

**NORTHERN CHENANGO
HIGHLANDS
UNIT MANAGEMENT PLAN**

A Management Unit
Consisting of Six State Forests
in Northwestern Chenango County

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PREFACE

It is the policy of the Department to manage State Forests for multiple uses to serve the People of New York State. The Northern Chenango Highlands Unit Management Plan, comprised of six State Forests, is the basis for supporting a multiple use goal through the implementation of specific objectives and management strategies. This management will be carried out to ensure the sustenance, biological improvement, and protection of the Unit's ecosystems and to optimize the many benefits to the public that these State Forests provide. The multiple use goal will be accomplished through the applied integration of compatible and sound land management practices.

The Northern Chenango Highlands Management Plan has been created based upon a long-range vision for the management area. Specific goals and objectives to support that vision have been developed to implement management activities on this Unit for the next 20 years with a review in 5 years and an update due in 10 years. It should be noted that factors such as wood product markets, changing social mores, budget and staffing constraints, and forest health problems may necessitate deviations from the schedule at the judgement of the Regional Forester.

Article 9, Titles 5 and 7, of the Environmental Conservation Law authorizes the Department of Environmental Conservation (D.E.C.) to provide for the management of lands acquired outside the Adirondack and Catskill Parks. Management as defined by these laws include watershed protection, the production of timber and other forest products, recreation and kindred purposes. The Draft State Forest Land Master Plan provides the overall direction and framework for meeting this legal mandate.

HISTORICAL BACKGROUND INFORMATION

A. 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 pasture.

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

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 area. 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 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 begun. Thousands of young men were assigned to plant millions of trees on the newly acquired State Forests. 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 reforestation areas. Plans for further planning, construction, facility maintenance, and similar tasks had to be curtailed. However, through postwar funding, conservation projects once again received needed attention. The Park and Recreation Land Acquisition Act of 1960, and the Environmental Quality Bond Acts of 1972 and 1986 contained provisions for the acquisition of State Forest lands. These lands would serve multiple purposes involving the conservation and development of natural resources, including the preservation of scenic areas, watershed protection, forestry and recreation.

Today there are nearly 700,000 acres of State Forest Land throughout the State. The use of these lands for a wide variety of purposes such as 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.

B. Local History

Prior to the conclusion of the Revolutionary War in 1783, the northwestern portion of present-day Chenango County was inhabited by the Oneidas of the Iroquois Confederacy. Early settlers reported finding hunting trails through the forests and arrowheads in the plowed fields.

The eastern boundary of the Oneida territory was established as the Unadilla River in a treaty between the Federal government and the Oneida Nation dated November 5, 1768. On October 22, 1784, a treaty was drawn at Fort

Stanwix which resulted in the Oneidas ceding much of their land west of the Unadilla River (including Chenango County) to the Federal Government.

Chenango County was formed on March 25, 1798, from Herkimer, Montgomery, and Tioga Counties. Named after the river flowing south through the County, Chenango is an Indian word meaning “beautiful waters flowing through the land of the bull thistle”.

Smyrna was one of the six townships originally purchased from New York State by William S. Smith. In 1794, he sold most of the town to John Lawrence of New York City. The Township of Smyrna was created on March 25, 1808. It was originally called Stafford, but the name was later changed to Smyrna. This name was derived from the ancient city in Turkey.

The first settler in the Smyrna Township was Joseph Porter of Conway, Massachusetts. In 1792 he built a log cabin one-half mile south from the Village of Smyrna. Subsequent settlers arrived in this region from New England and began clearing the forests, first in the river valleys and later in the hills. As the population grew, a wide variety of occupations developed. Some of these in the Smyrna area included farming, grist milling, milk, butter, cheese, and maple syrup production, saw milling, logging, and hide tanning. There were also blacksmiths, cobblers, road workers, wagon and carriage shops and cheese box factories.

The Atlas of Chenango County, New York, dated 1875 indicates the location of a few of the activities that took place on land owned by the State today. A sawmill was located east of the George Crumb Road in what is now a Norway spruce plantation. A family cemetery is located in another spruce plantation on the north side of

the George Crumb Road.

One of the most prominent people to have lived in the Town of Smyrna was Bringham Young. Bringham Young was born on July 1, 1801, in Whitingham, Vermont. His family moved to Chenango County around 1804, and he lived in Smyrna during his youth until 1817. Today there is a New York State historic sign on County Route 21, south of Smyrna, indicating the location where Bringham Young lived.

Bringham Young was introduced to Mormonism after he left Smyrna. He eventually converted to Mormonism at age 31 and later, in 1844, he succeeded Joseph Smith to become president of the Church of Jesus Christ of Latter-Day Saints. In 1847 he led 143 men, three women and two children to the Great Salt Lake Valley in Utah. Forty-nine years later Utah became a state, and today, this is the location of the Mormon Church headquarters.

To the west of Smyrna is the Town of Otselic. The name “Otselic” is an Indian word meaning “plum creek”, which refers to the wild plum trees that once grew along the banks of the Otselic River.

Settlement in the Town of Otselic was several years behind that occurring in the townships to the east. The first settlement in Otselic was made by Ebenezer Hill of New England, in 1800. He settled at present-day Otselic and later built the first tavern and sawmill in the town. The town proceeded to grow slowly after this settlement, and on March 28, 1817, the township was formed from German. The Otselic River, flowing south and west through the township, provided water necessary for powering sawmills, and the operation of creameries and cheese factories. In 1880, the Otselic Creamery, located at Otselic, was one of the largest in New

York State.

Historically, the largest industry in the town of Otselic has been the Gladding Cordage Corporation located at South Otselic. The company was established by John Gladding VII in 1816 and was originally located at Northwest Corners in the Town of Pharsalia. Here, the company manufactured pulley cords, halters, bed cords, chalk lines and fishing lines. In 1892, the company was moved to South Otselic where a two-story water powered factory was built. The B. F. Gladding Company was the first fishing line manufacturer to waterproof black silk lines for bait casting, and eventually the company became the largest producer of the best fishing lines in the world. At its peak years of production, the Gladding Cordage Corporation produced 250,000 miles of fishing line a year. Today, the Gladding Corporation continues to operate in South Otselic at a reduced scale.

