

**DRAFT**

**THE CHENANGO TRAIL  
UNIT MANAGEMENT PLAN**

ADDRESSING THE COVENTRY, BOBELL HILL, BEAVER FLOW,  
BUMPS CREEK, AND OAK RIDGE STATE FORESTS

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## PREFACE

The Division of Lands & Forests within the New York State Department of Environmental Conservation (the Department) is responsible for the management of certain public lands in New York State including all of the State forests. These forests are grouped into planning units. A planning unit considers the State lands that share close geographic proximity and common natural resource characteristics. The written plan for a unit is called a Unit Management Plan (UMP). The Chenango Trail Unit Management Plan addresses six State forests near the Town of Coventry, in Chenango County, New York.

It is the policy of the Department to manage State lands for **multiple-use**\* to serve the People of New York State. This Unit Management Plan is the first step in implementing that policy. The plan has been developed to address management activities on this Unit for the next 10 years, with a review and update due in five years. Some management recommendations may extend beyond the 10 year period. Factors such as budget constraints, wood product markets and forest health issues may necessitate deviations from the scheduled management activities. This management will ensure the sustainability, biological improvement, and protection of the Unit's ecosystems, as well as optimize the many benefits to the public that these State forests provide.

Article 9, Titles 5 and 7 of the New York State Environmental Law (ECL) authorizes the Department to provide for the management of lands acquired outside of the Adirondack and Catskill Parks. Management, as defined by these laws, includes watershed protection, the production of forest products, recreational uses and kindred purposes. The Draft State Forest Land Master Plan provides the overall direction and framework for meeting these legal mandates. The Chenango Trail UMP must conform to the objectives, guidelines, and policies set forth in the Master Plan.

The forests addressed in this UMP are an integral part of the larger landscape. Therefore, the effects of each proposed action will be considered from this perspective. This UMP is also intended to serve as an educational resource.

\* Highlighted (**bold**) terms are defined in the Glossary

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## 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 the **woodlands** were cleared for cultivation and pasture.

Early farming efforts met with limited success. As the less fertile soils proved to be unproductive, farms were abandoned and settlement was attempted elsewhere. This set the stage for vegetative succession and new forests of young saplings began to occupy the ground once cleared.

The State Reforestation Law of 1929 and the Hewitt Amendment (of the NYS Constitution) of 1931 set forth the legislation which authorized the Conservation Department to acquire land by gift or purchase for reforestation areas. This legislation was used to purchase all of the lands associated with the six **State forests** addressed in this UMP, with the exception of some relatively small, recent acquisitions. 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. Shortly after his inauguration in 1933, President Theodore Roosevelt signed legislation authorizing the Civilian Conservation Corps program. Under the supervision of Army personnel, men between the ages of 18 and 26 were employed to plant trees, construct ponds, bridges and roads, as well as other forest improvement activities. Thousands of young men were assigned to plant millions of trees on the newly acquired State forests. Most of the **plantations** of red pine and Norway Spruce on the **forests** of this Unit were planted in the 1930s by the CCC.

During the war years of 1941-1945, very little was accomplished on the **reforestation** areas. Plans for further planting, 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, as well as the The Environmental Quality Bond Acts of 1972 and 1986, contained provisions for the acquisition of additional State forest lands, including inholdings or parcels adjacent to existing State forests. A total of 76.29 acres were purchased with these funds for acquisitions to the State forests addressed in this UMP. All of these lands were acquired for the conservation and development of natural resources, including the preservation of scenic areas, watershed protection, **forestry**, and recreation.

In 1970, the New York State Department of Environmental Conservation (DEC) was established. This new agency joined the mission of the old Conservation Department with the missions of various State environmental quality bureaus. The DEC’s Division of Lands & Forests is now responsible for the management and stewardship of the State forests.

New York State totals 30 million acres. The state-owned Forest Preserves in the Adirondack and Catskill Parks contain nearly 3 million acres, or 10 percent of the State’s land area. These lands are to be forever kept by the State as wild forest lands. No timber may be cut from the Preserves.

State forests outside of the Adirondack and Catskill Preserves total nearly 700,000 acres. These lands are managed for a wide variety of purposes such as timber production, hiking, skiing, fishing, trapping and hunting. These State forests are of great economic importance to the People of New York State. These forests also contribute greatly, in many additional ways, to the health and well-being of our communities.

## **B. LOCAL HISTORY**

The first inhabitants of this land were the Native Americans, specifically the Iroquois. It is believed that they formed the Iroquois Confederacy or the “League of the Iroquois” in the middle of the 15<sup>th</sup> century as a means of maintaining peace between the nations, and each member nation was assigned a designated territory. The five nations of the League were the Onondagas, the Mohawks, the Senecas, the Cayugas, and the Oneidas. In 1712, the Tuscaroras were admitted to the League of the Iroquois as the “sixth nation.”

On November 5, 1768, one of the greatest real estate transfers in history was signed at Fort Stanwix (present day Rome, NY). This treaty established a line of division between the English Territory and the Indian Territory. For the sum of \$50,000, the land east and south of the treaty line was deeded from the Native Americans to King George III. One portion of the line was located near the present border between Broome and Delaware counties. The treaty line was drawn so that all of the State forests addressed in this UMP would have been located on Indian Territory (or “beyond civilization”).

The first settlement in the area now known as the Town of Coventry was made in 1785 by Simon Jones. Only a handful of people settled in this area during the next few years. On November 11, 1778, the incident known as the Cherry Valley Massacre occurred. This Revolutionary War event involved an attack on the Village of Cherry Valley by hundreds of British soldiers and Seneca Indians. More than 70 American women and children villagers, as well as American soldiers, were killed in the attack. At the time, General Sullivan was in Chenango Forks and wanted to lead his troops to Cherry Valley. The first leg of his journey would take him from Chenango Forks to Bainbridge, through the area now known as the Town of Coventry, which was described as a solid wilderness. He led his troops on a course which would later be followed by Simon Jones and the other few early settlers in Coventry. It is said that the troops cut a road along this path, going through North Fenton, lower Page Brook, following a line which is now the Wylie-Horton Road, and continuing through to Bainbridge.

This became the first road through the Town of Coventry, and it was referred to as the Chenango Trail. Much of the eastern portion of this trail no longer exists in the form of usable roads, but the western portion is still in use as the Wylie- Horton Road. This road crosses through the Bobell Hill State Forest, and it is in close proximity to the other State Forests addressed in this management plan. Due to the Chenango Trail’s importance to the early settlers and its significance in the eventual development of this area, the name was chosen as the title of this management plan. The Chenango Trail Unit Management Plan addresses six State Forests which lie wholly or partially within the Towns of Coventry, Greene, Oxford, Bainbridge, Afton, and Colesville. Since the majority of the acreage is situated within the Town of Coventry, the following information on local history will focus only on the Town of Coventry. Two books have been written which provide a thorough documentation of the people who have settled in the Town of Coventry between 1785 and 1975. The first book was written by Oliver Judd in 1912, and it covers the years 1785 - 1900. The second book was written by Catherine Bickford in 1975, and it covers the years 1900 - 1975. All of the following information has been obtained from these references.

As previously mentioned, the first settlement in the Town of Coventry was made in 1785 by Simon Jones who came from Coventry, Connecticut and located on 100 acres along the Chenango Trail. A few of the

earliest settlers, dates of settlement, and their previous homelands are listed below:

Simon Jones,	1785,	Coventry, Ct.
William Goodsell,	1786,	Coventry, Ct.
Andrew Clark,	1786,	Coventry, Ct.
Benjamin Jones,	1788,	Coventry, Ct.
Burrige Mile,	1789,	New Haven, Ct.
Ozias Yale,	1792,	Cheshire, Ct.
Deacon Stork,	1792,	Cheshire, Ct.
Deacon Richards,	1792,	Cheshire, Ct.

The name of the town ultimately references Coventry, England. However, it is a more direct reference to Coventry, Connecticut, from which many of the earliest settlers had relocated. The emigration of Puritans from Connecticut extended from 1785 until about 1815.

The Town of Coventry was formed on February 7, 1806. Coventry is located on relatively high ground, occupying the ridge between the Susquehanna River Valley and the Chenango River Valley. At least some of the early settlers reportedly chose this high ground because of a fear of miasmatic disease and a reputed sickness of the lowlands and river courses.

There are many stories describing the wilderness of this area as it was first being settled. Excerpts from these descriptions include, "...the then new Coventry was covered with dense forests, inhabited by wild beasts, and the more dreaded savage foe, the red man..." and, "...the forest was dense, the trees of great size, wild game plentiful, panther, bear, wolf, deer, and small game in abundance."

The first product the farmers were able to sell was lumber. White pine was plentiful and the farmers harvested this tree for the production of dimensional lumber and pine shingles. Oliver Judd estimated that, at one time, there were 15 or more stream run sawmills operating in the town. He also stated there were four copper shops running in Coventry in the mid 1800s. The first tannery was built by John Foot in 1805 and was run until 1890.

The New York & Erie Railroad was built from 1841 - 1851. The nearest railroad station to Coventry was in Deposit. In 1852 a plank road was completed, connecting Coventry to the railroad in Deposit. This was a major improvement for transportation. Prior to this time, goods were transported on the Erie and Chenango canals. (The Chenango canal was operated from 1837 until 1879.)

In 1855, the Town of Coventry produced 250,270 lbs of butter, 6,510 lbs of cheese, 5,606 tons of hay, 15,795 bu of potatoes, 31,330 bu of apples, 936 bu of winter grain, 56,952 bu of spring grain, and 1,343 yards of domestic cloth. There were 534 horses, 1,771 oxen, 2,140 cows, 2,272 sheep, and 1,121 swine within the town.

In 1875 the population of the town was 1,345. Its acreage was 27,815, of which 21,326 was improved.

Many of the farms were abandoned and sold in the early 1900s. A survey of the landowners revealed that the majority of these farm lands were sold to New York State because the owners felt the State was the only available market. Reasons for selling the lands included poor locations, lack of crop productivity, and the perception that the land was no longer of any use since the timber had been removed. Several of these properties were purchased by the State in the 1930s, replanted with trees under the Civilian Conservation Corps program, and are now the local State Reforestation Areas.

Several of the Town roads are named after the early settlers. Some interesting history and stories are associated with these names. In the area of Seymour Hill Road and Gray Road, there previously existed Hotchkiss Hill Road and Townline Road. These roads were abandoned in 1935. However, at the corner of Gray Road and Townline Road, still stands one of the last seven “little red school houses” in New York State. Cueball Road is said to be named for Colonel Whitten. Since the Colonel was bald, he carried the nickname of Cueball. Bowbell Hill Road was part of the main freight route from Norwich to Binghamton during the 1800s. The nearby State Forest is named Bobell Hill. The forest is named for the geographic feature “Bobell Hill” as identified on the 1949 USGS topographic map. The difference in the spelling of the road name is likely an error, as no reference could be found to a family name of Bowbell in the area. Buckley Hill Road is also spelled differently than shown in the historical records. Catherine Bickford states that the road was named for Brownell Bulkeley, who came to Coventry in 1808. Tracey Road is named for John Tracey, who settled in the mid 1800s and Beebee road is named for John A. Beebee.

Present-day Coventry is a rural township located in south-central Chenango county. It comprises an area of nearly 49 square miles and has a population of 1,589 (2000 Census data). In comparison, the surrounding townships of Afton, Bainbridge, Colesville, Greene, and Oxford have populations ranging from 2,977 to 5,729. Additionally, these townships have population densities ranging from 64.8 to 99.1 people per square mile, while the density of Coventry is only 32.6 people per square mile.

Coventry is encircled by the four developed villages of Afton, Bainbridge, Greene, and Oxford, all of which are located within six miles of the town boundary. There are also two cities located within 15 miles of Coventry, which are Norwich and Binghamton. The nearest interstate highway to the town is Route 88 which connects Binghamton and Albany. The NYS highways of Route 12 and Route 7 are located to the northwest and southeast of the township, respectively. NYS highway Routes 41, 206 and 235 all cross through the town of Coventry. There are no working railroads within the township. The nearest railroads are the ones paralleling NYS Route 12 and NYS Route 7. There are several small airports near the town, including Greene, Sidney Municipal, and Lt. Warren Eaton Airport. The nearest full service airport is located in Broome county, north of Binghamton.

Table 1, on the following page, provides information on the land acquisitions which were made to establish the six State forests in the Chenango Trail UMP.

TABLE I. Land Acquisition History - Chenango Trail Unit

<u>Forest</u>	<u>Year of State Acquisition</u>	<u>Acres Acquired</u>	<u>Names of Previous Owners</u>
Broome/Chenango R.A. #1	1934	658.25	Beardsley, Kirk, Robinson, Bailey
	1936	259.32	Fowler, Soest
	1937	110.87	Lapham
		1028.44	Total
Chenango R.A. #10	1931	670.43	Carroll, Kruger
	1933	408.26	Watrous, Morton, Gray, Carroll, Bair
	1935	96.51	Spencer
	1936	103.20	Russell
	1937	53.30	Acly
	1938	72.33	McIntosh
	1976	12.72	Williamson
	1416.75	Total	
Chenango R.A. #13	1932	533.37	Lord, Carroll, Haynes
	1962	31.82	Demeree
	1984	10.55	Linjo Builders
		575.74	Total
Chenango R.A. #27	1936	862.89	Davy, Auwarter
	1937	35.76	Armstrong
	1938	50.13	Armstrong
	1941	40.29	White
	1959	145.71	Kolis
	1976	21.20	King
	1155.98	Total	
Chenango R.A. #30	1936	552.93	Federal Land Bank, Russell, Hollenbeck
	1937	188.16	Badger, Johnson
		741.09	Total
Chenango R.A. #33	1939	527.91	Phlley, Carroll, Tompkins
		527.91	Total
		5445.91	Sum Total

**INFORMATION ON THE UNIT**

**A. GEOGRAPHICAL AND GEOLOGICAL INFORMATION ON THE UNIT**

The Chenango Trail Unit is comprised of six State forests:

Broome/Chenango Reforestation Area # 1  
“Beaver Flow State Forest” .....1,028.44 acres.

Chenango Reforestation Area # 10  
“Bobell Hill State Forest” .....1416.75 acres.

Chenango Reforestation Area # 13  
“Oak Ridge State Forest” .....575.74 acres.

Chenango Reforestation Area # 27  
“Coventry State Forest” .....1155.98 acres.

Chenango Reforestation Area # 30  
“Bobell Hill State Forest” .....741.09 acres.

Chenango Reforestation Area # 33  
“Bumps Creek State Forest” .....527.91 acres.

Total acreage: 5,445.91

Approximately 3,309.86 acres of these forests are located in the town of Coventry. The remaining acreage is divided between Afton (73.35), Bainbridge (502.39), Colesville (723.32), Greene (520.58), and Oxford (316.41). The following geographic information pertains mostly to the town of Coventry and those portions of the surrounding towns where the State forests are located.

Elevations within the Town of Coventry range from 1100 feet to 1750 feet above sea level. The average elevation in the Town of Coventry is higher than that in the surrounding towns of Afton, Bainbridge, Colesville, Greene, and Oxford. Although the mean maximum elevation in these towns is similar to that of Coventry (1742 feet), the average minimum elevation , at 942 feet, is nearly 200 feet below the lowest elevation in Coventry. So the Town of Coventry, and the State forest lands located within its borders, are largely situated upon a ridge, lying between the two river valleys of the Susquehanna and Chenango. The six State forests have elevation ranges as follows:

<u>forest</u>	<u>low</u>	<u>high</u>
Br/Ch-1	1250	1700
Ch-10	1280	1750
Ch-13	1100	1600
Ch-27	1310	1720
Ch-30	1300	1580
Ch-33	1280	1620

All of these State forests are located within the Chesapeake Bay Watershed. The surface waters on these properties all drain into a system of tributaries of either the Susquehanna River or the Chenango River. The

Susquehanna River is the primary watercourse feeding into the Chesapeake Bay. The most significant streams within the Town of Coventry are Wylie Brook, Bumps Creek, Page Brook, Wheeler Brook, and Wilkins Brook. Of these, only small sections of Wylie Book and Page Brook cross through any of the State forests of the Unit. However, the Unit contains numerous tributaries to all of these streams.

