



Division of Lands & Forests

**46 - CORNERS
UNIT MANAGEMENT PLAN**

DRAFT

Towns of Annsville, Camden, Florence,
Lewis & Redfield, Oneida County

APRIL 2008

NYS Department of Environmental Conservation
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46-Corners Unit Management Plan

A Management Unit
Consisting of Eight State Forests:
Big Brook State Forest
Cobb Brook State Forest
Fall Brook State Forest
Florence Hill State Forest
Furnace Creek State Forest
Mad River State Forest
Tri-County State Forest
Swancott Hill State Forest

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46-CORNERS MANAGEMENT AREA

Preface

The Department of Environmental Conservation conducts management planning on State lands to maintain ecosystems and provide a wide array of benefits for current and future generations. The 46-Corners Unit Management Plan addresses future management of Big Brook, Cobb Brook, Fall Brook, Florence Hill, Furnace Creek, Mad River, Swancott Hill and Tri-County State Forests. This plan is the basis for supporting a multiple-use goal through the implementation of specific objectives and management strategies. Management will ensure the sustainability, biological diversity, and protection of the Unit's ecosystems and optimize the many benefits that these State lands provide. The multiple-use goal will be accomplished through the applied integration of compatible and sound land management practices.

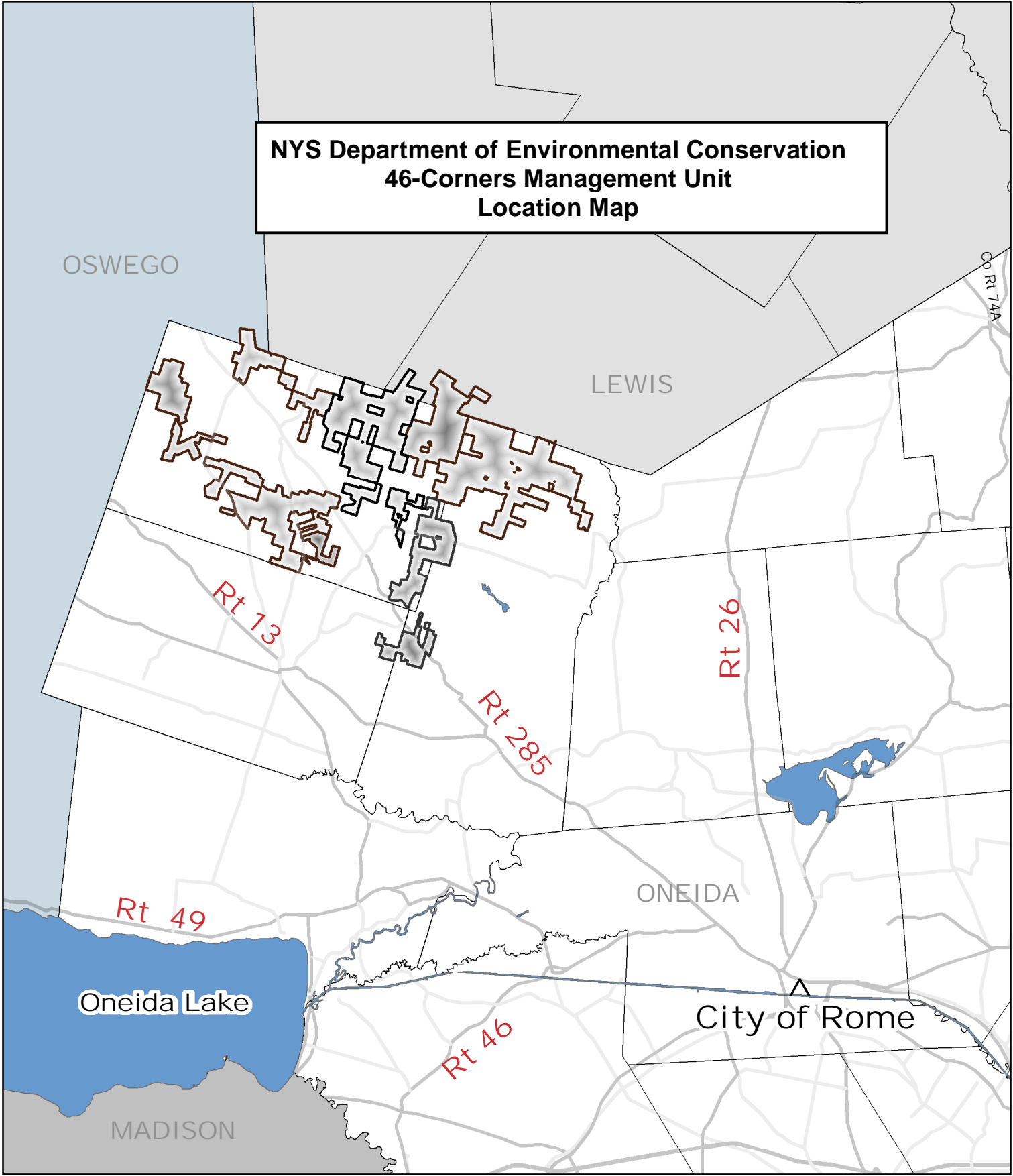
It is the policy of the Department to manage State lands for multiple benefits to serve the people of New York State. This Unit Management Plan is the first step in carrying out that policy. This Plan has been developed to address management activities on this Unit for the next 15 years, with a review midway through the period. Some management recommendations may extend beyond the 15 year period. Factors such as limited budgets, wood product markets, and forest health problems may require deviations from the scheduled management activities. The 46-Corners Unit Management Plan is based on a long-range vision for the management of this area. Specific goals and objectives to support that vision are based on the rapidly evolving principles and technologies of ecosystem management, balanced with the increased demands for public use.

This Plan and the activities it recommends will be in compliance with State Environmental Quality Review (SEQR), 6NYCRR Part 617. The Division of Lands and Forests has initiated this process by preparing a full Environmental Assessment Form. This process will be complete after the public comment period when a final Plan will be issued. Article 9, Titles 5 and 7, of the Environmental Conservation Law authorize the Department of Environmental Conservation to manage lands acquired outside the Adirondack and Catskill Parks. Management, as defined by these laws, includes watershed protection, the production of timber and other forest products, recreation, and kindred purposes. The Draft State Forest Land Master Plan provides direction and a framework for meeting this legal mandate.

Vision Statement

State Forests on this Unit will be managed to maintain and enhance ecosystem health, biodiversity, and sustainability while providing environmental, social, and economic benefits for the people of New York State.

**NYS Department of Environmental Conservation
46-Corners Management Unit
Location Map**



Description of the Unit Management Planning Process

What is a Unit Management Plan?

A unit management plan (UMP) is an assessment of the natural and physical resources on land managed by the Department of Environmental Conservation. The UMP guides the Department's activities for a twenty-year period. Each plan addresses specific objectives for public use and ecosystem management which are consistent with the land classification guidelines and the wild character of these lands.

Who Writes the Unit Management Plan?

State Forest UMP's are written by the Division of Lands and Forests with input from the Division of Fish, Wildlife, and Marine Resources, the Division of Operations, the Division of Mineral Resources, and the Division of Forest Protection and Fire Management. A description of each Division's responsibilities is listed below as paraphrased from the Department's website.

Division of Lands and Forests

The Division of Lands and Forests is responsible for the stewardship, management, protection, and recreational use of State Forest lands, the care of the people who use these lands, and the acquisition of additional lands to conserve unique and significant resources. The Division also provides forestry leadership by providing technical assistance to private forest landowners and the forest products industry.

Division of Fish, Wildlife, and Marine Resources

The Division of Fish, Wildlife, and Marine Resources serves the public by using their collective skills to describe, understand, manage, and perpetuate a healthy and diverse assemblage of fish, wildlife, and ecosystems.

Division of Operations

The Division of Operations provides technical services, facilities management, and maintenance of physical assets to insure effective and efficient operation of the Department and safe public use of Department lands and facilities.

Division of Mineral Resources

The Division of Mineral Resources is responsible for ensuring the environmentally sound, economic development of New York's non-renewable energy and mineral resources for the benefit of current and future generations.

Division of Forest Protection and Fire Management

The Division of Forest Protection and Fire Management is responsible for the preservation, protection, enhancement of the state's forest resources, and the safety and well-being of the public using these resources.

How is a Unit Management Plan Developed?

There are a series of steps involved in developing a unit management plan:

- Step 1: Conduct a resource inventory of the unit.
- Step 2: Solicit written and verbal input from the public through press releases and public scoping sessions.
- Step 3: Develop a draft UMP
- Step 4: Internal review and approval of draft UMP.
- Step 5: Release draft UMP and conduct public meetings to gather comments on the draft plan.
- Step 6: Resolve issues and develop a final UMP.
- Step 7: Comply with State Environmental Quality Review (SEQR).
- Step 8: DEC Commissioner approves final UMP and implementation begins.

Public Scoping Session

Initially, a public scoping session may be held to kick off the process of developing a UMP. People are encouraged to help identify issues that need to be addressed in the plan. Scoping sessions take several different forms. They can be an open house or a discussion forum. Sometimes they involve small discussion groups or “breakout sessions.”

Unit Management Plan Development

Information gathered at the scoping session is incorporated into the draft UMP. After the scoping session, Department staff also do additional fieldwork and conduct in-depth research on topics related to the Plan. All of this information is necessary to comply with the State Environmental Quality Review Act (SEQRA). The draft UMP includes local history, information on the Unit, project and treatment schedules, and a budget.

Draft Unit Management Plan

Once the draft UMP is formally released, timeliness and deadlines become more formal and important. This is due to the noticing and comment requirements related to the State Environmental Quality Review Act and also due to the need to issue a final UMP and begin implementation. Once again, meetings are held to gather public input on the draft UMP. If you are not able to attend a public meeting, comments can also be made in writing, by telephone, fax, or e-mail up to 30 days after the public meeting. Regardless of the format of your input, all forms of communication with the Department carry equal weight.

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I. DESCRIPTION OF THE UNIT

A. HISTORICAL BACKGROUND

1. State Forest History

The forest lands outside the Adirondack and Catskill regions owe their present character, in large part, to the impact of pioneer settlement. Following the close of the Revolutionary War, increased pressure for land encouraged westward expansion. Up to 91% of woodlands were cleared for cultivation and forage.

Early farming efforts met with limited success. As the less fertile soils proved unproductive, they were abandoned and settlement was attempted elsewhere. The stage of succession was set and new forests of young saplings pioneered the cleared ground.

The State Reforestation Law of 1929 and the Hewitt Amendment of 1931 set forth the legislation which authorized the Conservation Department to acquire land by gift or purchase for reforestation areas. These state forests, consisting of not less than 500 acres of contiguous land, were to be forever devoted to “reforestation and the establishment and maintenance thereon of forests for watershed protection, the production of timber and other forest products, and for recreation and kindred purposes”. This broad program is presently authorized under Article 9, Title 5 of the Environmental Conservation Law.

In 1930, forest Districts were established and the tasks of land acquisition and reforestation were started. In 1933 the Civilian Conservation Corps (CCC) was established. 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 projects.

During the war years of 1941-1945, very little was accomplished on the state lands. Plans for further planting, construction and facility maintenance had to be curtailed. However, through the postwar funding, conservation projects once again received needed attention. The Park and Recreation Land Acquisition Act of 1960, and the Environmental Quality Bond Act of 1972 and 1986 contained provisions for the acquisition of state lands. These lands would serve multiple purposes involving the conservation and development of natural resources, including the preservation of scenic areas, watershed protection, forest management and recreation.

As of 2007, there are over 760,000 acres of State Forests throughout the state. The use of these lands for the purposes of timber production, hiking, skiing, fishing, trapping and hunting is of tremendous importance economically and to the health and well-being of the people of the state.

2. Local History

The development of north-east Oneida County has its beginnings after the Revolutionary War, when plans were made to settle lands west of the Hudson River. In 1791, a company headed by Nicholas and John Roosevelt purchased 500,000 acres of land in central New York, which included most of Oneida and Oswego Counties and part of Herkimer County. Later, the Roosevelts sold the land to George Scriba, a member of their company, and the purchase became known as 'Scriba's Patent'. George Scriba began surveying out parcels of land for sale.

Gerrit Smith, a land speculator and passionate abolitionist, bought an 18,000 acre piece of property in the town of Florence, which contains much of the 46-Corners Unit. At the age of 21, Smith became one of the largest, if not the largest, land owners in New York State. He spent most of the subsequent forty years disposing of his vast properties.

Gerrit Smith is most noted for his philanthropy and interest in social reform. He was a major participant in various anti-slavery and temperance societies. Disgusted with secularism and the unforgiving posture of contemporary churches toward slavery, Smith founded his own church in Peterboro, NY, where he professed what he called the Religion of Reason. He gifted an average of 40 acres of Adirondack land in Northern New York to each of more than 2000 poor (and "temperate") black men, to permit them to meet the requirements for voting, and in hopes of promoting self-sufficiency. He made similar gifts to poor white men, and for women he decided the gifts impractical and substituted \$50 in cash (Frothingham, 2007). While the large land transfer of the Adirondack's is more well known, Smith presented the same type of opportunity in the area of 46-Corners. This venture was of a smaller scale and involved around 40 individuals. As much of the land was clearly unsuitable for farming, very few lasting settlements were formed.

The majority of Smith's land was sold to Irish immigrants. While the Irish are a hardy people, farming was not as productive as they had been promised and found a hard life in the area. Falling on poor land and facing long winters, the new inhabitants found it hard to pay off their debts. Gerrit Smith may have had remorse over the acquisition of the lands in north-western Oneida County. It took him many years to receive full payment on his property.

3. Acquisition History

Land has been acquired piece-meal from 1934 to the mid-1970's. For this reason the Unit is not entirely contiguous. The acquisition history is located in Appendix XII. There have been no acquisitions for the Unit recently. The increased interest in camps and cottages on lots adjacent to state forest make future acquisition more important to limit further fragmentation of the resource, but also makes acquisition more difficult.

B. GEOLOGIC RESOURCES

Continental glaciation played a modifying role in the development of New York's landscape in the recent geological past. On its advance south, the Wisconsin glacier removed and transported existing soils and eroded the surface of the bedrock. As the ice melted, this debris (mud, sand, gravel, and boulders) was left at new sites in a great variety of depositional landforms. Melting caused the glacier to retreat across the State from south to north between 20,000 and 10,000 years ago. Present-day drainage features in the 46-Corners Unit physically illustrate glacial erosion, transportation, and deposition. The prominent northeast-trending rivers, streams, and lakes occur where scraping, gouging and fracture zones greatly weakened the bedrock to make it easily erode.

The Tug Hill Plateau is related geologically to the Appalachians and the Catskills, rather than its neighbor on the east, the Adirondacks. The bedrock geology of the Tug Hill Region dates to the Middle Ordovician geologic period beginning approximately 460 million years ago. The bedrock pattern is very important because it affects the nature of landforms, groundwater, soils, and land use. The region largely contains erosion resistant sandstone. This deposit tilts westward and rests on limestone, siltstone, and a series of sandy shales. The Unit sits on part of a 47-mile unconfined 10-100gpm aquifer, of which local communities rely on as a water source.