In the late 1840's a wooden plank road was built to connect South Otselic with Norwich. This road, presently known as the Plank Road, enabled settlers to transport heavy produce to the market in Norwich. This was operated as a toll road; however, maintenance costs were higher than the tolls collected so in 1860, the road was given back to the towns.

In the southeast corner of the Otselic Township is the hamlet of Beaver Meadow. The name of this community comes from the historic existence of a beaver dam across the East Branch of the Canasawacta Creek. This dam was reportedly large enough to flood 100 acres of land.

The Atlas of Chenango County, New York, indicates the historic location of a school house on Chenango #2 in the Town of Otselic. This school was located on Beaver Meadow State Forest on the east side of the Reit Road at its

intersection with the Stannard Road. The Township of Lincklaen was formed on April 12, 1823, and is located in the northwest corner of Chenango County. It was named after Col. John Lincklaen who was an agent of the Holland Land Company and the founder of Cazenovia, located two townships north of Lincklaen. Lincklaen came to this area in 1792 to survey a 135,000 acre tract of land ranging from Cazenovia south to German. He later built his estate called Lorenzo on Cazenovia Lake.

The first settlement in the Town of Lincklaen was by Deacon and Jesse Catlin in 1784. The brothers established Catlin Settlement at what is now the hamlet of Lincklaen and sixteen years later they constructed the town's first sawmill. The early settlers found that the hills of Lincklaen were ideal for sheep grazing, so this town had proportionately more sheep than others in Chenango County. After the Civil War there was an increased demand for dairy products so the agricultural trend shifted towards dairying. Today, the valleys of Lincklaen are used for dairy farming while the hills tend to be forested, as a result of trees becoming established on abandoned farm lands.

The State began purchasing lands and started to establish plantations during the period of farm abandonment in the early 1930's. On July 25, 1933, a cooperative agreement was formed between the New York State Conservation Department and the United States Forest Service. This agreement established the Chenango Experimental Forest at the center of Chenango #2.

The first work on the Chenango Experimental Forest began with experimental tree plantings in the spring of 1933. The following year, an office was constructed on the south side of the Coye Hill Road, between the Reit Road and the

Gibson-Taylor Road. During the proceeding years, the Chenango Experimental Forest was the site of extensive experiments on tree planting. Using the Civilian Conservation Corps (CCC) for much of the labor, studies were conducted to determine the best species and planting methods to use for reforesting the large areas of abandoned farm lands purchased by the State. Various pesticides were also tested for effectiveness in killing white pine weevil, mice, and undesirable trees. In 1937 the Civilian Conservation Corps constructed the weir dam on Chenango #2, at the south end of the truck trail. Researchers measured water flow through this drainage to determine the effects of tree planting. A meteorological station was also built at this site, and measurements were collected of water depth at the weir dam, ground water levels, snow depth, air temperature, soil temperature and frost depth.

The Forest Service planted some unusual tree species for their experiments. Some of these included Japanese red pine, Chinese elm, eastern red cedar, Douglas fir, Kaempfer larch, black oak, and Balkan white pine. One of the experiments involved stripping the roots of red oak seedlings and treating them with hormones to stimulate root development. Other experiments involved planting white pine from different seed sources and separating the plantings by different classes of root, stem, and crown development. Another experiment involved planting the seeds of six hardwood species (red oak, sugar maple, black cherry, white ash, basswood and black locust) to determine which grew the best. Numerous other experiments were conducted on the Chenango Experimental Forest and in 1939, people interested in the studies came from as far away as Yale University in Connecticut. In 1941, many of the experiments on the forest were discontinued because C.C.C. labor crews and sufficient funding were not available as the war effort directed these resources elsewhere.

INFORMATION ON THE UNIT

A. Geographical & Geological Information

The Northern Chenango Highlands Unit is located within the Towns of Lincklaen, Otselic, Pitcher and Smyrna in the northwestern corner of Chenango County, New York. The Unit is bisected by N.Y.S. Route 26 before it merges into N.Y.S. Route 80 at the Hamlet of Otselic. The Hamlets of Lincklaen, Pitcher, South Otselic, Beaver Meadow, Upperville and Otselic line the perimeter of the Unit.

Six State Forests comprise this management unit.

<u>Chen. RA#</u>	<u>Forest Name</u>	<u>Acres</u>
#2	Beaver Meadow S.F.	4217
#18	Lincklaen S.F.	3384
#20	Bucks Brook S.F.	2178
#21	Otselic S.F.	1043
#23	Lincklaen S.F.	1271
#25	Beaver Meadow S.F.	<u>1597</u>
	TOTAL ACRES	13686

The lowest elevation on the Unit is 1,280 feet above sea level at the Otselic River on Chenango #21; however, this is an exception as the state forests on this unit are typically on the hill tops. This management unit is named the Northern Chenango Highlands because it has some of the highest elevations found in Chenango County. The highest point on this unit is 1,980 feet above sea level on Chenango #2, and hill tops on both Chenango #20 and #21 reach 1,960 feet in elevation.

The unit is in the Allegheny Plateau physiographic province. Ten thousand years ago the receding Wisconsin glacier cut and etched the landscape.

It left behind gently rolling flat topped hills, interspersed with low lying river valleys. Steep side slopes and ravines are found adjacent to watercourses throughout the unit. The bedrock is composed of shale and siltstone formed from marine sediments during the middle and upper Devonian periods.

The majority of the soils on the unit are Mardin, Lordstown and Volusia, with a small percentage of Bath, Bath-Valois and Greene soils present. The soils are heterogeneous mixtures of particles deposited by the glacier. These are called glacial till. These soils are gently sloping to steep, deep to moderately deep, medium textured soils. They range from well drained to poorly drained.

These soils have major limitations for crop production. Some soils have a seasonal high water table, low fertility, high acidity and erodibility on steeper slopes. More detailed soils information is contained in the U.S.D.A. publication Soil Survey of Chenango County, N. Y.

