	3.9	3.9	287	0%	9.1	1	5	2	1		2006
12	13	C	PT	2	BF:39%	RM:36%	WB:11%	WP:8%	BC:5%	152	26	6641	3.9	3.9	287	0%	9.1	1	5	2	1		2006
13	13	C	PT	15	BF:39%	RM:36%	WB:11%	WP:8%	BC:5%	152	26	6641	3.9	3.9	287	0%	9.1	1	1	2	1		2006
14	13	C	PT	14	BF:27%	YB:24%	RM:20%	WB:11%	HM:9%	140	28	5251	3.7	3.7	268	0%	9.2	1	1	2	1		2006
15	13	C	PT	16	BF:48%	RM:23%	WB:15%	YB:8%	ASP:4%	104	22	4235	2	2	191	0%	9.3	1	1	1	1		2006
16	32	C	PT	10	BF:53%	WB:18%	RM:18%	RS:7%	WP:2%	110	6	4167	0.40	0.40	203	0%	8.7	1	1	2	1		2006
18	13	C	PT	22	RM:32%	BF:22%	ASP:21%	BC:10%	WB:6%	136	20	5869	3.1	3.1	251	0%	9	1	1	2	1		2006
19	32	C	PT	2	BF:59%	RM:23%	WB:13%	WP:4%	--	157	27	4874	3.4	3.4	292	0%	9.1	1	2	1	2		2006
20	13	C	PT	2	RM:32%	BF:22%	ASP:21%	BC:10%	WB:6%	136	20	5869	3.1	3.1	251	0%	9	1	1	2	1		2006
21	21	C	SST	2	WP:86%	BF:3%	ASP:3%	RS:2%	WB:2%	193	110	7146	20.70	20.70	303	0%	10.80	1	1	1	1		2006
			Total	106.5					Status Average:	150.38	32.5	6095.94	1.29	0	273.63								

Region	County	State Forest	Compartment
Region 5 - [5]	Clinton - [47]	CLINTON 4 - [4]	5470407 - [7]

Wetlands (Open) - 10

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
9	99		Null	6	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
10	99		Null	16	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
11	99		Null	5	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
			Total	27			Status Average:			0	0	0	0	0	0								

Natural Forest - 1

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
1	13	C	PT	9	BF:46%	ASP:21%	RM:18%	WB:9%	WP:3%	134	32	5364	5.3	5.3	235	0%	9.4	1	1	2	1		2006
2	13	C	PT	23	BF:53%	RM:26%	ASP:7%	WC:5%	WP:3%	148	30	5702	4.7	4.7	190	0%	9.6	1	1	1	2		2006
3	32	C	PT	3	BF:72%	RM:13%	RS:5%	WB:4%	WC:3%	158	12	6679	1.7	1.7	233	0%	8.9	1	1	1	2		2006
4	13	C	PT	59	BF:42%	RM:38%	WA:4%	RS:3%	YB:3%	142	16	5051	1.6	1.6	251	0%	9	1	1	2	1		2006
5	32	C	SST	5	RM:49%	BF:13%	WA:13%	WB:10%	STM:6%	144	66	6518	10	10	203	0%	10.60	1	1	2	1		2006
6	13	C	PT	19	BF:45%	RM:28%	RP:8%	RS:7%	ASP:6%	142	12	4624	1.1	1.1	242	0%	8.9	1	1	2	2		2006
7	13	C	PT	32	BF:37%	RM:29%	RO:11%	WC:5%	WB:5%	124	28	4978	4.3	4.3	194	0%	9.5	1	1	2	1		2006
8	32	C	PT	45	RO:38%	BE:24%	RM:16%	WA:11%	WB:6%	158	70	6808	11.50	11.50	213	0%	10.70	1	1	2	1		2006
			Total	195					Status Average:	143.75	33.25	5715.5	1.44	0	220.13								

Region	County	State Forest	Compartment
Region 5 - [5]	Clinton - [47]	CLINTON 4 - [4]	5470405 - [5]

Wetlands (Open) - 10

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
32	99		Null	2	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
34	99		Null	6	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
35	99		Null	6	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
36	99		Null	2	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
37	99		Null	7	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
43	99		Null	3	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
44	99		Null	2	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
45	99		Null	2	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
46	99		Null	2	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
47	99		Null	15	--	--	--	--	--	0	0	0	0	0	0	NA	0	0	2	1	2		2006
			Total	47					Status Average:	0	0	0	0	0	0								

Natural Forest - 1

Stand No:	Forest Type:	Diam Class:	Major S.C.:	Acres:	--- Stand Composition --- --- (species %) ---					Total BA/Acre:	Sawtimber BA/Acre:	CU. FT/Acre:	Gross MBF/Acre:	Net MBF/Acre:	Trees /Acre:	Cull%:	M.S.D.:	Site Class:	Mgt. Class:	TOP:	Drainage:	Last Managed:	Inventoried:
1	32	C	PT	2	RM:27%	WB:22%	HM:22%	ASP:12%	RP:5%	103	38	4822	5.4	5.4	184	0%	9.9	1	1	2	1		2006
2	13	C	PT	98	BF:37%	RM:35%	ASP:14%	YB:4%	WC:3%	156	56	7109	8.8	8.8	231	0%	10.20	1	1	2	1		2006
3	11	C	PT	31	HEM:28%	RM:24%	YB:15%	ASP:13%	WB:4%	156	66	5594	9.2	9.2	252	0%	10.30	1	1	2	1		2006
4	32	C	PT	36	HM:29%	RM:18%	BE:15%	WB:14%	HEM:5%	146	66	6059	7.9	7.9	227	0%	10.50	1	1	2	1		2006
5	11	D	SST	2	HEM:31%	RM:26%	WB:19%	ASP:8%	YB:5%	194	126	8475	28.90	28.90	232	0%	11.90	2	1	2	1		2006
6	32	C	PT	14	WB:34%	RM:28%	HEM:9%	ASP:8%	BE:6%	128	46	4572	8.2	8.2	213	0%	10	1	1	2	1		2006
7	11	C	PT	6	RM:21%	HEM:20%	WP:14%	WB:14%	BF:12%	182	78	7240	14.10	14.10	264	0%	10.60	1	1	2	1		2006
8	32	C	PT	67	ASP:22%	RM:18%	BF:16%	HEM:14%	WB:13%	152	68	4911	8.8	8.8	213	0%	10.70	3	1	2	1		2006
9	20	D	SST	2	HEM:34%	WP:20%	WB:16%	RM:16%	YB:5%	160	113	6586	23.30	23.30	197	0%	12.10	1	1	2	0		2006
11	13	C	PT	4	RM:46%	BF:44%	ASP:4%	YB:4%	BE:1%	170	24	6660	2.6	2.6	305	0%	9	1	2	1	1		2006
12	32	C	PT	9	RM:25%	BE:15%	WB:15%	RO:15%	WA:7%	150	68	5632	11.20	11.20	232	0%	10.40	1	1	2	1		2006
13	32	C	PT	5	BE:28%	HM:18%	RM:15%	BF:14%	WA:8%	158	52	7608	10.90	10.90	225	0%	10.10	1	1	2	1		2006
14	32	C	SST	44	ASP:37%	HM:27%	WB:10%	BAS:9%	WA:4%	140	80	8411	19.50	19.50	190	0%	11.20	1	1	2	1		2006
15	13	C	PT	12	BF:31%	RM:28%	WP:16%	ASP:12%	WB:7%	162	40	8487	8	8	311	0%	9.4	1	1	2	1		2006
16	21	C	PT	23	WP:51%	BF:22%	RM:8%	WB:7%	ASP:5%	118	60	2730	8	8	167	0%	11	3	1	2	1		2006
17	32	C	PT	15	BF:57%	WP:21%	ASP:7%	RP:4%	BC:4%	117	27	3949	4.6	4.6	189	0%	9.6	1	1	2	1		2006
18	13	C	PT	18	BF:37%	RM:19%	RP:17%	ASP:9%	WB:9%	140	48	5863	9.5	9.5	168	0%	10.40	1	1	2	1		2006
19	32	C	PT	2	RM:20%	HM:18%	BE:14%	BF:10%	WB:10%	123	50	6688	14.20	14.20	177	0%	10.40	1	1	2	1		2006
20	32	C	S-S	5	BF:56%	WB:16%	HM:11%	ASP:5%	RP:4%	114	20	4374	3.8	3.8	129	0%	9.5	1	1	2	1		2006
21	32	D	SST	11	HM:22%	RM:15%	WA:14%	BAS:14%	ASP:13%	144	88	5474	20.20	20.20	166	0%	11.90	2	1	2	1		2006
22	13	C	PT	16	BF:23%	RM:22%	ASP:12%	RP:8%	HM:8%	154	40	6852	8.4	8.4	241	0%	9.6	1	1	2	1		2006
23	99		Null	12	BF:32%	WC:15%	ASP:13%	BA:8%	WB:8%	124	50	3309	6.6	6.6	166	0%	10.50	0	2	1	2		2006
25	13	C	PT	9	BF:18%	BE:16%	RM:15%	ASP:11%	WB:10%	158	46	6657	9.5	9.5	242	0%	9.8	1	1	2	1		2006
26	13	C	PT	21	BF:20%	ASP:18%	RM:14%	WC:13%	WB:8%	158	48	7760	9.8	9.8	217	0%	10	1	1	2	1		2006
27	32	C	PT	18	ASP:27%	RM:21%	WB:20%	HM:14%	BF:5%	112	52	5894	12.50	12.50	170	0%	10.50	1	1	2	1		2006
28	32	C	PT	2	HM:32%	BE:27%	BF:12%	RM:12%	WB:9%	113	30	5569	5.7	5.7	172	0%	9.8	1	1	2	1		2006
29	13	C	PT	12	RM:38%	BF:34%	WA:7%	HM:7%	YB:5%	146	24	7664	5.5	5.5	223	0%	9.2	1	1	1	2		2006
30	13	C	PT	6	RM:44%	BF:19%	WB:10%	ASP:9%	RP:6%	140	34	6323	5.9	5.9	233	0%	9.6	1	1	2	2		2006
31	32	C	SST	2	ASP:46%	RM:23%	IWD:23%	HM:8%	--	130	70	6241	15.60	15.60	213	0%	10.60	1	1	1	2		2006
			Total	504					Status Average:	143.03	55.45	6121.14	0.54	0	212.03								

VI. SCHEDULE FOR IMPLEMENTATION AND ESTIMATED BUDGET

(The Schedule for Implementation and an Estimated Budget for Easements is located in the Recreation Management (Easements Appendix (E)) section of the plan.) The Schedule for Implementation and an Estimated Budget for Wildlife Management Areas is located in the Special Management Plan for each WMA.

The following tables outline a schedule for implementation of the proposed management actions and their estimated costs. Accomplishments are contingent upon sufficient staffing levels and available funding. The estimated costs of implementing these projects are based on historical costs incurred by the Department for similar projects. Values for some projects are based on projected costs for service contracting. These cost estimates do not include capital expenditures for items such as equipment, nor do they include the value of program staff salaries.

Annual Maintenance and other Activities	**Estimated Cost**
Paint 1/7 (28 miles) of TPMC boundary lines.	28 person days
Wildlife Management Area Implementation. (See WMA Plans)	$30,000 & 34 person days
Monitor for Limits of Acceptable Change.	10 person days
Maintain Terry Mountain Red Road.	$1000
Maintain Trails in TPMC.	$1000
Re-Survey lands in TPMC that have indiscriminate boundary lines.	$ 15,000
Maintain snowmobile trails in the TPMC.	$1500
Stock fish in unit waters.	3 days
Update and Maintain sign inventory.	3 days
Conduct inventory of invasive species and perform needed control work.	10 person days & $5000
Conduct biological and chemical surveys of selected unit waters to assess management needs.	4 days
Total Annual Maintenance and other Activities	**92 person days & $ 53,500.00**

Year 1	Estimated Cost
Designate two campsites to be used as a group camping location on the Saranac River and improve the portage to the Casey Road.	$500
Build parking area for 12 vehicles at Catamount trailhead (5 trucks and trailers).	$12,000
Determine ownership of the Union Falls Pond informal boat launch.	2 person days, $1000
Mark and sign the Catamount trail and trail head. Improve trail with rock work and short relocations. Install needed water control devices.	1 person day, $ 4,500
Acquire land to build a single ramp boat launch on Union Falls Pond or reclassify current unofficial launch site if it is determined to be state land.	30 person days
Initiate rule making.	10 person days
Maintain Taylor Pond snowmobile trail, replace bridges and culverts.	$10,000
Connect the Taylor Pond Loop Snowmobile Trail to the Boeselager Trail and Connect the Wilmington Snowmobile Connector Trail to the Boeselager Trail.	$6000 10 person days
Put water bars in Silver Lake Mountain trail.	$2,000
Build trail in Clinton 3 to Mud Pond from the Red Road.	$5,000
Build trail in Clinton 3 to Tower Road from the Red Road.	$5,000
Install a pipe gate and warning signs on the access road to Clinton 2 on the Strackville road side.	$2000
Build ski trail and mountain biking trail on Clinton 2 State Forest.	$5,000
Wildlife Management Area Implementation (See WMA Plans).	$88,000 & 59 person days
Complete Campsite Monitoring Inventory.	$1000
Construct a 12 car parking lot to provide access to the Observers Trail at Poke-O-Moonshine.	$20,000
Relocate and close campsites on Franklin Falls Pond.	$1,500
Replace outhouses for Franklin Falls sites.	$4500
Explore management options to deal with exotic species transport and milfoil in Taylor Pond.	$200
Rehabilitate snowmobile trail from Clinton 3 & 4 to Military Pond.	$5,000
Conduct needed original surveys on various lots, Cook Mountain, Strackville Road, Ore Bed Road, 16 acre lot near river etc.	$20,000

Year 1	**Estimated Cost**
Develop a sign inventory for TPMC.	10 person days
Total Year 1 costs for Maintenance and other Activities	**122 person days & $193,200.00**

Year 2	**Estimated Cost**
Remove brush from the Champlain View Trail and install water bars.	$1000
Install four State Forest entrance signs. Two on Clinton 3 and Two on Clinton 4 (Both Terry Mountain).	$1000
Develop multiple use trails on Burnt Hill SF using forestry road network. Brush roads and trails, develop and install signs for users.	$5000
Re-establish boundary line on Clinton 3 along the Tower Road.	2 person days
Conduct forest inventory on Burnt Hill State Forest.	30 person days
Build Union Falls Pond Access trail and parking area for 4 cars on Rock Street.	$10,000
Construct three new campsites on Union Falls Pond for the Northern Forest Canoe Trail with pit privies.	$ 3,100
Close Jeep Road on Alderbrook Road.	$1000
Rehabilitate and develop the roads and trails in the vicinity of Taylor Pond and the Forestdale Road for use by mountain bikes.	$20,000 30 person days
Construct a six car parking lot on the Forestdale Road for access to the mountain biking, hiking and skiing trails.	$20,000 5 person days
Wildlife Management Area Implementation (See WMA Plans).	$37,350 & 44 person days
Construct hiking trail to the summit of Fay Mountain .	$5,000
Replace pit privy at Union Falls Dam Group site.	$700
Install gate on Taylor Pond south shore access road.	$1200
Perform needed maintenance on the Willsboro fishway including wood and concrete work	$55,890
Total Year 2 costs for Maintenance and other Activities	**111 person days & $161,240.00**

Year 3	**Estimated Cost**
Complete inventory of all existing fixed climbing anchors in the unit.	30 person days
Wildlife Management Area Implementation (See WMA Plans).	$30,500 & 45 person days
Erect a boat slide or rail to block trailered launching of boats - Franklin Falls Fishing Access Site.	$3000
Open old road network on FFTE lands for recreation.	20 person days
Review lands of FFTE for appropriateness of building mountain biking, snowmobile, and horse-back riding trails and providing public camping opportunities. Build appropriate facilities.	30 person days
Make the Mud Pond Trail from the Mud Pond Road accessible for persons with disabilities. Build a parking area for 3 cars with one accessible space.	$5000
Reconstruct Fay Mountain parking area.	$ 4000
Build lean-to at Military Pond and Mud Pond + outhouses.	$13,000
Total Year 3 costs for Maintenance and other Activities	**125 person days & $55,500.00**

Year 4	**Estimated Cost**
Rehabilitation of approximately 4.3 miles of truck trail on Clinton 3, which would include hauling fill, replacing 2 culverts, cleaning ditches, brushing and other labor.	$5000
Wildlife Management Area Implementation (See WMA Plans).	$33,000 & 39 person days
Bring lean-to on the south side of Taylor Pond up to accessability standards.	$5000
Build access trail and parking lot as described in deed off of the Parish road for access to the CME.	$8000
Convene with focus group, including Department and APA staff, members of the climbing community, environmental organizations and other interested parties to develop a policy on the management of fixed anchors on Forest Preserve lands.	10 days
Maintain road on south side of Taylor Pond for CP-3 access to lean-to and for non-ambulatory hunting.	$3000
Develop a brochure outlining locations, recreational opportunities, history and other features on Clinton 2, 3 and 4 State Forests.	10 days
Total Year 4 costs for Maintenance and other Activities	**59 person days & $54,000.00**

Year 5	Estimated Cost
Build new lean-to on south western shore of Taylor Pond.	$6,500
Construct new tent site and provide access to new sites at the Dam on Union Falls Pond.	$1000
Designate and construct two tent sites upstream from permanent rapids on the Saranac River to be used as a group site.	$2000 & 5 person days
Wildlife Management Area Implementation (See WMA Plans).	$32,000 & 40 person days
Re-inventory campsites.	$1000
Build parking Lot for 4 cars on the Silver Lake Road for access to the Tolman Mountain Parcel.	$4000
Relocate the campsite on the northeastern shore of Taylor Pond.	$1000
Develop and construct a foot trail from the Poke-O-Moonshine Ranger trail to the Observers trail parking area if the Ranger trail is retained.	$2000 & 5 person days
Construct a snowmobile trail from Union Falls Power Line ROW (C8D) to Union Falls Pond.	$3000 & 5 person days
Total Year 5 costs for Maintenance and other Activities	**55 person days & $58,500.00**

Cost Summary
Annual Maintenance Costs: (5 years @ 53,500.00) = $267,500
and (5 years @ 92 person days) = 460 person days
Five Year Specific Projects Total: $ 516,440 and 472 person days
Total Costs for TPMC for 5 years: $ 782,940 and 932 person days

Appendix A - Fire Tower Letter of Resolution

LETTER OF RESOLUTION
BETWEEN
THE OFFICE OF PARKS, RECREATION AND HISTORIC PRESERVATION
AND
THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Whereas, the Department of Environmental Conservation (DEC) has completed an assessment of thirty-five fire towers under DEC jurisdiction which are either eligible for inclusion in the State and National Registers of Historic Places (NRE), or have been designated as a National Historic Landmark (NHL)

And whereas the DEC determined that the removal of eight fire towers and the transfer of four fire towers is an undertaking which will have an impact on those properties and has consulted with the Office of Parks, Recreation and Historic Preservation (OPRHP) pursuant to the New York State Historic Preservation Act (PRHPL §14.09);

Now, therefore, the DEC and the OPRHP agree that the undertaking shall be implemented in accordance with the following stipulations, in order to take into account the impact of the undertaking on historic properties.

Stipulations

The DEC will ensure the following stipulations are carried out:

The disposition of subject fire towers under DEC jurisdiction will be conducted according to attachment 1.

DEC shall make its best efforts to ensure that the instrument of conveyance for the transfer of fire towers to another public or private entity shall include a protective covenant to ensure that the historical or architectural aspects of the fire towers will be preserved and maintained.

The OPRHP shall not object to the disposition of the subject fire towers by the DEC if such dispositions are carried out consistent with this agreement.

NEW YORK STATE HISTORIC PRESERVATION OFFICER

BY:J Winthrop Aldrich DATE:12/13/94

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

BY: Langdon Marsh DATE:5/18/94

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Appendix B – Facilities

Primitive Tent Site (locations): (total 17)	QUANTITY
Western Shore of Franklin Falls	5
Small Island in Franklin Falls Pond	1
Large Island in Franklin Falls Pond	2
South of Dam on Union Falls Pond	2
Campground administered sites on Taylor Pond	5
Terry Mountain State Forest	2

Foot Bridges: (total 4)	QUANTITY	Width (x) Length
Terry Mountain State Forest(Champlain View Trail)	1	3 feet x 16 feet
Terry Mountain State Forest(Champlain View Trail)	3	3 feet x 4 feet

Lean-tos: (total 4)	
Poke-O-Moonshine	1
Taylor Pond	3

Rock and Ice Climbing Area's: (total 1)	
Poke-O-Moonshine	Many routes

Trail registers (Standard Box type)(total 6)	
Route 3 Mud Pond Trail	1
Poke-O-Moonshine Ranger Trail	1
Poke-O-Moonshine Climbing Trail	1
Catamount Mountain Trail	1
Silver Lake Mountain Trail	1
Union Falls Informal Boat Launch	1

Boat Launches and Fishing Access Sites:(total 2)	**QUANTITY**
Union Falls Informal Boat Launch	1
Franklin Falls (FAS) and informal Boat Launch	1
Fish Ladders: (total 1)	**QUANTITY**
Boquet River Fish Ladder, Town of Willsboro	1

Parking Areas (total 7)

Name	**Location**	**Capacity**
Catamount Trail Head	Forestdale Rd., Town of Black Brook	4[1]
Silver Lake Mountain Trail Head	Silver Lake Rd., Town of Black Brook	6
Burnt Hill State Forest Access	Off of Pup Hill Rd., Town of Peru and Saranac	5
Terry Mountain State Forest(Non-designated field)	Patent Rd., Town of Peru	10
Franklin Falls (FAS)	River Road, Town of Black Brook	6
Fay Mountain Access	Seventy Rd., Town of Lewis	4
Military Pond Access (Terry Mountain State Forest)	Military Pond Rd., Town of Peru	6

[1] *Estimated road shoulder parking – no official parking area.*

Road Barriers: (total 4)

Road Barriers: (total 4)
Burnt Hill State Forest Access - Steel gate on right-of-way access road
Terry Mountain State Forest Military Pond Road - Private steel gate
Terry Mountain State Forest Red Road - Steel gate
Terry Mountain State Forest Tower Road - Steel gate

Roads

Roads:	**Length (Miles)**	**Open to public Motor Vehicles (Miles)**	**Mountain Bikes Ok (yes / no)**
Jeep road off of the Alderbrook Road (1)	0.5	0.0	yes
Taylor Pond Rd Loop (1)	11.66	0.0	yes
Roads in Terry Mountain State Forest (Many)	21.74	4.3	yes
Roads in Burnt Hill State Forest (Many)	10.2	3.8 [1]	yes
Richards Road (1)	0.5	0.5	yes
Total miles of Road	**46.5**	**8.6**	

[1] The 3.8 miles of road will be open to CP-3 permit holders only.

Snowmobile Routes (Roads)

	Roads Open to Snowmobiles:	**Miles open to snowmobiles in 1972 (Miles)**	**Post UMP Snowmobile (Miles)**	**Open to Snowmobiles 2010 (Miles)**
A	Taylor Pond Rd Loop (1)	9.46 [1]	9.46 [1]	11.66
B	Roads in Terry Mountain State Forest (Many)	21.74	8.1	0.0
C	Roads in Burnt Hill State Forest (Many)	10.2	0.0	6.2
D	Richards Road (1)	0.0	0.0	0.5 [2]
	Total Miles of Roads Open to Snowmobiles	**41.4**	**17.56**	**18.36**

[1] On the Taylor Pond loop 3.8 miles of the road will be open to CP-3 permit holders. The balance will be administrative use only.

[2] This road is currently serving as the community connector and is covered under an AANR with the local snowmobile club. Once the proposed new trails are open this road will be closed to snowmobiles and removed from the AANR.

Snowmobile Routes (Trails)

	TRAIL NAME Total (20)	1972 [1] Snowmobile Mileage (Mi)	Snowmobile Mileage Post UMP(Mi)	Existing Trail Mileage (2010) (Mi)	TRAIL CLASS
1	Military Pond Foot Trail	0.3	1.0	0.0	2
2	Tolman Mtn. Trail	0.0	0.0	0.85	Closed
3	Silver Lake Woods Trail (C8) (Historical TP Loop trail)	2.24 [2]	2.24 [2]	2.24	2
4	Union Falls (C8)	1.0 (on pond) [1]	1.0 (on pond)	1.0 (on pond)	Water
5	Union Falls to Rt. 3 Power Line ROW C8)	0.0	2.7	2.7	2
6	Franklin Falls to Union Falls Power Line ROW (C8)	0.7	0.7	0.7	2
7	Richards Rd to Silver Lake Rd Power Line ROW (C8)	0.6	0.0	0.6	2 [3]
8	Richards Rd to Silver Lake Rd Power Line ROW Extension (C8)	1.3	0.0	1.3	2 [3]
9	Rock Street to Union Falls Power Line ROW (C8D)	1.1	1.1	1.1	2
10	Douglas Mountain Loop	2.9	1.15	1.15	2
11	Rt. 3 Mud Pond Trail	2.6	1.0	1.0	1

	TRAIL NAME	1972 [1] Snowmobile Mileage (Mi)	Snowmobile Mileage Post UMP(Mi)	Existing Trail Mileage (2010) (Mi)	TRAIL CLASS
12	Casey Rd to Mud Pond (C8D)	0.0	1.6	1.6	2
13	Silver Lake Mtn. Trail to Silver Lake Rd ROW	0.3	0.0	0.3	Closed
14	Silver Lake Woods Rd. 1	0.0	1.1	1.1	2
15	Taylor Pond Loop (woods trail 2) (Historical TP Loop trail)	0.0	0.0	0.12	2 [4]
16	Taylor Pond Loop (woods trail 5) (Historical TP Loop trail)	0.0	0.0	0.25	1
17	Trail from Silver Lake(Hawkeye Campground) to Black Brook	0.0	0.0	1.5	1 [5]

	Proposed New Snowmobile Trails	1972 [1] SNOWMOBILE MILEAGE (Mi)	Snowmobile Mileage Post UMP(Mi)	Existing Trail Mileage (2010) (Mi)	TRAIL CLASS
18	Taylor Pond to Wilmington Connector	0.0	0.75	0.0	2
19	Red Road to Mud Pond (Cliff Trail)	0.0	1.4	0.0	2
20	Red Road to Tower Road (Summit Trail)	0.0	1.0	0.0	2
21	Union Falls Power Line ROW (C8D) to Union Falls Pond	0.0	0.35	0.0	2
Snowmobile Mileage Totals for All Trails and Roads					
	Total Snowmobile Trails	13.04	17.09	18.51	
	Total Roads open to Snowmobile Use from Table (roads)	41.4	17.56	18.36	
	Total Snowmobile Route Mileage	54.44	34.65	36.87	

[1] The 1972 snowmobile trail mileage is based upon DEC records and Snowmobile Trails in New York State publications dated pre-1973. The exact locations of some 1972 snowmobile trails were not known and the method used in the past to determine trail distance could not be determined. To address the discrepancy between trail lengths measured in the field by GPS and other trail measurement methods the mileage figures in this table are based on map measurements and were developed for planning purposes only. Even though the tables reflect the 1972 DEC publications and depict that the trails were open in 1972 it is believed that many more trails were actually open due to historical signage and personal accounts but no hard evidence has been found to back this up.

[2] The Silver Lake Woods Trail mileage is the access route from Union Falls Pond to Taylor Pond. It was determined from multiple personal interviews and the belief that there must have been a method of reaching the Taylor Pond Loop in 1972 which is the reason for stating that the trail was open in 1972.

[3] These Power Line ROW's are going to be kept open until the Community Connector Trails that are slated to replace them are built and open.

[4] This trail is an old woods road and is currently serving as the community connector and is covered under an AANR with the local snowmobile club. Once the proposed new trails are open this trail will be closed to

snowmobiles and removed from the AANR.

[5] This road is currently open to snowmobiles and it historically served as a community connector. It is no longer used and will be closed to snowmobiles.

Trails – Listed by class

26.5 mi. total of non - motorized trails

Location/Name	Length (mi.)	Marker	Maintena-nce Provided by:	Mountain Bikes Ok (MTB)	Notes:
Class II Foot Trails – Paths					
Fay Mountain Trail	1.1	Some flagging	none	NO	Herdpath
Class III Foot Trails – Primitive					
Route 3. Mud Pond Trail	1.6	DEC-Red	DEC	YES	Access To Rt. 3 Mud Pond
Abandoned Snowmobile Trails In the Taylor Pond Area	14.9	None	DEC	YES	Multiple Use Trails for Biking, Hiking and Skiing
Mud Pond Trail	0.6	DEC-Red	DEC	YES	Access to Mud Pond on Terry Mountain State Forest
Champlain View Trail- Terry Mountain State Forest	1.0	DEC-Red	DEC	YES	Trail with view of Lake Champlain
Poke-O-Moonshine Climbing Trail	0.9	none	none DEC	NO	Access to the climbing walls
Military Pond Trail	1.5	DEC -Yellow	DEC	YES	Access To Military Pond
Class IV Foot Trails – Secondary Trails					
Catamount Mountain Trail	1.8	White paint & Cairns	AANR	No	Trail to the Summit
Silver Lake Mountain Trail	0.9	DEC-Red	AANR	No	Trail To the Summit
Poke-O- Moonshine Observers Trail	1.9	DEC-Yellow	AANR	YES	Access to the Lean-to and Fire Tower
Poke-O-Moonshine Ranger Trail	1.2	DEC-Red	AANR	No	Access to the Lean-to and Fire Tower

Trail Classifications

TITLE		EXAMPLE	MARKING	TREAD	BARRIERS	USE LEVEL	ACCEPTABLE MAINTENANCE
I	Unmarked Route	None in TPMC	None	Intermittently apparent, relatively undisturbed organic soil horizon	Natural obstructions present, logs and water courses	Occasional	None
II	Unmarked Path	Fay MountainTrail	None	Intermittently apparent, compaction of duff, mineral soils occasionally exposed	Same as unmarked route	Low, varies by location	Intermittent marking with consideration given to appropriate layout based on drainage, occasional barrier removal only to define appropriate route.
III	Primitive	Rt. 3 Mud Pond Trail	Trail markers, sign at junction with secondary or other upper level trail	Apparent, soil compaction evident	Limited natural obstructions (logs and river fords)	Low	Drainage (native materials) where necessary to minimize erosion, blowdown removed 2-3 years, brushing as necessary to define trail (every 5-10 years). Bridges only to protect resource (max - 2 log width). Ladders only to protect exceptionally steep sections, Tread 14"-18", clear: 3' wide, 3' high.
IV	Secondary	Silver Lake Mt. Trail	Markers, signs with basic information	Likely worn and possibly quite eroded. Rocks exposed, little or no duff remaining	Up to one year's accumulated blowdown, small streams.	Moderate	Drainage where needed to halt erosion and limit potential erosion (using native materials), tread hardening with native materials where drainage proves to be insufficient to control erosion. Remove blowdown annually. Brush to maintain trail corridor. Higher use may warrant greater use of bridges (2–3 logs wide) for resource protection. Ladders on exceptionally steep rock faces. Tread 18"-24". Clear 4' wide, 3' High.
V	Trunk or Primary Trail	None In the TPMC	Markers, signed with more information and warnings.	Wider tread, worn and very evident. Rock exposed, possibly very eroded.	Obstructions only rarely, small streams	High	Same as above; Plus: regular blowdown removal on designated ski trails, non-native materials as last resort, Extensive tread hardening when needed, bridge streams (2–4 logs wide) difficult to cross during high water, priority given to stream crossings below concentrations of designated camping. Tread 18"-26", clear 6' wide, 8' high, actual turn piking limited to 2% of trail length.
VI	Front Country	None in TPMC	Heavily marked, detailed interpretive signing	Groomed	None	Very High	Extensive grooming, some paving, bark chips, accessible. This is to be implemented within 500' of wilderness boundary.
VII	Horse Trail	None in TPMC	Marked as Trunk or Secondary	Wide tread, must be rather smooth.	Same as Trunk Trail.	Moderate to High	Same as trunk trail, except use techniques appropriate for horses. Bridges: 6' minimum width with kick rails, nonnative dimensional materials preferred. Tread: 2'-4' wide, clear 8' wide, 10' high.

TITLE	EXAMPLE	MARKING	TREAD	BARRIERS	USE LEVEL	ACCEPTABLE MAINTENANCE
VIII Ski Trail	None in TPMC	Marked High. Special markers, sign at all junctions with hiking trails.	Duff remains. Discourage summer use	Practically none due to hazards.	High	Focus on removal of obstructions, maintenance should be low profile, tread determined by clearing 6' (Should be slightly wider at turns and steep sections. Provide drainage using native materials to protect resource.

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Appendix C - Definitions

ABPE	Alderbrook Park Easement
ADA	American with Disabilities Act
ADAAG	American with Disabilities Act Accessibility Guidelines
ADK	Adirondack Mountain Club
AFR	Assistant Forest Ranger
ALSC	Adirondack Lakes Survey Corporation
ANC	Acid neutralizing capacity
APA	Adirondack Park Agency
APLUDP	Adirondack Park Land Use Development Plan
APSLMP	Adirondack Park State Land Master Plan
ARPA	Archaeological Resources Protection Act
ATV	All Terrain Vehicle
BMP	Best Management Practices
CME	Lassiter Properties, Inc. Conservation Easement - Cook Mountain Tract
DEC	New York State Department of Environmental Conservation
DMU	Deer Management Unit
DMWA	Dix Mountain Wilderness Area
DOC	New York State Department of Corrections
DOT	New York State Department of Transportation
ECL	Environmental Conservation Law
EIS	Environmental Impact Statement
EPA	Environmental Protection Act of 1993
EQBA	Environmental Quality Bond Act
FFTE	Franklin Falls Timber Company, Inc. Conservation Easement
FR	Forest Ranger
FSC	Forest Stewardship Council
HPWA	High Peaks Wilderness Area
HPWC	High Peaks Wilderness Complex
IP	International Paper Company, Inc.
LAC	Limits of Acceptable Change
LATL	Lyme Adirondack Timber Lands LLC.
NBWI	Native-But-Widely-Introduced
NHPC	Natural Heritage Plant Community
NIPF	Non-Industrial Private Forest Landowners
NYNHP	New York Natural Heritage Program
NYCRR	New York Code of Rules and Regulations
NYS	New York State
OSP	Open Space Plan
SEQRA	State Environmental Quality Review Act
SFI	Sustainable Forestry Inititive
SRFA	State Reforestation Area
SUNY-ESF	State University of New York College of Environmental

	Science and Forestry
TNC	The Nature Conservancy
UFAS	Uniform Accessibility Standards
USGS	United States Geologic Survey
UMP	Unit Management Plan
USFS	United States Forest Service
WMA	Wildlife Management Area
WMU	Wildlife Management Unit

ALL-AGED - A condition of a forest or stand that contains trees of all or almost all age classes.
BASAL AREA - The cross sectional area of a tree at breast height, measured in square feet.
BOARD FOOT - A piece of lumber one inch thick, 12 inches wide, and 12 inches long, or its equivalent.
BUFFER ZONE - Areas on the edge of protected areas that have land use controls and allow only activities compatible with protection of the core area.
CANOPY - The continuous cover of branches and foliage formed collectively by the crowns of adjacent trees.
CLASSIFIED STREAM - A classification of streams based on their biological and chemical composition. Streams on the forest preserve are not classified unless they are within 100 feet of the boundary. Streams on other state owned lands carry standard classifications.
CLEARCUT - A method of regenerating an even-aged stand in which a new age class develops in a fully exposed microclimate after removal, in a single cutting, of all trees in the previous stand.
CLIMAX FOREST - A plant community that represents for its locality and its environment the culminating stage of natural succession.
CONIFER - A cone bearing tree or shrub.
CULTURAL RESOURCE - Any building, structure, district, area, site or object including underground and underwater sites, that is of significance in the history, architecture, archaeology or culture of the State , its communities or the nation.
CUTTING INTERVAL - The number of years between harvest/regeneration cuts in a forest stand.
DECIDUOUS - A tree or shrub that sheds its leaves annually.
DIAMETER AT BREAST HEIGHT (DBH) - The diameter of a tree measured at 4.5 feet above the ground.
ECOSYSTEM - An ecological community of interacting plants, animals and microorganisms occupying an area, plus their physical environment.
ENDANGERED - Native plants or animals in danger of extinction throughout all or a significant portion of their range within the state and requiring remedial action to prevent such extinction.
EVEN-AGED - A forest stand composed of trees of about the same age, or generally within 10-20 years.
EXOTIC - A plant or animal that is not native.
EXTINCT - No longer exists.
FOREST - Communities formed by trees.
FOREST SUCCESSIONAL STAGES - The various stages of forest growth and development ranging from seedling-sapling to mature trees.
HARDWOOD - Broad-leafed trees, deciduous. Also refers to the wood produced by these trees.
LOG LANDING - A place within a timber harvesting operation where logs are assembled for transporting to the mill.
MBF - One thousand board feet of lumber.
MMBF - One million board feet of lumber.
MULTIPLE USE - A strategy of deliberate land management for two or more purposes which utilizes the capabilities of the land to meet different demands simultaneously.
NATURAL STAND - A stand established by the germination of seeds from natural sources or other

natural vegetative methods.

OVERSTORY - The trees in a forest forming the upper canopy layer.

PIONEER - A plant species capable of invading bare sites with full sunlight and persisting there until supplanted by successor species.

PLANTATION - A forest established by planting of seeds or seedling trees by man.

POLE TIMBER - Generally trees with a diameter of 6 to 11 inches at 4.5 feet above the ground.

PROTECTION FOREST - Forest lands excluded from active forest production and/or recreational use to protect sensitive sites. These sites are commonly steep slopes, wetlands or riparian zones.

RARE - Native plants that have from 20 to 35 extant sites or 3,000 to 5,000 individuals statewide.

REGENERATION/REPRODUCTION - The act of replacing older trees in a forest stand, either naturally or artificially. Also refers to the new growth that develops.

RELEASE - Freeing a tree or a group of trees from more immediate competition by cutting or eliminating growth that is overtopping or closely surrounding them.

RIPARIAN - Related to, living or located on the bank of a natural watercourse, usually a river, stream, lake, pond, or tidewater.

ROTATION - The period of years required to grow a crop of timber to the optimum size or age.

SALVAGE CUTTING - The harvest of dead, dying, damaged, or deteriorating trees.

SAPLING - Generally trees 1" to 5" in diameter at 4.5 feet above the ground.

SAWTIMBER - Generally trees 12" and larger in diameter at 4.5 feet above the ground.

SEEDLING - A tree grown from seed, generally describes a young tree before it reaches the sapling stage.

SELECTION CUT - The removal of trees over the entire range of size classes either singly or in groups at relatively short intervals, resulting in continuous establishment of reproduction, and the perpetuation of an uneven aged stand.

SELECTION SYSTEM - An uneven aged system which removes the mature and immature trees either singly or in groups at given intervals.

SHELTERWOOD SYSTEM. An even-aged system which removes the mature stand in a series of cuts. Regeneration of the new stand occurs under the cover of a partial forest canopy.

SHELTERWOOD CUT - The removal of the mature timber in a series of cuts which establishes even-aged reproduction under the partial shelter of trees.

SILVICULTURE - The art of producing and tending a forest.

SKID TRAIL - The trail used to drag, or skid trees from the stump to the landing.

SOFTWOOD - Needle bearing trees. See conifer. Also, refers to the lumber derived from these trees.

STAND - A contiguous group of trees sufficiently uniform in species composition, arrangement of age classes, and condition to be a homogenous and distinguishable unit.

SUCCESSION - The gradual supplanting of one community of plants and animals by another, from pioneer to climax.

SUSTAINED YIELD - The continuous production of a forest product that balances net growth and harvests.

THINNING - A cutting made to reduce the number of trees in a stand to improve growth, enhance forest health and to produce a forest product.

THIRD ROW THINNING - The removal of every third row in a plantation.

THIRD ROW SELECTION THINNING - The removal of every third row in a plantation and selective thinning in the remaining rows.

THREATENED - Native plants and animals that are likely to become endangered within the foreseeable future throughout all or a significant portion of their range.

TIMBER STAND IMPROVEMENT (TSI) - Precommercial thinning of forest stands, intended to reduce stand density and species composition while improving stand quality and fostering individual tree health and vigor.

TOP LOPPING - The cutting of limbs from the tops of felled trees to reduce fire danger, speed up the decaying process of the logging debris, and to improve the aesthetic appearance of the stand.

UNDERSTORY - Generally those trees and woody species growing under an overstory.

UNEVEN-AGED STAND - A stand which contains at least three age classes.

UNEVEN-AGED - A class of forest or stand composed of trees that differ markedly in age.

VERNAL POOL - A seasonal body of standing water that typically forms in the spring from melting snow and other runoff, dries out completely in the hotter months of summer, and often refills in the autumn. Vernal pools range from broad, heavily vegetated lowland bodies to smaller, isolated upland bodies with little permanent vegetation. They are free of fish and provide important breeding habitat for many terrestrial or semiaquatic species such as frogs, salamanders, and turtles.

WATERSHED - The area drained by a stream or river.

WETLAND CLASSES - A system of classification set forth in ECL Article 24, Section 664.5 which ranks wetlands I through IV based upon wetland function and benefits, I being the highest rank.

Appendix D - Public Use

(Some month's data is missing for various reasons. Total does not indicate total use numbers, only the total number of users who registered.)

Taylor Pond Wild Forest Year 2005													
Location	**Jan.**	**Feb.**	**Mar.**	**Apr.**	**May**	**June**	**July**	**Aug.**	**Sep.**	**Oct.**	**Nov.**	**Dec.**	**TOTAL**
Poke-O-Moonshine	43	83	103	299	381	444	426	664	411	181	161	95	**3,291**
Catamount	37	41	37	64	187	123	537	518	221	34	78	13	**1,890**
Silver Lake Mountain	25	62	81	135	83			620	353	338	31	3	**1,731**
Mud Pond (NY 3)	16	6	2	20	26	18	12	22	21	4			**147**
Union Falls Dam	0	2	5	8	13	58	44	53	20	19	3	0	**225**
Total	**121**	**194**	**228**	**526**	**690**	**643**	**1,019**	**1,877**	**1,026**	**576**	**273**	**111**	**7,284**

(Some month's data is missing for various reasons. Total does not indicate total use numbers, only the total number of users who registered.)

Taylor Pond Wild Forest **Year 2006**													
Location	**Jan.**	**Feb.**	**Mar.**	**Apr.**	**May**	**June**	**July**	**Aug.**	**Sep.**	**Oct.**	**Nov.**	**Dec.**	**TOTAL**
Poke-O-Moonshine						424	1,077	884	157				**2,542**
Catamount	27	5						90	286	294	114	46	**862**
Silver Lake Mountain	40	38	11					148	383	488	123	77	**1,308**
Mud Pond (NY 3)					12	8	25	19	44	29	17	26	**180**
Union Falls Dam				6	18	11							**35**
Total	**67**	**43**	**11**	**6**	**30**	**443**	**1,102**	**1,141**	**870**	**811**	**254**	**149**	**4,927**

(Some month's data is missing for various reasons. Total does not indicate total use numbers, only the total number of users who registered.)

Taylor Pond Wild Forest **Year 2007**													
Location	**Jan.**	**Feb.**	**Mar.**	**Apr.**	**May**	**June**	**July**	**Aug.**	**Sep.**	**Oct.**	**Nov.**	**Dec.**	**TOTAL**
Poke-O-Moonshine	3	37	21	199	1,139	1,149	860	898	657	369	18		**5,350**
Catamount	16	10	10	35	199	176	372	573	393	303	62	10	**2,159**
Silver Lake Mountain	47	22	37	66	232	247	787	417	421	334			**2,610**
Mud Pond (NY 3)	9	4	9	12	20	20	29	54	82	103	150	25	**517**
Union Falls Dam													**0**
Total	**75**	**73**	**77**	**312**	**1,590**	**1,592**	**2,048**	**1,942**	**1,553**	**1,109**	**230**	**35**	**10,636**

(Some month's data is missing for various reasons. Total does not indicate total use numbers, only the total number of users who registered.)

Taylor Pond Wild Forest **Year 2008**													
Location	**Jan.**	**Feb.**	**Mar.**	**Apr.**	**May**	**June**	**July**	**Aug.**	**Sep.**	**Oct.**	**Nov.**	**Dec.**	**TOTAL**
Poke-O-Moonshine					12	21	810	814	450	591			**2,698**
Catamount	32	25	29	30	188	112	532	97	62			16	**1,123**
Silver Lake Mountain								711	153	210	20	43	**1,137**
Mud Pond (NY 3)	25	21	20	110	287	171	484	235					**1,353**
Union Falls Dam													**0**
Total	**57**	**46**	**49**	**140**	**487**	**304**	**1,826**	**1,857**	**665**	**801**	**20**	**59**	**6,311**

(Some month's data is missing for various reasons. Total does not indicate total use numbers, only the total number of users who registered.)

Taylor Pond Wild Forest **Year 2009**													
Location	**Jan.**	**Feb.**	**Mar.**	**Apr.**	**May**	**June**	**July**	**Aug.**	**Sep.**	**Oct.**	**Nov.**	**Dec.**	**TOTAL**
Poke-O-Moonshine	21	21	87	277	430	473	840	842	660	263	263	29	**4,206**
Catamount	29	14	30	134	315	193	447	631	340	312	91	15	**2,551**
Silver Lake Mountain	26	43	52	217	315	257	674	759	457	364	114	35	**3,313**
Mud Pond (NY 3)	3	2	5	40	39	30	33	20	24	22	25	8	**251**
Union Falls Dam													**0**
Total	**79**	**80**	**174**	**668**	**1,099**	**953**	**1,994**	**2,252**	**1,481**	**961**	**493**	**87**	**10,321**

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Appendix E - Recreation Management (Easements)

FRANKLIN FALLS TIMBER COMPANY, INC. EASEMENT (FFTE)

Between the period of December 1991 and August 1992 New York State acquired 5,124 acres of conservation easement land from the Franklin Falls Timber Company, Inc. These lands consist of three tracts covered by two separate conservation easements. The lands that comprise the Franklin Falls Timber Company, Inc. – Franklin Falls Conservation Easement, include the Franklin Falls Tract lands which are located around Franklin Falls Pond and the Union Falls Tract lands which are located around Union Falls Pond in the Town of St. Armand in Essex County and the Town of Franklin in Franklin County. The Franklin Falls Timber Company, Inc. – Shell Rock Easement lands which make up the balance of the FFTE are located in the Town of Black Brook in Clinton County. These easements are managed together and referred to as the Franklin Falls Timber Company, Inc. Easement or FFTE. The public use of the Franklin Falls Tract, Union Falls Tract and Shell Rock Tract is guided by the two conservation easements. In addition to purchasing development rights, the State also acquired the right of public access to all but 485.67 acres of the property for recreational purposes.

The Franklin Falls Timber Company retained fee title ownership and the right to harvest forest products. The rights that were retained by Franklin Falls Timber Company have been broken up and sold. The fee ownership of the FFTE lands that the Department owns the public recreation rights on, are currently owned by Franklin Falls, LLC. The two easements that make up the FFTE provide specific language for what rights and activities were sold to the Department and how those rights are to be used. Although the State obtained development rights on the entire acreage, the grantor reserved recreational rights to 485.67 acres of waterfront. On the lands that the grantor reserved the recreation rights, there are a total of ninety-two (92) recreational lease sites, seven of which were unimproved at the time of State acquisition. The FFTE lands provide trails for recreationists looking for additional horse-back riding, mountain biking, hiking, canoeing, camping, snowmobiling and cross country skiing opportunities. There is a large network of logging roads on these lands which could be opened to these types of users in. Very little public input was received during the planning process regarding these lands. Based on anecdotal information, opinions of staff and the land manager, it does not appear that there is a demand to develop additional recreational facilities on these lands at this time. In order to determine if there is more use on these lands than understood by staff, a register box with a map of the area and a description of the allowed uses will be installed at both the entrance to the Shell Rock Tract and Union Falls Tract. The conservation easement documents can be found in the Appendicies F and G. A map showing the lands of the FFTE and permitted activities can be found in Appendix Z.

Franklin Falls Tract Lands

The Franklin Falls Tract partially surrounds Franklin Falls Pond. Franklin Falls Pond is a body of water that comprises less than 1,000 acres of water surface. Not all the lands surrounding this water body are part of the easement. There are also privately owned lands and DEC lands. The only facilities on this section of the easement are two parking lots. The conservation easement that covers this tract is attached as Appendix G. A map outlining the appropriate public use on the tract is provided in Appendix Z.

Union Falls Tract Lands

The Union Falls Tract partially surrounds Union Falls Pond. Union Falls Pond is a body of water that is

1,671 acres of water surface. Not all the lands surrounding this water body are part of the conservation easement. There are also privately owned lands and DEC lands. The only facilities on the recreation portion of the easement lands are parking lots and access roads. These parking lots and roads are listed in the table below. The conservation easement that covers this tract is attached as Appendix G. A map outlining the appropriate public use on the tract is provided in Appendix Z.

Shell Rock Tract Lands

Shell Rock Conservation Easement lands, are part of the larger management block known as the FFTE, but are covered by a separate stand alone easement agreement. Access to, and use of, these lands is less restrictive than other portions of the FFTE. The Department purchased all recreation and development rights on these lands. These lands naturally lend themself to hiking, biking, skiing, mountain biking, horse-back riding, camping and snowmobiling. The lands are appropriate for the future development of mountain biking loops, campsites, snowmobile trails and horse-back riding trails. Based on the lack of public input, anecdotal information, opinions of staff and the land manager, it does not appear that there is a demand to develop additional recreational facilities on these lands at this time. If public interest is expressed, new facilities can be proposed through the plan amendment process. The conservation easement that covers the Shell Rock Tract is attached as Appendix F. A map outlining the appropriate public use on the tract is provided in Appendix Z.

Snowmobile Trails

The lands on the FFTE will be looked at for improving the TPMC snowmobile trail system. The core of the trails lies around Silver Lake and Taylor Pond both within the vicinity of the FFTE. In the future the snowmobile trail system around Taylor Pond and Silver Lake may become disconnected due to a landowner whom may not favor snowmobiles. In the event this happens the trails around Taylor Pond may be routed through the Union Falls portion of the FFTE lands to provide access to the statewide trail system.

Mountain Biking

The TPMC has a large variety of land types and uses. Mountain Biking is a use that conforms well with the other uses of the unit. Most of the trails in the unit are open to mountain biking. Few trails in the unit were built with mountain biking in mind. Mountain biking will be encouraged in this unit and additional areas will be explored. The lands of the FFTE will be one of the first areas in the unit explored to develop a mountain biking trail system. The networks of old logging roads on these lands lend them selves to this activity.

Horse-back Riding

There are currently no department identified horse-back riding trails in the unit. Some trails such as the old roads surrounding Silver Lake, Taylor Pond, Franklin Falls Pond and Union Falls Pond have historically been used for this activity. These easement lands will be examined for their inclusion into a department identified horse-back riding trail system. The old logging roads on these lands have the characteristics that are needed for sustainable horse trails.