The climate of Chenango County was sometimes described as debilitating by the early settlers; however, over the course of time, it has proven to be quite favorable. The National Climatic Data Center (NCDC) collects temperature & precipitation data from the Bainbridge station. Through the 30 year period from 1961 - 1990, this data shows an average annual rainfall of 39.9 inches which is evenly distributed throughout the year. The level ranges from a low of 2.4"/month (January & February) to a high of 4.1"/month in June. Temperatures fluctuate from an average of 20.1 °F in January to an average of 68.5 °F in July. The lowest average monthly temperature is approximately 10.0 °F (January & February) while the highest average monthly temperature is 81.7 °F in July. The average annual snowfall in Chenango County is 70 inches.

The winter of 2002-2003 was an exceptionally severe winter. Snow and ice storms caused a significant amount of damage to the trees of the Chenango Trail forests. Scotch pine and red pine were the most impacted **species**, with many of the stems breaking under the weight of the snow & ice in their **crowns**. Since the damage from this winter will long be evident on these forests and it may likely facilitate secondary damage from insects or diseases, it is worth detailing the storms. The first storm occurred on November 16<sup>th</sup> resulting in up to one inch of ice. December 5<sup>th</sup> brought 6-10" of snow and another snow/ice storm occurred on December 11<sup>th</sup> & 12<sup>th</sup>. The Bainbridge weather station recorded a wet/heavy snowfall of 21.5" on Christmas Day. Significant ice storms hit the area on the first two days of January and another 12"+ of snow fell on January 3<sup>rd</sup> & 4<sup>th</sup>. More heavy snow fell on President's Day and again in early March. The final storm of the season was another ice storm on April 5<sup>th</sup> which resulted in a state of emergency for Chenango and many of the surrounding counties. The total snowfall recorded at the Bainbridge weather station was 125 inches. Winters like this might be the reason for early settlers describing the climate as debilitating.

Chenango County receives 60% of available sunshine in the summer and 40% in the winter. The prevailing winds are out of the west-southwest.

The Chenango Trail Unit is located in the glaciated Appalachian Plateau. The underlying bedrock in Chenango County is of the Middle & Upper Devonian Periods. More specifically, the bedrock under these forests is shale and siltstone of the Upper Sonyea Group and Kattel Formation. The last retreat of the glacial ice in Chenango county was about 12,000 years ago. The Ice Age is responsible for the mixture of unconsolidated mineral deposits throughout the county. This variety of mineralogy in the parent material has yielded a variety of soil formations. Glacial till is the most common parent material found on the hilltops and ridges of the county. The soils which have formed in the glacial till within the Coventry area are primarily of the Volusia - Mardin - Lordstown Group. The most common soils on the Chenango Trail forests are channery silt loams of either the Lordstown, Mardin, Volusia, or Lordstown & Oquaga series. Lordstown and Mardin soils are moderately well drained while Volusia soils are poorly drained. Many of these soils have stony surfaces. The depth to bedrock may range from 20" to 60". These soils are considered to have a moderate to high potential for tree growth. The **site index** will vary according to tree species, soil type, aspect, and other factors, but these soils are capable of offering a site index of 70 or better. The site index is the average height (in feet) of the dominant and codominant trees of a given species at 50 years of age. **Northern hardwood forests** with a site index of 70 can be expected to produce more than 500 board feet per acre per year.

More detailed information on the soils in this area can be obtained from the SOIL SURVEY of CHENANGO COUNTY, NEW YORK (USDA, 1985).

## B. HISTORY OF THE FOREST COVER

The forests of the Chenango Trail Unit today contain tree species of both native and non-native origin. The **native tree species** include black cherry, white ash, sugar maple, red maple, basswood, red oak, American beech, black birch, yellow birch, eastern hemlock eastern white pine, aspen, shagbark hickory, pignut hickory, bitternut hickory, and a few others. Most of the non-native species were introduced to the landscape in the 1930s, after New York State had purchased many of the undesirable farmlands and the Civilian Conservation Corps was directed to reforest these lands. Large plantations of red pine, Norway spruce, white spruce, Scotch pine, and Japanese larch were established in the open fields of these newly created State Reforestation Areas. This blend of natural forest **cover types** and plantation forest cover types is one of the defining characteristics of the present-day Chenango Trail forests. The historic forests of this area had significantly different compositions of tree species. Prior to the 20<sup>th</sup> century, there were no **conifer** plantations. The entire forests were composed of native species which varied in types according to the specific site conditions. The density, expanse and structure of the forests was often described by early settlers as daunting, formidable, and overwhelming. Laura Ingalls Wilder once wrote of her impression with the lands of the early settlement period, “As far as a man could go to the north in a day, or a week, or a whole month, there was nothing but woods.”

A major component of these forests was the American chestnut tree. In fact, in the 19<sup>th</sup> century, this species was believed to represent half of the value of the eastern hardwood forests. The American chestnut tree grew to a massive size, often more than 6 feet in diameter and 100 feet in height. It was the dominant species in the forest among oaks, hickories, maples and birches. However, the chestnut blight (*Endothia parasitica*) was introduced to the region in 1904 and it resulted in the mortality of nearly every mature chestnut tree by 1950. Today, a few American chestnut trees can be found in the Coventry area, but they are quite small, rarely achieving a size of more than 8 inches in diameter. The amount of forested land progressively declined throughout the 1800s. The demand for timber, wood by-products, and cleared agricultural land, all contributed to the reduction and **fragmentation** of the forests. By the late 1800s, only 25% of the land in New York State was forested and this figure was likely lower in Coventry and other agricultural sections of the State.

The forests presently found in the eastern United States are generally defined as eastern **deciduous** forests. This major **forest type** is comprised of hundreds of tree species, most of them **hardwoods**. In order to further define the forest cover types found in specific regions of the eastern United States, the eastern deciduous forest type can be divided into several subcategories. The three subcategories that are found in New York State are the oak-hickory type, the spruce-fir type and the maple-birch-beech type. The forests of the Chenango Trail Unit are located in a transition zone between the maple-birch-beech type and the oak-hickory type. This is evidenced by the differences in forest cover types between some of these six State forests. The Oak Ridge State Forest has an 80 % oak-hickory cover type while the majority of the hardwood cover type on the Coventry State Forest is the maple-birch-beech type. Although these two cover types are more refined than the parent category of eastern deciduous forest, they are still rather broad classifications of the forest cover types found on the Chenango Trail forests. Subcategories of the oak-hickory type and the maple-birch-beech type include the northern hardwood type, the oak-pine type, the northern hardwood-hemlock type and several types of plantation species, such as red pine and Norway spruce.

The term “forest cover type” refers to the type of tree or vegetation that dominates the 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**. Three of the most prevalent ecological communities found on the forests of the Chenango Trail Unit are the Appalachian Oak-Hickory Forest, the Beech-Maple Mesic Forest and the Hemlock-Northern Hardwood Forest. The following descriptions (edited) of these communities were

developed by the New York State Natural Heritage Program.

**1. Appalachian Oak-Hickory Forest:** a hardwood forest that occurs on well-drained sites, usually on ridge tops, upper slopes, or south and west facing slopes. The soils are usually loams or sandy loams. The dominant trees include one or more of the following oaks: red oak, white oak and black oak. Mixed with the oaks, usually at lower densities, are one or more of the following hickories: pignut, shagbark and sweet pignut. Common associates are white ash, red maple and Eastern hop hornbeam. There is typically a sub-canopy stratum of small trees and tall shrubs including flowering dogwood, witch hazel, shadbush and choke cherry. Common low shrubs include maple-leaf viburnum, blueberries, red raspberry, gray dogwood and beaked hazelnut. The shrub layer and ground layer may be diverse. Characteristic herbs include wild sarsaparilla, false Solomon's seal, Pennsylvania sedge, tick-trefoil, black cohosh, rattlesnake root, white goldenrod and hepatica. Characteristic animals include red-bellied woodpecker, whip-poor-will and wild turkey.

**2. Beech-Maple Mesic Forest:** a hardwood forest with sugar maple and beech co-dominant. These forests occur on moist, well-drained, usually acidic soils. The term "mesic" refers to the balanced moisture level of the **habitat**. The soils are not typically saturated or dry. Common associates are basswood, red maple, white ash, yellow birch, and Eastern hop hornbeam. There are relatively few shrubs and herbs. Characteristic small trees or tall shrubs are American hornbeam, striped maple, witch hazel, hobblebush and alternate-leaf dogwood. Characteristic ground layer species are blue cohosh, christmas fern, jack-in-the-pulpit, white baneberry, wild leek, wild ginger, false Solomon's seal and bloodroot. 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 may be present at a low density. Characteristic birds include the American redstart, red-eyed vireo, ovenbird, black-throated blue warbler, least flycatcher, Acadian flycatcher and red-bellied woodpecker.

**3. 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 is codominant with any one to three of the following: beech, sugar maple, red maple, black cherry, white pine, yellow birch, black birch, red oak and basswood. 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. The shrub layer may be sparse. Characteristic shrubs are hobblebush, maple-leaf viburnum and raspberries. Canopy cover can be quite dense, resulting in low light intensities on the forest floor and hence a relatively sparse ground layer. Characteristic ground layer plants are Indian cucumber-root, Canada mayflower, shining clubmoss, common wood fern, mountain wood fern, christmas fern, star flower, bellwort, common wood-sorrel, partridge berry, foamflower, round-leaf violet, twisted stalk and purple trillium. In forests that have beech as a codominant, beech-drops is a common herb. Characteristic birds include wild turkey, pileated woodpecker, golden-crowned kinglet, black-throated green warbler and Acadian flycatcher. There are about 30 different tree species that are commonly found on the forests of the Chenango Trail Unit. Although additional species, such as American chestnut, American elm and butternut may be found on the unit, their occurrence is quite rare. The most common tree species that occur on the forests are listed below.

#### **Native Hardwood Species**

black cherry  
white ash  
American beech  
basswood  
red maple

sugar maple  
aspen (big tooth & quaking)  
Northern red oak  
black oak  
white oak  
chestnut oak  
yellow birch  
black birch  
shagbark hickory  
pignut hickory  
bitternut hickory  
black locust  
American hornbeam (blue beech)  
Eastern hop hornbeam (ironwood)  
striped maple  
shadbush  
apple (various species)

#### **Native Softwood Species**

Eastern white pine  
Eastern hemlock

#### **Plantation Softwood Species**

Norway spruce  
Japanese larch  
Scotch pine  
red pine

### **C. MAJOR LAND CLASSIFICATIONS WITHIN THE UNIT**

Table II, following , identifies eight major categories of land found within the Chenango Trail 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.

Native hardwoods - at least 90% of the forest cover within these stands consists of native hardwood species (oak, ash, maple, beech, cherry, aspen, hickory, birch, etc.).

Native conifers with hardwoods - these stands are mixtures of native hardwoods and native conifers (white pine and eastern hemlock).

Conifer plantations - these stands were planted, usually by the Civilian Conservation Corps. (CCCs), with conifer species (red pine, Norway spruce, white spruce, Japanese larch, white pine and scotch pine).

Mixed native & non-native species - This forest cover type may contain non-native species such as red pine or Norway spruce mixed with native species such as white pine or Northern hardwoods.

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).

Brush fields - at least 50% of the vegetative cover within these areas consists of shrub species (thorn apple, alder, dogwood, brambles, viburnum, spirea, etc.)

Roads - The roadways that cross through the State Forests, or are adjacent to the properties, are generally not more than 25 feet wide. However, the full road **corridor** is considered to be 50 feet in width and may contain trees, shrubs, or **grassland** habitat along its edges.

TABLE II. Land Classifications Within the Unit

The following table identifies eight different categories of land found within the Chenango Trail Unit. Some of these categories are quite broad, but they are useful in developing forest management goals from a landscape perspective.

TABLE II				1"-5" Tree Diameter (DBH)		6"-11" DBH		12"-18" DBH		19" + DBH	
CATEGORY	TOTAL STANDS	TOTAL ACRES	% OF UNIT TOTAL ACREAGE	# OF STANDS	# OF ACRES	# OF STANDS	# OF ACRES	# OF STANDS	# OF ACRES	# OF STANDS	# OF ACRES
NATIVE HARDWOODS	127	1365	25%	23	175	3	16	76	739	25	435
NATIVE CONIFERS & HARDWOODS	120	1616	30%	0	0	5	31	80	1012	35	573
CONIFER PLANTATIONS	128	1986	36%	3	30	5	17	100	1637	20	302
MIXED NATIVE & NON-NATIVE SPECIES	20	299	5%	0	0	1	5	19	294	0	0
PONDS	5	32	1%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
BRUSH FIELDS	13	51	1%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
WETLANDS	11	46	1%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
ROADS	23	51	1%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
TOTAL	447	5446	100%	26	205	14	69	275	3682	80	1310

#### D. WETLANDS AND WATER RESOURCES

**Wetlands** often contain various amounts of vegetation ranging from submergent aquatic plants to full forest tree cover. The saturated ground on these sites supports a unique array of vegetation and provides critical habitat for several species of wildlife. It is the public policy of New York State, as set forth in the Freshwater Wetlands Act, to preserve, protect and conserve freshwater wetlands and the benefits derived from them. This policy further serves to regulate the use and development of wetlands in a manner consistent with the general welfare and beneficial economic, social and agricultural development of the State. The preservation, protection and conservation of freshwater wetlands is of public concern because of the benefits they provide. These benefits include flood and storm water control, wildlife habitat, water quality, recreation, open space, as well as other benefits.

In New York State, all freshwater wetlands are protected pursuant to the Freshwater Wetlands Act, if they are at least 12.4 acres in size and meet the criteria specified in section 24-0107 of the Act. Certain wetlands that are less than 12.4 acres in size may also be protected by the act. Title 6, Part 664, of the New York State Environmental Conservation Rules & Regulations establishes standards and procedures for the classification system of freshwater wetlands. This system creates four separate classes for ranking wetlands according to their ability to perform wetland functions and provide wetland benefits. Class I wetlands have the highest rank, and the ranking descends through classes II, III and IV. The only forest in the Chenango Trail Unit which contains any wetlands classified under the NYS Freshwater Wetlands Act is the Coventry State Forest. This forest contains a 26.9 acre class II wetland in its entirety (WB-8), and it contains portions of two class III wetlands (WB-5 & WB-7). Wetland WB-8 is rated as Class II wetland because of the following characteristics: it is adjacent or contiguous to a stream classified C(t) or higher under article 15 of the ECL; and it is located within a publicly owned recreation area.

There are many other freshwater wetlands located on the forests of the Chenango Trail UMP that are not classified or regulated by the NYS Freshwater Wetlands Act. Most of these wetlands have been classified by the U.S. Fish & Wildlife Service, and they are listed in the National Wetlands Inventory. These wetlands are protected in relation to placement of fill. An application for a permit is required to be submitted to the U.S. Army Corps of Engineers prior to placing fill within the footprint of any of these wetlands. Information on the classified wetlands is listed in **Appendix III**.

All of the perennial streams on the State forests within the Unit are classified as either C(t) or C. A stream is given a C(t) classification if it is suitable for the survival and propagation of trout, as well as other fish species. The C classification is given to streams that are suitable for fish (not including trout) survival and propagation. The D classification means that the stream is suitable for fish survival, but not propagation. The intermittent streams on the forests are not classified.

Only the 0.18 mile section of Wylie Brook, as it passes through the Eastern-most section of Chenango R.A. #10, contains a wild brook trout population.