B. Land Classifications and Stages Within the Unit

Table I
Present Land Classification, Acreage and Size Class Distribution

Land Class.	Acres	1-5" DBH Acres	6-11" DBH Acres	12"+ DBH Acres	% of Total
Ponds	12				>1
Open	47				>1
Brush	287				2
Wet-land	268				2
Mixed Hdwd./ Natural Conifer	1322		946	376	10
Natural Hdwd. Conifer Plantations	4494	493	3147	854	33
Totals	13686	932	9790	2360	100

The above data was compiled from existing inventory records. The land classification categories are explained as follows. Openlands are essentially treeless and contain varying mixtures of grasses, brambles and forbes. Brushlands are early successional communities commonly containing shrubs, apple and thornapple trees along with scattered openings.

Wetlands range from open wet meadows to wooded swamps. Mixed natural hardwood/natural conifer stands contain trees that have been established without human intervention and are composed of at least 10% eastern white pine, eastern hemlock or balsam fir in mixture with natural hardwoods. Natural hardwood stands also have been established without human intervention but consist entirely or nearly entirely of hardwood species such as sugar maple, red maple, beech, white ash and black cherry. Conifer plantations contain trees which have been established by hand or mechanized planting and are composed of species such as red pine, white pine, Scotch pine, Norway spruce, white spruce and larch.

Detailed information about vegetative communities can be found in the Department of Environmental Conservation publication Ecological Communities of N.Y.S. by Carol Reschke.

C. Wetlands and Water Resources

Wetlands qualify as legally protected in New York State if they meet the criteria found in Section 14-0107 of the Freshwater Wetlands Act and are at least 12.4 acres in size. The Northern Chenango Highlands Unit contains two Class II wetlands, both on Chenango #2. These and the many other wetlands not qualifying for inclusion under ECL Sections 3-0301 or 24-1301 statutory protection are listed in Appendix I.

Additional wetlands on the Unit are two small impoundments located on Chenango #2. One of these, known as the Weir Dam is located at the end of the truck trail, the other one is unnamed

and is found north of the Hartley Stowell Road. Other small wetlands on the Unit have been created by beaver dams. These additional wetlands are listed in Appendix II.

The watercourses on the Unit are designated as having either C, C(T) or D standards. The classification system, regulations and accompanying authority are described in ECL

Sections 15-0313 and 17-0301. Appendix III lists the watercourses on the Unit. Small intermittent streams are not listed. Several classified trout (C (t)) streams are located on the Unit. These include but are not limited to the Otselic River, Alder Meadow Brook, Middletown Brook, Bucks Brook, Ashbell Brook and Coit Brook.

Appendix IV lists the fish species found in some of the Unit's waters. Brown trout are stocked in the Otselic River, and Brook trout are stocked in Tannery Brook. The other C(t) streams contain sufficient numbers of naturally occurring trout to sustain themselves at the present level of fishing pressure.

D. Significant Plants and Plant Communities

No rare plant communities or rare, threatened or endangered plants have been identified on the unit.

E. Cultural Resources

Resources that are culturally important because of their historic significance are protected under the New York State Historic Preservation Act. The New York State Archeological Site

inventory maps indicate there are no significant sites on this Unit. Those significant sites that have been identified in this plan will be reported to the State Historic Preservation Office.

F. Roads

The State Public Forest Access Road System provides for both public and administrative access to the Unit. The roads are constructed to standards that will provide reasonably safe travel and keep maintenance costs at a minimum. These roads are not normally plowed or sanded. There are three types of roads constructed by the Department - Public Forest Access Roads, haul roads and access trails - and they provide different levels of access depending on the standards to which they are constructed on this Unit. The speed limit on Public Forest Access Road is 25 m.p.h. Appendix V lists the roads and their mileage on the Unit.

Old town roads that are no longer maintained include Qualified Abandoned roads and Abandoned roads. Records of official abandonment status by the towns are often difficult to find, if they exist at all.

Numerous old town roads that are completely within State ownership on the Unit have been fully abandoned over the years.

Qualified Abandoned roads on the Unit include the following:

Chenango #2 - That portion of the Stowell Road located west of the Gibson - Taylor Road.

Chenango #21 - That portion of the Raider Hill Road between the State forest access road and the north end of the Flannigan Road.

G. Wildlife

The Northern Chenango Highlands Unit lies within the Central Appalachian ecological subzone. This ecological region is essentially a raised, glaciated, dissected plateau with elevations ranging between 1000 and 2000 feet above sea level. It is the northern edge of a larger physiographic region encompassing parts of Pennsylvania and other states to the south. Dickinson (1979) described this subzone as a mixture of forest land, old field succession and active dairy farms in a region typified by cold, snowy winters and cool, wet summers.

Within this subzone, Chambers (1983) listed 51 species of mammals, 126 species of birds, 20 species of reptiles and 23 species of amphibians that are possible residents here. Appendixes VI and VII list the occurrence of these species which are indigenous to the Unit on a part or full-time-time basis. The protective status of these species is also listed. For the listing of breeding birds, the recently published Atlas of Breeding Birds was consulted. It was found from the Atlas survey that the diversity of breeding birds was very high in the census blocks covering the Northern Chenango Highlands Unit.

The Region 7 Wildlife Unit has mapped 11 potential beaver colony sites on the Unit. No recent deer wintering sites have been identified.

Appendix VIII summarizes the harvest records for turkey, deer and other species.

H. Recreation

Varied recreational opportunities exist throughout the Unit. Examples of these opportunities are:

Hunting Nature Observation

Trapping Snowmobiling
Fishing Camping
Nordic Skiing Mountain Biking
Horseback Riding Hiking

The Finger Lakes Trail System is a hiking path extending from the Niagara River to the Allegheny Mountains and across remote areas of the Southern tier of New York State to the Catskill Mountains where it joins other trails. The trail system is nearly 800 miles in length and is maintained by the Finger Lakes Trail Conference.