Easement Facilities

Roads	Length (Miles)	Proposed open to public Motor Vehicles (Miles)	Presently open to snowmobiles (Miles)	Proposed open to Snowmobiles (Miles)	Miles open to snowmobiles in 1972 (Miles)	**Mountain Bikes Ok (yes / no)**
Union Falls Road – Located on the FFTE (Camp Road D)	8.9	0	8.9	8.9	NA	yes

Parking Lots	**Size and Capacity**
#1 North side of River or Plank Rd. West of Saranac River.	60' x 60' - 6 cars
#2 South side of Plank Rd. East of Saranac River.	80' x 80' - 14 cars
#3 North side of Plank Rd. East of Franklin Falls Rd.	50' x 40' - 5 cars
#4 South side of Union Falls Rd.	30' x 50' - 4 cars
#5 West side of Casey Rd.	30' x 50' - 5 cars

ALDERBROOK PARK EASEMENT (ABPE)

The Alderbrook Park Easement has severe deed restrictions. The rights purchased by the department ware timber and development rights. The Alderbrook Park Easement does not allow for any general public access. The easement does restrict the property from being developed further and needs regular inspection. The only rights the State does have for public access is to build a recreation trail. The land owner retained the right to close the trail during any hunting season. The construction of this trail will be considered in the future. This easement is attached as Appendix I.

LASSITER PROPERTIES, INC. CONSERVATION EASEMENT - COOK MOUNTAIN TRACT (CME)

The Cook Mountain Tract is trail less and access is difficult. A trail running along the boundary line as described in the deed will be constructed from the Parish Road. A four car parking area will also be constructed. The parking area and trail will be built to provide access for hiking and snowshoeing. This area needs a register box with an area map and outline for allowed public use. The rights purchased by the Department are timber and development rights with specific recreation rights for hiking and snowshoeing. This easement is attached as Appendix J.

Objectives:

- Provide facilities to accommodate recreational demand on easement lands .
- Provide appropriate signage to provide users with recreational information.
- Determine levels of use.
- Monitor use to assure compliance with the easement agreement.
- Provide appropriate facilities to accommodate demand.
- Manage easement lands in accordance with the easement.

Management Actions:

- Install register boxes, signs and area maps at the entrance points to the Union Falls Tract and Shell Rock Tract**.**
- Maintain contact with land owners to ensure users are complying with the easement.
- Develop and maintain a sign inventory for easements.
- Conduct yearly monitoring visits to ensure activities are in compliance with the easement agreements.
- Maintain parking facilities.
- Build a hiking trail and parking lot for 4 cars to access the Cook Mountain Tract. Install entrance signs, area maps and register boxes.
- Review easement area use numbers and public interest to determine if additional facilities are needed.

Estimated Budget and Schedule for Implementation on Easement Lands

The following table outlines a schedule for implementation for proposed management actions and their estimated costs. Accomplishments are contingent upon sufficient staffing levels and available funding. The estimated costs of implementing these projects are based on historical costs incurred by the Department for similar projects. Values for some projects are based on projected costs for service contracting. These cost estimates do not include capital expenditures for items such as equipment, nor do they include the value of program staff salaries.

Activity	Maintenance Schedule & Cost
Maintain Parking Facilities.	**Annual Estimated Cost:** $1000
Conduct yearly monitoring visits to easements in the unit.	**Annual Estimated Cost:** 7 person days
Update and maintain sign inventory.	**Annual Estimated Cost:** 3 person days
Install sign with map and register box at gate for Union Falls Tract Lands (Camp Road D).	**Year 1 Estimated Cost:** $3000
Install sign with map and register box at entrance to Shell Rock Tract Lands.	**Year 1 Estimated Cost:** $3000
Install a sign with a map and register box at the Entrance to the Cook Mountain Easement.	**Year 1 Estimated Cost:** $3000
Build access trail and parking lot as described in the easement for the Cook Mountain Tract.	**Year 4 Estimated Cost:** $8000

Review the lands of FFTE for appropriateness of building mountain biking, snowmobile, and horse-back riding trails and providing public camping opportunities. Amend RMP to accommodate appropriate facilities if needed.	**Year 5 Estimated Cost:** 30 person days

Cost Summary

Annual Maintenance Costs: **$1000 & 10 person days** (5 years = (($1000 & 10 person days) x 5).

Total 5 Year Costs of New Projects: **$17,000 & 30 person days for 5 years of management.**

Five Year Total: **$22,000 & 80 person days for 5 years of management.**

Appendix F - Franklin Falls Timber Company, Inc. Conservation Easement - Shell Rock Tract Lands

Proceeding 6078

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

E-AFP (4) CLINTON 113

FRANKLIN FALLS TIMBER COMPANY, Inc.

CONSERVATION EASEMENT

ARTICLE 49 OF THE ECL

AGREEMENT

THIS AGREEMENT made as of the 1st day of July 1992, by and between

FRANKLIN FALLS TIMBER COMPANY, Inc., a Delaware Corporation having its principal office at (PO Box 128 Lyme, New Hampshire 03768, said corporation being registered to do business in New York (FRANKLIN); and

THE PEOPLE OF THE STATE OF NEW YORK, represented by the New York State Department of Environmental Conservation, 625 Broadway, Albany, New York 12233 (STATE):

WITNESSETH:

WHEREAS, a Conservation Easement Agreement between FRANKLIN and STATE dated January 31, 1990 provides for the conveyance of a perpetual conservation easement by FRANKLIN to STATE over 814.3+ Acres of land as therein described, being a description of the area to be affected by the grant; and

WHEREAS, said Conservation Easement to be granted by FRANKLIN to STATE is intended to be recorded simultaneously herewith; and

WHEREAS, Section 49-0311 of the Environmental Conservation Law provides, as follows:

> "The provision of this title shall be severable, and if any clause, sentence, paragraph, subdivision or part of this title shall be adjudged by any court of competent jurisdiction to be invalid such judgment shall not affect, impair or invalidate the remainder thereof, but shall be confined in its operation to the clause, sentence, paragraph, subdivision or part thereof directly involved in the controversy in which such judgment shall have been rendered; provided that if a conservation easement created pursuant to this title is determined by any court of competent jurisdiction to

be land or water or an interest in land or water subject to the provisions of article fourteen of the constitution then the authority of the state to hold or acquire such easement and the conveyance to the state of such easement shall be void ab initio." and

WHEREAS, paragraph 7 of Terms and Conditions of said conservation easement (Page 8) provides:

"It is understood and agreed by the parties that the underlying fee title to the Protected Property remains in the Grantor, subject to the terms of this easement, and that the lands constituted the Protected Property do not, by the granting of this easement, become a part of the Forest Preserve." and

WHEREAS, Paragraph 18 on page 14 of said conservation easement provides:

"The parties agree that the provisions of this Indenture are severable and that if any court of competent jurisdiction shall render a judgment voiding or nullifying any provisions hereof, the effect of said judgment shall be limited to the nullified or voided portion of this easement and the remaining provisions hereof shall continue in full force and effect." and

WHEREAS, no provision is made in said Purchase Agreement or Conservation Easement to continue the perpetual existence of the Conservation Easement and for an orderly transfer of title of the Conservation Easement in the event that the underlined portions of § 49-0311, quoted above, become operative and said Conservation Easement is declared to be "void ab initio."

NOW, THEREFORE, for and in consideration of the granting of said Conservation Easement by FRANKLIN and the payment of ONE HUNDRED FIFTY-SEVEN THOUSAND AND 00/100 DOLLARS ($157,000.00) by STATE, FRANKLIN AND STATE agree, as a supplement to said Purchase Agreement:

1. That in the event the Conservation Easement shall be determined to be "void ab initio" by a court of competent jurisdiction in accordance with the said provisions of §49-0311 ECL, FRANKLIN shall, upon request by STATE, reconvey for no additional consideration said Conservation Easement to a qualified nominee selected by STATE, said reconveyance to be made after such declaration that said conservation easement is "void ab initio" regardless of the fact that STATE may pursue its right of appeal, or otherwise.

   - That STATE shall have the right of enforcement of said reconveyance by FRANKLIN to said nominee by any legal means.

   - That the form of reconveyance shall be satisfactory to STATE and approved by the Attorney General of the State of New York

   - That the provisions of this agreement shall inure to the benefit of and bind the successors and assigns of FRANKLIN and STATE.

   - That STATE shall pay any costs and expenses, including but not limited to taxes, filing fees and reasonable attorney's fees that FRANKLIN may incur as a result of the reconveyance of the conservation easement pursuant to the terms of this Agreement.

This agreement has been executed in duplicate, each being an original.

IN WITNESS WHEREOF, the parties hereto duly have executed this agreement as of the date and year written above.FRANKLIN FALLS TIMBER COMPANY, Inc.

(S E A L) By _____

President, HENRY SWAN

THE PEOPLE OF THE STATE OF NEW YORK

acting by and through its Department of Environmental Conservation

By _____

LANGDON MARSH, Executive Deputy Commissioner

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Proceeding 6078

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SHELL ROCK

E-AFP (4) CLINTON 113

CONSERVATION EASEMENT

THIS INDENTURE, made this 1st day of July 1992, between FRANKLIN FALLS TIMBER COMPANY, Inc., a Delaware Corporation authorized to transect business in the State of New York, PO Box 128, Lyme, New Hampshire 03768, GRANTOR, AND the PEOPLE OF THE STATE OF NEW YORK, acting by the New York State Department of Environmental Conservation, 625 Broadway, Albany New York 12233, GRANTEE

WITNESSETH:

WHEREAS, the GRANTOR is the owner of certain real property hereinafter more fully described in Schedule A attached hereto, and hereinafter referred to as the "PROTECTED PROPERTY;" and

WHEREAS, the Legislature of the State of New York has declared the public policy of the State to be conservation, preservation and protection of its environmental assets and natural and man-made resources, and in furtherance thereof, has enacted Article 49, Title 3, of the Environmental Conservation Law to provide for and encourage the limitation and restriction of development, and use of real property through conservation easements; and

WHEREAS, the PROTECTED PROPERTY in its present natural condition has substantial and significant natural resource value by reason of the fact that it historically has been managed for silvicultural purposes and for the production of timber, and that it has not been subject to any extensive development or exploitation, and its value will not be affected by the continued maintenance in their present condition of such structures and facilities as presently exist; and

WHEREAS, in view of the foregoing and pursuant to the provisions of the aforementioned Article 49 of the Environmental Conservation Law, the GRANTEE has determined it to be desirable and beneficial and has requested the GRANTOR, for itself and its successors and assigns, to grant a CONSERVATION EASEMENT to the GRANTEE in order to limit the further development of the PROTECTED PROPERTY while permitting compatible use thereof; and

NOW THEREFORE, the GRANTOR for and in consideration of $157,000.00 lawful money of the United States, paid by the GRANTEE, receipt of which is hereby acknowledged, grants, conveys and releases to the GRANTEE and its successors and assigns forever for the benefit of the GRANTEE, an easement in perpetuity in, on, over, under and upon the PROTECTED PROPERTY consisting of entry, inspection and limited public recreational access and use, as hereinafter more fully described.

The GRANTOR, however, reserves to itself and its successors and assigns the rights hereinafter more fully

set forth in the section captioned RESERVED RIGHTS along with all rights as fee owner including the right to use the property for all purposes not inconsistent with this Easement.

AFFIRMATIVE RIGHTS

Those rights agreed to by the parties herein as running with the PROTECTED PROPERTY are more fully described as follows:

1. The GRANTOR grants to the GRANTEE and its successors and assigns the right to view the PROTECTED PROPERTY in its current state, including the right of public access to the PROTECTED PROPERTY for recreational purposes only, subject to the terms and conditions and reserved rights set forth herein. This right of public recreational use includes the following:

   A. Access to and over the PROTECTED PROPERTY by bicycle or foot, including hiking, snowshoeing, cross-country skiing and/or horse-back, the use of horses or other similar animals for riding or transportation of supplies is permitted.

   B. Access to the PROTECTED PROPERTY by vehicle shall be limited to established roads for administrative purposes only by the GRANTEE.

   C. Snowmobiles may use all existing roads which provide legal access to, or which cross, the property except those roads which are plowed by the GRANTOR and are being used for logging purposes.

      The GRANTEE is responsible for all necessary signs indicating trails open for public snowmobile use.

   D. The use of canoes and other means of non-motorized access and travel by the public on any navigable streams or bodies of water crossing or situated on the PROTECTED PROPERTY.

   E. Camping by the public is permitted and will be regulated in the same manner as on existing Forest Preserve land or in accordance with the Unit Management Plan as defined in Item 6a of the Terms and Conditions Section of the Agreement.

   F. The gathering of firewood from dead and downed trees only for on site use by the public to build fires for cooking or warmth only. Open fires will be regulated in the same manner as on existing Forest Preserve lands.

   G. Fishing and trapping by the public is permitted in accordance with established seasons and applicable rules and regulations.

   H. The GRANTEE shall have the right to construct and maintain trails for non-motorized use and snowmobile use by the public and parties to this Agreement in addition to those which may already exist on PROTECTED PROPERTY as long as those trails do not interfere with the GRANTOR's reserved right of Forest Management and subject to the GRANTEE's Unit Management Plan to be

developed.

I. The GRANTEE shall have the right to construct and maintain parking lots as necessary for the exercise of the recreational rights conveyed in this easement, provided, however, location of any parking lots specified in Schedule A shall be described in Unit Management Plan described in Item 6a of the Terms and Conditions portion of this Agreement. Any timber removed by the construction of these parking lots shall belong to the GRANTOR.

J. The GRANTEE shall have the right to manage the fish and wildlife resources on the PROTECTED PROPERTY for the long term use and benefit of the public.

K. In response to natural disaster, environmental hazard or threats to human safety, the GRANTEE may take any emergency action necessary to preserve the PROTECTED PROPERTY. The GRANTOR shall be immediately notified and consulted relative to any such emergency action.

DECLARATION OF RESTRICTIONS

GRANTOR AND GRANTEE agree that the following restrictions shall apply to the PROTECTED PROPERTY in perpetuity:

1. The productive capacity of the property to produce forest crops shall be maintained. Accordingly, the GRANTOR agrees to manage the land in accordance with current scientifically-based Forest Management and Soil Conservation practices for the now present forest species, stand conditions, sites and soils. Forest Management activities will be guided by the New York State Department of Environmental Conservation policies and procedures, Title 8409.12 Timber Management Handbook. Harvesting activities shall conform to US Soil Conservation Service standards and to "Timber Harvesting Guidelines for NY," LF-P185 as prepared by the New York Society of American Foresters.

2. No buildings, residences, mobile homes or other structures, fences, signs, billboards or other advertising material shall be constructed or placed in, on, over, under or upon the PROTECTED PROPERTY except to the extent provided in the Reserved Rights Section and Item 6b of the Terms and Conditions Section of this Agreement.

3. Except as provided in the Reserved Rights Section, no application of pesticides, including but not limited to insecticides, fungicides, rodenticides and herbicides shall be allowed.

4. Except to the extent provided in the Reserved Rights Section, no dumping or storing of ashes, sawdust, non-composted organic waste, "off-site" sewage or garbage, scrap material, sediment discharges, oil and its by-products, leached compounds, toxic fumes or any other unsightly or offensive material shall be allowed in, on, over under or upon the PROTECTED PROPERTY.

5. No snowmobiles, dune buggies, motorcycles, all-terrain vehicles or other recreational vehicles shall be operated on the PROTECTED PROPERTY by GRANTOR except as they may be used for inspection, maintenance, fire protection or other emergency needs and

for the furtherance of the GRANTOR's Reserved Rights. No off-road or off-trail use of automobiles, trucks, vans, all terrain vehicles, snowmobiles or other motor vehicles shall be permitted on the PROTECTED PROPERTY, except as is necessary for operations as described in the Reserved Rights Section. This restriction does not impair the public or the GRANTOR's access rights described in this easement.

6. No exterior artificial illumination shall be employed on the PROTECTED PROPERTY, other than that employed on the date hereof, without prior written consent of the GRANTEE, except as is reasonably required for enjoyment of the Reserved Rights by the GRANTOR.

7. No residential, commercial or industrial activities of any kind shall be permitted on the PROTECTED PROPERTY other than those specifically provided for in the Reserved Rights Section.

8. Except as may be specifically permitted in the Reserved Rights Section or pursuant to Environmental Conservation Law Section §49-0307, no new telephone, telegraph, cable television, electric, gas, water or sewer or other utility lines shall be routed over, under, in, on, upon or above the PROTECTED PROPERTY without the prior written consent of the GRANTOR and the GRANTEE.

9. No mining will be conducted and no minerals, gas or oil mines will be extracted from the property except the "on-site" use of gravel for road construction will be permitted in addition to the rights specified for the five-acre parcel provided for in the Reserved Rights Section, subject to any applicable laws and governmental regulation.

TERMS AND CONDITIONS

The provisions upon which this easement is given and accepted are more fully defined as follows:

1. The GRANTOR, for itself and its successors and assigns, and the GRANTEE hereby agree that the terms of this easement are to be construed so as to preserve perpetually the PROTECTED PROPERTY in its natural condition, provided, however, that nothing herein contained shall impair the exercise of the Reserved Rights.

2. GRANTOR and the GRANTEE shall make every reasonable effort to abide by the terms of the Agreement; however, the failure of the GRANTEE to insist upon the strict performance of any of the terms, conditions, covenants or restrictions contained herein shall not be deemed a waiver of any terms, conditions, covenants or restrictions contained herein, nor shall any such failure of the GRANTEE in any way bar its enforcement rights hereunder in the event of any subsequent breach of, or non-compliance with or fault in observance of any of the terms, conditions, covenants or restrictions contained herein.

3. The GRANTOR and the GRANTEE agree that within six (6) months of the recording of this easement a Report of Physical Inspection of PROTECTED PROPERTY will be completed by the GRANTEE at no expense to the GRANTOR except that the GRANTOR shall bear the expense of the involvement, if any, of its staff. Said Report will accurately and completely describe the natural condition of the PROTECTED PROPERTY on the date

thereof. Said Physical Inspection Report will be subscribed to by both the GRANTOR and the GRANTEE indicating their concurrence that such report accurately and completely describes the PROTECTED PROPERTY as of the date thereof.

4. In the event of a breach of any of the covenants, restrictions, terms and conditions of this easement, and notwithstanding any other language in this instrument to the contrary, the GRANTEE shall notify the GRANTOR of any failure to comply with any of the terms of this instrument. Such notice shall set forth how the GRANTOR can cure such non-compliance and give the GRANTOR a reasonable time from the date of receipt of the notice in which to cure, based on the parties understanding that due consideration must be given for the severe weather conditions that exist during the months of November through April of each year. At the expiration of such period of time to cure, the GRANTEE shall notify the GRANTOR of any failure to adequately cure the deficiencies set forth in the initial notice. The GRANTOR then shall have an additional fifteen (15) days from receipt of such notice to cure such deficiencies. At the expiration of said fifteen-day period, but not prior thereto, the GRANTEE may commence legal proceedings to require compliance with the terms of this easement. All notices required by this paragraph and by any other provisions of this easement, shall be in writing and delivered to the GRANTOR by personal service or delivered by certified mail return receipt requested.

   The parties agree that, to the extent permissible, the provisions of Section 3222 of the Civil Practice Law and Rules shall apply to and govern any dispute between the GRANTOR and the GRANTEE arising out of this Agreement.

   It is understood and agreed by the parties hereto that the GRANTOR, its successors and assigns shall not be liable for any changes to the PROTECTED PROPERTY caused by any natural disaster or act of God, acts of the GRANTEE, its agents and representatives or the acts of the public while on the PROTECTED PROPERTY pursuant to the public access rights granted by this easement.

5. In the event that any existing structure on the PROTECTED PROPERTY deteriorates to the condition that it is dangerous to occupy or be around, the GRANTOR, at its sole cost and expense, shall either correct the hazard or demolish and remove such hazardous structures. The GRANTOR may remove those structures by burning and burying the rubble subject to existing laws and regulations.

6. In order to provide for the safe and reasonable cooperative use of the PROTECTED PROPERTY, the parties agree as follows:

   (a) GRANTEE will prepare a Unit Management Plan which will be subject to review and approval by the GRANTOR, which approval shall not be unreasonably withheld. Said Unit Management Plan will address the proposed use by the public of the PROTECTED PROPERTY. Said Unit Management Plan shall incorporate only the rights and privileges herein granted to the public.

   (b) Both the GRANTOR and the GRANTEE may, but neither is under obligation to the other to mark boundaries or corners of the PROTECTED PROPERTY and may erect such signs as may be necessary to carry out their rights

and obligations hereunder provided that all signs thus displayed by the GRANTOR shall conform to specifications contained in any applicable laws or governmental regulations.

(c) The GRANTOR and the GRANTEE shall jointly develop a method to be detailed in the Unit Management Plan for the removal of any new debris, such as papers, bottles, cans or other garbage or debris left on the PROTECTED PROPERTY by individuals utilizing the same and will cooperate with each other so that all such debris and garbage will be removed promptly. The GRANTEE, at its sole expense, subject to availability of funds, is obligated to remove such trash as is created by GRANTEE, its agents and invitees. If funding is not available for trash removal, the GRANTEE and GRANTOR may mutually agree to close the area to public use.

7. It is understood and agreed by the parties that the underlying fee title to the PROTECTED PROPERTY remains in the GRANTOR, subject to the terms of this easement, and that the lands constituting the PROTECTED PROPERTY do not, by the granting of this easement, become a part of the Forest Preserve.

8. Nothing herein contained shall be construed to permit the removal of trees, firewood or other forest products or the removal of any dead or downed trees by the general public, except for the purposes of "on-site" cooking and warming. Any other use of wood by the public is expressly prohibited.

9. Acquisition of this CONSERVATION EASEMENT does not remove the necessity of the GRANTOR obtaining any permit and/or approval from any governmental agency having jurisdiction which may be required for normal maintenance, construction, or any other activity permitted on the PROTECTED PROPERTY.

10. This easement may be amended by the parties hereto by mutual agreement in writing executed by both parties and recorded in the Clinton County Clerk's office or in accordance with the provisions of Section §49-0307 of the Environmental Conservation Law.

11. Except as otherwise specifically provided for herein, whenever a consent or approval is required from either the GRANTOR or the GRANTEE, the party seeking the consent or approval shall send a written request for such consent or approval by registered or certified mail to the address of the other party as hereinafter provided and said party shall respond to said request within sixty (60) days of its receipt. In the event that the consenting or approving party fails to respond within said sixty (60) day period, its consent or approval shall be implied. Such consent or approval shall not be arbitrarily or unreasonably withheld by either party.

12. Any notice required to be sent to the GRANTOR herein shall be addressed to: Franklin Falls Timber Company, Inc., PO Box 128, Lyme, NH 03768.

    Any notice required to be sent to the GRANTEE herein shall be addressed to: Regional Director, New York State Department of Environmental Conservation,

1115 NYS Route 86, Ray Brook, NY 12977

with a copy to:

Director, Division of Lands and Forests, New York State Department of Environmental Conservation, 625 Broadway

Albany, NY 12233

provided, however, either party may change the individual or address to which notices are to be sent by giving written notice thereof to the other party.

13. The GRANTOR and the GRANTEE will cooperate in the enforcement of the terms of this easement. In the event that the GRANTEE determines that legal proceedings are necessary against some party other than the GRANTOR, its successors, assigns, agents, contractors, invitees, then the GRANTOR may agree to join the GRANTEE in pursuing such legal proceeding provided that nothing herein contained shall obligate the GRANTOR to expend any funds other than for its review of papers and execution thereof.

14. The GRANTEE intends to schedule periodic inspections of the PROTECTED PROPERTY to determine compliance with the terms of this easement. In doing so, the GRANTOR will be provided with three days notice and the GRANTOR will have the right to accompany the GRANTEE on said inspection trips. The GRANTOR will be provided with a copy of the Inspection Report within thirty (30) days of the inspection.

RESERVED RIGHTS

Notwithstanding the foregoing, the GRANTOR reserve to itself, its successors, lessees, invitees, contractors and assigns the following rights with regard to the PROTECTED PROPERTY.

1. To conduct commercial activities related to the harvesting of timber and other forest products.

2. To use, repair, maintain, improve or relocate any and all existing trails, paths and roadways on the PROTECTED PROPERTY and to construct such new roads and trails as are necessary for the implementation of the GRANTOR's reserved right to harvest forest products or to gain access to other lands of the GRANTOR subject to the following terms and conditions:

   (a) GRANTOR may utilize for any purpose gravel from the existing five-acre gravel pit located on the westerly side of the Casey Road, which five-acre site is more particularly described in Schedule B attached hereto. This gravel or borrow pit located on the PROTECTED PROPERTY shall be maintained in such a way as to minimize the adverse effects of open pit mining and shall be operated in accordance with all applicable laws and regulations. The GRANTEE may utilize, with the GRANTOR's permission, surplus gravel from the property, when available, to build parking areas on the property.

(b) In the event that the GRANTOR installs gates on any road, the GRANTEE shall be given a key for all locks for all gates for administrative use by the GRANTEE, its officers, employees and agents.

3. The exclusive right to clear for reforestation, to plant trees in non-forested areas, to reforest, plant, grow and harvest forest products and other vegetation, to clear or restore forest cover damaged or destroyed by fire, water or natural disaster, to selectively prune or trim trees, to harvest, selectively prune or trim foliage and other vegetation, to harvest forest products with domestic animals or mechanical equipment and maintain existing field and meadows. Harvesting shall include, but not be limited to, the removal of forest products such as trees, logs, poles, posts, pulpwood, firewood, chips, seeds, pinestraw, stumps, seed cones, shrubs, lesser vegetation and all sugar maple products. The harvesting and removal of an and all forest products as herein described shall be permissible by any and all current and future harvesting and removal techniques allowable under the law. All harvesting and related activities shall be conducted in accordance with any applicable rules and regulations of any governmental agency having jurisdiction under the Environmental Conservation Law. In conjunction with such forestry use, the GRANTOR reserves the right to apply, consistent with applicable statutes and regulations, any herbicides, pesticides, fungicides, rodenticides and insecticides as may be appropriate. The GRANTOR shall have the right to practic all accepted forest management practices allowable under the law.

4. To trim, cut, remove, use for firewood or otherwise dispose of any trees or vegetation which are diseased, rotten, damaged or fallen, or that are safety or health hazards; to trim, cut, remove or otherwise dispose of any trees or vegetation as is necessary to maintain existing fire lanes, footpaths, roadways and utility rights-of-way.

5. To take action necessary to preserve water levels, to preserve the natural purity of the water or to prevent the erosion of any slope or shoreline on the PROTECTED PROPERTY, provided the written consent of the GRANTEE is first obtained and any appropriate permits are obtained.

6. To use the recreational rights under the same guidelines and restrictions as the public.

7. To give, sell, assign, lease, subdivide or otherwise transfer all or any portion of the PROTECTED PROPERTY by operation of law, by deed or by indenture, subject and subordinate to this easement. To give, sell, assign, lease, subdivide or otherwise transfer all or any portion of the GRANTOR' s Reserved Rights as to all or any portion of the PROTECTED PROPERTY by operation of law, by deed or by indenture, subject and subordinate to this easement.

8. To maintain and repair existing trails and roads. To build new trails and roads for use by the GRANTOR in the furtherance of the GRANTOR's reserved rights.

9. To build, maintain and repair roads which create access over, through and across the PROTECTED PROPERTY to other properties now or hereafter owned by the GRANTOR, together with the right of the GRANTOR to grant to its successors and assigns the rights of ingress and egress, for any lawful use, over, on and through such roads for access to

adjoining properties provided, however, that any roads which provide access to adjacent lands now owned or hereafter acquired by the GRANTOR shall be routed across the PROTECTED PROPERTY by a reasonably direct route that is practical and feasible so as to lessen the impact on the recreational rights available on the PROTECTED PROPERTY.

10. Except as limited herein, the GRANTOR reserves to itself, its successors and assigns, all rights as fee owner to the PROTECTED PROPERTY including the right to use the property for purposes not inconsistent with this easement.

11. GRANTOR reserves the right to designate "Closure Zone" during logging operations. Notification of said closure will be provided to the GRANTEE thirty (30) days in advance. Areas being actively logged will be closed to public use and so posted by the GRANTOR. Those zones may be closed for a maximum of two years. No more than twenty (20) percent of the property may be closed at one time.

12. In response to natural disaster, environmental hazards or threats to human safety, the GRANTOR may take emergency action to preserve and protect the GRANTOR's reserved rights.

13. The GRANTOR has the right to construct new roads on the PROTECTED PROPERTY: the GRANTOR has the right to install gates or other barriers and otherwise prohibit public access to any roads over which the public has not been granted a right of use by the rights designated earlier in this Agreement as affirmative rights. The public shall have the right to use such new roads for travel by foot, non-motorized vehicles or animals. The public may utilize the newly constructed roads for snowmobile travel for such times and under such conditions as are specified in Paragraph 1, Sub C of the Affirmative Rights Section.

14. The right to use the PROTECTED PROPERTY for all purposes not inconsistent with this easement.

15. The GRANTOR, for itself, its successors and assigns, covenants and agrees to pay all taxes and assessments lawfully assessed against its interest in the PROTECTED PROPERTY and to furnish to the GRANTEE copies of tax receipts showing such payment. Such tax receipts shall be provided by the GRANTOR within sixty (60) days from their receipt by the GRANTOR from appropriate taxing authority. In the event that the GRANTOR, its successors or assigns fail to pay any such taxes or assessments within twelve (12) months of their original due date, then the GRANTEE may pay such taxes or assessments.

    The GRANTEE shall seek to recover the cost of taxes through the appropriate legal means.

16. The GRANTOR for itself and its successors and assigns covenants and agrees that any subsequent conveyance of the PROTECTED PROPERTY, except one to the GRANTEE pursuant to the terms of the THIRD covenant hereof, or any lease, mortgage, or other transfer or encumbrance of the PROTECTED PROPERTY shall be subject to this easement and that any instrument evidencing such transfer, lease, mortgage or encumbrance shall contain the following statement: "This (grant, lease, mortgage, easement, et cetera) is

subject to a certain easement entered, into between FRANKLIN FALLS TIMBER COMPANY, Inc., and THE PEOPLE OF THE STATE OF NEW YORK, dated and recorded in the Office of the Clerks of Clinton County in Book of Deeds at Page ."

17. The GRANTOR for itself and its successors and assigns, covenants and agrees to indemnify and hold the GRANTEE harmless against all claims, loss, damage and expense the GRANTEE may suffer as a result of any dangerous condition created by the GRANTOR during its exercise of any hunting or logging rights reserved hereunder.

    The GRANTEE, for itself and its successors and assigns, agrees to indemnify and hold the GRANTOR harmless against all claims, loss, damage and expense and GRANTOR may suffer as a result of the GRANTEE's negligence in properly constructing, maintaining, repairing, replacing or managing any recreational amenities and any other actionable conduct of the GRANTEE as permitted by the Court of Claims Act and Section 17 of the Public Officers Law.

    The duty to indemnify and save harmless prescribed by this paragraph shall be conditioned upon (i) delivery to the Attorney General by the GRANTOR of the original or a copy of any summons, complaint, process, notice, demand or pleading within five days after it is served with such docents, (ii) representation by the Attorney General or representation by private counsel of GRANTOR's choice subject to the approval of the Attorney General, whenever the Attorney General determines in his sole discretion based upon his investigation and review of the facts and circumstances of the case that representation by the Attorney General would be inappropriate, and (iii) the full cooperation of the GRANTOR in the defense of such action or proceeding against the GRANTEE based upon the same act or omission, and in the prosecution of any appeal.

18. The parties agree that the provisions of this Indenture are severable and that if any court of competent jurisdiction shall render a judgment voiding or nullifying any provisions hereof, the effect of said judgment shall be limited to the nullified or voided portion of this easement and the remaining revisions hereof shall continue in full force and effect.

TO HAVE AND TO HOLD THE ABOVE GRANTED EASEMENT UNTO THE GRANTEE AND ITS SUCCESSORS AND ASSIGNS FOREVER.

And the GRANTOR does covenant with the GRANTEE as follows:

FIRST: That GRANTOR is seized of said premises in fee simple, and has good right to convey these easement rights;

SECOND: That GRANTEE shall quietly enjoy the said rights;

THIRD: That the premises are free from incumbrances;

FOURTH: That GRANTOR will execute or procure any further necessary assurance of the title to the premises;

FIFTH: That the GRANTOR will forever warrant the title to said premises; and

SIXTH: That this conveyance is made subject to the trust fund provisions of Section 13 of the Lien Law.

IN WITNESS WHEREOF, the parties hereto have caused these presents to be signed by their duly authorized officers as of the day and year first above written.

FRANKLIN FALLS TIMBER COMPANY, Inc.

(S E A L) By _____

President, HENRY SWAN

THE PEOPLE OF THE STATE OF NEW YORK

acting by and through its

Department of Environmental Conservation

By _____

LANGDON MARSH, Executive Deputy Commissioner

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Appendix G - Franklin Falls Timber Company, Inc. Conservation Easement – Franklin Falls and Union Falls Tracts

Proceeding 5963

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

E-AFP (4) FRANKLIN 204.2

FRANKLIN FALLS TIMBER COMPANY, Inc.

CONSERVATION EASEMENT

THIS INDENTURE, made this 31st day of October, 1991, between FRANKLIN FALLS TIMBER COMPANY, Inc., a Delaware Corporation having its principal office at (PO Box 128), Lyme, New Hampshire 03768, said corporation being registered to do business in New York, GRANTOR, AND THE PEOPLE OF THE STATE OF NEW YORK, acting by the New York State Department of Environmental Conservation, 625 Broadway, Albany, New York 12233, GRANTEE

W I T N E S S E T H

WHEREAS, the GRANTOR is the owner of certain real property hereinafter more fully described in Schedule A attached hereto, and hereinafter referred to as the "PROTECTED PROPERTY;" and

WHEREAS, the Legislature of the State of New York has declared the public policy of the State to be conservation, preservation and protection of its environmental assets and natural and man-made resources, and in furtherance thereof, has enacted Article 49, Title 3, of the Environmental Conservation Law to provide for and encourage the limitation and restriction of development, and use of real property through conservation easements; and

WHEREAS, the PROTECTED PROPERTY in its present natural condition has substantial and significant natural resource value by reason of the fact that it historically has been managed for silvicultural purposes and for the production of timber, and that it has not been subject to any extensive development or exploitation, and its value will not be affected by the continued maintenance in their present condition of such structures and facilities as presently exist; and

WHEREAS, in view of the foregoing and pursuant to the provisions of the aforementioned Article 49 of the Environmental Conservation Law, the GRANTEE has determined it to be desirable and beneficial and has requested the GRANTOR, for itself and its successors and assigns, to grant a CONSERVATION EASEMENT to the GRANTEE in order to limit the further development of the PROTECTED PROPERTY while permitting compatible use thereof:

NOW THEREFORE, the GRANTOR for and in consideration of $1,622,000.00 lawful money of the United

Stated, paid by the GRANTEE, receipt of which is hereby acknowledged, grants, conveys and releases to the GRANTEE and its successors and assigns forever for the benefit of the GRANTEE, an easement in perpetuity in, on, over, under and upon the PROTECTED PROPERTY consisting of entry, inspection and limited public recreational access and use, as hereinafter more fully described.

The GRANTOR, however, reserves to itself and its successors and assigns the rights hereinafter more fully set forth in the section captioned RESERVED RIGHTS along with all rights as fee owner including the right to use the property for all purposes not inconsistent with this Easement.

AFFIRMATIVE RIGHTS

Those rights agreed to by the parties herein as running with the PROTECTED PROPERTY are more fully described as follows:

1. The GRANTOR grants to the GRANTEE and its successors and assigns the right to view the PROTECTED PROPERTY in its current state, including the right of public access to the PROTECTED PROPERTY for recreational purposes only, subject to the terms and conditions and reserved rights set forth herein. This right of public recreational use includes the following:

    A. Access to and over the PROTECTED PROPERTY by bicycle or foot, including hiking, snowshoeing, cross-country skiing and/or horse-back, the use of horses or other similar animals for riding or transportation of supplies is permitted.

    B. Access to the PROTECTED PROPERTY by vehicle shall be limited to established roads for administrative purposes only to the GRANTEE.

    C. Snowmobiles may use all existing roads which provide legal access to, or which cross, the property except those roads which are plowed by the GRANTOR and are being used for logging purposes. The GRANTEE is responsible for all necessary signs indicating trails open for public snowmobile use.

    D. Canoes and other means of non-motorized access and travel by the public on any navigable streams or bodies of water crossing or situated on the PROTECTED PROPERTY.

    E. Camping by the public is permitted and will be regulated in the same manner as on existing Forest Preserve land or in accordance with the Unit Management Plan as defined in Item 6a of the Terms and Conditions Section of the Agreement. Camping by those licensees of the GRANTOR when occupying the GRANTOR's structures are exempt provided that those exercising such rights shall leave the sites free of debris and garbage and shall not create a health hazard.

    F. Firewood may be gathered from dead and downed trees only for "on-site" use by the public to build fires for cooking or warmth only. Open fires will be regulated in the same manner as on existing Forest Preserve.

    G. Fishing and trapping by the public is permitted in accordance with established

seasons and applicable rules and regulations.

H. GRANTEE shall have the right to construct and maintain trails for non-motorized use and snowmobile use by the public and parties to this Agreement in addition to those which may already exist on PROTECTED PROPERTY as long as those trails do not interfere with the GRANTOR's reserved right of Forest Management and subject to the GRANTEE's Unit Management Plan to be developed.

I. The GRANTEE shall have the right to construct and maintain parking lots as necessary for the exercise of the recreational rights conveyed in this easement, provided, however, location of any parking lots described in Schedule A shall be described in Unit Management Plan described in Item 6a of the Terms and Conditions portion of this Agreement. Any timber removed by the construction of these parking lots shall belong to the GRANTOR.

J. The GRANTEE shall have the right to manage the fish and wildlife resources on the PROTECTED PROPERTY for the long-term use and benefit of the public.

K. In response to natural disaster, environmental hazard or threats to human safety, the GRANTEE may take any emergency action necessary to preserve the PROTECTED PROPERTY. The GRANTOR shall be immediately notified and consulted relative to any such emergency action.

DECLARATION OF RESTRICTIONS

The parties agree that the following restrictions shall apply to the PROTECTED PROPERTY in perpetuity:

1. The productive capacity of the property to produce forest crops shall be maintained. Accordingly, the GRANTOR agrees to manage the land in accordance with current scientifically-based Forest Management and Soil Conservation practices for the now present forest species, stand conditions, sites and soils. Forest Management activities will be guided by the New York State Department of Environmental Conservation policies and procedures, Title 8409.12 Timber Management Handbook. Harvesting activities shall conform to US Soil Conservation Service standards and to "Timber Harvesting Guidelines for NY," LF-P185 as prepared by the New York Society of American Foresters.

2. No buildings, residences, mobile homes or other structures, fences, signs, billboards or other advertising material shall be constructed or placed in, on, over, under or upon the PROTECTED PROPERTY except to the extent provided in the Reserved Rights Section and Item 6b of the Terms and Conditions Section of this Agreement.

3. Except as provided in the Reserved Rights Section, no application of pesticides, including but not limited to insecticides, fungicides, rodenticides and herbicides shall be allowed.

4. Except to the extent provided in the Reserved Rights Section, no dumping or storing of ashes, sawdust, non-composted organic waste, "off-site" sewage or garbage, scrap material, sediment discharges, oil and its by-products, leached compounds, toxic fumes or any other unsightly or offensive material shall be allowed in, on, over under or upon

the PROTECTED PROPERTY.

5. No snowmobiles, dune buggies, motorcycles, all-terrain vehicles or other recreational vehicles shall be operated on the PROTECTED PROPERTY by GRANTOR except as they may be used for inspection, maintenance, fire protection or other emergency needs and for the furtherance of the GRANTOR's Reserved Rights. No off-road or off-trail use of automobiles, trucks, vans, all terrain vehicles, snowmobiles or other motor vehicles shall be permitted on the PROTECTED PROPERTY, except as is necessary for operations as described in the Reserved Rights Section. This restriction does not impair the public or the GRANTOR's access rights described in this easement.

6. No exterior artificial illumination shall be employed on the PROTECTED PROPERTY, other than that employed on the date hereof, without prior written consent of the GRANTEE, except as is reasonably required for enjoyment of the Reserved Rights by the GRANTOR.

7. No residential, commercial or industrial activities of any kind shall be permitted on the PROTECTED PROPERTY other than those specifically provided for in the Reserved Rights Section.

8. Except as may be specifically permitted in the Reserved Rights Section or pursuant to Environmental Conservation Law Section §49-0307, no new telephone, telegraph, cable television, electric, gas, water or sewer or other utility lines shall be routed over, under, in, on, upon or above the PROTECTED PROPERTY without the prior written consent of the GRANTOR and the GRANTEE.

9. No mining will be conducted and no minerals, gas or oil mines will be extracted from the property except the "on-site" use of gravel for road construction as provided for in the Reserved Rights Section will be permitted, subject to any applicable laws and governmental regulation.

TERMS AND CONDITIONS

The provisions upon which this easement is given and accepted are more fully defined as follows:

1. The GRANTOR, for itself and its successors and assigns, and the GRANTEE hereby agree that the terms of this easement are to be construed so as to preserve perpetually the PROTECTED PROPERTY in its natural condition, provided, however, that nothing herein contained shall impair the exercise of the Reserved Rights.

2. GRANTOR and the GRANTEE shall make every reasonable effort to abide by the terms of the Agreement; however, the failure of the GRANTEE to insist upon the strict performance of any of the terms, conditions, covenants or restrictions contained herein shall not be deemed a waiver of any terms, conditions, covenants or restrictions contained herein, nor shall any such failure of the GRANTEE in any way bar its enforcement rights hereunder in the event of any subsequent breach of, or non-compliance with or fault in observance of any of the terms, conditions, covenants or restrictions contained herein.

3. The GRANTOR and the GRANTEE agree that within six (6) months of the recording of this easement a Report of Physical Inspection of PROTECTED PROPERTY will be completed by the GRANTEE at no expense to the GRANTOR except that the GRANTOR shall bear the expense of the involvement, if any, of its staff. Said Report will accurately and completely describe the natural condition of the PROTECTED PROPERTY on the date thereof. Said Physical Inspection Report will be subscribed to by both the GRANTOR and the GRANTEE indicating their concurrence that such report accurately and completely describes the PROTECTED PROPERTY as of the date thereof.

4. In the event of a breach of any of the covenants, restrictions, terms and conditions of this easement, and notwithstanding any other language in this instrument to the contrary, the GRANTEE shall notify the GRANTOR of any failure to comply with any of the terms of this instrument. Such notice shall set forth how the GRANTOR can cure such non-compliance and give the GRANTOR a reasonable time from the date of receipt of the notice in which to cure, based on the parties understanding that due consideration must be given for the severe weather conditions that exist during the months of November through April of each year. At the expiration of such period of time to cure, the GRANTEE shall notify the GRANTOR of any failure to adequately cure the deficiencies set forth in the initial notice. The GRANTOR then shall have an additional fifteen (15) days from receipt of such notice to cure such deficiencies. At the expiration of said fifteen-day period, but not prior thereto, the GRANTEE may commence legal proceedings to require compliance with the terms of this easement. All notices required by this paragraph and by any other provisions of this easement, shall be in writing and delivered to the GRANTOR by personal service or delivered by certified mail return receipt requested.

   The parties agree that, to the extent permissible, the provisions of Section 3222 of the Civil Practice Law and Rules shall apply to and govern any dispute between the GRANTOR and the GRANTEE arising out of this Agreement.

   It is understood and agreed by the parties hereto that the GRANTOR, its successors and assigns shall not be liable for any changes to the PROTECTED PROPERTY caused by any natural disaster or act of God, acts of the GRANTEE, its agents and representatives or the acts of the public while on the PROTECTED PROPERTY pursuant to the public access rights granted by this easement.

5. In the event that any existing structure on the PROTECTED PROPERTY deteriorates to the condition that it is dangerous to occupy or be around, the GRANTOR, at its sole cost and expense, shall either correct the hazard or demolish and remove it. The GRANTOR may remove such hazardous structures by burning and burying the rubble subject to existing laws and regulations.

6. In order to provide for the safe and reasonable cooperative use of the PROTECTED PROPERTY, the parties agree as follows:

   (a) GRANTEE will prepare a Unit Management Plan which will be subject to review and approval by the GRANTOR, which approval shall not be unreasonably withheld. Said Unit Management Plan will address the proposed use by the public of the PROTECTED PROPERTY. Said Unit Management Plan shall

incorporate only the rights and privileges herein granted to the public.

(b) Both the GRANTOR and the GRANTEE may, but neither is under obligation to the other to mark boundaries or corners of the PROTECTED PROPERTY and may erect such signs as may be necessary to carry out their rights and obligations hereunder provided that all signs thus displayed by the GRANTOR shall conform to specifications contained in any applicable laws or governmental regulations.

(c) The GRANTOR and the GRANTEE shall jointly develop a method to be detailed in the Unit Management Plan for the removal of any new debris, such as papers, bottles, cans or other garbage or debris left on the PROTECTED PROPERTY by individuals utilizing the same and will cooperate with each other so that all such debris and garbage will be removed promptly. The GRANTEE, at its sole expense, subject to availability of funds, is obligated to remove such trash as is created by GRANTEE, its agents and invitees. If funding is not available for trash removal, the GRANTEE and GRANTOR may mutually agree to close the area to public use.

7. It is understood and agreed by the parties that the underlying fee title to the PROTECTED PROPERTY remains in the GRANTOR, subject to the terms of this easement, and that the lands constituting the PROTECTED PROPERTY do not, by the granting of this easement, become a part of the Forest Preserve.

8. Nothing herein contained shall be construed to permit the removal of any trees, firewood or other forest products or the removal of any dead or downed trees by the general public, except for the purposes of "on-site" cooking and warming. Any other use of wood by the public is expressly prohibited.

9. Acquisition of this CONSERVATION EASEMENT does not remove the necessity of the GRANTOR obtaining any permit and/or approval from any governmental agency having jurisdiction which may be required for normal maintenance, construction, or any other activity permitted on the PROTECTED PROPERTY.

10. This easement may be amended by the parties hereto by mutual agreement in writing executed by both parties and recorded in the Franklin and Essex County Clerk's office or in accordance with the provisions of Section §49-0307 of the Environmental Conservation Law.

11. Except as otherwise specifically provided for herein, it is mutually agreed that whenever a consent or approval is required from either the GRANTOR or the GRANTEE, the party seeking the consent or approval shall send a written request for such consent or approval by registered or certified mail to the address of the other party as hereinafter provided and said party shall respond to said request within sixty (60) days of its receipt. In the event that the consenting or approving party fails to respond within said sixty (60) day period, its consent or approval shall be implied. It is mutually agreed that such consent or approval shall not be arbitrarily or unreasonably withheld by either party.

12. Any notice required to be sent to the GRANTOR herein shall be sent by certified mail addressed to:

Franklin Falls Timber Company, Inc., PO Box 128, Lyme, NH 03768.

Any notice required to be sent to the GRANTEE herein shall be sent by certified mail addressed to:

Regional Director, New York State Department of Environmental Conservation, 1115 NYS Route 86, Ray Brook, NY 12977

with a copy to:

Director, Division of Lands and Forests, New York State Department of Environmental Conservation, 625 Broadway, Albany, NY 12233-4250

provided, however, either party may change the individual or address to which notices are to be sent by giving written notice thereof to the other party.

13. The GRANTOR and the GRANTEE will cooperate in the enforcement of the terms of this easement. In the event that the GRANTEE determines that legal proceedings are necessary against some party other than the GRANTOR, its successors, assigns, agents, contractors, invitees, then the GRANTOR may agree to join the GRANTEE in pursuing such legal proceeding provided that nothing herein contained shall obligate the GRANTOR to expend any funds other than for its review of papers and execution thereof.

14. The GRANTEE intends to schedule periodic inspections of the PROTECTED PROPERTY to determine compliance with the terms of this easement. In doing so, the GRANTOR will be provided with three days notice and the GRANTOR will have the right to accompany the GRANTEE on said inspection trips. The GRANTOR will be provided with a copy of the Inspection Report within thirty (30) days of the inspection.

RESERVED RIGHTS

Notwithstanding the foregoing, the GRANTOR reserves to itself, its successors, lessees, invitees, contractors and assigns the following rights with regard to the PROTECTED PROPERTY.

1. To conduct commercial activities related to the harvesting of timber and other forest products.

2. To exclusively occupy, use, repair, maintain, and improve, demolish, replace, abandon or vacate, but not expand or extend any of the 87 existing structures, outbuildings, facilities and dams, as now exist upon the PROTECTED PROPERTY. Any structures presently utilized as camps which exceed 400 square feet and which are subsequently replaced, shall not exceed 400 square feet. The GRANTOR shall have the exclusive right to the year-round use of all presently existing structures, outbuildings and hunting camps. Furthermore, the GRANTOR reserves the right to construct at locations of GRANTOR's choice, a maximum of five (5) additional buildings, not to exceed 400 square feet each, for use as camps by licensees of the GRANTOR. The GRANTOR may remove any

structures by burning and burying the rubble subject to existing laws and regulations.

a) The parties hereto will prepare, prior to closing, a location map depicting the approximate location of each existing structure together with the location of each of the five (5) additional reserved building sites and both parties will have a copy of said location map for future inventory and inspection purposes.

3. To exclusively retain all Recreation Rights on that portion of the 4309.93 acre parcel consisting of a 500 foot wide strip of upland located on the easterly side of Franklin Falls Pond and an irregular width strip of upland along the easterly side of Union Falls Pond. The 500 foot wide strip of land along the easterly side of Franklin Falls Pond is bounded on the west by contour line 1463.20 (USGS Datum), and easterly by a line parallel to said contour line 1463.20 and 500 feet easterly therefrom, and runs through the northerly one-half of Lot 281, Township 11, Old Military Tract, Town of St. Armand, County of Essex and through Lots 120, 119 and 82, Township 10, Old Military Tract, Town of Franklin, County of Franklin. The irregular width strip of land along the easterly side of Union Falls Pond is bounded on the west by contour line 1408.52 (USGS Datum) and on the east and southeast by a line which begins at a point in the center of the Franklin Falls Road where the same is intersected by the division line between the above-mentioned 4309.93 acre parcel on the east and lands of Niagara Mohawk Power Corporation on the west; thence easterly along the center of Franklin Falls Road to a point where said centerline intersects a line which is located 200 feet southeasterly from said contour 1408.52; thence running easterly, southerly and northeasterly along the line which is parallel with and always 200 feet landward from said contour line 1408.52 as it winds and turns to a point of intersection with the end of the access road to Camp No. 4-78; thence continuing northerly along the center line of said access road through Lots 78, 43 and 44 to a point at the intersection of said access road with the center of French Brook; thence along the center line of said French Brook as it winds and turns to a point 500 feet easterly from contour line 1408.52; thence northerly parallel with and always 500 feet easterly from said contour line as it winds and turns through Lots 44, 45, 46 and 35 to a point of intersection with the south line of Lot 34, being also the south bounds of State-owned land.

a) Further reserving to the GRANTOR the exclusive Recreation Rights on that portion of the 4309.93 acre parcel consisting of all that strip of land lying on the westerly side of Franklin Falls Pond, said strip of land being bounded on the west by the Franklin Falls County Highway and on the east by contour line 1463.20 which runs through Lot 261, Township 11, Old Military Tract, Town of St. Armand, County of Essex and Lots 121, 120 and 119, Township 10, Old Military Tract, Town of Franklin, County of Franklin.

b) Further reserving to the GRANTOR the exclusive Recreation Rights on two small occupied islands - one being in Franklin Falls Pond in Lot 261, Township 11, Old Military Tract, and occupied by existing Camp Number 2/261/11/G. The second island in Union Falls Pond is identified as the J. B. Hough Island located in Lot 10 of Township 10, Macomb's Purchase, Great Tract 1 and is further identified as being occupied by Camp Number 7/10/10.

c) Further reserving to the GRANTOR the exclusive Recreation Rights on a two-acre square parcel of land surrounding each of the fourteen camps and/or maintenance structures listed below. Each of these fourteen two-acre parcels may be posted against trespass by the GRANTOR. The improvements need not be located in the geographic center of the posted parcel, but said posted area may not exceed two acres in size and is to be in the form of a square. These fourteen structures constitute a portion of the total 87 existing structures, outbuildings, facilities and dams described in paragraph 2 of this Reserved Rights section, as now existing upon the PROTECTED PROPERTY. The remaining 73 existing improved sites as well as the five additional proposed building sites reserved in 2 above, are located or shall be located in any area of retained Recreation Rights described in paragraph 3, paragraph 3 (a) or paragraph 3 (b) immediately above. The fourteen camps and maintenance structures to which this two-acre Recreational Rights reservation pertain are identified as follows and are shown, along with the other 73 existing improved sites and the five proposed building sites, on the location map referred to in paragraph 2 (a) above:

	Camp	Lot	TWP
Lot 121	1	121	10
Lot 121	5	121	10
Lot 120	2	120	10
Lot 2	1	2	10
Lot 84	1	84	10
Lot 43	1	43	10
Lot 43	4	43	10 (shop)
Lot 8	1	8	10
Lot 8	2	8	10
Lot 9	1	9	10
Lot 9	3	9	10
Lot 9	4	9	10
Lot 10	1	10	10
Lot 82	7	82	10

4. To use, repair, maintain, improve or relocate any and all existing trails, paths and roadways on the PROTECTED PROPERTY and to construct such new roads and trails as are necessary for the implementation of the GRANTOR's Reserved Right to harvest the forest products or to gain access to other lands of the GRANTOR subject to the following terms and conditions:

a) GRANTOR may utilize gravel from the property for "on-site" use on lands of the GRANTOR only for building and maintaining access, logging and skid roads. All such gravel or borrow pits located on the PROTECTED PROPERTY shall be maintained in such a way as to minimize the adverse effects of open pit mining and shall be operated in accordance with all applicable laws and regulations. The GRANTEE may utilize, with GRANTOR permission, surplus gravel from the property, when available, to build parking areas on the property.

b) In the event that the GRANTOR installs gates on any road, the GRANTEE shall be

given a key for all locks for all gates for administrative use by the GRANTEE, its officers, employees and agents.

