New York State
Department of Environmental Conservation

Division of Lands & Forests

MULLER HILL
UNIT MANAGEMENT PLAN

FINAL

Towns of Georgetown, DeRuyter, Lincklaen, Otselic, and Cuyler, in Madison, Chenango and Cortland Counties

MARCH 2012

NYS Department of Environmental Conservation
Region 7 Sub Office
2715 State Highway 80
Sherburne, NY 13460
(607) 674- 4036

ANDREW M. CUOMO
GOVERNOR

JOE MARTENS
COMMISSIONER

STATE OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY, NEW YORK 12233-1010

MEMORANDUM

TO: The Record

FROM: Joseph J. Martens

DATE: MAR - 9 2012

SUBJECT: Final Muller Hill UMP

The Unit Management Plan for Muller Hill UMP has been completed. The Plan is consistent with Department policy and procedure, involved public participation and is consistent with the Environmental Conservation Law, Rules and Regulations. The plan includes management objectives for a ten year period and is hereby approved and adopted.

FINAL

Muller Hill Unit Management Plan

A Management Unit Consisting of Three State Forests in Southwestern Madison and Northwestern Chenango Counties

Prepared By:
Greg Owens, Senior Forester
Jason Schoellig, Senior Forester
New York State Department of Environmental Conservation
Lands & Forests Office
2715 State Highway 80
Sherburne, New York 13460
607-674-4036

Preface

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

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

Article 9, Title 7, of the Environmental Conservation Law authorizes the Department of Environmental Conservation to provide for the management of lands acquired outside the Adirondack and Catskill Parks. Management is defined as **watershed** protection, the production of timber and other forest products, recreation and kindred purposes. The Draft State Forest Land Master Plan provides the overall direction and framework for meeting this legal mandate.

This plan was prepared by Greg Owens and Jason Schoellig with assistance from Andrew Blum, Donna Baddeley, Christopher Sprague and Glenn Wolford from NYSDEC and John Demler from Colgate University.

Muller Hill Unit Management Plan
NYS Department of Environmental Conservation
Division of Lands & Forests
2715 State Route 80
Sherburne, NY 13460
(607) 674-4036
www.dec.ny.gov

*** Bold text words are defined in the glossary.**

Table of Contents

Preface i
Green Certification of State Forests 1
Map of the Unit 2
Executive Summary 3
I. Information on the Unit 4
A. History 4
B. Geography - Community Profile 8
C. Geology 10
D. Soils 11
E. Land Classification and Stages within the Unit 12
F. Forest Resources 12
G. Wetlands and Water Resources 13
H. Fisheries Resources 13
I. Wildlife Resources 14
J. Significant Plants, Wildlife and Ecological Communities 14
K. Recreational Resources 16
L. Cultural Resources 16
M. Property Use Agreements 16
N. Roads 17
O. Other Facilities 18
P. Forest Insects and Diseases 19
Q. Hardwood Regeneration & Interfering Vegetation 20
II. Resource Demands on the Unit 21
A. Timber Resources 21
B. Biological Resources 23
C. Recreational Resources 23
D. Mineral Resources 24
III. Constraints on the Unit 25
A. Physical Constraints 25
B. Administrative Constraints 26
C. Societal Influences 26
D. Department Rules, Regulations and Laws 27
IV. Vision Statement 27
V. Goals and Objectives 27
A. Land Management 27
B. Public Use and Recreation 36
C. Community Forestry 40
VI. Management Action Schedules 41
A. Land Management Actions 41
B. Summary of Annual Stand Treatments (acres) 56

C. Grassland Maintenance 61
D. Boundary Line Maintenance 61
E. Public Use Action Schedule 61
F. Boundary Line Survey 62
G. Forest Inventory Data Collection 62
VII. Glossary 63
VIII. References 69
IX Appendices 73
Appendix I: Real Property Taxes (2006) 73
Appendix II: Land Classification within the Unit 74
Appendix III: Department Laws, Rules, Regulations and Policies 74
Appendix IV: Approximate Calculated Game Harvest in the Vicinity of the Unit 76
Appendix V: The Americans with Disabilities Act Accessibility Guidelines 77
Appendix VI: Ponds on the Unit 78
Appendix VII: Wetlands on the Unit 79
Appendix VIII: Snowmobile Registrations by County of Principle Use, 1995-2004 80
Appendix IX: Stumpage Prices ($/mbf) by Species for 2000 - 2009, All prices are for the Doyle Log Rule. 80
Appendix X: Property Use Agreements 80
Appendix XI: Occurrence and Protective Status of Wildlife on the Unit 83
Appendix XII: Occurrence of Reptiles and Amphibians on the Unit 86
Appendix XIII: Breeding Birds in the Vicinity of the Unit 88
Appendix XIV: Supplemental Mineral Resources Information 91
Appendix XV: State Environmental Quality Review Act (SEQRA) 94
Appendix XVI: Public Comments 94
Appendix XVII: Maps of the Unit 98

Green Certification of State Forests

New York State DEC-Bureau of State Land Management contracted with NSF-International and Scientific Certification Systems to conduct auditing for the purpose of obtaining dual certification under Forest Stewardship Council (FSC) and the Sustainable Forestry Initiative (SFI) program standards on over 762,000 acres of State Forests in Regions 3 through 9. This independent audit of State Forests was conducted by these auditing firms from May until July 2007, with dual certification awarded in January 2008.