The Finger Lakes Trail is located in the northwest corner of Chenango County and extends in a southeasterly direction across the county. The trail crosses the Unit on Chenango #20 and #21, and these two State Forests include 4.2 and 4.1 miles of trail respectively.

I. Other Facilities Boundary Lines

<u>State Forest</u>	<u>Miles</u>
Chenango #2	27.67
Chenango #1	29.10
Chenango #2	20.89
Chenango #2	11.50
Chenango #2	8.89
Chenango #2	7.94

Impoundments

Appendix II lists the ponds on the Unit

Signs

All of the following are State Forest area identification signs:

<u>Number of Signs</u>	
Chenango #2	1
Chenango #20	1
Chenango #21	1

Chenango #25 1

Parking Areas

<u>Forest</u>	<u>Number</u>
<u>Chenango #2</u>	
New Road	1
Hartley Stowell Road	3
Graham Road	1
Reit Road	1
BlivenCoye-Hill Rd.	2
Gibson Taylor Rd.	1
Gray Road	1
D.E.C. Truck Trail	1
<u>Chenango #18</u>	
Kemak Road	1
<u>Chenango #20</u>	
At end of each haul road off the east side of the Ridge Road	2

<u>Chenango #21</u>	
D.E.C. Truck Trail	4
<u>Chenango #23</u>	
Wentworth Road	1
Freeman Road	2
Pink Hill Road	1
<u>Chenango #25</u>	
Coye Hill Road	3
George Crumb Road	3
Beaver Meadow Rd.	2

Shale Pits

<u>State Forest</u>	<u>Number of Pits</u>
Chenango #20	1
Chenango #21	1

J. Property Use Agreements Deeded Rights-of-Way

The following easements have been

granted for use of State land:

Chenango #2
 Stands A-12,19,B-9,12,18
 (NYSEG)
Chenango #20
 Stand C-19 (Citizens Telecom)

Temporary Revocable Permits

The following Temporary Revocable Permits have been granted to utility companies for use of State Land:

<u>Forest</u>	<u>Proposal</u>	<u>Permittee</u>	<u>Issuing Date</u>
Chen. 2	V,Z,CC	Citizens Telecom	05/10/88
	CC	NYSEG	09/16/76
	Z,C,N,Z	Niagara Mohawk	04/04/76
Chen.18	Z	Niagara Mohawk	08/16/72
Chen.20	S,D	Citizens Telecom	01/--/75

DEMANDS ON THE UNIT

A. Timber Resources

There is a continuing demand for commercial wood products on the Unit. Harvesting of products is a valuable management tool and will continue on a sustainable basis and will not be demand driven.

B. Diverse Plant and Animal Habitats and Water Resources

Diverse ecosystems and maintaining water quality are general societal demands that are also specific to this Unit.

The following are specific demands:

- Improve habitat for early successional stage plants and animals
- Protect old growth areas

Manage for biodiversity
Maintain open land habitats
Protect wetlands and riparian habitats

C. Recreational Uses

The following is a list of existing or desired recreational uses on the Unit as expressed through public comment:

Hunting and Trapping
Hiking
Snowmobiling
Nordic Skiing
All-terrain Vehicle (ATV) Riding
(desired use)
Nature Observation

D. Facilities

Demands for the following facilities have been expressed:

Connect existing snowmobile trails to corridor trails
All-terrain vehicle trail
Cross country ski trails
Hiking trails
Parking areas for Finger Lakes Trail
Lean-tos on Finger Lakes Trail

CONSTRAINTS ON THE UNIT

The following factors pose limitations on the management of the Unit's lands and waters.

A. Physical Constraints

Steep slopes
Geologic properties
Soil characteristics
Potential insect and disease infestations
Limited access
Presence of cultural resources

Lack of contiguous arrangement of state forests

Presence of county, town and state roads

Electrical transmission and telephone lines

Deeded rights-of-ways

Concurrent use agreements

B. Administrative or Economic Constraints

Inadequate budgets

Staffing shortages

Availability of Department of Corrections work crews

Fluctuations in wood markets

Lack of demand for some wood products

C. Departmental Rules, Regulations and Laws

Appendix IX lists the Departmental Rules, Regulations and Laws governing the management activities on the Unit.

D. 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 can be satisfied will vary.

VISION STATEMENT

As we approach the beginning of a new century, the Northern Chenango Highlands Unit will be of growing importance for a variety of public uses and resource demands. The challenge is to balance these uses and demands with the protection and enhancement of the natural

resources.

The vision for these forests is that they will become exemplary resources providing a variety of recreational opportunities and forest products, as well as a wide diversity of habitat types and their associated species.

Wherever possible, the practice of forest management shall aspire to enhance the integrity of the natural resources on the unit. Public uses and resource demands shall not diminish the Unit's productive capability or ecological integrity. Through balancing these uses and demands with the protection and enhancement of the natural resources, a sustainable healthy forest can be utilized and enjoyed by future generations.

GOALS AND OBJECTIVES

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

The State Forests on this Unit are part of a concentration of State Forest land found in western Chenango County. These lands provide a wealth of natural resources and unique recreational opportunities that are not available elsewhere on the surrounding private lands.

Examples of these resources include extensive areas of forest land under long-term silvicultural management including large blocks of conifer plantations. These plantations are a unique biological, aesthetic, and forest products

resource. Some bird species such as the golden crowned kinglet and the pine siskin depend upon these plantations for their habitat. Aesthetically, these plantations have become the "identity" of State Forest land. Over the years that these plantations have been managed, they have also provided local industries with the raw material for the production of log cabins, pressure treated wood, utility poles and paper pulpwood..

The large contiguous acreage of public land found on State Forests enhances and provides for a variety of recreational pursuits possible on these lands. Many of these activities are becoming more restricted and increasingly difficult to pursue as more private land becomes posted and/or subdivided. Some of these activities include hunting, long distance hiking, wildlife observation and snowmobiling. The recreational opportunities these forests provide also attracts seasonal residents and visitors to this portion of Chenango County.