5. The exclusive right to clear for reforestation, to plant trees in non-forested areas, to reforest, plant, grow and harvest forest products and other vegetation, to clear or restore forest cover damaged or destroyed by fire, water or natural disaster, to selectively prune or trim trees, to harvest, selectively prune or trim foliage and other vegetation, to harvest forest products with domestic animals or mechanical equipment and maintain existing field and meadows. Harvesting shall include, but not be limited to, the removal of forest products such as trees, logs, poles, posts, pulpwood, firewood, chips, seeds, pinestraw, stumps, seed cones, shrubs, lesser vegetation and all sugar maple products. The harvesting and removal of any and all forest products as herein described shall be permissible by any and all current and future harvesting and removal techniques allowable under the law. All harvesting and related activities shall be conducted in accordance with any applicable rules and regulations of any governmental agency having jurisdiction under the Environmental Conservation Law. In conjunction with such forestry use, the GRANTOR reserves the right to apply, consistent with applicable statutes and regulations, any herbicides, fungicides, rodenticides and insecticides as may be appropriate. The GRANTOR shall have the right to practice all accepted forest management practices allowable under the law.
6. To trim, cut, remove, use for firewood or otherwise dispose of any trees or vegetation which are diseased, rotten, damaged or fallen, or that are safety or health hazards; to trim, cut, remove or otherwise dispose of any trees or vegetation as is necessary to maintain existing fire lanes, footpaths, roadways and utility rights-of-way.
7. To take action necessary to preserve water levels, to preserve the natural purity of the water or to prevent the erosion of any slope or shoreline on the PROTECTED PROPERTY, provided the written consent of the GRANTEE is first obtained and any appropriate permits are obtained.
8. To use the recreational rights under the same guidelines and restrictions as the public.
9. To give, sell, assign, lease, subdivide or otherwise transfer all or any portion of the PROTECTED PROPERTY by operation of law, by deed or by indenture, subject and subordinate to this easement. To give, sell, assign, lease, subdivide or otherwise transfer all or any portion of the GRANTOR' s Reserved Rights as to all or any portion of the PROTECTED PROPERTY by operation of law, by deed or by indenture, subject and subordinate to this easement.
10. To maintain and repair existing trails and roads. To build new trails and roads for use by the GRANTOR in the furtherance of the GRANTOR's Reserved Rights.
11. To build, maintain and repair roads which create access over, through and across the PROTECTED PROPERTY to other properties now or hereafter owned by the GRANTOR, together with the right of the GRANTOR to grant to its successors and assigns the rights of ingress and egress, for any lawful use, over, on and through such roads for access to adjoining properties provided, however, that any roads which provide access to adjacent lands now owned or hereafter acquired by the GRANTOR shall be routed across the PROTECTED PROPERTY by a reasonably direct route that is practical and feasible so as to lessen the impact on the Recreational Rights available on the PROTECTED PROPERTY.
12. Except as limited herein, the GRANTOR reserves to itself, its successors and assigns, all rights as fee owner to the PROTECTED PROPERTY including the right to use the property for purposes not inconsistent with this easement.
13. GRANTOR reserves the right to designate "Closure Zone" during logging operations.

Notification of said closure will be provided to the GRANTEE thirty (30) days in advance. Areas being actively logged will be closed to public use and so posted by the GRANTOR. Those zones may be closed for a maximum of two years. No more than twenty (20) percent of the property may be closed at one time.

14. In response to natural disaster, environmental hazards or threats to human safety, the GRANTOR may take emergency action to preserve and protect the GRANTOR's Reserved Rights.
15. The GRANTOR has the right to construct new roads on the PROTECTED PROPERTY: the GRANTOR has the right to install gates or other barriers and otherwise prohibit public access to any roads over which the public has not been granted a right of use by the rights designated earlier in this Agreement as affirmative rights. The public shall have the right to use such new roads for travel by foot, non-motorized vehicles or animals. The public may utilize the newly constructed roads for snowmobile travel for such times and under such conditions as are specified in Paragraph 1, Sub C of the Affirmative Rights Section.
16. The right to use the PROTECTED PROPERTY for all purposes not inconsistent with this easement.

AND THE GRANTOR DOES FURTHER COVENANT AND REPRESENT AS FOLLOWS:

17. The GRANTOR, for itself, its successors and assigns, covenants and agrees to pay all taxes and assessments lawfully assessed against its interest in the PROTECTED PROPERTY and to furnish to the GRANTEE copies of tax receipts showing such payment. Such tax receipts shall be provided by the GRANTOR within sixty (60) days from their receipt by the GRANTOR from the appropriate taxing authority. In the event that the GRANTOR, its successors or assigns fail to pay any such taxes or assessments within twelve (12) months of their original due date, then the GRANTEE may pay such taxes or assessments. The GRANTEE shall seek to recover the cost of taxes through the appropriate legal means.
18. The GRANTOR for itself and its successors and assigns covenants and agrees that any subsequent conveyance of the PROTECTED PROPERTY, except one to the GRANTEE pursuant to the terms of the THIRD covenant hereof, or any lease, mortgage, or other transfer or encumbrance of the PROTECTED PROPERTY shall be subject to this easement and that any instrument evidencing such transfer, lease, mortgage or encumbrance shall contain the following statement: "This (grant, lease, mortgage, easement, et cetera) is subject to a certain conservation easement entered into between FRANKLIN FALLS TIMBER COMPANY, Inc., AND THE PEOPLE OF THE STATE OF NEW YORK, dated and recorded in the Office of the Clerk of Franklin County in Book of Deeds at Page , and in the Office of the Clerk of Essex County in Book of Deeds at Page ."
19. The GRANTOR for itself and its successors and assigns, covenants and agrees to indemnify and hold the GRANTEE harmless against all claims, loss, damage and expense the GRANTEE may suffer as a result of any dangerous condition created by the GRANTOR during its exercise of any hunting or logging rights reserved hereunder.

    The GRANTEE, for itself and its successors and assigns, agrees to indemnify and hold the GRANTOR harmless against all claims, loss damage and expense and GRANTOR may suffer as a result of the GRANTEE's negligence in properly constructing, maintaining, repairing, replacing or managing any recreational amenities and any other actionable conduct of the GRANTEE as permitted by the Court of Claims Act and Section 17 of the Public Officers Law.

    The duty to indemnify and save harmless prescribed by this paragraph shall be

conditioned upon (i) delivery to the Attorney General by the GRANTOR of the original or a copy of any summons, complaints, process, notice, demand or pleading within five days after it is served with such documents, (ii) representation by the Attorney General or representation by private counsel of GRANTOR's choice subject to the approval of the Attorney General, whenever the Attorney General determines in his sole discretion based upon his investigation and review of the facts and circumstances of the case that representation by the Attorney General would be inappropriate, and (iii) the full cooperation of the GRANTOR in the defense of such action or proceeding and in defense of any action or proceeding against the GRANTEE based upon the same act or omission, and in the prosecution of any appeal.

20. The parties agree that the provisions of this Indenture are severable and that if any court of competent jurisdiction shall render a judgment voiding or nullifying any provisions hereof, the effect of said judgment shall be limited to the nullified or voided portion of this easement and the remaining provisions hereof shall continue in full force and effect.

TO HAVE AND TO HOLD THE ABOVE GRANTED EASEMENT UNTO THE GRANTEE AND ITS SUCCESSORS AND ASSIGNS FOREVER.

And the GRANTOR does covenant with the GRANTEE as follows:

FIRST: That GRANTOR is seized of said premises in fee simple, and has good right to convey these easement rights;

SECOND: That GRANTEE shall quietly enjoy the said rights;

THIRD: That the premises are free from encumbrances;

FOURTH: That GRANTOR will execute or procure any further necessary assurance of the title to the premises;

FIFTH: That the GRANTOR will forever warrant the title to said premises; and

SIXTH: That this conveyance is made subject to the trust fund provisions of Section 13 of the Lien Law.

This conservation easement has been executed in duplicate, each being an original, and one of each is to be filed in the Counties of Franklin and Essex.

IN WITNESS WHEREOF, the party of the first part has caused its corporate seal to be hereunto affixed and these presents to be signed by its duly authorized officer the day and year first above written.

FRANKLIN FALLS TIMBER COMPANY, Inc.

(S E A L) By _____

President, HENRY SWAN

THE PEOPLE OF THE STATE OF NEW YORK

acting by and through its Department of Environmental Conservation

By _____

LANGDON MARSH, Executive Deputy Commissioner

Appendix H - Alderbrook Park Easement

GRANT OF CONSERVATION EASEMENT

THIS GRANT OF CONSERVATION EASEMENT (this "Grant"), made as of this 28th day of December, 1982, by DONALD STONE of Cincinnati, Ohio ("Grantor") to THE NATURE CONSERVANCY ("Grantee").

W I T N E S S E T H

WHEREAS, the Grantor is the fee simple owner as a tenant-in-common of the real property described in Exhibit A (the "Protected Property"); and

WHEREAS, Grantee is the fee simple owner of certain real property adjoining the Protected Property more fully described in Exhibit B (the "Benefitted Property"); and

WHEREAS, the Protected Property and the Benefitted Property are closely related and appurtenant to one another so that any change in the present natural, scenic, open and wooded condition of the Protected Property would have an adverse and deleterious effect on the natural character of the Benefitted Property and the preservation of the wilderness aspect and value of the region in which the Protected Property and the Benefitted Property are located (the "Region") as a natural, educational, aesthetic and scientific resource; and

WHEREAS, Grantor and Grantee recognize the value and special character, as a natural, educational, aesthetic and scientific resource, of the Region and have the common purpose and objective of conserving the natural character of the Protected Property and the Benefitted Property by means of the conveyance by Grantor to Grantee of a Conservation Easement on, over and across the Protected Property (the "Conservation Easement"), which shall benefit and be appurtenant to the Benefitted Property so as to conserve and protect the animal and plant populations and the purity of the air, water and environment and to prevent the use or development of the Protected Property for any purpose or in any manner which would conflict with the maintenance of the Benefitted Property in its natural, scenic, open and wooded condition or be detrimental to its value as a natural resource; and

WHEREAS, "natural, educational, aesthetic and scientific resource" and "natural character" as used herein with respect to the Protected Property mean, without limitation, the condition of the Protected Property at the time of this Grant, as evidenced by The Resource Evaluation of Alderbrook Park, dated February, 1982, prepared by Thomas Field and Bruce Milne and such other reports, photographs, maps and scientific documentation hereof, which Grantee shall make available to Grantor upon request therefore;

NOW, THEREFORE, for and in consideration of the facts recited above and of the mutual covenants, terms and conditions herein contained and as an absolute and unconditional gift, Grantor hereby grants and releases unto Grantee forever, for the benefit of the Benefitted Property, a Conservation Easement in perpetuity consisting of the following:

1. the right of view of the Protected Property in its natural, scenic, open and wooded condition;

2. the right in a reasonable manner and at reasonable times (when Grantor is not in

seasonal residence) and upon prior written notice to Grantor, to enter upon and inspect the Protected Property to determine if Grantor is complying with the covenants contained in this Grant and by proceeding at law or in equity to enforce such covenants and to prevent the occurrence of any activities prohibited by this Grant; provided that Grantor shall not be liable for any changes to the Protected Property due to causes beyond the control of Grantor;

3. the right to observe and study nature and to make scientific and educational observations and studies at such times when Grantor is not in seasonal residence and upon prior written notice to Grantor and in such a manner as not to disturb the quiet enjoyment of the Protected Property by Grantor; and

4. the right to construct (during the period between September 1 and May 15) after the twenty-fifth anniversary of the date of this Grant, and thereafter to maintain, one foot trail for hiking purposes only (the "New Foot Trail") traversing Lot 51, Lot 52 or the eastern two-thirds of Lot 53 of the Protected Property, and to make the New Foot Trail available for public use in such a manner as not to disturb the quiet enjoyment of the Protected Property by Grantor. Grantor hereby reserves the right to close off the New Foot Trail during any hunting season.

AND, in furtherance of the foregoing, Grantor makes the following covenants which shall run with and bind the Protected Property in perpetuity. On or with respect to the Protected Property there shall be no:

(a) construction or placing of any new buildings, camping or other accommodations;

(b) building of any new roads, fire lanes (except as required by governmental authorities), fences, signs, billboards or other advertising material;

(c) material change in the use and appearance thereof except as is necessary in the maintenance, improvement or relocation of roads, foot trails, fire lanes and power and communication rights-of-way;

(d) timbering or any other cutting of trees or plants except such as may be (I) necessary in the construction and maintenance of roads, foot trails, fire lanes and power and communication rights-of-way or (ii) necessary for the siting of any dwelling unit on the Protected Property (all of the timbering or other cutting permitted under the foregoing clauses (I) and (ii) in all cases to be consistent with sound silvicultural and environmental principles as exemplified by the timber harvesting guidelines promulgated from time to time by the New York Section of the Society of American Foresters); provided that no timbering or other cutting of trees or plants permitted under the foregoing clause (ii) shall be conducted within a distance of 200 feet of any pond, stream or other water course;

(e) spraying with pesticides, insecticides or herbicides;

(f) farming or tilling or grazing of livestock, with the exception of the meadow in front of the Lodge or the "Frost Cottage;"

(g) disturbance or change in the natural habitat and terrain thereof;

(h) dumping or storing of ashes, sawdust or other unsightly or offensive material;

(i) alteration of the use and appearance thereof or the placing thereon of soil and other substances or materials such as landfills or dredging spoils;

(j) activity conducted thereon or any use thereof which would damage fish or wildlife or their habitats, or which would alter the existing drainage patterns, flood plains or wetlands, or which would result in erosion, siltation or other forms of water pollution;

(k) use of power boats on any body of water located thereon; or

(l) operation of snowmobiles, motorcycles, all-terrain vehicles or other recreational vehicles which are audible from the Benefitted Property, except as may be necessary for the purpose of ingress and egress, inspection, maintenance or fire protection.

AND, by its acceptance of this Grant, Grantee (for itself and its successors and assigns) covenants that it shall maintain the New Foot Trail (if the same shall be made) in a sightly condition, free from rubbish and refuse.

TO HAVE AND TO HOLD the Conservation Easement unto Grantee and its successors and assigns, forever.

NEVERTHELESS, and notwithstanding any of the foregoing provisions to the contrary, this Grant and the covenants contained herein are subject to the following rights of Grantor, which are hereby expressly reserved by Grantor:

(1) to construct not more than 3 additional dwelling units on the Protected Property with provision for ingress and egress, each such unit to be (a) located no farther than 300 feet from the main lodge building existing on the date hereof (the "Lodge") or within 100 feet of the "Frost Cottage," (b) erected on a foundation the topmost portion of which is at an elevation above sea level no higher than 50 feet above the topmost portion of the foundation of the Lodge, ©) constructed in a manner consistent with the natural character of both the Protected Property and the Benefitted Property, (d) shielded by trees and not visible during any season from the Benefitted Property or from the ridge trail on the Protected Property and (e) lighted by outdoor lights only if such lights are composed of incandescent bulbs of not greater than 150 watts located in opaque receptacles so that such lights are at no time or season visible from the Benefitted Property or from the ridge trail on the Protected Property; provided that, notwithstanding the foregoing clauses (a) and (b), 1 of such additional dwelling units may be constructed within the vicinity of the pond located within Lots 61, 91 and 92 of the Protected Property.

(2) to construct not more than 3 additional structures on the Protected Property for purposes ancillary to the dwelling units thereon, each such ancillary structure to be (a) located not farther than 100 feet from any dwelling unit, (b) constructed in a manner

consistent with the natural character of the Protected Property and the Benefitted Property, ©) shielded by trees and not visible during any season from the Benefitted Property or from the ridge trail on the Protected Property and (d) lighted by outdoor lights only if such lights are composed of incandescent bulbs of no greater than 150 watts located in opaque receptacles so that such lights are at no time or season visible from the Benefitted Property or from the ridge trail on the Protected Property;

(3) to construct not more than 3 lean-tos without electric power on the Protected Property, each such lean-to is to be (a) constructed in a manner consistent with the natural character of the Protected Property and the Benefitted Property and (b) shielded by trees and not visible during any season from the Benefitted Property or from the ridge trail on the Protected Property;

(4) to repair, maintain, improve, demolish or replace (but not to expand) any structures, docks, roadways or dams which exist on the Protected Property on the date of this Grant;

(5) to designate and use on the Protected Property an appropriate site as a dump, provided that any new dump shall not be situated within 200 feet of any wetland or watercourse;

(6) to designate and use on the Protected Property a gravel pit for road building and maintenance purposes;

(7) to reforest, plant and grow trees, foliage and other vegetation and to clear or restore forest cover damaged or destroyed by fire, water or other natural disaster and selectively to prune or trim trees, foliage and other vegetation in a manner consistent with the natural character of the Protected Property and the Benefitted Property;

(8) to trim, cut, remove, use for firewood or otherwise dispose of any trees or vegetation which are materially diseased, rotten, damaged or fallen, or which pose a safety or health hazard or the removal of which is necessary for the protection or preservation of life or property;

(9) to cut trees (a) for use as firewood at any dwelling unit on the Protected Property, (b) to build or rebuild any such dwelling unit or any additional unit referred to in paragraphs (1), (2) and (3) above and ©) to create or preserve scenic vistas at any such dwelling unit; provided that each dwelling unit, structure and lean-to referred to in paragraphs (1) through (3) above, shall remain shielded, as provided in said paragraphs;

(10) to take any action necessary to preserve water levels or the natural purity of the water or to prevent the erosion of any shoreline of any wetland, stream, pond or lake upon the Protected Property, including the removal of any beaver dams, with the understanding that any such action will be consistent with sound environmental practices;

(11) subject always to the Conservation Easement and to the uses and rights herein reserved, to give, devise, sell (subject to the right of first refusal set forth below), assign or otherwise transfer and to divide or subdivide by operation of law or by deed, all or any part of the Protected Property, or to transfer to the extent desired, but not for commercial purposes, the uses and rights herein reserved (any recorded instrument in

connection with any gift, devise, sale, assignment or any other transfer to expressly state that the same is subject to the Conservation Easement and the rights herein reserved);

(12) to go upon and to use the Protected Property for hunting, fishing, camping, swimming, boating (other than power boating), walking, hiking, skiing and similar activities;

(13) to use, maintain, improve or relocate any and all roads and fire lanes existing on the date of this Grant on the Protected Property; provided that all improvements shall be consistent with the purposes of the Conservation Easement and further that all roads shall be relocated only in the event of destruction or impossibility of repair thereof; such relocation to be subject to the approval of Grantee, which approval shall not be unreasonably withheld, and to be consistent with sound environmental practices;

(14) to make, use, maintain, improve and relocate a boundary trail for the purpose of controlling the discharge of firearms by the public; provided that the location and maintenance of such boundary trail shall be consistent with sound environmental practices;

(15) to make, use, maintain, improve and relocate foot trails on the Protected Property; provided that the location and maintenance of all foot trails shall be consistent with sound environmental practices; and

(16) except as expressly limited herein, to exercise and enjoy all rights as owner of the Protected Property, including the right to use the Protected Property for all purposes not inconsistent with this Grant.

AND Grantor further covenants that if at any time during the Refusal Period (as hereinafter defined) Grantor shall receive a bona fide offer (other than from (I) another tenant-in-common of the Protected Property or (ii) a member of Grantor's or another tenant-in-common's immediate family) to purchase all or any portion of his interest in the Protected Property which he is willing to accept, Grantor shall give Grantee a written notice (an "Offering Notice") of such fact, setting forth (i) the nature of such interest, (ii) the name and address of the prospective purchaser, (iii) the purchase price offered and (iv) all other terms of the offer. Grantee shall have the right, irrevocable for a period of 30 days after the giving of the Offering Notice (the "Offer Period"), to purchase such interest at the price and on the terms set forth in the Offering Notice. If Grantee shall elect to exercise its purchase right, written notice thereof shall be given to Grantor within the Offer Period, which notice shall specify a date not less than 90 nor more than 180 days after the giving thereof as the closing date, and on the date so specified, Grantor shall sell, and Grantee shall purchase, such interest at the price and on the terms specified in the Offering Notice. If Grantee shall not exercise its purchase right, Grantor shall be entitled to consummate the sale of such interest within 180 days thereafter to the transferee specified in the Offering Notice. In the event that such sale is not consummated within such 180-day period, Grantee's purchase right shall continue and remain in full force and effect in respect of any subsequent proposed sales of such interest and all or any portion of Grantor 's interest in the Protected Property. In the event that such sale is consummated, Grantee's purchase right with respect to such sale only shall be deemed void, but Grantee's purchase right shall continue and remain in full force and effect in respect of any subsequent proposed sales of all or any portion of Grantor's interest in the Protected Property. "Refusal Period" means the period from the date of this Grant to the twentieth anniversary of the death of Donald Stone.

AND Grantor further covenants and represents that:

FIRST: Grantor is the owner in fee simple of the Protected Property as a tenant-in-common.

SECOND: The Benefitted Property and Grantee shall have the use of, and enjoy all of the benefits derived from and arising out of, the Conservation Easement.

THIRD: Grantor shall pay any real estate taxes or assessments levied by competent authorities on the Protected Property (in default of which Grantee may pay the same for the account of Grantor and Grantor shall be liable to reimburse Grantee for such payment together with interest thereon at 12% per annum upon demand).

FOURTH: Grantee shall not be under any duty or responsibility to maintain, manage or protect the Protected Property.

FIFTH: The Conservation Easement and the covenants contained in this Grant shall run with the Protected Property in perpetuity and bind Grantor, his heirs, executors, administrators and assigns and shall inure to the benefit of the Benefitted Property and Grantee and its successors and assigns.

IN WITNESS WHEREOF, Grantor have hereunto set their hands as of the day and year first above written.

_____

Donald Stone

Appendix I- Lassiter Properties, Inc. Conservation Easement - Cook Mountain Tract (CME)

CONSERVATION EASEMENT

This Indenture, made this 23rd day of December 1988, between Lassiter Properties, Inc., 1235-D Commerce Road, Morrow, Georgia 30287-0068, Grantor, and The Nature Conservancy, Inc., 1815 North Lynn Street, Arlington, Virginia 22209, Grantee,

WHEREAS, the Grantor is the owner of certain real property hereinafter more fully described in Schedule A attached hereto, and hereinafter referred to as the Protected Property; and

WHEREAS, the Legislature of the State of New York has declared the public policy of the State to be conservation, preservation and protection of its environmental assets and natural and man-made resources, and in furtherance thereof, has enacted Article 49, Title 3, of the Environmental Conservation Law to provide for and encourage the limitation and restriction of development, and use of real property through conservation easements; and

WHEREAS, the Protected Property in its present natural condition has substantial and significant natural resource value by reason of the fact that it has not been subject to any extensive development or exploitation; and

WHEREAS, in view of the foregoing and pursuant to the provisions of the aforementioned Article 49 of the Environmental Conservation Law, the Grantee has determined it to be desirable and beneficial and has requested the Grantor, for itself and its successors and assigns, to grant a Conservation Easement to the Grantee in order to limit the further development of the Protected Property while permitting compatible uses thereof; and

NOW THEREFORE, the Grantor for and in consideration of $218,360 lawful money of the United States, paid by the Grantee, receipt of which is hereby acknowledged, grants, conveys and releases to the Grantee and its successors forever for the benefit of the Grantee, an easement in perpetuity in, on, over, under and upon the Protected Property consisting of entry, inspection and limited public recreational access and use, as hereinafter more fully described.

The Grantor, however, reserves to itself and its successors and assigns the rights hereinafter more fully set forth in the Section captioned RESERVED RIGHTS along with all rights as fee owner including the right to use the property for all purposes not inconsistent with this Easement.

AFFIRMATIVE RIGHTS

Those rights agreed to by the parties herein as running with the Protected Property are more fully described as follows:

1. The Grantor grants to the Grantee and its successors the right to view the Protected Property in its natural state, including the right of public access to and over the Protected Property for hiking (including snowshoes) purposes only, subject to the Terms and

Conditions and Reserved Rights set forth herein. Grantee shall have the right to construct and maintain hiking trails on the Protected Property.

2. The Grantor grants to the Grantee and its successors and assigns the right to enter upon and inspect the Protected Property to determine the compliance of the Grantor, its successors or assigns, with this easement. Grantor shall within thirty (30) days after any inspection be provided a copy of any inspection report.

3. In response to natural disaster, environmental hazard or threats to human safety, Grantee may take any emergency action necessary to preserve the Protected Property.

DECLARATION OF RESTRICTIONS

The parties agree that the following restrictions shall apply to the Protected Property in perpetuity:

1. No buildings, residences, mobile homes or other structures, fences, signs, billboards or other advertising material shall be allowed on the Protected Property.

2. Except as provided in the Reserved Rights Section, no application of pesticides, including but not limited to insecticides, fungicides, rodenticides and herbicides or any farming, tilling or grazing of cattle or other livestock shall be allowed on the Protected Property without the prior written consent of the Grantee.

3. Except to the extent provided in the Reserved Rights Section, no dumping or storing of ashes, sawdust, noncomposted organic waste, sewage or garbage, scrap material, sediment discharges, oil and its by-products, leached compounds, toxic fumes or any other unsightly or offensive material shall be allowed in, on, over, under or upon the Protected Property.

4. No exterior artificial illumination shall be employed on the Protected Property.

5. No residential, commercial or industrial activities of any kind shall be permitted on or in the Protected Property other than those specifically provided for in the Reserved Rights Section.

6. Except as may be specifically permitted in the Reserved Rights Section or pursuant to Environmental Conservation Law Section 49-0307, no telephone, telegraph, cable television, electric, gas, water or sewer or other utility lines shall be routed over, under, in, on, upon or above the Protected Property without the prior written consent of the Grantee.

TERMS AND CONDITIONS

The provisions upon which this easement is given and accepted are more fully defined as follows:

1. The Grantor agrees that the Grantor's use of the property will be consistent with the purpose of this easement, provided this provision shall in no way limit the Grantor's Reserved Rights herein, including the right to use the Protected Property for all purposes not inconsistent with this easement.

2. The Grantor, for itself and its successors and assigns, and the Grantee hereby agree that the terms of this easement are to be construed so as to preserve perpetually the Protected Property in its natural condition provided, however, that nothing herein contained shall impair the exercise of the Reserved Rights.

3. The failure of the Grantee to insist upon the strict performance of any of the terms, conditions, covenants, or restrictions contained herein, shall not be deemed a waiver of any terms, conditions, covenants or restrictions contained herein, nor shall any such failure of the Grantee in any way bar its enforcement rights hereunder in the event of any subsequent breach of, or noncompliance with or fault in observance of any of the terms, conditions, covenants or restrictions contained herein.

4. The Grantor and the Grantee agree that within six (6) months of the recording of this easement, a Report of Physical Inspection of Protected Property will be completed by Grantee at no expense to Grantor except that Grantor shall bear the expense of the involvement, if any, of its staff. Said Report will accurately and completely describe the natural condition of the Protected Property on the date thereof. Said Physical Inspection Report will be subscribed by both the Grantor and the Grantee indicating their concurrence that such report accurately and completely describes the Protected Property as of the date thereof.

5. In the event of a breach of any of the covenants, restrictions, terms or conditions of this easement, and notwithstanding any other language in this Instrument to the contrary, the Grantee shall notify the Grantor of its failure to comply with any of the terms of this Instrument. Such notice shall set forth how the Grantor can cure such noncompliance and give the Grantor a minimum of forty-five (45) days from the date of receipt of the notice in which to cure. At the expiration of such period of time to cure, the Grantee shall notify the Grantor of any failure to adequately cure the deficiencies set forth in the initial notice. The Grantor shall then have an additional fifteen (15) days from receipt of such notice to cure such deficiencies. At the expiration of said fifteen-day period, but not prior thereto, the Grantee may commence legal proceedings to require compliance with the terms of this Easement. All notices required by this paragraph and by any other provisions of this Easement, shall be in writing and delivered to the Grantor by personal service or delivered by certified mail return receipt requested.

   It is understood and agreed by the parties hereto that the Grantor, its successors and assigns shall not be liable for any changes to the Protected Property caused by any natural disaster or act of God, acts of Grantee and its representatives or the acts of the public while on the Protected Property pursuant to the public access rights granted by

this Easement.

6. The Grantor and the Grantee agree that the Grantee has the right under this easement to enter upon, cross and re-cross the Protected Property for administrative purposes and in emergencies and that the public may likewise enter upon, cross and re-cross the Protected Property for hiking purposes as hereinabove defined.

7. In order to provide for the safe and reasonable cooperative use of the Protected Property, the parties agree as follows:

   (a) Grantee, at Grantee's expense, in consultation with Grantor will prepare a Unit Management Plan. Said Unit Management Plan will address the proposed use by the public of the Protected Property. Said Unit Management Plan shall incorporate only the rights and privileges herein granted to the public.

   (b) Both the Grantor and the Grantee may, but neither is under obligation to the other to, mark boundaries or corners of the Protected Property and may erect such signs as may be necessary to carry out their rights and obligations hereunder provided that all signs thus displayed by the Grantor shall conform to specifications contained in any applicable laws or governmental regulations.

   (c) The Grantor and the Grantee shall jointly develop a method to be detailed in the Unit Management Plan for the removal of any debris, such as papers, bottles, cans or other garbage left on the Protected Property by individuals utilizing the same and will cooperate with each other so that all such debris and garbage will be removed promptly.

8. It is understood and agreed by the parties that the underlying fee title to the Protected Property remains in the Grantor, subject to the terms of this easement, and that the lands constituting the Protected Property do not, by the granting of this easement, become a part of the Forest Preserve.

9. Nothing herein contained shall be construed to permit the removal of any trees, firewood or other forest products or the removal of any dead or down trees by the general public.

10. Acquisition of this Conservation Easement does not remove the necessity of the Grantor for obtaining any permit and/or approval from any governmental agency having jurisdiction which may be required for normal maintenance, construction, or any other activity permitted on the Protected Property.

11. This easement may be amended by the parties hereto by mutual agreement in writing, executed by both parties and recorded in the Clinton County Clerk's Office.

12. Except as otherwise specifically provided for herein, it is mutually agreed that whenever a consent or approval is required from either the Grantor or the Grantee, the party seeking the consent or approval shall send a written request for such consent or approval by registered or certified mail to the address of the other party as hereinafter provided

and said party shall respond to said request within sixty (60) days of its receipt. In the event that the consenting or approving party fails to respond within said sixty (60) day period, its consent or approval shall be implied. It is mutually agreed that such consent or approval shall not be arbitrarily or unreasonably withheld by either party.

13. Any notice required to be sent to the Grantor herein shall be addressed to: Henry A. Lassiter, Lassiter Properties, Inc., PO Box 870068, Morrow, Georgia 30287-0068 and to the Grantee herein to: Eastern Regional Vice President, The Nature Conservancy, Inc., 294 Washington Street, Room 740, Boston, Massachusetts 02108, provided, however, either party may change the individual or address to which notices are to be sent by giving written notice thereof to the other party.

14. The Grantor and the Grantee will cooperate in the enforcement of the terms of this easement. In the event that the Grantee determines that legal proceedings are necessary against some party other than the Grantor, its successors, assigns, agents, contractors, invitees, then the Grantor agrees to join the Grantee in pursuing such legal proceeding provided that nothing herein contained obligates the Grantor to expend any funds.

15. The Grantee intends to schedule periodic inspections of the Protected Property to determine compliance with the terms of this easement. In doing so, the Grantor will be provided with three days notice and the Grantor will have the right to accompany the Grantee on said inspection trips.

RESERVED RIGHTS

Notwithstanding the foregoing, the Grantor reserves to itself, its successors, lessees, invitees, contractors and assigns the following rights with regard to the Protected Property:

1. To use, repair, maintain, improve or relocate any and all existing trails, paths and roadways on the Protected Property and to construct such new trails as are necessary for the implementation of the Grantor's reserved recreational rights.

   (a) Gravel and borrow pits may be established for on-site use only for building and maintaining recreational trails. All such gravel or borrow pits located on the Protected Property shall be maintained in such a way as to minimize the adverse effects of open pit mining and shall be operated in accordance with all applicable laws and regulations.

   (b) In the event that the Grantor installs gates on any road or trail, the Grantee shall be given keys for all locks for all gates for administrative use by the Grantee, its officers, employees and agents.

2. To trim, cut, remove or otherwise dispose of any trees or vegetation as is necessary to maintain existing fire lanes, footpaths, roadways and recreational trails.

3. To take action necessary to preserve water levels, to preserve the natural purity of the water, or to prevent the erosion of any slope or shoreline on the Protected Property,

provided the written consent of the Grantee is first obtained.

4. The exclusive use of the Protected Property for camping, snowmobiling, picnicking, hunting, fishing, trapping, horse-back riding, or skiing and other similar activities. To use horses, or other similar animals, for riding or transport of supplies is permitted. The use of the Protected Property with the Grantee for walking, hiking, and nature study.

5. To give, sell, assign, lease, subdivide, or otherwise transfer all or any portion of the Protected Property by operation of law, by deed, or by indenture, subject and subordinate to this easement. To give, sell, assign, lease, subdivide, or otherwise transfer all or any portion of Grantor' s Reserved Rights as to all or any portion of the Protected Property by operation of law, by deed, or by indenture, subject and subordinate to this easement.

6. To explore for, mine and remove any minerals. In the exercise and enjoyment of said mineral and mining rights Grantor shall have the following rights (a) to build, repair, maintain and improve roads, (b) to install electric, gas, water, sewer and other utility lines, (c) to keep and maintain machinery and equipment on the property needed in the conduct of exploration and mining for minerals, and (d) to conduct commercial activities in connection with the exploration, mining or removal of said minerals.

7. Except as limited herein, the Grantor reserves to itself, its successors and assigns all rights as fee owner of the Protected Property, including the right to use the property for all purposes not inconsistent with this Easement.

8. In response to natural disaster, environmental hazards, or threats to human safety, Grantor may take emergency action to preserve and protect Grantor's reserved rights.

AND THE GRANTOR DOES FURTHER COVENANT AND REPRESENT AS FOLLOWS:

FIRST: The Grantor owns the Protected Property and has good right to grant and convey this Easement.

SECOND: The Grantee shall quietly enjoy this Easement and all of the benefits arising therefrom.

THIRD: The Grantor, for itself, its successors and assigns, covenants and agrees to pay all taxes and assessments lawfully assessed against its interest in the Protect Property and to furnish to the Grantee copies of tax receipts showing such payment. Such tax receipts shall be provided by the Grantor within sixty (60) days from their receipt by the Grantor from the appropriate taxing authority. In the event that the Grantor, its successors or assigns fail to pay any such taxes or assessments within twelve (12) months of their original due date, then the Grantee may pay such taxes or assessments. The Grantee shall seek to recover the cost of taxes through the appropriate legal means.

FOURTH: The Grantor for itself and its successors and assigns covenants and agrees that any subsequent conveyance of the Protected Property, except one to the Grantee pursuant to the terms of the THIRD covenant hereof, or any lease, mortgage, or other transfer or encumbrance of the Protected Property shall be subject to this Easement and that any instrument evidencing such

transfer, lease, mortgage or encumbrance shall contain the following statement. "This [grant, lease, mortgage, easement, etc.] is subject to a certain Easement entered into between Lassiter Properties, Inc., and The Nature Conservancy, Inc., dated _____ and recorded in the Office of the Clerk of Clinton County in Book _____ of Deeds at Page _____."

FIFTH: The Grantor, for itself and its successors and assigns, covenants and agrees to indemnify and hold the Grantee harmless against all claims, loss, damage and expense (including reasonable attorneys' fees) the Grantee may suffer as a result of any dangerous condition created by the Grantor during its exercise of any recreational, mineral or other rights reserved hereunder.

The Grantee, for itself and its successors and assigns, agrees to indemnify and hold the Grantor harmless against all claims, loss, damage and expense (including reasonable attorneys' fees) the Grantor may suffer as a result of the Grantee's negligence and any willful misconduct of the Grantee.

SIXTH: The parties agree that the provisions of this Indenture are severable and that if any court of competent jurisdiction shall render a judgment voiding or nullifying any provisions hereof, the effect of said judgment shall be limited to the nullified or voided portion of this Easement, and the remaining provisions hereof shall continue in full force and effect.

TO HAVE AND TO HOLD THE ABOVE GRANTED EASEMENT UNTO THE GRANTEE AND ITS SUCCESSORS FOREVER.

IN WITNESS WHEREOF, the parties hereto have set their hands and seals the day and year first above written.

LASSITER PROPERTIES, Inc.

By: _____ GRANTOR

Henry A. Lassiter, 12/23/88

ITS President

THE NATURE CONSERVANCY, Inc.

By: _____ GRANTEE

Philip Tabas

ITS Director of Land Protection

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Appendix J - Catamount Mountain Trail Proposal

Catamount Mountain Trail Maintenance Proposal

(Developed by Zach Gayne 2004 in consultation with DEC)

I. Existing Trail Conditions

The trail to Catamount Mountain is currently an unmarked, unofficial path that accesses a spectacular peak with views of the Wilmington Range, Stephenson Range and Taylor Pond Management Complex. This trail is roughly (1.8) miles in length and receives moderate to heavy use. The trail consists of a long, flat approach that is quite close to the boundary of state and private land. This flat section of trail is proposed to become part of the snowmobile connector to the Town of Wilmington and will need a separate trail development plan for this portion of the trail. A very steep and eroded section that reaches the summit follows this approach. This steep section is in need of a significant amount of trail work.

II. New Trail Proposal

A. Layout & Design

Although a portion of the trail is adjacent to a private land boundary, it seems as though this is not an important issue. For this reason, it is suggested that the initial 3,000 feet of trail leaving from Forestdale Road become an official DEC marked and maintained trail. The present route is largely free of drainage problems and would require only minimal side cutting and marking to conform to official DEC trail specifications. A second benefit of leaving the trail in its current location is that it has already impacted the soils and flora in its current location. It is desirable to avoid the unnecessary tree cutting and new soil compaction that results from new trail construction whenever possible.

Despite the convenience and efficiency of continuing to use the above mentioned section, the remainder of the unofficial trail is in need of considerable attention. As noted in the trail log that follows, roughly 700 feet of the unofficial trail immediately following the long, level approach should be abandoned and rerouted. The considerations kept in mind when laying out the new section of trail are as follows:

- Keeping the trail as close to its previous location as possible.
- Avoiding low-lying or poorly drained areas.
- Keeping the trail slope as low as possible.
- Minimizing the amount of trail work needed (rock staircases, stepping stones, water bars, etc.)
- Maximizing trail sustainability.

Keeping the above considerations in mind, a new section of trail was laid out and marked with orange surveyor's flagging. Using a wheel, a trail log was made. The following log displays any trail work that will be needed to construct the trail. It also provides landmarks on the ground along the trail to assist in locating areas where work is to be performed. The proposed re-route needed to be extended to a length which is approximately twice as long as the existing trail to deal with the steep grade and easily eroded soils in the area. The re-route consists of cutting saplings (woody stems less than three inches in diameter). The re-route also requires a large amount of side-hilling and tread work. Side-hilling is digging into a hillside to attain undisturbed soil for the trail tread while reducing cross slope on the trail. The tread is designed to have a slight out slope. This style of tread development acts to remove water from the trail and decrease erosion. The side-hilling for this particular re-route would be quite intensive and time-consuming due to the steep terrain over which the trail will traverse. Some rock work and additional erosion control will be needed to complete the re-route.

As noted on the map found in appendix Z, the trail begins from the north side of the Forestdale Road. The trail is partially marked with red blazes, stone cairns and some flagging. From the Forestdale Road the trail follows a northerly progression.

There is no official parking area for this trail and vehicles parking on the side of the road often get stuck as well as cause safety problems for vehicles on the Forestdale Road. Along with this re-route, official DEC trail marking, and trailhead sign a parking lot is being proposed to provide safe year round access.

B. Construction

A volunteer trail crew will access the Catamount Mountain trail directly from Forestdale Road. The volunteer trail crew will camp on location during trail re-route construction at designated areas. Basic hand tools will be used to build the trail. No motorized equipment will be used. It is estimated that a volunteer crew of eight people will be able to complete the proposed re-route in approximately one weekend. The amount of time needed for trail construction may change if unforeseen problems arise. Extra rock work may become necessary in areas that were not anticipated.

Catamount Mountain Trail Maintenance Log

ADK Map: Trails of the Adirondack High Peaks Region - North

Log Completed by: Zach Gayne, December 3, 2004

Snowing, 20 degrees, trail is snow-covered

KEY

Rock Steps = RS, Stepping Stones = SS, Wood Waterbar = WWB Rock Turnpike = RT, Rock Waterbar = RWB, Left/Right = L/R, Sidecut = SC, Bog Bridge = BB Sidehill = SH, Needs = Nd, Stagger Step = StagS

Priority Level	Number	Description of Work Needed/Problem
Low **		
Moderate ***		
High ****		
		Trailhead is on north side of Forestdale Road roughly five miles
		Southwest of junction with Silver Lake Road.
	0'	Trailhead is marked by two trees blazed with pink
	128'	Trail register on L
		Trail register states that the trail to Catamount is unofficial,
		Unmarked, and that a map and compass are recommended.
**	425'	Trail somewhat overgrown.

ADK Map: Trails of the Adirondack High Peaks Region - North

Log Completed by: Zach Gayne, December 3, 2004

Snowing, 20 degrees, trail is snow-covered

KEY

Rock Steps = RS, Stepping Stones = SS, Wood Waterbar = WWB Rock Turnpike = RT, Rock Waterbar = RWB, Left/Right = L/R, Sidecut = SC, Bog Bridge = BB Sidehill = SH, Needs = Nd, Stagger Step = StagS

		Nd sidecutting
	1292'	Sharp turn L orange property corner stake on R orange
		Blaze-line parallels trail straight ahead.
	1373'	Yellow posted signs exist on L side of trail.
	1687'	Spruce on L with yellow and orange blazes
	1700'	Area surrounding trail becomes very open.
**	2573'-2630'	Small descent with slight erosion
		Nd 2-3 WWBL
	3120'	Trail enters predominantly hardwood forest
****	3326'	Trail begins to climb
		Nd to begin re-route to R

It is expected that the intensive erosion-control work that follows will not be done. Rather this section of trail from 3326' to 4028' will be re-routed.