**Appendix VIII** lists the more common fish species found in some of the Unit's waters.

## **E. MINERAL RESOURCES**

Oil and natural gas are valuable resources which may be located on State forests. The extraction of these resources generates revenue and provides raw material for energy products. Due to the infrastructure necessary to extract oil & natural gas resources, the process provides an opportunity to make improvements to the existing infrastructure of the Unit; such as upgrading existing roads,

culverts and gates. Oil and natural gas development may also create a greater diversity of habitat by providing open space, such as grasslands. As with any other human activity on State lands, oil and natural gas exploration and its development can have negative impacts on the environment. Some of the impacts are short term such as those occurring during the siting and drilling phases of a well. Other impacts will have a more persistent effect, such as forest fragmentation.

One of the variables with the greatest influence on the design of the development plan, is the depth of the fossil fuel. Natural gas that is located relatively deep (e.g. 8,000 feet) will require a relatively low density of wells (e.g. 1 well/ 320 acres). The low well pad density will yield a limited amount of roadways and pipelines. At the same time, since these wells need to be drilled deep, large equipment is required and an area of 4 acres may be needed for each well pad. However, if the natural gas resource is located relatively shallow (e.g. 2,000 feet), smaller equipment can be used and the well pads may only need to be one acre in size. Shallow wells are associated with relatively high densities (e.g. 1 well / 40 acres). Since a roadway and a pipeline must connect to each well, this development will also necessitate a greater amount of infrastructure.

Higher well densities will result in greater fragmentation of the forest. This will likely have a negative impact on those species requiring habitats with unbroken forest canopies, such as the red-shouldered hawk. Another issue to consider is the amount and location of pipelines needed for the transmission of oil and natural gas resources. Pipelines presently located on State forests have created restrictions of forest uses due to the precautions which must be taken to cross the pipeline.

In all areas covered by this Unit Management Plan, New York State manages the surface estate through the NYSDEC Division of Lands and Forests, and the mineral estate is managed through the NYSDEC Division of Mineral Resources.

## **F. WILDLIFE & HABITATS**

The unique characteristics of a given habitat portray its ability to support specific wildlife. In this sense, habitat dictates the range of wildlife. On a broad scale, habitat can be defined by ecological zones, or eozones. An ecozone is the classification of a geographic area in terms of its geology, topography, soil, climate, vegetation and land use patterns. The Chenango Trail Unit is located within the Central Appalachians Ecological Zone, which is the largest ecozone in New York State, encompassing all or portions of 17 counties across the southern tier. The forests of the Chenango Trail Management Unit are characterized by mixed, natural hardwood and natural hardwood/conifer stands, as well as conifer plantations in various **age classes**. These forests are located on rolling hills interspersed with numerous stream channels and some wetlands. Many of the south-facing slopes are forested with oak species. The State forests of the Unit generally lie on the higher elevations of the local area. Most of the forest habitat on the Unit is characterized by mature trees and full canopy, although all stages of succession can be found in some quantity on these forests.

On a township level, the State forests cover slightly more than 10% of the landscape. An analysis of a 2003 aerial photograph of the township indicates that at least 25% of the Coventry landscape is open land of either agricultural, shrub or grassland type. The remainder of the landscape is residential land, wetlands and forest land in private ownership. This mixture of land use and cover types, on a landscape level, provides the opportunity for a fairly diverse wildlife population due to the variety of habitat. The wildlife habitat offered within the boundaries of the State forests of the Unit has a somewhat limited diversity since much of the State land has a mature forest cover. These forests would contribute little to habitat diversity across the landscape

if the majority of the landscape also had a mature forest cover. However, with the agricultural lands, brush fields, wetlands, and immature forest cover within the township, the existence of these State forests enhance the diversity of wildlife habitat within Coventry. The Chenango Trail UMP will depend upon this landscape view for meeting its objectives of **biodiversity**. Although diversity within the forests will be pursued, it is acknowledged that there are limits to the amount of diversity that can be accommodated by these properties. Currently, animals such as deer, turkey, songbirds and squirrels are prevalent on the forests. Several wildlife surveys have been completed in this area: trap surveys have been conducted for small mammals; harvest surveys for game species are completed each year during hunting seasons; aerial surveys are periodically completed for beaver activity; extensive breeding bird surveys have been conducted; and field surveys have been compiled for amphibians & reptiles. A diverse and healthy **ecosystem** can be depicted from the results of these surveys.

White-tailed deer are important components of the Unit's fauna. Deer populations are managed in Wildlife Management Units (WMUs) by controlling the number of female deer taken by hunters in each Unit. Deer management permits are issued to accomplish this end, allowing for the harvest of female deer. Citizen Task Forces are formed in each WMU to represent the various community interests in deer management. Task forces consider hunting and agricultural interests, the number of deer/auto collisions, damage to residential shrubbery, and any other impacts deer have on society. They then make a recommendation to adjust the deer population within the wildlife management unit. The DEC's Bureau of Wildlife then sets the quota of deer management permits that will be issued to move the deer population in the direction recommended by the task force.

The DEC collects data from tags returned by successful deer hunters to determine the number of deer which were taken during each hunting season. From this data, the number of bucks taken per square mile is calculated and is then used to estimate the total deer harvests in counties, towns and WMUs. The deer herd is somewhat uniformly distributed throughout the Unit although more deer are probably found at the lower elevations in valley bottomlands where agricultural activities are concentrated.

Black bears are occasionally spotted on the forests of the Chenango Trail Unit. This area is outside the primary range for bears, but the habitat provided by these forests should sustain a small bear population. Black bears are commonly harvested in several nearby towns within Delaware County; however, bear hunting is prohibited in Chenango County at this time.

Information on deer harvests, as well as turkey, beaver, coyote, and small game harvests is available in **Appendices IX, X and XI.**

The New York Natural Heritage Program's Biological and Conservation Data System frequently depends on data from surveys such as The Atlas of Breeding Birds in New York State and the New York Amphibian and Reptile Atlas Project. Records compiled from the 2000-2004 Breeding Bird Atlas Survey list all bird species that are considered possible, probable or confirmed breeders in each of the Atlas blocks surveyed. For the blocks in which the Unit is located, 117 species were identified (see **Appendix V**). The amphibian and reptile records referenced in this UMP reflect survey data collected through 1998. These records are presented in **Appendix VI.**

## **1. Wildlife & Biodiversity**

Chambers, in his book Integrating Timber and Wildlife Management (1983), presents several different approaches to wildlife management planning. These include the Popular Species method, Ecological Indicator method, Featured Species Management, Management for Diversity, and the **Management**

**Indicator Species** Concept. The concepts of Coarse Filters & Fine Filters, Keystone Species, Flagship Species, Indicator Species, and Special Populations are presented in Wildlife, Forests, and Forestry, Malcolm L. Hunter, Jr., 1990. All of these principles show concern for wildlife in general, and most also show concern for biodiversity. Managing for biodiversity is an important objective in the Chenango Trail UMP. Each of the above mentioned principles has its advantages and disadvantages, and while some are clearly better suited for biodiversity than others, none have proven to be the perfect solution.

The Management Indicator Species Concept focuses on ecosystem diversity, and it has been utilized by the U.S. Forest Service in several forest management plans. In general, this approach identifies several species of wildlife to be used as “indicators” of the effects of land management activities on biodiversity. Management plan objectives, such as retaining cavity trees, are developed with regard to these Management Indicator Species (MIS). The populations of the MIS are periodically monitored in order to evaluate the effectiveness of these objectives, as well as the impact of any related management activities. In this sense, there is an increased focus on the relationship between management activities and the suitability of habitat.

Historically, UMPs within NYS DEC Region 7 have managed for biodiversity by providing a variety of forest covers and habitats on the management units. This approach recognizes that a full range of successional forest cover types will likely support the greatest variety of native wildlife species. The management of the vegetative cover allows for the establishment of objectives pertaining to habitat diversity. This method manages for wildlife diversity by providing a variety of forest habitats; however, there is no allocation for verifying the suitability of the habitats.

The Chenango Trail UMP will continue the practice of providing a variety of habitats through land management activities; however, it will take the additional step of incorporating the MIS concept and verifying the quality of those wildlife habitats. Take, for example, a management plan goal of providing habitat for cavity nesting birds. In this case, an objective might be developed to retain 5 cavity trees of various sizes per acre in areas where timber is harvested. Without utilizing MIS, the assumption is made that the management action will provide suitable habitat for cavity nesting birds. However, unless the habitat is subsequently monitored, the successful accomplishment of the original goal can never be verified.

The monitoring component of MIS will be a significant responsibility; however, it is anticipated that the majority of the monitoring will be accomplished through third party efforts. The Chenango Trail UMP will limit MIS to only avian species, with one exception. Birds are one of the most commonly observed wildlife species and many birds can be identified audibly as well as visually. There are some well established bird clubs within the area of the Unit and the clubs have active memberships. It is hoped that club members will take an interest in reporting their observations while visiting the State forests of the Unit. Also, the Breeding Bird Atlas is one of the most comprehensive wildlife surveys available. This survey is renewed every 20 years. Even casual observations of birds on the Unit can be helpful in fulfilling the monitoring responsibilities of this plan.

The Management Indicator Species approach often categorizes species into several indicator groups to assist with the development of specific objectives. These indicator groups may include: endangered or threatened plants and animals; species that require special habitats; game species; non-game species of special interest; or species that may provide an indication of the effects of management activities on certain ecological communities. The Chenango Trail UMP will incorporate MIS by establishing seven indicator groups. These indicator groups represent some of the desired qualities of the Unit’s ecosystem. A management objective has been developed for each of the indicator groups. The indicator groups are not intended to represent a quantifiable community, but rather a verifiable component of the landscape and an indicator of habitat quality. The seven indicator groups, the specific species that are associated with the groups, and a reference to the

applicable objectives are listed in **Table III**.

The MIS approach is being taken with the understanding that populations of specific species, especially migratory species, may be influenced by activities or habitat changes well outside the range of this Unit. Therefore, the periodic decline or even absence of a specific species within the Unit does not necessarily reflect the low suitability of habitat or a negative influence from management activities within the Chenango Trail Unit. However, the presence of any number of an indicator group's component species within the Unit does lend support to the quality of their desired habitat and the compatibility of management activities. This is another reason for monitoring the indicator groups, rather than the individual species. The indicator groups represent a common interest of the component species found within those groups.

One of the indicator groups identified for the UMP is Species Requiring Continuous Forest Canopy. The red-shouldered hawk is included in this group. This bird has been identified on several occasions on or near the forests of the Chenango Trail UMP. In recent years, two active nest sites for this raptor species have also been located within the Unit. Currently the red shouldered hawk is listed as a species of special concern in New York State. This raptor depends upon a complex of habitats, but one of these required habitats is a large expanse of mature forest cover. Increasingly, State forests are becoming one of the best places to find this type of forest cover in the landscape of Chenango County. In many areas outside of the Adirondack or Catskill Forest Preserves, State Reforestation areas may provide the best opportunity for finding this type of forest condition. Where larger stands of hardwoods or mixed conifer/hardwood forest cover exist on the Unit, this UMP attempts to manage many of these stands toward an uneven- aged forest condition. By selecting uneven-aged management options, there will be opportunity to maintain or enhance areas of continuous forest canopy on the landscape. Uneven-aged management, by practice, avoids creating large scale **disturbances** or openings within the forest. Heavier cutting practices associated with large scale disturbances can be affiliated with even- aged management practices or plantation **salvage** cuts. **Protection areas**, in combination with adjacent acres of uneven-aged forest cover should provide suitable habitat for many of the woodland raptor species, including red shouldered hawks and Goshawks, within these State forests.

The one non-avian wildlife species that will be used as a MIS is the Indiana bat. The associated indicator group for this species will be Endangered or Threatened Species. This mammal is currently listed as an endangered species by both Federal and State Protective Status listings. There is no record of this species ever occupying habitat within the Unit. However, it is believed that suitable habitat for this species does exist within this Unit, and the Unit is located within the known range of this animal. The main concern for this bat species is a decline in the overall population numbers within its historic home range of the Midwest and Appalachian regions. In New York and other northeastern states, Indiana bat populations are considered on the northern fringe of their habitat range and geographically isolated from the main migrating bat populations of Missouri, Indiana and Kentucky.

The Indiana bat is considered a cave dwelling species in regards to its winter hibernating requirements. There are no known caves within the Unit but there are documented caves occupied by Indiana and other bat species in Onondaga County to the North. This proximity of an Indiana bat population would put the Chenango Trail UMP within the summer breeding range for this species.

One habitat requirement needed for this and other bat species during the breeding season is adequate roosting trees within their seasonal home range. Wildlife Biologists have documented that many cave dwelling bat species, including the Indiana Bat, will use large diameter trees with a loose bark pattern for much of their roosting needs during the summer breeding season. Shagbark Hickory is considered one of the most ideal tree species to meet this requirement. Large specimens of Shagbark hickory, Black locust or American elm, alive or dead, have been found to be favored by Indiana bat breeding colonies for their roosting needs,

particularly trees with a good southern exposure that can absorb solar radiation during the day.

**TABLE III. Management Indicator Species Groups**

	<i>Group</i>	<i>Species</i>	<i>Objective</i>
1	Species Nesting in Cavity Trees	Eastern screech owl barred owl downy woodpecker hairy woodpecker pileated woodpecker Northern flicker tufted titmouse red-breasted nuthatch white-breasted nuthatch house wren winter wren eastern bluebird Common merganser hooded merganser wood duck American kestrel chimney swift yellow bellied sapsucker great crested flycatcher tree swallow black capped chickadee brown creeper	See page 41.  <b>3. <u>Habitat</u></b> <b>a. Objectives for habitat management.</b> <b>1.) Provide an average of four snag trees per acre. Provide an average of four cavity trees per acre.</b>
2	Species Utilizing Snags	turkey vulture osprey sharp-shinned hawk Cooper's hawk broad-winged hawk red-tailed hawk American kestrel Bald Eagle brown creeper great blue heron green heron great horned owl pileated woodpecker barred owl	See page 41.  <b>3. <u>Habitat</u></b> <b>a. Objectives for habitat management.</b> <b>1.) Provide an average of four snag trees per acre. Provide an average of four cavity trees per acre.</b>
3	Game Species	ruffed grouse wild turkey American woodcock	See page 36.  <b>a. Objectives for open land ecotypes.</b>  See page 42.  <b>3.) Favor fruit and mast producing trees.</b>

4	Species Requiring Continuous Mature Forest Canopy	Northern goshawk red-shouldered hawk pileated woodpecker Common Raven sharp-shinned hawk Cooper's hawk Broad-winged hawk Bald eagle	See page 41.  <b>b. Objectives for uneven-aged management system.</b>  See page 42.  <b>7.) Protect the active nest sites of raptors on the forests of the Unit.</b>
5	Species Requiring a Multi-Layered Forest Canopy Structure	yellow-throated vireo blue-headed vireo warbling vireo red-eyed vireo nashville warbler magnolia warbler black-throated blue warbler yellow-rumped warbler black-throated green warbler blackburnian warbler black-and-white warbler Canada warbler scarlet tanager American redstart Ovenbird veery hermit thrush wood thrush least flycatcher golden crowned kinglet rose-breasted grosbeak	See page 41.  <b>b. Objectives for uneven-aged management system.</b>
6	Species Requiring Riparian Areas or Stream Corridors	wood duck Great blue heron green heron Canada goose mallard common merganser hooded merganser Bald eagle spotted sandpiper belted kingfisher yellow warbler nashville warbler alder flycatcher willow flycatcher northern waterthrush Louisiana waterthrush black + white warbler Canada warbler swamp sparrow	See page 36.  <b>b. Objectives for riparian and wetland ecotypes.</b>  See pages 36-37.  <b>b. Objectives for riparian and wetland ecotypes.</b>  <b>Actions 2-6.</b>

7	Endangered or Threatened Species	Indiana bat bald eagle	See page 43.  <b>8) Provide beneficial habitat for the Indiana bat.</b>
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## G. RARE PLANTS AND 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 all vertebrate groups and selected rare species from 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.