The following goals and objectives for Land Management and Public Use and Recreation focus on emphasizing those features that the surrounding privately owned landscape does not provide.

I. LAND MANAGEMENT

The land management goal is to perpetuate and protect diverse healthy ecosystems and their component plant communities.

Sustaining the terrestrial and aquatic ecosystems will ensure the successful achievement of this goal. Managing these ecosystems will maintain viable populations of most indigenous plant and animal species present.

The following objectives and their supporting statements are the measurable steps towards achieving the goal. See Figure 1.

A. Open Land Ecosystem Objectives
1. Maintain 45 acres of grassland
2. Maintain 271 acres of brushland

Open land ecosystems are composed primarily of grasses, herbaceous plants, shrubs and other woody vegetation. Open lands provide primary habitat for some small mammals and insects. Here, species such as deer and rabbits can find forage, seeds or berries. Other species, especially birds, use open lands seasonally for nesting grounds, brood cover, courtship and food. Open lands provide edges

where ecosystems meet and overlap. These edges form a transition zone called ecotones. Some animal species such as bluebirds and song sparrows require the special habitat conditions that the transition zone provides.

Grasslands will be maintained by mowing or prescribed burning. Mowing will take place after July 15 so as not to interfere with breeding birds. Brushlands maintenance will be reviewed on a five-year cycle and mowed or prescribe burned when necessary to prevent plant succession from advancing.

B. Aquatic Riparian and Wetland Ecosystem Objectives

- 1. Protect the water quality of 10.4 miles of classified trout C(t) streams**
- 2. Protect 15.0 miles of class C streams**
- 3. Protect 12 acres of ponds**
- 4. Protect 400 acres of open and forested wetlands**

The aquatic, riparian and wetland ecosystems on the Unit are diverse and productive. They provide food, habitat, breeding areas and cover for innumerable plant and animal species. They

are an integral part of the hydrologic cycle (the route water takes from evaporation to rainfall) providing sediment filters, regulating runoff and recharging aquifers. Most importantly, they ensure clean water for human consumption.

C. Forest Ecosystem Objectives

Plantations comprise an important component of the State Forests on the Unit. As is the nature with all living things, these plantations are not static. As the pine and spruce plantations mature, they will be harvested and often converted to a seedling size class. Most of the pine species in the plantations are not native to New York State and therefore are not adapted to naturally regenerate. Because of this, nearly all of the pine plantations will eventually be converted to hardwoods. Norway spruce has demonstrated the ability to naturally reproduce and such areas will be managed for spruce on a long-term basis in the future.

Diversity within the forested ecosystems on the Unit can be broadly described by the variety of species and the range of forest developmental stages present. The following objectives for both the plantations and the native forests on the Unit will maintain an array of diverse forest conditions.

- 1. Manage 6059 acres of hardwoods, mixed native hardwood/conifer and conifer plantations using 20 year cutting intervals. Create five distinct forest developmental stages using the even-aged management system.**

The even-aged system is important because it favors the establishment of shade intolerant tree species. It also creates early forest developmental stages that are generally uniform cleared or open areas with seedling or sapling

sized trees. Even-aged areas are created through the removal of the over story trees or the establishment of tree seedlings in open areas. These areas are necessary for the survival of many plant and animal species. Much of the forest acreage on the Unit is in one of the various successional stages of the even-aged system.

As these areas with seedling sized trees grow and develop, they gradually mature through five generally uniform and distinct successional stages. The five stages are composed of seedling-sapling, small poles, large poles, small sawtimber and medium to large sawtimber. At 20 year intervals intermediate improvement cuts will be conducted. Adequate advance regeneration will be established before the final harvest cut. The natural hardwood and mixed natural hardwood/conifer types will be managed on a 100 year rotation length.

Plantation conifer species will be managed using the even-aged system for rotation lengths between 60 and 100 years. Present and future plantations of red pine and larch will be grown between 60 and 90 years, those of Norway spruce to 100 years.

2. Manage 91 acres of natural hardwoods, consisting principally of aspen and associated species on a 60 year rotation.

This management will be carried out by using the even-aged system, which is the preferred method to regenerate aspen and associated tree species. The conditions created provide essential habitat for woodcock and ruffed grouse. The regenerated thickets provide ideal broad cover while older trees provide good winter food sources. Aspen is a short lived species with a life span of about 60 years. (See Aspen Regeneration Cut section under Management

Action Schedules.)

3. Manage 305 acres of mixed native hardwoods and plantation white pine stands on a 120 year plus rotation using 20 year cutting intervals.

Most of this acreage will be managed using the uneven-aged system to develop different canopy levels of hardwoods beneath the over-story of the white pine. Fourteen acres of these white pine stands will be managed using the even-aged system and a 120+ year rotation.

The uneven-aged system differs from the even-aged system in several important ways. Instead of maintaining one dominant age condition, this system establishes and maintains many age groups within the stand ranging from seedling and saplings to very large mature trees. The uneven-aged system tends to favor shade tolerant tree species, many of which are long lived. Through this system, a vertical layering of the tree crown canopy is created, with each layer providing distinct habitat niches.

White pine is a native conifer component on the Unit and occupies a dominant position in the forest canopy at maturity. The retention and the perpetuation of the white pine will enhance diversity, provide a conifer component to the landscape and offer habitat to species such as the pine siskin that require conifers.

4. Manage 4234 acres as conifer cover types, of this, 3054 acres will be managed for spruce. Mixed native hardwood/conifers will be managed on 1180 acres, composed of at least 30% coniferous species.

Native conifers, frequently occurring in mixtures with hardwoods, will be managed to encourage the conifer component. Collectively, plantation and native conifer species will comprise 31% of the Unit. Conifer forest types contribute to diversity by providing a distinct habitat for many animals. Some of the wildlife benefits provided by conifers include food, thermal and escape cover. Conifers also have appealing aesthetic qualities. The conifer cover will be renewed by natural regeneration or by site preparation and planting.