ADK Map: Trails of the Adirondack High Peaks Region - North

Log Completed by: Zach Gayne, December 3, 2004

Snowing, 20 degrees, trail is snow-covered

KEY

Rock Steps = RS, Stepping Stones = SS, Wood Waterbar = WWB Rock Turnpike = RT, Rock Waterbar = RWB, Left/Right = L/R, Sidecut = SC, Bog Bridge = BB Sidehill = SH, Needs = Nd, Stagger Step = StagS

****	3338'-3363'	Trail is very eroded and gullied
		Nd 10-15 RS and RWB L
**	3443'	Nd RWB L
****	3443'-3509'	Nd 2 RWB R and 15-20 RS
***	3563'	Nd RWB R
***	3563'-3610'	Nd 2 RWB R and 10-15 RS
****	3610'-3658'	Large rock to L badly eroded around small birch.
		Nd 2-3 RWB R, 20 RS
****	3658'-3684'	Exposed bedrock on L. Larger rocks in trail.
		Nd RWB R, 15 RS

ADK Map: Trails of the Adirondack High Peaks Region - North

Log Completed by: Zach Gayne, December 3, 2004

Snowing, 20 degrees, trail is snow-covered

KEY

Rock Steps = RS, Stepping Stones = SS, Wood Waterbar = WWB Rock Turnpike = RT, Rock Waterbar = RWB, Left/Right = L/R, Sidecut = SC, Bog Bridge = BB Sidehill = SH, Needs = Nd, Stagger Step = StagS

***	3684'-3732'	Nd 2-3 RWB R, 5-6 StagS
	3732'	Trail makes sharp turn right. Trail is level.
	3889'	Trail begins to climb.
**	3889'-3929'	Nd 2 RWB L
	3995'	Trail descends slightly
****	4028'	Re-route would rejoin the trail at this point.
	4080'	crosses trail from L to R.
	4080'	End of Trail Repair Log

Appendix K - 1980 - 1985 Breeding Bird Atlas Data

The following table 2 shows data collected from the 1980 - 1985 Breeding Bird Atlas (BBA). The birds listed below in table 2 were listed as being found in one of the BBA blocks listed in table 1. The BBA blocks listed in table 1 fall inside or partially inside the TPMC UMP boundary and also contain Department lands. Only eight out of the 169 total species listed in table 2 are not protected according to the Migratory Bird Treaty Act (MBTA). A black and white map showing the locations of the BBA blocks listed below in table 1 can be found in Appendix Z

Table 1

BBA Block	BBA Block	BBA Block	BBA Block	BBA Block
5691B	5892A	5993D	6093C	6289A
5692D	5892B	5994B	6189A	6289C
5791A	5892C	5994D	6189D	6291A
5791B	5892D	6089B	6190C	6292A
5792A	5893A	6090B	6191A	6293A
5792B	5893B	6091A	6191B	6293C
5792C	5893C	6091B	6191C	
5792D	5893D	6091C	6192C	
5793B	5993A	6091D	6193B	
5793C	5993B	6092D	6193D	
5793D	5993C	6093A	6194D	

Table 2

Common Name	**Scientific Name**	**Federal Status**	**State Status**
Alder Flycatcher	*Empidonax alnorum*	MBTA	Protected
American Bittern	*Botaurus lentiginosus*	MBTA	Protected-Special Concern
American Black Duck	*Anas rubripes*	MBTA	Game Species

American Crow	*Corvus brachyrhynchos*	MBTA	Game Species
American Goldfinch	*Carduelis tristis*	MBTA	Protected
American Kestrel	*Falco sparverius*	MBTA	Protected
American Redstart	*Setophaga ruticilla*	MBTA	Protected
American Robin	*Turdus migratorius*	MBTA	Protected
American Woodcock	*Scolopax minor*	MBTA	Game Species
Bald Eagle	*Haliaeetus leucocephalus*	MBTA-Endangered	Threatened
Baltimore Oriole	*Icterus galbula*	MBTA	Protected
Bank Swallow	*Riparia riparia*	MBTA	Protected
Barn Swallow	*Hirundo rustica*	MBTA	Protected
Barred Owl	*Strix varia*	MBTA	Protected
Belted Kingfisher	*Ceryle alcyon*	MBTA	Protected
Black-and-white Warbler	*Mniotilta varia*	MBTA	Protected
Black-backed Woodpecker	*Picoides arcticus*	MBTA	Protected
Black-billed Cuckoo	*Coccyzus erythropthalmus*	MBTA	Protected
Blackburnian Warbler	*Dendroica fusca*	MBTA	Protected
Black-capped Chickadee	*Poecile atricapillus*	MBTA	Protected
Black-crowned Night-Heron	*Nycticorax nycticorax*	MBTA	Protected
Blackpoll Warbler	*Dendroica striata*	MBTA	Protected
Black-throated Blue Warbler	*Dendroica caerulescens*	MBTA	Protected
Black-throated Green Warbler	*Dendroica virens*	MBTA	Protected
Blue Jay	*Cyanocitta cristata*	MBTA	Protected
Blue-gray Gnatcatcher	*Polioptila caerulea*	MBTA	Protected
Blue-headed Vireo	*Vireo solitarius*	MBTA	Protected
Blue-winged Teal	*Anas discors*	MBTA	Game Species
Bobolink	*Dolichonyx oryzivorus*	MBTA	Protected

Boreal Chickadee	*Poecile hudsonicus*	MBTA	Protected
Broad-winged Hawk	*Buteo platypterus*	MBTA	Protected
Brown Creeper	*Certhia americana*	MBTA	Protected
Brown Thrasher	*Toxostoma rufum*	MBTA	Protected
Brown-headed Cowbird	*Molothrus ater*	MBTA	Protected
Canada Goose	*Branta canadensis*	MBTA	Game Species
Canada Warbler	*Wilsonia canadensis*	MBTA	Protected
Cape May Warbler	*Dendroica tigrina*	MBTA	Protected
Cedar Waxwing	*Bombycilla cedrorum*	MBTA	Protected
Chestnut-sided Warbler	*Dendroica pensylvanica*	MBTA	Protected
Chimney Swift	*Chaetura pelagica*	MBTA	Protected
Chipping Sparrow	*Spizella passerina*	MBTA	Protected
Cliff Swallow	*Petrochelidon pyrrhonota*	MBTA	Protected
Common Goldeneye	*Bucephala clangula*	MBTA	Game Species
Common Grackle	*Quiscalus quiscula*	MBTA	Protected
Common Loon	*Gavia immer*	MBTA	Protected-Special Concern
Common Merganser	*Mergus merganser*	MBTA	Game Species
Common Moorhen	*Gallinula chloropus*	MBTA	Game Species
Common Nighthawk	*Chordeiles minor*	MBTA	Protected-Special Concern
Common Raven	*Corvus corax*	MBTA	Protected
Common Snipe	*Gallinago gallinago*	MBTA	Game Species
Common Tern	*Sterna hirundo*	MBTA	Threatened
Common Yellowthroat	*Geothlypis trichas*	MBTA	Protected
Cooper's Hawk	*Accipiter cooperii*	MBTA	Protected-Special Concern
Dark-eyed Junco	*Junco hyemalis*	MBTA	Protected

Downy Woodpecker	*Picoides pubescens*	MBTA	Protected
Eastern Bluebird	*Sialia sialis*	MBTA	Protected
Eastern Kingbird	*Tyrannus tyrannus*	MBTA	Protected
Eastern Meadowlark	*Sturnella magna*	MBTA	Protected
Eastern Phoebe	*Sayornis phoebe*	MBTA	Protected
Eastern Screech-Owl	*Otus asio*	MBTA	Protected
Eastern Towhee	*Pipilo erythrophthalmus*	MBTA	Protected
Eastern Wood-Pewee	*Contopus virens*	MBTA	Protected
European Starling	*Sturnus vulgaris*	Unprotected	Unprotected
Evening Grosbeak	*Coccothraustes vespertinus*	MBTA	Protected
Field Sparrow	*Spizella pusilla*	MBTA	Protected
Golden-crowned Kinglet	*Regulus satrapa*	MBTA	Protected
Golden-winged Warbler	*Vermivora chrysoptera*	MBTA	Protected-Special Concern
Gray Catbird	*Dumetella carolinensis*	MBTA	Protected
Great Blue Heron	*Ardea herodias*	MBTA	Protected
Great Crested Flycatcher	*Myiarchus crinitus*	MBTA	Protected
Great Horned Owl	*Bubo virginianus*	MBTA	Protected
Green Heron	*Butorides virescens*	MBTA	Protected
Green-winged Teal	*Anas crecca*	MBTA	Game Species
Hairy Woodpecker	*Picoides villosus*	MBTA	Protected
Hermit Thrush	*Catharus guttatus*	MBTA	Protected
Herring Gull	*Larus argentatus*	MBTA	Protected
Hooded Merganser	*Lophodytes cucullatus*	MBTA	Game Species
Horned Lark	*Eremophila alpestris*	MBTA	Protected-Special Concern
House Finch	*Carpodacus mexicanus*	MBTA	Protected

House Sparrow	*Passer domesticus*	Unprotected	Unprotected
House Wren	*Troglodytes aedon*	MBTA	Protected
Indigo Bunting	*Passerina cyanea*	MBTA	Protected
Killdeer	*Charadrius vociferus*	MBTA	Protected
Least Bittern	*Ixobrychus exilis*	MBTA	Threatened
Least Flycatcher	*Empidonax minimus*	MBTA	Protected
Lincoln's Sparrow	*Melospiza lincolnii*	MBTA	Protected
Long-eared Owl	*Asio otus*	MBTA	Protected
Louisiana Waterthrush	*Seiurus motacilla*	MBTA	Protected
Magnolia Warbler	*Dendroica magnolia*	MBTA	Protected
Mallard	*Anas platyrhynchos*	MBTA	Game Species
Mallard x Am. Black Duck Hybrid	*Anas platyrhynchos x A. rubripes*	MBTA	Game Species
Marsh Wren	*Cistothorus palustris*	MBTA	Protected
Mourning Dove	*Zenaida macroura*	MBTA	Protected
Mourning Warbler	*Oporornis philadelphia*	MBTA	Protected
Nashville Warbler	*Vermivora ruficapilla*	MBTA	Protected
Northern Cardinal	*Cardinalis cardinalis*	MBTA	Protected
Northern Flicker	*Colaptes auratus*	MBTA	Protected
Northern Goshawk	*Accipiter gentilis*	MBTA	Protected-Special Concern
Northern Harrier	*Circus cyaneus*	MBTA	Threatened
Northern Mockingbird	*Mimus polyglottos*	MBTA	Protected
Northern Parula	*Parula americana*	MBTA	Protected
Northern Pintail	*Anas acuta*	MBTA	Game Species
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	MBTA	Protected
Northern Saw-whet Owl	*Aegolius acadicus*	MBTA	Protected

Northern Waterthrush	*Seiurus noveboracensis*	MBTA	Protected
Olive-sided Flycatcher	*Contopus cooperi*	MBTA	Protected
Orchard Oriole	*Icterus spurius*	MBTA	Protected
Osprey	*Pandion haliaetus*	MBTA	Protected-Special Concern
Ovenbird	*Seiurus aurocapillus*	MBTA	Protected
Peregrine Falcon	*Falco peregrinus*	MBTA-Endangered	Endangered
Philadelphia Vireo	*Vireo philadelphicus*	MBTA	Protected
Pied-billed Grebe	*Podilymbus podiceps*	MBTA	Threatened
Pileated Woodpecker	*Dryocopus pileatus*	MBTA	Protected
Pine Siskin	*Carduelis pinus*	MBTA	Protected
Pine Warbler	*Dendroica pinus*	MBTA	Protected
Purple Finch	*Carpodacus purpureus*	MBTA	Protected
Purple Martin	*Progne subis*	MBTA	Protected
Red Crossbill	*Loxia curvirostra*	MBTA	Protected
Red-breasted Merganser	*Mergus serrator*	MBTA	Game Species
Red-breasted Nuthatch	*Sitta canadensis*	MBTA	Protected
Red-eyed Vireo	*Vireo olivaceus*	MBTA	Protected
Redhead	*Aythya americana*	MBTA	Game Species
Red-headed Woodpecker	*Melanerpes erythrocephalus*	MBTA	Protected-Special Concern
Red-shouldered Hawk	*Buteo lineatus*	MBTA	Protected-Special Concern
Red-tailed Hawk	*Buteo jamaicensis*	MBTA	Protected
Red-winged Blackbird	*Agelaius phoeniceus*	MBTA	Protected
Ring-necked Duck	*Aythya collaris*	MBTA	Game Species
Ring-necked Pheasant	*Phasianus colchicus*	Unprotected	Game Species
Rock Dove	*Columba livia*	Unprotected	Unprotected

Rose-breasted Grosbeak	*Pheucticus ludovicianus*	MBTA	Protected
Ruby-crowned Kinglet	*Regulus calendula*	MBTA	Protected
Ruby-throated Hummingbird	*Archilochus colubris*	MBTA	Protected
Ruffed Grouse	*Bonasa umbellus*	Unprotected	Game Species
Rusty Blackbird	*Euphagus carolinus*	MBTA	Protected
Savannah Sparrow	*Passerculus sandwichensis*	MBTA	Protected
Scarlet Tanager	*Piranga olivacea*	MBTA	Protected
Sharp-shinned Hawk	*Accipiter striatus*	MBTA	Protected-Special Concern
Short-eared Owl	*Asio flammeus*	MBTA	Endangered
Song Sparrow	*Melospiza melodia*	MBTA	Protected
Sora	*Porzana carolina*	MBTA	Game Species
Spotted Sandpiper	*Actitis macularia*	MBTA	Protected
Spruce Grouse	*Falcipennis canadensis*	Unprotected	Endangered
Swainson's Thrush	*Catharus ustulatus*	MBTA	Protected
Swamp Sparrow	*Melospiza georgiana*	MBTA	Protected
Tennessee Warbler	*Vermivora peregrina*	MBTA	Protected
Three-toed Woodpecker	*Picoides tridactylus*	MBTA	Protected
Tree Swallow	*Tachycineta bicolor*	MBTA	Protected
Tufted Titmouse	*Baeolophus bicolor*	MBTA	Protected
Turkey Vulture	*Cathartes aura*	MBTA	Protected
Upland Sandpiper	*Bartramia longicauda*	MBTA	Threatened
Veery	*Catharus fuscescens*	MBTA	Protected
Vesper Sparrow	*Pooecetes gramineus*	MBTA	Protected-Special Concern
Virginia Rail	*Rallus limicola*	MBTA	Game Species
Warbling Vireo	*Vireo gilvus*	MBTA	Protected

Whip-poor-will	*Caprimulgus vociferus*	MBTA	Protected-Special Concern
White-breasted Nuthatch	*Sitta carolinensis*	MBTA	Protected
White-throated Sparrow	*Zonotrichia albicollis*	MBTA	Protected
White-winged Crossbill	*Loxia leucoptera*	MBTA	Protected
Wild Turkey	*Meleagris gallopavo*	Unprotected	Game Species
Willow Flycatcher	*Empidonax traillii*	MBTA	Protected
Winter Wren	*Troglodytes troglodytes*	MBTA	Protected
Wood Duck	*Aix sponsa*	MBTA	Game Species
Wood Thrush	*Hylocichla mustelina*	MBTA	Protected
Yellow Warbler	*Dendroica petechia*	MBTA	Protected
Yellow-bellied Flycatcher	*Empidonax flaviventris*	MBTA	Protected
Yellow-bellied Sapsucker	*Sphyrapicus varius*	MBTA	Protected
Yellow-billed Cuckoo	*Coccyzus americanus*	MBTA	Protected
Yellow-rumped Warbler	*Dendroica coronata*	MBTA	Protected
Yellow-throated Vireo	*Vireo flavifrons*	MBTA	Protected

Appendix L - 2000 - 2005 Breading Bird Atlas Data

The following table 2 shows data that was collected from the 2000 - 2005 Breeding Bird Atlas (BBA). The birds listed in table 2 were listed as being found in one of the BBA blocks listed in table 1. The BBA blocks listed in table 1 fall inside or partially inside the TPMC UMP boundary and also contain Department lands. Only three out of the 122 total species listed in table 2 are not protected according to the Migratory Bird Treaty Act (MBTA). A black and white map showing the locations of the BBA blocks listed below in table 1 can be found in Appendix Z.

Table 1

BBA Block	BBA Block	BBA Block	BBA Block	BBA Block
5691B	5892A	5993D	6093C	6289A
5692D	5892B	5994B	6189A	6289C
5791A	5892C	5994D	6189D	6291A
5791B	5892D	6089B	6190C	6292A
5792A	5893A	6090B	6191A	6293A
5792B	5893B	6091A	6191B	6293C
5792C	5893C	6091B	6191C	
5792D	5893D	6091C	6192C	
5793B	5993A	6091D	6193B	
5793C	5993B	6092D	6193D	
5793D	5993C	6093A	6194D	

Table 2

Common Name	Scientific Name	Federal Status	State Status
Alder Flycatcher	*Empidonax alnorum*	MBTA	Protected
American Bittern	*Botaurus lentiginosus*	MBTA	Protected-Special Concern
American Goldfinch	*Carduelis tristis*	MBTA	Protected
American Kestrel	*Falco sparverius*	MBTA	Protected

American Redstart	*Setophaga ruticilla*	MBTA	Protected
American Robin	*Turdus migratorius*	MBTA	Protected
American Woodcock	*Scolopax minor*	MBTA	Game Species
Bald Eagle	*Haliaeetus leucocephalus*	MBTA-Endangered	Threatened
Barred Owl	*Strix varia*	MBTA	Protected
Belted Kingfisher	*Ceryle alcyon*	MBTA	Protected
Black-billed Cuckoo	*Coccyzus erythropthalmus*	MBTA	Protected
Black-capped Chickadee	*Poecile atricapillus*	MBTA	Protected
Black-crowned Night-Heron	*Nycticorax nycticorax*	MBTA	Protected
Black-throated Blue Warbler	*Dendroica caerulescens*	MBTA	Protected
Blue Jay	*Cyanocitta cristata*	MBTA	Protected
Blue-gray Gnatcatcher	*Polioptila caerulea*	MBTA	Protected
Bobolink	*Dolichonyx oryzivorus*	MBTA	Protected
Boreal Chickadee	*Poecile hudsonicus*	MBTA	Protected
Broad-winged Hawk	*Buteo platypterus*	MBTA	Protected
Brown Creeper	*Certhia americana*	MBTA	Protected
Brown Thrasher	*Toxostoma rufum*	MBTA	Protected
Brown-headed Cowbird	*Molothrus ater*	MBTA	Protected
Canada Goose	*Branta canadensis*	MBTA	Game Species
Canada Warbler	*Wilsonia canadensis*	MBTA	Protected
Cape May Warbler	*Dendroica tigrina*	MBTA	Protected
Chestnut-sided Warbler	*Dendroica pensylvanica*	MBTA	Protected
Chimney Swift	*Chaetura pelagica*	MBTA	Protected
Chipping Sparrow	*Spizella passerina*	MBTA	Protected
Cliff Swallow	*Petrochelidon pyrrhonota*	MBTA	Protected
Common Goldeneye	*Bucephala clangula*	MBTA	Game Species

Common Grackle	*Quiscalus quiscula*	MBTA	Protected
Common Loon	*Gavia immer*	MBTA	Protected-Special Concern
Common Merganser	*Mergus merganser*	MBTA	Game Species
Common Nighthawk	*Chordeiles minor*	MBTA	Protected-Special Concern
Common Raven	*Corvus corax*	MBTA	Protected
Common Snipe	*Gallinago gallinago*	MBTA	Game Species
Common Yellowthroat	*Geothlypis trichas*	MBTA	Protected
Cooper's Hawk	*Accipiter cooperii*	MBTA	Protected-Special Concern
Double-crested Cormorant	*Phalacrocorax auritus*	MBTA	Protected
Downy Woodpecker	*Picoides pubescens*	MBTA	Protected
Eastern Bluebird	*Sialia sialis*	MBTA	Protected
Eastern Kingbird	*Tyrannus tyrannus*	MBTA	Protected
Eastern Meadowlark	*Sturnella magna*	MBTA	Protected
Eastern Phoebe	*Sayornis phoebe*	MBTA	Protected
Evening Grosbeak	*Coccothraustes vespertinus*	MBTA	Protected
Field Sparrow	*Spizella pusilla*	MBTA	Protected
Gadwall	*Anas strepera*	MBTA	Game Species
Golden-crowned Kinglet	*Regulus satrapa*	MBTA	Protected
Gray Catbird	*Dumetella carolinensis*	MBTA	Protected
Great Black-backed Gull	*Larus marinus*	MBTA	Protected
Great Blue Heron	*Ardea herodias*	MBTA	Protected
Great Crested Flycatcher	*Myiarchus crinitus*	MBTA	Protected
Great Horned Owl	*Bubo virginianus*	MBTA	Protected
Green Heron	*Butorides virescens*	MBTA	Protected
Hairy Woodpecker	*Picoides villosus*	MBTA	Protected

Hermit Thrush	*Catharus guttatus*	MBTA	Protected
Hooded Merganser	*Lophodytes cucullatus*	MBTA	Game Species
House Finch	*Carpodacus mexicanus*	MBTA	Protected
House Sparrow	*Passer domesticus*	Unprotected	Unprotected
House Wren	*Troglodytes aedon*	MBTA	Protected
Indigo Bunting	*Passerina cyanea*	MBTA	Protected
Killdeer	*Charadrius vociferus*	MBTA	Protected
Least Flycatcher	*Empidonax minimus*	MBTA	Protected
Lincoln's Sparrow	*Melospiza lincolnii*	MBTA	Protected
Long-eared Owl	*Asio otus*	MBTA	Protected
Louisiana Waterthrush	*Seiurus motacilla*	MBTA	Protected
Magnolia Warbler	*Dendroica magnolia*	MBTA	Protected
Mallard	*Anas platyrhynchos*	MBTA	Game Species
Mourning Dove	*Zenaida macroura*	MBTA	Protected
Mourning Warbler	*Oporornis philadelphia*	MBTA	Protected
Nashville Warbler	*Vermivora ruficapilla*	MBTA	Protected
Turkey Vulture	*Parula americana*	MBTA	Protected
Northern Waterthrush	*Seiurus noveboracensis*	MBTA	Protected
Olive-sided Flycatcher	*Contopus cooperi*	MBTA	Protected
Osprey	*Pandion haliaetus*	MBTA	Protected-Special Concern
Ovenbird	*Seiurus aurocapillus*	MBTA	Protected
Peregrine Falcon	*Falco peregrinus*	MBTA-Endangered	Endangered
Philadelphia Vireo	*Vireo philadelphicus*	MBTA	Protected
Pied-billed Grebe	*Podilymbus podiceps*	MBTA	Threatened
Pileated Woodpecker	*Dryocopus pileatus*	MBTA	Protected
Pine Siskin	*Carduelis pinus*	MBTA	Protected

Pine Warbler	*Dendroica pinus*	MBTA	Protected
Purple Finch	*Carpodacus purpureus*	MBTA	Protected
Purple Martin	*Progne subis*	MBTA	Protected
Red Crossbill	*Loxia curvirostra*	MBTA	Protected
Red-breasted Nuthatch	*Sitta canadensis*	MBTA	Protected
Red-eyed Vireo	*Vireo olivaceus*	MBTA	Protected
Red-shouldered Hawk	*Buteo lineatus*	MBTA	Protected-Special Concern
Red-tailed Hawk	*Buteo jamaicensis*	MBTA	Protected
Red-winged Blackbird	*Agelaius phoeniceus*	MBTA	Protected
Ring-billed Gull	*Larus delawarensis*	MBTA	Protected
Ring-necked Duck	*Aythya collaris*	MBTA	Game Species
Rock Dove	*Columba livia*	Unprotected	Unprotected
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	MBTA	Protected
Ruby-crowned Kinglet	*Regulus calendula*	MBTA	Protected
Ruby-throated Hummingbird	*Archilochus colubris*	MBTA	Protected
Ruffed Grouse	*Bonasa umbellus*	Unprotected	Game Species
Rusty Blackbird	*Euphagus carolinus*	MBTA	Protected
Scarlet Tanager	*Piranga olivacea*	MBTA	Protected
Sharp-shinned Hawk	*Accipiter striatus*	MBTA	Protected-Special Concern
Song Sparrow	*Melospiza melodia*	MBTA	Protected
Sora	*Porzana carolina*	MBTA	Game Species
Spotted Sandpiper	*Actitis macularia*	MBTA	Protected
Swainson's Thrush	*Catharus ustulatus*	MBTA	Protected
Swamp Sparrow	*Melospiza georgiana*	MBTA	Protected
Turkey Vulture	*Cathartes aura*	MBTA	Protected

Veery	*Catharus fuscescens*	MBTA	Protected
Vesper Sparrow	*Pooecetes gramineus*	MBTA	Protected-Special Concern
Virginia Rail	*Rallus limicola*	MBTA	Game Species
Warbling Vireo	*Vireo gilvus*	MBTA	Protected
Whip-poor-will	*Caprimulgus vociferus*	MBTA	Protected-Special Concern
White-breasted Nuthatch	*Sitta carolinensis*	MBTA	Protected
White-throated Sparrow	*Zonotrichia albicollis*	MBTA	Protected
White-winged Crossbill	*Loxia leucoptera*	MBTA	Protected
Willow Flycatcher	*Empidonax traillii*	MBTA	Protected
Winter Wren	*Troglodytes troglodytes*	MBTA	Protected
Wood Duck	*Aix sponsa*	MBTA	Game Species
Wood Thrush	*Hylocichla mustelina*	MBTA	Protected
Yellow-bellied Flycatcher	*Empidonax flaviventris*	MBTA	Protected
Yellow-bellied Sapsucker	*Sphyrapicus varius*	MBTA	Protected
Yellow-billed Cuckoo	*Coccyzus americanus*	MBTA	Protected
Yellow-throated Vireo	*Vireo flavifrons*	MBTA	Protected

Appendix M - Rare/ Endangered Species and Ecological Communities

Eight significant ecological communities on the unit have been identified by the New York Natural Heritage Program (NYNHP). These ecological communities include a northern white cedar swamp, medium fen (2 locations), floodplain forest, deep emergent marsh, cobble shore wet meadow, cliff community, and calcareous shoreline outcrop. Ecological communities were described by Reschke (1990).

Community:	**Northern White Cedar Swamp**
Most Recent Report:	August 12, 1992
State Distribution:	Scattered across upstate New York, extending north from the Appalachian Plateau ecozone.
Element Occurrence Rank:	BC
Global Rank:	G3G4
New York State Rank:	S2S3
Size:	50 acres

Unit-specific Description: A moderate size swamp partially disturbed by historical logging and recent beaver activity at Wickham Marsh. Wickham Marsh is a approximately 250 acre, 100-150 feet deep basin scooped out of post-glacial (Champlain Sea) deltaic sands along the shore of Lake Champlain. The small watershed consists of 3 spring fed brooks which enter the basin from the west-southwest and flow northeast into Lake Champlain. All waters flow through one culvert under a railroad berm into the lake. The wetlands in the basin include a floating mat shrub fen surrounded by deep emergent marsh, shallow emergent marsh, and shrub swamp.

> Management: Restore and maintain natural hydrology. If possible add several more culverts to increase water exchange with Lake Champlain. Remove beaver as necessary. Control exotic species, particularly the aggressive invader *Phragmites australis*.
>
> Threats: The railroad berm and beaver dams have severely impacted the hydrology, flooding large areas of marsh and swamp. Most areas of the swamp have been logged in the past. Phragmites is a problem in the marsh adjacent to the swamp on the western side of Wickham Marsh.

Community Description: A conifer or mixed swamp that occurs on organic soils in cool, poorly drained depressions in central and northern New York, and along lakes and streams in the northern half of the state. These swamps are often spring fed or enriched by seepage of cold, minerotrophic groundwater, resulting in a stable water table and continually saturated soils. Soils are often rich in calcium. At some

sites these soils have developed above a marl substrate. The characteristic tree is northern white cedar (*Thuja occidentalis*), which makes up more than 30% of the canopy cover. *Thuja* may form nearly pure stands, or it may be mixed with other conifers and hardwoods, including red maple (*Acer rubrum*), hemlock (*Tsuga canadensis*), balsam fir (*Abies balsamea*), tamarack (*Larix laricina*), yellow birch (*Betula alleghaniensis*), black ash (*Fraxinus nigra*), white pine (*Pinus strobus*), and black spruce (*Picea mariana*). The shrublayer is usually sparse; characteristic species are dwarf raspberry (*Rubus pubescens*), red osier dogwood (*Cornus sericea*), swamp fly honeysuckle (*Lonicera oblongifolia*), and highbush blueberry (*Vaccinium corymbosum*). The groundlayer is typically diverse, with many bryophytes and boreal herbs. There are typically many hummocks formed by decaying downed trees or tip-up mounds. Characteristic herbs on the hummocks are the sedges *Carex leptalea* and *C. eurnea*, oak fern (*Gymnocarpium dryopteris*), gold thread (*Coptis trifolia*), starflower (*Trientalis borealis*), bunchberry (*Cornus canadensis*), miterwort (*Mitella nuda*), Canada mayflower (*Maianthemum canadense*), blue bead lily (*Clintonia borealis*), snowberry (*Gaultheria hispidula*), and partridge berry (*Mithcella repens*). Characteristic herbs of hollows between the hummocks are the sedge *C. intumescens*, sensitve fern (*Onoclea sensibilis*), marsh fern (*Thelypteris palustris*), cinnamon fern (*Osmuda cinnamomea*), royal fern (*O. regalis*), crested wood fern (*Dryopteris cristata*), showy lady's-slipper (*Cypripedium reginae*), yellow lady's-slipper (*Cypripedium calceolus*), and golden ragwort (*Senecio aureus*). Characteristic bryophytes are several species of Sphagnum moss, feathermosses such as *Hylocomium splendens* and *Ptilium crista-castrensis*, and leafy liverworts such as *Bazzania trilobata* and *Trichocolea tomentella*. Characteristic birds include white-throated sparrow (*Zonotrichia albicollis*), winter wren (*Troglodytes troglodytes*), and golden-crowned kinglet (*Regulus satrapa*).

Community:	**Medium Fen** (2; Ausable Delta and Wickham Marsh)
Most Recent Report:	August 11-12, 1992
State Distribution:	The distribution of this community is not well known, but probably is sparsely scattered throughout upstate New York north of the Coastal Lowlands ecozone.
Element Occurrence Rank:	B (Both)
Global Rank:	G3G4 (Both)
New York State Rank:	S2S3 (Both)
Size:	Ausable Delta, 10 acres; Wickham Marsh, 20 acres

Unit-specific Description: Ausable Delta; The site consists of a mosaic of wetland and upland communities formed between the upper and lower mouths of the Ausable River, the Little Ausable River and Dead Creek where they drain into Lake Champlain. Wetland communities include mature floodplain forests on the levees, deep and shallow emergent marshes, shrub swamps, silver maple-ash swamp and a medium fen. In the middle of the delta on higher ground is a pitch pine-heath barren community. There are also three large sand beaches on Lake Champlain. A small medium fen that is well buffered and in excellent condition. It has been identified and assessed as an exemplary community. Wickham Marsh; The relatively large fen is situated in, and buffered by, Wickham marsh. The marsh is an approximately 250 acre, 100-150 feet deep basin scooped out of post-glacial (Champlain Sea) deltaic sands along the shore of Lake Champlain. The small watershed of the marsh consists of three spring-fed brooks which

enter from the west-southwest. The wetlands in the basin include deep emergent marsh, shallow emergent marsh, shrub swamp, rich shrub fen, red maple-hardwood swamp, and rich hemlock-hardwood peat swamp. A large fen in good condition that is well buffered, but has some disturbance.

> Management: Ausable Delta; Maintain the natural hydrology. Remove *Lythrum salicaria* and *Phragmites* from the western part of the adjacent deep emergent marsh. Wickham Marsh; Maintain the natural hydrology in the wetlands, and if possible increase the water exchange with Lake Champlain. Remove exotic plant species, especially *Phragmites australis*, from the marsh surrounding the fen.
>
> Threats: Ausable Delta; Habitat manipulation for waterfowl (dredging and soil mounds) has disturbed parts of the adjacent marsh where exotic plant species are now spreading, posing a potential threat to the integrity of this community and the entire wetland complex. Wickham Marsh; Beaver have impacted the marsh at the western end and may be a potential threat to the fen and entire wetland. The construction of the dike and railroad and road at the east end have impacted the hydrology of the marsh.

Community Description: A moderately minerotrophic peatland (intermediate between rich fens and poor fens) in which the substrate is a mixed peat composed of graminoids, mosses, and woody species. Medium fens are fed by waters that are moderately mineralized, with pH values generally ranging from 4.5 to 6.5. The dominant species are sedges; certain mosses, herbs and woody plants are common associates. The dominant sedge is typically *Carex lasiopcarpa*, and the dominant mosses may be *Sphagnum subsecundum, S. teres,* or *Calliergonella cuspidata.* Other characteristic species include twig-rush (*Cladium mariscoides*), tussock-sedge (*Cared stricta*), cattail (*Typha latifolia*), marsh fern (*Thelypteris palustris*), sweet-gale (*Myrica gale*), meadow-sweet (*Spiraea latifolia*), and cranberry (*Vaccinium macrocarpon*). More data on characteristic plants and animals are needed. Medium fens often occur as a narrow transition zone between an aquatic community and either a swamp or an upland community, along the edges of streams and lakes.

Community:	**Floodplain Forest**
Most Recent Report:	August 14, 1992
State Distribution:	Throughout upstate New York, north of the Coastal Lowlands ecozone.
Element Occurrence Rank:	A
Global Rank:	G3G4
New York State Rank:	S2S3
Size:	260 acres

Unit-specific Description: The upper and lower mouths of the Ausable River, Dead Creek, and the mouth of the Little Ausable River where they drain into Lake Champlain form a large site (Ausable delta). The site consists of a mosaic of wetland communities and two upland communities. Wetland communities include mature floodplain forests on the levees, deep and shallow emergent marshes, shrub swamps, and a silver

maple-ash swamp. In the middle of the delta on higher ground just west of the beach is a pitch pine-heath barrens communi

Excellent example for Lake Champlain valley. Contains extensive mature forest.

> Management: Site is a product of fluvial and wave and wind processes where these river channels empty into Lake Champlain. This natural process should be allowed to occur. Remove exotic plant species.
>
> Threats: Development of dikes, roads, railroad and campground have impacted the site. Further development would be a threat to the site. ATV disturbance. Habitat manipulation for wildlife especially dredging. Exotic plant species i.e., *(Rhamnus* spp.).

Community Description: A hardwood forest that occurs on mineral soils on low terraces of river floodplains and river deltas. These sites are characterized by their flood regime; low areas are annually flooded in spring, and high areas are flooded irregularly. Some sites may be quite dry by late summer, whereas other sites may be flooded again in late summer or early autumn (these floods are caused by heavy precipitation associated with tropical storms). This is a broadly defined community; floodplain forests are quite variable and may be very diverse. Characteristic canopy trees are silver maple (*Acer saccharinum*), red maple (*A. rubrum*), sycamore (*Platanus occidentalis*), cottonwood (*Populus deltoides*), butternut (*Juglans cinerea*), black willow (*Salix nigra*), bitternut hickory (*Carya cordiformis*), swamp white oak (*Quercus bicolor*), white ash (*Fraxinus americana*), black ash (*F. nigra*), and basswood (*Tilia americana*). White willow (*Salix alba*), an introduced tree, has become established in some floodplain forests. Vines such as Virginia creeper (*Parthenocissus quinquefolia*), virgin's bower (*Clematis virginia*), and poison ivy (*Toxicodendron radicans*) may be common in the understory. Characteristic groundlayer species include sensitive fern (*Onoclea sensibilis*), white snakeroot (*Eupatorium rugosum*), Canada goldenrod (*Solidago canadensis*), jewelweed (*Impatiens capensis*), jumpseed (*Polygonum virginianum*), and spicebush (*Lindera benzoin*). Characteristic birds include yellow-throated vireo (*Vireo flavifrons*), tufted titmouse (*Parus bicolor*), red-bellied woodpecker (*Melanerpes carolinus*), and pileated woodpecker (*Dryocopus pileatus*). The composition of the forest apparently changes in relation to flood frequency and elevation of floodplain terraces along large rivers. The composition of floodplain forests in New York State has not been studied in sufficient detail to characterize compositional variations and how they correlate with flood regime and terrace elevation.

Community:	**Deep Emergent Marsh**
Most Recent Report:	August 11, 1992
State Distribution:	Throughout New York State
Element Occurrence Rank:	B
Global Rank:	G4
New York State Rank:	S5
Size:	30 acres

Unit-specific Description: Large wetlands in the backwaters of Dead Creek and in Moon Marsh on the Ausable River delta form a mosaic of shallow emergent marsh, deep emergent marsh, shrub swamp, and floodplain forest. The deep emergent marsh is extensive, bordering the creek and covering much of the backwater areas. Moderate size marsh in good condition. Some exotics present. Part of a large, important deltaic ecosystem.

> Management: Maintain natural hydrology. Avoid dredging because it disturbs the marsh and makes it vulnerable to exotic plant species invasion. Remove exotic plant species, especially *Lythrum salicaria* and *Phragmites australis*.
>
> Threats: Exotic plant species such as *Lythrum salicaria* and *Phragmites australis* pose a serious threat to the integrity of this community. The road to the campground has impacted the natural hydrology of the marsh. Habitat manipulation for waterfowl (dredging) has...

Community Description: A marsh community that occurs on mineral soils or fine-grained organic soils (muck or well-decomposed peat); the substrate is flooded by waters that are not subject to violent wave action. Water depths can range from 6 in. to 6.6 ft (15 cm to 2 m); water levels may fluctuate seasonally, but the substrate is rarely dry, and there is usually standing water in the fall. Characteristic vegetation includes emergent aquatics such as yellow pond-lily (*Nuphar luteum*), white water-lily (*Nymphaea odorata*), cattails (*Typha latifolia, T. angustifolia*), soft-stem bulrush (*Scirpus tabernaemontanii*), hard-stem bulrush (*Scirpus actus*), bur-reed (*Sparganium eurycarpum*), arrowleaf (*Peltandra virginia*), and wild rice (*Zizania aquatica*). Characteristic animals include American bittern (*Botaurus lentiginosus*), least bittern (*Ixobrychus exilis*, red-winged blackbird (*Agelaius phoeniceus*), marsh wren (*Cistothorus palustris*), Virginia rail (*Rallus limicola*), pied-billed grebe (*Podilymbus podiceps*), bullfrog (*Rana catesbeiana*), and painted turtle (*Chrysemys picta*). Marshes that have been disturbed are frequently dominated by aggressive weedy species such as purple loosestrife (*Lythrum salicaria*) and reedgrass (*Phragmites australis*). Deep emergent marshes also occur in excavations that contain standing water (e.g. roadside ditches, gravel pits).

Community:	**Sand Beach**
Most Recent Report:	August 24, 1997
State Distribution:	The distribution of this community is not well known. It has been reported throughout New York State.
Element Occurrence Rank:	A
Global Rank:	G5
New York State Rank:	S5
Size:	27 acre

Unit-specific Description: A large sand beach occurs at the eastern edge of the Ausable River delta along Lake Champlain, extending from the Little Ausable River to the Lower Mouth of teh Ausable River.

Management: Allow the natural disturbances caused by wind, water and ice erosion/deposition processes to occur.

Threats: Excessive erosion and trampling of the sparse vegetation by campers, swimmers and boaters poses a threat to this community. Potential spread of *Lythrum salicaria* may pose a threat to native species.

Community Description: This community consists of a sparsely vegetated community that occurs on unstable sandy shores of large freshwater lakes, where the shore is formed and continually modified by wave action and wind erosion. The sand beach community at AMWMA is considered exemplary. The pristine beach between the Upper and Lower Mouths of the Ausable River is the best example of this community on all of Lake Champlain, and it supports the largest population of the globally rare Champlain beachgrass (*Ammophila champlainensis*) in the world. .

Community:	**Cliff Community**
Most Recent Report:	September 3, 1995
State Distribution:	Throughout upstate New York north of the Coastal Lowlands ecozone, at sites where the bedrock is not calcareous.
Element Occurrence Rank:	A
Global Rank:	G5
New York State Rank:	S4
Size:	100 acres

Unit-specific Description: Located on Poke O Moonshine Mountain. A series of four massive, sparsely vegetated east and south-facing vertical cliffs at the watershed divide of Lake Champlain. Maximum height is 1000 feet. Habitats include vertical rock faces, ledges and rock cracks. Talus slope woodlands, both acidic and calcareous occur at the base of each cliff face. Above the cliffs are xeric acidic rocky summit communities. These complexes of rocky communities are embedded within a vast expanse of northern forests covering a cluster of low mountains. A series of spectacular, large cliffs with no exotics and only minor recreational disturbance. In a protected intact forested landscape.

Management: Monitor the effects of rock climbing on cliff vegetation and Peregrine Falcons in the northeast patch to determine if there are negative impacts which might warrant management efforts (see Critical Habitat section).

Threats: Disturbances: hiking, rock climbing and piton placement in rock all may have negative impacts on the cliff community. Threats: potential overuse by climbers.

Community Description: A community that occurs on vertical exposures of resistant, non-calcareous bedrock (such as quartzite, sandstone, or schist) or consolidated material; these cliffs often include ledges and small areas of talus. There is minimal soil development, and vegetation is sparse. Different types of cliffs may be distinguished based on exposure and moisture; these variations are not well-documented in New York, therefore the assemblages associated with these variations (sunny, shaded,

moist, or dry areas) are combined in one community. Characteristic species include rock polypody (*Polypodium virginianum*), marginal wood fern (*Dryopteris marginalis*), common hairgrass (*Deschampsia flexuosa*), mountain laurel (*Kalmia latifolia*), and hemlock (*Tsuga canandensis*). A characteristic bird that nests on cliffs is the Common Raven (*Corvus corax*). More data on this community are needed.

Community:	**Calcareous Talus Slope Woodland**
Most Recent Report:	September 3, 1995
State Distribution:	Throughout upstate New York from the Great Lakes Plain ecozone to the Western Adirondack Foothills subzone, and the Champlain Valley Subzone.
Element Occurrence Rank:	B
Global Rank:	G3G4
New York State Rank:	S3
Size:	51 acres

Unit-specific Description: The woodland is at the base of an east-facing slope of Poke-O-Moonshine Mountain.

Management: Limit access.

Threats: Threats include increased trampling by climbers and introduction of invasive exotic plant species.

Community Description: Three patches of open canopy, white ash-dominated woodland on large talus boulders at the base of a massive east- and southfacing cliff on a mountain forming the watershed divide of Lake Champlain. The cliffs above the community are tall, vertical, granitic, gneiss rock faces. On the flats to the east and south are disturbed woods bordering a roadway. Otherwise, the talus slope is part of a rocky community complex embedded within a vast expanse of northern forests covering a cluster of low mountains with only one intrusion, an interstate highway.

Community:	**Pitch Pine Heath Barrens**
Most Recent Report:	August 14, 1992
State Distribution:	Throughout upstate New York from the Great Lakes Plain ecozone to the Western Adirondack Foothills subzone, and the Champlain Valley Subzone.
Element Occurrence Rank:	C
Global Rank:	G4
New York State Rank:	S1S2

Size: 45 acres

Unit-specific Description: This community is found at Ausable Marsh. Pitch pine heath barrens occur on the beach ridge between Lake Champlain and Moon Marsh, between the upper and lower mouths of the Ausable River.

Management: Develop and impliment a site specific fire management plan and limit access.

Threats: Lack of fire is the most significant threat. Trampling by hikers has impacted the vegetation near the beach.

Community Description: A shrub-savanna community occurs on well-drained, sandy or rocky soils. The most abundant tree is pitch pine (Pinus rigida) but the percent cover of trees is variable - ranging from thirty to sixty percent. More data on this community are needed.

Appendix N - Individual Pond Descriptions

A brief description of each pond in the TPMC follows. Definitions of fisheries management classifications referred to in this section of the unit management plan are noted below:

Adirondack Brook Trout Ponds - Adirondack Zone ponds which support and are managed for populations of brook trout, sometimes in company with other salmonid fish species. These waters generally lack warmwater fishes but frequently support bullheads. Management may include stocking.

Coldwater Ponds and Lakes - Lakes and ponds which support and are managed for populations of several salmonids. These waters generally lack warmwater fishes but frequently support bullheads. Management may include stocking.

Other Ponds and Lakes - Fishless waters and waters containing fish communities consisting of native and nonnative fishes which will be managed for their intrinsic ecological value.

Two-Story Ponds and Lakes - Waters which simultaneously support and are managed for populations of coldwater and warmwater game fishes. The bulk of the lake trout and rainbow trout resource fall within this class of waters. Management may include stocking.

Unknown Ponds and Lakes - Waters which could not be assigned to the subprogram categories specifically addressed in this document due to a lack of or paucity of survey information.

Warmwater Ponds and Lakes - Waters which support and are managed for populations of warmwater game fishes and lack significant populations of salmonid fishes. Management may include stocking.

Franklin Falls Pond (CH-5095)

Franklin Falls Pond is large (437 acre) impoundment on the Saranac River that was created circa. 1900 for power generation purposes. Of historical note is that the reservoir was constructed by Paul Smith, the famed Adirondack guide, hotelman and entrepreneur. It is assumed that a smaller dam or dams existed at the site prior to the present structure, as Franklin Falls was one of the earliest communities in the region, and the site of a lumber mill. A 1898 USGS map (based upon 1893 & 1894 survey data) shows the impoundment to be small, with most of the river to be intact. Paul Smith purchased the power rights in the 1890's and started construction of the still existing dam and power generation plant in 1904. The dam was finished in 1907. Because the dam flooded a significant amount of state land, the state filed an injunction against the Paul Smiths Electric Light and Railroad Co. in 1908. It took four years for the law suit to be resolved. Paul Smith last visited the Franklin Falls hydroelectric site on his 87th birthday, August 20, 1912, and watched the new facility successfully generate electric power.

Surprisingly, the earliest fisheries data for Franklin Falls Pond is an April 1967 Conservation Department trap net survey. At that time the fish community was comprised of native white suckers, native-but-widely-introduced (NBWI) brown bullheads and non-native northern pike, yellow perch and golden shiners. A gill net survey conducted just one month later captured the same species plus long nose sucker (native) and one smallmouth bass (non-native). A 1985 Adirondack Lake Survey Corporation (ALSC) survey captured the same species plus pumpkinseed (NBWI) and revealed the establishment of two additional non-native fish species; rock bass and fallfish. This survey also captured two walleye, a species introduced by DEC into the watershed. Electro fishing and gill netting conducted in 1998 by DEC verified the successful establishment of a walleye population and indicated that the small mouth bass population had expanded. The most recent data for Franklin Falls Pond, comes from a 2005 electro

fishing survey, conducted to monitor the walleye population. This survey indicated that a high quality fishery for walleye now exists in Franklin Falls Pond. Unfortunately, testing done on walleye taken from Franklin Falls Pond found high levels of mercury, resulting in a NYS Department of Health Advisory stating that people should eat no walleye from this waterbody.

Franklin Falls Pond will be managed as a warmwater pond to preserve its native fishes in the presence of nonnative and historically associated species .

Management Class: Warmwater

Military Pond (CH-P225)

Military Pond is a 27-acre natural waterbody that was not surveyed during the original biological survey of New York State; however brown bullhead and brook trout were reported at that time. The first netting survey was conducted in 1954 when brook trout, brown bullhead (NBWI) native white sucker and non-native golden shiner were captured. Military Pond was surveyed for a second time by the Adirondack Lakes Survey Corporation in 1986. This survey also captured pumpkinseed, creek chub (NBWI) and non-native yellow perch. The yellow perch were abundant and their presence rules out management for native brook trout as yellow perch are known to seriously impede brook trout populations in Adirondack waters. Following the ALSC survey, DEC implemented a brown trout stocking policy as brown trout are often able to compete in a fish community dominated by abundant native and non-native competitive species. A follow-up survey was conducted by DEC in 1999 to evaluate the success of the brown trout stocking policy. An overnight gill net survey conducted in June of 1999 captured 5 brown trout including a 19 inch individual. Because Military Pond has extensive contiguous wetlands and the outlet lacks sufficient gradient to build a fish barrier dam, it is not a candidate for restoration with rotenone. The brown trout stocking policy will be continued and the pond will be managed as a coldwater pond.

Management Class: Coldwater

Mud Pond (CH-P211)

Mud Pond is a 19 acre pond that was first surveyed in 1954 by the New York State Conservation Department. At that time brown bullheads were the only species captured. Water chemistry appeared favorable and the pH was recorded as 6.4. The pond was again surveyed in September 1984 by the Adirondack Lake Survey Corporation. Brown bullheads were again captured plus native creek chubs and blacknose dace. The ALSC found Mud Pond had a mean depth of only 5 feet and a max depth of 10 feet. Following the ALSC survey, DEC biologists recommended an experimental largemouth bass stocking policy. In 1989 Fisheries staff hiked into Mud Pond and made a one time stocking of 1,600 2.0 inch large mouth bass. Mud Pond will be surveyed to see if bass have established and, if not, wether water and tempature conditions are suitable for stocking trout. Large mouth bass stocking is no longer done by the Department due to a lack of certified disease free fish.

Management Class: Unknown

Mud Pond (CH-42)

This Mud Pond (112 acres) was not surveyed during the original biological survey of New York State; however brown bullhead, "sucker family" and brook trout were reported at that time. The maximum depth was reported to be only 10 feet. The pond was netted in 1956 and brook trout, brown bullhead (NBWI), creek chub (native) and non-native golden shiners were captured. The brook trout catch was relatively high for a shallow, marshy pond. The Adirondack Lake Survey Corporation surveyed Mud Pond in 1984 and again documented the same shallow nature. And again, Mud Pond exhibited a moderate

brook trout catch despite its shallow, wind exposed nature and numerous competitive species.

Mud Pond has most recently been surveyed by DEC in 2011. The non-trout catch consisted of golden shiner, creek chub, northern redbellied dace (native), white sucker (native), brown bullhead, brook trout and brown trout. The brown trout were the result of an experimental split policy implemented in hopes that they might actually improve conditions for brook trout by reducing the abundance of competitive species. Mud Pond continues to provide some fishing for trout in the face of abundant competition - an unusual occurrence. Likely the existence of cold springs in this shallow pond provide habitat for the trout. Mud Pond is not a candidate for reclamation with rotenone due to extensive contiguous wetlands and the fact that the outlet lacks sufficient gradient to build a fish barrier dam. Mud Pond will be managed as a coldwater pond for brook trout and brown trout.

Management Class: Coldwater

Silver Lake (CH-P73)

Silver Lake (803 acres) was not studied during the original New York State biological survey. An undated note in DEC files circa 1937 mentions smallmouth bass, pike, bullhead and perch. There is also a reference to pikeperch, a name sometimes used in reference to walleye, however they are described as being scarce and the species does not appear in surveys conducted in later years. Correspondence files indicate that lake trout were stocked in Silver Lake from 1942 through 1956 and that a "fish salvage" operation was conducted from 1949 through 1951. This salvage operation removed eleven tons of yellow perch from Silver Lake for stocking into other waters. The first documented fish survey was an overnight gillnet set on June 22, 1959. This netting captured native white sucker, native-but-widely-introduced brown bullhead and non-native yellow perch and northern pike. Other species reported to be present at that time, but not captured in the gillnet include; rainbow trout (introduced), brook trout (native), smallmouth bass (non-native), rock bass (non-native), common whitefish (non-native) and pikeperch (non-native). Rainbow trout stocking ceased in 1961 due to the lack of free public access. Public access to Silver Lake is a problem that persists today. Although New York State has purchased several hundred acres on the southwest shore, the shore property does not extend to the public highway and so public access is difficult and limited to canoes. Parking, except for along the highway, is not available.

Silver Lake was surveyed by the Department of Environmental Conservation again in 1984. This survey captured the same species that were taken in 1959 and in addition pumpkinseed (native-but-widely-introduced), rock bass (non-native), fall fish (non-native), one walleye (non-native) and smallmouth bass (non-native) were taken. The smallmouth bass catch indicated the species to be common with some large size individuals. Silver Lake was experimentally stocked by DEC with splake from 1985 – 1989 and some anglers reported catching them. However, stocking was again cancelled due to a lack of good public access. The 1984 survey found the fish community was dominated by stunted yellow perch. The survey also indicated that walleye had persisted in this lake since the 1920's. If public access to Silver Lake should improve at some time in the future, consideration should be given to stocking species that will help balance the yellow perch population. Silver Lake will be managed as a two-story lake.

Management Class: Two story

Taylor Pond (CH-P227)

Taylor Pond (820 acres) has a long history of fish management, and because it has a New York State public campground on it shoreline, is a popular angling destination. Prior to state ownership, the lake was owned for over 100 years by the J.J. Rogers Co. of Ausable Forks. It was open to fishing by permit for

many years and small fees collected for the privilege of fishing were used to stock fish. The pond was not surveyed during the original New York State Biological Survey, but brown trout, brook trout and rainbow trout were reported. No mention is made of yellow perch or other serious introduced competitors at this time. The first documented survey of Taylor Pond occurred in June of 1952. That survey showed a disrupted fish community containing several non-native species. The catch included: native white sucker, longnose sucker, common shiner, lake trout, native-but-widely-introduced brown bullhead and pumpkinseed, non-native golden shiner, fall fish, yellow perch (non-native) and introduced brown trout and rainbow trout.

New York State acquired Taylor Pond sometime in the 1960's, although the water rights and dam were controlled by New York State Electric and Gas Corp. for sometime after state ownership. The lake was surveyed in June of 1965 with results similar to the 1952 survey. The biologist concluded that the lake trout population was likely much larger than the survey data indicated, based upon information from local anglers. The lake was subject to wide fluctuations in lake level due to its use as a water source for hyro-electric generation. Water was released to augment flows in the Saranac River during periods of low flow.

DEC managed the lake for various salmonid species for many years. Rainbow trout seemed to do particularly well, and there was a decent lake trout fishery sustained by stocking. A 1979 gill net survey captured good numbers of lake trout, brown trout and rainbow trout and revealed that rainbow smelt had been introduced. In 1994 DEC undertook a routine survey to evaluate stocking policies. Stocked lake trout were marked by fin clipping for several years prior to the survey to aid in stocking assessment. The 1994 survey showed that the stocking of brown trout and rainbow trout was no longer effective in sustaining a fishery. The survey also revealed that the lake trout population was becoming self-sustaining, with few of the trout being of hatchery origin. It is theorized that the lake trout population became self sustaining because the large water draw downs of the past by New York Electric and Gas ceased, resulting in stable water levels for the lake trout spawning. Based upon the 1994 survey the lake trout stocking was cut back and rainbow trout and brown trout stocking ceased. A modest landlocked salmon stocking policy was implemented instead, in hopes that salmon might utilize the abundant and stunted yellow perch forage. The most recent survey was conducted in 2003 to evaluate the stocking changes incorporated after the 1994 survey. In this survey a good number of lake trout were captured and the population remained self-sustaining. The net catch of landlocked salmon was particularly high with 60 individuals being taken. The catch of yellow perch and white suckers was reduced suggesting that perhaps the lake trout and landlocked salmon were making use of these abundant species. Taylor Pond will be evaluated periodically to keep abreast of the fish community changes.

Management Class: Coldwater

Union Falls Pond (CH-P74)

Union Falls Pond, like Franklin Falls Pond above it, is an impoundment on the Saranac River created by a hyro-electric power facility. Like Franklin Falls Dam, the Union Falls Dam was built by the Paul Smiths Electric Light, Power and Railroad Co., with work on the dam commencing in 1904 and completion in 1907. At 1,671 acres, the impoundment is the largest water body in the TPMC. Union Falls Pond is relatively shallow, with a maximum depth of 25 feet. It is over 6 miles long and is has a maximum width of over 1 mile. Being a source for hydroelectric power, the impoundment was long subject to wide fluctuation in water levels.

Like many new impoundments, Union Falls Pond initially developed a productive fishery, which declined somewhat after a few years. The Pond was first surveyed by the Department in 1967 at the request of local sportsmen. This survey documented a fish community similar to that of Franklin Falls Pond; native

white sucker and longnose sucker, native-but-widely-introduced pumpkinseed and brown bullhead, non-native northern pike, yellow perch, rock bass, fallfish, largemouth bass, smallmouth bass and golden shiner. The survey also documented the early survival of walleye fry, the first year class of a five year experimental stocking program initiated in 1965. This experimental stocking program was successful in establishing a long standing and productive fishery for this popular gamefish. Undefined survey data from 1972 documents that walleye had become a dominant member of the fish community.

Union Falls Pond received an extensive fisheries survey in June of 1981. The fish community was similar to that documented in 1965. Surprisingly a few lake whitefish were captured, a species generally associated with deeper lakes, and bluntnose minnows were found to be established. Several hours of electrofishing completed in 2009 established that smallmouth bass and walleye continue to be abundant in Union Falls Pond. The panfish community had good size structure and abundance. No longnose sucker were captured, however, perhaps indicating this species is no longer present. Netting should be done in deeper water to further evaluate fish community changes. Toxicity testing done on gamefish species caught in 2009 have resulted in a NYS Department of Health Advisory notifying people to eat no more than one meal per month of walleye, northern pike or smallmouth bass from Union Falls Pond. This is due to slightly elevated levels of mercury.

Access to Union Falls Pond is limited and available chiefly via a small private launch. Being over 1,000 acres, Union Falls is eligible for consideration for the development of a boat launching facility. During the planning period, a parcel of property should be acquired for eventual development of a one lane launch facility for small fishing boats. Union Falls Pond will be managed as a warm water pond to preserve its native fishes in the presence of nonnative species and historically associated species.

Management Class: Warm water

Whistle Pond (CH-P39)

Whistle Pond is a 9 acre pond that is north of Silver Lake. It was first surveyd in 1954 when an undefined gill net set captured only brown bullheads. No minnow type gear was included in this survey. The pond was more thoroughly surveyed in 1984 by the Adirondack Lake Survey Corporation and was found to contain brown bullheads, redbelly dace and creek chubs. Whistle Pond has a maximum depth of 10 feet, with an average depth of 4.3 feet. Following the ALSC survey the Bureau of Fisheries experimentally stocked brook trout and brown trout, but canceled efforts in 1991due to inaccessibility of the pond and posting issues that have now been resolved by a recent land aquisition. The ownership of Whistle Pond was historically unclear, however recent acquisitions from Domtar Industries include Whistle Pond. Unfortunately, public access through adjoining private lands is still uncertain. Whistle Pond appears to have good water chemistry and should provide quality angling for brook trout in an area where fishing for this native species is limited. Survey work will be done within the five year scope of this plan to add chemistry data and help establish an access route for the public. Whistle Pond will be managed as an Adirondack brook trout pond to preserve its native fish community.