Title 6, Part 193.3 of the New York State Codes, Rules, and Regulations (NYCRR) 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 to 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 plants includes all of the endangered and threatened species listed in Part 193.3, and it may include some of the plants listed as exploitably vulnerable or rare in Part 193.3.

The New York State Natural Heritage Program has not identified any rare plants or significant ecological communities on any of the forests in the Unit.

## H. CULTURAL RESOURCES

Presently, there are no historic sites or **cultural resources** on the forests of the Chenango Trail 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. 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 are not listed in the Archaeological Inventory and they do not usually qualify, individually, as State or National Register resources. However, the stone walls from the early settlement period are still important cultural resources. There are numerous stone walls on the forests of the Chenango Trail UMP. 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 1700s. 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.

## **I. ROADS**

Road access to the forests of the Chenango Trail Unit is provided through a system of Town, County, and State roadways. Most of these roadways are in good condition and can be traveled with any passenger car. The roads either traverse across the State forests or run adjacent to the forest boundaries. A few of the roads are not maintained (not plowed) during the winter months and some others should not be traveled during wet seasons, especially early spring. There are no **Public Forest Access Roads** on any of the Chenango Trail forests. There are a few **Haul Roads, Access Trails**, and Abandoned Town Roads on the forests, but the entrances to these are typically gated or barricaded as they are not designed or intended for routine motor vehicle use.

**Appendix I** identifies the roads that either traverse or abut the State forests, their mileage, classification, and a description of their condition, use, or restrictions.

## **J. RECREATION**

New York's State forests offer many outdoor recreational opportunities for the public. The types of recreational activities associated with State forests include camping, hunting, fishing, cross-country skiing, horseback riding, nature observation, hiking, and snowmobiling. These activities are allowed anywhere on State forests, unless an area is specifically posted to prohibit an activity. In November of 2001, Region 7 published the Draft Recreation Plan For State Forests. To receive

public input for the Recreation Plan, the Department held four Public Scoping meetings in Central New York during the spring of 1999. Additionally, a questionnaire was distributed through several local businesses and clubs involved in outdoor recreation. A total of 223 people attended the meetings and 341 people responded to the questionnaire. The information received from these sources will be used in a variety of ways to improve the quality of recreation on State forests. Based on this information, the Department will seek to reduce potential conflicts between activities, provide improved recreational facilities on State forests, reduce the amount of adverse environmental impacts from recreational activities, improve access and provide better information to the public on the available opportunities for State forest recreation.

**1. Existing Facilities.** Presently, other than parking areas, there is only one developed facility on any of the forests of the Chenango Trail Unit. This is a trail on the Coventry State Forest that has been designated for use by persons with disabilities who have a valid permit for using an ATV on State lands.

**2. Hunting and Trapping.** The most popular recreational activity on the forests of the Unit is hunting. Big game hunting for white tail deer brings the greatest amount of hunting activity on the forests. **Appendices IX, X and XI** provide information on the number of game animals and furbearers taken during hunting and trapping seasons within the township of Coventry. Hunting and trapping are allowed on all of the Chenango Trail State Forests by persons who possess a valid New York State hunting or trapping license and who abide by the regulations. Hunting and trapping do not require the development of any facilities on State forests, except for parking areas.

**3. Camping.** Primitive style camping is available on State forests at both designated and non-designated sites. Presently, there are no designated camping sites on any of the Unit's forests, but camping is allowed on these properties in compliance with the current regulations. The regulations for camping on State forests are listed in Title 6, Chapter II, Part 190 of the NYCRR. A generalization of these rules is listed in **Appendix XVI**.

**4. Skiing.** Although there are no designated ski trails on any of the Chenango Trail forests, cross-country skiing is allowed on these properties. Areas with mature tree cover and gentle terrain are usually preferred along with unplowed roads or trails, and there are several of these on the forests.

**5. Snowmobiling.** A snowmobile trail is proposed on the Bobell Hill and Beaver Flow State Forests. This trail will be designed as part of a larger system of trails on private, municipal and State properties. The majority of maintenance, including grooming, would become the responsibility of a local snowmobile club through an Adopt-A-Natural Resource Agreement with the Department.

**6. ATV and Off-Road Vehicle Riding.** Off-road vehicle riding, including the use of ATVs, motorcycles and trucks, is recognized as a popular outdoor recreational activity; however, a specific program for this activity is not offered on public lands owned and managed by the Department. Although the Department does not encourage ATV and off-road vehicle use on public lands, it does recognize that ATVs are one of several possible means that the public may utilize to gain access to certain Department programs (e.g. hunting, fishing, camping) on public lands that are deemed

appropriate for such use. To this end, the Department has developed a program and facilities for persons with disabilities to use ATVs for the purpose of accessing certain public lands under the jurisdiction of the Department. Qualified persons must obtain a CP-3 permit for this activity. A trail has been designated on the Coventry State Forest for ATV use by persons with a disability.

The Department's Draft Policy, Public ATV Access on Public and Conservation Easement Lands Managed by the Department of Environmental Conservation, identifies certain criteria to be followed through the UMP process in evaluating the compatibility of roads and trails within reforestation areas with public use of ATVs. These criteria include natural resource protection, compatibility with other public uses, public safety, maintenance and others. Based on these criteria, it has been determined that the existing roads and trails within the reforestation areas of the Chenango Trail UMP are not compatible with the use of ATVs and other off-road vehicles with the exception of use by persons with disabilities.

**7. Mountain Biking.** There are currently no designated trails for mountain biking on the forests of the Unit. Mountain biking has greatly increased in popularity since 1990 and there is some activity on the forests. Mountain biking is not prohibited on these properties except where posted, but it is recommended that this activity be restricted to existing trails and roadways on the properties. Some State forests within the Region have been damaged by intensive mountain biking activity, especially activity which has resulted in unauthorized trails on sensitive ground. Although this type of activity has not been observed on the Chenango Trail forests, if it should occur, it could result in areas or entire properties being posted against mountain biking.

**8. Fishing.** The two most popular fisheries near the Chenango Trail Unit are the Chenango River and Susquehanna River. These two fisheries seem to satisfy much of the local demand for walleye, small mouth bass, northern pike and panfish. Neither of these watercourses flows through any of the Chenango Trail forests, but many of the tributaries do traverse the forests. Several of these tributaries are classified as trout streams (Ct), but a native brook trout population has only been confirmed in one of them, Wylie Brook. A short section of Wylie Brook passes through the eastern most portion of the Bobell Hill State Forest. The other tributaries on the forests are known to contain a variety of darters, chubs, shiners, sculpins, dace and minnows. Historically, some of these tributaries were stocked with trout; however, records indicate that no stocking has occurred since 1952. Only two ponds on the forests are known to attract anglers. These are the ponds located in the northern most section of the Beaver Flow State Forest and the pond located in the eastern most section of the Coventry State Forest. Access to the pond on the Coventry State Forest will be addressed in this UMP.

**9. Horseback Riding.** There are no long distance trail systems for horseback riding near the Chenango Trail Unit. There are many riders residing within the Coventry township and most of the riding activity is satisfied through facilities on private land. The nearest long distance horse riding trail system provided by State Forest property is located in Brookfield, Madison County. Horseback riding is allowed on the Chenango Trail forests, but as with mountain bike riding, it is recommended that this activity be limited to existing trails and roadways in the forests.

**10. Hiking, Snowshoeing, and Nature Observation.** These activities can be enjoyed anywhere on the forests of the Chenango Trail UMP. The variety of topography, forest cover, and wildlife habitat provides an attractive and ever-changing setting when exploring these lands.

**11. Regulations Applicable to Recreational Activities on State Forests.** No fees are charged to the users

of State forest lands for recreational activities. However, a permit may be required for group activities or events. A **Temporary Revocable Permit** is required for the following types of recreational activities on State forests: organized and advertized events, such as club-sponsored rides or scouting camporees; competitive events, such as mountain bike races or orienteering tournaments. The Draft Region 7 Recreation Master Plan provides specific details on the permitting process and the requirements for liability insurance.

**K. OTHER FACILITIES**

**1. State Forest boundary lines**

Br/Ch-1	7.90 miles
Chen-10	17.53 miles
Chen-13	6.50 miles
Chen-27	10.70 miles
Chen-30	7.07 miles
<u>Chen-33</u>	<u>7.55 miles</u>
Total	57.25 miles

**2. State Forest Identification Signs**

Forest	# of signs	Location
Br/Ch-1	1	Davey-Mendenhall Rd.
Chen-10	1	Cueball & Horton Rd.
Chen-13	1	Stumptown Rd.
Chen-27	2	Owlville Rd. North & Harvey Rd.
Chen-30	1	Bobell & Page Brook Rd
Chen-33	1	Sprauge Rd.

**3. Impoundments**

There are two earthen dams on the Unit which were constructed to create ponds. One dam is located on the east side of Owlville Pond on the Coventry State Forest. This dam is routinely maintained. The second dam is located on the south side of the 6 acre pond on the Beaver Flow State Forest. This dam has not been maintained in many years. Future maintenance of this dam is unlikely. Should the integrity of either of these dams become jeopardized, they would not present a significant hazard.

**4. Shale pits**

There are no shale pits located on the Chenango Trail forests.

**5. Parking Areas**

Several pull-off areas are located on each of the State forests, however, there are presently no designated parking areas.

Existing unpaved parking areas:

Forest	Location
CH-10	Stand A-7
CH-10	Stand C-12
CH-27	Stand B-22
CH-27	Stand B-35
CH-27	Stand B-2
CH-27	Stand A-20
CH-27	Stand B-10
CH-30	Stand C-12
CH-30	Stand A-25
CH-30	Stand A-42
CH-33	Stand A-16

**6. Gates**

There are two metal gates on the Unit. One is located on Chenango 27 at the intersection of Owlville Road & the abandoned section of Harvey Road. This gate is owned & maintained by the Department. The other gate is located on Chenango 10, on the northern most boundary, off of Bobell Road. This gate is privately owned & maintained. It restricts access to a roadway that is bisected by a private property/State property boundary line. This gate remains intentionally unlocked, and the roadway may be used by the public.

**L. PROPERTY USE AGREEMENTS**

**1. Deeded Rights-of-Way**

No deeded rights-of-way, with the exception of the utility R.O.W. listed below, exist on the Unit.

**2. Property Reservations**

Three spring and/or water reservations exist on the Unit.

Forest	Reservation Type	Proposal (survey reference) & original owner

Br/Ch-1	spring & water	(E). Fowler
Br/Ch-1	spring	(F). Soest
Chen-10	spring & water	(J). McIntosh

**3. Revocable Permits**

No long-term Revocable Permits exist.

**4. Utility R.O.W., Easements and Permits**

A utility Right-of-Way exists on the southern most section of Chenango 10.

**5. Uses of State Lands Without Known Permits or Easements**

A telephone line exists on Proposal A of CH-27 leading to the 1.51 acre parcel identified as the “E. Stiles Reserve” on the 1936 Proposal Map. There is no record of a permit or easement for this facility.

**M. FOREST HEALTH**

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

**1. Insects**

**a. Hemlock Woolly Adelgid (*Adelges tsugae*)** - This **exotic**, or non-native, insect is currently posing a significant threat to the health of eastern hemlock across much of its natural range. Adelgid infestations can cause rapid **defoliation** of hemlock trees and can result in the complete mortality of all hemlock trees in affected stands within four years. This insect has been the focus of many recent studies in an attempt to discover methods of reducing its impact. Presently, the adelgid has not caused any significant damage to hemlock trees in Chenango County.

**b. Gypsy Moth (*Lymantria dispar*)** - This insect has received much notoriety since it was introduced into the United States in 1868. Populations of this insect can periodically build to “outbreak levels” resulting in widespread forest defoliation. Gypsy moths will defoliate many species of northeastern trees, but they favor oaks. High populations of gypsy moths do not typically persist more than three years before they collapse. Until recently, a virus (*NucleoPolyhedrosis Virus*) has usually caused the rapid decline of Gypsy Moth populations. In recent years however, a fungus (*Entomophaga maimaiga*) has also proved to be effective in reducing moth populations. This fungus was introduced to the U.S. from Japan in 1910 and again in 1985. Its effectiveness had been dismissed until its presence was identified in seven states in 1989. Because of the presence of both the virus and the fungus, it is hoped that future Gypsy Moth outbreaks will be less severe and less frequent.

**c. Forest Tent Caterpillar (*Malacosoma disstria*)** - This insect can be a serious defoliator of sugar maple. Unlike other “tent caterpillars,” the forest tent caterpillar does not construct a tent on the tree branches. Most healthy hardwoods can withstand a single defoliation from this insect. The summer seasons of 2004 and 2005

brought heavy infestations of the forest tent caterpillar to central New York. An area near LaFayette was particularly hard hit, with hundreds of acres of hardwood trees being completely defoliated. In 2006, the defoliation in New York State was widespread and more severe than the two previous seasons. The forest canopy in Chenango County was impacted with many small areas (5-10 acres) of complete defoliation in the summer of 2006 from the Forest Tent Caterpillar.

**d. Eastern Tent Caterpillar** (*Malacosoma americanum*) - This is the most common “tent maker” in New York State. The caterpillars build the nests in the crotches of tree branches. They prefer cherry trees and apples 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.

**e. 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 1980s. 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.

**f. 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. Typically, outbreaks of the Elm Spanworm succumb to mortality from a complex of natural agents, including egg parasites and larval diseases.

**g. 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 (e.g. reducing quantities of slash and seasonal cutting) are being investigated to minimize the negative impacts of peach bark beetles.

**h. Asian Longhorned Beetle** (*Anoplophora glabripennis*) This black & white beetle with long antennae, is a native of Asia. Populations of this pest have been established in Brooklyn and Amityville, NY. Host trees are predominantly maples. Since this pest is extremely destructive and has the potential to spread at a rapid rate, authorities are destroying all trees discovered with infestations.

**i. Emerald Ash Borer** (*Agilus planipennis* Fairmaire) This metallic green beetle is native to Asia. It was first discovered in the US (Michigan) in 2002. Since that time, it has killed at least 10 million ash trees in the states of Michigan, Indiana, Maryland, and Ohio. The larva feed on the inner bark of ash trees. They will feed on trees of any size and will usually kill the tree within 3 years of infestation. Quarantine zones have been established to restrict the transportation of infected wood. Although this pest has not been identified in New York State, it is likely that it will become established in the state within the next 10 years, unless an effective control is discovered.

**j. 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. These quarantines are of

significance because they affect the transportation of pine logs. In general, the regulation restricts the transportation of pine logs from a quarantined area to a non-quarantined area. In 2004, nearly every county in New York State was listed as quarantined, with the exception of the eastern-most counties and the downstate area.

**k. Sirex Woodwasp** (*Sirex noctilio*) This exotic pest was first discovered in New York State on September 7, 2004 in Fulton, NY (Oswego County). The Sirex woodwasp is native to Europe, Asia and Northern Africa, and it attacks most species of pine trees, including red pine and white pine, which are common in New York. The female woodwasp carries a fungus (*Amylostereum areolatum*) that it deposits in the tree while laying eggs. This fungus can kill the host trees in just a few weeks. It is anticipated that the woodwasp will easily adapt to most U.S. climates. As of late summer 2006, the Sirex woodwasp had been confirmed in most counties of central New York and significant, localized damage to pine trees from this pest had been observed. Control methods for the woodwasp are being researched, including a biological control involving the use of parasitic nematodes.

## 2. Diseases

**a. 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. It is still possible to find mature elm trees within the Coventry area.

**b. Sudden Oak Death** The syndrome of Sudden Oak Death (SOD) is caused by a fungus (*Phytophthora ramorum*). SOD was first reported in California in 1995. It can infect many species of oak trees resulting in death of the trees. While it has not yet been confirmed in New York State, however, it has been determined that Northern red oak is highly susceptible to the fungus. Since host plants for the pathogen include rhododendrons, it is feared that the transportation of infected rhododendrons may lead to the establishment of the fungus within New York State.