5. Manage 4799 acres of native conifer-hardwood and hardwoods using a 20 year cutting interval.

The uneven-aged management system will be applied here. Through the use of this system, a continuous tree crown canopy will be maintained as the forest is periodically thinned. This minimizes the impact for those species which cannot tolerate substantial changes to their forested habitat.

6. Manage 602 acres of mixed native hardwoods and conifers using a 30 year cutting interval.

The uneven-aged management system will be applied. The 30 year interval will allow a longer period of time for the tree crown canopy to remain relatively closed. Less disturbance and mechanical intrusion will aid the habitat requirements of territorial nesters such as raptors. Stands managed on 30-year intervals which are adjacent to the natural areas will also act as a disturbance buffer and may enhance the characteristics of the reserve area.

7. Manage 138 acres as natural areas.

In natural areas, the forest will be managed so that trees grow to their full biological maturity. Eventually these areas will attain a climax condition, the final stage in forest succession. Old climax forests are unique, both structurally and functionally. They usually contain large number of snags and cavity trees of varied sizes and a substantial amount of down and dead material referred to as coarse woody debris. These structures provide habitat not only to the more common plants and animals, but to the myriad of organisms that may be essential to the sustenance of forest ecosystems. Humans desiring emotional fulfillment and spiritual renewal are increasingly seeking to satisfy these values in settings such as old growth areas.

The natural areas are in two locations on Chenango #2, both of which are adjacent to other acreage that is protected because of wetlands or riparian zones. The first natural area is located between the Gray Road and the Reit Road. This area contains 88 acres and includes some remnant old growth trees. Adjacent to this natural area are 46 acres of protection land including two class II wetlands and an unnamed classified trout stream.

The second natural area is located east of the Gibson-Taylor Road and south of the Stowell Road. This area includes 41 acres and already has some characteristics of a climax forest. Adjacent to this area are 60 acres of protection ground containing wetlands, steep terrain and streams.

The adjacent water and wetland resources enhance the value of the natural areas because of the complex interactions between the aquatic and terrestrial ecosystems.

8. Manage 1241 acres as protection areas.

In protection areas, harvesting and mechanical activities are restricted for environmental reasons. Many of these areas occupy sensitive sites, such as steep slopes, or stream banks (called riparian zones) where mechanical disturbance could cause soil movement, erosion and degradation of water quality. Other areas are protected because of wet ground, inaccessibility or to maintain existing aesthetic conditions. Protection areas are usually wooded and therefore have the potential of becoming climax forest.

Table II
Present & Objective Ecotype Distribution

<u>Vegetative Type</u>	<u>Present Acres</u>	<u>%</u>	<u>Objective Acres</u>	<u>%</u>
Ponds	12	<1	12	<1
Openland	39	<1	45	<1
Brushland	263	2	271	2
Wooded wetland	152	1	153	1
Open Wetland	116	1	166	1
Mixed Natural Hardwoods/ Natural Conifers	1354	10	1531	11
Natural Hardwoods	4494	33	8404	61
Conifer Plantations	7256	53	164	1
Spruce-Natural	-	-	2940	21
TOTALS	13686	100	13686	100

D. Resource Management Strategies

1. Protect the natural resources from fire, insects, disease and trespass.

A program of protection from wildfire will be maintained to assure minimum risk or loss to humans, structures and forest resources. This program is the responsibility of the Ranger force within the Division of Forest Protection and Fire Management. The protection of resources from injurious insects and diseases will be accomplished through a program of integrated pest management. This program includes elements of reconnaissance, analysis, determination of thresholds and controls when necessary, emphasizing natural methods.

The integrity of boundary lines is important for resource protection. Periodic maintenance of 139.79 miles of boundary lines, and surveying when necessary, will maintain the integrity of the property lines. Boundary lines will be repainted and signed on a seven-year cycle.

2. Protect cultural resources

The Department has followed procedures established in concert with the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) in determining the presence of cultural resources on this Unit. This involved completion of the Structural-Archaeological Assessment Form (SAAF) and reviewing the New York State Archaeological Site Locations Map. OPRHP and the New York State Museum have been consulted in any instance where the Site Locations map indicated an archaeological or historical site may occur on management unit lands. The results of the SAAF evaluation indicate that no further cultural resources review is required. The SAAF will be updated at the time this plan is updated.

This Unit does contain cultural resources that are not located on the New York State Archaeological Site Locations Map. The more significant of these sites include the following:

- The remains of a school house foundation on the east side of the Reit Road on Chenango #2.
- The foundations of the Chenango Experimental Forest headquarters located south of the Coye Hill Road on Chenango #2.
- The family cemetery located north of the George Crumb Road on Chenango #25.

In addition to these sites, there are numerous old

house or barn foundations. All of these sites will be protected by avoiding them when management actions are planned and performed.

Numerous stone walls in various stages of standing upright are also found on the Unit. At times, it is necessary to cross these when performing management actions. Stone wall crossing locations will be located to minimize disturbance to the wall and will use previous crossing locations where practical.

3. Retain a variety of woody habitat structures.

A variety of habitat structures are necessary components for biological diversity. These structures, live or dead, serve as biological legacies, providing ecological continuity for forest organisms. The following practices will be done in managed stands on acres capable of producing them.

3a. Retain snags and cavity trees.

Snags and cavity trees provide a number of habitat functions for animal species. They are repositories of many organisms providing food and shelter. Snags provide perching sites and eventually become downed woody debris. By retaining cavity trees in a range of tree diameters, a variety of large or small cavity users will be accommodated. Emphasis will be given to maintain these structures near water, fields and edges where possible. This will be applied in both even and uneven-aged systems where it does not create hazardous conditions.

3b. Provide downed woody debris.

Downed woody debris is an important component of the forest ecosystem. Downed wood stores moisture, provides habitat niches for insects, plants, fungi and cycles nutrients as it decays. Downed wood naturally occurs when limbs break, trees are blown over or snags fall. Additional downed wood will be provided as follows:

- a. Tops of felled trees will not be sold for firewood, following sawtimber harvests, except along travel corridors or where aesthetics are important
- b. Non-commercial logs will be left in the woods during harvesting
- c. Minimum utilization limits will generally not be enforced
- d. Whole tree harvesting will not be permitted

3c. Retain 10 to 40 square feet of basal area/acre in live overstory trees during the final regeneration cut in some even-aged management stands.