Management class: Adirondack brook trout.

Unnamed Ponds

There are a number of small unnamed ponds in the Taylor Pond Management Complex. Some are associated with the Terry Mountain State Forest, others with Ausable Marsh and Wickham Marsh. There are no survey data available for these waters. They will be managed as unknown ponds to preserve their aquatic resources.

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Appendix O – Ponded Water Survey Data

Table 1

Name	Pond #	Wshed	File #	County	Quad Name	Area (ac) NYSBU	Max Depth (m)	Mean Depth (m)	Management Class
Franklin Falls Pond	P5095	CH	92	Essex	Franklin Falls	437.4	20.0	10.5	Warmwater
Military Pond	P225	CH	262	Clinton	Peasleeville	26.7	27.9	9.5	Coldwater
Mud Pond	P211A	CH	236	Clinton	Peasleeville	19.0	3.0	1.5	Unknown
Mud Pond	P42	CH	60	Clinton	Alderbrook	109.0	4.9	2.6	Coldwater
Silver Lake	P73	CH	89	Clinton	Redford	803.0	51.8	24.0	Two-story
Taylor Pond	P227	CH	263	Clinton	Wilmington	820.6	90.0	51.0	Coldwater
Union Falls Pond	P74	CH	89	Clinton	Alderbrook	1671	24.9	-	Warmwater
Whistle Pond	P39	CH	54	Clinton	Redford	8.9	9.8	4.3	Adirondack brook trout

Table 2

			Most Recent Chemical Survey					Most Recent Biological Survey		
Name	**Pond #**	**Wshed**	**Date**	**Source**	**ANC (ueq/l)**	**pH**	**Conductivity**	**Year**	**Source**	**Fish Species and Number Caught**
Franklin Falls Pond	P5095	CH	06/01/98	DEC	284.8	7.5	72.4	2005	DEC	WAE(57), SMB(67), NP(6), RB(38), PKS(37), YP(12), WS(58), BB(3)
Military Pond	P225	CH	06/22/99	DEC	409.4	7.8	53.9	1999	DEC	BT(5), ST(1), WS(41), BB(4), PKS(2), YP(23)
Mud Pond	P211	CH	07/17/84	ALSC	170	7.2	37.5	1984	ALSC	BND(1), CC(49), BB(9)
Mud Pond	P42	CH	07/18/11	DEC	145.9	7.2	23.2	2011	DEC	ST (1), BT(1), NRD(6), GS(8), CC(27), WS(25), BB(56)
Silver Lake	P73	CH	07/31/84	DEC	-	7.1	40.4	1984	DEC	WAE(1), SMB(31), YP(522), RB(264), BB(59), WS(10), PKS(1), FF(1)
Taylor Pond	P227	CH	08/05/03	DEC	184.4	7.34	36.0	2003	DEC	LLS(60), BT(1), LT(45), RS(13), WS(26), YP(3)
Union Falls Pond	P74	CH	5/26/09	DEC	201.8	7.3	63.0	2009	DEC	WAE(28), NP(2), SMB(85), YP(36), PKS(76), BB(2), RB(15), WS(8), FF(20), LMB(2)
Whistle Pond	P39	CH	07/17/84	ALSC	291.7	7.5	46.2	1984	ALSC	NRD(4), CC(2), BB(3)

Appendix P - Classification of Common Adirondack Upland Fish Fauna

Classification of Common Adirondack Upland Fish Fauna Into Native, Nonnative, and Native But Widely Introduced

Adapted from George, 1980

Native To Adirondack Upland		
blacknose dace	redbreast sunfish	slimy sculpin
white sucker	finescale dace	lake chub
longnose sucker	creek chubsucker	common shiner
northern redbelly dace	longnose dace	round whitefish
Native Species Widely Introduced within the Adirondack Upland[1]		
brook trout	pumpkinseed	lake trout
brown bullhead	cisco	creek chub
Nonnative to Adirondack Upland		
golden shiner	northern pike	Atlantic salmon
chain pickerel	rock bass	walleye
largemouth bass	bluntnose minnow[2]	central mudminnow
brown trout	pearl dace	redhorse suckers (spp.)
Splake	smallmouth bass	black crappie

rainbow smelt	fathead minnow	banded killifish[3]
bluegill	rainbow trout	Johnny darter

[1]These native fishes are known to have been widely distributed throughout Adirondack uplands by DEC, bait bucket introduction, and unauthorized stocking. This means that their presence does not necessarily indicate endemicity. Other species listed above as native have been moved from water to water in the Adirondack Upland, but the historical record is less distinct.

[2]Not mentioned by Mather (1884) from Adirondack collections, widely used as bait.

[3]Early collections strongly suggest dispersal as a bait form.

Appendix Q - State Environmental Quality Review Act Requirements (SEQR)

14-12-7 (2/87)-9c **SEQR**

State Environmental Quality Review
NEGATIVE DECLARATION
Notice of Determination of Non-Significance

Identifying # 2013-FPM-5-77

Project Number _____ **Date** December 18, 2012

This notice is issued pursuant to Part 617 of the implementing regulations pertaining to Article 8 (State Environmental Quality Review Act) of the Environmental Conservation Law.

The NYS Department of Environmental Conservation as lead agency, has determined that the proposed action described below will not have a significant effect on the environment and a Draft Environmental Impact Statement will not be prepared.

Name of Action: Adoption of the Taylor Pond Management Complex Unit Management Plan

SEQR Status: **Type 1** _x_
Unlisted

Conditioned Negative Declaration: ___ **Yes**
_x_ **No**

Description of Action:

The project involves the adoption of a comprehensive unit management plan addressing the use of and preservation of fee owned public lands as well as publicly owned easement lands. Section 816 of the Adirondack Park Agency Act (Executive Law) requires the Department of Environmental Conservation (DEC) to develop in consultation with the Adirondack Park Agency (APA), individual unit management plans for each unit under its jurisdiction classified in the Adirondack Park State Land Master Plan.

Actions include boundary line marking, new trail construction, including trails for hiking, horseback riding, skiing/snowshoeing and all terrain bicycle use, trail upgrades and relocations, parking area and trail head construction, parking area improvements, search and rescue operations, maintenance of existing facilities, including, blowdown removal, erosion control, litter removal, and sign replacement, public information and education, public use controls, fish stocking, and possible pond reclamation.

Location: (Include street address and the name of the municipality/county. A location map of appropriate scale is also recommended.)
Adirondack Forest Preserve, Towns of Ausable, Black Brook Peru and Saranac in Clinton County, Towns of Chesterfield, Elizabethtown, Essex, Jay, Lewis, St. Armand, Wesport and Willsboro in Essex County, Town of Franklin in Franklin County.

SEQR Negative Declaration **Page 2**

Reasons Supporting This Determination:(See 617.7(c) for requirements of this determination; see 617.7(d) for Conditioned Negative Declaration)

Physical disturbances due to construction of trails and parking areas will be minor. Public safety will be enhanced to provide safe-off road parking facilities. It is not anticipated that this project will increase the use of the area measurably, but rather provide safer facilities for current users. Tree removal will be in compliance with Lands and Forest Policy # 91-2 on Cutting, Removal or Destruction of Trees and Other Vegetation on Forest Preserve Lands. Trails may be closed during wet seasons if other actions to minimize impacts cannot prevent damage.

All fish stocking projects will be in compliance with the "Programmatic Environmental Impact Statement on Fish Species Management Activities of the Department of Environmental Conservation, Division of Fish and Wildlife, December 1979. All liming projects will be in compliance with the "Final Generic Environmental Impact Statement on the New York State Department of Environmental Conservation Program of Liming Selected Acidified Waters," October 1990, as well as the Division of Fish, Wildlife and Marine Resources liming policy. All pond reclamation projects will be in compliance with the "Programmatic Environmental Impact Statement on Fish Species Management Activities of the Department of Environmental Conservation" and "Programmatic Environmental Impact Statement on Undesirable Fish Removal by the Use of Pesticides Under Permit Issued by the Department of Environmental Conservation, Division of Lands and Forests, Bureau of Pesticide Management."

Trail construction will incorporate the use of best management practices, including, but not limited to the following:

- Locating trails to minimize necessary cut and fill;
- Wherever possible, lay out trails on existing old roads or cleared or partially cleared areas;
- Locating trails away from streams, wetlands, and unstable slopes, wherever possible;
- Use of proper drainage devices such as water bars and broad- based dips, or crowning;
- Locating trails to minimize grade;
- Using natural materials to blend the structure into the natural surroundings.

<u>Hiking Trails</u>

The establishment of approximately 10 miles of trails that are proposed in this plan will not have a significant adverse impact on the environment. Trails will be established on stable soils and engineered to grades less than 10%, whenever possible, dependent upon topographic constraints. They will require limited vegetative removal. Furthermore, the proposed trail work contemplated in the plan will restore the resource by relocating certain substandard segments of the existing trails (e.g. segments of Catamount Mountain and Silver Lake Mountain Trails) off of steep grades to correct erosion and improve drainage. An old road network exists in this unit which the plan proposes to reopen for horseback riding, mountain biking and cross country skiing. The trail system will be developed using the existing trails and by

relocating substandard trails. There will be minimal removal of vegetation or physical disturbance of the resource. The APA wetland permitting process will ensure that there will be no significant impacts to wetlands resulting from trail management and maintenance activities. Relocation and extension of trail segments are not extensive in length, totaling less than two miles, and will be located to minimize necessary cut and fill; and avoid trees, streams and wetlands.

Also, relocation and trail extensions will avoid steep grades and poor soils to avoid erosion. As necessary, proper drainage devices such as water bars and broad-based dips will be employed to avoid erosion.

Posting of Signs
The plan proposes posting of various informational signs. Sign posting will have no adverse impacts to the resource given the non-intrusive and minimal nature of this activity.

All Terrain Bicycle Trails
The plan proposes to establish all terrain bicycle trails. All but six miles will be designated on existing roads that have been closed to motor vehicles. The remainder, will require new construction to established environmental standards. These will be built as single-narrow track trails on stable soils with grades less than 10%, however, All Terrain Bicycle (ATB) use will be prohibited on the following trails: Poke-O-Moonshine hiking and climbing trails, Catamount Mountain, Silver Lake Mountain, Route 3 Mud Pond and Fay Mountain Trails. These trail segments are not suitable for ATB use
due to steepness, seasonally wet soils, surface rock, and sensitive habitats, therefore, these foot trails do not have the capacity to withstand ATB use. By assessing the carrying capacity of the trails based on grade, soils, and sensitive habitat, the plan appropriately designates recreational uses for the trails and avoids any impacts associated with the various uses.

Snowmobile Trail
Currently nearly fifty miles of designated snowmobile trails exist in the unit. The proposed maintenance of these trails will not have any adverse environmental impacts, since they will not involve any changes or trail construction. The small sections of snowmobile trail that are proposed will be built to conform with Best Management Practices for trail building. By assessing the carrying capacity of the trails based on
grade, soils, and sensitive habitat, the plan appropriately designates recreational uses compatible to trail conditions avoiding any impacts associated with the various uses. There will be minimal removal of vegetation or physical disturbance of the resource. The APA wetland permitting process will ensure that there will be no significant impacts to wetlands resulting from trail building and maintenance activities. Relocation and extension of trail segments are not extensive in length, totaling less than 3 miles,
and will be located to minimize necessary cut and fill; and avoid trees, streams and wetlands.

Relocation and trail extensions will avoid steep grades and poor soils to avoid erosion. As necessary, proper drainage devices such as water bars and broad-based dips will be employed to avoid erosion.

Trailheads/Parking Facilities
The plan also proposes to construct 34 parking areas across the unit and improve one. All will be accessible to persons with disabilities in accordance with the consent decree in Galusha versus DEC. The parking areas will be relatively small. They range in size from four vehicles to

SEQR Negative Declaration **Page 4**

the largest at a capacity of twelve vehicles. Additional parking capacity is proposed to meet current and future needs and to provide safe parking. Proposed parking lot locations were chosen on the basis of terrain and minimal need for excavation and tree cutting as well as safe distances from approaching traffic. All parking area construction will employ the following best management practices to ensure that the activity will have no significant impacts on the environment:

- Locating parking areas to minimize necessary cut and fill;
- Locating parking areas away from streams, wetlands, and unstable slopes;
- Locating parking areas on flat, stable, well-drained sites;
- Locating parking areas in areas that require a minimum amount of tree cutting;
- Limiting construction to periods of low or normal rainfall;
- Wherever possible, using wooded buffers to screen parking lots from roads;
- Limiting the size of the parking lot to the minimum necessary to address the intended use; and
- Surfacing parking areas with gravel to avoid surface water runoff and erosion.

If Conditioned Negative Declaration, provide on attachment the specific mitigation measures imposed.

For Further Information:
Contact Person: Daniel Levy

Address: NYS DEC
PO Box 296
Ray Brook, New York 12977
Telephone Number: (518) 897-1357

For Type 1 Actions and Conditioned Negative Declarations, a Copy of this Notice Sent to:
Commissioner, Department of Environmental Conservation, 625 Broadway, Albany, New York 12233-1010
Appropriate Regional Office of the Department of Environmental Conservation
Office of the Chief Executive Officer of the political subdivision in which the action will be principally located.
Applicant (if any)
Other involved agencies (if any)

Appendix R - Campsite Monitoring Forms and Procedures

MONITORING FORM A

1) Old Site Number:_____1a) New Site Number_____
2) Inventoried By:_____ 3)Date:____/____/____

INVENTORY PARAMETERS
4) Substrate of site area: (B=bedrock C=cobble S=sand O=soil) _____
5) Number of Other Recreational Sites Visible: _____
6) Fire Ring Present: (y or n) _____
Construction :(stone or metal) _____
Condition: (1=good, 2=poor, 3=replace) _____
7) Privy Present :(y or n) _____
Condition: (1= good, 2=poor, 3=replace) _____
8) Picnic Table Present: (y or n) _____
Condition: (1=good, 2=poor, 3=replace) _____
9) Tree Canopy Cover :(1=0-25%,2=26-50%,3=51-75%,4=76-100%) _____
IMPACT PARAMETERS (Begin with Site Boundary Determination)
10) Condition Class: (3, 4 or 5) _____
11) Vegetative Ground Cover Onsite :(Use categories below) _____
(1=0-5%, 2=6-25%, 3=26-50%, 4=51-75% 5=76-95%, 6=96-100%)
12) Vegetative Ground Cover Offsite :(Use categories above) _____
13) Soil exposure: (use categories above) _____
14) Tree Damage: None/Slight____, Moderate____, Severe_____
15) Root Exposure: None/Slight____, Moderate_____, Severe_____
16) Number of Tree Stumps: _____
17) Number of Trails: _____
18) Number of Fire Sites: _____
19) Litter/Trash: (N=None, S=Some, M=Much) _____
20) Human Waste: (N=none, S=Some, M=Much) _____
21) Comments/Recommendations:_____
_____
22) Take Center point and Site Photographs:

<u>Site Center point References</u>

1)
2)
3)
4)

Satellite Site Dimensions

Island Site Dimensions

Site area from Program:_____
+Satellite Area _____
- Island Area _____=

Total Site Area _____(sq ft)

Transect Data

Azimuth	**Distance (ft)**
1)	
2)	
3)	
4)	
5)	
6)	
7)	
8)	
9)	
10)	
11)	
12)	
13)	
14)	
15)	
16)	
17)	
18)	
19)	
20)	
21)	
22)	
23)	
24)	
25)	

MONITORING FORM B

1) Old Site Number:_____ 1a) New Site Number:_____
2) Fire Ring Present:_____ Condition:_____.
3) Privy Present:_____ Condition:_____
4) Picnic Table Present:_____ Condition:_____
5) Condition Class (1 or 2)_____ Site Size:_____(ft^2)

DESIGNATED CAMPSITE MONITORING MANUAL
DESCRIPTION OF PROCEDURES
FEBRUARY 2001

For the purpose of this manual, designated campsites are defined as those areas either designated by the Department with a yellow DEC designated campsite marker, or shown on an area brochure. In areas with multiple sites there may not always be undisturbed areas separating sites, and an arbitrary decision may be necessary to define separate sites. For each site, monitoring begins with an assessment of Condition Class:

For sites rated Condition Class 1 or 2, complete Form B; for sites rated Class 3, 4 or 5, complete Form A. Form B is an abbreviated version of Form A and greatly reduces the amount of field time. The rationale for this approach is that detailed information on lightly impacted sites is not as critical to management. During subsequent surveys an attempt should be made to relocate and reassess all sites from the proceeding survey. Former designated sites that have been closed, and are still being used, should be noted as illegal sites. Always note information regarding the history of site use under the comment parameter.

Materials: Compass, peephole or mirror type (not corrected for declination)
GPS data recorder (GPS point will be taken at each sites center point)
Tape measure, 100-foot (marked in tenths)
Flagged wire pins (25 min), one large steel center point stake.
Digital camera
Clipboard, pencil, field forms, field procedures

Form A Procedures

Inventory Parameters

1. Site Number: All sites will be assigned an old site number as well as a new site number. Old site numbers will use the existing site numbering system, while new site numbers will be assigned following completion of the mapping of all sites.

2. Inventoried By: List the names of field personnel involved in data collection.

3. Date: Month, day and year the site was evaluated (e.g., June 12, 1999 = 06/12/99)

4. Substrate of site area: Record the predominant substrate for the area of human disturbance for each site using the coded categories below.

B=bedrock - shelf bedrock, C=cobble - includes gravel size stone and up, S=sand - includes sandy soils that do not form a surface crust in trampled areas, O=soil - includes clays to loamy sands

5. Number of other sites visible: Record the number of other campsites, which if occupied, would be visible from this site.

6. Fire ring : if present or not (y or n)

a. Construction: stone/ masonry or metal

b. Condition: good=intact, functional for cooking, Poor= missing stones, broken, not functional for cooking but will contain open fire.

7. Privy: if present or not (y or n)

a. Condition: good= functional, has door, wood not deteriorated (would you use it?), Poor= nonfunctional, door missing, wood rotten,

8. Picnic table: if present or not (y or n)

a. Condition: good= usable, no broken boards, table is solid, Poor=not usable, broken/rotten boards, not sturdy

9. Tree canopy cover: Estimate the percentage of tree canopy cover directly over the campsite.

1=0-25%, 2=26-50%, 3=51-75%, 4=76-100%

Impact Parameters

The first step is to establish the sites boundaries and measure its size. The following procedures describe use of the variable radial transect method for determining the sizes of recreational sites. This is accomplished by measuring the length of linear transects from a permanently defined center point to the recreation site boundary.

Step 1. Identify Recreation Site Boundaries and Flag Transect Endpoints. Walk the recreation site boundary and place flagged wire pins at locations which, when connected with straight lines, will define a polygon whose area approximates the recreation site area. Use as few pins as necessary, typical sites can be adequately flagged with 10-15 pins. Look both directions along site boundaries as you place the flags and try to balance areas of the site that fall outside the lines with offsite (undisturbed) areas that fall inside the lines. Pins do not have to be placed on the site boundaries, as demonstrated in the diagram following these procedures. Project site boundaries straight across areas where trails enter the site. Identify site boundaries by pronounced changes in vegetation cover, vegetation height/disturbance, vegetation composition, surface organic litter, and topography. Many sites with dense forest over stories will have very little vegetation and it will be necessary to identify boundaries by examining changes in organic litter, i.e. leaves that are untrampled and intact versus leaves that are pulverized or absent. In defining the site boundaries, be careful to include only those areas that appear to have been disturbed from human trampling. Natural factors such as dense shade and flooding can create areas lacking vegetative cover. Do not include these areas if they appear "natural" to you. When in doubt, it may also be helpful to speculate on which areas typical visitors might use based on factors such as slope or rockiness.

Step 2. Select and Reference Site Center point. Select a site center point that is preferably a) visible from all site boundary pins, b) easily referenced by distinctive permanent features such as larger trees or boulders, and c) approximately 5 feet from a steel fire ring if present. Embed a 5 inch nail in the soil at the center point location so that the head is 3-4 inches below the surface. During future sight assessments a magnetic pin locator can be used to locate the center point. Next, insert a large steel stake at the center point and reference it to at least three features. Try to select reference features in three opposing directions, as this will enable future workers to triangulate the center point location. For each feature, take a compass azimuth reading and measure the distance (nearest 1/10 foot) from the center point to the center of trees or the highest point of boulders. Also measure the approximate diameter of reference trees at 4.5 feet above ground (dbh). Be extremely careful in taking these azimuths and measurements, as they are critical to relocating the center point in the future. Record this information on the back of the form.

Take a digital photograph that clearly shows the center point location in relation to nearby trees or other reference features, such as the fire ring, trees or boulders. Record a photo description, such as" center point location site 23 ", in the photo log.

Options: Some sites may lack the necessary permanent reference features enabling the center point to be accurately relocated. If only one or two permanent reference features are available, use these and take additional photographs from several angles. If permanent features are unavailable, simply proceed with the remaining steps without permanently referencing the center point. This option will introduce more error in comparisons with future measurements, particularly if the site boundaries are not pronounced. Note your actions regarding use of these options in the comment section.

Step 3. Record Transect Azimuths and Lengths. Standing directly over the center point, identify and record the compass bearing(azimuth) of each site boundary pin working in a clockwise direction, starting with the first pin clockwise of north. Be careful not to miss any pins hidden behind vegetation or trees. Be extremely careful in identifying the correct compass bearings to

these pins as error in these bearings will bias current and future measurements of site size. Next, anchor the end of your tape to the center point stake, measure and record the length of each transect (nearest 1/10 foot), starting with the same boundary pin and in the same clockwise direction as before. Be absolutely certain that the appropriate pin distances are recorded adjacent to their respective compass bearing.

Step 4. Measure island and satellite areas. Identify any undisturbed islands of vegetation inside the site boundaries (often due to the clumping of trees and shrubs) and disturbed satellite use areas outside the site boundaries (often due to tent sites or cooking sites). Use site boundary definitions for determining the boundaries of these areas. Use the geographic figure method to determine the areas of these islands and satellites (refer to the diagrams following these procedures). This method involves superimposing one or more imaginary geometric figures (rectangles, circles or right triangles) on island or satellite boundaries and measuring appropriate dimensions to calculate their areas. Record the types of figures used and their dimensions on the back of the form; the size of these areas should be computed in the office using a calculator.
Site Remeasurement: During site remeasurement use the data from the last monitoring period to reestablish the center point and all site boundary pins. If steel nails were embedded in the ground, a magnetic pin locator can assist in this process. Place flagged wire pins at each transect boundary point. Boundary locations based on the following procedures:

1. Keep the same transect length if that length still seems appropriate, i.e., there is no compelling reason to alter the initial boundary determination.
2. Record a new transect length if the prior length is inappropriate, i.e., there is compelling evidence that the present boundary does not coincide with the pin and the pin should be relocated either closer to or further away from the center point along the prescribed compass bearing. Use different colored flags to distinguish these current boundary points from the former boundaries.
3. Repeat steps 1 and 3 from above to establish additional transects where necessary to accommodate any changes in the shape of recreation site boundaries (diagram below). Also repeat step 4.
4. Leave all pins in place until all procedures are completed. Pins identifying the former site boundaries are necessary for tree damage and root exposure assessments.

These additional procedures are designed to eliminate much of the measurement error associated with different individuals making subjective judgements on those sites or portions of sites where boundaries are not pronounced. These procedures may only be used for sites whose center points can be relocated.

10. Condition class: Record the condition class you assessed for the site using the categories described earlier.

11. Vegetative ground cover on site: An estimate of the percentage of **live non-woody** vegetative ground cover (including herbs, grasses, and mosses and excluding tree seedlings, saplings, and shrubs) within the flagged campsite boundary using the coded categories listed next. Include any disturbed satellite use areas and exclude any undisturbed Island areas of vegetation. For this and the following two parameters, it is often helpful to narrow your decision to two categories and concentrate on the boundary that separates them. For example, if the vegetation cover is either category 2 (6-25%) or category 3 (26-50%), you can simplify your decision by focusing on whether vegetative cover is greater than 25%.
1=0-5%, 2=6-25%, 3=26-50%, 4=51-75%, 5=76-95%,6=96-100%

12. Vegetative ground cover offsite: An estimate of the percentage of vegetative ground cover in an adjacent but largely undisturbed "control" area. Use the codes and categories listed earlier. The control site should be similar to the campsite in slope, tree canopy cover (amount of sunlight penetrating to the forest floor), and other environmental conditions. The intent is to locate an area that would closely

resemble the campsite area had the site never been used. In instances where you cannot decide between two categories, select the category with less vegetative cover. The rationale for this is simply that, all other factors being equal, the first campers would have selected a site with the least amount of vegetation cover.

13. Soil exposure: An estimate of the percentage of soil exposure, defined as ground with very little or no organic litter (partially decomposed leaf, needle, or twig litter) or vegetation cover, within the campsite boundaries and satellite areas. Dark organic soil, which typically covers lighter colored mineral soil, should be assessed as bare soil. Assessments of soil exposure may be difficult when organic litter becomes highly decomposed and forms a patchwork with areas of bare soil. If patches of organic material are relatively thin and few in number, the entire area should be assessed as bare soil. Otherwise, the patches of organic litter should be mentally combined and excluded from assessments. Code as for vegetative cover.

14. Tree damage: Tally the number of live trees (> 1 in, diameter at 4.5 ft.) Within the campsite boundaries, including trees in undisturbed islands and excluding trees in satellite areas, into one of the rating classes described below. Assessments are restricted to trees within the flagged campsite boundaries in order to ensure consistency with future measurements. Multiple tree stems from the same species that are joined at or above ground level should be counted as one tree when assessing damage to any of its stems. Assess a cut stem on a multiple-stemmed tree as tree damage, not as a stump. Do not count tree stumps as tree damage. Take into account tree size. For example, damage for a small tree would be considerably less in size than damage for a large tree. Omit scars that are clearly not human-caused (e.g., lightning strikes).

During site remeasurement, begin by assessing tree damage on all trees within the site boundaries identified in the last measurement period. Tally the number of trees in areas where the boundary has moved closer to the center point, i.e., former site areas that are not currently judged to be part of the site separately. Place a box around this number. Next, assess tree damage in areas where boundaries have moved further from the center point, i.e. expanded site areas that are newly impacted since the last measurement period. Circle these tallies. These additional procedures are necessary in order to accurately analyze changes in tree damage over time.

None/Slight- No or slight damage such as broken or cut smaller branches, one nail, or a few superficial trunk scars.

Moderate- Numerous small trunk scars and/or nails or one moderate-sized scar.

Severe- Trunk scars numerous with many that are large and have penetrated to the inner wood; any complete girdling of trees (cut through tree bark all the way around tree).

15. Root exposure: Tally the number of live trees (> 1 in, diameter at 4.5 ft.) Within the campsite boundaries, including trees in undisturbed islands and excluding trees in satellite areas, into one of the rating classes described below. Assessments are restricted to trees within the flagged campsite boundaries in order to ensure consistency with future measurements. Where obvious, omit exposed roots that are clearly not human-caused (e.g., stream/river flooding).

During site remeasurement, begin by assessing root exposure on all trees within the site boundaries identified in the last measurement period. Tally the number of trees in areas where the boundary has moved closer to the center point, i.e., former site areas that are not currently judged to be part of the site separately. Place a box around this number. Next, assess root exposure in areas where boundaries have moved further from the center point, i.e. expanded site areas that are newly impacted since the last measurement period. Circle these tallies. These additional procedures are necessary in order to accurately analyze changes in root exposure over time.

None/Slight- No or slight root exposure such as is typical in adjacent offsite areas.

Moderate- Top half of many major roots exposed more than one foot from base of tree.

Severe- Three-quarters or more of major roots exposed more than one foot from base of tree; soil erosion obvious.

16. Number of tree stumps: A count of the number of tree stumps (> 1 in. Diameter) within the campsite

boundaries. Include trees within undisturbed islands and exclude trees in disturbed satellite areas. Do not include cut stems from a multiple-stemmed tree.
During site remeasurement, begin by assessing stumps on all trees within the site boundaries identified in the last measurement period. Tally the number of trees in areas where the boundary has moved closer to the center point, i.e., former site areas that are not currently judged to be part of the site separately. Place a box around this number. Next, assess stumps in areas where boundaries have moved further from the center point, i.e. expanded site areas that are newly impacted since the last measurement period. Circle these tallies. These additional procedures are necessary in order to accurately analyze changes in stumps over time.
17 Number of trails: A count of all trails leading away from the outer campsite boundaries. Do not count extremely faint trails that have untrampled tall herbs present in their tread or trails leading out to any satellite sites.
18. Number of fire sites: A count of each fire site within campsite boundaries, including satellite areas. Include old inactive fire sites as exhibited by blackened rocks, charcoal, or ashes. Do not include areas where ashes or charcoal have been dumped. However, if it is not clear whether or not a fire was built on the site, always count questionable sites that are within site boundaries and exclude those that are outside site boundaries.
19. Litter/trash: Evaluate the amount of litter/trash on the site: N= None or less than a handful, S=some-a handful up to enough to fill a 2-1/2-gallon bucket, M=Much- more than a 2-1/2-gallon bucket.
20. Human waste: Follow all trails connected to the site to conduct a quick search of likely "toilet" areas, typically areas just out of sight of the campsite. Count the number of individual human waste sites, defined as separate locations exhibiting toilet paper and/or human feces. The intent is to identify the extent to which improperly disposed human feces is a problem. Use the following code categories: N=None, S=Some-1-3 sites, M=Much-4 or more sites evident.
21) Comments/Recommendations: An informal list of comments concerning the site: note any assessments you felt were particularly difficult or subjective, problems with monitoring procedures or their application to this particular campsite, or any other comment.
22) Campsite photograph: Select a good vantage point for viewing the entire campsite, preferably one of the site boundary pins, and take a digital picture of the campsite. Note the azimuth and distance from the center point to the photo point and record on the form. The intent is to obtain a photograph that includes as much of the site as possible to provide a photographic record of site condition. The photo will also allow future workers to make a positive identification of the site. Label disks with date, and site number.
23) Total campsite area: Calculate the campsite area based on the recorded transect measurements. Add the area of any satellite sites and subtract the area of any undisturbed islands to obtain the Total Campsite Area. Record campsite area to nearest square foot (ft^2).

Form B Procedures

Refer to the procedures described earlier, all procedures are the same with the exception of campsite size. Measure campsite size using the geometric figure method. Typically, class 1 and 2 campsites are quite small in size and this method should be both efficient and accurate. Be sure to record on form B the types of figures used (rectangle, square, triangles...etc.) And all necessary dimensions. Record campsite area to nearest square foot (sq.ft).

Appendix S - Unit Management Planning Process

The development of UMP's for classified public lands in the Forest Preserve should follow a stepwise process that will culminate in the preparation of a draft and final UMP.

The eight tasks in this process are:

1. Conduct a comprehensive ***Resource and Use Inventory and Analysis***.

2. Develop and implement a comprehensive ***Public Participation Plan***.

3. Prepare a ***Management and Policy Overview***.

4. Propose ***Goals, Objectives, and Management Actions*** for the Area.

5. Prepare a ***Draft Unit Management Plan For Public Review.***

6. Meet appropriate ***SEQRA*** requirements.

7. Prepare a ***Draft UMP for Determination of APSLMP Compliance by the APA***.

8. Prepare the ***Final UMP***.

The activities associated with these eight tasks are described below.

Task 1 - Conduct a Comprehensive Resource and Use Inventory and Analysis

Conduct an inventory of the natural, scenic, cultural, wildlife (including game and non-game species) and other appropriate resources along with an analysis of the area's ecosystems. (See page 9 of the June 2001 version of the APSLMP for minimum necessary information to be contained in each section of the UMP as they relate to the inventories below).

Conduct an inventory of natural resources including an assessment of physical resources (geology, soils, topography, water, wetlands, air and climate), biological resources and ecological communities (plant life, wildlife and fish) and scenic resources (travel corridors, observation points, open space and other natural areas) and information, such as the occurrence of general vegetative community types.

Conduct an inventory of all existing man-made facilities for public or administrative use in the unit. Conduct an assessment of existing facilities to determine compliance with ADAAG and proposed ADAAG. For trail assessments the Universal Trails Assessment Program (UTAP) will be used. Utilize the Maintenance Management System (MMS) format for the inventory of all man-made facilities in the unit. All point and line data will be gathered using global positioning system (GPS) technology and organized to be suitable for incorporation into the Department's Geographic Information System (GIS).

Conduct an inventory of past influences and existing cultural and historic resources that are found in the unit.

Conduct an inventory of the types and extent of actual and projected public use within the unit. This inventory should involve a review of information gathered at trailhead and waterway access site registers

and interviews with Department staff and the public.

Conduct an inventory and evaluation of existing recreational opportunities available to persons with disabilities within the unit.

Conduct an assessment of the relationship between public and private land in the vicinity of the unit. This assessment will include an examination of the impacts of public land ownership and use on adjacent private lands and nearby communities, and vice versa.

Conduct an assessment of the physical, biological, and social carrying capacity of the resources of the unit, with particular attention to portions of the area threatened by overuse in light of its resource limitations and classification. Identify existing and potential resource concerns related to the impacts of present and projected use on the resources of the area.

Identify current activities related to the use of the area for education, interpretation and research.

Task 2 - Public Participation

Develop and implement a comprehensive public participation plan designed to assure participation in the planning process by all stakeholders including, but not limited to, local governments, tourist-oriented businesses, recreation advocates, and people with disabilities, environmental groups, and neighboring landowners. At a minimum, the plan must involve:

The compilation of a mailing list of all identified stakeholders.

The development of a press release and the mailing of an announcement of the beginning of the planning process with a request for comments.

The holding of two public meetings at which the public comment will be effectively and efficiently received and recorded. One meeting shall be held early in the planning process to present information about the planning area to the public and to receive preliminary comments. Another meeting shall be held to present the draft UMP and receive public comments on the document. A third public meeting may be required as part of the SEQRA process.

A description of the methods to be used to analyze oral and written public comments and incorporate them into the UMP. The analysis of public comments should include a review of the existing resources.

The preparation of a responsiveness survey which documents a summary of all public comments received.

Task 3 - Prepare a Management and Policy Overview for the Area

Prepare a management and policy overview of the area that identifies the following:

Past Management - Assess past management activities in the unit, including Department management activities, academic research projects and activities undertaken by organizations outside the Department, such as Americorps.

Management Guidelines - Identify existing guidelines for the management, development or other use of the area including provisions of the State Constitution, the guidelines and criteria set forth in the

APSLMP, the ECL and related rules and regulations, Department policies and other Federal and State laws, rules, regulations, policies and plans that are relevant to the use and management of Forest Preserve lands in the Adirondack Park classified as Wild Forest. Identify any deed restrictions and deeded private rights that exist for the area.

Management Principles - Identify management policies and principles that exist to guide the Department in managing Forest Preserve units.

Issues - Prepare a list of the management issues to be addressed in the UMP that were identified in Task 1.

Task 4 - Propose Management Goals, Objectives, and Actions for the Area

Based on information gathered during the resource inventory, through public input and in consultation with the UMP Team, propose management goals, objectives, and action for the unit.

Develop ***Goals and Objectives*** that will guide the management of the area for the next five years. Proposed goals and objectives must reflect existing legal requirements, such as the New York State Constitution, the APSLMP, and the Environmental Conservation Law, as well as Department policies and established management principles. They must be refined through an analysis of the area's natural resource characteristics and an assessment of the recommendations made to the Department by local governments, organizations, and individuals in the course of the public participation process.

Work with the UMP Team to identify the specific ***Management Actions*** needed to meet the goals and objectives of the UMP. Each action or group of actions proposed to address major issues will be presented along with a complete analysis of alternatives.

Task 5 - Prepare Draft Unit Management Plan

Prepare a Draft Unit Management Plan after completion of Tasks 1-3 above:

Prepare an ***Executive Brief***. The executive brief will list the major management issues identified during the planning process, describe the level of controversy associated with each issue, and describe the management actions proposed to address the issues, along with the alternatives considered.

Prepare a ***Preliminary Draft UMP***. The preliminary draft UMP will present the information gathered in Tasks 1 through 3 above and the management goals, objectives, and actions as described in Task 3. The content and organization of the preliminary draft UMP will correspond to the UMP template.

After review of the preliminary draft UMP, incorporate necessary modifications, and prepare a ***Draft UMP for Public Review***.

Complete a long Environmental Assessment Form (EAF), if necessary. The long EAF is not required when writing an Environmental Impact Statement (EIS).

Prepare a positive or negative declaration.

Prepare the draft UMP in the form of a Draft Environmental Impact Statement (DEIS) if required.

Task 6 - Public Participation

Implement the final steps of a Department-prescribed comprehensive public participation plan. This portion of the public participation plan will involve:

- The holding of an open house style public meeting to present the draft UMP and receive public comments on the document. The meeting may also serve to meet SEQRA requirements.
- An analysis of oral and written public comments. The results of the comment analysis will be incorporated in the final draft UMP.
- The preparation of a comment and response summary to be included as an Appendix to the final draft UMP.

Task 7 -Prepare Final Draft UMP for Determination of APSLMP Compliance by the APA.

After review of the draft UMP by the public, incorporate necessary modifications and prepare a final draft UMP for submission to the APA. The final draft UMP will be subject to the requirements of the SEQRA. The potential impacts of various, and presently unknown, proposals within the UMP will determine whether an environmental impact statement will be required. If actions recommended within the UMP are deemed to have a significant potential for negative impacts, then appropriate changes will be made in the UMP format to incorporate the required EIS content in to the UMP. The preparation of an EIS will not involve a separate process resulting in the production of a second document, but rather a single UMP/EIS document. The most significant feature of the EIS format will be an alternative analysis for key issues deemed to have a significant potential for adverse impacts. The alternative analysis will be placed under the appropriate issue area heading shown in Section IV, "Proposed Management."

Task 8 - Prepare Final Unit Management Plan

After review of the final draft UMP by the APA, incorporate necessary modifications and prepare a ***Final UMP*** for the Department Commissioner approval. The final UMP will meet the requirements of the SEQRA. Prepare a findings statement, if required.

Appendix T - Best Management Practices for Invasive Species Control on State Lands not included in the Forest Preserve

BEST MANAGEMENT PRACTICES

Applicability

These Best Management Practices (BMP's) are intended for use by those applying for and implementing terrestrial invasive plant species management activities on State Lands under an Adopt-A-Natural-Resource Agreement (AANR). The following document contains acceptable practices for control of the following four terrestrial invasive species: purple loosestrife (Lythrum salicaria), Japanese, giant and bohemian knotweed (Fallopia japonica ssp. japonica, F. sachalinensis, and F. x. bohemica), common reed (Phragmites australis ssp. australis), garlic mustard (Alliaria petiolata). .

Additional Management guidelines have been established for Terrestrial Invasive species through the development of the APA/DEC MOU which was developed in June of 2007.

The following management options, should be selected with consideration for the location and size of the infestations, the age of the plants, past control methods used at the site, time of year, weather conditions and adjoining and nearby land uses.

Other management approaches not identified here may be appropriate but must be approved by the Regional Land Manager of the NYS Department of Environmental Conservation in the region where the proposed invasive plant control activity will take place.

Within the Park there are several geographic and geophysical settings (at the location of the target plant(s)) that need to be considered when determining appropriate BMP's and the regulatory instruments needed prior to their implementation. These settings and relevant action are:

1. In or within 100' of a wetland on private or public lands -- requires a general permit from the Adirondack Park Agency.
2. In wetlands with standing water -- only a glyphosate with a surfactant formulation may be used.
3. In wetlands with no standing water -- either the RODEO®, ROUNDUP ® or the AQUAMASTER® formulation may be used.
4. In uplands either ROUNDUP®, AQUAMASTER® or Glypro may be used.
5. Forest Preserve lands -- requires an AANR from the Department of Environmental Conservation and, if wetlands are involved, an Adirondack Park Agency permit.

GENERAL PRACTICES

1. Erosion Control - Some of the methods described below require actual digging or pulling of plants from the soil. In all cases they require removal of vegetation whether or not there is actual soil disturbance. Each situation must be studied to determine if the proposed control method and extent of the action will destabilize soils to the point where erosion is threatened. Generally if more than 25 square feet of soil surface is cleared or plant removal occurs on steep slopes staked silt fencing should be installed and maintained.

2. Revegetation - Although not a specific condition, replanting or reseeding with native species is highly desired. All of the control methods below are aimed at reducing or eliminating invasive species so that natives are encouraged to grow and re-establish stable conditions that are not conducive to invasive colonization. In most cases removal or reduction of invasive populations will be enough to release native species and re-establish their dominance on a site.

3. Herbiciding - The only herbicide application allowed is spot treatment to individual plants using a back pack or hand sprayer, wick applicator, cloth glove applicator, stem injection or herbicide clippers. No broadcast herbicide applications using, for example, a truck-mounted sprayer, are allowed. The only herbicides contemplated and approved for use are glyphosate which is marketed under the trade names ROUNDUP®, RODEO®, Glypro or AQUAMASTER®. and triclopyr marketed under the trade name GARLON®. ROUNDUP® may be used only in situations where there is no standing water including wetlands, whereas RODEO® may be used where standing water is present. GARLON® is to be used only in upland situations. In all cases all herbicide directions for use and restrictions found on the label must and shall be followed by a New York State Certified Applicator or Technician in an appropriate category. Glyphosate and triclopyr is a non-selective herbicides that are applied to plant foliage or cut stems and are then translocated to the roots. The application methods described and allowed are designed to reduce or eliminate the possibility that non-target species will be impacted by the herbicide use. All herbicide spot treatments require follow-up inspection later in the growing season or the following year to re-treat any individuals that were missed.

4. Equipment Sanitation - All equipment used for invasive species control, whether it be hand or power driven, must be cleaned prior to entering onto a control site and prior to leaving the site. This is an effort to reduce transport of invasive plant seeds or plant propagules and reduce the potential for new invasive introductions. Use steam or hot water to clean equipment.

5. Material Collection and Transportation – While on the control site place all cut plant material in heavy duty, 3 mil or thicker, black contractor quality plastic clean-up bags. Securely tie the bags and transport from the site in a truck with a topper or cap in order to prevent spread or loss of the plant material during transport from the control work site to the appropriate staging or disposal location. The main root structure, root fragments and/or horizontal rhizomes from harvested controlled Japanese, giant or bohemian knotweed infestation should be bagged only to facilitate transport to an appropriate staging area. All knotweed root structure, root fragments and rhizome propagules should be separately bagged from any cut, aerial canes and crowns. Over an open bag, remove as much adherent soil as possible from the root/rhizome structure prior to spreading the root/rhizome parts out onto a secure, impervious surface. Once completely dried out the root/rhizome structure may be burned or disposed of in an approved landfill.

The mature, upright stems and canes of common reed and the knotweeds can be cut, formed into bundles and securely bound with rope or twine. The bundles may then be transported to an appropriate staging or disposal location that has an impervious or near-impervious surfaced area. After the bundles have completely dried out they may be burned at an approved incinerator or burn pit with appropriate permit.

6. Composting - Because of the extremely robust nature of invasive species, composting in a typical backyard compost pile or composting bin is not appropriate. However, methods can be used whereby sun-generated heat can be used to destroy the harvested plant materials. For instance, storage in a sealed 3 mil thickness (minimum) black plastic garbage bags on blacktop in the sun until the plant materials liquefy is effective. If a larger section of blacktop is available, make a black plastic (4 mil

thickness minimum) envelope sealed on the edges with sand bags. The plant material left exposed to the sun will liquefy in the sealed envelope without danger of dispersal by wind. The bags or envelopes must be monitored to make sure the plants do not escape through rips, tears or seams in the plastic. When composting is suggested later in the text it is understood that liquefying the plant material in or under plastic is the desired action; not disposal in backyard composters or open landfill composting piles.

CONTROL METHODS FOR PURPLE LOOSESTRIFE (Lythrum salicaria)

PLANT DESCRIPTION

Purple loosestrife is a wetland perennial native to Eurasia that forms large, monotypic stands throughout the temperate regions of the U.S. and Canada. It has a vigorous rootstock that serves as a storage organ, providing resources for growth in spring and re-growth if the plant has been damaged from cuttings. New stems emerge from the perennial roots enabling the plant to establish dense stands within a few years. Seedling densities can approach 10,000-20,000 plants/m5 with growth rates exceeding 1 cm/day. A single, mature plant can produce more than 2.5 million seeds annually which can remain viable after 20 months of submergence in water. In addition, plant fragments produced by animals and mechanical clipping can contribute to the spread of purple loosestrife through rivers and lakes.

MANAGEMENT OPTIONS

1. Digging/pulling

Effectiveness:
Can be effective in small stands i.e.,<100 plants, low-med density(1-75%area), & <3 acres, especially on younger plants.

Methods:
Hand-pull plants<2 years old. Use mini-tiller for plants>2 years - gets most of roots w/minimum soil disturbance, has 3 heavy duty prongs on 1 side that are pushed under base of plant, then pry back on handle to leverage plant out of ground. Tamp down all disturbed soil surfaces. Use weed wrench for plants > 2 years old - good w/minimal soil disturbance. In mucky conditions, put base of wrench on small piece of wood (e.g.: piece of 2x4) to keep wrench from sinking into mud. Use shovel for plants > 2 years old - dig up plant, then replace soil and any existing cover.

Cautions:
May increase habitat disturbance & increase spread of loosestrife. Requires follow-up treatments of sites for 3 years to eliminate re-sprouting from rhizome fragments left behind. Must pull/dig ENTIRE rootstock or re-rooting will occur. Must pull/dig before the plants begin setting seed or must remove flower/seed heads first (cut & place into bags) to prevent spread of seeds. Also remove previous year's dry seed heads. Erosion control may be necessary if greater than 25 square feet of soil surface is disturbed.

Disposal:
Bag all plant parts & remove from site. Compost at DOT Residency, dispose of in approved landfill or incinerate with appropriate permits.

Sanitation:
Clean all clothing, boots, tools, equipment and transport vehicle to prevent spread of seed.

2. Cutting

Effectiveness:
Can be effective in small stands i.e.<100 plants, low-med density (1-75%area), & <3 acres, especially on younger plants.

Methods:
Remove flower heads before they go to seed so seed isn't spread during the cutting or mowing activity. Must do repeated cutting & mulching to permit growth of grasses.

Cautions:
Need to repeat for several years to reduce spread of plants. Doesn't affect rootstalk & thus, cut pieces can be spread that will re-sprout. Once severed, stems are buoyant and may disperse to other areas and re-sprout. Removal of seed heads should be done as late in the growing season as possible yet before seed set. Early cutting without additional seed head harvest could allow re-sprouting with greater subsequent seed production.

Disposal:
Bag all plant parts & remove from site (compost at DOT Residency, dispose of in approved landfill or incinerate with appropriate permits).

Sanitation:
Clean all clothing, boots, & equipment to prevent spread of seed.

3. Herbicide

Effectiveness:
Use when>100 plants & <3-4 acres in size.

Methods:
Use glyphosate formulations only. If possible spray seedlings before they reach 12" in height. Cut and bag flower heads before applying herbicide. Apply prior to or when in flower (late July/Aug) so plants are actively growing.
For spot application use:
- sponge tip applicator w/wick.
- Injection into stem (w/large gauge needle).
- 32 oz. commercial-grade spray bottle with adjustable nozzle.

Cautions:
This herbicide is not selective (kills both monocots & dicots), thus should be applied carefully to prevent killing of non-target species. All treatment mixes should be mixed with clean (ideally distilled) water because glyphosate binds tightly to sediments, which reduces toxicity to plants. Do not apply in windy conditions because spray will drift and kill other plants. Do not apply if rain is forecast within 12 hours because herbicide will be washed away before it can act. Choose Rodeo® formulation for applications in standing water or along a shoreline.

4. Biocontrol

Two species of leaf-feeding beetle, Galerucella calmariensis and G. pusilla, have been shown to be effective in controlling purple loosestrife. Over 5 million of these beetles have been released in 30 states including New York, the northeastern and midwestern states as well as all of the Canadian Provinces. The beetles have shown dramatic decreases in purple loosestrife populations with subsequent increases in populations of native species. The scientific literature indicates that the beetles are very specific to purple loosestrife with only minor Aspillover@ effects that do not compromise non-target plant populations.

Effectiveness:
Use if site has at least a half acre of purple loosestrife of medium to thick density.
Best type of control for large patches of loosestrife>3-4 acres.

Methods:
The number of beetles released per site should be based on the size of the site, the density of loosestrife and the economics of purchase. More beetles are generally better than fewer.

Cautions:
Use only if mowing, pesticide and herbicide use are not active practices on the site.
The site must not be permanently flooded and should be sunny. Use only if winged loosestrife, (Lythrum alatum) and waterwillow (Decodon verticillatus) are not major components of the plant community on the release site.

CONTROL METHODS FOR COMMON REED (Phragmites australis ssp. australis)

PLANT DESCRIPTION

Phragmites is a perennial grass that can grow to 14 feet in height. Flowering and seed set occur between July and September, resulting in a large feathery inflorescence, purple-hued turning to tan. Phragmites is capable of vigorous vegetative reproduction and often forms dense, virtually monospecific stands. It is unclear what proportion of the many seeds that Phragmites produces are viable. Please note that identification of phragmites should be done by a professional botanist prior to treatment to distinguish the invasive non-native race from the non-invasive native.

MANAGEMENT OPTIONS

1. Cutting / Mulching

Effectiveness:
Need to repeat annually for several years to reduce spread of plants. Hand-pulling, though labor intensive, is an effective technique for controlling common reed in small areas with sandy soils.
Can be effective in small stands i.e.<100 plants, low-med density (1-75%area) & <3 acres. The cutting of larger stands having high stem densities is not an effective control method unless coupled with an immediate application of glyphosate to the freshly-cut, stem cross sections or with a cut-stem injection of glyphosate.

Methods:
The best time to cut common reed is when most of food reserves are in aerial portion of plant when close to tassel stage, e.g.: at end of July/early August to decrease plant's vigor. Some patches may be too large to cut by hand, but repeated cutting of the perimeter of a stand can prevent vegetative expansion. Common reed stems should be cut below the lowest leaf, leaving a 6" or shorter stump.
Hand-held cutters and gas-powered hedge trimmers work well. Weed whackers with a circular blade were found to be particularly efficient, though dangerous. Cut and mulch dead stems in winter to remove them and promote germination of other species. Repeat in second year and then every 3-5 years.

Cautions:
Since common reed is a grass, cutting several times during a season, at the wrong times, may increase stand density. However, if cut in late July/early August, most of the food reserves produced that season are removed with the aerial portion of the plant, reducing the plant's vigor. This cutting regime may eliminate smaller colonies if carried out annually for several years. Manual or mechanical cuttings of larger, high density, monospecific common reed stands without the application of glyphosate, is not recommended.

Disposal:
Cut material should be removed from the site and composted or allowed to decay on the upland to prevent sprouting and formation of rhizomes. Do not attempt to compost rhizomes.

Sanitation:
Clean all clothing, boots, & equipment to prevent spread of seed.

2. *Herbicide*

Effectiveness:
Herbicide use is a 2 year, 2 step process because the plants may need a "touch-up@ application, especially in dense stands since subdominant plants are protected by thick canopy & may not receive adequate herbicide in the first application.