In general, Tug Hill soils are derived from glacial till and tend to be wet, stony, shallow, sandy or steeply sloping. The soils in the region are poorly drained and the soil fertility decreases in the upland areas. These soils are generally unfit for agriculture and are dominated by forests. The topographic features are that of lowland swamp areas and steep ravines carved by flowing streams. The elevation decreases on the Unit from north to south. The elevation ranges from 1500 feet on Swancott Hill State Forest (Oneida -Lewis RA# 1) to the lowest elevation, 770 feet on Cobb Brook State Forest (Oneida RA# 2).

C. BIOLOGICAL RESOURCES

1. Forest Resources

The character and structure of the forest resources on this Unit have been shaped by past land use patterns and human influence. Prior to settlement in the late 18th century, the landscape was heavily forested. Large timber of American chestnut, Eastern hemlock and Eastern white pine were native residents of these forests. Throughout the 19th century, much of this timber was utilized for lumber and the cleared land was used to raise agricultural crops. None of the original forests remained in their pre-settlement state.

In the first half of the 1900's many of the farms failed to be successful and through natural succession and tree planting efforts by the Department (Conservation Department at that time) and the Civilian Conservation Corps, new forests were "reborn." More than 50% of the State Forests on this Unit became forest through natural succession and approximately 36% of the acreage was successfully planted. For these reasons, more than 86% of the State Forests on this Unit exhibit an even-aged character. These forests now provide a variety of habitats and ecological communities and their transformation continues to this day. The hardwood stands have become more mature, leaving only traces of the early successional brush and seedling/sapling stages. The softwood plantations are maturing as well. Many of the tree species planted are not native to this area. Many of the red pine, white pine and larch plantations are reaching the end of their biological maturity. In some cases, the stands that were planted on poor sites have started to decline with a majority of the trees losing their vigor. The spruce plantations are maturing as well; however, these species have a longer life span and in most cases have retained their health.

At the landscape level, the Unit has a high degree of forest diversity. The northern portion of the Unit, where State Forest is more contiguous and you enter deeper in the core of the Tug Hill, the landscape is predominantly high forest canopy cover. There are large blocks of continuous mature forest of both native hardwoods and softwood plantations along with riparian areas of mixed hardwood, hemlock and spruce. The landscape is streaked with trout streams and highly productive open wetland complexes. As you move south on the landscape, State land is still forested but the overall forest cover is more fragmented; historically private land has been agricultural. Agricultural activities are decreasing and providing early successional habitat in abandoned fields. Management recommendations will be made to provide a variety of vegetative cover and enhance the landscape diversity of the area.

a) Native Forest Cover Types

The term "forest cover type" refers to the type of tree or vegetation that dominates a forested site. However, many more species of plants and animals are found within the type. The interrelationship of these species is known as an ecological community. 1995 studies by Keys, McNab, and Carpenter concluded natural communities in the Tug Hill Transition Ecological Unit can support vegetation communities of Sugar Maple-Birch-Beech, Paper Birch-Red Spruce Transition Forest and Red Cedar-White Ash Woodland. These are biotic communities that would be established if all successional sequences of its ecosystem were completed without additional human-caused disturbance under present environmental conditions. However, due to agricultural land clearing and possible impacts from global warming we find a different complex of communities. More recent surveys by the Natural Heritage Program categorize the ecological communities around the state and determined the following ecological communities to be present in the Unit. These descriptions were developed by the New York State Heritage Program.

Spruce- Northern Hardwood: a mixed forest that occurs on lower mountain slopes and upper margins of flats on glacial till, primarily in the Adirondack and Catskill mountains, and in the Tug Hill plateau. This is a broadly defined community with several regional and edaphic variants; it is one of the most common forest types in the Adirondacks. Codominant trees are red spruce (*Picea rubens*), sugar maple (*Acer saccharum*), beech (*Fagus grandifolia*), yellow birch (*Betula alleghaniensis*), and red maple (*Acer rubrum*), with scattered balsam fir (*Abies balsamea*). Striped maple (*Acer pensylvanicum*) and mountain maple (*A. spicatum*) are common subcanopy trees. Characteristic shrubs are hobblebush (*Viburnum lantanoides*), American fly honeysuckle (*Lonicera canadensis*), and Canada yew (*Taxus canadensis*). Characteristic groundlayer plants are common wood-sorrel (*Oxalis acetosella*), common wood fern (*Dryopteris intermedia*), shining clubmoss (*Lycopodium lucidulum*), wild sarsaparilla (*Aralia nudicaulis*), bluebeads (*Clintonia borealis*), goldthread (*Coptis trifolia*), bunchberry (*Cornus canadensis*), Canada mayflower (*Maianthemum canadense*), Indian cucumber-root (*Medeola virginiana*), and twisted stalk (*Streptopus roseus*). Characteristic birds include yellow-bellied flycatcher (*Empidonax flaviventris*), white-throated sparrow (*Zonotrichia albicollis*), golden-crowned kinglet (*Regulus satrapa*), pileated woodpecker (*Dryocopus pileatus*), and gray jay (*Perisoreus canadensis*).

Beech-maple mesic forest: a hardwood forest with sugar maple (*Acer saccharum*) and beech (*Fagus grandifolia*) codominant. This is a broadly defined community type with several regional and edaphic variants. These forests occur on moist, well-drained, usually acid soils. Common associates are yellow birch (*Betula alleghaniensis*), white ash (*Fraxinus americana*), eastern hop hornbeam (*Ostrya virginiana*), and red maple (*Acer rubrum*). There are relatively few shrubs and herbs. Characteristic small trees or tall shrubs are hobblebush (*Viburnum lantanoides*), American hornbeam (*Carpinus caroliniana*), striped maple (*Acer pensylvanicum*), witch hazel (*Hamamelis virginiana*), and alternate-leaved dogwood (*Cornus alternifolia*). Dominant groundlayer species are star flower (*Trientalis borealis*), common wood-sorrel (*Oxalis montana*), Canada mayflower (*Maianthemum canadense*), painted trillium (*Trillium undulatum*), purple trillium (*T. erectum*), shining clubmoss (*Lycopodium lucidulum*) and intermediate wood fern (*Dryopteris intermedia*). Associated herbs include Christmas fern (*Polystichum acrostichoides*), jack-in-the-pulpit (*Arisaema triphyllum*) and false Solomon's seal (*Smilacina racemosa*). There are many spring ephemerals which bloom before the canopy trees leaf out. Typically there is also an abundance of tree seedlings, especially of sugar maple; beech and sugar maple saplings are often the most abundant "shrubs" and small trees. Hemlock (*Tsuga canadensis*) may be present at a low density. Characteristic birds include American redstart (*Setophaga ruticilla*), red-eyed vireo (*Vireo olivaceus*), ovenbird (*Seiurus aurocapillus*), black-throated blue warbler (*Dendroica caerulescens*), least flycatcher (*Empidonax minimus*), Acadian flycatcher (*Empidonax virescens*), and red-bellied woodpecker (*Melanerpes carolinus*). Within extensive areas of beech-maple mesic forest, there are often associated small patches of hemlock-northern hardwood forest in steep ravines and gullies where hemlock is locally dominant.

Successional northern hardwoods: a hardwood or mixed forest that occurs on sites that have been cleared or otherwise disturbed. Characteristic trees and shrubs include any of the following: quaking aspen (*Populus tremuloides*), bigtooth aspen (*P. grandidentata*), balsam poplar (*P. balsamifera*), paper birch (*Betula papyrifera*), or gray birch (*B. populifolia*), pin cherry (*Prunus pensylvanica*), black cherry (*P. serotina*), red maple (*Acer rubrum*), white pine (*Pinus strobus*), with lesser amounts of white ash (*Fraxinus americana*), green ash (*F. pensylvanica*), and American elm (*Ulmus americana*). Northern indicators include aspens, birches, and pin cherry. This is a broadly defined community and several seral and regional variants are known. Characteristic birds include chestnut-sided warbler (*Dendroica pensylvanica*), Nashville warbler (*Vermivora ruficapilla*) in young forests with aspen and birch seedlings, and yellow-bellied sapsucker (*Sphyrapicus varius*) in mature aspen forests. This forest community on the Unit is maturing and slowly being replaced with a later successional hardwood community.

Hemlock-northern hardwood forest: a mixed forest 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. In any one stand, hemlock (*Tsuga canadensis*) is codominant with any one to three of the following: beech (*Fagus grandifolia*), sugar maple (*Acer saccharum*), red maple (*A. rubrum*), black cherry (*Prunus serotina*), white pine (*Pinus strobus*), yellow birch (*Betula alleghaniensis*), black birch (*B. lenta*), red oak (*Quercus rubra*), and basswood (*Tilia americana*). The relative cover of hemlock is quite variable, ranging from nearly pure stands in some steep ravines to as little as 20% of the canopy cover. Striped maple (*Acer pensylvanicum*) is often prominent as a mid-story tree. The shrublayer may be sparse; characteristic shrubs are hobblebush (*Viburnum lantanoides*), mapleleaf viburnum (*Viburnum acerifolium*), and raspberries (*Rubus* spp.). Canopy cover can be quite dense, resulting in low light intensities on the forest floor and hence a relatively sparse groundlayer. Characteristic groundlayer plants are Indian cucumber-root (*Medeola virginiana*), Canada mayflower (*Maianthemum canadense*), shining clubmoss (*Lycopodium lucidulum*), common wood fern (*Dryopteris intermedia*), mountain wood fern (*Dryopteris campyloptera*), christmas fern (*Polystichum acrostichoides*), star flower (*Trientalis borealis*), bellwort (*Uvularia sessilifolia*), common wood-sorrel (*Oxalis acetosella*), partridge berry (*Mitchella repens*), foamflower (*Tiarella cordifolia*), round-leaf violet (*Viola rotundifolia*), twisted stalk (*Streptopus roseus*), purple trillium (*Trillium erectum*), and the moss *Leucobryum glaucum*. In forests that have beech as a codominant, beech-drops (*Epifagus virginiana*) is a common herb. Characteristic birds include wild turkey (*Meleagris gallopavo*), pileated woodpecker (*Dryocopus pileatus*), golden-crowned kinglet (*Regulus satrapa*), blackthroated green warbler (*Dendroica virens*), and Acadian flycatcher (*Empidonax vireescens*). This is a broadly defined and very widespread community, with many regional and edaphic variants.

b) Common Trees on this Unit

A description of the more common native species, their characteristics and uses follows.

Native Hardwood

<u>black cherry</u>	Cherry wood is prized by furniture makers and is the most valuable timber species on the Unit. It is shade intolerant, and the cherries are a valuable food for wildlife.
<u>white ash</u>	Ash wood is used for baseball bats and furniture. Ash is dioecious, a single tree has either male pollen or female flowers, not both.
<u>American beech</u>	Beech nuts are an important food source for wildlife. Imported beech bark disease has killed many trees. This disease is described on page 12.
<u>basswood</u>	The wood is often used for carving and moldings because the tree has relatively soft wood.
<u>red maple</u>	It has bright red fall foliage. Also called "soft maple", it is very common in the Unit's forests.
<u>sugar maple</u>	This tree has very high timber value and is used to produce syrup. Sugar maple or "hard maple" is also the official New York State tree.
<u>aspen</u>	Aspen in the area is often used for paper-pulp. It can sprout prolifically after cutting, creating dense wildlife nesting areas.

<u>northern red oak</u>	The Unit is out the range of oak; however, there are some scattered plantations. Acorns provide food for wildlife called “mast.”
<u>yellow birch</u>	A mid to Late Successional species. The twig and leaves have a wintergreen scent.
<u>gray birch</u>	A pioneer species that is quick to take over abandoned fields. It is small, very shade intolerant and short-lived therefore often out competed by other species. The sweet sap can be fermented to make birch beer
<u>shagbark hickory</u>	The trunk of this tree often exhibits a “shaggy” appearance due to the loose bark.
<u>pignut hickory</u>	The wood is often used for tool handles. The nuts are an important wildlife food.
<u>bitternut hickory</u>	Smooth bark, like pignut hickory, but more leaflets per leaf (7 -11). The nuts are bitter.
<u>black locust</u>	Well-known for its use as fence posts. The wood is very dense and rot-resistant.
<u>American hornbeam</u>	A hard, dense wood. Also known as “musclewood” due to the unique stem characteristics.
<u>eastern hop hornbeam</u>	Extremely hard, dense wood. Typically used for firewood, but not lumber.
<u>striped maple</u>	Also known as “moosewood.” Often referred to as “undesirable” when it competes with timber species. Short-lived.
<u>shadbush</u>	Also known as serviceberry or June berry. White spring-time flowers. A tall shrub.
<u>apple</u>	Commonly found near sites of early settlement. An important wildlife food.
Native Softwoods <u>eastern white pine</u>	White pine is a long-lived conifer, and can grow to be one of the largest trees in the northeastern forests. Young evergreens provide winter cover for wildlife.
<u>eastern hemlock</u>	Hemlock bark was used for tanning leather. This evergreen is usually found on moist sites, and is also a long-lived species.
<u>red spruce</u>	Red Spruce is at the southern edge of it range but has an isolated native range atop the Tug Hill Plateau. It is mostly found near streams and wetland margins.
<u>balsam fir</u>	During severe winter weather, especially in the northern areas of the white-tailed deer range, lowland balsam fir stands and spruce-balsam fir swamps are used extensively as winter yarding areas. The fact that these sites usually contain, at best, only small amounts of preferred food suggests their attractiveness as shelter.

Plantation Softwoods - Not Native to the Area

<u>Norway spruce</u>	Used for producing paper & construction lumber. Though this species is “exotic” or non-native, it is not considered invasive since it does not displace native conifers. It is a first choice for evergreen planting since it is inexpensive to plant and it tolerates the poorly-drained, high-clay soils commonly found in central New York. In addition, Norway spruce regenerates naturally, and suffers relatively little damage from insects, disease and deer.
<u>white spruce</u>	White spruce in the Tug Hill area is out of its natural range. However as a planted species it does well on higher quality sites where it is not out competed by native species.
<u>Japanese larch</u>	Larch is a deciduous conifer, as it loses its needles in the winter. The wood is rot-resistant.
<u>red pine</u>	Grows tall and straight. Since it grows best on sandy, well-drained sites, it is in decline where planted on the wetter, high-clay soils. The wood takes preservatives well, and is used for utility poles, deck lumber, and log home construction.
<u>Scotch pine</u>	This tree often has a crooked stem, probably due to poor quality seed sources at the time of planting. The bark on the upper stem turns orange.

c) Major Land Classifications Within the Unit.

The following identifies eight major categories of land found within the Unit. Some of these categories are quite broad, but they are useful in developing forest management goals from a landscape perspective. Definitions for each category are listed below.

Natural Forest - A stand of trees established by means of natural seeding, sprouting, suckering or layering. The stand consists of species that occur naturally in the northern ecosystem and may contain hardwood and conifer species.

Plantations - Mechanical and hand planted stands completed mostly by the Civilian Conservation Corp (CCC). Planted conifer species included white pine, red pine, Norway spruce, white spruce, Japanese larch and scotch pine. Hardwood plantations are small in acreage and contain mainly red oak. The majority of these stands were planted on 6 ft. X 6 ft. spacing. Most stands were planted with a single species but some have a mix of conifer species planted together.

Seedling/Sapling (SS)- A stand of trees with an average diameter at breast height of 6 inches or less. Basically a young stand of trees originating from natural seed or planting stock.

Brushy Field- At least 50% of the vegetative cover within these areas consists of brush species (thornapple, alder, dogwood, brambles, viburnum, spirea, etc.)

Grass - These fields typically were agricultural hay fields or pasture lands. The majority of vegetation is grass species with other forbs, (thistle, milkweed, asters, goldenrod, etc).