Leaving live overstory trees, also called green tree retention, provides structural and habitat diversity while also moderating the microclimate for seedling establishment and animal movement. Retained trees may become snags, contain or develop cavities, survive the entire rotation length of the new stand, or be cut during intermediate treatment of the new stand. This practice will be applied where conditions allow it to be done.

4. Collect natural resource data and support volunteer research efforts.

Periodic data collection through the forest inventory process is necessary to monitor

ecosystem conditions. Volunteer research efforts will be supported, provided that they do not conflict with this plan's goals and objectives. Natural resource research influences and updates management decisions and strategies.

5. Oil or gas exploration and leases will not be encouraged or solicited.

Oil and gas extraction is potentially in conflict with the land management and public use goal. The construction of necessary roads, drilling sites and resulting spoil areas is not compatible with some of the ecosystem and recreational objectives and could impede the achievement of the Unit's goals.

II. PUBLIC USE AND RECREATION

The public use and recreation goal is to provide the opportunity for a variety of recreational experiences that are sustainable and compatible with the Unit's resources. The Northern Chenango Highlands Unit provides the opportunity to enjoy a variety of dispersed, low-impact forms of recreation. The primary recreational uses of the Unit include nature observation, hiking on the Finger Lakes Trail, hunting and snowmobiling. Future management actions supporting these forms of recreation include the following management objectives:

1. Install an informative sign at the tornado blowdown site on Chenango #20 off of the Ridge Road.

This sign will serve to educate the public about the tornado, describe the damage it caused and inform the public about the future growth and development of vegetation on the site.

2. Produce a public use brochure including a map of the unit.

This brochure will describe the natural features and history of the unit. A map will be included to show the location of the state forests and their public use facilities.

3. Maintain the two existing shale pits totaling 2 acres in size.

Gravel and shale pits are primarily used for constructing, upgrading and resurfacing public forest access roads, haul roads, building permanent log landings and creating parking lots.

4. Establish a new shale pit on Chenango #18.

A shale pit will be needed on this forest to provide shale for future haul roads, log landings and parking lots on Chenango #18 and #23. Potential sites for this shale pit are in Stands A-21 or D-18.

5. Designate two portions of snowmobile trail totaling 2.0 miles as part of the New York State corridor trial #7.

One trail will go from the west end of the Stowell Road north to the New Road. This portion of trail will have to be constructed. The second portion of this snowmobile trail follows an old abandoned road between the intersection of the Coye Hill Road and Graham Road and extends south to the George Crumb Road. Establishing these trails as part of the official state corridor system would serve as a link to connect different snowmobile trails and further expand the state trail system.

6. Acquire 320 acres of private property.

The purchase of inholdings and selected properties adjacent to the state forests will consolidate boundary lines and facilitate public and administrative access. The Department will pursue fee simple title of 13 parcels from willing sellers when funding becomes available. Refer to the Public Use Maps for locations.

7. Include this unit in the development of the Genny-Green Trail system.

The Genny Green Trail is a proposed

recreational trail system to be developed in western Chenango, and parts of Cortland, Madison and Onondaga Counties. The trail system will be a network of trail loops on the State Forests that will provide the opportunity for the public to enjoy a variety of recreational activities including mountain biking, hiking, snowmobiling and nordic skiing.

Trail clusters developed on different State Forests will be connected through the development of link trails on private parcels. Key parcels of private land will be identified for the purpose of fee simple title or a recreational trail easement. Negotiations will only be pursued with willing sellers. Any acquisition of land must be approved through the local town governments. This proposed trail system has the potential to become a unique recreational resource in Central New York.

8. Construct or upgrade eleven parking areas.

9. Maintain forty-two existing and eleven proposed parking areas.

Maintenance will include annual brushing, grading and litter pick-up when needed. Refer to the Public Use Maps for locations.

10. Install four vehicle barriers.

These barriers are located as follows: Chenango #20 - A gate will be installed at entrance to shale pit on Ridge Road. Chenango #23 - An earthen berm at entrance to access road to be built into Stand B-19.

Chenango #25 - An earthen berm at the north end of abandoned road and intersection with the Bliven-Coye Hill Road. An earthen berm installed on the abandoned road at north end of Stand B-10.

These barriers are needed to prevent illegal dumping activities, littering or damaging vehicle use. Maintenance costs would be reduced, and the blocked roadways would continue to serve the public for foot or snowmobile travel.

11. Construct four forest access roads comprising of 0.9 miles in length. Construct a 75' radius vehicle turn-around at the end of each access road.

The construction of these access roads will facilitate administrative needs and public use.

These roads are located as follows:

Chenango #2 - 0.1 miles of access road will be constructed off of the Graham Road, crossing a drainage and into Stand F-18.

Chenango #18 - construct 0.1 miles of access road to provide access to that portion of the forest located east of the Millers Corners Road.

Chenango #20- the access road located east of the Ridge Road and south of the shale pit will be extended 0.5 miles southward from its present termination in Stand C-11.

Chenango #23- construct 0.2 miles of access road from the Freeman Road eastward into Stand B-19.

12. Upgrade 0.25 miles of abandoned road on Chenango #25.

This is the southerly portion of the abandoned road which extends northward from the George Crumb Road. Upgrading this road will facilitate administrative needs and public use.

13. Survey eighteen segments of boundary line comprising 8.92 miles in length.

The total length of property boundary on the Unit is 108.56 miles. Surveys are needed on 8.92 miles of this boundary to establish visible, identifiable property lines. Identifiable property lines are necessary for the public and administrative use of State Land. It will be necessary to contract these surveys out to private consultants, as there is insufficient Department staffing to accomplish this work.

14. Provide access for persons with disabilities.

The present Department policy is to permit qualified persons with certified disabilities to use motor vehicles to access roads, trails or geographical areas which have been designated by the Department for such use. The disabled individual must have an approved Temporary Revocable Permit before accessing state land.