**c. 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 of the forests in the Coventry area, but it is rare for a tree to survive long enough to attain a stem diameter greater than six inches.

## 3. Pollutants

**a. Acid Rain** - Acid rain comes in many forms: rain, snow, sleet, hail, fog and as dry particles. It is formed when sulfur dioxide and oxides of nitrogen combine with moisture to produce sulfuric acid and nitric acid. The combustion of fossil fuels (coal, oil, natural gas) and the combustion of wood are the primary cause of acid rain. Emissions of SO<sub>2</sub> and Nox from heavily industrialized sections of the country, especially the mid-west, have been identified as significant contributors to New York's air pollution. Sulfur and nitrogen deposition have caused adverse impacts on certain highly sensitive forest ecosystems, most notably in the high elevation spruce-fir forests in the eastern United States. Forests are damaged because acid precipitation leaches nutrients from the soil. Excess atmospheric nitrogen may also adversely affect tree growth. Some evidence of decreased growth and dieback has been found in the Adirondacks.

**b. Global Warming and the Significance of Carbon Sequestration.** - Industrial activities, such as the combustion of fossil fuels, contribute to the amount of CO<sub>2</sub> in the atmosphere. CO<sub>2</sub>, along with methane, nitrous oxide, and other gases absorb longwave radiation from the earth's surface. As the volumes of these gases increase, more of this energy is trapped in the atmosphere, instead of being released into space. The absorption of this energy creates a "greenhouse" effect, increasing the atmospheric temperature. Carbon sequestration refers to the ability of trees and other plant life to absorb and store (or sequester) carbon. As part of the photosynthetic process, trees transform atmospheric CO<sub>2</sub> into the basic elements of carbon and oxygen. The oxygen is released back into the atmosphere while the carbon is used to form carbohydrates, or sugars, which are the food source for tree growth. Forests may be viewed as "carbon sinks," where large amounts of carbon are being stored. Carbon sequestration plays a key role in the issue of global warming. The more carbon that is sequestered in forests, the less available carbon there will be for the formation of atmospheric CO<sub>2</sub>.

#### **4. Other Significant "Pests"**

**a. Black flies** (*Simulium nigricoxum*) - Within New York State, high populations of this insect were always associated with the Adirondacks, until recently. The territory of the black fly has expanded during the past two decades and they are now prevalent in Chenango County. They breed in streams and the adults are most active in the cool, wet weather of spring and early summer. If cool weather persists, significant populations may extend throughout the summer; however, the population of black flies is usually reduced by mid-June. Springtime infestations can reach levels that necessitate protective clothing or repellants to be worn when spending time in the woods.

**b. Lyme disease** - This disease is caused by a bacterial infection (*Borrelia burgdorferi*), resulting from the bite of a deer tick (*Ixodes dammini*). It was first recognized in the town of Lyme, Connecticut in 1976. The deer tick lives in grassy, brushy or wooded areas in the northeast, and it feeds on many different mammals including raccoons, deer and humans. People may acquire lyme disease if bitten by an infected tick. The use of long-sleeved, light-colored clothing is recommended, along with the use of certain insect repellents, and routine monitoring for ticks after spending time outdoors. During the five year period of 1999 through 2003, there were a total of 5 confirmed cases of Lyme disease in residents of Chenango County. Any or all of these cases may

have been contracted when the residents traveled outside of Chenango County to areas such as the Hudson Valley or Long Island. Presently, Chenango County is a low risk area for Lyme disease.

**c. West Nile Virus** - This virus has received significant attention since it was found in downstate New York in the summer of 1999. This was the first recorded occurrence of this virus in the Western Hemisphere. West Nile virus can cause arboviral encephalitis (arthropod-borne encephalitis). Birds are the primary vertebrate host of West Nile encephalitis, and the virus is carried between vertebrate hosts by mosquitoes. The house mosquito (*Culex pipiens*) is the common vector of viral encephalitis in the eastern United States. This mosquito breeds in any type of standing water, including forested wetlands, but many of the breeding grounds are found in urban areas. People may acquire West Nile encephalitis if they are bitten by an infected mosquito. Protective measures include the use of insect repellents, wearing long-sleeved, light-colored clothing and avoiding mosquito infested areas, especially during evening hours and early morning when the insect is most active. Through the year 2003, there have been no confirmed cases in humans of West Nile Virus in Chenango County. In 2002, 27 dead birds were tested for the virus in Chenango County, and five of them tested positive. In 2003, four birds were tested and two of them were confirmed to have the virus. One of these was a bald eagle, and one was a cooper's hawk.

### **RESOURCE DEMANDS ON THE UNIT**

The charge of the Conservation Department in 1929 was to acquire lands adapted for reforestation and establish thereon forests for watershed protection, timber production, recreation and kindred purposes. Seventy-five plus years after the passing of the Hewitt Reforestation Act by the State Legislature, New York State continues to benefit from the careful management of natural resources on these State forests.

Society's demand for natural resources continues to increase. In the United States, consumption of wood, water and non renewable mineral resources surpasses that of other industrialized and developing countries. On a more local scale, recent trends reflect an ever steady to increasing demand for the natural resources available from State forest lands throughout New York including those in this Unit Management Plan (UMP). The recent trend of business and industry capitalizing on global markets has spurred an increased demand for both hardwood and softwood lumber production on a regional scale. The desire for more domestic sources of oil and gas by our expanding economy has also added to the demand for exploration and extraction of these natural resources from both public and private lands within New York.

Larger tracts of public ownership allow for greater flexibility in protecting, managing or extracting natural resources as compared to private lands with similar resources. Although the vast majority of land acreage throughout Central New York is held in private ownership, the individual parcels tend to be on a much smaller acreage scale as compared to the public land holdings. The private lands are held by a wide array of landowners exercising many diverse management views and actions throughout their time of ownership. Combined with frequent ownership changes and increased parcelization of existing properties, private lands and their associated natural resources tend to be in a much greater state of flux than those of the public lands.

The historic ownership of the State Reforestation Areas has allowed for several generations of resource managers to consider long range planning with a commitment to quality natural resource management. Society views of natural resource management continually demand higher standards for sustainable practices and responsible management for the betterment of all people. State Forests will play a vital role in the balancing of natural resource use and protection for the foreseeable future.

## A. TIMBER RESOURCES

The continuous, long term management of State forests has resulted in a timber resource of very high quality. State forest land represents a considerable resource upon which wood-using industries within New York and the surrounding region depend for part of their raw material needs.

There is an ongoing demand for a variety of commercial wood products on these forests. Hardwood sawtimber, hardwood pulpwood and firewood, red pine poles, red pine cabin stock, Norway spruce sawtimber and spruce pulpwood are the primary timber resources available from State lands.

Much of the information on demand for timber resources that follows is based on the Stumpage Price Report published by the Department semi-annually. Comparisons were made between Reports published for the 1995 season and the 2006 season. The following table lists the most common price paid per thousand board feet (**Doyle log scale**) as reported for the area covering Chenango county for the major group of hardwood species found on the Unit.

Species	1995 (\$)	2006 (\$)	% change
White ash	370	225	-39
Sugar maple	490	800	+63
Black cherry	690	1,275	+85
Red Oak	480	425	-11
Red Maple	150	260	+73

At the regional level, there is a strong demand for hardwood sawtimber from regional sawmills. The price paid for high quality hardwood logs throughout New York and the northeast has steadily increased and remains at historic high levels based on average stumpage price reports over the last ten years, with the exception of white ash and red oak. Because of its importance within the international market, demand for hardwood lumber and the coinciding hardwood stumpage is expected to increase.

There is limited demand for hardwood cordwood and most of this stumpage is sold within local firewood markets. Prices have remained stable during the last ten years and actual requests through DEC's homeowner firewood program in Chenango County have declined. However, prices for home heating oil have increased dramatically in recent years, and this could have a direct impact on future demand for firewood.

Unlike hardwood timber, the supply of red pine and Norway spruce stumpage (standing timber) is concentrated on State lands and subsequently DEC has an important role in the regional softwood timber and pulpwood market. Based on the stumpage reports from 1996 to 2006, the price for red pine sawtimber has increased 25% from \$60 to \$75 per thousand board feet while prices for utility pole stock has increased 66% from \$60 to \$100 per thousand. Utility poles, pressure treated lumber and stock for pre-fabricated log homes are the primary uses for red pine timber. Demand for pine pulpwood is small with limited markets available for scotch, white pine and red pine pulpwood. Future demand for red pine timber may be constrained by efforts to control the movement of the pine shoot beetle and the woodwasp, *Sirex noctilio*. The USDA Animal and Plant Health Inspection Service has established a federal quarantine on red pine throughout much of New York resulting in restrictions on the shipment of pine logs outside of the quarantined area.

During the same reporting period, there has been a notable increase in the supply of Norway spruce sawtimber stumpage from State land. Although stumpage is typically purchased by local firms, the majority of logs are transported to Canadian mills for processing. The stumpage reports indicate that prices for spruce sawtimber have increased over 30% from an average of \$60 to \$90 per thousand board feet during the same ten year reporting period.

During the 1980s and 1990s, there was a steady demand for spruce pulpwood from State lands throughout central New York. The primary need was for raw material used by the paper making industry. However, the market for spruce pulpwood is now limited due to the closing of several paper mills in northern New York; the most recent being the Deferiet Paper Company which phased out operations in 2001, citing various economic reasons. Now, increased shipping costs to more distant markets have reduced the economic feasibility of marketing pulpwood for many local contractors. Considering this limited market and reduced quantities of pulpwood being cut from these maturing spruce stands, the demand for spruce pulpwood is projected to decrease.

As both plantation pine and spruce stands continue to mature, the supply of softwood sawtimber is expected to increase for the near foreseeable future. The supply of this softwood resource is expected to change over time as these stands reach and pass their economic and biological maturity. The original softwood tree planting of the 1930s was undertaken to bring abandoned farmland back into productive forests. Much of this effort was to conserve and restore soil productivity and control erosion from these sites. Throughout New York, thousands of acres were planted to the various softwood species in a relatively short time frame. Since then, the opportunity to replant on State lands has been limited by acres available to reforest and the gradual succession of plantations to natural hardwood species. As the number of plantation acres on State forests is inevitably reduced over time, the supply of softwood timber will subsequently decrease in the long run.

Some of the management practices that promote sustainable forestry that are incorporated into this plan include: retaining coarse woody debris, harvest restrictions on steep slopes and along riparian corridors, protecting areas with significant cultural or historic resources and following best management practices during timber harvesting. This management plan includes goals and objectives consistent with sustainable forestry criteria established by the **Forest Stewardship Council**.

## **B. MINERAL RESOURCES**

Gravel and hard rock resources exist in the areas surrounding the Unit. There are no mining contracts, permits, or operations on any areas in this Unit Management Plan. The nearest area of extensive gravel mining to the Unit is located approximately 3.5 miles east of the Coventry State Forest, close to the Chenango River. Under Article 7 of the Public Lands Law, any citizen of the United States may apply for permission to explore and/or extract any mineral on State lands. However, to protect surface resources, current Department policy is to decline any commercial mining application(s) pertaining to any lands covered by this Unit Management Plan.

Exploration for gas in the Trenton/Black River Formations continues to expand into neighboring Broome County. This activity increases the possibility that eventually lands contained in this Unit Management Plan may be impacted sometime in the future by gas exploration operations. The closest commercial natural gas production to the Chenango Trail Unit is located in Tioga County. This production was discovered during 1986 at Stage Coach Field, in the Township of Owego. Gas totaling approximately 16 billion cubic feet has been produced from the Oriskany Sandstone

Formation that was deposited during the Lower Devonian Period. Gas was produced from depths at approximately 5,000 feet into the earth.

Initial title review indicates the State owns the mineral estate under all State forests covered by this Unit Management Plan, with the qualification that mineral reservations may exist and no expressed or implied warranty of title is being offered in this document. As of 2005 there are no oil and gas lease agreements pertaining to the mineral estate under the State forests contained in this Plan. In the future, the State may receive requests to nominate some or all of the tracts contained in this unit for oil and gas leasing. Additional information on oil and gas leasing procedures can be found in **Appendices XIII and XIV.**

For further information contact the NYSDEC Mineral Resource staff, Region 8, 6274 East Avon-Lima Road, Avon, New York 14414-9591

### **C. BIOLOGICAL RESOURCES**

Although the variety of biological resources on the Chenango Trail forests may not be infinite, it would require an exhaustive study to develop a comprehensive list. More than 20 tree species, 100 species of understory plants, 120 bird species, 40 mammals, 15 fish, 20 reptiles & amphibians and vast numbers of insects, fungi, and bryophytes. The conservation of biological resources is an increasingly significant societal demand. Legislation such as the Endangered Species Act, the National Environmental Policy Act (NEPA), and the New York State Environmental Quality Review Act (SEQRA) have had a lasting effect on both resource management and public perception of land stewardship. The Chenango Trail forests will be managed for multiple interests. As previously stated in this plan, biodiversity is an important interest. While trees will be harvested for utilization, the harvesting will be done on a sustainable basis with consideration to protect any special biological resources. The discovery of unique wildlife, or vegetation, will initiate a management objective to protect or enhance that unique population. It is recognized that some of the existing biological resources cannot be sustained. Red pine, Norway spruce, Scotch pine, and Japanese larch are all non-native species that were planted on the Unit. Many of these plantations have been successful, with the trees developing into high-quality, mature timber that satisfies a strong consumer demand. However, it is difficult and often infeasible to regenerate these plantations, so most of these species will likely vanish from these forests in the future. All native biological resources will be managed for sustainable populations.

### **D. RECREATIONAL RESOURCES**

In the spring of 1999, a series of public meetings was held for the Draft Region 7 Recreation Master Plan. Discussions at these meetings focused on issues relating to recreational uses of State forests in the Region. Participants represented a broad range of recreational uses including horseback riding, hiking, snowmobiling, hunting, camping, photography, cross country skiing, trapping, birdwatching, canoeing/kayaking, target shooting, wildlife observation, fishing and horse drawn carriage riding. Input received from the public at these meetings has been incorporated into the Draft Region 7 Recreation Master Plan. This Plan, once finalized, in conjunction with this UMP,

will be used to guide any recreational development on the Chenango trail Unit.

In New York State, the demand for hunting, as measured by license sales, has declined 14% since 1985. While license sales reveal declining participation, hunting on State lands may, in fact, be increasing in response to changes in regional land use. Parcelization and residential occupancy have restricted access to private lands and it is speculated that increased “posting” of private properties has shifted many activities, including hunting, to State land. While there may be no net increase in regional hunting pressure, the distribution of these activities appears to be changing. State lands provide hunting opportunities for those unable to purchase or access private land.

Similar to hunting, a regional angler survey conducted in 1988 and again in 1996 revealed a 24% decline in fishing within the nine county region.

The Chenango Trail forests will provide the public with opportunities for hunting, fishing, nature observation, snowmobiling, camping, cross-country skiing, hiking and other similar activities. The opportunity for many of these activities will be offered on a primitive scale. For example, there are no formal, designated campsites or ski trails, but the forests provide a desirable, natural environment for these activities. Some designated facilities are proposed such as a snowmobile trail on the Bobell Hill and Coventry State Forests and a hiking trail/ski trail on the Oak Ridge State Forest.

## MANAGEMENT CONSTRAINTS ON THE UNIT

### A. PHYSICAL CONSTRAINTS

- Steep slopes
- Wetlands
- Geological characteristics
- Soil characteristics
- Climatic conditions
- Storm damage
- Potential insect and disease infestations and associated quarantines
- Limited access
- Presence of cultural resources
- Electrical transmission and telephone lines
- Deeded rights-of-way
- Buried telecommunication lines
- Natural gas collection and distribution lines
- Concurrent use agreements
- Fragmented configuration of State land

### B. ADMINISTRATIVE CONSTRAINTS

Budget limitations  
Staffing shortages  
Availability of Operations staff  
Availability of Corrections work crews  
Fluctuations in wood markets  
Lack of demand for some wood products  
Contract procedures

### **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 can be satisfied will vary. There are special interest groups for hunting, horseback riding, off-highway vehicles, bird watching and many other recreational pursuits. There are industry demands for timber, natural gas, cell tower sites, field stone, rights-of-way and more. All of these demands need to be reviewed for their compatibility with the current laws, regulations, land management policies, the environmental conditions and the objectives for the forest property. It is recognized that these societal influences are dynamic and, if the State forest resources are to continue to benefit the interests of the public, some flexibility must be incorporated into the management of these resources.