Ponds - These are bodies of water with an average depth greater than 12 inches.

Wetlands - These are areas of poorly-drained ground, that often contain some standing water (less than 12- inch depth) and may contain a variety of vegetation (grasses, brush, or trees).

Vegetation Type	Acres	Percent of Total
Natural Forest	8989	55.51%
Plantation	5536	34.19%
Natural Forest(SS)	349	2.16%
Plantation (SS)	31	0.19%
Brushy Field	116	0.72%
Ponds	98.8	0.61%
Wetland(Alder)	628	3.88%
Wetland(Open)	446	2.75%
Total Acres	16193.8	

d) Forest Health

There are many species of insects and diseases, as well as pollutants, that are active in the northeastern forest. All play important roles in the ecology of the forest. The following describes a few of these insects and diseases, in their role as forest pests, and their present or historical impacts on the ecosystem.

Insects

Forest Tent Caterpillar (*Malacosoma disstria*) This forest pest has a legacy of defoliation in the region. The preferred host trees of the Forest Tent Caterpillar are sugar maple, cherry, aspen, ash, apple, basswood, birch and elm. Their active cycle is from early spring to the end of July. Most forests can withstand a single defoliation and then produce a new flush of leaves. It is only after several years of defoliation that we may start to see mortality. The area has had heavy infestation in 1951-1955, 1980-1981, 1991 and then 2004-2006. We have been seeing about a ten year cycle with infestation lasting an average of 3 years.

Eastern Tent Caterpillar This is a common "tent maker" in New York State. The caterpillars build the nest in the crotch of the host tree. They prefer cherry and apple trees. The nests are formed in late April or early May each year and the caterpillars feed on the leaves. Most of the feeding is done from dusk through the evening hours. The populations have soared in 2005 and 2006 along side the Forest Tent Caterpillar. A number of northern hardwood stands in the Unit, specifically Oneida RA# 2 stand A-32, Oneida RA# 3 stand B-2 and Oneida-Lewis 1 stand A-14 and A-15.2, have been totally defoliated by the caterpillars. These stands were also recently logged presenting an extra stressor on the trees. In 2007, we have not seen sign of significant mortality however, these stands will continued to be monitored.

Sirex Wood Wasp (*Sirex noctilio*) This is an exotic European wood wasp that has been detected in New York State. There has been extensive trapping in 2006 to determine exact range. While this insect has been found in Oneida County, there has not been a positive identification in the Unit. Signs to look for include small resin balls 6-12 feet up the trunk of the pine tree. The insect favors individual stressed or suppressed hard pine or stands of pine that are severely stressed. At this time the exact extent of the insects damage is uncertain.

Pear Thrips (*Taeniothrips inconsequens*) - Introduced from Europe to the United States in 1904. It attacks a variety of orchard and forest trees. There were several population explosions of Pear thrips in the northeast during the late 1980's. The outbreak of 1988, damaged or defoliated more than 1.5 million acres of sugar maple trees. In addition to causing leaf damage, Pear thrips may also be capable of transmitting a fungal disease, maple anthracnose. This disease often coincides with Pear thrip infestations. Maple anthracnose decreases the photosynthetic ability of leaves, which can kill trees, if they are severely infected. Thrips damage to the forests of the Unit has so far been insignificant.

Elm Spanworm (*Ennomos subsignarius*) (and other species of loopers) - The common name of this insect is deceiving, as it is not only associated with elm trees, but will defoliate beech, oak, hickory, maple, and ash as well. More than 20 major outbreaks have occurred in the past century. The forests in the southern tier of New York State and much of Pennsylvania were heavily defoliated by these insects in 1994. Typically, outbreaks of the Elm Spanworm succumb to mortality from a complex of natural agents, including egg parasites and larval diseases.

Peach Bark Beetle (*Phloeotribus liminaris*) - This insect has recently gained increased attention from foresters in the northeast, due to the amount of damage it has caused to black cherry trees. Infestations of this insect can result in large amounts of gum deposits on the trunks of black cherry. The damage can significantly reduce the value of the timber and it causes a general decline in tree health. Peach Bark Beetle populations build up in the tree tops following the harvest of cherry timber. Residual, healthy cherry trees are then attacked. Cultural practices (ie. reducing quantities of slash and seasonal cutting) are being investigated to minimize the negative impacts of peach bark beetles.

Pine Shoot Beetle (*Tomicus piniperda*) - This beetle, native to Europe and Asia, attacks the new shoots of pine trees, including scotch pine and red pine, stunting the growth of the tree. The USDA's Animal and Plant Health Inspection Service (APHIS) has issued regulations resulting in "quarantines" within the infested counties of New York State, and other States, to prevent the spread of this insect.

Diseases

Beech Bark Disease - This disease has caused a widespread decline in the health of American beech, and it limits the life span of these trees. Beech trees are infected when the beech scale (*Cryptococcus fagi*) punctures the bark, allowing the spores of the fungus (*nectria coccinea*) to enter the tree. American beech saplings are still abundant in the understory of northeastern forests, however mature beech trees are declining and becoming less common.

Dutch Elm Disease - This disease entered North America in 1930 and it has killed most of the American elm trees in the northeastern United States. The causal agent is a fungus (*Ceratocystis ulmi*) which is spread by elm bark beetles. Although the disease has killed most elms, a few resistant individuals have survived.

Chestnut Blight - This is one of the most famous plant diseases in North America. It has resulted in the near extinction of American chestnut trees throughout their natural range. The blight is caused by a fungus (*Cryphonectria parasitica*) that enters through wounds in the bark. American chestnut saplings can still be found in a few, isolated areas, but it is rare for a tree to survive long enough to attain a stem diameter greater than six inches.

2. Significant Ecological Communities

The New York State Natural Heritage Program is an ongoing scientific inventory with a goal of compiling and maintaining systematic information on New York State's rare plants, rare animals, and significant ecological communities. The information that is collected from the inventory is stored in the Biological and Conservation Data System (BCD). This international collection of information is used to identify, track, protect and manage biological diversity. All rare flowering plants, ferns and fern allies are actively surveyed and monitored. The animal species that are surveyed and monitored include rare species of vertebrate groups and selected rare species from the invertebrate groups including butterflies, beetles and freshwater bivalve molluscs. Significant ecological communities surveyed include all rare ecological communities as well as the best examples of common communities.

Part 193.3 of the New York State Code of Rules and Regulations identifies a list of protected plants in New York State pursuant to Section 9-1503 of the New York State Environmental Conservation Law. The list is divided into four categories: endangered, threatened, exploitably vulnerable and rare. The term "rare" as used in Part 193.3, does not correspond with the New York State Natural Heritage Program's use of this term. In general, the New York State Natural Heritage Program's list of rare species may include all of the endangered and threatened species listed in Part 193.3 and part of the exploitably vulnerable and rare species listed in Part 193.3.

National Heritage Program will be conducting surveys for the Unit within the next two years (2007-2009). When these reports are published they will be added to the plan. Amendments will be made if actions are needed to protect species or significant communities identified in the survey.

3. Invasive Exotic Plants

Invasive exotic plant species found in central New York include purple loosestrife (*Lythrum salicaria*), Japanese knotweed (*Fallopia japonica*), giant hogweed (*Heracleum mantegazzianum*) and non-native honeysuckles (*Lonicera spp.*). While there are many others, these invasives are the biggest threats to the Unit. No formal inventory has been completed to quantify the scale of invasives on the Unit. However, a regional effort to establish a database of occurrence of non-native invasive species has begun.

The natural communities within the Unit may be faced with a complete change in their composition and structure if invasives are allowed to colonize. The amount of wetlands in the unit provides ideal ground for purple loosestrife, which would severely alter the ecosystem if it became established. Native wetland sedges, grasses and cattails are out competed for growing space by dominating loosestrife. Presently there are no known areas within the Unit that contain purple loosestrife. Shrub invasives such as honeysuckle and Japanese knotweed eliminate natural forest regeneration and change the composition of the forest understory. Japanese Knotweed has been spotted along the east side of CCC Road north of the Camden Store House, along Gossner Road and along the snowmobile trail off Sauer Road. Road mowing, while very necessary, can contribute to the spread of the Japanese knotweed. While these infestations are still small a rapid response should be made to eradicate them. Mechanical method of control may be effective in some areas through repeated removal of aboveground growth. However, the window of opportunity between removal and re-sprouting of invasives may not provide sufficient time to establish desirable tree species. The persistent nature of invasives calls for a more effective method of control. In most cases, herbicide application may be the most effective method to eradicate these infestations.

Hay-scented fern (*Dennstaedtia punctilobula*) can act as a native invasive species in forests in eastern North America. Areas with disturbed soils, prolonged deer browsing and partially open overstory canopies seem to be the ideal environment for persistent fern. Ferns dominate the understory with a thick 2 foot tall canopy and seedlings from native tree species are unable to tolerate the heavy shade. "It has been hypothesized that, once established, ferns may continue to inhibit tree regeneration even if deer browsing is reduced." (de la Cretaz, Kelty, 2002) Studies imply that deer densities are not the only cause. This understory component presents a real management problem when trying to promote natural regeneration. There are many acres within the Unit where hay-scented fern occurs. After timber harvests, where heavy fern is present, an herbicide application is recommended. Mechanical treatment only seems to encourage fern growth and there are no known biological controls. The herbicides chosen are based on their low toxicity and high environmental safety ratings (for use in the forest landscape), as well as recommendations from professionals in the field. Analysis of previous herbicide treatments may suggest that earlier, pre-harvest understory treatments may be more effective. Herbicide application is the only effective tool to combat these persistent fern, protect the natural forest regeneration and preserve the native forest habitat.

4. Fish and Wildlife Resources

Wildlife species occurrence depends on species range and habitat carrying capacity of the land. Carrying capacity is defined as the number of living things that can exist in an area for a long period of time without damaging the environment. The Unit may be within a species natural range, however, if the habitat is poor the possibility of having the species present is low. The following is a list of species present in the Unit. There are two major habitats within the Unit to support wildlife. They are mature forests (hardwood, softwood and mixed forest stands) and open wetlands. While other habitat types are present, they are present in small acreage. Individual habitat requirements are included in the list below. In an overall assessment of the area, an increase in early successional and late successional forests would increase the diversity of wildlife habitat across the landscape.

a) Big Game Species

White-tailed Deer

White-tailed deer are an important component of the Unit's ecosystem. Deer populations in the state are managed in Wildlife Management Unit's (WMUs). The entire 46-Corners Unit is part of Wildlife Management Unit 6K. Deer management permits are issued to control the number of female deer taken by hunters in each Unit. Deer populations throughout the state have rebounded remarkably since the early 1900's. The positive response in number is due to the increase in habitat, from open farm land to heavily forested, along with the movement of the human population to more urban centers alleviating hunting pressure. Harvests are monitored to ensure a healthy deer population.

Deer can affect their own habitat and the abundance of other wildlife. In months without snow cover (there are not many) deer browse on grasses, forbs, ferns, twigs, buds and wildflowers such as Canada mayflower and *Trillium*. Deer forage on mast (beech nuts and wild cherry seed) in the fall and concentrate almost exclusively on twigs and buds in the winter. Deer prefer certain plants over others and frequently feed on commercially valuable species. For example they choose sugar maple over less valuable beech and striped maple. Reduction in the understory, giving the forest a park-like setting, removes important nesting and breeding habitat for many songbirds and small game species. Populations are generally low in the area with the limiting factor being winter weather and diminished winter cover. However, deer browse still has a dramatic effect on the landscape and species competition within the forest.

Chronic Wasting Disease (CWD) in White-tailed Deer

Chronic Wasting Disease (CWD) is a rare, fatal, neurological disease found in the members of the deer family (cervids). It is a transmissible disease that slowly attacks the brain of the infected deer and elk, causing the animal to progressively become emaciated, display abnormal behavior, and invariably results in the death of the infected animal. Chronic Wasting Disease has been known to occur in wild deer and elk in the western U.S. for decades and its discovery in wild deer in Wisconsin in 2002 generated unprecedented attention from wildlife managers, hunters, and others interested in deer. Chronic Wasting Disease poses a significant threat to the deer and elk of Northern America and, if unchecked, could dramatically alter the future management of the wild deer and elk. However, there is no evidence that Chronic Wasting Disease is linked to disease in humans or domestic livestock other than deer and elk.

In 2005, the New York State Department of Environmental Conservation (NYSDEC) received confirmation of CWD from 2 captive white-tailed deer herds in Oneida County and subsequently detected the disease in 2 wild deer from the area. Until recently, New York was the only state in the northeast with a confirmed case in wild deer. However, CWD was recently detected in wild deer in West Virginia.

The NYSDEC has established a containment area around the CWD-positive samples and will continue to monitor the wild deer herd in New York State. More information on CWD, New York's response to this disease, the latest ongoing sampling efforts and current CWD regulations are available on the NYSDEC website:

<http://www.dec.state.ny.us/website/dfwmr/wildlife/deer/currentcwd.html>

Black Bear

The Unit is within black bear range and a few black bear sightings have occurred in the northern portion of the Unit. However, there is not a large population in the area and no hunting is permitted. Bear habitat is characterized by relatively inaccessible terrain with thick understory and abundant hard and soft mast. Bears are important in the ecosystems because of their effects on populations of fruits and insects. They help disperse the seeds of the fruit they eat and consume large numbers of colonial insect and moth larvae. They occasionally take small and large game as prey, such as hare and deer.

b) Small Game Species

Wild Turkey

Wild turkey can be found throughout the Unit as the forest and fields in the landscape provide excellent food and cover. In the spring and summer of the year, adult wild turkey feed on wild leeks, roots, fruits, grasshoppers, dragonflies and snails. During the winter, the animals feed on beech nuts, seeds and leftover fruits. As a food source, black cherry, American beech, wild raspberries and blackberries are a very critical component of the forest. In agricultural areas, they also feed on manure, silage, and any residual grains. The bird has had made remarkable recovery after almost disappearing from the State around the mid-1840's as the landscape was cleared for farmland.

Human beings have been an important predator of wild turkeys for many thousands of years and are part of the regions natural heritage. This large bird is now legally protected as a game species by spring and fall turkey seasons, which are closely monitored by State biologists. This management has helped increase the number of turkeys throughout most of the State.

Snowshoe Hare

The snowshoe hare takes its name from its long, well-furred feet that allow it to hop across deep snow. Also called the "varying hare", the snowshoe's coat changes color with the seasons. During the summer, hares are colored rusty brown with black on the upper surface of the tail and ear tips and grayish white on the underside of the tail and belly. In the late autumn, though, the hares begin to molt their summer coat, replacing it with white fur. This process lasts about 10 weeks, with the white fur appearing first on the ears and feet and moving towards the body until the molt is complete. Then in spring, this winter coat is again replaced by brown fur in a reverse process. Snowshoe hares are equipped with long ears to gather sounds, giving them an acute sense of hearing. Also, their front teeth are quite strong and are specialized for gnawing on tree bark and woody twigs. The sensitive nose and long whiskers of the hares allow them to feed at night, and their large hind feet enable them to stand upright to reach branches while feeding.

The snowshoe hare habitat includes conifer lowland forests and young aspen stands. They also frequently inhabit spruce and cedar swamps, as long as the water levels remain low. Snowshoe hares rarely leave wooded areas. Quality cover habitat is seen to be the limiting factor in providing for abundant populations. Reports from 20-30 years ago seem to indicate high populations of snowshoes. This would correlate directly with younger, pole size spruce and pine plantations. As the spruce and pine plantations mature, the lower branching is not present to provide escape cover for small game, resulting in the reduction in populations that we see today.