Methods:
Use glyphosate formulations only. Apply after tasseling stage when nutrients going back to rhizome and will translocate herbicide into roots. After 2 to 3 weeks following application of glyphosate, cut or mow down the stalks to stimulate the emergence and growth of other plants previously suppressed. If the plants are too tall to spray, cut back in mid summer and apply glyphosate using a spray bottle for individual foliar spot treatments or swab, syringe w/large gauge needle or Nalgene wide-mouth, Unitary wash bottle to apply 1-2 drops of 50% glyphosate solution directly into each cut stem.

Cautions:
This herbicide is not selective (kills both monocots & dicots), thus should be applied carefully to prevent killing of non-target species. All tank mixes should be mixed with clean (ideally distilled) water because glyphosate binds tightly to sediments, which reduces toxicity to plants. Do not apply in windy conditions because spray will drift and kill other plants. Do not apply if rain is forecast w/in 12 hours because herbicide will be washed away before it can act. Choose Rodeo® formulation for applications in standing water or along a shoreline.

3. Black Plastic

Effectiveness:
Can be effective in small stands i.e. :<100 plants, low-med density(1-75%area). Plants die off w/in 3-10 days, depending on sun exposure.

Methods:
Cut plants first to 6-8" (hand-pushed bush hog or week whacker w/blade). After cutting a stand of common reed, anchor a sheet of black plastic or dark tarp over the cut area using sand bags or rocks. High temperatures under the plastic will eventually kill off the plants. This technique works best when the treated area is in direct sunlight. Plastic should be at least 6 millimeters thick. Hold plastic in place with sandbags, rocks, biodegradable stakes, etc. Can treat runners along the plastic edges with a spot application of Rodeo® or Roundup®. The plastic can be removed the following year when the covered plants have been killed. A few common reed shoots may return. These can be cut, hand-pulled or re-treated with appropriate herbicide.

Cautions:
Must monitor to determine if shoots are extending out from under the plastic.

Disposal:
Can leave cut material under plastic or bag all plant parts & remove from site (compost at DOT Residency, dispose of in approved landfill or incinerate with appropriate permits.

Sanitation:
Clean all clothing, boots, & equipment to prevent spread of seed.

4. Pulling

Effectiveness:
Can be effective in small stands i.e. <100 plants. Very labor intensive control method, best results when infestation occurs in sandy soils.

Methods:
Hand-pull plants <2 years old. Use shovel for plants >2 years old-dig up plant, then replace soil and any existing cover.

Disposal:
Bag all plant parts & remove from site (compost at DOT Residency, dispose of in approved landfill or incinerate with appropriate permits).

Sanitation:
Clean all clothing, boots, & equipment to prevent spread of seed.

6. Excavation

Effectiveness:
Can be effective for patches up to 2 acre. Cost is the limiting factor.

Methods:

When working in wetlands only tracked equipment shall be used. Rubber-tired excavators can operate from adjacent pavement or upland areas.

Cautions:
The patch should be excavated to below the depth of rhizome development. Follow-ups later in the season or the following year must be conducted to verify that all the plants have been removed

Disposal:
Bag all plant parts & remove from site (compost at DOT Residency, dispose of in approved landfill or incinerate with appropriate permits).

Sanitation:
Clean all clothing, boots, & equipment to prevent spread of seed.

CONTROL METHODS FOR GARLIC MUSTARD (Alliaria petiolata)

PLANT DESCRIPTION

Garlic mustard is a naturalized European biennial herb that typically invades partially shaded forested and roadside areas. It is capable of dominating the ground layer and excluding other herbaceous species. Its seeds germinate in early spring and develops a basal rosette of leaves during the first year. Garlic mustard produces white, cross-shaped flowers between late April and June of the following spring. Plants die after producing seeds, which typically mature and disperse in August. Normally its seeds are dormant for 20 months and germinate the second spring after being formed. Seeds remain viable for up to 7 years.

MANAGEMENT OPTIONS

1. *Pulling.*

Effectiveness:
Hand pulling is an effective method for removing small populations of garlic mustard, since plants pull up easily in most forested habitats. It is best to pull plants when seed pods are not yet mature, but they can be pulled during most of the year.

Methods:
Soil should be tamped down firmly after removing the plant. Soil disturbance can bring existing garlic mustard seed bank to the surface, thus creating a favorable environment for additional germination within the control site.

Cautions:
Care should be taken to minimize soil disturbance but to remove all root tissues. Re-sprouting may occur from mature plants root systems if not entirely removed. Cutting is preferred to pulling when garlic mustard infestations are interspersed amongst native grasses/forbs or other sensitive or rare flora.

Disposal:
If plants have capsules present, they should be bagged and disposed of to prevent seed dispersal. Bag all plant parts & remove from site (compost at DOT Residency, dispose of in approved landfill or incinerate with appropriate permits).

Sanitation:
Clean all clothing, boots, & equipment to prevent spread of seed.

2. Cutting

Effectiveness:
Cutting is effective for medium-to large-sized populations depending on available time and labor resources. Dormant seeds in the soil seed bank are unaffected by this technique due to minimal disturbance of the soil.

Methods:
Cut stems when in flower (late spring/early summer) at ground level either manually (with clippers or a scythe) or with a motorized string trimmer. This technique will result in almost total mortality of existing plants and will minimize re-sprouting.

Cautions:
Cuttings should be conducted annually for 5 to 7 years or until the seed bank is depleted.

Disposal:
Cut stems should be removed from the site when possible since they may produce viable seed even when cut. Bag all plant parts & remove from site (compost at DOT Residency, dispose in approved landfill or incinerate with appropriate permits).

Sanitation:
Clean all clothing, boots, & equipment to prevent spread of seed.

3. Herbicide

Effectiveness:
Roundup will not affect subsequent seedling emergence of garlic mustard or other plants.

Methods:
Use glyphosate formulations only. Should be applied after seedlings have emerged, but prior to flowering of second-year plants. Application should be by spray bottle or wick applicator for individual spot treatments.

Cautions:
This herbicide is not selective (kills both monocots & dicots), thus should be applied carefully to prevent killing of non-target species. All tank mixes should be mixed with clean (ideally distilled) water because glyphosate binds tightly to sediments, which reduces toxicity to plants. Do not apply in windy conditions because spray will drift and kill other plants. Do not apply if rain is forecast w/in 12 hours because herbicide will be washed away before it can act. Choose Rodeo® formulation for applications in standing water or along a shoreline.

CONTROL METHODS FOR JAPANESE, GIANT AND BOHEMIAN KNOTWEED (Fallopia japonica ssp. japonica, F. sachalinensis, and F. x. bohemica)

PLANT DESCRIPTION

The knotweeds are herbaceous perennials which forms dense clumps 1-3 meters (3-10 feet) high. Its broad leaves are somewhat triangular and pointed at the tip. Clusters of tiny greenish-white flowers are borne in upper leaf axils during August and September. The fruit is a small, brown triangular achene. Knotweed reproduces via seed and by vegetative growth through stout, aggressive rhizomes. It spreads rapidly to form dense thickets that can alter natural ecosystems. Japanese knotweed can tolerate a variety of adverse conditions including full shade, high temperatures, high salinity, and drought. It is found near water sources, in low-lying areas, waste places, and utility rights of way. It poses a significant threat to riparian areas, where it can survive severe floods.

MANAGEMENT OPTIONS

1. Digging

Effectiveness:
This method is appropriate for very small populations.

Methods:
Remove the entire plant including all roots and runners using a digging tool. Juvenile plants can be hand-pulled depending on soil conditions and root development.

Cautions:
Care must be taken not to spread rhizome or stem fragments. Any portions of the root system or the plant stem not removed will potentially re-sprout.

Disposal:
All plant parts, including mature fruit, should be bagged and disposed of in the trash to prevent re-establishment (stockpile at DOT Residency, dispose of in an approved landfill or incinerate with appropriate permits).

Sanitation:
Clean all clothing, boots, & equipment to prevent spread of seed.

2. Cutting

Effectiveness:
Repeated cutting may be effective in eliminating Japanese knotweed. Manual control is labor intensive, but is a good option where populations are small and isolated or in environmentally sensitive areas.

Methods:
Cut the knotweed close to the ground at least 3 times a year. Plant native species as competitors as an alternative to continued treatment.

Cautions:
This strategy must be carried out for several years to obtain success. Both mechanical and herbicidal control methods require continued treatment to prevent reestablishment of knotweed.

Disposal:
Bag all plant parts & remove from site (stockpile at DOT Residency, dispose of in an approved landfill or incinerate with appropriate permits).

Sanitation:
Clean all clothing, boots, & equipment to prevent spread of seed.

3. Herbicide

Effectiveness:
Glyphosate treatments in late summer or early fall are much more effective in preventing re-growth of Japanese knotweed the following year.

Methods:
Use glyphosate formulations only. In late June/early July cleanly cut or mow down existing stalks/canes. Allow the knotweed to re-grow. After August 1, spray knotweed all re-growth with ROUNDUP®, RODEO®.

A cut-stem treatment utilizing glyphosate formulations can be an effective control for smaller colonies of knotweed. In early to mid-July cut the existing stems just below the 2nd or 3rd node above the soil surface. Immediately after cutting apply by swab or small spray bottle a 50% solution of glyphosate to the freshly-cut cross section and into the internodal cavity of each stalk/cane. Monitor treatment area by early to mid-August and repeat cut-stem treatment to any residual stems.

Stem injection is another promising control method for smaller colonies of knotweeds. Currently, a supplemental label for AQUAMASTER® (glyphosate) herbicide exists for this stem injection method. In late June/early July inject 5 mLs of AQUAMASTER® below the 2nd node above the ground of each stem in the clump. Use suitable equipment that must penetrate into the internode region. JKInternational manufactures a stem injection tool that is suitable and recommended for this control method.

Cautions:
Established stands of Japanese knotweed are difficult to eradicate even with repeated herbicide treatments. However, herbicide treatments will greatly weaken the plant and prevent it from dominating a site. Adequate control is usually not possible unless the entire stand of knotweed is treated (otherwise, it will re-invade via creeping rootstocks from untreated areas). These herbicides are not selective (kills both monocots & dicots), thus should be applied carefully to prevent killing of non-target species. All tank mixes should be mixed with clean (ideally distilled) water because glyphosate binds tightly to sediments, which reduces toxicity to plants. Do not apply in windy conditions because spray will drift and kill other plants. Do not apply if rain is forecast w/in 12 hours because herbicide will be washed away before it can act. Choose Rodeo® formulation for applications in standing water or along a shoreline.

CONTROL METHODS FOR JAPANESE, MORROW'S, TATARIAN, AMUR AND BELL'S HONEYSUCKLES (Lonicera morrowii, L. tatarica, L. japonica, L. maackii, L. x. bella)

PLANT DESCRIPTION – JAPANESE HONEYSUCKLE

Japanese honeysuckle (Lonicera japonica) is a perennial trailing or climbing woody vine of the honeysuckle family (Caprifoliaceae) that spreads by seeds, underground rhizomes, and aboveground runners. It has opposite leaves that are ovate, entire (young leaves often lobed), 4-8 cm long, with a short petiole, and variable pubescence. In the southern part of the range the leaves are evergreen, while in more northern locales the leaves are semi-evergreen and fall off in midwinter. Young stems are reddish brown to light brown, usually pubescent, and about 3 mm in diameter. Older stems are glabrous, hollow, with brownish bark that peels in long strips. The woody stems are usually 2-3 m long, (less often to 10 m). Lonicera japonica creates dense tangled thickets by a combination of stem branching, nodal rooting, and vegetative spread from rhizomes.

Lonicera japonica (including the varieties) is easily distinguished from native honeysuckle vines by its upper leaves and by its berries. The uppermost pairs of leaves of Lonicera japonica are distinctly separate, while those of native honeysuckle vines are connate, or fused to form a single leaf through which the stem grows. Lonicera japonica has black berries, in contrast to the red to orange berries of native honeysuckle vines. The fruits are produced September through November. Each contains 2-3 ovate to oblong seeds that are 2-3 mm long, dark-brown to black, ridged on one side and flat to concave on the other.

The fragrant white (fading to yellow) flowers of Lonicera japonica are borne in pairs on solitary, axillary peduncles 5-10 mm long, supported by leaflike bracts. The species has white flowers tinged with pink and purple. Individual flowers are tubular, with a fused two-lipped corolla 3-4(-5) cm long, pubescent on the outside. Flowers are produced late April through July, and sometimes through October.

MANAGEMENT OPTIONS

1. Mowing and Pulling

Effectiveness
Removing the above-ground portion of Lonicera japonica reduces current-year growth but does not kill the plant, and generally stimulates dense regrowth. Cut material can take root and should therefore be removed from the site (not practical with most infestations).

Methods
Hand pulling is highly effective. Pull out Japanese honeysuckle by the roots in winter wherever it climbs, aim the roots upward and tie them in place. The absence of light energy causes the trailing vines to decline precipitously next year. This method greatly reduces spraying requirements.

Cautions
Mowing is an ineffective control method, stimulating growth and encouraging formation of dense, albeit shorter, mats. Bush-hogging is an ineffective control, as Lonicera japonica re-invades within one growing season.

2. Herbicide

Effectiveness

In northern states, Lonicera japonica retains some leaves through all or most of the winter (semi-evergreen or evergreen), when most native plants have dropped their leaves. This provides a window of opportunity from mid-autumn through early spring when it is easier to spot and treat with herbicides, fire or other methods without damaging native species.

Controls
A foliar application of 1.5% glyphosate shortly after the first frost appears to be the most effective treatment, applied after native vegetation is dormant and when temperatures are near and preferably above freezing. Applications within 2 days of the first killing frost are more effective than applications later in the winter. Lonicera japonica is less susceptible to herbicides after the first hard frost (-4oC).

Cautions:
Soil disturbance should be avoided in infested areas to minimize germination of seed in the seedbank. Treated plants should be re-examined at the end of the second growing season, as plants can recover from herbicide application.
These herbicides are not selective (kills both monocots & dicots), thus should be applied carefully to prevent killing of non-target species. All tank mixes should be mixed with clean (ideally distilled) water because glyphosate binds tightly to sediments, which reduces toxicity to plants.
Do not apply in windy conditions because spray will drift and kill other plants. Do not apply if rain is forecast w/in 12 hours because herbicide will be washed away before it can act.

PLANT DESCRIPTIONS – BUSH HONEYSUCKLES

Exotic bush honeysuckles (Morrow's, Bell's, Amur and tatarian) are upright, multi-stemmed, oppositely branched, deciduous shrubs that range in height from 2 m to 6 m. The opposite leaves are simple and entire, and paired, axillary flowers are showy with white, pink, or yellow corollas. The fruits of Lonicera spp. are red, or rarely yellow, fleshy berries (Gleason and Cronquist 1991).

In flower, exotic bush honeysuckles can be distinguished from all native bush honeysuckles except swamp fly-honeysuckle (L. oblongifolia) by their hirsute (hairy) styles. In fruit, the red or rarely yellow berries of the exotics separate them from the blue- or black-berried natives waterberry (L. caerulea) and bearberry honeysuckle (L. involucrata). The exotic bush honeysuckles also generally leaf-out earlier and retain their leaves longer than the native shrub honeysuckles.

Within the exotic bush honeysuckles, L. maackii alone has acuminate, lightly pubescent leaves that range in size from 3.5 to 8.5 cm long and peduncles generally shorter than 6 mm. Its flowers are white to pink, fading to yellow, 15-20 mm long. Its berries are red or with an orange cast. Height ranges to 6 m.

In North America, there has been considerable confusion regarding the correct identification of L. morrowii, L. tatarica, and L. x bella, their hybrid. The literature contains a number of references to plants called by the name of one of the parents, but described as having characters more like those of the hybrid. L. x bella. The hybrid therefore, may be more common than the literature would indicate, and accurate field identification may be similarly problematic.

The two parent species of L. x bella, however, are dissimilar. L. morrowii has leaves that are elliptic to oblong gray-green, soft-pubescent beneath, and are 3-6 cm long. Its flowers are pubescent, white fading to yellow, 1.5-2 cm long, on densely hairy peduncles 5-15 mm long. The fruits are red. The height ranges to 2 m. L. tatarica has leaves that are ovate to oblong, glabrous, and are 3-6 cm long. Its flowers are

glabrous, white to pink, 1.5-2 cm long, on peduncles 15-25 mm long. The fruits are red or rarely yellow. Height ranges to 3 m.

L. x bella has intermediate characteristics. The leaves are slightly hairy beneath. Flowers are pink fading to yellow, on sparsely hairy peduncles 5-15 mm. long. Fruits are red or rarely yellow. Height ranges to 6 m.

MANAGEMENT OPTIONS

1. Grubbing, Pulling, Cutting

Effectiveness
Mechanical controls include grubbing or pulling seedlings and mature shrubs, and repeated clipping of shrubs. Effective mechanical management requires a commitment to cut or pull plants at least once a year for a period of three to five years.

Methods
Grubbing or pulling by hand (using a Weed Wrench or a similar tool) is appropriate for small populations or where herbicides cannot be used. Mature L. maackii shrubs growing in shaded forest settings can be eradicated by clipping once a year, during the growing season, until control is achieved. Other bush honeysuckles growing in more open settings can be managed by clipping twice yearly, once in early spring and again in late summer or early autumn.

Cautions
Any portions of the root system not removed can resprout. Because open soil can support rapid re-invasion, managers must monitor their efforts at least once per year and repeat control measures as needed. Winter clipping should be avoided as it encourages vigorous re-sprouting.

2. Herbicides

Effectiveness
Most managers report that treatment with herbicides is necessary for the control of L. maackii populations growing in full sun and may be necessary for all large bush honeysuckle populations.

Controls
Use formulations of glyphosate (brand names Roundup, and for use near waterbodies, Rodeo) as foliar sprays or cut stump sprays and paints with varying degrees of success. Glyphosate is a non-selective herbicide which kills both grasses and broad-leaved plants. For cut stump treatments, 20-25% solutions of glyphosate can be applied to the outer ring (phloem) of the cut stem. 2% solutions of glyphosate can be used for foliar treatments. Glyphosate should be applied to the foliage late in the growing season, and to the cut stumps from late summer through the dormant season.

Cautions
The subsequent flush of seedlings following all herbicide treatments must also be controlled.
These herbicides are not selective (kills both monocots & dicots), thus should be applied carefully to prevent killing of non-target species. All tank mixes should be mixed with clean (ideally distilled) water because glyphosate binds tightly to sediments, which reduces toxicity to plants.
Do not apply in windy conditions because spray will drift and kill other plants. Do not apply if rain is forecast w/in 12 hours because herbicide will be washed away before it can act.

CONTROL METHODS FOR YELLOW IRIS (Iris pseudacorus)

Plant Description

Yellow iris (Iris pseudacorus) is a robust, clumping perennial herb in the Iridaceae (Iris family). Iris pseudacorus is easy to identify in flower, since it is the only totally yellow-flowered Iris in wildlands in the United States (Ramey 2001). At maturity, I. pseudacorus grows to a height of 0.40-1.5 meters (1.3-4.9 ft) tall. Its thick fleshy rhizomes often form dense horizontal mats, with each rhizome measuring 1 to 4 cm in diameter with roots that may extend vertically 10-20 (30) cm deep. The stiff, sword-like leaves are glaucous, number approximately 10 per ramet, are about 50-100 cm long by 10-30 mm wide, have raised midribs, and are arranged with sheathing and overlapping leaf bases (Crawford 2000; Jepson 1993; Sutherland 1990; Hitchcock & Cronquist 1973; Bailey 1949).

Flowers of I. pseudacorus are borne on tall erect peduncles. Each inflorescence may have one to several large, showy flowers (Hitchcock & Cronquist 1973). The flowers measure 8-10 cm in diameter and vary from pale yellow to almost orange in color (Sutherland 1990; Bailey 1949). The flowers are bisexual. The perianth segments (3 sepals and 3 petals) are fused at the base, and form a flaring tube with the sepals spreading and reflexed. The 3 stamens are each individually fused by their filaments to the sepals, and the showy tongue-shaped sepals are often adorned with brown spots or purple veins, and are generally less than 6 cm long. The petals are erect and less conspicuous, and are narrower than the sepals. The 3 style branches are petal-like with two-lobed lips, are mostly < 25 mm long, and are opposite and curved over the sepals (Jepson 1993; Hitchcock & Cronquist 1973). I. pseudacorus has an inferior, 3-chambered ovary. Fruits are elongated capsules.

Seeds of I. pseudacorus are pitted, pale brown, disc-shaped (roughly circular and flattened), and measure approximately 2.0-5.0 mm in diameter and 0.5-3.0 mm tall (Crawford 2000; Jepson 1993; Bailey 1949). Seeds are arranged in three densely packed vertical rows within the seed pod or capsule (Sutherland 1990). These erect capsules at maturity are a glossy green color and measure 4-8 cm in length, 5.0-8.0 mm in width, and are 3-angled and cylindrical (Jepson 1993; Hitchcock & Cronquist 1973).

1. Digging, Pulling, Cutting

Effectiveness
Manual or mechanical methods that remove the entire I. pseudacorus rhizome mass can successfully control small, isolated patches.

Methods
Pulling or cutting I. pseudacorus plants may provide adequate control, but only if it is repeated every year for several years to weaken and eventually kill the plant. Dead-heading (removing the flowers and/or fruits) from plants every year can prevent seed development and seed dispersal, but will not kill those plants.
Cutting the foliage, followed by a herbicide application (see below for details), can provide good control with minimal off-target effects.

Cautions
These methods, however, are very time and labor-intensive, since even small rhizome fragments can resprout. Additionally, digging disturbs the soil, may fragment rhizomes, and promote germination of I. pseudacorus and other undesirable species from the soil seed bank.

Care should be taken when pulling, cutting, or digging I. pseudacorus, since resinous substances in the leaves and rhizomes can cause skin irritation.

2. Herbicide

Effectiveness
Iris pseudacorus can be effectively controlled by herbicides. Since it usually grows in or adjacent to water, an aquatic-labeled herbicide and adjuvant must be used. Glyphosate (for example, tradenames Rodeo®, Aquamaster® or Glypro®) applied in a 25% solution (13% a.i.) using a dripless wick/wiper applicator, or applied in a 5 to 8% solution if sprayed, when used with the appropriate non-ionic surfactant adjuvant, can effectively kill I. pseudacorus. I. pseudacorus can be effectively controlled by stem injection utilizing Aquamaster® applied at .5 to .7 mL. of product per flowering stem.

Controls
The timing and choice of application technique will determine control efficacy and should work to minimize off-target effects. Iris pseudacorus can be controlled by either directly applying the herbicide to foliage, or by immediately applying herbicide to freshly cut leaf and stem surfaces. Herbicides can be directly applied to I. pseudacorus foliage or cut stems by a dripless wick system or using a backpack sprayer.

Cautions
These herbicides are not selective (kills both monocots & dicots), thus should be applied carefully to prevent killing of non-target species. All tank mixes should be mixed with clean (ideally distilled) water because glyphosate binds tightly to sediments, which reduces toxicity to plants.
Do not apply in windy conditions because spray will drift and kill other plants. Do not apply if rain is forecast w/in 12 hours because herbicide will be washed away before it can act.
Be sure to always take appropriate precautions and wear suitable clothing and equipment, and follow all instructions on the herbicide label. Use a biodegradable tracer dye in the herbicide mix so you can watch for accidental contact or spill of the herbicide.

Appendix U - Ausable Marsh and Wickham Marsh WMA's Fish and Bird Appendices

APPENDIX U1

2005 Breeding Bird Atlas Data for

Ausable Marsh Wildlife Management Area

Common Name	Scientific Name	NY State Status
American Black Duck	*Anas rubripes*	Game Species
American Crow	*Corvus brachyrhynchos*	Game Species
American Woodcock	*Scolopax minor*	Game Species
Canada Goose	*Branta canadensis*	Game Species
Common Goldeneye	*Bucephala clangula*	Game Species
Common Merganser	*Mergus merganser*	Game Species
Common Moorhen	*Gallinula chloropus*	Game Species
Gadwall	*Anas strepera*	Game Species
Hooded Merganser	*Lophodytes cucullatus*	Game Species
Mallard	*Anas platyrhynchos*	Game Species
Ruffed Grouse	*Bonasa umbellus*	Game Species
Sora	*Porzana carolina*	Game Species
Virginia Rail	*Rallus limicola*	Game Species
Wild Turkey	*Meleagris gallopavo*	Game Species
Wilson's Snipe	*Gallinago delicata*	Game Species
Wood Duck	*Aix sponsa*	Game Species

Alder Flycatcher	*Empidonax alnorum*	Protected
American Goldfinch	*Carduelis tristis*	Protected
American Kestrel	*Falco sparverius*	Protected
American Redstart	*Setophaga ruticilla*	Protected
American Robin	*Turdus migratorius*	Protected
Baltimore Oriole	*Icterus galbula*	Protected
Bank Swallow	*Riparia riparia*	Protected
Barn Swallow	*Hirundo rustica*	Protected
Barred Owl	*Strix varia*	Protected
Belted Kingfisher	*Ceryle alcyon*	Protected
Black-and-white Warbler	*Mniotilta varia*	Protected
Black-billed Cuckoo	*Coccyzus erythropthalmus*	Protected
Black-capped Chickadee	*Poecile atricapillus*	Protected
Black-throated Blue Warbler	*Dendroica caerulescens*	Protected
Black-throated Green Warbler	*Dendroica* virens	Protected
Blackburnian Warbler	*Dendroica fusca*	Protected
Blue Jay	*Cyanocitta cristata*	Protected
Blue-gray Gnatcatcher	*Polioptila caerulea*	Protected
Blue-headed Vireo	*Vireo solitarius*	Protected
Bobolink	*Dolichonyx oryzivorus*	Protected
Broad-winged Hawk	*Buteo platypterus*	Protected
Brown Creeper	*Certhia americana*	Protected
Brown Thrasher	*Toxostoma rufum*	Protected

Brown-headed Cowbird	*Molothrus ater*	Protected
Canada Warbler	*Wilsonia canadensis*	Protected
Cedar Waxwing	*Bombycilla cedrorum*	Protected
Chestnut-sided Warbler	*Dendroica pensylvanica*	Protected
Chimney Swift	*Chaetura pelagica*	Protected
Chipping Sparrow	*Spizella passerina*	Protected
Cliff Swallow	*Petrochelidon pyrrhonota*	Protected
Common Grackle	*Quiscalus quiscula*	Protected
Common Raven	*Corvus corax*	Protected
Common Yellowthroat	*Geothlypis trichas*	Protected
Dark-eyed Junco	*Junco hyemalis*	Protected
Downy Woodpecker	*Picoides pubescens*	Protected
Eastern Bluebird	*Sialia sialis*	Protected
Eastern Kingbird	*Tyrannus tyrannus*	Protected
Eastern Meadowlark	*Sturnella magna*	Protected
Eastern Phoebe	*Sayornis phoebe*	Protected
Eastern Towhee	*Pipilo erythrophthalmus*	Protected
Eastern Screech-Owl	*Megascops asio*	Protected
Eastern Wood-Pewee	*Contopus virens*	Protected
Evening Grosbeak	*Coccothraustes vespertinus*	Protected
Gray Catbird	*Dumetella carolinensis*	Protected
Great Black-backed Gull	*Larus marinus*	Protected
Great Blue Heron	*Ardea herodias*	Protected
Great Crested Flycatcher	*Myiarchus crinitus*	Protected

Great Horned Owl	*Bubo virginianus*	Protected
Green Heron	*Butorides virescens*	Protected
Hairy Woodpecker	*Picoides villosus*	Protected
Hermit Thrush	*Catharus guttatus*	Protected
Herring Gull	*Larus argentatus*	Protected
House Finch	*Carpodacus mexicanus*	Protected
House Wren	*Troglodytes aedon*	Protected
Indigo Bunting	*Passerina cyanea*	Protected
Killdeer	*Charadrius vociferus*	Protected
Least Flycatcher	*Empidonax minimus*	Protected
Louisiana Waterthrush	*Seiurus motacilla*	Protected
Marsh Wren	*Cistothorus palustris*	Protected
Mourning Dove	*Zenaida macroura*	Protected
Mourning Warbler	*Oporornis philadelphia*	Protected
Nashville Warbler	*Vermivora ruficapilla*	Protected
Northern Cardinal	*Cardinalis cardinalis*	Protected
Northern Flicker	*Colaptes auratus*	Protected
Northern Parula	*Parula americana*	Protected
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	Protected
Northern Waterthrush	*Seiurus noveboracensis*	Protected
Ovenbird	*Seiurus aurocapilla*	Protected
Pileated Woodpecker	*Dryocopus pileatus*	Protected
Pine Warbler	*Dendroica pinus*	Protected

Purple Finch	*Carpodacus purpureus*	Protected
Red Crossbill	*Loxia curvirostra*	Protected
Red-breasted Nuthatch	*Sitta canadensis*	Protected
Red-eyed Vireo	*Vireo olivaceus*	Protected
Red-tailed Hawk	*Buteo jamaicensis*	Protected
Red-winged Blackbird	*Agelaius phoeniceus*	Protected
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	Protected
Ruby-throated Hummingbird	*Archilochus colubris*	Protected
Savannah Sparrow	*Passerculus sandwichensis*	Protected
Scarlet Tanager	*Piranga olivacea*	Protected
Song Sparrow	*Melospiza melodia*	Protected
Spotted Sandpiper	*Actitis macularia*	Protected
Swamp Sparrow	*Melospiza georgiana*	Protected
Tree Swallow	*Tachycineta bicolor*	Protected
Tufted Titmouse	*Baeolophus bicolor*	Protected
Turkey Vulture	*Cathartes aura*	Protected
Veery	*Catharus fuscescens*	Protected
Warbling Vireo	*Vireo gilvus*	Protected
White-breasted Nuthatch	*Sitta carolinensis*	Protected
White-throated Sparrow	*Zonotrichia albicollis*	Protected
Willow Flycatcher	*Empidonax traillii*	Protected
Winter Wren	*Troglodytes troglodytes*	Protected
Wood Thrush	*Hylocichla mustelina*	Protected
Yellow Warbler	*Dendroica petechia*	Protected

Yellow-bellied Sapsucker	*Sphyrapicus varius*	Protected
Yellow-rumped Warbler	*Dendroica coronata*	Protected
Yellow-throated Vireo	*Vireo flavifrons*	Protected
American Bittern	*Botaurus lentiginosus*	Special Concern
Common Nighthawk	*Chordeiles minor*	Special Concern
Cooper's Hawk	*Accipiter cooperii*	Special Concern
Northern Goshawk	*Accipiter gentilis*	Special Concern
Osprey	*Pandion haliaetus*	Special Concern
Red-shouldered Hawk	*Buteo lineatus*	Special Concern
Sharp-shinned Hawk	*Accipiter striatus*	Special Concern
Whip-poor-will	*Caprimulgus vociferus*	Special Concern
Northern Harrier	*Circus cyaneus*	Threatened
Pied-billed Grebe	*Podilymbus podiceps*	Threatened
European Starling	*Sturnus vulgaris*	Unprotected
House Sparrow	*Passer domesticus*	Unprotected
Rock Pigeon	*Columba livia*	Unprotected

APPENDIX U2

Fish species known to be present in Lake Champlain and reaches of selected tributaries

Common Name	**Lake Champlain**	**Little Ausable River**	**Ausable River**
Silver lamprey *(Ichthyomyzon unicuspis)*	X	X	X
American brook lamprey (*Lampetra appendix*)		X	X
Sea lamprey (*Petromyzon marinus*)	X	X	X
Lake sturgeon (*Acipenser fulvescens*)	X		
Longnose gar (*Lepisosteus osseus*)	X		
Bowfin (*Amia calva*)	X	X	X
American eel (*Anguilla rostrata*)	X		
Blueback herring (*Alosa aestivalis*)	X		
Gizzard shad (*Dorosoma cepedianum*)	X		
Mooneye (*Hiodon tergisus*)	X		
Cisco (*Coregonus artedi*)	X		
Lake whitefish (*Coregonus clupeaformis*)	X		
Rainbow trout (*Oncorhynchus mykiss*)	X		X
Landlocked Atlantic salmon (*Salmo salar*)	X	X	X
Brown trout (*Salmo trutta*)	X	X	X
Brook trout (*Salvelinus fontinalis*)	X		X
Lake trout (*Salvelinus namaycush*)	X	X	X
Rainbow smelt (*Osmerus mordax*)	X		
Central mudminnow (*Umbra limi*)	X	X	X
Redfin pickerel (*Esox americanus americanus*)	X		
Grass pickerel (*Esox americanus vermiculatus*)	X		

Common Name	Lake Champlain	Little Ausable River	Ausable River
Northern pike (*Esox lucius*)	X	X	X
Muskellunge (*Esox masquinongy*)	X		
Chain pickerel (*Esox niger*)	X		
Goldfish (*Carassius auratus*)	X		
Carp (*Cyprinus carpio*)	X		
Rudd (*Scardinius erythrophthalmus*)	X		
Cutlips minnow (*Exoglossum maxillingua*)		X	X
Eastern silvery minnow (*Hybognathus regius*)	X		X
Golden shiner (*Notemigonus crysoleucas)*	X	X	
Emerald shiner (*Notropis atherinoides*)	X	X	X
Bridle shiner (*Notropis bifrenatus*)	X		
Common shiner (*Luxilus cornutus*)	X	X	X
Spottail shiner (*Notropis hudsonius*)	X	X	X
Rosyface shiner (*Notropis rubellus*)		X	X
Sand shiner (*Notropis ludibundus*)	X		X
Mimic shiner (*Notropis volucellus*)	X		X

Common Name	Lake Champlain	Little Ausable River	Ausable River
Bluntnose minnow (*Pimephales notatus*)		X	X
Fathead minnow (*Pimephales promelas*)	X		
Blacknose dace (*Rhinichthys atratulus*)		X	X
Longnose dace (*Rhinichthys cataractae)*		X	X
Creek chub (*Semotilus atromaculatus*)		X	X
Fallfish (*Semotilus corporalis*)	X	X	X
Pearl dace (*Margariscus margarita)*			X
Quillback (*Carpiodes cyprinus*)	X		
Longnose sucker (*Catostomus catostomus)*		X	X
White sucker (*Catostomus commersoni*)	X	X	X
Silver redhorse (*Moxostoma anisurum)*	X		
Shorthead redhorse (*Moxostoma macrolepidotum*)	X		
Greater redhorse (*Moxostoma valenciennesi*)	X		
Black bullhead (*Ameiurus melas*)	X		
Yellow bullhead (*Ameiurus natalis)*	X		
Brown bullhead (*Ameiurus nebulosus*)	X	X	X
Channel catfish (*Ictalurus punctatus*)	X		
Stonecat (*Noturus flavus*)		X	
Tadpole madtom (*Noturus gyrinus*)		X	
Trout-perch (*Percopsis omiscomaycus*)	X		
Burbot (*Lota lota*)	X		
Banded killifish (*Fundulus diaphanus*)	X		X
Brook stickleback (*Culaea inconstans*)			X

Common Name	Lake Champlain	Little Ausable River	Ausable River
White perch (*Morone americana*)	X		
Rock bass (*Ambloplites rupestris*)	X	X	X
Pumpkinseed (*Lepomis gibbosus*)	X	X	X
Bluegill (*Lepomis macrochirus*)	X	X	
Smallmouth bass (*Micropterus dolomieu*)	X	X	X
Largemouth bass (*Micropterus salmoides*)	X		X
Black crappie (*Pomoxis nigromaculatus*)	X		
White crappie (*Pomoxis annularis*)	X		
Fantail darter (*Etheostoma flabellare*)			X
Johnny darter (*Etheostoma nigrum)*	X		
Tessellated darter (*Etheostoma olmstedi*)	X	X	X
Yellow perch (*Perca flavescens*)	X	X	X
Logperch (*Percina caprodes*)	X	X	X
Channel darter (*Percina copelandi*)	X		
Sauger (*Stizostedion canadense)*	X		
Walleye (*Stizostedion vitreum*)	X		X
Freshwater drum (*Aplodinotus grunniens*)	X		
Slimy sculpin (*Cottus cognatus*)	X	X	
Brook silverside (*Labidesthes sicculus*)	X		

APPENDIX U3

2005 Breeding Bird Atlas Data for Wickham Marsh Wildlife Management Area

Common Name	**Scientific Name**	**NY State Status**
American Black Duck	*Anas rubripes*	Game Species
American Crow	*Corvus brachyrhynchos*	Game Species
American Woodcock	*Scolopax minor*	Game Species
Canada Goose	*Branta canadensis*	Game Species
Common Goldeneye	*Bucephala clangula*	Game Species
Common Merganser	*Mergus merganser*	Game Species
Common Moorhen	*Gallinula chloropus*	Game Species
Gadwall	*Anas strepera*	Game Species
Hooded Merganser	*Lophodytes cucullatus*	Game Species
Mallard	*Anas platyrhynchos*	Game Species
Ruffed Grouse	*Bonasa umbellus*	Game Species
Virginia Rail	*Rallus limicola*	Game Species
Wild Turkey	*Meleagris gallopavo*	Game Species
Wilson's Snipe	*Gallinago delicata*	Game Species
Wood Duck	*Aix sponsa*	Game Species
Alder Flycatcher	*Empidonax alnorum*	Protected
American Goldfinch	*Carduelis tristis*	Protected
American Kestrel	*Falco sparverius*	Protected
American Redstart	*Setophaga ruticilla*	Protected
American Robin	*Turdus migratorius*	Protected
Baltimore Oriole	*Icterus galbula*	Protected

Bank Swallow	*Riparia riparia*	Protected
Barn Swallow	*Hirundo rustica*	Protected
Belted Kingfisher	*Ceryle alcyon*	Protected
Black-and-white Warbler	*Mniotilta varia*	Protected
Black-billed Cuckoo	*Coccyzus erythropthalmus*	Protected
Black-capped Chickadee	*Poecile atricapillus*	Protected
Black-throated Blue Warbler	*Dendroica caerulescens*	Protected
Black-throated Green Warbler	*Dendroica* virens	Protected
Blackburnian Warbler	*Dendroica fusca*	Protected
Blue Jay	*Cyanocitta cristata*	Protected
Blue-gray Gnatcatcher	*Polioptila caerulea*	Protected
Blue-headed Vireo	*Vireo solitarius*	Protected
Bobolink	*Dolichonyx oryzivorus*	Protected
Broad-winged Hawk	*Buteo platypterus*	Protected
Brown Creeper	*Certhia americana*	Protected
Brown Thrasher	*Toxostoma rufum*	Protected
Brown-headed Cowbird	*Molothrus ater*	Protected
Canada Warbler	*Wilsonia canadensis*	Protected
Cedar Waxwing	*Bombycilla cedrorum*	Protected
Chestnut-sided Warbler	*Dendroica pensylvanica*	Protected
Chimney Swift	*Chaetura pelagica*	Protected
Chipping Sparrow	*Spizella passerina*	Protected
Common Grackle	*Quiscalus quiscula*	Protected

Common Raven	*Corvus corax*	Protected
Common Yellowthroat	*Geothlypis trichas*	Protected
Dark-eyed Junco	*Junco hyemalis*	Protected
Downy Woodpecker	*Picoides pubescens*	Protected
Eastern Bluebird	*Sialia sialis*	Protected
Eastern Kingbird	*Tyrannus tyrannus*	Protected
Eastern Meadowlark	*Sturnella magna*	Protected
Eastern Phoebe	*Sayornis phoebe*	Protected
Eastern Towhee	*Pipilo erythrophthalmus*	Protected
Eastern Wood-Pewee	*Contopus virens*	Protected
Evening Grosbeak	*Coccothraustes vespertinus*	Protected
Gray Catbird	*Dumetella carolinensis*	Protected
Great Blue Heron	*Ardea herodias*	Protected
Great Crested Flycatcher	*Myiarchus crinitus*	Protected
Great Horned Owl	*Bubo virginianus*	Protected
Hairy Woodpecker	*Picoides villosus*	Protected
Hermit Thrush	*Catharus guttatus*	Protected
Herring Gull	*Larus argentatus*	Protected
House Finch	*Carpodacus mexicanus*	Protected
House Wren	*Troglodytes aedon*	Protected
Indigo Bunting	*Passerina cyanea*	Protected
Killdeer	*Charadrius vociferus*	Protected
Least Flycatcher	*Empidonax minimus*	Protected
Marsh Wren	*Cistothorus palustris*	Protected

Mourning Dove	*Zenaida macroura*	Protected
Mourning Warbler	*Oporornis philadelphia*	Protected
Northern Cardinal	*Cardinalis cardinalis*	Protected
Northern Flicker	*Colaptes auratus*	Protected
Northern Parula	*Parula americana*	Protected
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	Protected
Northern Waterthrush	*Seiurus noveboracensis*	Protected
Ovenbird	*Seiurus aurocapilla*	Protected
Pileated Woodpecker	*Dryocopus pileatus*	Protected
Pine Warbler	*Dendroica pinus*	Protected
Purple Finch	*Carpodacus purpureus*	Protected
Red Crossbill	*Loxia curvirostra*	Protected
Red-breasted Nuthatch	*Sitta canadensis*	Protected
Red-eyed Vireo	*Vireo olivaceus*	Protected
Red-tailed Hawk	*Buteo jamaicensis*	Protected
Red-winged Blackbird	*Agelaius phoeniceus*	Protected
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	Protected
Ruby-throated Hummingbird	*Archilochus colubris*	Protected
Scarlet Tanager	*Piranga olivacea*	Protected
Song Sparrow	*Melospiza melodia*	Protected
Spotted Sandpiper	*Actitis macularia*	Protected
Swamp Sparrow	*Melospiza georgiana*	Protected
Tree Swallow	*Tachycineta bicolor*	Protected

Tufted Titmouse	*Baeolophus bicolor*	Protected
Turkey Vulture	*Cathartes aura*	Protected
Veery	*Catharus fuscescens*	Protected
Warbling Vireo	*Vireo gilvus*	Protected
White-breasted Nuthatch	*Sitta carolinensis*	Protected
White-throated Sparrow	*Zonotrichia albicollis*	Protected
Winter Wren	*Troglodytes troglodytes*	Protected
Wood Thrush	*Hylocichla mustelina*	Protected
Yellow Warbler	*Dendroica petechia*	Protected
Yellow-bellied Sapsucker	*Sphyrapicus varius*	Protected
Yellow-rumped Warbler	*Dendroica coronata*	Protected
Yellow-throated Vireo	*Vireo flavifrons*	Protected
American Bittern	*Botaurus lentiginosus*	Special Concern
Common Nighthawk	*Chordeiles minor*	Special Concern
Cooper's Hawk	*Accipiter cooperii*	Special Concern
Osprey	*Pandion haliaetus*	Special Concern
Red-shouldered Hawk	*Buteo lineatus*	Special Concern
Sharp-shinned Hawk	*Accipiter striatus*	Special Concern
Whip-poor-will	*Caprimulgus vociferus*	Special Concern
European Starling	*Sturnus vulgaris*	Unprotected
House Sparrow	*Passer domesticus*	Unprotected
Rock Pigeon	*Columba livia*	Unprotected

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APPENDIX W: Snowmobile Trail Siting, Construction and Maintenance on Forest Preserve Lands in the Adirondack Park

I. Adirondack Park Snowmobile Trail System

The October 2006, *Snowmobile Plan for the Adirondack Park/Final Generic Environmental Impact Statement* (2006 Snowmobile Plan) presents a conceptual snowmobile plan with the goal of creating a system of snowmobile trails between communities in the Adirondack Park. The 2006 Snowmobile Plan outlines the concept of reconfiguring the existing snowmobile trail network across the Forest Preserve through the UMP process. Implementation is supported by this "Management Guidance…" establishing a new DEC snowmobile trail classification system with new standards and guidelines for snowmobile trail siting, construction and maintenance.

The designation of a new class of snowmobile trail to establish and improve community connections (Class II trails) will be complemented by the designation of another new class of trail (Class I trails) intended to preserve a more traditional type of Adirondack snowmobiling experience. Some existing snowmobile trails (most likely within the interior of Wild Forest areas or adjacent to private inholdings) will be redesignated for non-motorized use or abandoned as trails altogether. These actions will serve to ensure available, wintertime recreational opportunities in Wild Forest areas are not dominated by snowmobile use to the exclusion or near exclusion of passive recreational uses. All snowmobile trails, regardless of class, will be carefully sited, constructed and maintained to preserve the most essential characteristics of foot trails and to serve, where appropriate, hiking, mountain biking and other non-motorized recreational pursuits in spring, summer and fall. Additionally, this guidance helps ensure protection of sensitive natural resources on public lands and the minimization of snowmobiling safety hazards.

Implementing the broad recommendations of the 2006 Snowmobile Plan will also result in the establishment of important new routes on private lands through the acquisition of easements or other access rights from willing sellers. This Guidance does not address the management of those trails, but instead provides standards and guidelines solely for the management of DEC snowmobile trails on Forest Preserve lands throughout the Adirondack Park.

In many locations, designated snowmobile routes of varying lengths exist on Forest Preserve roads, rather than on trails. DEC's management of all such roads for motor vehicle use, including snowmobiles, is guided by DEC's "CP-38 Forest Preserve Roads" policy and not by this Guidance.

Snowmobile Trail Classification

The classification system for designated snowmobile trails (not on roads) in the Forest Preserve is presented below. It establishes two classes of trails,[1] for which the following definitions apply: "Motorized travel corridor" – non-snowmobile public motor vehicle routes[2] and motorized waterbodies.

[1] The classification scheme outlined in the 2006 Snowmobile Plan differed from the scheme presented here. Class I trails were presented as snowmobile trails on Forest Preserve roads, Class II trails (of two subtypes) as secondary trails and Class III trails as community connector trails.

"Motorized waterbodies" – waterbodies upon which year-round, public motorized uses (including snowmobiling) occur to a moderate or great extent, typically facilitated by direct motorized route access to shorelines and boat launching facilities.

"Periphery" – the geographic area within two miles of a motorized travel corridor.

"Remote interior" – the geographic area more distant than two miles from the nearest motorized travel corridors in all directions.

Class II Trails: ***Community Connector Trails***

Snowmobile trails or trail segments that serve to connect communities and provide the main travel routes for snowmobiles within a unit are Community Connector Trails. These trails are located in the periphery of Wild Forest or other Forest Preserve areas. They are always located as close as possible to motorized travel corridors, given safety, terrain and environmental constraints, and only rarely are any segments of them located further than one mile away from the nearest of these corridors. They are not duplicated or paralleled by other snowmobile trails. Some can be short, linking communities to longer Class II trails that connect two or more other communities.

Class I Trails: ***Secondary Snowmobile Trails***

All other snowmobile trails that are not Community Connector Trails are Secondary Snowmobile Trails. These trails are located in the periphery of Wild Forest and other Forest Preserve areas where snowmobile trails are designated.[3] They may be spur trails (perhaps leading to population areas and services such as repair shops, service stations, restaurants and lodging), short loop trails or longer recreational trails. If directly connected to Class II trails, new and rerouted Class I trails are always located as close as possible to – and no farther than one mile from – motorized travel corridors. If not directly connected to Class II trails, they are generally located within one mile of motorized travel corridors, although some – with high recreational value – may be located beyond one mile and may approach a remote interior area.

II. Reconfiguration of the Snowmobile Trail System

Establishment of Community Connections

The establishment of a Park-wide community-connection snowmobile trail system will provide north-to-south and east-to-west routes that will link many Adirondack communities together. Designation of Class

[2] Including routes where rights for motorized access to private in-holdings exist, but generally not including DEC administrative roads.

[3] Snowmobile trails may also be located in some Primitive areas and in Wilderness areas within 500 feet of the Wilderness boundary.

II, Community Connector snowmobile trails on Forest Preserve lands will create essential portions of the system, the use of which will result in a significant shifting of snowmobile use away from some remote interior areas of these lands to the periphery. Within the periphery, these Class II trails will intentionally be located as close to motorized travel corridors as practicable without locating them within – nor within sight of – road rights-of-way wherever such locations can be avoided. The actual, on-the-ground routes that establish the connections through Forest Preserve will be determined through the UMP process. Many of the connections already exist and the focus will be on improving them through proper siting, construction and trail maintenance work.

A small number of existing[4] DEC snowmobile trails in the Park shown to be located partly within remote interior areas may receive Class II designation due to their importance and may be retained and kept open, as long as either of the following conditions are met: 1) the remote interior area of concern is small – no more than 750 acres in area; or, 2) the trail segments of concern are located very near the boundary of the remote interior area, with no trail segment located further than one-half mile into the interior from any boundary. DEC will give high priority to relocating out of the remote interior area any Class II trails or trail segments so retained.

No existing DEC snowmobile trails in the Park that receive Class I designation may be retained and kept open with any portion of the trail located within a remote interior area.

Redesignation and Abandonment of Existing Trails

Actions taken under this Guidance will also include the re-designation of some existing Forest Preserve snowmobile trails as either Class I, Secondary Snowmobile Trails or as non-snowmobile trails (such as foot trails or horse trails) for non-motorized recreational uses. The re-designation of some snowmobile trails for non-motorized uses will occur consequent to management actions called for in adopted UMPs or UMP amendments and will be guided by the primary goal: *To provide a net benefit to the Forest Preserve through reconfiguring the trail system and revising trail management practices*[5]*.* In some instances, the re-designation of particular snowmobile trail segments – such as the far portions of some dead-end trails – may be the preferred alternative over re-designation or abandonment of the entire trail. Such actions can provide for a new type of recreational opportunity – a combined or hybrid type (motorized/non-motorized), in which the last stretches of some routes are undertaken by means of skis or snowshoes.

Snowmobile trails that receive the new Class I designation or are re-designated for non-snowmobile use will be revegetated to narrower widths that conform to their specific trail classification standards where they are wider. In many locations, this will serve to restore a more consistently closed canopy, thereby improving the aesthetic experience of trail users and enhancing ecological integrity.

Criteria for Redesignation or Abandonment of Trails

Removing some snowmobile trails or trail segments from the existing network is central to the balance sought in providing a net benefit to the Forest Preserve while also providing for key improvements in snowmobile riding in the Park. In proposing trails or trail segments for redesignation or abandonment, management will seek to eliminate those that:

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[4] "Existing," as used here and in the paragraph immediately below, means existing at the time of DEC's adoption of this guidance.

[5] For a discussion of the "net benefit" concept, see page 187 of the Snowmobile Plan for the Adirondack Park/Final Generic Environmental Impact Statement, October 2006.

- do not provide safe snowmobiling conditions;
- ·penetrate the more remote areas of large Wild Forest parcels[6] or traverse an existing undeveloped forest corridor connecting two or more remote interior areas in the Forest Preserve;
- are located near Wilderness area boundaries;
- are redundant trails, or are part of an unnecessarily dense, local snowmobile trail network where opportunities for quiet, non-motorized use of trails are rare or nonexistent;
- are no longer used or receive only minimal public use;
- might encourage illegal motorized access to public and private lands or create significant potential conflicts with adjacent property owners;
- incur unusually high snowmobile trail maintenance costs.

Additional Environmental Benefits

By restricting use of tracked groomers to the more developed Class II trails (see "Motor Vehicle Use Guidelines"), and by allowing Class I snowmobile trails to acquire a less developed and less maintained character, this Guidance is intended to clearly distinguish between two important types of snowmobiling opportunities in the Adirondacks while shifting the highest snowmobile use to the outer periphery of Forest Preserve lands. Consequently, the wilder, more remote areas of the Forest Preserve will be less impacted by motorized traffic. There will be lower noise levels, lower exhaust emission levels, decreased impacts on wildlife and reduced user conflicts between users participating in motorized and non-motorized forms of recreation. DEC's responsibility to manage and monitor snowmobile use and impacts will also be made easier.

III. Standards and Guidelines for Snowmobile Trail Siting, Construction and Maintenance on the Forest Preserve

The following standards will apply to siting and designating snowmobile trails on Forest Preserve lands in the Adirondack Park and carrying out construction and maintenance activities on them.