Two off-road trails will be established for all terrain vehicle use by people with disabilities on Chenango #2 off of the Bliven-Coye Hill Road. The first trail will extend to the north for a distance of approximately 1.4 miles and connect to the west end of the Hartley Stowell Road. The second trail begins on the opposite side of the Bliven-Coye Hill Road and extends about 0.25 miles south where it terminates in a small open field. Two parking areas are available to service these trails. One parking area is located at the end of the Stowell Road, and the other is adjacent to the trail on the Bliven Hill Road. Off-road vehicle use by the general public will not be permitted on these trails. Individuals with disabilities using these trails will have the opportunity to access and enjoy a remote, off road portion of this state forest.

In general, where new construction or modification of existing developed assets occurs, provisions will be made to accommodate persons

with disabilities. Standards established to implement the requirements of the Americans with Disabilities Act and guidelines will be followed.

MANAGEMENT ACTION SCHEDULES

A. Table of Land Management Actions

The following table presents a 20 year schedule of planned management actions referenced by stand number and year of management. Maps showing the specific stand locations are available for viewing at the Sherburne Sub-Office.

Abbreviations or codes for the table are listed below:

<u>MANAGEMENT DIRECTION</u>	<u>CODE</u>	<u>DEFINITION</u>
EVEN		
Short Rotation	ES	40-60 year rotation-pioneer hardwoods
Normal Rotation	E	100-120 year rotation for natural stands; variable rotation age for plantations
Long Rotation	EL	120+ year rotation
Plantation	PL	Planted trees-conifer or hardwood
UNEVEN		
Normal interval	U	20 year cutting interval
Extended interval	U3	30 year cutting interval
Green Tree Retention	UG	A plantation species overstory is retained in varying density at the time of the final plantation conversion cut. The overstory is retained until the new stand is commercially treatable. The new stand will be managed to develop uneven-aged characteristics.
PROTECTION		
Steep	ZS	
Wetland	ZW	
Riparian	ZR	
Visual Aesthetics	ZV	
Inaccessible	ZA	
MISCELLANEOUS		
Natural Area	NA	Forest area managed to grow to attain and sustain a climax condition.
Pond	PD	Made by man or beaver
Brush	BR	Brush species other than apple
Apple	AP	Apple trees
Grass	GR	Non-woody species - burnable and mowable

Pit

PT

Shale, gravel, sand etc.

VEGETATIVE TYPE

BL	Black Locust
BR	Brush Field
EL	European Larch
G	Grass
Hem	Hemlock
JL	Japanese Larch
JP	Jack Pine
L-NS	Larch-Norway Spruce
L-WS	Larch-White Spruce
MP	Mixed Planting
NH	Northern Hardwoods
NH-Hem	Northern Hardwoods-Hemlock
NH-WP	Northern Hardwoods-White Pine
NS	Norway Spruce
OF	Open Field
PH	Pioneer Hardwood
RO	Red Oak-White Pine
RP	Red Pine
RO-RP	Red Oak-Red Pine
RP-L	Red Pine-Larch
RP-NS	Red Pine-Norway Spruce
RP-SP	Red Pine-Scotch Pine
RP-WP	Red Pine-White Pine
RP-WS	Red Pine-White Spruce
SH	Swamp Hardwood
SP	Scotch Pine
SP-NS	Scotch Pine-Norway Spruce
SP-WS	Scotch Pine-White Spruce
Wet-A	Wetland-Alder
Wet-O	Wetland-Open
WP	White Pine
WP-EL	White Pine-European Larch
WP-NS	White Pine-Norway Spruce
WS	White Spruce

<u>OBJECTIVE TYPES</u>	<u>CODE</u>	<u>DEFINITION</u>
Brush	BR	
Hardwood	HW	
Hardwood/Softwood	HS	10-30% Softwood
Softwood/Hardwood	SH	30%+ Softwood
White Pine/Hardwood	WH	A plantation or natural white pine stand managed to develop and eventually become a hardwood stand while retaining the white pine component to its maturity.
Pioneer Hardwood	PH	
Spruce-Natural	SN	Naturally regenerated Norway or white spruce often including a varying amount of hardwoods.
Plantation	PL	
Wetland-open	WO	Includes brushy or other non-tree vegetation
Ponds	PD	
Grass	GR	
Apple	AP	
Pit	PT	

<u>MANAGEMENT ACTION</u>	<u>CODE</u>	<u>DEFINITION</u>
Firewood Thinning	FW	A firewood only harvest
Spruce Thinning	PU	Spruce harvest-pulp or sawtimber. The treatment might also include firewood.
Pine Thinning	RT	
Pine Conversion	RC	Pine/larch harvest with conversion of stand to a hardwood type.
Pine Thin/Conversion	TR	A combination treatment where a portion of a pine/larch stand is thinned and another portion is converted to release hardwood reproduction.
Sawtimber Harvest	ST	A harvest of mostly sawtimber trees in a natural stand.
Integrated Treatment	IN	A harvest of mostly low-grade with some sawtimber in a natural stand.
Plantation Clearcut	PC	Removal of plantation overstory with no

Plant Trees	PT	release of understory regeneration.
Remove Overstory	CC	The establishment of a plantation.
Grouse Clear-cut	GC	The removal of the overstory in natural stands only, without advance reproduction.
Release	RL	Overstory removal to favor the establishment of pioneer hardwood seedling/saplings.
Green Tree Retention	GT	Remove overstory to release natural species understory seedling/saplings.
Release Apple	RA	The final conversion cut in a plantation with the retention of varying densities of overstory plantation (and possibly including natural species) trees. The overstory is retained until the next stand is commercially treatable.
Remove trees	RE	Non-commercial treatment to release apple trees.
Mow	MO	Complete removal of overstory trees to favor grass or brush types.
Burn	BN	
TSI Non-Commercial	TS	A non-commercial thinning in a plantation or natural stand.

*In acres column - refer to Section B. Wood Products Harvesting Schedule for actual acres treated with the management action.