Ruffed Grouse and Woodcock

In the early part of this century, farm abandonment and the recovery of forests from heavy logging provided prime habitat for ruffed grouse and woodcock. The low, dense shrubby groundcover allowed for escape and nesting. Now as the landscape matures and later successional forest species are the dominant ecosystem, habitat for grouse and woodcock are diminishing. The reprieve for these birds in 46-Corners are the abundant wetlands and alder swamps that can provide an alternative habitat.

Beaver

The beaver is a major component of the 46-Corners Unit. They are one of the only species that change the landscape so dramatically. While some see beaver activity as only negative, the landscape owes much of its canopy openings and edge habitat to the beaver. Many of the wetlands are enhanced with the beaver damming. Beavers require small to large slowly flowing brooks, streams, or rivers that are usually, but not necessarily, bordered by woodlands. The Department regulates trapping seasons to ensure the continued security of New York's furbearer populations.

Birds of Prey

Birds of prey are raptors and owls with distinct predatory methods of feeding on animals. This group of birds possesses unique anatomical characteristics, such as keen hearing and binocular vision which allows them to detect their prey and use their razor sharp talons and sharply hooked bills to tear the flesh of their kill. As varied is the list of raptors and owls are, so are their habitat requirements. Some require dense mature conifer forest, such as the goshawk, while others, like the northern harrier and short-eared owl, hunt in open grasslands and ponds with emergent vegetation.

Active northern goshawk and red-shoulder hawk nest have been identified in the unit. The nests that were monitored in 2006 had varying fledgling success rates. The heavy forest tent caterpillar defoliation of 2006 removed a lot of the nest cover and may have increase egg temperature of the nests located in hardwood stands. Bald eagles, barred owls and northern harriers have been spotted on the Unit, but no nests have been identified. Refer to the Breeding Bird Atlas in Appendix IV for all bird species that have been seen in the area during the survey.

Requests have been made on the Unit for the taking of goshawk fledglings for the sport of falconry. There have been 2 requests in the last 5 years. In consultation with the Wildlife Manager for the region, the Regional Forester issues a letter of permission for the taking of one goshawk chick(an eyas) from one nest. The individual removing the eyas must be a licensed falconer, and must report to the DEC Special Licenses Bureau of that removal. Currently there is not a policy limiting how many nests can have an eyas removed, but removals are quite limited both in this Unit and region-wide.

Neotropical Migratory Birds

Neotropical migrants are the songbirds that represent over 50%, or more precisely, 340 of the 600 species of birds in North America. As the spring begins, more than 300 species of Neotropical Migratory birds head north to breed and raise their young in the United States and Canada. In the fall they return to warmer climates in the tropics of Mexico, Central America, South America and the Caribbean.

The annual migration of North America's Neotropical migratory birds is a biological wonder. It's hard to imagine that a Blackpoll Warbler that nests in the Northern States, makes an 86-hour, 2,300-mile nonstop flight across the Atlantic. These tiny birds must double their body weight in the late summer and early fall to build up enough body fat to make the long-distance flight. Refer to Appendix IV for the list of Neotropical Migratory Birds of North America. The presence of these species are said to be an index of world health due to their expanse of range. Researchers have noticed a decline in numbers of these avian wonders. Their existence is threatened by habitat destruction and fragmentation.

D. AQUATIC RESOURCES

The aquatic resources of the 46-Corners Unit are dominated by small streams inhabited by brown and brook trout. The most recent fishery survey data shows these streams are at their carrying capacity and should be managed as wild trout streams without stocking. Mad River is the only stream in the Unit that is stocked (4800 brown trout on an annual basis). It is also the largest drainage system in the unit. Florence Creek and Furnace Creek are the only other drainages in the Unit of any size. They are both inhabited by wild trout.

Several small ponds are found in the Unit but they do not provide a fishery. Recent surveys showed they were only inhabited by a few minnow species and stunted bullhead. These ponds (all manmade), function best as waterfowl resting areas at certain times of the year. Johnny Smith Pond in Big Brook State Forest is the only pond in the Unit that supports a fishery and has the potential for fish management. Improving access to the pond, including a universally accessible fishing pier is under consideration.

E. HYDROLOGIC RESOURCES

1. Watershed Characteristics

The Unit is located within the East Branch and West Branch of Fish Creek subwatershed which are part of the greater Oneida Lake Watershed. The Oneida Lake Watershed lies in the Oswego River Basin which drains approximately 5,100 square miles of New York State. The two smaller subwatersheds contribute 44 percent of the total surface inflow to Oneida Lake. The water supplies for the Cities of Rome and Oneida are located in the East Branch of Fish Creek. While neither the West Branch nor the East Branch of Fish Creek flow through the Unit, its major tributaries do.

In 1978, the East Branch was authorized for study to be included in the *National Wild and Scenic Rivers System*. This was the first river lying entirely in New York to be studied by the National Park Service. The study concluded that the East Branch of Fish Creek, except the 1.9 mile segment which includes Boyd Dam and Tagasoke Reservoir, qualified for inclusion into the Nation Wild and Scenic Rivers System for its free-flowing nature and outstandingly remarkable natural values including landform, scenery and recreation. However, national designation was not proposed due to lack of local support. This qualifies the uniqueness of the water resource in this landscape.

2. Streams

The quantity and quality of water that flows from the Unit is impressive. The Unit has approximately 50 miles of NYS regulated trout streams. Streams are classified by their best use, meaning the highest classification (AA) is suitable for drinking water, the next best use is (B) recreation, and the third classification (C) best usage is fishing. These classifications can also be accompanied by a (t) and (ts) designation which indicates the waters support trout populations and trout spawning respectively. The northeastern portion of the Unit has streams with the highest classification, where forest land is more contiguous. These headwater streams have heavy forest buffers that filter out overland flow before sedimentation can occur. Furthermore, there is little influence from agriculture and stormwater flow from impervious surfaces. As the streams progress south and west through the Unit they receive lower (C) classification due to the higher occurrence of non-point source pollution. Non-point source pollution comes from rainfall or snowmelt moving across the ground picking up and carrying natural and man-made pollutants until finally depositing it into streams and lakes. This type of pollution results from a wide variety of human activities on the land. Non-point source pollution will inevitably increase as population, road and farm densities increase.

The streams in the watershed are characterized as mature streams with narrow flood plains that are frequently filtered through large complex wetlands. The streams east of Furnace Creek drain into the East branch of Fish Creek with major tributaries including Fall Brook, Florence Creek and Furnace Creek. Streams west of Cobb Brook feed the West Branch of Fish Creek with Mad River and Cobb Brook being the two major tributaries that cross the Unit. Refer to Appendix VI and Water Resources Maps for the Unit.

3. Wetlands

It is the public policy of New York, as set forth in the Freshwater Wetlands Act, to preserve, protect and conserve freshwater wetlands and the benefits derived from them. Wetlands in New York are legally protected by the State if they meet the criteria found in section 24-0107 of the Freshwater Wetlands Act and occupy at least 12.4 acres as determined and/or mapped by the Department. A wetland smaller than 12.4 acres may also be classified protected if demonstrated locally unique or significant. In all cases, an upland area of 100 feet wide surrounding the protected wetland, defined as the adjacent area, is also protected. The Freshwater Wetlands Act recognizes the value of wetlands and their function as flood and storm water control, wildlife habitat, water quality, recreation, open space, education and scientific research, among others and serves to prevent unnecessary loss of these values and functions in a manner consistent with the general welfare and beneficial economic, social and agricultural development of the State.

The federal Clean Water Act considers all wetlands larger than one acre as significant. Administration and federal guidelines protecting wetlands under 12.4 acres falls under the jurisdiction of the Army Corps of Engineers.

The 46-Corners Unit contains 1,592-acres of Class II state-designated freshwater wetland. The Unit also contains 100 acres of Class III state-designated freshwater wetland and 34 acres of class-IV wetlands (please see Appendix VII for New York State listed wetland). Wetlands are characterized by soils that are saturated for a significant period during the growing season which support unique plant communities adapted to life in those saturated conditions. Wetlands can be dominated by trees, shrubs, grasses or herbs or a combination of these plant types thriving in an environment with saturated or inundated soils. Ponds and lakes are typically open bodies of water not demonstrating wetland characteristics although, in some cases, very shallow ponds and shallow areas of lakes support wetland communities. The various beaver ponds located within the 46-Corners State Forest Unit are examples of ponds classified as wetlands.

The wetlands on the Unit contribute to a more diverse landscape; the high, continuous forest canopy opens up and allows for varied habitat. The range of wetlands include open wet areas such as beaver ponds (approx. 726 acres), typical alder swamps (approx. 802 acres) and hardwood swamps (approx. 198 acres). The wetlands are created due to a high water table, poor soil structure and beaver activity. Common plants in freshwater wetlands include cattails, water lilies and arrowheads. Retired beaver ponds re-vegetate with soft-stemmed plants such as grasses and sedges. The habitat is suitable for more interesting and unusual plants such as bladderworts, pitcher plants and sundews. Freshwater wetlands are home to waterfowl such as wood ducks, geese, snowy egrets and great blue herons; raptors such as hawks and bald eagles; and mammals including raccoons, minks and beaver.

F. MINERAL RESOURCES

Title 11 Section 23-1101 of the Environmental Conservation Law authorizes the Department of Environmental Conservation to make leases on behalf of the State for exploration, production and development of oil and gas on State lands. Proposals to lease parcels of Department of Environmental Conservation regulated State lands for this purpose will be considered following public notice in the Environmental Notice Bulletin (ENB), and in local newspapers. A public meeting will be held to provide information about natural gas development specific to the Unit and receive comments. A 30-day public comment period will follow. The Department will consider all comments prior to making a decision. If the Department decides to pursue leasing, the site specific conditions for limiting impacts on natural resources encompassed in this plan will be drafted by land managers and incorporated into contract documents. These conditions will include but not be limited to criteria for site selection, mitigation of impacts and land reclamation upon completion of drilling. A number of factors are considered when determining where surface disturbance will be allowed or disallowed. The presence of regulated wetlands, riparian areas, steep slopes, significant recreation areas, presence of rare, threatened or endangered species or unique ecological communities, are all areas which may be excluded from surface disturbance. Certain land management strategies, such as reserves, where timber harvesting is precluded, which may be incompatible with oil and gas well development, may result in exclusion from surface disturbance. This determination is made as a part of the tract assessment process on a case by case basis. Individual tract proposal reviews for each forest within this Unit have been completed, and determinations deciding which areas would be excluded from surface disturbance [should leasing be initiated] have been made. Included in the appendix are maps depicting these areas. Any parcel[nominated] designated as a non-surface entry lease will [be excluded from] no longer be subject to the process detailed above due to the prohibition of surface disturbance(s).

There are no mining contracts, permits or operations on any areas in this Unit. Under Article 7 of the NYS Consolidated Laws, any citizen of the United States may apply for permission to explore and/or extract any mineral on state lands. If these lands were nominated for leasing, a tract assessment would be performed using a hierarchical approach to make available only the least sensitive areas. If these lands are leased we would not permit a well pad density of greater than 1 well pad per 320 acres and would prefer no surface occupancy leases.

Moreover, the Unit is very segmented and the resource can be accessed easily from adjoining properties. Therefore, current department policy is to decline any commercial mining application(s) pertaining to any lands covered by this Unit Management Plan.

Located on the Unit are two open gravel pits. Any gravel extracted from these pits will be used exclusively for road bed and trail construction and maintenance. One marginal pit is located on Oneida RA# 2 (Cobb Brook SF) located off the Bridge PFAR. The other, more substantial pit, is located on Oneida RA# 3 (Fall Brook SF) just off to the west of Harrier Way PFAR. Gravel from these pits should be used to repair the roads mentioned above when maintenance is scheduled. If it is determined that proposed annual extraction requirements for repair of these roads will be above present Mined Land Reclamation Law thresholds, then a mining and reclamation permit application will be prepared and submitted to the Regional Mined Land Reclamation Specialist for review and approval before any excavation takes place.

G. RECREATIONAL RESOURCES

Historically, State Forests have provided open space for outdoor recreational activities that require minimal facilities. Such activities include hunting, fishing, trapping, hiking, nature observation, canoeing, and snowshoeing. In the past, intensity of recreational use was low. This resulted in low environmental impacts and few user conflicts. However, recent population and use trends are resulting in an increased demand for recreational trails.

To help meet the increasing demand for recreation, the Department depends on partnerships with recreation groups to help maintain, enhance and construct recreational assets. Partnerships between recreation groups and the Department are formalized through the Department's Adopt a Natural Resource (AANR) Program. The program is authorized by Section 9-0113 of the Environmental Conservation Law. The statute authorizes the Department to use a stewardship agreement for activities it approves for the preservation, maintenance, or enhancement of state-owned natural resources.

Volunteerism is the cornerstone of the AANR Program. It is a means for completing work that helps preserve, maintain and enhance natural resources at minimum cost to the State. Individuals and groups interested in providing volunteer services are afforded a formal opportunity to propose activities that meet the needs of state-owned natural resources. Such activities may include establishing or maintaining access or nature trails, building campsites, providing interpretive signs, managing fish and wildlife habitats and otherwise providing benefits to the natural resource.

The Department's AANR partners are strongly committed to enhancing and protecting natural resources on the Unit. Not surprisingly, these partners have developed a strong sense of ownership and are very interested in the planning and natural resources activities that take place on State Forest within the Unit.

There are existing AANR agreements for the Unit with T. C. Riders Snowmobile Club and Taberg Trail Blazers, Inc. Both agreements are for routine maintenance and grooming of designated snowmobile trails. The members of these organizations brush out trails and keep them clear of blow down in compliance with the Snowmobile Trail Stewardship Guidelines. T. C. Riders Snowmobile Club maintains trails on the westside of Dingle Street, Oneida RA #2, the Walasek-Mulcoy bypass and the Johnny Smith Pond Trail on Oneida RA#7. The Club has installed a beautiful wooden bridge on the trail west of Dingle Street that they also maintain; this bridge also provides access for other recreationists. Taberg Trail Blazers, Inc. maintains trails east of Dingle Street, Oneida RA #2 and trails east of Gossner Road and Sauer Road, Oneida RA #3. The trail east of Gossner Road has a culvert that the club has replaced and maintains.

There are no designated Off-Road Vehicle (ORV) trails on this Unit. New York State Vehicle and Traffic Law prohibits All Terrain Vehicle (ATV) use on Public Highways which, by definition, also include Public Forest Access Roads. ATV and ORV riding is not a specific program offered on Public Lands owned in fee and managed by the Department. Existing management actions, poor soils, possible conflicts with other users, impacts on neighboring residents, safety concerns, maintenance costs and challenges, and existing issues with illegal ATV and ORV use were some of the factors which have prevented the Department from developing ORV or ATV trails in the past. However, people with qualifying mobility impairments who possess a valid permit from the Department may operate ATV's on specifically designated and signed accessible trails.