Specific Trail Siting Criteria for New and Rerouted Snowmobile Trails

Class I Trails: ***Secondary Snowmobile Trails***

New and rerouted Class I trails will be sited within the periphery of State lands and may only be sited beyond one mile from motorized travel corridors when the recreational value of the newly sited or rerouted trail segment is high and potential impacts to sensitive interior areas are minimal as carefully assessed and described in a UMP.

All new and rerouted Class I trails directly connected to Class II Trails will be sited as close as possible to motorized travel corridors and, without exception, will be sited no farther than one mile from these corridors.

[6] Trails providing access to frozen surfaces of waterbodies located wholly or partly within remote interior area should be rerouted or abandoned to prevent possible incursion into the remote areas via the frozen surfaces.

Class II Trails: ***Community Connector Trails***

New and rerouted Class II Trails on State lands will be sited as close as possible to motorized travel corridors. No new or rerouted trail segments will be sited farther than one mile from these corridors unless terrain or environmental constraints dictate otherwise, or such siting of a new or rerouted trail segment within the periphery is necessary to connect important, existing trail segments that together will form the same Community Connector Trail.

Snowmobile Trail Siting Standards

1. In cases where closure or abandonment of a motorized travel corridor results in an existing snowmobile trail location being inconsistent with these guidelines, such trail will, if practicable and as soon as possible, be relocated or reclassified to comply with these guidelines.

2. New and rerouted snowmobile trails will be sited, when possible, along existing routes or previously existing old routes such as foot trails, woods roads, utility rights of way and abandoned railroad beds in lieu of constructing entirely new trails.

3. New and rerouted snowmobile trails will be sited with an objective to avoid locations that present safety hazards such as the edges of ravines or ledges, major highway crossings and crossings of frozen surfaces of water bodies such as rivers, lakes and ponds. If suitable alternative routes are designated or developed, trails that lead riders to unsafe locations will be closed to snowmobile use in favor of the alternative routes in order to lower risks and eliminate unnecessary snowmobile trail mileage.

4. New and rerouted snowmobile trails will be sited with an objective to avoid areas considered environmentally sensitive, such as: wetlands; endangered plant or animal populations that might be harmed by the trails and/or their use; remote interior areas as defined by these guidelines and forested corridors connecting such remote interior areas; and deer wintering areas and other significant habitats, so that the values of these areas are not diminished.

5. New and rerouted snowmobile trails will not be established without an evaluation of potential significant impacts on adjacent private holdings.

6. New and rerouted snowmobile trails, including spur trails, will not provide access to private lands where public snowmobile access is not permitted.

7. New and rerouted snowmobile trails, through the acquisition of easements or other access rights from willing sellers, will be sited on private lands rather than State lands wherever possible to minimize impacts on the Forest Preserve.

Snowmobile Route Design, Construction and Maintenance Standards

Snowmobile route design, construction and non-ordinary maintenance activities[7] will be carried out pursuant to Snowmobile Trail Work Plans developed by DEC staff in consultation with APA staff. The following standards will be followed and reflected in the development of these Work Plans in order to preserve the trail-like character of snowmobile trails while ensuring they are appropriately safe to ride. When undertaking any of the types of work described below with motorized landscaping equipment (almost exclusively on Class II Trails), only careful use of appropriate low-impact landscaping equipment will be approved, as determined by a "minimum requirement" decision making approach set forth in the Snowmobile Trail Work Plan. For example, use of bulldozers and creation of "dugways" will not be approved. Operators of low-impact landscaping equipment will conduct their work in optimal environmental conditions and in a manner that will not contribute to any potential degradation of the wild forest setting. All work will be done with appropriate DEC oversight.

For new snowmobile trails of both classes to retain essential characteristics of foot trails, management practices must integrate thorough knowledge of the standards and guidance below, with efforts to appropriately balance them and the underlying concerns as the trails are sited, constructed and maintained thereafter. The end result should be trails that are both enjoyable and safe to ride for essentially the same reason – for the way the trails snake through the wild landscape of the Adirondacks in a natural fashion… construction and maintenance practices having altered the terrain enough to allow for an acceptable degree of riding comfort, but not so much as to create potential for high-speed, disruptive and unsafe snowmobiling experiences.

Many existing snowmobile trails are sited on old woods roads and other routes originally constructed and maintained for use of motor vehicles other than snowmobiles. In such cases, the standards set forth below may also be used to reroute or otherwise minimally alter such trails with the objective to achieve the same end result.

<u>Alignment and Grade:</u>

Trail alignment will not result in blind curves and abrupt changes in either horizontal or vertical direction; trails will be designed to ensure:

a) Sight distance will be 50 feet or more wherever possible;
b) Curves will have a radius of at least 25 feet;
c) The maximum grade of trails will not exceed 20% unless deemed necessary to minimize environmental impacts associated with trail construction;
d) Trails will not normally be laid out on existing cross slopes greater than 12%;

1. To the greatest extent possible, trails will not be aligned with long straight sections. Trails will follow the natural contours of the terrain as much as possible and will be laid out to balance and minimize necessary tree cutting, rock removal and terrain alteration.

[7] Ordinary maintenance activities are defined in the "Memorandum of Understanding Between the Adirondack Park Agency and the Department of Environmental Conservation Concerning Implementation of the State Land Master Plan for the Adirondack Park" (APA/DEC MOU).

2. Trails will be laid out to avoid rocky areas and drainage features such as wetlands and streams to the greatest possible extent.

3. In locations where serious environmental or safety conditions exist along a trail, the trail will be rerouted rather than rehabilitated at that location.

Trail Width:

1. Class I Trails may be maintained to an 8-foot maximum cleared trail width.

2. Class II Trails may be maintained to a 9-foot maximum cleared trail width except on sharp curves (inside turning radius of 25-35 feet) and steep running slopes (over 15%) where they may be maintained to a 12-foot maximum cleared trail width.

Class I and II trails wider than their classification allows will be actively restored to these limits.

Tree Cutting:

DEC policy requires that cutting trees should be minimized, but where cutting is required, trees must be identified, tallied and included in a Work Plan in accordance with *DEC Program Policy LF91-2 Cutting and Removal of Trees in the Forest Preserve.*

1. Cutting of overstory trees will be avoided in order to maintain a closed canopy wherever possible. Large and old growth trees should be protected.

2. Cutting trees to expand a trail from its current width or otherwise improve a trail will be carried out only pursuant to a Work Plan.

3. All snowmobile trails may be kept clear to a height of 12 feet, as measured from ground level.

4. No trees, except trees that due to structural problems or fallen/tipped conditions present an immediate hazard to the safe use of the trail by snowmobilers, will be cut outside the cleared trail width.

5. Trees should be felled away from the trail to minimize the amount of material that needs to be moved. If the tree trunks are not used to help delineate the trail, felled trees should be delimbed and cut into short enough lengths to lie flat on the ground. Once delimbed and cut up, the short lengths should be dispersed and not left in piles next to the trail. If the tree trunks are used to help delineate the trail, the cut ends of the trunks should be located outside the intended edge of the trail by at least one foot for safety reasons.

6. When trees are cut within the cleared trail width, they will be cut flush with the ground, and the preference will be to leave the root masses in place.

a) On Class II trails, if it is important to remove a root mass because it presents an obstacle in the trail surface, the preference will be to grind the stump and roots. If grinding is not feasible, the

root mass may be dug up, rolled or placed off the trail into the woods without removing intervening vegetation and organic matter; the root mass will be set down so as to have the lowest profile possible.

b) Grinding will not occur on Class I trails.

7. No brushing will occur outside the cleared trail width of any snowmobile trails.

Trail Surface:

1. Grading:

a) Class I Trails. Trail surfaces should generally follow the existing contours of the natural forest floor and not be graded flat. While limited leveling and grading may be undertaken, this work will be done using hand tools almost exclusively. In rare circumstances, appropriate low-impact landscaping equipment may be used as specified in a Work Plan.

b) Class II Trails. Trail surfaces should generally follow the existing contours of the natural forest floor and not be graded flat. Limited leveling and grading may be undertaken using appropriate low-impact landscaping equipment as specified in a Work Plan.

2. Rock Removal:

a) Removal of boulders and rocks from snowmobile trail surfaces will be minimized to the greatest extent possible and will be described in a Work Plan. Methods of removal will be specified in the Work Plan. No boulders or rocks will be removed outside the cleared trail width.

i. On Class I Trails, rock removal will occur using hand tools only, except in rare circumstances in new trail construction and trail reconstruction when use of low-impact landscaping equipment may be approved. Rock removal on Class I trails will be primarily limited to uncommon, major obstacles that present demonstrable safety hazards to snowmobile riders and which cannot be avoided by appropriate trail layout or rerouting.

ii. On Class II Trails, rock removal may occur using low-impact landscaping equipment and may include removal of rocks determined to present demonstrable safety hazards to snowmobile riders or to be very likely to damage grooming equipment. Many rocks in snowmobile trails, due to their specific shapes and/or locations, do not present themselves so as to cause these problems, and these may not be removed regardless of how high above the trail surface they project. Conversely, some rocks in snowmobile trails – while small – do present themselves so as to cause these problems, and if they are identified in an approved Work Plan, they may be removed.

b) Boulders and rocks removed from trails will preferably be buried in the trails to minimize disturbance. Earth moved to dig the holes into which the boulders or rocks are to be placed will be used to fill the holes that result from the rock removal.

When removed boulders and rocks are not buried, but are instead set to the side of the trail, they will be dispersed with care and not left in windrows or piles next to the trail. If a boulder or rock is used to help delineate the trail, it should be placed outside the intended edge of the trail by at least one foot for safety reasons.

c) Alternatives to rock removal should be considered to minimize the need for disturbance of the ground, to reduce the likelihood of creating drainage problems and to reduce the potential need for fill. Such alternatives may include covering or minor relocation of the trail where a boulder or rock may be too large or the number too great to deal with by any other method.

d) Removal of boulders and rocks from the surrounding natural, wild forest setting for use in snowmobile trail construction and maintenance work will be minimized and may occur only on a limited, carefully selective basis for small-scale projects. On Class II trails, where large-scale trail construction projects using stone material may be approved, importation of native stone from appropriate, specified sources may occur.

3. Side Slope Management:

a) On Class I trails, elimination or reduction of side slopes by means of bench cuts will be accomplished using hand tools exclusively. The need for bench cuts will be minimized through proper trail layout. The maximum amount of cut, measured vertically, will be 20% of the tread width. Side slopes of newly constructed trails and reroutes will be dressed and tapered within the cleared trail width; side slopes of some existing, degraded trails may be dressed and tapered outside the cleared trail width if this is determined the best way to address the degradation and restore environmentally sound, safe conditions.

b) On Class II trails, elimination or reduction of side slopes will be accomplished primarily by means of full bench cuts for which appropriate landscaping equipment may be used. The need for bench cuts will be minimized through proper trail layout. The tapering of side slopes will be allowed outside the cleared trail width. The areas dressed and tapered will be re-vegetated to restore stability and natural site conditions after the full bench cut is created.

Drainage:

1. Adequate drainage will be provided within the cleared trail width to prevent trail erosion and washout and to maintain a safe trail. All snowmobile trails will be constructed so as not to intercept groundwater to the greatest extent possible; natural drainage patterns will be maintained. In areas where the natural drainage patterns may be affected, bridges will be the preferred method for crossing wet areas as authorized in a Work Plan. Bridges will be constructed pursuant to approved snowmobile trail bridge designs.

2. Water bars and broad-based dips may extend beyond the cleared trail width to the extent necessary to effectively remove water from the trail surface, provided that no trees are cut outside the cleared trail width. Culverts will not be installed as drainage devices. Any existing culverts will be removed unless the culverts are very large and their removal is essentially not possible.

Wetlands:

1. Wetlands will be avoided to the greatest extent possible.

2. When wetlands crossings or trail locations adjacent to wetlands are proposed, the trail will be designed to minimize potential adverse impacts.

3. Any activity in a wetland or that may impact a wetland will be undertaken with prior consultation with the APA and with recognition of Army Corps of Engineers' permit requirements.

Motor Vehicle Use Guidelines

1. Snowmobile route design, construction and non-ordinary maintenance will be carried out pursuant to Snowmobile Trail Work Plans (Work Plans) developed by DEC staff in consultation with APA staff.

2. Administrative personnel, equipment and materials will be brought to work sites by the least intrusive means possible, as determined by a "minimum requirement" decision making approach set forth in the Snowmobile Trail Work Plan and as identified in priority order below:

    a) By non-motorized means or, during periods of sufficient snow and ice cover, by snowmobile.
    b) By aircraft.
    c) By appropriate motor vehicles other than snowmobiles. Such motor vehicle use will only be approved when alternative means of transportation (non-motorized means, snowmobiles, aircraft) are not feasible or are inadequate. The motor vehicles used will be those which are suitable for the particular activities but have the least potential adverse impact on the environment. Even when such motor vehicle use has been approved, administrative personnel will utilize motor vehicles only to the minimum extent necessary.

3. Proposed motor vehicle or aircraft use will also be described in a Conceptual Use Plan, per CP 17, "Record Keeping and Reporting of Administrative Use of Motor Vehicles and Aircraft in the Forest Preserve" or any successor policy.

4. Any motor vehicle used will display an official "DEC Administrative Use" sign, unless otherwise prominently identified as a DEC vehicle.

5. All motorized uses will be supervised by an individual who has attended and completed DEC training concerning guidelines and policies for snowmobile trail construction and maintenance.

6. All activities involving landscaping equipment will be directly supervised by DEC staff.

7. A detailed Work Plan, approved by DEC Lands & Forests staff must be prepared for all work to be done on snowmobile trails except for the Initial Annual Maintenance Trips described below and

immediate removal of fallen or tipped trees that present safety hazards as described above, under "Tree Cutting."

8. A Snowmobile Trail Maintenance Log (Trail Log) will be used to record all work done on snowmobile trails.

9. Work requiring use of aircraft or motor vehicles other than snowmobiles should be done, whenever possible, when environmental conditions allow during the months of August, September, and October.

Maintenance Trips involving Snowmobiles and other Motor Vehicles:

1. **Initial Annual Maintenance Trips.** These trips will be authorized under an AANR or TRP and are undertaken solely for the purpose of removing fallen branches and trees that obstruct the trail and maintaining drainage features.
    a) AANRs and TRPs will identify trail names, trail class and authorized motor vehicles to be used for Initial Annual Maintenance Trips.
    b) Motor vehicle use will be limited to one trip per trail per year.
    c) Trips will only be conducted when environmental conditions allow in the months of August, September, and October.
    d) All activities undertaken during Initial Annual Maintenance Trips will be recorded in Snowmobile Trail Maintenance Logs.
    e) During Initial Annual Maintenance Trips an assessment of necessary trail construction and maintenance work will be conducted. Necessary work will be recorded in Snowmobile Trail Maintenance Logs by specific location and will be used to develop Work Plans.

2. **Maintenance, Rehabilitation and Construction Trips.** These trips include all work trips on snowmobile trails except for "Initial Annual Maintenance Trips," described above, and "Grooming and Associated Winter Maintenance Trips," described below. They are undertaken primarily for the purposes of snowmobile route design, construction and non-ordinary maintenance activities (i.e., most "trail work," bridge construction, etc.) and so are a primary focus of the standards and guidelines set forth earlier in this section of the Guidance.

    a) All motor vehicle use associated with work of this type will be undertaken by the least intrusive means possible, as identified in priority order set out under "Motor Vehicle Guidelines," Section 1.
    b) All work of this type will require an approved, detailed Work Plan as describe under "Snowmobile Route Design, Construction and Maintenance Standards," above.

3. **Grooming and Associated Winter Maintenance Trips**. Grooming will be tailored to the Class of the snowmobile trail; it must not alter a trail's width or physical character and will not be used to gather snow from outside the allowable cleared width of the trail. Grooming equipment will be operated only by administrative personnel including DEC staff or volunteers under an agreement

with the DEC (AANR or TRP) and covered by appropriate insurance. The type of equipment allowed will be as follows:

Class I Trails: Snowmobile with a drag, as the 8-foot cleared width and layout of the trail will allow[8] and as approved in an AANR, TRP or pursuant to a Work Plan.

Class II Trails: Snowmobile with a drag, or, grooming equipment with tractor and drag width sufficiently less than the 9-foot to 12-foot trail width[9] to allow for grooming that will not cause tree damage. Type and dimensions of grooming equipment to be identified and approved in an AANR, TRP and pursuant to a Work Plan.

Associated Winter Maintenance Trips will occur only when snow and ice cover is sufficient to protect the trail. They will normally be performed by use of snowmobiles but may also involve use of tracked groomers or other motor vehicles, where appropriate, as approved in an AANR, TRP and pursuant to a Work Plan. These trips may include any of the following activities:

a) Removing fallen or tipped trees that present immediate safety hazards as described above, under "Tree Cutting."
b) Placing trail signs or markers.
c) Pruning vegetation.
d) Taking building materials, supplies and tools to a construction site for immediate work or for staging them for an upcoming construction season;
e) In rare instances, installing temporary trail safety or natural resource protection features or structures.
f) Removing materials from the Forest Preserve that were staged during previous work projects.
g)

Department Oversight of Motor Vehicle Use:

1. The Regional Natural Resource Supervisor, or a Departmental designee, will be notified no less than 48 hours prior to commencement of motor vehicle use and will determine whether or not trail conditions are suitable for such work and vehicle use prior to such use.

2. The Regional Natural Resource Supervisor, or a Departmental designee, will be responsible for ensuring Department staff periodically monitor and inspect all construction and maintenance work to ensure compliance with approved Work Plans.

    a) Department staff shall inspect the snowmobile trail work at times which are intended to coincide with the use of equipment that has the greatest potential to cause environmental damage.
    b) All construction activities involving landscaping equipment will be directly supervised by DEC staff.
    c) Within seven days of completion of authorized construction and maintenance activities, the Regional Natural Resource Supervisor will verify the work was satisfactorily completed

[8] The drag should not be wider than 7 ½ feet on Class I trails.
[9] The drag should not be wider than 8 ½ feet on Class II trails.

according to Standards and Guidelines for Snowmobile Trail Construction and Maintenance and, if applicable, that any AANR or TRP terms and conditions were met.

d) If the terms and conditions of an AANR, TRP and associated Work Plan are violated at any time, the AANR/TRP may be amended or revoked, with the determination to be made by the Director of the Division of Lands and Forests.

IV. Implementation and Review

Implementation of this Guidance – and the appending of it to the APA/DEC MOU – is intended to establish snowmobile trail management practices that conform to the guidelines and criteria of the Adirondack Park State Land Master Plan.

Some activities may require a freshwater wetlands permit from the Agency. Some activities will qualify by MOU definition as ordinary maintenance, rehabilitation, and minor relocation of snowmobile trails. In addition to these considerations, implementation of this Guidance may occur through: authorization granted directly via an approved UMP or UMP amendment; interagency consultation on Work Plans authorized by UMP's or UMP amendments; and APA/DEC staff observations and monitoring of off-season snowmobile trail management practices and trail character.

This Guidance does not prevent DEC, via individual UMP's or other means, from providing more restrictive management where necessary to protect the character of Forest Preserve lands.

Staff of both the APA and DEC will document examples of the implementation of this guidance in order to: 1) verify that implementation is producing the desired results; and, 2) identify specific aspects of the guidance that may need to be clarified or otherwise revised by APA and DEC in order to achieve, or more fully achieve, the desired results. APA staff will report regularly to the Agency State Land Committee concerning such review and any recommendations that may stem from it.

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APPENDIX X: Interagency Guidelines for Implementing Best Management Practices for the Control of Terrestrial and Aquatic Invasive Species on Forest Preserve Lands in the Adirondack Park

2010

Prepared By
NYS Department of Environmental Conservation
and the
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I. Introduction

The negative impacts of invasive species on natural forest and aquatic communities are well documented (Appendix F). Colonization and unrestrained growth of invasive species cause the loss of biodiversity, interruption of normal hydrology, suppression of native vegetation, and significant aesthetic, human safety and economic impacts. Terrestrial and aquatic invasive species have been identified at increasing rates of colonization along roadsides in campgrounds, and in water bodies of the Forest Preserve within the past 10 years. Some of these species have the potential to colonize backcountry lands, lakes and ponds and degrade natural resources of the Forest Preserve.

These guidelines apply to Adirondack Forest Preserve lands, which are protected by Article XIV, Section 1 of the New York State Constitution. This Constitutional provision, which became effective on January 1, 1895 provides in relevant part:

> *"The lands of the state, now owned or hereafter acquired, constituting the Forest Preserve as now fixed by law, shall be forever kept as wild forest lands. They shall not be leased, sold or exchanged, or be taken by any corporation, public or private, or shall the timber thereon be sold, removed or destroyed."*

The New York State Department of Environmental Conservation (DEC or Department) has jurisdiction over the Forest Preserve, and its management of these lands must be in keeping with this Constitutional provision.

Furthermore, DEC's management of the Adirondack Forest Preserve is governed by the Adirondack Park State Land Master Plan (Master Plan), which was initially adopted in 1972 by the Adirondack Park Agency (Agency or APA), with advice from and in consultation with the Department, pursuant to Executive Law §807 (recodified as Executive Law §816). The Master Plan provides the overall general framework for the development and management of State lands in the Adirondack Park. The Master Plan sets forth the following classifications for State land within the Adirondack Park: Wilderness, Primitive, Canoe, Wild Forest, Intensive Use, Historic, State Administrative, Wild, Scenic and Recreational Rivers, and Travel Corridors, and sets forth management guidelines for each of these major land classifications.

Executive Law §816 requires the Department to develop, in consultation with the Agency, individual unit management plans (UMPs) for each unit of land under the Department's jurisdiction which is classified in one of the nine classifications set forth in the Master Plan. The UMPs must conform to the guidelines and criteria set forth in the Master Plan. Thus, UMPs implement and apply the Master Plan's general guidelines for particular classifications of State Land within the Adirondack Park.

Executive Law §816(1) provides in part that "(u)ntil amended, the master plan for management of state lands and the individual management plans shall guide the development and management of state lands in the Adirondack Park.

Article XIV, Section 1 of the New York State Constitution does not specifically address the issue of invasive species. However, since Article XIV directs that Forest Preserve lands be "forever kept as wild forest lands" and prohibits the removal or destruction of timber, care must be taken to ensure that decisions to eradicate invasive species do not result in a material cutting of Forest Preserve timber or adversely impact the wild forest character of Forest Preserve lands.

Although there are no explicit references to active invasive species management on Forest Preserve lands in the Master Plan, the Master Plan provisions are consistent with the concept of actively managing invasive species to protect the "wild forest" character of the Forest Preserve. For instance, page 1 of the Master Plan (2001 Update) states that, "If there is a unifying theme to the Master Plan, it is that the *protection and preservation* of the natural resources of the state lands within the Park must be paramount" (emphasis added). Surveys of Forest Preserve lands document the continued importation and expansion of invasive plants into and throughout the Adirondack Park (see Section II below). Given that models indicate that eradication of an invasive species becomes progressively more difficult, more expensive, and less effective the longer the species is allowed to grow without intervention (Chippendale 1991; Hobbs and Humphries 1995), it is critical for the Department and APA to address this problem in an expeditious manner.

The goal of these guidelines is to establish parameters known as best management practices (BMPs) for the control of terrestrial and aquatic invasive species while ensuring that such management activities do not alter the "forever wild" character of Forest Preserve lands. These guidelines are intended to harmonize the Constitution's "forever wild" provisions with the Master Plan's overriding directive to manage forest preserve lands for their protection and preservation. They have been developed pursuant to, and are consistent with, relevant provisions of the New York State Constitution, the Environmental Conservation Law (ECL), the Executive Law, the State Environmental Quality and Review Act (SEQRA), the Master Plan, and all other applicable rules and regulations, policies and procedures.

It is also important to determine if any regulatory jurisdictions or permits are triggered by a proposed management activity. For example, any management activities than may involve wetlands on private or public lands may require a permit from APA.

II. Present Extent of Terrestrial and Aquatic Invasive Species on Forest Preserve Lands

An inventory of invasive species that are present and a measure of the extent of the invasive species populations is essential to determining the correct course of action. The Department conducts ongoing regular, systematic surveys to identify and quantify the extent of terrestrial and aquatic invasive species on Forest Preserve units in the Adirondack Park. The results of this continued survey have been included in Appendix E of these Guidelines and documented in UMPs. Appendix E and UMPs should be updated at

the end of each calendar year to reflect the survey data from the previous growing season. DEC will present an annual report on the survey data from the previous growing season. The tabular information will include Forest Preserve land unit name, species name, total number of populations and area affected, and other pertinent information as identified by the Office of Invasive Species Coordination (OISC). Detailed location and population information shall be provided to the Regional Land Manager for each Region and be included in the iMap Invasive Species Database.

The Department shall seek to develop and foster a relationship with private landowners adjacent to or connecting Forest Preserve land units to share information regarding existing and potential invasive species populations or threats.

III. BMPs for the Control of Terrestrial and Aquatic Invasive Species and Procedure for Implementation
The general parameters or BMPs for the control of invasive species that apply regardless of the targeted species are set forth below. Specific control methods for select terrestrial and aquatic invasive species are attached as Appendix B. These BMPs will be implemented through site specific work plans with corresponding SEQRA compliance, which must be approved by the Department's Central Office Bureau of Forest Preserve. Adopt-A-Natural Resource (AANR) Agreements with outside parties to conduct invasive species management must incorporate site specific work plans with corresponding SEQRA compliance. It is anticipated that if the proposed activities conform to these guidelines, they will be consistent with constitutional directives and authorized pursuant to the APA/DEC MOU, and will not require approval through the UMP process. However, if the Department determines during its review of a proposed site specific work plan that proposed management activities may potentially have a material effect on the character or use of the land or the vegetation thereon, DEC and APA staff will then consult to determine if the activity should be reviewed and approved as part of an individual UMP or UMP Amendment. Furthermore, application of these guidelines to all such management activities on Forest Preserve lands throughout the Adirondack Park will ensure that cumulative impacts will be avoided due to the fact that the BMPs being implemented through these guidelines avoid and mitigate impacts to native ecological communities.

The following BMPs apply to the control and management of invasive species.

1. **Prevent the introduction of invasive plants and animals to uninfested sites.**
   Invasive species can be introduced to a site by moving infested equipment, sand, gravel, borrow, fill and other off-site material. Monitoring disturbed areas and proper sanitation of equipment will help prevent new infestations. BMPs to prevent the introduction of invasive species include:
   - Clean all clothing, boots, and equipment prior to visiting site.
   - Begin activities in uninfested areas before operating in infested areas.
   - Use native plants and weed-free seed and mulch (straw, wood fiber).
   - Use fill that does not have invasive plant seeds or material.
   - Keep equipment on site during the entire project.
   - Incorporate invasive plant prevention into road work layout, design, and decisions. Use uninfested areas for staging, parking and cleaning equipment. Avoid or minimize all types of travel through infested areas, or restrict to those periods when spread of seed or propagules are least likely.
   - When possible, to suppress growth of invasive plants and prevent their establishment, retain relatively closed canopies.

2. **Contain and treat new invasive plants and animals or those not yet well established.**
   Controlling small infestations is more effective and economical than trying to control well-established, rapidly spreading infestations. Selected control measures need to be based on species biology and the individual characteristics of an infestation.

3. **Minimize transport of invasive plants and animals from infested to uninfested areas.**
   Invasive species can be spread by moving infested materials and equipment. Cleaning vehicles and equipment (usually with steam or hot water) is the most effective method of preventing an introduction. BMPs involving the transport of off-site material and equipment include:
   - Determine the need and identify sites where equipment can be cleaned. Seeds and plant parts need to be collected when practical and effectively disposed of (e.g., burned, dried, bagged and taken to landfill, etc.). Remove mud, dirt, and plant parts from project equipment before moving it into a project area and clean all equipment before leaving the project site, if operating in infested areas.
   - Check, clean, and, when appropriate, dry all clothing, boots, and equipment (e.g., boats, trailers, nets, etc.) prior to visiting site.
   - Don't move firewood. All cut tree material should be either chipped or dispersed onsite.
   - Inspect material sources at site of origin to ensure that they are free of invasive plant material before use and transport. Treat infested sources for eradication, and strip and stockpile contaminated material before any use.
   - Inspect and document the area where material from treated infested sources is used annually for at least three years after project completion to ensure that any invasive plants transported to the site are promptly detected and controlled.
   - Minimize roadside sources of seed that could be transported to other areas.
   - Periodically inspect roads and rights-of-way for invasion. Inventory and mark infestations and schedule them for treatment.
   - Avoid working in infested areas if possible. Postpone such work until invasive plants have been eliminated from the site.
   - Perform road maintenance such as road grading, brushing, and ditch cleaning from uninfested to infested areas to help prevent moving seeds and plant material from infested areas into adjacent uninfested areas.
   - Clean road graders and other equipment immediately after operating in infested areas.
   - Clean all dirt and plant parts from the top and underside of mower decks.

4. **Minimize soil disturbance.**
   Invasive plants prefer and often thrive under disturbed conditions. Do not disturb the soil unless absolutely necessary. BMPs for activities involving soil disturbance include:
   - Before starting ground-disturbing activities, inventory invasive plant infestations both on-site and in the adjacent area.
   - Minimize soil disturbance and retain desirable vegetation in and around area to the maximum extent possible.
   - Monitor infested areas for at least three growing seasons following completion of activities. Provide for follow-up treatments based on inspection results.
   - Do not blade roads or pull ditches where new invaders are found, if possible.
   - When it is necessary to conduct soil work in infested roadsides or ditches, schedule activity when seeds or propagules are least likely to be viable and to be spread.
   - Do not move soil from infested area to prevent off-site spread.

5. **Maintain desirable species.**
   Establishing and maintaining competitive, desirable plants along roadsides and disturbed areas prevents or slows establishment of invasive plants. BMPs for re-vegetating disturbed areas include:
   - Re-vegetate all disturbed soil, except on surfaced roads, in a manner that optimizes plant establishment for that specific site, unless ongoing disturbance at the site will prevent establishment of invasive plants.
   - Use native material where appropriate and available. Re-vegetation may include planting, seeding, fertilizing, and mulching.
   - Monitor and evaluate success of re-vegetation in relation to project plan.
   - When re-vegetating areas that were previously dominated by invasive plants, try to achieve at least 90% control of the invasive before attempting restoration.

IV. General Practices

1. **Minimum Tool Approach** – State land stewardship involving invasive species management practices should always incorporate the principles of the Minimum Tool Approach. Any group or individual implementing such practices on State land should only use the minimum tools, equipment, devices, force, actions or practices that will effectively reach the desired management goals. Implicit in this document is the stricture to implement a hierarchy of management practices based upon the target species and site conditions starting with the least intrusive and disruptive methods. <u>For the management of aquatic invasive species, hand harvesting and benthic matting are to be used unless a different approach has been reviewed and approved by the Department and the Agency.</u>

2. **Erosion Control** - Some of the species specific methods described in Appendix B require digging or pulling of plants from the soil. Where vegetation is to be removed, it must be determined if the proposed control method and extent of the action will destabilize soils to the point where erosion is threatened. Generally if more than 25 square feet of soil surface is cleared or plant removal occurs on steep slopes, staked silt fencing should be installed and maintained as a temporary erosion control practice. In some cases seeding and organic, non-hay mulching may be required.

3. **Re-vegetation** - Although not required, replanting or reseeding with native species may sometimes be necessary. All of the species specific control methods described in Appendix B are aimed at reducing or eliminating invasive species so that natives are encouraged to grow and re-establish stable conditions that are not conducive to invasive colonization. In most cases, removal or reduction of invasive populations will be enough to release native species and re-establish their dominance on a site. The site specific work plan for treatment of invasive species should include monitoring provisions and contingency plans for revegetating the site.

4. **Composting** - Because of the extremely robust nature of invasive species, composting terrestrial invasive plants in a typical backyard compost pile or composting bin is not appropriate. However, methods can be used whereby sun-generated heat can be used to destroy the harvested plant materials, such as storage in a sealed 3 mil thickness (minimum) black plastic garbage bags on blacktop in the sun until the plant materials liquefy. If a larger section of blacktop is available, make a black plastic (4 mil thickness minimum) envelope sealed on the edges with sand bags. The plant material left exposed to the sun will liquefy in the sealed envelope without danger of dispersal by wind. The bags or envelopes must be monitored to make sure the plants do not

escape through rips, tears or seams in the plastic. **When composting is suggested later in the text it is understood that liquefying the plant material in or under plastic is the desired action; not disposal in backyard composters or open landfill composting piles.**

5. **Material Collection and Transportation** – While on the control site, place all cut plant material in heavy duty, 3 mil or thicker, black contractor quality plastic clean-up bags. Securely tie the bags and transport from the site in a covered vehicle in order to prevent spread or loss of the plant material during transport from the control work site to the appropriate staging or disposal location. The main root structure, root fragments and/or horizontal rhizomes from harvested controlled Japanese, giant or bohemian knotweed infestation should be bagged only to facilitate transport to an appropriate staging area. All knotweed root structure, root fragments and rhizome propagules should be separately bagged from any cut, aerial canes and crowns. Over an open bag, remove as much adherent soil as possible from the root/rhizome structure prior to spreading the root/rhizome parts out onto a secure, impervious surface. Once completely dried out, the root/rhizome structure may be burned or disposed of in an approved landfill.

   The mature, upright stems and canes of common reed and the knotweeds can be cut, formed into bundles and securely bound with rope or twine. The bundles may then be transported to an appropriate staging or disposal location that has an impervious or near-impervious surfaced area. After the bundles have completely dried out they may be burned at an approved incinerator or burn pit with an appropriate permit.

V. Management Protocols

a. All Department personnel whose duties involve outdoor field work on State land (e.g., UMP Planners and State Land Managers, Forest Rangers, ECOs, Operations, etc.) will report the location of suspected terrestrial and aquatic invasive species encountered during the course of their ordinary work and to implement BMPs when conducting or supervising work to remove invasive species from State land. Terrestrial and aquatic invasive species identification and management training will be provided as needed.

b. All site specific work plans must include a site map, an inventory of target and non-target species, an estimate of the size and age of the infestation, target species impacts and concerns, a Natural Heritage review, adjoining land uses and nearby State land units, a proposed treatment method and probability of success, treatment impacts and concerns, an assessment of treatment alternatives, a history of past treatment methods used on site, a timeframe by which the work will be undertaken and completed, a schedule of anticipated future work, and monitoring provisions to determine the effectiveness of the management action.

c. All work on State land will be conducted using the BMPs and species specific control methods listed in Appendix B, pursuant to the DEC – APA Memorandum of Understanding.

d. Any individual or group demonstrating an interest and appropriate expertise in implementing the species specific control methods may apply for an AANR agreement to manage terrestrial and aquatic invasive species.

e. The treatment of invasive species by Department personnel or any other party will only be undertaken pursuant to a site specific plan for the treatment of invasive species and pursuant to

all applicable State, federal and local regulations regarding pesticide use, residue removal and disposal.

f. An AANR and a site specific work plan for treatment of invasive species are required for all non-Department personnel to implement species specific control methods and BMPs on State land.

g. All site specific work plans and applications for AANRs for the treatment of invasive species will be noticed in the Environmental Notice Bulletin for a 15 day public comment period prior to final approval by the Department.

h. Appropriate certification (NYS pesticide applicator certification) is required for pesticide applications. The only pesticide application allowed under these guidelines is spot treatment to individual plants using a back pack or hand sprayer, wick applicator, cloth glove applicator, stem injection or herbicide clippers. **No broadcast herbicide applications using, for example, a truck-mounted sprayer, are allowed. In all cases, all herbicide directions for use and restrictions found on the label shall be followed by a New York State Certified Applicator or Technician in an appropriate category.** The application methods described and allowed are designed to reduce or eliminate the possibility that non-target species will be impacted by the pesticide use. All pesticide treatments require follow-up inspection later in the growing season and/or the following year to assess and document effects and possibly re-treat any plants that were missed. The following guidelines apply with respect to the application of herbicides, which must be applied according to respective labels under federal and state law:

- In wetlands with standing water, only the RODEO® glyphosate formulation may be used. If the standing water is greater than one acre in size and/or has an outlet to surface waters, an aquatic pesticides permit is required pursuant to ECL 15-0313(4) and (6) NYCRR327.1 in which case application can only be made by a Certified Applicator or Technician or supervised Apprentice licensed in "Category 5 – Aquatic Vegetation Control". In wetlands with no standing water, either the RODEO®, ROUNDUP ® or the AQUAMASTER® formulation may be used.
- In uplands either ROUNDUP®, AQUAMASTER® or GLYPRO® may be used.
- The propose use of herbicides must be detailed in a work plan.

i. All appropriate and applicable signage and public notification required for pesticide application by or on behalf of the Department shall be used, including adjacent landowner notification, newspaper notice, and temporary on and off-site signs.

j. These Guidelines do not authorize the use of motor vehicles, motorized equipment or aircraft. All use of motorized equipment on State lands under the jurisdiction of the Department within the Adirondack Park shall be in compliance with Commissioner's Policy Number 17 (CP-17), and other pertinent Department policy regarding the use of motorized equipment on Forest Preserve Lands.

k. A UMP or UMP Amendment may be required if the proposed implementation of an activity identified in these Guidelines is considered to cause a potential material change to the use of the land or the vegetation thereon due to its extent, intensity or duration.

l. Invasive species management materials and methods evolve; any deviation from the BMPs and species specific control methods must be approved by the Department after consultation with the Agency.

m. Any invasive species management action proposal that involves tree cutting for control or access must comply with constitutional requirements and will be carried out pursuant to LF-91 and a site specific work plan.

n. Appendix A of these Guidelines contains a list of species that are considered terrestrial or aquatic invasive species. Other species may be added over time recognizing the constant threat of new invasive species. Note that to be eligible for management actions under these Guidelines, species specific control methods must be accepted by the Department after consultation with the Agency. New or revised control methods may be developed by other entities, but also must be reviewed and accepted by the Department after consultation with the Agency.

o. Those individuals or groups applying for an AANR to manage any invasive species without an approved species specific control method must develop and submit a control method for the species of concern. The submitted control methods will be reviewed and must be approved by the Department and the Agency before the approval of a site specific work plan or issuance of the AANR agreement. Those individuals or groups applying for an AANR to manage aquatic plants identified in Appendix A are limited to hand-harvesting or benthic matting as described in a site specific work plan describing the full course of work.

VI. Potential Environmental Impacts

The control methods and BMPs contained in these Guidelines restrict the use of herbicides so that adverse impacts to non-target species are avoided and native plant communities are restored. Aquatic invasive species will be managed using non-mechanical harvesting techniques (hand-pulling) and temporary benthic matting as described in the Guidelines. Use of pesticides for aquatics is not a part of this guidance.

The removal of these species reduces the potential for disruption and harm to the native ecosystem. It is expected that by using the Guidelines invasive species populations will be managed, and hopefully eradicated, in a timely manner before significant impact to the Forest Preserve resource occurs. Successful implementation of these control methods and BMPs or other recommended control methods will allow natural processes to take place undisturbed by the impacts of invasive species colonization and proliferation.

Any of the control actions described in the Guidelines has the potential for environmental impact. For example, the use of pesticides may cause mortality to non-target species and cutting tress may have both visual and ecological impacts on the landscape. It is recognized that although the BMPs and species specific control methods seek to mitigate these impacts, the potential for impact is real and must carefully be weighed against all other possible actions, including the no-action alternative. It is believed that the protection, preservation, and restoration of native flora and fauna in the Adirondacks is an action that is worth reasonable associated risk. These Guidelines represent a tool for land managers to reduce the potential for disruption and harm to Forest Preserve lands from terrestrial and aquatic invasive species. It is expected that these actions will lead to the preservation and restoration of native ecological communities on State lands within the Adirondack Park.

VII. Effect of This Action

The Guidelines seek to lay the ground rules for managing terrestrial and aquatic invasive species on Forest Preserve lands. It identifies certain species that, if left untreated, have the potential for colonizing backcountry land and water bodies causing severe disruption and degradation of natural systems. The Guidelines set out a protocol for action and recommend a set of comprehensive BMPs and specific control methods for dealing with invasive species of concern, and sets out a process for developing and incorporating new control methods for additional species. The control methods provide detailed guidance on the use of several techniques for managing terrestrial and aquatic invasive species including hand pulling, cutting, digging, matting and pesticides. Finally, the Guidelines identify a host of additional terrestrial and aquatic invasive species that require surveillance, early detection and, after appropriate consultation with the Regional Supervisor of Natural Resources a rapid response to protect Forest Preserve lands.

Adoption of the Guidelines and implementation through the UMP and site specific work planning process, gives the Department the basic tools needed to preserve, protect and restore the natural native ecosystems of the Forest Preserve.

VIII. Definitions

a. AANR – An Adopt-A-Natural-Resource Agreement is a stewardship agreement entered into between the Department and an individual or group pursuant to ECL section 9-0113 to preserve, maintain, or enhance state-owned resources. AANRs entered into pursuant to these Guidelines allow the implementation of these Guidelines and specify the responsibilities and limitations associated with the management activity. AANRs extend for a designated period of time and can be terminated by either party upon notification.

b. Adirondack Park Invasive Plant Program (APIPP) – A partnership including the Department, the Agency, Department of Transportation, and the Adirondack Nature Conservancy whose goals are:

    1. to coordinate a regional early detection and monitoring program in cooperation with staff, volunteers and the public;

    2. to facilitate invasive species management and control with public and private landowners; and,

    3. to increase public awareness and involvement to prevent the spread of invasive species through education and outreach.

c. Agency – The New York State Adirondack Park Agency (APA), its officers and employees.

d. Aquatic Invasive Plant Species – A plant that is typically found in wetland or riparian settings (including lakes, ponds, rivers or streams) that is capable of rapid reproduction and displacement of native species.

e. Area – Lands under the jurisdiction of the Department.

f. Best Management Practice (BMP) – Best management practices are state-of-the-art mitigation measures applied on a site specific basis to reduce, prevent, or avoid adverse environmental or social impacts.

g. Biological Control – A method of controlling pests (including insects, mites, weeds and plant diseases) that relies on predation, parasitism, herbivory, or other natural mechanisms. It can be an important component of integrated pest management (IPM) programs.

h. Certified Applicator – An individual who has successfully completed the course of training and licensing and who holds a valid, appropriate pesticide applicators certificate in New York State.

i. Control Method – A field tested recommendation for the most effective control of invasive species. Species specific control methods for terrestrial invasive species are attached in Appendix B. As of this writing, only hand harvesting and/or benthic matting are approved control methods for aquatic invasive species.

j. Department – The New York State Department of Environmental Conservation (DEC), its officers and employees.

k. Herbicide – A pesticide that is registered in New York State that kills plants. Due to the sensitive nature of Forest Preserve lands, only selected herbicides are included for use under these Guidelines. Glyphosate in the Roundup®, Rodeo®, Aquamaster ®, and Glypro® formulations are the herbicides of choice. In wetlands with standing water only the RODEO® formulation may be used. In wetlands with no standing water either the RODEO®, ROUNDUP ® or the AQUAMASTER® formulation may be used. In uplands either ROUNDUP®, AQUAMASTER® or GLYPRO® may be used. In all cases herbicides will be used in strict compliance with label precautions and the species specific control methods found in Appendix B.

l. Herbicide Application Method – The method of herbicide application will be by backpack sprayer, wick applicator, handheld spray or dropper bottle applicator, stem injection, or cloth glove applicator. No application will be allowed by broadcast sprays or by equipment permanently mounted on a vehicle.

m. Inter-Agency Guidelines ("Guidelines") – The document agreed to by the Adirondack Park Agency and the Department of Environmental Conservation that outlines regulated management of terrestrial and aquatic invasive species on State land.

n. Invasive Species – "invasive species" means a species that is:

   (a) nonnative to the ecosystem under consideration; and

   (b) whose introduction causes or is likely to cause economic or environmental harm or harm to human health. For the purposes of this paragraph, the harm must significantly outweigh any benefits.

o. Pest – "Pest" means (1) any insect, rodent, fungus, weed, or (2) any other form of terrestrial or aquatic plant or animal life or virus, bacteria or other micro-organism (except viruses, bacteria or other micro-organisms on or in living man or other animals) which the Department Commissioner declares to be a pest.

p. Pesticide – Any substance or mixture of substances that is registered in New York State to kill pests. A pesticide may be a chemical substance, biological agent (such as a virus or bacterium), antimicrobial, disinfectant, plant regulator, defoliant, or other device used against a pest.

q. Site Specific Work Plan – A detailed description of work to be performed at a specific site, the Best Management Practices that will be used to perform the work and the desired final condition of the site once the work is complete.

r. Terrestrial Invasive Plant Species – A plant that is typically found in upland settings that is capable of rapid reproduction and displacement of native species.

IX. Goal of the Guidelines

The goal of the Guidelines is to restore and protect the native ecological communities on Forest Preserve lands in the Adirondack Park through **e**arly detection and rapid response efforts to eradicate or control existing or newly identified invasive species populations.

X. Objectives of the Guidelines

These Guidelines provide a template for the process through which comprehensive active terrestrial and aquatic invasive species management will take place on Forest Preserve lands in the Adirondack Park. The Guidelines provide protocols for implementing BMPs on Forest Preserve land. The protocols describe what management practices are allowed and when they can be implemented, who can be authorized to implement the management practices, and which terrestrial and aquatic invasive species are targeted. The Guidelines are a living document and should be revisited and revised periodically to reflect the dynamic nature of invasive species and the state of knowledge of best management practices.

Reference to these Guidelines will be included in UMPs as they are drafted or revised. UMPs will also include available inventory information on the distribution of invasive terrestrial and aquatic species on or in close proximity to the Unit. The Guidelines will guide invasive terrestrial and aquatic species management activities on Forest Preserve units. The site specific plan for treatment of invasive species will contain up-to-date invasive species inventory data, specific location information, and specific management recommendations for each species on each site including control actions, materials and methods, monitoring, contingencies and restoration actions.

The Guidelines also describe a process by which the Department may enter into AANR Agreements with and facilitate individuals or groups to manage terrestrial and aquatic invasive species on Forest Preserve lands using the listed best management practices, including pesticide use, in the appropriate circumstances. The AANR will be accompanied with a site specific plan for treatment of invasive species based on the BMPs in the Guidelines and include provision for monitoring and additional actions to restore natural communities. As noted above, the site specific plan for treatment of invasive species will provide the detail regarding the selected management options on a site specific basis.

XI. Responsibilities

The responsibility for interpretation and update of these Guidelines and overall management shall reside with the cooperating agencies. The Department shall be responsible for management of terrestrial and aquatic invasive species on Forest Preserve lands while the Agency will be responsible for providing review of, and advice on, the management activities contained in the Guidelines and the assessment of materiality of proposed actions and the management recommendations in UMPs.

Appendix A. Invasive Species

The 92 species included here are non-native organisms that either occur in New York State or are found in adjacent states. They have a proven record of being invasive and disrupting native ecosystems. Asterisked species have recommended control methods that are included in Appendix B. This appendix should be reviewed and updated annually.

Trees

- Black locust (*Robinia pseudoacacia*)
- Norway and sycamore-leaved maple (*Acer platanoides, A. pseudoplatanus*)
- Tree-of-Heaven (*Ailanthus altissima*)
- Japanese tree lilac (*Syringa reticulata*)
- Princess tree (*Paulownia tomentosa*)
- Crack willow (*Salix fragilis*)
- European gray willow (*Salix cinerea*)

Shrubs

- Japanese, Morrow's, tatarian, Amur, Bell's and dwarf honeysuckles* (*Lonicera japonica, L. morrowii, L. tatarica, L. maackii, L. x. bella, L. xylosteum*)
- Autumn and Russian olive (*Eleagnus umbellata, E. angustifolia*)
- Cherry eleagnus (*Eleagnus multiflora*)
- Common and smooth buckthorn (*Rhamnus cathartica, R. frangula*)
- False Spiraea (*Sorbaria sorbifolia*)
- Multiflora and rugosa rose (*Rosa multiflora, R. rugosa*)
- Japanese and European barberry (*Berberis thunbergii, B. vulgare*)
- False indigo (*Amorpha fruticosa*)
- Winged euonymus (*Euonymus alata*)
- Butterfly bush (*Budleja davidii*)
- Blunt-leaved and common privet (*Ligustrum obtusifolium, L. vulgare*)

Vines

- Oriental bittersweet (*Celastrus orbiculata*)
- Porcelain-berry (*Ampelopsis brevipedunculata*)
- Mile-a-minute vine (*Polygonum perfoliatum*)
- Kudzu (*Pueraria montana var. lobata*)
- Common periwinkle (*Vinca minor*)

Herbs

- Purple loosestrife* (*Lythrum salicaria*)
- Japanese, giant and bohemian knotweed* (*Fallopia japonica var. japonica, F. sachalinensis, F. x bohemica*)
- Common reed* (*Phragmites australis ssp australis*)
- Garlic mustard* (*Alliaria petiolata*)
- Yellow iris* (*Iris pseudacorus*)
- Cypress and leafy spurge (*Euphorbia cyparissias, E. esula*)
- Giant Hogweed (*Heracleum mantegazzianum*)
- White and yellow sweet-clover (*Melilotus alba, M. officinalis*)

- Wild parsnip (*Pastinaca sativa*)
- Wild chervil (*Anthriscus sylvestris*)
- Reed canary-grass (*Phalaris arundinacea*)
- Black and Pale Swallowwort (*Cynanchum louiseae, C. rossicum*)
- Cup Plant (*Silphium perfoliatum*)
- Japanese stiltgrass (*Microstegium vimineum*)
- Flowering rush (*Butomus umbellatus*)
- Spotted and brown knapweed (*Centaurea stoebe ssp. micranthos, C. jacea*)
- Canada and bull thistle (*Cirsium arvense, C. vulgare*)
- Goutweed (*Aegopodium podagraria*)
- Lesser celandine (*Ranunculus ficaria*)
- Common and yellow foxglove (*Digitalis purpurea, D. grandiflora*)

Aquatics

- Eurasian and variable-leaf watermilfoil, and parrotfeather (*Myriophyllum spicatum, M. heterophyllum, M. aquaticum*)
- Fanwort (*Cabomba caroliniana*)
- Curlyleaf pondweed (*Potamogetion crispus*)
- Waterchestnut (*Trapa natans*)
- Common frog-bit (*Hydrocharis morsus-ranae*)
- Yellow floating-heart (*Nymphoides peltata*)
- Brazilian elodea (*Egeria densa*)
- Hydrilla (*Hydrilla verticillata*)
- Brittle naiad (*Najas minor*)
- Water-lettuce (*Pistia stratiotes*)
- Pacific mosquitofern (*Azolla filliculoides*)
- Didymo (*Didymosphenia geminata*)
- Starry stonewort (*Eichhornia crassipes*)
- Water hyacinth (*Pistia stratiotes*)
- Water primrose (*Ludwigia peploides*)
- Pond water starwort (*Callitriche stagnalis*)
- Three-stamen waterwort (*Elatine triandra*)
- European water fern (*Marsilea quadrifolia*)
- Water spangles (*Salvinia minima*)
- Giant salvinia (*Salvinia molesta*)
- Water soldier (*Stratiotes aloides*)

Insects

- Emerald ash borer (*Agrilus planipennis*)
- Asian long-horned beetle (*Anaplophora glabripennis*)
- Hemlock wooly adelgid (*Adelges tsugae*)
- Sirex woodwasp (*Sirex noctilio*)
- Asian gypsy moth (*Lymantria dispar*)
- Balsam wooly adelgid (*Adelges piceae*)
- Elongate hemlock scale (*Fiorinia externa*)

Appendix B. Species Specific Control Methods

CONTROL METHODS FOR PURPLE LOOSESTRIFE (*Lythrum salicaria*)

PLANT DESCRIPTION

Purple loosestrife is a wetland perennial native to Eurasia that forms large, monotypic stands throughout the temperate regions of the U.S. and Canada. It has a vigorous rootstock that serves as a storage organ, providing resources for growth in spring and re-growth if the plant has been damaged from cuttings. New stems emerge from the perennial roots enabling the plant to establish dense stands within a few years. Seedling densities can approach 10,000 - 20,000 plants/m➤ with growth rates exceeding 1 cm/day. A single, mature plant can produce more than 2.5 million seeds annually which can remain viable after 20 months of submergence in water. In addition, plant fragments produced by animals and mechanical clipping can contribute to the spread of purple loosestrife through rivers and lakes.