### **D. DEPARTMENTAL RULES, REGULATIONS AND LAWS**

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

### **VISION STATEMENT**

The Chenango Trail forests will become a source of pride for the local community as a result of the many means by which these properties have enhanced the quality of life within the Coventry area. These natural resources will have contributed to the community's well-being by providing economic opportunities, recreational enjoyment, biological diversity, cultural legacies, social gratification and environmental quality. The management of these forests shall incorporate the indigenous knowledge of an engaged public. This management will adopt enough flexibility to accommodate the dynamic range of social, economic and ecological influences on these forests. It is our vision that the proper management of these lands will inspire the community to embrace these forests as a showplace for all those interested in natural resources management. (Percival P. Baxter 1955 - see **Appendix XVII, References**).

### **GOALS AND OBJECTIVES**

#### **A. LAND MANAGEMENT GOAL**

It is the goal of the Department to manage State lands for **multiple uses** to serve the needs of the People of New York. This management will be carried out on the forests of the Chenango Trail Unit

in a sustainable method. The biological diversity of these forests will be encouraged and the impacts to the ecosystem will be considered with all management actions. Interaction and shared learning between citizens and managers will be a key factor for achieving the goal.

## **1. Ecosystem Management**

Ecosystem management is a philosophy of adopting a landscape perspective for all actions. The practical application of this philosophy is somewhat controversial due to the absence of a refined definition. In general, this style of management must address the long-term consequences of today's decisions, and it must view the interdependent relationships of the environmental system rather than focus on its individual components. It requires the engagement of the community including public and private land managers. A fundamental principle of ecosystem management is to base all decisions on the best information science can provide, with sustainability as the goal.

### **Ecosystem Management Principles Applied:**

- A landscape perspective will be considered when setting objectives.
- A variety of habitats will be maintained.
- All water resources and sensitive sites will be protected from degradation.
- At least 40% of the Unit's acreage will be maintained in a conifer component cover type. (Conifer component cover types will have at least 10% of their basal area in a conifer species.)
- The values of habitats will be enhanced by establishing geographic groupings of stands with similar management directions.
- Corridors of unbroken forest canopy will be maintained along streams.
- Site specific actions will be used to enhance wildlife habitat. These actions may include even-aged cuttings of aspen to enhance bird habitat, release cuttings for apple trees and mast-producing trees, retention of roosting and cavity trees, and the retention of coarse woody debris.
- Natural regeneration will be favored over planting. Reforestation of a site by planting will be considered if natural regeneration is unsuccessful.
- The use of pesticides including herbicides, insecticides, or growth retardants will be considered only after all other management alternatives have been exhausted.
- Efforts will be made to protect the forest from invasive exotic plant species.
- The resources of timber, water, wildlife, recreation, and other environmental interests on these

lands will be managed on a sustainable basis.

- Opportunities to interact with the community to gain knowledge of their interests in the State Forests will be pursued.

- Communications with other natural resource managers will be encouraged as future decisions are needed in the management of these lands.

- Forest management decisions will ultimately be supported through social acceptability, economic feasibility, and reliable scientific information.

#### **a. Objectives for open land ecotypes.**

Open land **ecotypes** are composed primarily of grasses, herbaceous plants, shrubs and other low, woody vegetation. Open lands provide primary habitat for many birds, small animals and insects. Here species such as deer and rabbits can find forage, seeds or berries. Many species, especially birds, seasonally use open lands for nesting, brood cover, courtship and food. Open lands provide **edges** where ecotypes meet and overlap. These edges form a transition zone called **ecotones**. Some wildlife species such as bluebirds and song sparrows require the special habitat conditions that the transition zone provides. The boundary lines of the Chenango Trail forests total approximately 57 miles in length. Much of the boundary adjoins roadways or private forest land; however, approximately 6 miles of the State forest boundary form an edge with open privately owned land.

Grassland and shrub land habitats can diminish within the landscape if natural succession is allowed to occur. The forests of the Chenango Trail Unit contain very little open land, while a significant portion of the landscape (Town of Coventry) is in open land, as either agricultural, grass or brush. In keeping with the ecosystem management approach, the landscape will be considered when evaluating the need for this type of habitat. Based on analysis of the 2003 aerial photography of the town, at least 27%, or 8,400 acres, of the Town of Coventry is currently open land. If this type of habitat should greatly diminish in the future of the landscape, action will be considered to either create open land habitat on the Unit or acquire additional acreage that can be maintained as open land. One opportunity to create some open land will be through the oil & gas development process if these lands are leased in the future. Openings that may be created in the forest canopy as a result of natural gas well pad development will be considered for establishment in an open, grassland cover type.

Shrub land maintenance will include inspecting sites on a ten year cycle and removing trees when necessary to prevent plant succession.

#### **Actions:**

- 1.) Periodically monitor the landscape for changes in the amount of open land.**

**2.) Maintain 20 acres of shrub land on the State forests.**

**3.) Maintain any compatible openings created for natural gas well pad development in an open, grassland cover type.**

**b. Objectives for riparian and wetland ecotypes:**

The riparian and wetland ecotypes on the Unit are diverse and productive. They provide food, breeding areas and cover for many species of wildlife. 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. The riparian zones along streams and other bodies of water are protected so that mechanical disturbance does not cause excessive soil movement, erosion and degradation of water quality. In general, a 50 foot forested **buffer** has been delineated on each side of all significant streams on the Unit. No harvesting will be done within these stream corridors. An additional 50 foot buffer will also be established outside of the no-harvest buffer, where at least 75% of the pre-harvest basal area must be retained. The number of crossings through these zones for timber extraction will be kept to a minimum. All crossings will comply with the DEC Protection Of Waters Program and the New York State Forestry Best Management Practices for Water Quality to protect stream banks and prevent sedimentation from entering stream channels.

Protection of ponds, lakes, and unclassified wetlands will include establishing a 100 foot no-harvest zone next to the water body and an additional 150 foot restricted-harvest zone where at least 50% of the pre-harvest basal area must be retained. Classified wetlands (NYS Freshwater Wetlands Act) will have a 250 foot no-harvest buffer zone established adjacent to the wetland. These wetlands and their associated buffer zones will be off limits to **silvicultural treatments** and recreational trail development.

**Actions:**

**1.) Protect the water quality and habitat of all classified trout C(t) streams by complying with recommendations from the Bureau of Fisheries.**

**2.) Protect all class C and D streams by establishing 50 foot “no-harvest” buffer zones with an additional 50 foot “restricted-harvest” buffer zone and implementing BMPs.**

**3.) Protect 32 acres of ponds by creating 100 foot “no-harvest” buffer zones with an additional 150 foot “restricted-harvest” buffer zone adjacent to the water body.**

**4.) Protect 37 acres of non-classified open wetlands and 106 acres of non-classified forested wetlands by establishing 100 foot “no-harvest” buffer zones adjacent to the wetland.**

**5.) Protect 16 acres of classified open wetlands and 29 acres of classified forested wetlands by establishing 250 foot “no-harvest” buffer zones adjacent to the wetland.**

**6.) Protect 420 acres of forested riparian areas by not allowing timber harvesting or oil & gas development.**

**c. Objectives for forest ecotypes.**

Each forest in the Unit is divided into stands of trees and other non-forested areas. A stand has species and age characteristics which distinguish it from adjoining stands. Every stand on the Unit was evaluated and given a management direction and objective cover type. Some stands are managed as protected forests or **natural areas** where no timber may be cut. Other stands are to be managed for multiple uses including timber. The following objectives summarize the acreage devoted to each type of management.

Areas within the Unit that will be managed as **protected areas**, will include wetlands, Natural Areas, acreage with steep terrain or difficult access and areas with unique characteristics. The management of these areas will incorporate some restrictions on acceptable activities to protect the resource of interest.

Natural Areas are forest stands that do not possess any environmental or mechanical limitations to timber harvesting. However, the unique **structure** or location of the forest stand provides an opportunity for greater benefit as an untreated or natural area. Such places are uncommon in the landscape of the Unit. Most of the land is used for working forests, agriculture or development. Natural Areas will be protected from timber harvesting as well as oil & gas development, to remain or become **climax forests**. No silvicultural treatments will be made in the Natural Areas established on the Chenango Trail forests. No well pads, roads or pipelines will be established within these areas. Recreational facilities, such as trails, will be discouraged within Natural Areas. These stands typically contain large diameter trees, often hemlock-hardwood types, with a high percentage of hemlock. Such forests usually contain large numbers of **snags** and cavity trees, and large amounts of downed material referred to as coarse woody debris (CWD). These structures support many species of plants, animals and microorganisms. Natural Areas are primarily established for the benefits of biodiversity.

Other areas of the forest may be protected from timber harvest operations for reasons pertaining to recreational values, unique visual characteristics, or historic preservation. These areas may still receive silvicultural treatments, such as the removal of tree saplings from stone foundations, the pruning of tree branches in recreational areas, or the felling of damaged or “risk” trees. However, all commercial timber harvesting operations as well as oil & gas development will be prohibited within these areas.

Some areas of the forest will remain off-limits to timber harvesting, oil & gas development, and recreation development due to the physical limitations of steep ground or difficult access. These areas are usually not good sites for recreational trails or other improvements. These areas of the forest will be managed similar to the Natural Areas and will eventually achieve climax forest conditions.

**Actions:**

**1.) Manage 117 acres as Natural Areas.**

**2.) Manage 40 acres for protection due to exceptional visual characteristics, recreation values, or historic significance.**

**3.) Manage 84 acres for protection due to poor access or steep slopes**

**d. Objectives for road corridors:**

The road corridors on the forests have been delineated as separate stands. Most of these corridors are 50 feet wide (3 rods) where the roadway is within the forest property, or 25 feet wide (to road centerline) where the roadway is adjacent to one edge of the forest property. Although the forest cover within these corridors is limited, most of the roadways are lined with trees along the edges of the corridor and it is not uncommon for a road corridor to contain three acres of forested area for every one mile of distance. Maintaining this forested edge provides important **aesthetic** benefits to travelers of these roadways. While these aesthetics will remain a priority, it is also important to remove hazard trees along the roadways and to prevent the forest canopy from shading the road excessively. These road corridors will be treated with the corresponding adjacent forested stands. Advanced treatments will be scheduled where tree removal is needed for road improvement. Municipalities maintaining these roads may remove trees within the legal right-of-way. However, the Department requires such entities to obtain a Temporary Revocable Permit (TRP) if they wish to remove trees larger than 5"dbh.

**Actions:**

**1.) Manage 53 acres as road corridors.**

**2.) Maintain the forested edges along these corridors for their aesthetic importance.**

**3.) Regulate the removal of trees within the road right-of-ways through the issuance of T.R.P.s.**

**e. Objectives for other habitat improvement.**

Some areas on State forests contain productive apple trees. These apple trees can be an important food source for many species of wildlife. Many of the areas with apple trees are associated with early settlement sites, where the trees were planted on cleared land. Most of these sites are now forested and the apple trees are being overtopped by taller trees. Without **release** efforts, this plant succession process will shade the apple trees, lower their fruit productivity and eventually kill the trees. Pruning will further enhance the fruiting of these trees and the availability of desired wildlife **browse**.

## Actions:

### 1.) Release and prune apple trees on seven acres of the Unit.

### 2. Silviculture

The remaining stands on the Unit are to be managed for multiple uses, including timber. **Silviculture** is the science and art of cultivating forest crops. Although there are several variations, the two basic silvicultural systems for managing a stand of trees are the **even-aged** system and the **uneven-aged** system. Depending upon the type of system used, the structure of the forest is altered differently. One of the principle differences between the two systems is the type of tree species that is favored by each. The even-aged system is best suited to the growth and **regeneration of shade-intolerant species**, such as black cherry and white ash. These species prefer full sunlight conditions. The uneven-aged system favors shade-tolerant species such as hemlock and sugar maple. In this system, the shade of continuous **overstory** trees facilitates the regeneration of these species. The implementation of these silvicultural systems is primarily achieved through the State forest product sales program. The **cutting cycle** is the time span between treatments (i.e. timber harvests) in an uneven-aged stand. The **thinning cycle** is the interval between treatments in an even-aged stand. Cutting and thinning cycles of approximately 25 years will be used for most stands on the Chenango Trail forests. The age of trees at maturity varies and is dependent upon variables such as tree species, **site quality** and growing space.

An **even-aged** stand is one whose individual trees originated at approximately the same time, either naturally or by planting. It may undergo various **intermediate thinnings** during its development and the mature forest crop is ultimately removed in one or more major harvest cuts after which a new stand is released or established. Such a stand, consequentially, has a beginning and an ending time. The **rotation** is the number of years from establishment to maturity. Depending on the tree species comprising the forest stand and the quality of the site, the rotation length will vary. The Chenango Trail UMP will utilize three rotation lengths. The short rotation length will be 60-80 years, the standard rotation length will be 100-120 years, and the long rotation length will be 140 years+. The short rotation will most commonly be implemented for stands of aspen. The standard rotation length will be used on the majority of the Unit where northern hardwood species are present and the site quality is good. Long rotations will be applied to stands containing high quality northern hardwood, oak, hemlock or white pine trees. The even-aged management system is important because it creates early forest developmental stages necessary for the survival of many plant and animal species. The tree species that this system favors (e.g. black cherry) have some of the highest timber values. Even-aged management also favors the establishment of many of the hard **mast** species such as hickory and oak. The even-aged conifer plantations on the Unit are mostly red pine, Norway spruce or mixtures of these two species. Most of these plantations will continue to be managed with the even-aged system until such time that all of the planted stems have been harvested. Once the stand has been converted to a naturally regenerated stand, the uneven-aged system may be implemented.

Another forest cover type that lends itself to even-aged management is **pioneer hardwood**. Pioneer

hardwood stands tend to be old pasture reverting to aspen-red maple on poor sites. Patch cuts (grouse cuts) of one to five acres will be accomplished either using grant money or done in conjunction with nearby timber sales. These cuts result in dense sapling regrowth which provides optimal nesting habitat for grouse, woodcock and other ground-nesting wildlife.

The **uneven-aged** management system establishes or maintains at least three distinct age classes ranging from seedling-sapling to large sawtimber within one stand. During 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 oak, ash or cherry, the **group-selection** variation of the system is used. During harvests, groups of overstory trees are cut to create openings from one-quarter acre to one acre in size. The larger openings are more likely to produce the shade intolerant species, provided that the seed source is available. Uneven-aged stands have the unique character of having several different layers of canopy representative of the different age classes. During the growing season, a person's line-of-sight in an uneven-aged stand is likely to be very limited due to the presence of the lower and intermediate leaf canopies.

Nearly all of the stands on the Unit are presently even-aged as a result of agricultural abandonment and **clear cutting** in the early 1900s. Where feasible, the even-aged stands may be converted to uneven-aged stands for the purpose of growing specific tree species (e.g. sugar maple), maintaining continuous forest canopy for specific wildlife (e.g. **neo-tropical migratory birds**), or providing layered canopy structure. A layered canopy structure can provide benefits to the visual aesthetics as well as the habitat of the forest. The **conversion** of these stands will require many silvicultural treatments over a long period of time. Therefore, while the management objective for many of the even-aged, conifer plantations (over 1,000 acres) is listed as even-aged northern hardwood, that vision is for the relatively near future of the next 50 years. The conversion of these stands from even-aged conifer plantations to uneven-aged northern hardwoods may take 100 years or more. One method of converting a stand from even-aged to uneven-aged is with group selection. This method removes small patches or groups of trees within the stand. The maximum width of the groups is usually twice the height of the mature trees. Harvesting the groups creates small openings throughout the forest stand which represent another age class within the stand. Over the course of time, as additional patches are created through timber harvests, enough age classes are established to define the stand as uneven-aged. If the harvested patches are kept small enough (e.g. 1/2 acre) and a seed source is available, it is possible to establish shade-tolerant regeneration within these patches.