The Unit has three trails designated for ATV use for persons with disabilities (CP-3 Trail). Big Brook State Forest (Oneida RA #3) has a 0.8 mile trail south of Sullivan Road. The condition of the trail is poor and is in need of maintenance. The trail is holding water and is heavily brushed in with no trail markers locating the route. It would be hard for the public to recognize it and is not currently suitable for persons with disabilities. The second CP-3 Trail is located on Mad River State Forest (Oneida RA #14). The trail is approximately 0.5 miles long and is located off the South end of McSpirit Road. It has no trail head or trail markers and has not received any maintenance. The third trail , Flanagan Rd, is on Tri-County State Forest (Oneida RA #9). Flanagan Rd is a qualified abandoned road for 0.48 miles and then becomes a State Forest haul road/CP-3 trail for 0.52 miles. This road requires gravel, crowning and brushing.

High use recreation areas include the area of Johnny Smith Pond. There is a graveled parking area at the north end of the dike just before the pond. The parking area can accommodate approximately 5 vehicles. While there are no officially designated campsites on the Unit, Johnny Smith Pond is heavily used by campers. There are two sites on the north side of pond and another on the south side of the dike. The sites have very little understory vegetation within a 10 foot radius of the site and the soils are heavily compacted. The sites have remained relatively free of debris and litter; however, the site on the south side of the dike is also used as a shooting range and this does leave a fair amount of debris. Anglers use the area to launch canoes, kayaks and small motor boats. Water craft are launched on both sides of the dike at unofficial launch sites. The dike and spill way are in need of repair. Vehicles have been allowed to drive over the dike causing potholes and minor erosion.

Additional parking areas are limited on the Unit. As previously mentioned, the Department does maintain a 5 car parking area at Johnny Smith Pond and also mows a small area around the Camden Store House at 46-Corners. Roadside landings are often maintained through mowing by the Town of Florence. These areas can be used for off street parking; however, they are not designated. Snowmobilers have no parking facilities located on State land to provide access to state funded trails on the Unit.

The Americans with Disabilities Act (ADA) and Its Influence on Management Actions for Recreation and Related Facilities

The Americans with Disabilities Act (ADA), along with the Architectural Barriers Act of 1968 (ABA) and the Rehabilitation Act of 1973; Title V, Section 504, have had a profound effect on the manner by which people with disabilities are afforded equality in their recreational pursuits. The ADA is a comprehensive law prohibiting discrimination against people with disabilities in employment practices, use of public transportation, use of telecommunication facilities and use of public accommodations. Title II of the ADA applies to the Department and requires, in part, that reasonable modifications must be made to its services and programs, so that when those services and programs are viewed in their entirety, they are readily accessible to and usable by people with disabilities. This must be done unless such modification would result in a fundamental alteration in the nature of the service, program or activity or an undue financial or administrative burden to the Department. Since recreation is an acknowledged public accommodation program of the Department, and there are services and activities associated with that program, the Department has the mandated obligation to comply with the ADA, Title II and ADA Accessibility Guidelines, as well as Section 504 of the Rehabilitation Act. The ADA requires a public entity to thoroughly examine each of its programs and services to determine the level of accessibility provided . The examination involves the identification of all existing programs and services and an assessment to determine the degree of accessibility

provided to each. The assessment includes the use of the standards established by Federal Department of Justice Rule as delineated by the Americans with Disabilities Act Accessibility Guidelines (ADAAG, either adopted or proposed) and/or the New York State Uniform Fire Prevention and Building Codes, as appropriate. The development of an inventory of all the recreational facilities or assets supporting the programs and services available on the unit was conducted during the UMP planning process. The assessment established the need for new or upgraded facilities or assets necessary to meet ADA mandates. The Department is not required to make each of its existing facilities and assets accessible. New facilities, assets and accessibility improvements to existing facilities or assets proposed in this UMP are identified in the "Management Actions" section.

The Americans with Disabilities Act Accessibility Guidelines

The Americans with Disabilities Act (ADA) requires public agencies to employ specific guidelines which ensure that buildings, facilities, programs and vehicles as addressed by the ADA are accessible in terms of architecture and design, transportation and communication to individuals with disabilities. A federal agency known as the Access Board has issued the ADAAG for this purpose. The Department of Justice Rule provides authority to these guidelines. Currently adopted ADAAG address the built environment: buildings, ramps, sidewalks, rooms within buildings, etc. The Access Board has proposed guidelines to expand ADAAG to cover outdoor developed facilities: trails, camp grounds, picnic areas and beaches. The proposed ADAAG is contained in the September, 1999 Final Report of the Regulatory Negotiation Committee for Outdoor Developed Areas.

ADAAG apply to newly constructed structures and facilities and alterations to existing structures and facilities. Further, it applies to fixed structures or facilities, i.e., those that are attached to the earth or another structure that is attached to the earth. Therefore, when the Department is planning the construction of new recreational facilities, assets that support recreational facilities, or is considering an alteration of existing recreational facilities or the assets supporting them, it must also consider providing access to the facilities or elements for people with disabilities. The standards which exist in ADAAG or are contained in the proposed ADAAG also provide guidance to achieve modifications to trails, picnic areas, campgrounds (or sites) and beaches in order to obtain programmatic compliance with the ADA.

ADAAG Application

Current and proposed ADAAG will be used in assessing existing facilities or assets to determine compliance to accessibility standards. ADAAG is not intended or designed for this purpose, but using it to establish accessibility levels lends credibility to the assessment result. Management recommendations in each UMP will be proposed in accordance with the ADAAG for the built environment, the proposed ADAAG for outdoor developed areas, the New York State Uniform Fire Prevention and Building Codes, and other appropriate guiding documents. Until such time as the proposed ADAAG becomes an adopted rule of the Department of Justice, the Department is required to use the best information available to comply with the ADA; this information includes, among other things, the proposed guidelines.

H. CULTURAL RESOURCES

Presently, there are no historic sites or cultural resources on the forests of the 46-Corners Unit that are listed in the New York State Archaeological Inventory. The New York State Archaeological Inventory establishes a list of places where evidence of past human activities, from all periods of the human past have been found. These sites include settler homesteads, mills, villages, cemeteries, sites with prehistoric artifacts, and other sites with historic significance. These sites may be legally protected if they meet the criteria for listing in the State and National Registers of Historic Places (Registers). In general, an archaeological site would be eligible for listing in the Registers if the site contains artifacts and information in a sufficiently undisturbed context to help us better understand some aspect of the human past. The protection of these sites ensures that the historic information from the site will be preserved. Sites listed in the Archaeological Inventory that are not eligible for listing in the Registers, may also be protected, depending upon where they are located. On public lands (State and federal), archaeological resources are considered to be a part of the values to be preserved within the landscape. On New York State forest lands, no materials can be removed from a site listed in the Archaeological Inventory without a permit issued jointly by the State Museum and the Department of Environmental Conservation. State and federal agencies are not obligated to release detailed information, including specific locations, about archaeological resources to the public. This data is exempt from both State and federal Freedom of Information Laws.

Stone walls and foundations are not listed in the Archaeological Inventory and they do not usually qualify, individually, as State or National Register resources. However, the stone walls and homestead foundations from the early settlement period are still important cultural resources. There are numerous stone walls and foundations on the state forests of the 46-Corners Unit. Most of these walls were constructed by the early settlers who began farming the land. Some of the walls may date back to the late 1700's. When these lands were first cleared for farming, the land owners removed the stones from the fields and then used the stones to construct walls along their property boundaries or the borders of the fields. These stone walls are now part of the landscape and they provide us with information about past land uses and human history. Although these cultural resources are not specifically protected by regulations, the Department has implemented management practices to preserve the integrity of the walls. Since the value of field stone has increased significantly in the past 10 years, many stone walls on privately owned land are being dismantled for the purpose of selling the stones. The Department does not sell field stones from the State forests.

In the late 1930's the Civilian Conservation Corp constructed "waterholes" for fire suppression on reforestation areas. The waterholes are large diameter, shallow depth wells. They were constructed near streams or seeps and held year round water. The water holes presented a water supply in case of a wildfire. These do not qualify under the state register but provide a unique characteristic to the Unit. Waterholes found on the Unit should be maintained and protected. All holes should be located, brush cleared and split rail cedar post fence established around them to maintain their historical condition. Appendix X has the construction plans for the two types of waterholes found on the Unit.

State Forest	# of Waterholes
Cobb Brook SF (Oneida RA #2)	4
Falls Brook SF (Oneida RA #3)	5
Big Brook SF (Oneida RA #7)	9
Tri-County SF (Oneida RA #9)	2
Furnace Creek SF (Oneida RA #10)	2
Florence Creek SF (Oneida RA #11)	2
Mad River SF (Oneida RA #12 &14)	2
Swancott Hill SF (Oneida-Lewis RA #1)	4

I. INVENTORY OF FACILITIES

Transportation Corridors

The State Forest transportation system provides for both public and administrative access to the unit. Roads and trails are constructed to standards that will provide reasonably safe travel and to keep maintenance costs at a minimum. There are six types of transportation corridors providing different levels of access, depending on the standards to which they are constructed.

Public Forest Access Roads (PFAR) - Permanent, unpaved roads which may be designed for all-weather use depending upon their location, surfacing and drainage. These roads provide primary access for administration and public use within the unit. The design standards for these roads are those of the Class A and Class B access roads as provided in the Unpaved Forest Road Handbook (8/74). As a general guideline, sufficient access is typically achieved when 1 mile of PFAR is developed for each 500 acres of state land, and no position within the unit lies more than ½ mile from a PFAR or public highway.

Haul Roads - Permanent, unpaved roads which are not designed for all weather travel, but may have hardened or improved surfaces with artificial drainage. They are constructed according to best management practices primarily for the removal of forest products, providing limited access within the unit by log trucks and other heavy equipment. These roads may or may not be open for public motor vehicle use, depending on management priorities and objectives. They may serve as recreational access corridors, but are not maintained according to specific standards or schedules. The design standards for these roads are below those of the Class B access roads as provided in the Unpaved Forest Road Handbook.

Access Trails - Temporary, unpaved roads which do not provide all weather access within the unit. They are not designed for long term and repeated use by heavy equipment. These corridors were originally constructed for the seasonal removal of forest products by skidding to landings or other staging areas. Constructed according to best management practices, these trails may be used to support other management objectives such as recreational access corridors. Maintenance is limited to activities which minimally support seasonal access objectives.

Recreational Trail - Unpaved recreational corridors which do not provide all weather access within a unit, and are designed to achieve specific recreational access objectives. Constructed according to best management practices, and following accepted regional standards for design, these trails may be used to support multiple types of seasonal recreation access. Maintenance is limited to activities which minimally support the access objectives and design.

Public Road - Permanent, paved or unpaved roads primarily designed for motor vehicle travel which are maintained by federal, state or local government. These roads may or may not provide year round access.

Rights-Of-Way - Permanent, paved or unpaved roads which allow the Department access to state forest properties while crossing private land, or, corridors across state forests allowing access to private in-holdings.

Access to the Unit is one of the best attributes. Minimum maintenance town roads and public forest access roads (PFAR) access much of the Unit. However many of the 55 miles of roads have been neglected and are in need of extensive repair. Public forest access roads maintained by the department have lacked the funds to keep up with a routine maintenance schedule. The PFARs within Unit will require major rehabilitation work to upgrade them to Class A or Class B access roads. Another issue encountered several times on the Unit involves access through abandoned town roads. Roads qualified abandoned under State Highway Law 205-A,B reserves the right of way for access on that section of highway. However, totally abandoned roads do not retain the public right of way. As use increases on the Unit and land is developed these access issues may become more of a problem.

Refer to Appendix X for the inventory of transportation corridors through the Unit.

Refer to Appendix IX for a list of State owned and maintained facilities located on the Unit.

Two building facilities exist within the Unit. One, the Camden Store House as it is named, is a storage building located north of the intersection of CCC Road and 46-Corners Road. The building was used by Department's Operations crew but has been vacant since the early 1980's. The structure of the building is good but it is no longer maintained. The other structure on the Unit is a camp located on the south side of Sullivan Road. The structure remains from the life-time lease for proposal CC which terminated in April 26, 1984. The structure is falling down and become a nuisance dumping spot.

J. PROPERTY USE AGREEMENTS

Deeded Rights-of-Way

Mad River State Forest (Oneida RA#14)

Proposal J, Township 4 of the Scriba Patent has a Right-of-Way easement for the three private properties that are partially surrounded by State Forest Land. The Right-of-Way at present in use across state land in lot 120 runs approximately 19 chains (1254 ft.) southwesterly out to Florence Hill Road in the Town of Florence. Said Right-of-Way is set forth as a reservation in a deed from Millie A. Audas to the People of the State of New York dated October 30, 1939 and recorded in the Oneida County Clerk's Office on November 2, 1939 in Book 991 at page 438.

Mad River State Forest (Oneida RA#12 & 14)

Road Use Agreement between landowner owning the tract of land lying between Taylor Rd and the Mad River State Forest through which said Phalen Rd Passes. Recorded in the Oneida County Clerks Office on September 8, 1997 at Book 2790 of Deeds, page 624. This agreement allows the Department and its agents administrative access and the public foot access on the qualified abandoned Phalen Rd.

Utility Rights of Way, Easements and Permits

Furnace Creek State Forest (Oneida RA#10) has a power line right-of-way owned by National Grid.

Memorandum of Understanding

A Memorandum of Understanding ("MOU") has been established between the New York State Department of Environmental Conservation and the Office of Children and Family Services which provides guidance for the administration of sites on State land under the jurisdiction of the Department which has been designated as work camps for youth. Pursuant to the Environmental Conservation Law 9-0105(14), and in keeping with the February 5, 1990 Formal Opinion of the Attorney General, the Department and the Office have the authority to establish sites on lands under the jurisdiction of the Department classified as reforestation areas for residential centers.

K. TAXES PAID on STATE FOREST

State lands in the Tug Hill region as defined in Article-37 of the Executive Law, are subject to town, school, and fire district property taxes at the same rate as private land, but are exempted from county taxes. State Forest land is taxed at the same rate as private forest land.

Taxes Paid on the 46-Corners Unit (2005 Tax Roll)

TOWN	ACRES+	TOWN TAXES PAID++
Redfield	128	\$9,982/year
Lewis	797	\$24,964/year
Camden	270	\$395/year
Annsville	5,158	\$10,249/year
Florence	11,716	\$62,614/year

SCHOOL TAXES PAID ON STATE LAND

SCHOOL DISTRICT	TAXES PAID
Camden Central School District	\$269,612/year
Adirondak Central School District	\$15,227/year

+ Total acreage based on county tax roll records, not actual land surveys. Estimated total acreage according to Department land records is 18,032.

++The following is an estimate of the real property taxes that were paid by New York State based on the 2005 Assessment Roll.

II. MANAGEMENT CONSIDERATIONS ON THE UNIT

A. Physical Constraints

Wetlands
Soil Characteristics
Steep Slopes
Lack of contiguous arrangement of State Forest
Limited access

B. Administrative Constraints

Budget challenges
Staffing needs
Availability of Operations crews
Fluctuations in timber markets

C. Societal Influences

There are differing public opinions on the management practices and uses of State Forests. All opinions are considered, but the degree to which they are satisfied will vary. Considerations will be made to keep the character and historic and present use of the forests intact.

D. Department Rules, Regulations and Laws

Appendix XI lists the Department's Rules, regulations and laws governing management activities on the Unit.

III. LAND MANAGEMENT GOALS

It is the goal of the Department to manage State lands for the multiple uses to serve the needs of the People of New York. This management will be considered on the landscape level, not only to ensure biological diversity and protection of ecosystems, but also to optimize the many benefits to the public that these lands provide. Interaction and shared learning between citizens and managers will be a key factor for achieving the goal.