MANAGEMENT OPTIONS

1. Digging/pulling

Effectiveness:

Can be effective in small stands (i.e., <100 plants), low-med density (1-75% area), and <3 acres, especially on younger plants.

Methods:

Hand-pull plants <2 years old. Use mini-tiller for plants >2 years - gets most of roots with minimum soil disturbance, has 3 heavy duty prongs on 1 side that are pushed under base of plant, then pry back on handle to leverage plant out of ground. Tamp down all disturbed soil surfaces. Use weed wrench for plants > 2 years old - good with minimal soil disturbance. In mucky conditions, put base of wrench on small piece of wood (e.g., piece of 2x4) to keep wrench from sinking into mud. Use shovel for plants > 2 years old - dig up plant, then replace soil and any existing cover.

Cautions:

May increase habitat disturbance and increase spread of loosestrife. Requires follow-up treatments of sites for 3 years to eliminate re-sprouting from rhizome fragments left behind. Must pull/dig ENTIRE rootstock or re-rooting will occur. Must pull/dig before the plants begin setting seed or must remove flower/seed heads first (cut and place into bags) to prevent spread of seeds. Also remove previous year's dry seed heads. Erosion control may be necessary if greater than 25 square feet of soil surface is disturbed.

Disposal:

Bag all plant parts and remove from site. Compost* at DOT Residency, dispose of in approved landfill or incinerate with appropriate permits.

Sanitation:

Clean all clothing, boots, tools, equipment and transport vehicle to prevent spread of seed.

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* *see item #4 "Composting" in General Practices section.*

2. Cutting

Effectiveness:

Can be effective in small stands (i.e., <100 plants), low-med density (1-75% area), and <3 acres, especially on younger plants.

Methods:

Remove flower heads before they go to seed so seed isn't spread during the cutting or mowing activity. Must do repeated cutting and mulching to permit growth of grasses.

Cautions:

Need to repeat for several years to reduce spread of plants. Doesn't affect rootstalk and thus, cut pieces can be spread that will re-sprout. Once severed, stems are buoyant and may disperse to other areas and re-sprout. Removal of seed heads should be done as late in the growing season as possible yet before seed set. Early cutting without additional seed head harvest could allow re-sprouting with greater subsequent seed production.

Disposal:

Bag all plant parts and remove from site (compost* at DOT Residency, dispose of in approved landfill or incinerate with appropriate permits).

Sanitation:

Clean all clothing, boots, and equipment to prevent spread of seed.

3. Herbicide

Effectiveness:

Use when >100 plants and <3-4 acres in size.

Methods:

Use glyphosate formulations only. If possible spray seedlings before they reach 12" in height. Cut and bag flower heads before applying herbicide. Apply prior to or when in flower (late July/Aug) so plants are actively growing.

For spot application use:

- sponge tip applicator with wick.
- injection into stem(with large gauge needle).
- 32 oz. commercial-grade spray bottle with adjustable nozzle.

Cautions:

This herbicide is not selective (kills both monocots and dicots), thus should be applied carefully to prevent killing of non-target species. All treatment mixes should be mixed with clean (ideally distilled) water because glyphosate binds tightly to sediments, which reduces toxicity to plants.
Do not apply in windy conditions because spray will drift and kill other plants. Do not apply if rain is forecast within 12 hours because herbicide will be washed away before it can act. Choose Rodeo® formulation for applications in standing water or along a shoreline.

4. Biocontrol

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* *see item #4 "Composting" in General Practices section.*

Two species of leaf-feeding beetle, *Galerucella calmariensis* and *G. pusilla*, have been shown to be effective in controlling purple loosestrife. Over 5 million of these beetles have been released in 30 states including New York, the northeastern and midwestern states as well as all of the Canadian Provinces. The beetles have shown dramatic decreases in purple loosestrife populations with subsequent increases in populations of native species. The scientific literature indicates that the beetles are very specific to purple loosestrife with only minor ⮞spillover⮜ effects that do not compromise non-target plant populations.

Effectiveness:
Use if site has at least a half acre of purple loosestrife of medium to thick density.
Best type of control for large patches of loosestrife >3-4 acres.

Methods:
The number of beetles released per site should be based on the size of the site, the density of loosestrife and the economics of purchase. More beetles are generally better than fewer.

Cautions:
Use only if mowing, pesticide and herbicide use are not active practices on the site. The site must not be permanently flooded and should be sunny. Use only if winged loosestrife, *(Lythrum alatum)* and waterwillow *(Decodon verticillatus)* are not major components of the plant community on the release site.

CONTROL METHODS FOR COMMON REED (*Phragmites australis ssp. australis*)

PLANT DESCRIPTION
Phragmites is a perennial grass that can grow to 14 feet in height. Flowering and seed set occur between July and September, resulting in a large feathery inflorescence, purple-hued turning to tan. Phragmites is capable of vigorous vegetative reproduction and often forms dense, virtually monospecific stands. It is unclear what proportion of the many seeds that Phragmites produces are viable. **Please note that identification of phragmites should be done by a professional botanist prior to treatment to distinguish the invasive non-native race from the non-invasive native.**

MANAGEMENT OPTIONS
1. Cutting / Mulching
Effectiveness:
Need to repeat annually for several years to reduce spread of plants. Hand-pulling, though labor intensive, is an effective technique for controlling common reed in small areas with sandy soils.
Can be effective in small stands (i.e., <100 plants), low-med density (1-75% area) and <3 acres. The cutting of larger stands having high stem densities is not an effective control method unless coupled with an immediate application of glyphosate to the freshly-cut, stem cross sections or with a cut-stem injection of glyphosate.

Methods:
The best time to cut common reed is when most of food reserves are in aerial portion of plant when close to tassel stage, e.g., at end of July/early August to decrease plant's vigor. Some patches may be too large to cut by hand, but repeated cutting of the perimeter of a stand can prevent vegetative expansion. Common reed stems should be cut below the lowest leaf, leaving a 6" or shorter stump. Hand-held

cutters and gas-powered hedge trimmers work well. Weed whackers with a circular blade were found to be particularly efficient, though dangerous.

Cut and mulch dead stems in winter to remove them and promote germination of other species. Repeat in second year and then every 3-5 years.

Cautions:
Since common reed is a grass, cutting several times during a season, at the wrong times, may increase stand density. However, if cut in late July/early August, most of the food reserves produced that season are removed with the aerial portion of the plant, reducing the plant's vigor. This cutting regime may eliminate smaller colonies if carried out annually for several years. Manual or mechanical cuttings of larger, high density, monospecific common reed stands without the application of glyphosate, is not recommended.

Disposal:
Cut material should be removed from the site and composted* or allowed to decay on the upland to prevent sprouting and formation of rhizomes. Do not attempt to compost rhizomes.

Sanitation:
Clean all clothing, boots, and equipment to prevent spread of seed.

2. Herbicide
Effectiveness:
Herbicide use is a 2 year, 2 step process because the plants may need a "touch-up▶ application, especially in dense stands since subdominant plants are protected by thick canopy and may not receive adequate herbicide in the first application.

Methods:
Use glyphosate formulations only. Apply after tasseling stage when nutrients going back to rhizome and will translocate herbicide into roots. After 2 to 3 weeks following application of glyphosate, cut or mow down the stalks to stimulate the emergence and growth of other plants previously suppressed. If the plants are too tall to spray, cut back in mid summer and apply glyphosate using a spray bottle for individual foliar spot treatments or swab, syringe w/large gauge needle or Nalgene wide-mouth, Unitary wash bottle to apply 1-2 drops of 50% glyphosate solution directly into each cut stem.

Cautions:
This herbicide is not selective (kills both monocots and dicots), thus should be applied carefully to prevent killing of non-target species. All tank mixes should be mixed with clean (ideally distilled) water because glyphosate binds tightly to sediments, which reduces toxicity to plants.
Do not apply in windy conditions because spray will drift and kill other plants. Do not apply if rain is forecast w/in 12 hours because herbicide will be washed away before it can act. Choose Rodeo® formulation for applications in standing water or along a shoreline.

3. Black Plastic
Effectiveness:

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* *see item #4 "Composting" in General Practices section.*

Can be effective in small stands (i.e., <100 plants), low-med density(1-75% area). Plants die off within 3-10 days, depending on sun exposure.

Methods:
Cut plants first to 6-8" (hand-pushed bush hog or weed whacker w/blade). After cutting a stand of common reed, anchor a sheet of black plastic or dark tarp over the cut area using sand bags or rocks. High temperatures under the plastic will eventually kill off the plants. This technique works best when the treated area is in direct sunlight. Plastic should be at least 6 millimeters thick. Hold plastic in place with sandbags, rocks, biodegradable stakes, etc. Can treat runners along the plastic edges with a spot application of Rodeo® or Roundup®. The plastic can be removed the following year when the covered plants have been killed. A few common reed shoots may return. These can be cut, hand-pulled or re-treated with appropriate herbicide.

Cautions:
Must monitor to determine if shoots are extending out from under the plastic.

Disposal:
Can leave cut material under plastic or bag all plant parts and remove from site (compost* at DOT Residency, dispose of in approved landfill or incinerate with appropriate permits.

Sanitation:
Clean all clothing, boots, and equipment to prevent spread of seed.

4. Pulling
Effectiveness:
Can be effective in small stands (i.e., <100 plants). Very labor intensive control method, best results when infestation occurs in sandy soils.

Methods:
Hand-pull plants <2 years old. Use shovel for plants >2 years old - dig up plant, then replace soil and any existing cover.

Disposal:
Bag and remove all plant parts from site (compost* at DOT Residency, dispose of in approved landfill or incinerate with appropriate permits).

Sanitation:
Clean all clothing, boots, and equipment to prevent spread of seed.

6. Excavation
Effectiveness:
Can be effective for patches up to ≻ acre in size. Cost is the limiting factor.

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* *see item #4 "Composting" in General Practices section.*

Methods:
When working in wetlands only tracked equipment shall be used. Rubber-tired excavators can operate from adjacent pavement or upland areas.

Cautions:
The patch should be excavated to below the depth of rhizome development. Follow-ups later in the season or the following year must be conducted to verify that all the plants have been removed

Disposal:
Bag and remove all plant parts from site (compost at DOT Residency, dispose of in approved landfill or incinerate with appropriate permits).

Sanitation:
Clean all clothing, boots, and equipment to prevent spread of seed.

CONTROL METHODS FOR GARLIC MUSTARD (*Alliaria petiolata*)

PLANT DESCRIPTION
Garlic mustard is a naturalized European biennial herb that typically invades partially shaded forested and roadside areas. It is capable of dominating the ground layer and excluding other herbaceous species. Its seeds germinate in early spring and develops a basal rosette of leaves during the first year. Garlic mustard produces white, cross-shaped flowers between late April and June of the following spring. Plants die after producing seeds, which typically mature and disperse in August. Normally its seeds are dormant for 20 months and germinate the second spring after being formed. Seeds remain viable for up to 7 years.

MANAGEMENT OPTIONS
1. Pulling.
Effectiveness:
Hand pulling is an effective method for removing small populations of garlic mustard, since plants pull up easily in most forested habitats. It is best to pull plants when seed pods are not yet mature, but they can be pulled during most of the year.

Methods:
Soil should be tamped down firmly after removing the plant. Soil disturbance can bring existing garlic mustard seed bank to the surface, thus creating a favorable environment for additional germination within the control site.

Cautions:
Care should be taken to minimize soil disturbance but to remove all root tissues. Re-sprouting may occur from mature plants root systems if not entirely removed. Cutting is preferred to pulling when garlic mustard infestations are interspersed amongst native grasses/forbs or other sensitive or rare flora.

Disposal:

If plants have capsules present, they should be bagged and disposed of to prevent seed dispersal. Bag and remove all plant parts from site (compost* at DOT Residency, dispose of in approved landfill or incinerate with appropriate permits).

Sanitation:
Clean all clothing, boots, and equipment to prevent spread of seed.

2. Cutting
Effectiveness:
Cutting is effective for medium to large sized populations depending on available time and labor resources. Dormant seeds in the soil seed bank are unaffected by this technique due to minimal disturbance of the soil.

Methods:
Cut stems when in flower (late spring/early summer) at ground level either manually (with clippers or a scythe) or with a motorized string trimmer. This technique will result in almost total mortality of existing plants and will minimize re-sprouting.

Cautions:
Cuttings should be conducted annually for 5 to 7 years or until the seed bank is depleted.

Disposal:
Cut stems should be removed from the site when possible since they may produce viable seed even when cut. Bag and remove all plant parts from site (compost* at DOT Residency, dispose in approved landfill or incinerate with appropriate permits).

Sanitation:
Clean all clothing, boots, and equipment to prevent spread of seed.

3. Herbicide
Effectiveness:
Roundup will not affect subsequent seedling emergence of garlic mustard or other plants.

Methods:
Use glyphosate formulations only. Product should be applied after seedlings have emerged, but prior to flowering of second-year plants. Application should be by spray bottle or wick applicator for individual spot treatments.

Cautions:
This herbicide is not selective (kills both monocots and dicots), thus should be applied carefully to prevent killing of non-target species. All tank mixes should be mixed with clean (ideally distilled) water because glyphosate binds tightly to sediments, which reduces toxicity to plants.

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* *see item #4 "Composting" in General Practices section.*

* *see item #4 "Composting" in General Practices section.*

Do not apply in windy conditions because spray will drift and kill other plants. Do not apply if rain is forecast w/in 12 hours because herbicide will be washed away before it can act. Choose Rodeo® formulation for applications in standing water or along a shoreline.

CONTROL METHODS FOR JAPANESE, GIANT AND BOHEMIAN KNOTWEED (*Fallopia japonica ssp. japonica, F. sachalinensis, and F. x. bohemica*)

PLANT DESCRIPTION

The knotweeds are herbaceous perennials which forms dense clumps 1-3 meters (3-10 feet) high. Its broad leaves are somewhat triangular and pointed at the tip. Clusters of tiny greenish-white flowers are borne in upper leaf axils during August and September. The fruit is a small, brown triangular achene. Knotweed reproduces via seed and by vegetative growth through stout, aggressive rhizomes. It spreads rapidly to form dense thickets that can alter natural ecosystems. Japanese knotweed can tolerate a variety of adverse conditions including full shade, high temperatures, high salinity, and drought. It is found near water sources, in low-lying areas, waste places, and utility rights of way. It poses a significant threat to riparian areas, where it can survive severe floods.

MANAGEMENT OPTIONS

1. Digging

Effectiveness:

This method is appropriate for very small populations.

Methods:

Remove the entire plant including all roots and runners using a digging tool. Juvenile plants can be hand-pulled depending on soil conditions and root development.

Cautions:

Care must be taken not to spread rhizome or stem fragments. Any portions of the root system or the plant stem not removed will potentially re-sprout.

Disposal:

All plant parts, including mature fruit, should be bagged and disposed of in the trash to prevent re-establishment (stockpile* at DOT Residency, dispose of in an approved landfill or incinerate with appropriate permits).

Sanitation:

Clean all clothing, boots, and equipment to prevent spread of seed.

2. Cutting

Effectiveness:

Repeated cutting may be effective in eliminating Japanese knotweed. Manual control is labor intensive, but is a good option where populations are small and isolated or in environmentally sensitive areas.

Methods:

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* *Stockpiling implies temporary storage prior to transfer to a permanent treatment facility.*

Cut the knotweed close to the ground at least 3 times a year. Plant native species to act as competitors as an alternative to continued treatment.

Cautions:
This strategy must be carried out for several years to obtain success. Both mechanical and herbicidal control methods require continued treatment to prevent reestablishment of knotweed.

Disposal:
Bag all plant parts and remove from site (stockpile at DOT Residency, dispose of in an approved landfill or incinerate with appropriate permits).

Sanitation:
Clean all clothing, boots, and equipment to prevent spread of seed.

3. Herbicide
Effectiveness:
Glyphosate treatments in late summer or early fall are much more effective in preventing re-growth of Japanese knotweed the following year.

Methods:
Use glyphosate formulations only. In late June/early July cleanly cut or mow down existing stalks/canes. Allow the knotweed to re-grow. After August 1, spray knotweed all re-growth with ROUNDUP®, RODEO®.

A cut-stem treatment utilizing glyphosate formulations can be an effective control for smaller colonies of knotweed. In early to mid-July cut the existing stems just below the 2nd or 3rd node above the soil surface. Immediately after cutting apply by swab or small spray bottle a 50% solution of glyphosate to the freshly-cut cross section and into the internodal cavity of each stalk/cane. Monitor treatment area by early to mid-August and repeat cut-stem treatment to any residual stems.

Stem injection is another promising control method for smaller colonies of knotweeds. Currently, a supplemental label for AQUAMASTER® (glyphosate) herbicide exists for this stem injection method. In late June/early July inject 5 mLs of AQUAMASTER® below the 2nd node above the ground of each stem in the clump. Use suitable equipment that must penetrate into the internodal region. JKInternational manufactures a stem injection tool that is suitable and recommended for this control method.

Cautions:
Established stands of Japanese knotweed are difficult to eradicate even with repeated herbicide treatments. However, herbicide treatments will greatly weaken the plant and prevent it from dominating a site. Adequate control is usually not possible unless the entire stand of knotweed is treated (otherwise, it will re-invade via creeping rootstocks from untreated areas).

These herbicides are not selective (kills both monocots and dicots), thus should be applied carefully to prevent killing of non-target species. All tank mixes should be mixed with clean (ideally distilled) water because glyphosate binds tightly to sediments, which reduces toxicity to plants.

Do not apply in windy conditions because spray will drift and kill other plants. Do not apply if rain is forecast w/in 12 hours because herbicide will be washed away before it can act. Choose Rodeo® formulation for applications in standing water or along a shoreline.

CONTROL METHODS FOR JAPANESE, MORROW'S, TATARIAN, AMUR AND BELL'S HONEYSUCKLES
(Lonicera morrowii, L. tatarica, L. japonica, L. maackii, L. x. bella)

PLANT DESCRIPTION – JAPANESE HONEYSUCKLE

Japanese honeysuckle *(Lonicera japonica)* is a perennial trailing or climbing woody vine of the honeysuckle family (Caprifoliaceae) that spreads by seeds, underground rhizomes, and aboveground runners. It has opposite leaves that are ovate, entire (young leaves often lobed), 4-8 cm long, with a short petiole, and variable pubescence. In the southern part of the range the leaves are evergreen, while in more northern locales the leaves are semi-evergreen and fall off in midwinter. Young stems are reddish brown to light brown, usually pubescent, and about 3 mm in diameter. Older stems are glabrous, hollow, with brownish bark that peels in long strips. The woody stems are usually 2-3 m long, (less often to 10 m). *Lonicera japonica* creates dense tangled thickets by a combination of stem branching, nodal rooting, and vegetative spread from rhizomes.

Lonicera japonica (including the varieties) is easily distinguished from native honeysuckle vines by its upper leaves and by its berries. The uppermost pairs of leaves of *Lonicera japonica* are distinctly separate, while those of native honeysuckle vines are connate, or fused to form a single leaf through which the stem grows. *Lonicera japonica* has black berries, in contrast to the red to orange berries of native honeysuckle vines. The fruits are produced September through November. Each contains 2-3 ovate to oblong seeds that are 2-3 mm long, dark-brown to black, ridged on one side and flat to concave on the other.

The fragrant white (fading to yellow) flowers of *Lonicera japonica* are borne in pairs on solitary, axillary peduncles 5-10 mm long, supported by leaflike bracts. The species has white flowers tinged with pink and purple. Individual flowers are tubular, with a fused two-lipped corolla 3-4 (-5) cm long, pubescent on the outside. Flowers are produced late April through July, and sometimes through October.

MANAGEMENT OPTIONS

1. Mowing and Pulling

Effectiveness

Removing the above ground portion of *Lonicera japonica* reduces current year growth but does not kill the plant, and generally stimulates dense regrowth. Cut material can take root and should therefore be removed from the site (not practical with most infestations).

Methods

Hand pulling is highly effective. Pull out Japanese honeysuckle by the roots in winter wherever it climbs, aim the roots upward and tie them in place. The absence of light energy causes the trailing vines to decline precipitously next year. This method greatly reduces spraying requirements.

Disposal:

All plant parts, including mature fruit, should be bagged and disposed of in the trash to prevent re-establishment (stockpile* at DOT Residency, dispose of in an approved landfill or incinerate with appropriate permits).

Cautions

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* *Stockpiling implies temporary storage prior to transfer to a permanent treatment facility.*

Mowing is an ineffective control method, stimulating growth and encouraging formation of dense, albeit shorter, mats. Bush-hogging is an ineffective control, as *Lonicera japonica* re-invades within one growing season.

2. Herbicide

Effectiveness

In northern states, *Lonicera japonica* retains some leaves through all or most of the winter (semi-evergreen or evergreen), when most native plants have dropped their leaves. This provides a window of opportunity from mid-autumn through early spring when it is easier to spot and treat with herbicides, fire or other methods without damaging native species.

Controls

A foliar application of 1.5% glyphosate shortly after the first frost appears to be the most effective treatment, applied after native vegetation is dormant and when temperatures are near and preferably above freezing. Applications within 2 days of the first killing frost are more effective than applications later in the winter. *Lonicera japonica* is less susceptible to herbicides after the first hard frost (-4°C).

Cautions

Soil disturbance should be avoided in infested areas to minimize germination of seed in the seedbank. Treated plants should be re-examined at the end of the second growing season, as plants can recover from herbicide application.

These herbicides are not selective (kills both monocots and dicots), thus should be applied carefully to prevent killing of non-target species. All tank mixes should be mixed with clean (ideally distilled) water because glyphosate binds tightly to sediments, which reduces toxicity to plants.

Do not apply in windy conditions because spray will drift and kill other plants. Do not apply if rain is forecast w/in 12 hours because herbicide will be washed away before it can act.

PLANT DESCRIPTIONS – BUSH HONEYSUCKLES

Exotic bush honeysuckles (Morrow's, Bell's, Amur and tatarian) are upright, multi-stemmed, oppositely branched, deciduous shrubs that range in height from 2 m to 6 m. The opposite leaves are simple and entire, and paired, axillary flowers are showy with white, pink, or yellow corollas. The fruits of *Lonicera spp.* are red, or rarely yellow, fleshy berries (Gleason and Cronquist 1991).

In flower, exotic bush honeysuckles can be distinguished from all native bush honeysuckles except swamp fly-honeysuckle (*L. oblongifolia*) by their hirsute (hairy) styles. In fruit, the red or rarely yellow berries of the exotics separate them from the blue- or black-berried natives waterberry (*L. caerulea*) and bearberry honeysuckle (*L. involucrata*). The exotic bush honeysuckles also generally leaf-out earlier and retain their leaves longer than the native shrub honeysuckles.

Within the exotic bush honeysuckles, *L. maackii* alone has acuminate, lightly pubescent leaves that range in size from 3.5 to 8.5 cm long and peduncles generally shorter than 6 mm. Its flowers are white to pink, fading to yellow, 15-20 mm long. Its berries are red or with an orange cast. Height ranges to 6 m.

In North America, there has been considerable confusion regarding the correct identification of *L. morrowii*, *L. tatarica*, and *L.* x *bella*, their hybrid. The literature contains a number of references to plants called by the name of one of the parents, but described as having characters more like those of the

hybrid. *L.* x *bella*. The hybrid therefore, may be more common than the literature would indicate, and accurate field identification may be similarly problematic.

The two parent species of *L.* x *bella*, however, are dissimilar. *L. morrowii* has leaves that are elliptic to oblong gray-green, soft-pubescent beneath, and are 3-6 cm long. Its flowers are pubescent, white fading to yellow, 1.5-2 cm long, on densely hairy peduncles 5-15 mm long. The fruits are red. The height ranges to 2 m. *L. tatarica* has leaves that are ovate to oblong, glabrous, and are 3-6 cm long. Its flowers are glabrous, white to pink, 1.5-2 cm long, on peduncles 15-25 mm long. The fruits are red or rarely yellow. Height ranges to 3 m.

L. x *bella* has intermediate characteristics. The leaves are slightly hairy beneath. Flowers are pink fading to yellow, on sparsely hairy peduncles 5-15 mm. long. Fruits are red or rarely yellow. Height ranges to 6 m.

MANAGEMENT OPTIONS

1. Grubbing, Pulling, Cutting

Effectiveness

Mechanical controls include grubbing or pulling seedlings and mature shrubs, and repeated clipping of shrubs. Effective mechanical management requires a commitment to cut or pull plants at least once a year for a period of three to five years.

Methods

Grubbing or pulling by hand (using a Weed Wrench or a similar tool) is appropriate for small populations or where herbicides cannot be used. Mature *L. maackii* shrubs growing in shaded forest settings can be eradicated by clipping once a year, during the growing season, until control is achieved. Other bush honeysuckles growing in more open settings can be managed by clipping twice yearly, once in early spring and again in late summer or early autumn.

Disposal:

All plant parts, including mature fruit, should be bagged and disposed of in the trash to prevent re-establishment (stockpile* at DOT Residency, dispose of in an approved landfill or incinerate with appropriate permits).

Cautions

Any portions of the root system not removed can resprout. Because open soil can support rapid re-invasion, managers must monitor their efforts at least once per year and repeat control measures as needed. Winter clipping should be avoided as it encourages vigorous re-sprouting.

2. Herbicides

Effectiveness

Most managers report that treatment with herbicides is necessary for the control of *L. maackii* populations growing in full sun and may be necessary for all large bush honeysuckle populations.

Controls

Use formulations of glyphosate (brand names Roundup, and for use near water bodies, Rodeo) as foliar sprays or cut stump sprays and paints with varying degrees of success. Glyphosate is a non-selective herbicide which kills both grasses and broad-leaved plants. For cut stump treatments, 20-25% solutions

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* *Stockpiling implies temporary storage prior to transfer to a permanent treatment facility.*

of glyphosate can be applied to the outer ring (phloem) of the cut stem. 2% solutions of glyphosate can be used for foliar treatments. Glyphosate should be applied to the foliage late in the growing season, and to the cut stumps from late summer through the dormant season.

Cautions
The subsequent flush of seedlings following all herbicide treatments must also be controlled.
These herbicides are not selective (kills both monocots and dicots), thus should be applied carefully to prevent killing of non-target species. All tank mixes should be mixed with clean (ideally distilled) water because glyphosate binds tightly to sediments, which reduces toxicity to plants.

Do not apply in windy conditions because spray will drift and kill other plants. Do not apply if rain is forecast within 12 hours because herbicide will be washed away before it can act.

CONTROL METHODS FOR YELLOW IRIS
(Iris pseudacorus)

Plant Description
Yellow iris *(Iris pseudacorus)* is a robust, clumping perennial herb in the Iridaceae (Iris family). *Iris pseudacorus* is easy to identify in flower, since it is the only totally yellow-flowered *Iris* in wild lands in the United States. At maturity, *I. pseudacorus* grows to a height of 0.40-1.5 meters (1.3-4.9 ft) tall. Its thick fleshy rhizomes often form dense horizontal mats, with each rhizome measuring 1 to 4 cm in diameter with roots that may extend vertically 10-20 (30) cm deep. The stiff, sword-like leaves are glaucous, number approximately 10 per ramet, are about 50-100 cm long by 10-30 mm wide, have raised midribs, and are arranged with sheathing and overlapping leaf bases.

Flowers of *I. pseudacorus* are borne on tall erect peduncles. Each inflorescence may have one to several large, showy flowers. The flowers measure 8-10 cm in diameter and vary from pale yellow to almost orange in color. The flowers are bisexual. The perianth segments (3 sepals and 3 petals) are fused at the base, and form a flaring tube with the sepals spreading and reflexed. The 3 stamens are each individually fused by their filaments to the sepals, and the showy tongue-shaped sepals are often adorned with brown spots or purple veins, and are generally less than 6 cm long. The petals are erect and less conspicuous, and are narrower than the sepals. The 3 style branches are petal-like with two-lobed lips, are mostly < 25 mm long, and are opposite and curved over the sepals. *I. pseudacorus* has an inferior, 3-chambered ovary. Fruits are elongated capsules.

Seeds of *I. pseudacorus* are pitted, pale brown, disc-shaped (roughly circular and flattened), and measure approximately 2.0-5.0 mm in diameter and 0.5-3.0 mm tall. Seeds are arranged in three densely packed vertical rows within the seed pod or capsule. These erect capsules at maturity are a glossy green color and measure 4-8 cm in length, 5.0-8.0 mm in width, and are 3-angled and cylindrical.

1. Digging, Pulling, Cutting
Effectiveness

Manual or mechanical methods that remove the entire *I. pseudacorus* rhizome mass can successfully control small, isolated patches.

Methods
Pulling or cutting *I. pseudacorus* plants may provide adequate control, but only if it is repeated every year for several years to weaken and eventually kill the plant. Dead-heading (removing the flowers and/or fruits) from plants every year can prevent seed development and seed dispersal, but will not kill those plants.

Cutting the foliage, followed by a herbicide application (see below for details), can provide good control with minimal off-target effects.

Disposal:
If plants have capsules present, they should be bagged and disposed of to prevent seed dispersal. Bag all plant parts and remove from site (compost* at DOT Residency, dispose of in approved landfill or incinerate with appropriate permits).

Cautions
These methods, however, are very time and labor-intensive, since even small rhizome fragments can resprout. Additionally, digging disturbs the soil, may fragment rhizomes, and promote germination of *I. pseudacorus* and other undesirable species from the soil seed bank.
Care should be taken when pulling, cutting, or digging *I. pseudacorus*, since resinous substances in the leaves and rhizomes can cause skin irritation.

2. Herbicide

Effectiveness
Iris pseudacorus can be effectively controlled by herbicides. Since it usually grows in or adjacent to water, an aquatic-labeled herbicide and adjuvant must be used. Glyphosate (for example, trade names Rodeo®, Aquamaster® or Glypro®) applied in a 25% solution (13% a.i.) using a dripless wick/wiper applicator, or applied in a 5 to 8% solution if sprayed, when used with the appropriate non-ionic surfactant adjuvant, can effectively kill *I. pseudacorus*. *I. pseudacorus* can be effectively controlled by stem injection utilizing Aquamaster® applied at .5 to .7 mL. of product per flowering stem.

Controls
The timing and choice of application technique will determine control efficacy and should work to minimize off-target effects. *Iris pseudacorus* can be controlled by either directly applying the herbicide to foliage, or by immediately applying herbicide to freshly cut leaf and stem surfaces. Herbicides can be directly applied to *I. pseudacorus* foliage or cut stems by a dripless wick system or using a backpack sprayer.

Cautions
These herbicides are not selective (kills both monocots and dicots), thus should be applied carefully to prevent killing of non-target species. All tank mixes should be mixed with clean (ideally distilled) water because glyphosate binds tightly to sediments, which reduces toxicity to plants. Do not apply in windy

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* *see item #4 "Composting" in General Practices section.*

conditions because spray will drift and kill other plants. Do not apply if rain is forecast within 12 hours because herbicide will be washed away before it can act.
Be sure to always take appropriate precautions and wear suitable clothing and equipment, and follow all instructions on the herbicide label. Use a biodegradable tracer dye in the herbicide mix so you can watch for accidental contact or spill of the herbicide.

Appendix C. Herbicide Labels and Material Safety Data Sheets (MSDS)

Appendix D. NYSDEC Steps for Using Herbicides to Control Invasive Plants

Appendix E. State Land Terrestrial and Aquatic Invasive Plant Inventory

In 2004 and again in 2005 Adirondack Nature Conservancy/Adirondack Park Invasive Plant Program staff and Student Conservation Association/AmeriCorps Environmental Steward staff in cooperation with the Department undertook a systematic effort to identify and quantify the extent of terrestrial invasive species on Forest Preserve units in the Adirondack Park. Documented priority invasive threats included garlic mustard (*Alliaria petiolata*), Japanese knotweed (*Fallopia japonica ssp. japonica*), common reed (*Phragmites australis ssp. australis*), purple loosestrife (*Lythrum salicaria*), and Japanese barberry (*Berberis thunbergii*). Other invasive species found included black locust (*Robinia pseudoacacia*), Japanese, Morrow's, tatarian, Amur and Bell's honeysuckles (*Lonicera japonica, L. morrowii, L. tatarica, L. maackii, L. x. bella*), Canada and/or bull thistle (*Cirsium arvense, C. vulgare*) and wild parsnip (*Pastinaca sativa*). The following summary table documents the 2005 field work. Detailed location and population information has been provided to the Regional Land Manager.

State Land Unit	**Terrestrial Invasive Species Present**	**Total Number of Populations**	**Total Area Affected in Square Feet (acres)**
Moose River Wild Forest	garlic mustard, honeysuckle, wild parsnip	12	3620 (.08)
Sargent Ponds Wild Forest	garlic mustard, Canada thistle	6	1210 (.03)
Blue Mountain Wild Forest	Japanese knotweed, wild parsnip	4	3950 (.09)
Vanderwhacker Mountain Wild Forest	purple loosestrife, Japanese knotweed, honeysuckle, Canada thistle	27	14310 (.33)

State Land Unit	Terrestrial Invasive Species Present	Total Number of Populations	Total Area Affected in Square Feet (acres)
Shaker Mountain Wild Forest	garlic mustard Japanese knotweed, purple loosestrife, black locust, honeysuckle, common reed	33	38870 (.89)
High Peaks Wilderness	Japanese knotweed	1	13500 (.31)
Ferris Lake Wild Forest	garlic mustard, Japanese knotweed, purple loosestrife, common reed, Japanese barberry, honeysuckle	48	33780 (.78)
West Canada Lake Wilderness	garlic mustard, Japanese knotweed	3	420 (.01)
Black River Wild Forest	garlic mustard, common reed, Japanese knotweed, honeysuckle	14	11950 (.27)
Saranac Lakes Wild Forest	Japanese knotweed, Japanese barberry, Canada thistle, honeysuckle	12	6130 (.14)
Total		**160**	**127740 (2.93)**

In addition to the formal survey of the above nine Wild Forest units and one Wilderness unit, the survey team kept track of other invasive species occurrences on Forest Preserve lands noted during their ordinary course of work. Below is a summary table for several additional sites.

Location	Terrestrial Invasive Species Present	Total Number of Populations	Total Area Affected in Square Feet (acres)
Pepperbox Wilderness/Stillwater Dam	Japanese knotweed	2	700 (.02)
Cascade/Porter Mountain Trailhead and trail	garlic mustard	1	50 (.001)
Barnum Pond Boat Launch	purple loosestrife	1	1500 (.034)
Second Pond Boat Launch	Japanese knotweed	1	550 (.013)
Camp Santanoni	Japanese knotweed	2	1200 (.03)
Mt. Arab Trailhead Parking Area	Japanese knotweed	4	2000 (.05)
Grass River/Special Trout Area Parking Area	Japanese knotweed	2	1050 (.024)
Schroon Lake Boat Launch	purple loosestrife	1	100 (.002)

Location	Terrestrial Invasive Species Present	Total Number of Populations	Total Area Affected in Square Feet (acres)
Region 6 Boonville Field HQ	giant knotweed	1	300 (.007)
Lake Colby Boat Launch and Public Beach	purple loosestrife	2	400 (.01)
Total		**17**	**7850 (.18)**

There are approximately 81 Wilderness, Wild Forest, Canoe and Primitive State Areas in the Park that comprise 51 land management units. A straight extrapolation of the above data to all State land units would indicate 752 terrestrial invasive species populations occupying 600,378 square feet (13.8 acres). Of course, a straight extrapolation will not yield numbers as accurate as a comprehensive survey. Also it should be noted that the ten units were all Wild Forest areas and therefore have a higher level and more varied type of use than would be expected in Wilderness areas and potentially higher levels of terrestrial invasive species infestations. Furthermore, the numbers should be placed in context. There are approximately 2.4 million acres in Wilderness, Wild Forest, Canoe and Primitive classification. If there were 13.8 acres of terrestrial invasive species infestation it represents a very minute portion of the whole. This level of invasion is an indication that invasives are at very low population levels and the chance of eradication is high. It's also a sobering wake-up reminding us that *early detection and rapid response are key ingredients to protecting the natural systems on our State lands*. Experience in other parts of New York State and other states proves that if the infestation is allowed to consolidate it will be impossible to eradicate and will create an expensive, never-ending management effort merely to keep population levels low enough to limit environmental degradation.

The survey team also visited 28 of the 47 Department campgrounds in the Adirondack Park during summer 2005. Of the 28, 16 had minor to severe infestations of terrestrial invasive plants. The most common problem species was garlic mustard, followed by Japanese knotweed, purple loosestrife, and honeysuckle. The following table summarizes the extent of invasives knowledge on Forest Preserve campgrounds.

Campground	Terrestrial Invasive Species Present	Number of Populations
Paradox Lake Campground	garlic mustard, wild chervil	2
Lewey Lake Campground	garlic mustard	3
Limekiln Lake Campground	garlic mustard, honeysuckle	13
Carry Falls Camp Sites and Boat Launch	garlic mustard	several/many
Cranberry Lake Campground	garlic mustard	21+
Nick's Lake Campground	garlic mustard	49
Eighth Lake Campground	garlic mustard	33
Golden Beach Campground	garlic mustard	101+
Brown Tract Pond Campground	garlic mustard, honeysuckle	4
Lake Durant Campground	garlic mustard	6
Lake Eaton Campground	garlic mustard	6

Campground	**Terrestrial Invasive Species Present**	**Number of Populations**
Fish Creek-Rollins Pond Campground	garlic mustard	2
Meadowbrook Campground	garlic mustard	1
Moffitt Beach Campground	garlic mustard	14
Sacandaga River Campground	Japanese knotweed	5
Taylor Pond Campground	purple loosestrife	1
Total		**261+**

The inventory provides a preliminary indication that the following Department campgrounds appear to be free of target terrestrial invasive plant species: Wilmington Notch, Jones Pond, Buck Pond, Meacham Lake, Sharp Bridge, Au Sable Point, Putnam Pond, Little Sand Point, Point Comfort, Poplar Point, Forked Lake and Fourth Lake Picnic Area.

The following campgrounds and day-use areas have not been inventoried: Alger Island, Caroga Lake, Crown Point Reservation, Eagle Point, Hearthstone Point, Hinckley Reservoir Picnic Area, Lake George Battlefield Picnic Area, Lake George Battlefield, Lake George Beach, Lake George Islands, Lake Harris, Lincoln Pond, Luzerne, Moffitt Beach, Northampton Beach, Poke-O-Moonshine, Roger Rock and Tioga Point.

It is noted that not all terrestrial invasive species infestations require the use of herbicides. The protocols in section VI and the best management practices attached in Appendix B provide clear guidance as to which actions are best and allowed. In addition, all pesticide use will be approved by the Regional Supervisor of Natural Resources through an AANR agreement and based on a site specific plan for treatment of invasive plants.

2007 Field Inventory Data
Following is the update from Steven Flint based on 2007 field work. The survey team visited 40 of the 45 Department campgrounds in the Adirondack Park during summer 2007. Of the 40, 16 had minor to severe infestations of terrestrial invasive plants. The most common problem species was garlic mustard, followed by Japanese knotweed, purple loosestrife, and honeysuckle. The following table summarizes the extent of invasives knowledge on Forest Preserve campgrounds.

Campground	**Terrestrial Invasive Species Present**	**Number of Populations**
Paradox Lake Campground	garlic mustard, wild chervil, purple loosestrife	3
Lewey Lake Campground	garlic mustard, purple loosestrife	6
Limekiln Lake Campground	garlic mustard, honeysuckle	13
Carry Falls Camp Sites and Boat Launch	garlic mustard	several/many
Cranberry Lake Campground	garlic mustard	80+
Nick's Lake Campground	garlic mustard, honeysuckle	49
Eighth Lake Campground	garlic mustard, honeysuckle	33
Golden Beach Campground	garlic mustard	101+

Brown Tract Pond Campground	garlic mustard, honeysuckle, crown vetch	4
Lake Durant Campground	garlic mustard	6
Lake Eaton Campground	garlic mustard	6
Fish Creek-Rollins Pond Campground	garlic mustard at Rollins Pond, Fish Creek clean	2
Meadowbrook Campground	garlic mustard	1
Moffitt Beach Campground	garlic mustard, purple loosestrife	14
Sacandaga River Campground	Japanese knotweed	5
Taylor Pond Campground	purple loosestrife	3
Total		**326+**

The inventory provides a preliminary indication that the following Department campgrounds appear to be free of target terrestrial invasive plant species: Wilmington Notch, Buck Pond, Sharp Bridge, Point Comfort, Poplar Point, Eagle Point, Alger Island, Lincoln Pond and Fourth Lake Picnic Area.

The following campgrounds and day-use areas have not been inventoried: Hinckley Reservoir Picnic Area, Lake George Battlefield Picnic Area, Lake George Islands, Tioga Point, Indian Lake Islands and Lower Saranac Lake Islands.

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Appendix Y – Response to Public Comments

Response to Public Comment received during public comment period 5/17/2012 – 6/29/2012.

Many comments were received during the public comment period for the Taylor Pond Management Complex (TPMC) Unit Management Plan (UMP). These comments are broken up into categories and discussed by category below along with the actions taken to modify the UMP driven by the respective comments.

Pauline Murdock Wildlife Management Area (PMWMA):

1. The PMWMA is an important green space for Elizabethtown. The Town is working to develop public recreation trails. Can the Town work with the Department of Environmental Conservation (Department) to develop and maintain a trail system on PMWMA?

   Yes, the Department often partners with groups and local governments to develop and maintain facilities. This is often facilitated through Temporary Revocable Permits (TRPs), or the Adopt-A-Natural Resource (AANR) program (for more information on the AANR program visit: http://www.dec.ny.gov/regulations/2568.html). The PMWMA portion of the TPMC UMP has been modified to include the future development of multiple use trails in cooperation with local government and other interested parties.

2. The trails and facilities on the PMWMA are in poor shape and need better maintenance.

   The Department provides annual maintenance for the trails and facilities on PMWMA. Sometimes trails and facilities need more maintenance than the Department can provide during the budgeted annual maintenance period. The Department hopes to partner with local groups and governments to develop and maintain facilities.

3. The bird boxes no longer exist on PMWMA.

   Due to the natural process of forest regeneration, the open field that was once habitat for blue birds no longer exists. The blue bird boxes that were installed no longer serve the purpose they were intended for and have been allowed to naturally degrade. In 2010 one blue bird box was still located on the PMWMA.

Poke-O-Moonshine:

1. The Ranger trail on Poke-O-Moonshine should not be closed.

   The acquisition of lands on which the observer's jeep trail is located has opened up several possibilities for trails to the summit of Poke-O-Moonshine Mountain. These include:

   1. *Making the Observer's Trail the official trail to the summit and closing the existing Ranger Trail.*
   2. *Upgrading the existing Ranger Trail and connecting it with the Observer's Trail to form a loop.*

Each of the options above would have advantages and disadvantages based on recreational opportunities provided and maintenance costs incurred. The Department will evaluate trail options for Poke-O-Moonshine Mountain to determine which will provide the greatest recreational value that can be sustainably managed with available resources.

Fishing Access Sites (FAS) and Boat Launches:

1. The FAS on Franklin Falls Pond should not be blocked.

   The FAS on Franklin Falls Pond is located on State land classified as Wild Forest. The Adirondack Park State Land Master Plan (ASLMP) does not allow boat launches on bodies of water over 1,000 acres at sites classified as Wild Forest. In order to achieve APSLMP compliance the Department is required to prohibit the launching of trailered boats directly into the water from lands classified as Wild Forest. In order to satisfy this requirement, the Department plans on blocking the FAS in a manner that restricts users from floating boats directly off of trailers into the water, while still allowing trailers to be backed up as close to the water as possible.

2. The FAS on Union Falls Pond should not be blocked and the labeling of it as a non-conforming facility should be removed from the UMP.

   It is not clear whether the informal boat launch on Union Falls Pond is on state land. The informal boat launch on Union Falls Pond if located on State land would be located in Wild Forest. Boat launches are only allowed, by the SLMP, in areas classified as Intensive Use and on bodies of water over 1,000 acres. Union Falls Pond is over 1,000 acres. Once the ownership determination is completed and if the site is found to be on State land, then the site can be reviewed as to its appropriateness for the development of a boat launching facility. If the site is found to be on State land and also determined to be at an appropriate location for the development of a boat launch, the site can then be reviewed for reclassification as an Intensive Use Area for the purpose of developing a boat launch.

3. The Department should not delay the decision of designating the Union Falls Boat Launch on Union Falls Pond.

   The informal boat launch which provides boat access to Union Falls Pond near the dam needs to have extensive deed and title searches completed in order to determine the ownership of the land the site occupies. This work is complicated by the loss of historical public records and the complexity of the land transfers that took place in the area. The issue is further complicated by the method in which the Paul Smiths Power and Light Company reserved its rights to the surrounding lands when the lands were flooded by the dam construction. The TPMC UMP calls for this research to be completed. The UMP also calls for the informal site and other locations adjacent to Union Falls to be studied during the life of the plan for appropriateness of developing a boat launching facility.

Mountain Biking:

1. The Department should develop more mountain biking trails and connect them with other units.

   The UMP has been modified to include language that calls for the future planning of an interconnecting mountain biking system with other units.

   The UMP has also been modified to include the development of trails which will be developed specifically for mountain biking on the lands in the vicinity of Taylor Pond and the Forestdale Road.

The Mud Pond Road Gate:

1. The UMP states that the illegal gate on the Mud Pond Road needs to be removed. The gate is on private land. It is not illegal.

   The People of the State of New York own land that has historically been accessed by the Mud Pond Road. In 1992, private individuals barricaded Mud Pond Road with a metal gate. Though the gate was installed on private property, the gate across Mud Pond Road has restricted public access to State land located behind the gate. The Department contends that the gate has blocked a public access route and has prohibited public access to and from state owned lands.

2. The state should have the illegal gate removed and allow public access to these areas again.

   Though the gate was installed almost 20 years ago, the Department has attempted to resolve the dispute without resorting to legal action. The Department and New York State Office of the Attorney General are still considering the State's options.

General Comments:

1. The costs allocated to the specific projects in the budgets section of the plan are too low to allow the projects to be completed.

   The Department feels that the dollar values listed in the UMP accurately depict the costs of materials needed for the specific projects.

2. The lean-to on Taylor Pond named I-4 burned. The lean-to should be replaced.

   The Department plans to replace the I-4 lean-to. The location of the lean-to prior to the fire was not in compliance with the APSLMP. The Department plans to relocate the lean-to so it will be in compliance with the APSLMP.

3. The Portion of the C8D snowmobile trail between the Union Falls power line Right-of-Way (ROW) and Union Falls Pond that is part of the proposed Wilmington – Taylor Pond community connector trail may be at risk of being closed.

The Department recognizes this risk and has modified the TPMC UMP to include language that will allow the relocation of this portion of the trail onto adjacent state land if the current trail location is closed.

4. Grammar and punctuation errors should be corrected.

The Department thanks those who found, and noted, grammar and punctuation errors. Those errors have been corrected.

5. Consider introducing beetles to control purple loosestrife colonies now, as opposed to using this option in the future.

The Department is currently using methods to control purple loosestrife as identified in the Invasive Species Guidlines for Forest Preserve Lands in the Adirondack Park. This document outlines best management practicies for the control of invasive plants including purple loosestrife. If needed, the use of beetles will be explored.

6. Improve unit maps by numbering and showing snowmobile trails outside of the unit.

The Department has modified the maps to include numbering and other relevant facilities.

7. Some management actions in the plan may be discriminatory in nature and create access issues for some individuals.

The Department believes that the management actions in the plan are compliant with the Americans with Disabilities Act (ADA).

8. The Department should not be closing roads and trails that are important access routes for sportsmen.

The routes that are proposed to be closed in the UMP are dead-end spur trails and roads that do not access Department maintained facilities. These routes have resource protection issues that have driven the closures.

9. The Department should allow sportsmen to use all terrain vehicles (ATV's) when hunting, fishing and trapping.

The Department is in the process of developing a new ATV policy for general public use of ATV's on State Land. The Department's current policy does not permit the use of ATV's at large on State lands in the TPMC. The Department provides access to facilities for persons with limited mobility through a permit called Commissioner Policy 3 (CP-3).

10. The Taylor Pond boat launch should be open year round regardless of the campground status.

The Taylor Pond boat launch is part of the Intensive Use Area campground. The boat launch is not part of the TPMC UMP.

11. Do not close campsites unless they are replaced or relocated.

The Department is required to manage primitive tent sites and other facilities according to the APSLMP. The APSLMP has specific guidelines on where and how primitive tent sites may be developed. These guidelines include issues such as setbacks from the water and sight and sound separation distances from other sites. Many primitive tent sites were originally located without forethought to resource protection. These sites need to be relocated or closed in order comply with APSLMP guidelines and to protect the resource. At some locations land constraints do not allow for the retention of all sites in compliance with the APSLMP.

12. Reroute the trail to the rock outcrop on Burnt Hill State Forest so that it is entirely on state land.

    The UMP has been modified to incorporate a reroute that will move the current trail off private property and on to state land.

13. The TPMC UMP should be broken up into smaller units and separate UMP's should be written for each of the smaller units.

    The Department strives to manage all of its lands in a comprehensive manner. This means that management decisions for any individual land unit are considered in the context of how they will affect/compliment management objectives on surrounding lands.

    The TPMC has in fact been divided into smaller units in the recent past. The Split Rock Mountain Wild Forest, and the Wilmington Wild Forest were originally part of the TPWF. These were created as separate units in the 1990s to allow for more concentrated management of specific areas with distinct natural and recreational resources. Further division of the management complex could lead to a fragmented management approach. The Department feels that the current composition of the TPMC is appropriate for comprehensive management.

14. The State owned lands in Essex County should be removed from the TPMC UMP and reclassified as Working State Forest Lands and managed for all forest products, wildlife habitat and outdoor recreation.

    These lands are defined as Forest Preserve by Environmental Conservation Law section 9-0101(6). The New York State Constitution (Article 14, section 1) dictates that these lands "shall be forever kept as wild forest lands" and considered part of the Adirondack Forest Preserve. The types of management sugested would conflict with the provisions of Article 14, Section 1 of the New York State Constitution.

15. All roads on state land should remain open to all uses including motor vehicles and ATV's.

    Roads, trails and other facilities within the TPMC are managed to allow recreation that is consistent with Article XIV, section 1 of the State Constitution, Department policy, the provisions of the APSLMP, and the ability of the particular resource to sustain recreational use.

16. Conserve additional lands/resources within the planning boundary of the TPMC.

    New York's Open Space Conservation Plan serves as the blueprint for the State's land conservation efforts. Future land conservation within the TPMC will be considered within the statewide efforts of the Open Space Conservation Plan. Information regarding this plan, including a link to the document, can be found at: http://www.dec.ny.gov/lands/317.html