**Green-tree retention** is the practice of reserving certain live trees, usually conifer species, within the boundaries of a harvested area. These trees are intended to be retained permanently. This is most commonly associated with the even-aged system, where the primary objective is to create a stand structure similar to that formed by natural disturbances such as fire, insects and **windthrow**. However, it can also be applied with uneven-aged management, where the objective is primarily one of biodiversity. In the Chenango Trail UMP, green-tree retention will be implemented only with the uneven-aged system. This system will be used to provide habitat that consists of remnant forest structures such as large conifers, snags, coarse woody debris, and a continuum in the forest canopy. In the Chenango Trail UMP, some stands of native conifers (e.g. white pine, hemlock) will be

selected for green tree retention, while in others, non-native conifers (e.g. red pine, Norway spruce) will be chosen. In all cases, the management direction of these stands will be uneven-aged. The native conifers are expected to live long and grow larger than the non-native retained trees. Most likely, snags and coarse woody debris (CWD) will be formed more quickly by the non-native retained trees.

**a. Objectives for even-aged management system.**

- 1.) Manage 1,623 acres as even-aged/ standard rotation, for Northern Hardwood or Northern Hardwood-Oak cover type.**
- 2.) Manage 586 acres as even-aged/standard rotation, for Northern Hardwood-Norway Spruce cover type.**
- 3.) Manage 65 acres as even-aged/standard rotation, for Northern Hardwood-Hemlock or Northern Hardwood-White Pine cover type.**
- 4.) Manage 560 acres as even-aged/long-rotation, for Northern Hardwood or Northern Hardwood-Oak cover type.**
- 5.) Manage 353 acres as even-aged/long-rotation, for Northern Hardwood-White Pine cover type.**
- 6.) Manage 5 acres as even-aged/short rotation, for Pioneer Hardwood cover type.**

**b. Objectives for uneven-aged management system.**

- 1.) Manage 579 acres as uneven-aged, Northern Hardwood-Hemlock or Northern Hardwood-White Pine cover type.**
- 2.) Manage 341 acres as uneven-aged, Northern Hardwood or Northern Hardwood-Oak cover type.**
- 3.) Manage 227 acres as uneven-aged, native green tree retention.**
- 4.) Manage 146 acres as uneven-aged, non-native green tree retention.**

**Summary of silvicultural objectives.**

	<b>3,192 acres even-aged</b>
	<b>1,293 acres uneven-aged</b>
	<b>881 acres protected</b>
	<b>80 acres other</b>
<b>TOTAL:</b>	<b>5,446 ACRES</b>

### 3. Habitat

Silvicultural treatments will be integrated with wildlife management by considering the effect on habitat. The species composition of a forest stand, the structure of the stand, the timing of treatments, and the retention of specific resources all influence the quality of wildlife habitat. The following objectives have been developed to sustain and improve the quality of habitat in the Unit.

#### a. Objectives for habitat management.

##### 1.) Provide an average of four snag trees per acre. Provide an average of four cavity trees per acre.

<u>Tree Diameter</u>	<u>Snags</u>	<u>Cavity Trees</u>
11-17"	2	2
18+ "	2	2

Snag trees are standing, dead or declining stems within the forest that provide a number of benefits. Snags provide open perching sites for many species of birds, especially raptors. Other bird species require snags for construction of nesting cavities. Snags are also a future source of downed coarse woody debris.

Cavity trees may be live or dead standing stems within the forest that contain either a natural cavity or one created by animal activity. Tree cavities are preferred nesting sites for numerous song birds and owls. A range of tree diameters will be retained in order to accommodate a variety of large and small cavity users.

Emphasis will be given to maintain both snag and cavity trees near water, fields and edges where possible. This will be applied in both even and uneven-aged systems.

##### 2.) 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 and 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:

- Tops of felled trees will not be sold for firewood following sawtimber harvests, except along travel corridors or where aesthetics are important.
- Minimum utilization limits will generally not be required.
- Whole tree harvesting will not be permitted.

### **3.) Favor fruit and mast producing trees.**

Release and thin around mast producing trees in both commercial and non-commercial thinning. Species, such as wild turkey and grey squirrels depend upon hard mast-producing trees such as oaks, beech and hickories.

### **4.) Thin pole stands to enhance stand structure and promote timber growth.**

Pole size stands often have the least vertical structure and little ground vegetation. Thinning of these stands will add downed woody debris and stimulate vegetation regeneration on the forest floor. (See Management Actions Table for firewood thinning, pulpwood thinning, and non-commercial **timber stand improvement thinning**).

### **5.) Encourage winter cutting of hardwoods, whenever practical.**

Winter harvesting under ideal conditions causes less disturbance of the site and soils and provides some winter browse and less interference with active nesting sites.

### **6.) Erect nest boxes for wood duck or other water fowl species around ponds and open wetlands.**

Environmental organizations will be encouraged to provide nest boxes or engage in other habitat enhancement work through the “Adopt-A-Natural Resource” program.

### **7.) Protect the active nest sites of raptors on the forests of the Unit.**

When an active raptor (e.g. red-shouldered hawk, goshawk or other species of special concern) nest site is confirmed on the Unit, the following management recommendations will come into play: no timber harvesting or other deliberate disturbance, at any time of the year, within a radius of 300 feet (2 acre area) of a known active nest site; no timber harvesting or other deliberate disturbance, during the active breeding season, within 600 feet (8 acre area) of a known active nest site; conservative timber harvesting and minimal disturbance, during the active breeding season, within 1,320 feet (40 acre area) of a known active nest site. A general time frame covering the active breeding season for most hawk species would include the months of March through July.

Since the red-shouldered hawk is identified as a species of special concern, and was only recently removed from the threatened species list, an effort will be made to confirm the continued existence of at least one breeding pair of red-shouldered hawks within the Unit. If no reliable reports of breeding pairs are received during a five year period, a field survey will be made to determine if the species is still present within the Unit.

### **8.) Provide beneficial habitat for the Indiana bat.**

This mammal is currently listed as an endangered species by both Federal and State Protective Status

listings. One habitat requirement for this and other bat species during the breeding season is adequate roosting trees within their seasonal home range. Therefore, large specimens of Shagbark Hickory and other potential roost trees will be retained for their wildlife habitat value within the landscape. There are a few hardwood stands on Coventry State Forest that contain large Shagbark Hickory trees as part of their forest mix. These stands will be managed more for their wildlife benefits than timber values in regards to the Hickory component of those forests. Any potential roost trees within these stands should be considered for that need and potentially left on site.

**9.) Document the quality of habitat and the suitability of management activities by monitoring the Management Indicator Species within the Unit.**

Seven Indicator Groups, which are comprised of numerous bird species, have been developed as Management Indicator Species for this UMP. These Indicator Groups will be periodically monitored in order to assess the quality of the wildlife habitat on the Unit as afforded through the implementation of scheduled management activities. The baseline data for this initiative has been derived from the 2000 - 2004 Breeding Bird Atlas surveys. Efforts will be made to encourage public participation, including bird clubs, in the continuing interest of monitoring bird species within the Unit. A database will be maintained to record reports of bird species (fitting within one of the seven Indicator Groups) as they are observed within the Unit.

**4. Protection of Resources and Forest Inventory**

Efforts will be made to protect the resources of the Unit from damage due to wildfire, insect/disease outbreaks and trespass.

**a. Objective for fire protection.**

A program of protection from wildfire will be maintained to assure minimum risk of loss to humans, structures and forest resources. This program is the responsibility of the Forest Rangers of the Division of Forest Protection and Fire Management.

**b. Objective for insect & disease protection.**

The protection of resources from injurious insects, diseases and invasive species will be accomplished through a program of integrated pest management. This program includes elements of reconnaissance, analysis and determination of thresholds and controls when necessary, emphasizing natural methods.

**c. Objective for cultural resources protection.**

Stone walls and old foundation sites are also protected. Forest management action and recreational trail plans will buffer these sites from disturbances. Should stone wall disturbances be necessary for access during forest product sales, the contracts shall require repair of the structures.

**d. Objective for forest inventory and boundary line maintenance.**

Periodic forest inventory every 10 to 15 years and re-inventory after each silvicultural treatment will be conducted. Forest inventory provides a record of the conditions and characteristics of the forest. Inventory is conducted on an individual forest stand level. Information on trees, such as species, size, density and quality are recorded. Additional information is collected on ground conditions, understory composition, quality of habitat and management options.

The integrity of boundary lines is also important for resource protection. Periodic maintenance of 57.25 miles of boundary lines and surveying when necessary will maintain the integrity of the property lines.

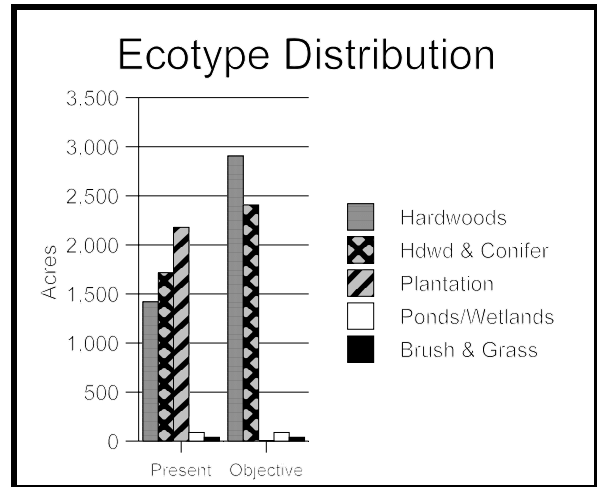
## Summary of Ecotypes

Ecotype distribution and management objectives are presented in Table IV and Figure 1.

**TABLE IV. Present and Future Ecotypes**

Figure 1

Vegetative Type	Present Acres	%	Objective Acres	%
Northern Hardwoods	1,362	25	2,842	52
Mixed N.H. and Natural conifer	1,617	30	1,780	33
Mixed N.H. & plantation conifer	101	2	626	11
Plantation conifer	1,943	36	0	0
Mixed plantation & nat. conifer	235	4	5	<1
Pioneer Hardwood	6	<1	11	<1
Ponds	32	<1	32	<1
Wetlands/Open	57	1	57	1
Brush and Apple	40	<1	40	<1
Roads	53	1	53	1
<b>Total</b>	<b>5,446</b>	<b>100</b>	<b>5,446</b>	<b>100</b>



## 5. Mineral Resources

The Unit may hold oil and/or natural gas reserves beneath its surface, as well as various mineral resources.

### a. **Objective for oil and/or natural gas exploration.**

Surface disturbance will be permitted in association with oil and/or natural gas exploration, production and development on compatible portions of the Unit. Adverse environmental impacts must be avoided to the maximum extent possible.

Sections 23-1101 and 9-0507 of the Environmental Conservation Law authorize the Department of Environmental Conservation to make leases on behalf of the State for exploration, production and development of oil and gas on certain State lands.

Proposals to lease parcels of Department of Environmental Conservation managed 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 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, site specific conditions for avoiding and mitigating impacts on natural resources will be drafted by land managers and incorporated into contract documents. These conditions will include but not be limited to 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 term “surface disturbance” refers to the process of disturbing the surface of the land for the development of well pads, access roads, pipelines or other facilities necessary for the extraction of subsurface oil or gas reserves. 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 management strategies, such as Natural Areas which may be incompatible with oil and gas well development, may result in exclusion from surface disturbance. The final determination will be made as a part of the tract assessment process on a case by case basis. As part of this UMP process, the DEC has completed individual tract proposal reviews for each forest within this Unit and has determined which areas would be excluded from surface disturbance should leasing be initiated. Included in **Appendix XIX** are maps depicting these areas. Any parcel nominated as a non-surface entry lease will be excluded from the process detailed above due to the prohibition of surface disturbance(s). The extraction of the oil or gas reserves located beneath sites which have been excluded from surface entry will still be allowed through the use of directional drilling techniques which do not disturb the land surface of these sites.

The Chenango Trail UMP will classify approximately 68% of the land area as compatible for surface disturbance associated with the exploration, production and development of oil and natural gas. This area is considered compatible, within the required spacing restrictions, for the development of well

pads, roads, pipelines and other infrastructure associated with oil & gas development. Approximately 22% of the land area will be classified as incompatible with any surface disturbance. This incompatible area consists of wet ground, riparian protection buffers, steep slopes, natural areas and other sensitive sites including those with cultural resources. The remaining 10% of the land area within the Unit will be classified as generally incompatible with surface disturbance; however, development of infrastructure to cross these areas will be considered. Much of the area consists of stream protection buffers or moderately steep slopes. The development of well pads, access roads, pipelines, or other facilities/infrastructure will not be allowed in these areas. The development of infrastructure through these areas will be limited to that which is necessary to support the exploration, and production of oil and/or natural gas resources on the compatible areas of the State forests.

**Actions:**

**1.) Potential to permit the development of well pads, associated with oil and/or natural gas, within compatible areas of the Unit at a density not to exceed one well pad per 320 acres of contiguous State forest land.**

**Potential to permit surface disturbance, within the well pad spacing restrictions, on 3,714 acres of the Unit in association with oil and/or natural gas exploration, production and development.**

**2.) Prohibit surface disturbance on 1,211 acres of the Unit in association with oil and/or natural gas exploration, production and development.**

**3.) Consider surface disturbance on 521 acres of the Unit in association with the limited development of infrastructure (not well pads) needed to support the exploration, production and development of oil and natural gas.**

The criteria used to evaluate the lands of the Unit with respect to oil and/or gas operations included forest management objectives, topography, riparian protection buffers and other interests. Some of these criteria are specifically identified as:

- well pads will only be allowed on slopes of 0 to 15%.
- preference will be given to infrastructure development on slopes of 0 to 15%.
- surface disturbance will not be allowed within classified wetlands or within a 250 foot distance of the boundary of these wetlands.
  - surface disturbance will not be allowed in any area of forest protection management, including wet sites, historic sites, areas with unique aesthetic value, steep ground and others.
- streams will be buffered at 250 feet, each side. Within these buffers, no well pads may be located unless otherwise specifically approved by the Department. Limited development of infrastructure may be allowed to cross some of these sites.

In the event that the lands in this Unit are leased, the Department may incorporate any number of mutually agreeable terms and conditions into the lease to beneficially serve the State. These conditions are in addition to all of the current laws and regulations pertaining to oil & gas

operations. The procedures for entering into a lease are identified in **Appendices XIII** and **XIV**.

Site reclamation of disturbed areas will consist of restoring soil profiles and grades consistent with the surrounding topography and stand conditions. The majority of disturbed sites will be seeded with native, warm-season grass cover (ie. little bluestem, big bluestem, switch grass, Indian grass). Recommendations from local NRCS staff will be followed to facilitate the establishment of this vegetation. In the event that the establishment of these grasses is unsuccessful, alternative species of grasses, shrubs or trees will be recommended. Due to the absence of open grassland habitat on these State forests, the preferred vegetative species for site reclamation will be native grasses, unless the disturbed site is located in an area where continuous forest canopy is desired. Replanting of native tree species will be recommended in areas managed for continuous forest canopy.

Access roads associated with well sites will not exceed 12 feet in width. Upon completion of drilling, access roads will be closed to the public and reclaimed to a condition capable of supporting both vegetation and periodic access to maintain the well site. Site restoration and long term access will be authorized by a Temporary Revocable Permit.