Resource Management Goals for the Unit include:

- a.) Maintain a complex of landscape covers including forested, open and aquatic to promote plant and animal diversity.
- b.) Management objectives will be based on the landscape perspective providing for a full range of forest succession, from open land to climax forest.
- c.) Provide native conifer cover on appropriate sites by encouraging conifer regeneration and retaining legacy conifer trees during timber harvests.
- d.) Reforestation by planting may be proposed if natural regeneration is not present, stocking is low or if the favored species is absent.
- e.) Silvicultural treatments will be the main tool to enhance a wide variety of wildlife habitat including early successional habitat, winter escape cover, apple tree release and cavity tree retention.
- f.) Protect water quality from degradation.
- g.) Maintain corridors of unbroken forest canopy along streams.
- i.) Monitor and eradicate non-native invasive species.
- j.) Provide for a range of recreational experiences on the Unit that allow users to explore and discover the uniqueness of the area.

A. LAND MANAGEMENT OBJECTIVES

Privately owned forested areas may become fragmented as a result of parcelization and development. Their role in providing habitat and forest products may not always be relied on. Pressure is put on State Forests to ensure this ecosystem stability at the landscape level. Through mandates and wise management the people of the State of New York can depend on management for biological diversity and sustained forest products from the State Forests of the 46-Corners Unit. We inherit a legacy of change from the original virgin forest to agricultural land clearing, to farm abandonment, forest re-establishment and now management. We direct our future management to achieve or sustain these desired goals. In the life span of the plan it is the vision of the manager to have these goals accomplished.

1.0 - Timber Resource Objectives

The stands on the Unit are to be managed for multiple uses including timber. As defined by the Society of American Foresters silviculture is the art and science of controlling the establishment, growth, composition, health and quality of forests to meet the diverse needs and values of landowners and society on a sustainable basis. Foresters employ one of two categories of silvicultural systems when managing a stand of trees; **even-aged** or **unevenaged** management. Stocking guides developed by the US Forest Service are used to determine the target stand densities following treatments. A stocking guide is only one tool used by a forester when marking a stand for treatment. Ecosystem management requires all forest values be considered; aesthetics, recreational values and bio-diversity considerations are all part of every stand prescription.

An even-aged stand is one whose individual trees originated at approximately the same time, either naturally or by planting. As the stand grows, it may undergo various intermediate thinnings during its development, and is ultimately removed in one or more major harvests to release the next stand of regeneration. Such a stand, consequently, has a beginning and an ending time. The **rotation** is the number of years from establishment to maturity.

Establishing even-aged regeneration involves the total overstory removal in order for full sunlight to reach the shade-intolerant reproduction. The basic requirement for success in an even-aged regeneration method requires that hardwood regeneration be established before the overstory is removed. There are three methods to establish even-aged regeneration: clearcut, shelterwood cut and seedtree cut. The clearcut regeneration method involves total overstory removal at the end of the rotation; all standing trees are harvested in one operation. Regeneration is often established through softwood tree planting. The draw back to this method is the negative visual impact of all the trees being removed at once. The second type of even-aged regeneration method is the seedtree cut. This method involves entering the stand twice to remove the overstory. The first entry would remove most of the overstory except approximately 50 trees/acre. The trees that are left will be a desirable species and remain as a seed source for establishing regeneration. Once the regeneration is established in about 2-4 years the seed trees are harvested. The third type, shelterwood cut, also involves a total overstory removal in two cuts. The first cut removes about half of the overstory to allow sunlight to reach the forest floor. Once desired regeneration reaches 4-5 feet tall (usually 4-5 years) the second harvest is performed to remove the residual overstory. This method is more aesthetically pleasing as it provides significant advanced regeneration before the overstory is removed. However, the second harvest should be performed in the winter; winter snow cover protects the advanced regeneration from mechanical damage. Harvesting during the winter is a drawback in this Unit because much of the Unit is inaccessible due to unplowed town roads (minimum maintenance roads).

Even-aged management is important because young, dense stands of trees and other plants are established when stands are regenerated. Early forest developmental stages are beneficial to many species of wildlife. Even-aged management favors the establishment of shade intolerant tree species such as cherry and ash. These species have some of the highest timber values. Even-aged management also favors the establishment of many mast producing species such as black cherry and hickory. The even-aged conifer plantations on the Unit are mostly white pine, red pine, spruce, larch or a mixture of these species.

The uneven-aged management system establishes or maintains at least three age classes ranging from seedling-sapling to large sawtimber within one stand. This system maintains a mature or nearly mature forest canopy, indefinitely. Many wildlife species require mature, interior forest habitat. They include fisher, red-shouldered hawk and many neotropical migrant birds such as warblers, vireos and flycatchers. During timber harvests, if single-tree selection is used, shade tolerant species regenerate, such as hemlock, beech and sugar maple. To regenerate shade intolerant species such as ash or cherry, group selection is used. During harvests, groups of overstory trees are cut to create openings from one-quarter acre to one acre in size. Undesirable striped maple, ironwood and beech saplings are cut to allow establishment of desired species. Where beech is scarce, it may be favored for its mast (beechnuts). In addition, during harvests in uneven-aged stands, all age classes are "tended" or thinned as needed. Such thinnings typically favor maple, ash and cherry trees which are already established, raising their relative density in the stand. As their presence in the stand increases, so does their quantity of seed produced. This increases their long-term chances for successful regeneration.

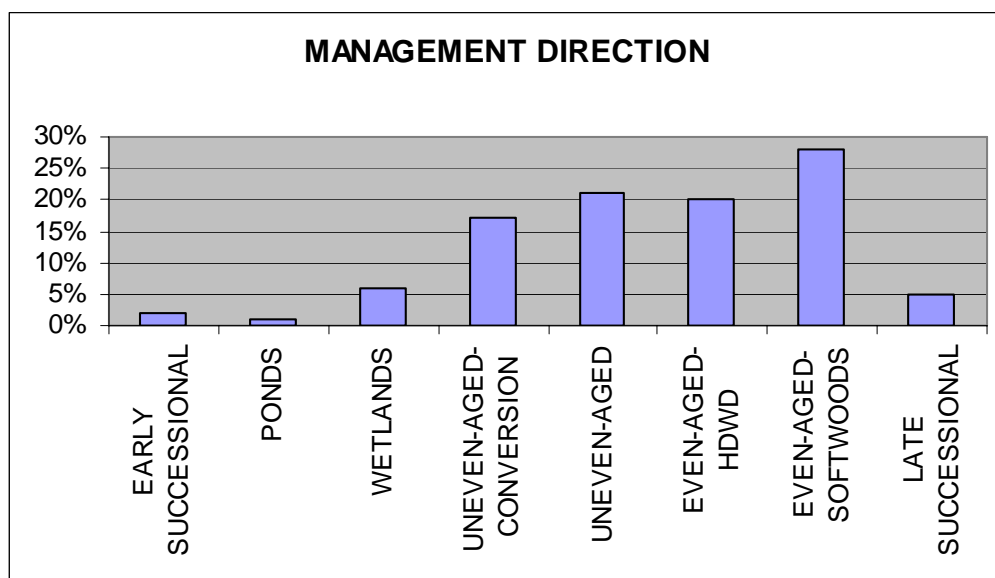
Nearly all of the stands on the unit are presently even-aged as a result of agricultural abandonment and clearcutting in the early 1900's. Most stands on the Unit are approaching maturity. Most stands which contain a significant cherry component will be maintained as even-aged because of its high commercial value and value as a soft mast producer. The same direction will be set for the red pine plantations. This species does not naturally regenerate as well as the other tree species, since it is not well-adapted to the shallow, poorly drained soils of the Unit. It is also susceptible to windthrow when it becomes overmature. For these reasons, red pine plantations will eventually be converted to even-aged hardwood seedling-sapling stands. Conversion of these stands occurs over many treatments, and so, it may be many decades before stands acquire an uneven-aged structure.

- **Maintain biodiversity and forest health**

Management Recommendation 1.1 - The best method for managing biodiversity in the landscape is to provide a range of successional habitats. The combination of vertical and horizontal change in the landscape allows for true diversity in habitats. Across the landscape of the unit there is a great diversity of forest cover. However, there are two successional stages the unit lacks because they haven't been managed for; early successional and late successional habitats. Early successional habitat is open canopy with low vegetation, the kind of habitat found the first few years after agricultural field abandonment or after a clearcut. Early successional is critical in regenerating shade intolerant tree species. At the other end of the spectrum, late successional forests are generally >100 years old, contain exceptional forest structure including large trees, large snags, large natural canopy gaps, volumes of deadwood, and vertical structure diversity not found in younger forests. Late successional forests have unique components that the majority of forest stands do not display.

Plant communities are by nature dynamic and ever-changing. The management of early successional habitat can be challenging and often times intensive. The stands that are accessible will be mowed at least once every three years to maintain the grass and shrub cover. However, by applying different silvicultural practices early successional vegetation types and stages can be created.

Late successional stands, on the other hand, will not be considered for active commercial harvest or salvage and generally be allowed to develop naturally. Silvicultural treatments will be considered to protect forest health, (e.g. fire, invasive species), to enhance structural or species diversity, to protect, enhance or restore significant habitat, or to exploit or create regeneration opportunities for desired plant communities. The stands that were chosen already exhibit late successional characteristics. They have little evidence of prior management, have large diameter trees and are beginning to develop vertical structure.



- **Develop a sustainable timber harvest schedule**

Management Recommendation 1.2 - A sustainable timber harvest schedule has been completed for the entire Unit. The even-aged softwood stands have a thinning cycle of approximately 25 years, with a rotation age of 120 years for white pine and 90 years for red pine. Hardwood even and uneven-aged stands have a treatment schedule every 40 years.

Harvest Year	Total Acres	Harvest Year	Total Acres	Harvest Year	Total Acres	Harvest Year	Total Acres	Harvest Year	Total Acres
2008	386	2013	916	2018	938	2023	475	2028	179
2009	631	2014	571	2019	514	2024	219	2029	205
2010	562	2015	750	2020	631	2025	120	2030	71
2011	516	2016	574	2021	491	2026	578	2031	287
2012	430	2017	388	2022	254	2027	542	2032	263
								2033	330
								2034	128

Refer to Appendix I for the complete harvest schedule

- **Maintain at least 30-40% conifer stand cover**

Management Recommendation 1.3 -

Hemlock/Hemlock Hardwood	2,879 acres	17% of the Unit
Softwood Plantation	4,910 acres	28% of the Unit

At the landscape level, state forests provide the majority of softwood cover while private lands are mainly hardwood forests. Currently, 45% of the Unit's forest canopy contains a softwood component. The natural stands of hemlock will most likely persist as a dominant forest type. However, as the softwood plantation species mature it will require much more planting to retain the softwood component. Softwoods are an important component of the forest for wildlife and also as commercial timber species. From a landscape perspective it is important to maintain a higher percentage of pine and spruce on state forests to ensure its place at the landscape level.

In order to maintain large trees for aesthetics and mature interior habitat, the Northern hardwood-hemlock stands will be managed as uneven-aged. The management recommendation for many of the hemlock stands involve group selection harvests. Hemlock is shade-tolerant and will persist in the understory. It has been shown that small gaps of at least 1/4 acre in size will open the canopy enough to release these suppressed trees and provide a continual softwood component. In stands that are not commercially valuable, a fell and leave treatment could be performed. The treatment is actually trying to mimic a natural wind throw event where small gaps in the canopy are created.

The plantations are managed as even-aged stands. Most stands will receive one more thinning treatment before the end of their rotation. The main objective of a thinning is to release the residual crowns from competition and allow them more sunlight, promoting better health and growth for the stand. In some stands, enough sunlight reaches the forest floor to stimulate desirable understory regeneration. In these cases, the final harvest treatment will likely be a clearcut. However, most stands will likely not have desirable regeneration at the time of final harvest, so a shelterwood or seedtree cut will be recommended. Shelterwood and seedtree harvests remove the majority of the overstory to allow plenty of sunlight to reach the forest floor while also providing a softwood seed source to establish desirable regeneration. For most stands in the Unit, this plan will not address the final harvest as stands will not yet have reached maturity in this time frame.

- **Manage for high quality northern hardwood sawtimber**

Management recommendation 1.4 - Firewood thinnings and intermediate treatments are tools used to increase the quality of trees within the stand. These treatments are performed to remove some of the poorly formed trees, undesirable species and release the better quality trees with in the stand.

- **Provide for adequate hardwood and softwood regeneration**

Management Recommendation 1.5 - Softwood stands which are scheduled for clearcut, shelterwood or seedtree harvest need provisions made for adequate regeneration. In stands that will retain a softwood component, softwood reforestation should be planned for and included in the harvest prescription if no natural softwood regeneration is present. In the next thinning cycle (25 yrs) there are approximately 542 acres recommended for final harvest. This is a relatively small number because most stands have another intermediate thinning scheduled before the final harvest. It will be in the 25-50 year range when most stands will be faced with a final harvest.

Management Recommendation 1.6 - Hardwood stands with heavy fern understory may need herbicide treatment in order to ensure adequate desirable regeneration. It has been shown when stands with fern present in the understory have minor soil disturbance, ferns flourish and natural hardwood regeneration is restricted. The recommendation would be to treat the stand 1-2 years prior to harvest. This would alter environmental conditions which hinder seed germination and create a desirable seed bed for natural regeneration after the soil disturbance of the harvest.

Each stand under consideration will be evaluated and herbicide treatments will only be considered when there are no other alternatives. Herbicide treatments are only executed after a herbicide application plan is developed and acceptable parameters are established. Herbicides are selected based on their low toxicity and minimal time in the soil. This treatment will only be considered when the establishment of natural regeneration is an objective for a stand.

2.0 - Fish and Wildlife Objectives

- **Improve winter cover for white-tailed deer and snowshoe hare.**

Management Recommendation 2.1 - Increasing the cover habitat requires an increase in young, dense softwood stands. As final harvests are completed on plantation stands and actions are taken for regeneration, this winter habitat will increase. In the next 5 years, 141 acres of softwood stands are scheduled for group selection, another 107 acres for patch clearcut and 169 acres for shelterwood cut. If adequate natural softwood regeneration is not sufficient then reforestation through planting is recommended. In the northern portion of the Unit it may be feasible to plant red spruce and balsam fir but for the majority of the area white pine will be recommended.

- **Provide young forest habitat with high woody stems per acre.**

Management Recommendation 2.2 - Maintain stands of even-aged structure. Harvest mature stands by means of clearcutting, patch clearcut or group selection. This allows for thick regeneration to become established, producing the high woody stem count.

- **Retain 5-10 snags and wolf trees per acre, especially along wetland and stream buffers, for interior bird species.**

Management Recommendation 2.3 - Large cavity trees provide shelter, dens, forage and nesting for many wildlife species. Retention of these provide lasting structures for wildlife to return to. Large dead trees present no competition for the residual stand and no energy should be taken to remove these trees. Many interior forest species utilize the large perching trees within riparian zones. A restricted management area along streams, ponds and wetlands will provide this habitat. Forest harvest will retain a percentage of cull trees. Forest analysis for timber harvest will include the percentage of these valuable wildlife trees. In developing the prescription for harvest, a marking guide for wildlife trees will also be included.