For the life of the Plan, gas development on the Unit will not exceed a maximum of 13 sites, unless the Department approves a drilling pad development plan submitted by the lessee that identifies a denser development spacing. Establishing more than 13 well pads will require a change to the Plan in accordance with the UMP amendment process, including additional public meetings. Any number of well bores may be attempted from these sites. This spacing standard allows for the drainage of gas reserves without significant impact to surface conditions. The maximum surface disturbance at any well site will not exceed two acres unless otherwise approved by the Department upon justification of the lessee.

Acceptable # of well pads/forest @ 320 acre spacing		
FOREST	ACRES	# WELL PADS
BC-1	1,028	3
CH-10	1,417	3*
CH-13	576	1
CH-27	1,156	3
CH-30	741	2
CH-33	528	1

(\*) One well pad may be located on each of the 3 main subcompartments of the forest.

All pipelines associated with the production and development of oil and/or gas will be located adjacent to existing public roads and the well pad access roads.

The lessee must comply with all policies and provisions of the Environmental Conservation Law and Title 6 of the New York Code of Rules and Regulations and all work associated with prospecting, drilling and laying of pipes must be approved by the Department in writing. A bonded Temporary Revocable Permit and Drilling Permit will be required before well pad development.

The Unit is not being considered for gas storage. However, if a proposal for gas storage is submitted to the Department, it may be considered as a separate lease. It will require a change to the Plan in accordance with the UMP amendment process, including additional public meetings. Any proposal for gas storage development must be consistent with the objectives of this Plan. Once wells are played out, they will be plugged and properly abandoned.

To ensure the compatibility with the natural resources objectives within the Plan, land managers will review and evaluate all proposals for surface disturbance associated with gas leasing. This will determine the suitability of these activities and will include a review of the well siting and drilling pad development plans, well site disturbance and the location of distribution, collection and utility lines.

At the time of leasing, a public information meeting will be scheduled. The purpose of the meeting will be to provide information about natural gas development specific to the Unit including the distribution of well sites, the duration of drilling activities and any necessary site restoration.

Requests to use State land to conduct geophysical (such as seismic survey), geochemical and/or surface sampling procedures will require a Temporary Revocable Permit (TRP). The property must be subject to lease agreement and only the lessee, or parties authorized by the lessee, can be issued a TRP for these purposes.

## **B. PUBLIC USE AND RECREATION GOAL**

It is the goal of this UMP to provide an array of recreational opportunities that are compatible and balanced with the natural resources of the Unit while promoting a better public awareness of State forest features.

### **1. Public Use and Recreation Management**

State forests within the Chenango Trail Unit are included within the Region 7 Draft Recreation Master Plan. The Draft Recreation Master Plan conveys guidelines for recreational development on State forests throughout the region. In general, State lands offer opportunities for recreational activities that are best enjoyed in remote, relatively undisturbed natural areas. Such activities typically require only a minimum of facility development or site disturbance. Activities meeting these criteria are compatible with maintaining and protecting the natural character and features of State land. Visitors to State forests do not pay admission fees, and limited facility development and associated construction and maintenance costs are consistent with this principle.

There are three components to the public use and recreation section of this plan:

- Maintaining and enhancing public access;
- Maintaining and enhancing recreational opportunities and facilities;
- Providing educational opportunities.

The above guidelines and principle will be used to determine the extent of development and type of facilities.

Numerous other factors influence the placement or expansion of facilities on this Unit. These influences include public safety issues, accessibility, aesthetics, fiscal considerations and recreational opportunities beyond the boundaries of the Unit.

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 the 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 accomplished unless such modification would result in a fundamental alternation in the nature of the service, program or activity or an undue financial or administrative burden to the Department. Since recreation is an acknowledged 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. For additional information on the ADA, please reference the ADA homepage on the internet at [www.usdoj.gov/crt/ada/adahom1.htm](http://www.usdoj.gov/crt/ada/adahom1.htm).

**Appendix XIX** includes maps of each forest showing the locations of existing and proposed facilities.

#### **a. Objectives for public use and recreation.**

##### **1.) Maintaining and enhancing public access.**

Public access will be enhanced by maintaining and/or improving existing facilities, such as trails and abandoned town roadways. Additional facilities, such as pull-offs and parking areas, will be constructed to improve public access to the State land. Details on each of these improvements is identified in the following objectives.

##### **2.) Maintain existing pull-offs and parking areas.**

Maintenance will include annual brushing, grading and litter pick-up when needed. Additional access opportunities will be enhanced through access routes established via land management

actions removing forest products. Refer to the Public Use Maps for locations.

**3.) Maintain 1.2 miles of trails open to ATV use by people with disabilities.**

Within the Unit, there is one trail designated for ATV use by people with disabilities through a special permit process regulated by the Department. This designated trail, which includes several short spur trails, totals 1.2 miles in length and is located on Coventry State Forest. The main trail runs easterly from the North Road to Harvey Road. There are several spurs that lead away from the main trail currently open for use. Included in the total trail length is another spur trail designated on the west side of Owlville Road. This section of trail offers access to a small pond that is popular for fishing and canoeing.

The Department will maintain this trail as needed for public use and provide better parking opportunities as outlined in Objective #5.

**4.) Restrict and install vehicular barriers on Bobell Hill State Forest and Beaver Flow State Forest.**

Install a vehicle barrier in the form of a gate or large boulders at the west end of the existing access road off Palmetier road on Bobell Hill State Forest. This barrier is needed to prevent further degradation of this seasonal access road.

Install a vehicle barrier in the form of a gate or large boulders at the east end of the existing access road that connects to Mendenhall road on Beaver Flow State Forest. Maintenance costs would be reduced and some public safety concerns alleviated through these measures. These blocked roadways would continue to serve the public for foot travel.

**5.) Install an informational kiosk and construct a parking area for each of the State forests in the Unit.**

The Department will install one informational kiosk and a parking area for each of the State Forests on the Unit. The parking areas will be designed to accommodate three vehicles at one time. Parking areas with kiosks will be set along existing roadways in locations that best enhance public access for each forest. On the Coventry State Forest, a total of three parking areas will be created. The primary one, including a kiosk, will be located on the North Road near the trail designated for ATV use by persons with disabilities.

**6.) Improve access for recreational and managerial purposes to Oak Ridge State Forest.**

Interior access to Oak Ridge State Forest is limited from the south to a narrow strip of land that connects to Elm Drive in the Town of Bainbridge. This road access is on a residential street with no off-road parking available. The Department will propose developing a seasonal access road, approximately 1,200 feet in length, to be constructed into stand A-11. The proposed access road will start at Elm Drive and proceed northwest to an interior parking and log deck location that will be

developed at that time.

Road construction will be done in conjunction with the planned forest management for this area. A timber sale scheduled for 2017 in stand A-11 will be the means of developing and funding this upgrade.

In addition to providing improved access for forest management, this new roadway will foster more recreational opportunities for the general public when using this State forest.

**7.) Acquire 140 acres of private property.**

The purchase of in-holdings and the consolidation of boundary lines will facilitate public and administrative access. The Department will pursue fee simple title of eight parcels from willing sellers when funding becomes available.

**8.) Maintain existing public-use facilities on the State forests of the Unit in a rustic manner.**

Normal maintenance activities include mowing, periodic painting, trail signing, and litter removal. The number of signs, gates and material improvements to the forest facilities will be limited in order to maintain a rustic appearance. Maintaining a rustic character in these areas will complement the surrounding natural environment.

**9.) Enhance snowmobiling on the Unit.**

Currently, there are two separate designated snowmobile trails on the Unit. One trail traverses through Bobell Hill State Forest and another trail on Coventry State Forest. Combined, these trails cover approximately 1.5 miles. Both trails are currently maintained under separate Temporary Revocable Permits (TRP) issued to a Broome County snowmobile club (BC Riders) and the Delaware-Otsego County Riders (DOC), respectively. The TRP outlines the approved general maintenance and grooming needs for the clubs as pertaining to the snowmobile trails on State forest. These trails are used as secondary connector routes to Corridor trail # 7. All snowmobile trail construction must comply with best management practices.

The Broome County snowmobile club has proposed an additional secondary trail on the Unit for Beaver Flow State Forest, approximately 2.5 miles in length. This trail, if established, will become part of the N.Y.S. Snowmobile Corridor Trail System. Upon final approval of this UMP, the Department will encourage each prospective snowmobile club to maintain their designated snowmobile trails on the Unit under an Adopt -A- Natural Resource Agreement with the DEC.

The Department will work cooperatively with user groups through the TRP process or the Adopt -A- Natural Resource Agreement Program in an effort to maintain and expand the snowmobile Corridor Trail System through the Unit.

**10.) Relocate vehicle parking closer to pond on Coventry State Forest.**

The current parking area located on Owlville Road, used primarily for non-motorized boat access, will be moved further to the east. The new parking area will be located several hundred feet closer to the pond shore. This management action will shorten the current portage distance to the pond for ease of boating access. The parking area will have a hard, smooth surface, such as limestone dust, and it will accommodate two vehicles. No trees larger than 6" diameter will need to be removed.

**11.) Develop a passive recreation trail along the stream gorge on Oak Ridge State Forest.**

Located on this forest is a scenic stream gorge that passes through an older, mixed natural conifer/hardwood forest cover type. On the south side of the gorge is an existing trail that was once part of an old logging or Town road passing through the area. This trail bed could easily be incorporated into a larger loop trail that would originate from the State land boundary on Elm Drive. A passive recreational trail that would support hiking, cross-country skiing, bird watching or the like would be an ideal addition to this State Forest. A loop trail, ranging from one to two miles in length, could easily be accommodated in this area. Currently there are no formal recreation trails or facilities developed on Oak Ridge State Forest.

The Department would entertain and support trail development by an organized group through the Adopt-A Natural Resource Program as outlined above for this location.

**12.) Prohibit the recreational use of ATVs, and other off-road motorized vehicles.**

The NYS DEC Draft Recreation Master Plan For State Forests addresses the issue of ATV and off-road vehicle riding. This document identifies several cases where ATV trails were established on State forests in Region 7 resulting in significant environmental degradation and social conflicts. The document contains a determination that ATV trails are incompatible with the current uses and natural characteristics of the State forests in Region 7. This determination is also in compliance with the Department's draft policy regarding ATV use on public lands. Therefore, off-road vehicle riding will not be allowed on any of the forests of the Unit, with the exception of use by disabled persons who possess a valid permit to ride on the designated ATV trail within the Coventry State Forest.

**C. PUBLIC AWARENESS GOAL**

It is the goal of this UMP to strengthen the participation of local people in forest management.

**1. Community Forestry and Public Awareness.**

Community forestry can be defined as a program that purposely and directly involves local people, their values and their institutions in the forest management decisions of a given area. Community forestry gives local people both the opportunity and responsibility to participate with DEC in the management of these forest resources and to enjoy the benefits of that responsibility. Community forestry builds on local knowledge about natural and cultural resources to plan and implement sustainable forestry practices. It seeks to foster greater awareness about local forest

resources and to advance cooperative forest management.

**a. Public awareness objectives.**

**1.) Conduct public programs to promote community involvement in forest management.**

DEC welcomes the opportunity to engage local citizens, government, schools, conservation organizations and other groups within the area to participate in an open dialogue about forest management and community based forestry activities through a variety of public forums. Public programs could include guided walks, workshops, tree planting, litter collection and other activities that strengthen local involvement in forest management.

**2.) Encourage participation in the DEC's Adopt-A-Natural Resource program.**

The Adopt-A-Natural Resource program is designed to encourage volunteer participation in State land management projects. This program has strengthened the role of citizens in planning and implementation of recreation and habitat improvement projects. Projects in need of adoption include recreational trail maintenance, researching, documenting and preserving cultural sites, watershed restoration and invasive plant removal.

**MANAGEMENT ACTION SCHEDULES**

**Tables of Land Management Actions**

The following tables present a 20-year schedule of planned management actions. The first table is referenced by forest stand number and the second table is referenced by the year of scheduled management. Maps showing the specific forest stand locations are available for viewing at the NYS DEC office in Sherburne.

Abbreviations used in the tables are listed below.

**TABLE HEADINGS**

UNIT - State Forest (e.g. Chenango R.A. # 10).

SUB - forest stand subcompartment.

STAND - forest stand identification number.

FOREST TYPE - forest cover type.

ACRES - area of forest stand.

SPECIES - the two most prevalent overstory species in the forest stand.

DBH - Diameter at Breast Height. The average diameter class of overstory trees.

BASAL AREA - a measurement of tree stem density expressed in square feet.

MGT DIR - management direction.

OBJECTIVE - management objective.

TREAT TYPE - treatment type.

TREAT YEAR - year of scheduled treatment.

## A. DEFINITION OF CODES USED

### FOREST TYPE & OBJECTIVE CODES

AP - apple  
DL - Dunkeld larch  
EL-NS - European larch-Norway spruce  
EL - European larch  
JL - Japanese larch  
NH - Northern hardwood  
NH-HEM - Northern Hardwood-hemlock  
NH-NS - Northern hardwood-Norway spruce  
NH-OAK - Northern hardwood-oak  
NH-SP - Northern hardwood-Scotch pine  
NH-WP - Northern hardwood-white pine  
NS - Norway spruce  
OAK - oak species  
OAK-HICK - oak-hickory  
OAK-PINE - oak-pine species  
OPEN - open land  
OPEN/NH - open land with hardwood saplings  
OTHER - miscellaneous forest cover  
PH - pioneer hardwood  
POND - pond  
Road - road corridor  
ROW - powerline Right-of-Way  
RP - red pine  
RP-JL - red pine-Japanese larch  
RP-Larch - red pine-larch species  
RP-WP - red pine-white pine  
RP-WS - red pine-white spruce  
WETLAND - wetland  
WP - white pine  
WP-HEM - white pine-hemlock  
WP-JL - white pine-Japanese Larch  
WP-NS - white pine-Norway spruce  
WS - white spruce  
WS-NH - White spruce-Northern hardwood

### SPECIES CODES

ALDER - alder species

AP - apple species  
ASP - aspen species  
BC - Northern black cherry  
BE - American beech  
BL - black locust  
BW - black willow  
DL - Dunkeld larch  
EL - European larch  
HEM - Eastern hemlock  
HM - hard maple or sugar maple  
JL - Japanese larch  
NS - Norway spruce  
RM - red maple  
RO - Northern red oak  
RP - red pine  
SH - shagbark hickory  
SP - Scotch pine  
TA - thorn apple  
WA - white ash  
WP - Eastern white pine  
WS - white spruce  
YB - yellow birch

### **DBH CODES**

0-5" - seedling & sapling      6-8" - small pole timber      9-11" - large pole timber  
12-17" - saw timber  
18"+ - large saw timber

### **MANAGEMENT DIRECTION CODES**

AP - apple tree  
BR - brush  
E - even-aged  
EL - even-aged, long (120+ year rotation)  
NA - natural area  
PD - pond  
R - road corridor  
U - uneven-aged  
UG - uneven-aged, green tree retention  
ZA - protection, unique aesthetics  
ZF - protection, recreational values  
ZH - protection, historic values

ZR - protection, riparian buffer  
ZS - protection, steep terrain  
ZW - protection, wet ground  
ZV - protection, visual buffer

### **TREATMENT TYPE CODES**

Brush - release brush species  
FW - thin firewood  
FW-TSI - thin firewood & non-commercial timber stand improvement  
HSI - historic stand improvement work  
PH - cut pioneer hardwoods  
PU - thin softwood species  
PU-FW - thin softwood & firewood  
PU-TSI - thin softwood & non-commercial timber stand improvement  
PU-RC - thin softwood & convert pine or larch  
PU-ST - thin softwood & hardwood sawtimber  
Public access - improve public access  
RA - release apple trees  
RC - convert red pine  
RL - remove hardwood overstory  
Roadside - thin roadside trees  
RT - thin red pine  
RT-PU - thin red pine & other softwood  
ST - thin sawtimber  
ST-FW - thin sawtimber & firewood  
TSI - non-commercial timber stand improvement