- **Identify nest trees of birds of prey**

Management Recommendation 2.4- The Unit has several birds of prey nest already identified. During the winter months of forest inventory, care should be taken to be on the look out for further nests. The coordinates of the location should be taken and input into a database. Any harvest scheduled near a located nest will maintain a 2-chain (132 ft.) buffer around the nest or greater depending on future management direction. Furthermore, in stands where active nests are found harvests will be restricted from March 1 thru July 30 while birds are nesting.

- **Establish small apple orchards and enhance existing apple trees**

Management Recommendation 2.5- Existing stands that contain apples include Swancott Hill SF (Oneida-Lewis 1) Comp B stand 15 and 19.2, Tri-County SF (Oneida 9) Comp A stand 38 and Florence Hill SF (Oneida 11) Comp B stand 27. Combined the three stands equal 35 acres. The apple needs to be pruned, released and have competing vegetation removed.

- **Develop a wildlife viewing platform.**

Management Recommendation 2.6- Construct a universally accessible viewing platform on Oneida RA# 10 (Furnace Creek SF) to over-look the 230 acre Class II Wetland (wetID CE-4). Furnace Creek, a class C(trout spawning) stream, is the source of this wetland , which includes open water, emergent vegetation, alder and early successional vegetation. This could provide prime opportunity for the public to view waterfowl, songbirds and other wetland species. A 4-car parking lot will have to be improved with grading and a 4-inch base of crusher fines. 1.4 miles of Wentworth PFAR will need to be maintained to a Class A design specification.

- **Increase the fishing opportunity**

Management recommendation 2.7- Construct 2 universally accessible fishing piers. One for each of the major ponds, Johnny Smith Pond and Cassbaker Pond.

Management Recommendation 2.8- Improve the boat launch area at Johnny Smith Pond. Restrict launching to the north side of the dike only and create a firm hardened surface to launch boats.

- **Protect reptile and amphibian breeding habitat**

Management recommendation 2.9-Natural habitat, such as wetlands, streams and vernal pools, will be identified, delineated and pertinent management buffers will be established. On haul roads and skid trails where ruts have inadvertently created habitat, rehabilitation work will be restricted during amphibian and invertebrate breeding season. No mechanical alterations should be performed to these man-made pools from Mid-March to June 30.

3.0 - Soil and Water Objectives

The sustainability of the Southern Tug Hill forest ecosystem largely depends on the quality and functionality of the areas soil and water resources. Wildlife and plant diversity is linked with landscape diversity which is owed in part to the abundant wetlands on the Unit. Aquatic, riparian and wetland ecosystems provide food, breeding areas and cover for numerous wildlife species. It is a main objective of the plan to ensure watershed protection, wetlands protection and perennial and intermittent stream protection. These water resources are an integral part of the larger hydrologic cycle (the route water takes from rainfall to evaporation) providing sediment filters, regulating runoff and recharging aquifers. Reducing and preventing soil erosion (the movement of soil) and sedimentation (the movement of soil into a water body) throughout the Unit and its surrounding landscape is of critical importance. The water quality through the Unit and its landscape is high because of the buffering forest land cover and the many filtering wetlands.

Special Management Zones (SMZ's) are strips of land which border surface waters and in which management activities are adjusted to protect or enhance riparian and aquatic values. The width of the SMZ's varies with the intended buffering purpose, for example is the strip managed for shade and larger trees to help maintain cooler water temperatures or to provide large woody debris to streams. The first purpose would involve a wide management zone with healthy large crowned trees and the latter, a relatively small zone with large poorer quality trees. A summary of the draft DEC Division of Lands and Forests management rules for establishment of special management zones on state lands is located in the Appendix VIII.

- **Implement proper best management practices when conducting land management activities on the Unit.**

Management Recommendation 3.1-Timber harvesting and construction projects are not a major cause of erosion and sedimentation if properly planned. When minimally disturbed, forest soils retain their capacity to absorb and filter tremendous amounts of water. Removing or heavily disturbing the forest litter layer is when the potential for erosion and sedimentation increases. Erosion and sedimentation increases when surface water flows over exposed soil on steep slopes and for long distances. Sedimentation and turbidity (cloudiness) is caused when eroded soil gets into a stream, wetland or pond. This condition can damage fish habitat, spawning areas and degrades water quality for downstream uses. Severe erosion can move large quantity of soil and can damage or destroy natural resources and personal property.

The key to protecting water quality is the proper planning and consistent use of Best Management Practices (BMP's). BMP's are a technique or combination of techniques that are determined to be an effective and practicable means of preventing or reducing the amount of pollution generated by a non-point source to a level compatible with water quality goals. The wise placement of haul roads and skid trails, road layout that make use of gentle grades, water diverting techniques and stream crossing soil stabilization are all methods employed to minimize the chance of disturbing water quality.

- **Maintain special management zones along ponds, streams and wetlands.**

Management Recommendation 3.2- Establish special management zones on perennial and intermittent streams, ponds and classified wetlands. Maintain 70 percent crown cover to limit water and ground surface temperature increases. Manage for older trees at the water's edge to provide a natural supply of large woody debris and to shade the water surface. The geology of the landscape creates south-easterly flowing streams so care should be taken to keep wider SMZ's on the north and easterly sides of wetlands, streams and ponds. Furthermore, steep slopes approaching water will require wider SMZ's when compared to flat plains. Within the special management zone, maximize cable lengths and avoid any mechanized equipment to reduce canopy and ground disturbance. Avoid felling trees into streams and remove from the streams any tree tops and other slash resulting from a logging operation. In some cases, potential damage to the channel and bank will outweigh the need for removal.

- **Minimize Stream Crossings.**

Management Recommendation 3.3- Stream crossings are recognized by forestry researchers as one of the leading sources of sediment pollution associated with timber harvesting; therefore the "decision" to cross a stream and the methods employed to cross the stream should be thoughtfully planned. All stream crossings will comply with the Department's Protection of Water Program and the New York State Forestry Best Management Practices for Water Quality.

If stream crossings are necessary, they should be identified before the harvest begins. Dragline mats or culverts are the preferred methods for crossing streams. At the crossing soil should be stabilized and water diversions install to minimize sedimentation into the stream.

- **Protection of vernal ponds.**

Management Recommendation 3.4-Vernal ponds provide critical habitat for a number of amphibians and invertebrates, some of which breed only in these unique ecosystems, and/or may be rare, threatened or endangered species. Although vernal ponds may only hold water for a period in the spring, the most important protective measure is learning to recognize these pond locations, even in the dry season.

Maintain the physical integrity of the pond depression and its ability to hold seasonal water by keeping heavy equipment out of the pond depression and away from the perimeter walls at all times of the year. Rutting here could cause the water to drain too early, stranding amphibian eggs before they hatch. Compaction could alter water flow and harm eggs and/or larvae buried in leaf litter at the bottom of the depression.

Establish a buffer zone around the pond 150 feet in width. Maintain a minimum of 75 percent crown cover and minimize disturbance of the leaf litter and mineral soil which insulate the ground and create proper moisture and temperature conditions for amphibian migrations. Schedule operations in the buffer area when the ground is frozen and covered with snow to minimize ground disturbance within the buffer area. Avoid operating in the buffer area during muddy conditions which would create ruts deeper than 6 inches. Such ruts can result in trapping and predation of migrating juveniles and dehydration of mistakenly deposited eggs. Ruts should be filled and operations suspended until the ground is dry or frozen.

- **Pond Maintenance**

Management Recommendation 3.5- The 4 man-made ponds on the Unit were constructed for fishing, wildlife and fire suppression. Like all other structures on the Unit, ponds serve as an important function and may require a higher level of maintenance.

The most significant feature of a well-constructed pond is a structurally sound dike and proper spillway. The dike is an earthen barrier which holds back water while the spillway guides high water to an area where water flow can occur without compromising the pond structure. The pond spillways on the Unit are constructed as a grassy dip at one end of the dike. Lack of maintenance over the years has allowed wood vegetation to grow up on these structures. As the roots of the vegetation grow on the dike it may compromise the integrity of the dam. Priority will be made to remove all woody vegetation and start on a regular schedule of maintenance. The dike should then be mowed at least every three years to maintain it in grasses. Also, attempts will be made to contact New York State Division of Dam Safety to determine the integrity of the dams and repairs and/or rehabilitation funded should deficiencies be found.

4.0 - Recreational Resource Objectives

The recreational objective for the 46-Corners Unit is to provide better access to the interior of the Unit. The planned facilities are selected to highlight some of the more scenic and unique natural areas. The plan tries to accomplish this without commercializing the area and maintaining the wildness of the Unit. By designating facilities, recreationists may better enjoy their experience on the Southern Tug Hill. The facilities may open up opportunities for recreation groups that have not discovered the Unit. The objective is to disperse the facilities enough to avoid user conflicts.

- **Maintain 13.1 miles of Public Forest Access Roads.**

Management Recommendation 4.1- Public forest access roads provide interior access and exploration into the Unit, while also providing a means for removing forest products. These roads are class A and B unpaved forest roads and need to be maintained to these standards. Many of these roads initially need significant work to bring them up to adequate standards. Then a maintenance schedule that calls for mowing, grading, crowning and ditching these roads once every three years should be sufficient. There is approximately 4.5 miles of public forest access roads to be maintained each year. In the event of extreme weather occurrence this schedule may have to be more frequent. Refer to the maintenance schedule in Appendix II.

Management Recommendation 4.1.1- Road signs naming public forest access roads will be placed throughout the Unit.

- **Upgrade and maintain 0.8 miles of CP-3 trails.**

Management Recommendation 4.2- The Unit's 3 designated disabled access trails (CP-3) need to be rehabilitated. The trails are to be drained properly using erosion control structures, graded and brushed out. The trail on Fall Brook State Forest (Oneida RA# 3) may need a load of 4-inch gravel to firm up the very wet spots. The trail tread should have all brush removed at a width of 5 feet and brush back another 2 feet on either side. The vertical clearance should be 10-12 feet free of vegetation. The cross-slope should not be greater than 2 to 6 percent. The trails will also be put on a maintenance schedule to be evaluated every year with routine maintenance needed once every three years.

- **Trail network for Off-Road Vehicle (ORV) and All-Terrain Vehicles(ATV).**

Management Recommendation 4.3- New ORV or ATV trails will not be developed on State Forest in this Unit. A number of factors have contributed to this decision, including wetlands, hydric soils, stream and water quality protection and fragmentation of the Unit. The natural resources of the Unit cannot withstand the impacts without becoming degraded. There is no private ATV trail network in which State Land could provide connections to and therefore no new network will be developed.

- **Provide designated snowmobile trails at existing levels.**

Management Recommendation 4.4- Continue the AANR agreements with the local snowmobile clubs. Routine trails maintenance to be performed by volunteers in cooperation with Department foresters. Funding for these activities is provided in part by the Snowmobile Trail Fund administered by the New York State Office of Parks, Recreation and Historic Preservation (OPRHP).

- **Create secondary snowmobile trail.**

Management Recommendation 4.4.1 - Officially designate the Apple Landing Road and adjoining CP-3 trail as a 1.4 mile secondary snowmobile trail. The trail should be groomed to a maximum of 10 feet. It is recommended grooming be done with a snowmobile and a drag. This is all pending an AANR agreement with a volunteer group to help with the maintenance of the facility.

Management Recommendation 4.4.2- If there is enough of an interest, another secondary trail may be constructed off Regan Road to connect Houlahan Road with County Line Road. The standards would be consistent with a 'secondary' trails: 10 feet maximum width and groomed with snowmobile and drag. There is an old road bed the trail could follow however, there may still be a considerable amount of trail to construct. Some trail-building could be accomplished in conjunction with the next timber harvest (Oneida RA# 7, stand A-2.6, A-8, 2014).

- **Provide parking for approximately 25 trailered vehicles off Hanifin Road.**

Management Recommendation 4.4.3- A snowmobile parking lot may be provided assuming an agreement can be made with the Town of Florence or snowmobile club to plow and maintain the area. A timber sale will be conducted to create an acre clearing off Hanifin Road in stand 5.1 and partially in stand 6 to provide parking for vehicles with snowmobile trailers. This location is near the end of the plowed portion of the road and will provide access to the snowmobile trail network. The clearing dimensions should be roughly 150 feet wide by 300 feet long with a separate driveway ingress and egress. The clearing should be stumped and graded. The parking area will require bank run gravel to ensure the firmness of the parking lot. An access trail will be constructed north through stand A-1.1 and A-2 or on the shoulder of Hanifin Rd to lead to Hanifin Corners.

- **Designate town roads and Public Forest Access Roads on the Unit as mountain biking trail system.**

Management Recommendation 4.5- In cooperation with the towns of Florence and Annsville, the minimum maintenance roads through the Unit will be signed as bike trails. Public forest access roads through the Unit will also be signed as connecting bike trails. This would provide approximately 40 miles of mountain biking trails, an attractive network for promoting mountain bike touring in the area.

- **Create more opportunity for non-motorized winter recreation.**

Management Recommendation 4.6- Designate and promote McSpirit and Phalen Roads on Mad River State Forest (Oneida RA #14) as cross-county skiing and snowshoeing trails. This will provide approximately 4 miles of non-motorized winter recreation facilities.

Management Recommendation 4.6- Alternative trails should be developed when the use becomes high on McSpirit and Phalen Roads. A 2 loop trail system will be developed if user groups see the need. An alternative non-motorized trail could also be developed on Cobb Brook State Forest (Oneida RA #2) if the need is there.

- **Designate 18 camping sites. 9 high use campsites (4 are existing sites) and 9 primitive campsites. Refer to the map titled 46-Corners proposed recreation facilities.**

Management Recommendation 4.7- Designate 9 high use camping sites. The high use camping site will be accessible with a vehicle.

Site #1-3: Johnny Smith Pond High Use Camping Area, Big Brook State Forest (Oneida RA# 7). The sites are already in use and will now become officially designated. The first 2 sites will be located on the north end of the dike and the third site will be across the dike to the south. These sites should be monitored. If use impacts become unacceptable these site will be closed and alternative, more remote sites will be located and designated.

Site #4: Cassbaker Pond High Use Camping Area, Fall Brook State Forest (Oneida RA# 3). This single site is in use and will now become officially designated. Site construction will follow universal design standards. The parking is not adequate; single tree removal and grading should be conducted to provide a better parking facility. The drive should be harden to allow for vehicles with ramps. The camping pad will be leveled and hardened.

Site #5: Mad River High Use Camping Area, Mad River State Forest (Oneida RA# 14). A newly constructed campsite off Rehm Road (minimum maintenance) is recommended that would overlook the Mad River. A hardened drive large enough for 2 cars will be constructed with a flat pad large enough for two tents and a fire pit. This is a newly constructed facility and will be universally accessible.

Site #6: CCC Road Moderate Use Camp Site, Swancott Hill State Forest (Oneida-Lewis RA#1). The site is already established and will now be designated. It is located off the CCC Road directly across from Sullivan Road. It is located near the upper branch of Florence Creek and has a CCC constructed waterhole nearby. This site has a fairly hard base and will not need any modifications.

Site #7: Apple Landing Road Moderate Use Camping Site, Fall Brook State Forest (Oneida RA# 3). Located on the Public Forest Access Road running north-west off of Gubbins Road. The site is a former log landing that is hardened and grassed and will not require any modification. The site is located at the ATV accessible (CP-3) trail head.

Site #8: Courtney-Driscoll Road Moderate Use Camping Site, Fall Brook State Forest (Oneida RA#3). Located at the end of the Public Forest Access Road is a landing area that will be designated for camping. The landing will need to be graded and seeded down. There is a substantial foundation also located at the end of the road which was most likely from the J. Courtney family circa. 1870.

Site #9: Fisher Road Moderate Use Camping Site, Big Brook State Forest (Oneida RA# 7). Located on a landing at the end of the Public Forest Access Road off the County line Road. The area will need to be graded and brushed out.

Management Recommendation 4.8 - Designate 9 primitive campsites.

Site #10: Maloney Pond Primitive Campsite, Big Brook State Forest (Oneida RA# 7). Parking is located approximately 1.0 mile down Houlahan Road from Osceola Road. The trailhead is on the left side of the road and proceeds 0.5 miles down an old skid trail. The campsite is found on a peninsula across the dike on the east end of the pond.

Site #11: Blake Pond Primitive Campsite, Fall Brook State Forest (Oneida RA#3) Starting at the intersection of Casbaker Road and Harrier Way (PFAR), continue north for approximately 3/4 mile down Harrier Way (PFAR) to a small driveway to the left. The driveway can accommodate parking for approximately 3 vehicles before it is blocked off by a fallen tree. A better parking facility is needed along with work to dry out the trail. The trail splits and the campsite is approximately 360 feet off the left fork. It is situated off to the right of the trail near the old homestead of the Blake family. The pond will not be visible with leaf cover, however it is less than a 1/4 mile way.

Site #12: Mad River Trib Primitive Campsite, Mad River State Forest (Oneida RA# 14) The trail and site will need to be established and constructed. At the Mad River State Forest sign on Florence Hill Road turn onto McSpirit Road (PFAR). Take McSpirit Road for a little over a mile and then turn left onto Phalen Road. Parking and trail head are at the landing about 1.5 miles down Phalen Road. The foot-trail will follow an old skid trail that comes off the parking area and proceeds south and south east to a major tributary of the Mad River.

Site #13: Cobb Brook Primitive Campsite, Cobb Brook State Forest (Oneida RA#2) The campsite is located off the snowmobile trail that crosses Dingle Street. There is a small clearing on the eastside of Dingle Street for parking and the trail for the campsite is off the west side of Dingle Street. Travel down the snowmobile trail west approximately 1/4 mile until you cross the second bridge; the campsite is off to the left overlooking Cobb Brook.

Site #14: Furnace Creek Primitive Campsite, Furnace Creek State Forest (Oneida RA# 10) To be constructed is a parking facility, trail, and campsite along Furnace Creek. It will be accessed through Wilson Road to Wentworth PFAR and the parking will be on the landing near the powerline.

Site #15: Graves Road Primitive Campsite, Tri-County State Forest (Oneida RA# 9) Located approximately 1.5 miles down Graves Road on the right side of the road is the parking and campsite. Off the campsite is the snowmobile trail that crosses Spellicy Brook and continues on into West Osceola State Forest.

Site #16: Big Brook Primitive Campsite, Big Brook State Forest (Oneida RA# 7) From Houlahan Road turn onto Keefe Road for approximately 1/2 mile then turn right onto Big Brook PFAR. Continue on the PFAR for another 1/2 mile over the large culvert to a roadside landing for parking. Walk the road back to the big culvert where the trail heads south, and the campsite is located a little over 1/4 mile along side Big Brook.

Site #17: Smith Brook Primitive Campsite. Big Brook State Forest (Oneida RA# 7)

Site #18: Cody Brook Primitive Campsite. Swancott Hill State Forest (Oneida-Lewis RA#1) The trail to this campsite should be developed in conjunction with a timber harvest. The campsite will be located on the north side of the beaver ponds located in compartment 2 stand 17.1. Several Great Blue Herons utilize these ponds with a rookery located close by. This site provides great opportunity for bird watchers.

- **Manage human waste at high use sites**

Management Recommendation 4.9- Construct and install 4 privies, one at each of the intensive use campsites. Highest priority should be placed on Johnny Smith Pond. Newly constructed facilities will follow the universally accessible standards

Management Recommendation 4.9.1-Monitor primitive and moderate use campsites for heavy human impact. If impacts are negatively affecting the natural resource, privies may need to be installed or site may need to be closed and alternatives identified.

- **Create 5 short distance trails to highlight scenic spots on in the Unit. These trails would also lead to 5 of the primitive campsites.**

Management Recommendation 4.10-The trails leading into Campsite #12,17,18 will be loop trails consisting of approximately 7 miles, total. Two remaining trails will lead into Campsites #14 and 16 and total 2 miles.

- **Create an accessible hiking trail.**

Management Recommendation 4.11- Install an accessible trail that would head off Campsite #4, cross the dike, follow the north shore of Cassbaker Pond and then circle back following Harrier Way PFAR.

- **Monitor vehicle activity over the dike on Johnny Smith Pond.**

Management Recommendation 4.12- Vehicle travel over the dike may begin to degrade the integrity of the dam; therefore, before sign of significant damage occurs a gate will need to be installed, or the roadway repaired and stabilized. Furthermore the road access will cease if dam safety inspections indicate that vehicle use on the dam is an unacceptable risk.

5.0 - Mineral and Alternate Energy Objectives

The objective of the plan is to utilize the energy resources of the Unit to promote clean energy. There has been a regional movement on the Tug Hill to invest in alternatives to fossil fuels. The Tug Hill Plateau is thought to have one of the largest roadless areas in the state at 121,000 acres. The area has one of the largest wind farms east of the Mississippi River. Businesses and researchers are building facilities to capitalize on woody biomass for biofuels. The best use for energy resources on the Unit would be the sequestration of carbon and to supply the biomass markets with our low quality trees.

- **Utilize the Energy Resources on the Unit**

Management Recommendations 5.1- Presently there is no interest in gas and oil exploration on the Unit. However, if demand for these substances continues to increase, then increased demand may make the Unit more attractive for exploration. However, the limitations on the Unit are high due to the amount and complexity of the wetlands systems combined with the network of classified streams. In the event a party desires to use the surface estate to conduct geophysical (such as a seismic survey), geochemical and/or surface sampling procedures on Department lands prior to, or after leasing they must first obtain a Temporary Revocable Permit (TRP) for the access and use of state lands. If the area is subject to a lease agreement, only the lessee, or parties authorized by the lessee, can be issued the TRP for both these purposes. A TRP can be applied for through the NYSDEC Division of Lands and Forests, 225 N. Main Street, Herkimer, NY 13350.

For further information contact the NYS DEC Mineral Resources staff , Region 8, 6274 East Avon-Lima Road, Avon, NY 14414-9591. Additional contacts include NYS DEC-Bureau of Oil and Gas Regulation, 3rd Floor, 625 Broadway, Albany, NY 12233.

- **Managing stands for carbon sequestration**

Management Recommendation 5.2- The highest rates of carbon sequestration occur in young vigorously growing stands. Management requires focusing on ways to increase rates of leaf area production and maintain canopy cover. Over the long term, this requires active management of young stands with successive cycles of growing, thinning, harvesting and putting wood into either long-term use or products amenable to recycling or energy production. The recommendation which best serves this objective is to follow the harvest schedule to ensure the health and vigor of the stands on the Unit.

- **Provide biomass for the production of biofuels**

Management Recommendation 5.3- Pursue the market for woody biomass. Include new biomass brokers from the area on our bidding lists. This market may help accomplish prescriptive timber stand improvement and move sales of un-thinned spruce and pine stands. Foresters should reach out to this industry and show our interest. Developing a relationship while the market is young may allow for its success. Relying on a sustainable renewable resource for energy instead of fossil fuels reduces the carbon footprint. As our younger forests regenerate they trap more carbon than older, slow growing forests.

6.0 - Enforcement and Protection Objectives

The objective for the Unit is to preserve, protect and enhance the state's forest resources, and provide for the safety and well-being of the public using these resources.

- **Resolve encroachment issues.**

Management Recommendation 6.1-Certified letters will be delivered to the landowners that have apparent trespass issues on the Unit. The letter will ask for proof of rights to have property on and/or use over state land. If no documentation is given, then the property and/or use will be removed, stopped or legal action will be pursued.

State Forest /Proposal	Adjacent Private Tax Parcel Number	Encroachment Issue
ONEIDA RA# 3 Fall Brook SF	58.000-1-2	Off Sullivan Rd, a private driveway crosses state to access a hunting camp
ONEIDA RA# 3 Fall Brook SF	76.000-1-24	At Sullivan & Gubbins Rd, private outhouse is located on State Land
ONEIDA-LEWIS RA# 1 Swancott Hill SF	LEWIS CO. 415.00-01-7.1	On Fire tower Rd, private buildings are located over the boundary on state land
ONEIDA RA# 2 Cobb Brook SF	129.000-2-2.1	Mowing and storage on state land
ONEIDA RA# 7 Big Brook SF	74.000-1-5	Mowing state land on the corner of Hanifin Rd. and Shultz Rd.
ONEIDA RA# 12-14 Mad River SF	91.000-1-27	Off Hart Rd., a driveway across state land to access private parcel
ONEIDA RA# 11 Florence Hill SF	72.000-1-9.4	State boundary continues to centerline of abandoned road which has private gate across
ONEIDA RA# 12-14 Mad River SF	72.000.1-16	Off Phalen Rd., a private driveway crosses state to access private land
ONEIDA RA# 7 Big Brook SF	74.000-1-19	Pond building has crossed the state boundary

- **Execute priority survey requests.**

Management Recommendation 6.2-There are several areas on the Unit that need surveys to clear up questionable property disputes.

Date Submitted	State Forest	Proposal/ Reference Map	Description
	ONEIDA RA# 7 Big Brook SF	Proposal DD/ DEC MAP 5793	SW corner is in question with possible encroachment
4/13/00	ONEIDA RA# 7 Big Brook SF	Proposal WW/ IGF-OS Oneida146 Lot 14, Township 4, Scriba Patent	Recent acquisition, western line never delineated, E+S lines border State land
	ONEIDA RA# 3 Fall Brook SF	Proposal Q/ DEC MAP 577 10.238 acre School House Reservation	Boundary not marked with apparent encroachment
	ONEIDA RA# 7 Big Brook SF	Proposal Z/ DEC MAP 5931	0.64 acre strip to adjoin ONE RA#10 proposal G - boundary lost
9/3/03	ONEIDA RA# 3 Fall Brook SF	Proposal II/ DEC MAP 5922	50 X 440 ft strip acquired for access was never field surveyed
4/17/06	ONEIDA RA# 14 Mad River SF	Proposal K/ DEC MAP 6204	Adjoining private survey does not match State painted boundary

The best case scenario would involve researching all the acquisition deeds for the Unit and completing full surveys on the exterior boundary. If approximately 10 miles of exterior boundary lines were surveyed every year the Unit could be completed in 20 years.

- **Maintain Boundary Lines and State Forest Signage**

Management Recommendation 6.3-The boundary lines on state forest will be maintained on a minimum 5-year cycle . There is approximately 152 miles of exterior state forest boundary which calculates to approximately 30 miles/year needs to be maintained. State Forest signs will be maintained along roads and property boundaries at a distance of 300 feet. This is critical for protecting state lands from encroachment and littering. It is also essential for recreationist's safety and for preventing trespass onto private land from state.

State Forest	Year Planned	Completed
Cobb Brook SF (Oneida RA #2)	2007	2007
Fall Brook SF (Oneida RA# 3)	2008-2009	
Big Brook SF (Oneida RA# 7)	2008	
Tri-County SF (Oneida RA# 9)	2007	2007
Furnace Creek SF (Oneida RA# 10)	2007	2007
Florence Creek SF (Oneida RA# 11)	2007	2007
Mad River SF (Oneida RA# 12,14)	2006	2006
Swancott Hill SF (Oneida-Lewis RA# 1)	2007-2008	

- **Monitor and Pursue Enforcement Action for Illegal Dumping**

Management Recommendation 6.4-There are several problem areas on the Unit that are notorious for illegal dumping. New surveillance techniques shall be employed to gather evidence for prosecution.

- **Maintain access to state lands**

Management Recommendation 6.5- There are three locations where public access to state lands have been blocked. The three situations are:

Allen Road Gate- the road is located off Houlahan Road in the town of Florence (also known as 7-Dwarfs gate). The road is a seasonal road for 0.19 miles, then becomes a qualified abandoned road under 205-B for 1.86 miles until it joins with Pond Road bordering Empeyville pond. Under 205-B "it shall not cease to be a highway for the purpose of public easement.....no persons shall obstruct it". The Department reserves the ability to access State property with motor vehicles for administrative purposes. The Department reserves the right to improve the right-of-way in conjunction with a timber harvest. The state also reserves the right for the public to access State Land by motor vehicle or by foot over this easement. The "No Trespassing" sign will be removed and the public allowed to access state land through the public easement.

Billington-Dooley Road Gate- the road is located to the west of Florence Hill Road in the town of Florence. The road was qualified abandoned under 205-B in 1981. The road actually connects Florence Hill Road to Metot Road at Sullivan Rd. The entire length is qualified abandoned and therefor the public easement shall not be blocked. The Department reserves the ability to access State property with motor vehicles for administrative purposes. The Department reserves the right to improve the right-of-way in conjunction with a timber harvest. The state also reserves the right for the public to access State Land by motor vehicle or by foot over this easement. The "No Trespassing" sign will be removed and the public allowed to access state land through the public easement.

Hatfield Road (Theobold Road) - the road runs north off Sheehan Road between Gossner and Sullivan Road in the Town of Annsville. The road was totally abandoned on August 2, 1949. The road has private land on both sides for approximately .5 miles and then state land borders the road on the west for approximately .5 miles. A documented use agreement will be pursued to allow administrative and public access to state land.

- **Assess the safety and need for existing buildings on the Unit**

Management Recommendation 6.6- It is recommended to remove and discard the remnants of the former Moore Camp located on proposal CC, off Sullivan Road.

Management Recommendation 6.6.1-Evaluate the need for the Camden Store House on CCC Road. The recommendation would be to sell the building as surplus and keep the space open for parking.

7.0 - Open Space Initiative

Protecting and managing open space land is a key part of the DEC mission. This philosophy is shaped not just by the number of citizens who wish to participate in outdoor activities, but also on the value of the natural resources themselves to present and future generations.

The overall framework for land conservation in New York is identified in the New York State Open Space Conservation Plan 2006. The plan was prepared by Office of Parks, Recreation and Historic Preservation and the Department of Environmental Conservation, in consultation with nine regional Advisory Committees appointed by county governments and the State, representing a spectrum of open space advocates, natural resource and recreation professionals, local governments, and concerned citizens. This plan ensures that the State of New York conserves its cherished open space resources as a critical part of efforts to improve the economy and the quality of life in New York communities. The plan identifies priority project areas throughout the State, of which the Tug Hill Core Forests and Headwater Streams (Priority Project 86) is one. Priority projects are eligible for land acquisition funding from the State's Environmental Protection Fund established by ECL Article 54.

- **Continue to identify and evaluate land acquisition opportunities as they arise.** Management Recommendation 7.1- Certain areas within the Unit will be given a higher priority when acquisition by the State is being contemplated. Highest priority will be give to acquisitions that protect unique natural communities, threatened, endangered or rare species, minimize private in-holdings, improve access to State lands, create a more contiguous Unit and protect or enhance the State's natural resources. Projects under 200 acres in size and less than \$250,000 may be purchased under the Statewide Small Projects priority projects, while larger acquisitions must qualify under at least one of the two priority projects listed above.

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