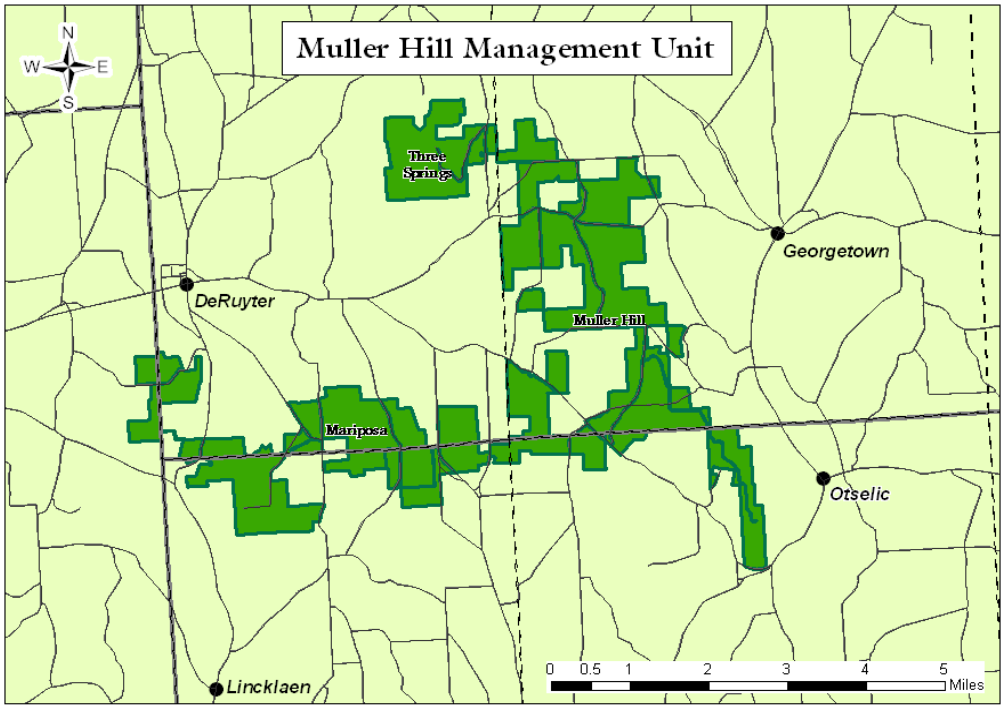
With the dual certification the wood harvested off State Forests from this point forward could now be labeled as Agreen certified@ through chain-of-custody certificates. Green Certified labeling on wood products may assure consumers that the raw material was harvested from well-managed **forests**.

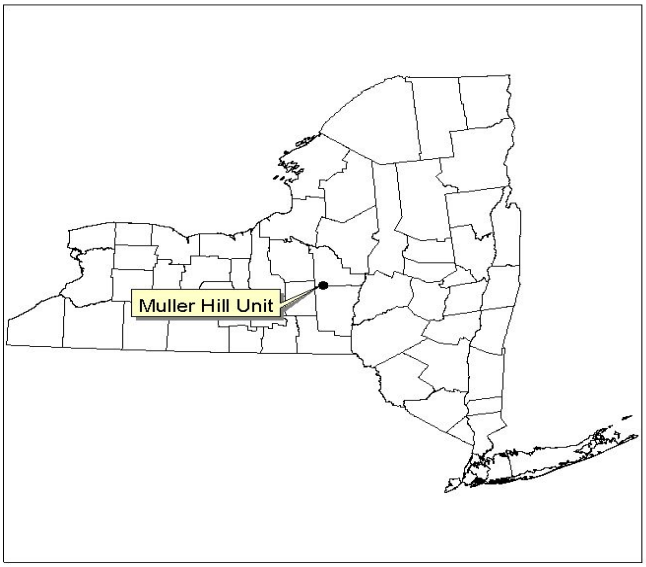
The Department has joined only an elite few states representing less than 10% of working forests certified as well-managed throughout the Northeastern Region of the United States. The Department's State Forests can be counted as well-managed to protect **habitat**, **cultural resources**, water, recreation and economic values, now, and for future generations.

#SCS-FM/COC-00104N
81996 Forest Stewardship Council
FSC certification means that NY DEC State Forests are managed according to strict environmental, social and economic standards.

#NSF-SFIS-6l741
NY DEC use of the Sustainable Forestry Initiative7 program logo mark indicates that State Forests have been certified by a qualified independent auditor to be in conformance with the SFI Standard.

Map of the Unit





Executive Summary

The Muller Hill Unit is located in the Madison County townships of Georgetown and DeRuyter, the Chenango County townships of Lincklaen and Otselic and the Cortland County township of Cuyler. The 6,981 acre Unit includes Muller Hill, Mariposa and Three Springs State Forests.

The Muller Hill Unit Management Plan (UMP) advances sustainable forestry to benefit current and future generations of New Yorkers. It is based on the idea that healthy and productive forests are essential for the long term cultural, environmental and economic health of New York State. The 6,981 acre Unit is located within the Towns of Georgetown and DeRuyter in Madison County; Lincklaen and Otselic in Chenango County and Cuyler in Cortland County. It includes three state forests: Muller Hill, Three Springs and Mariposa State Forests.
The **landscape** is dominated by **second growth** forest, transitional fields and a network of tributary streams feeding the Otselic and Tioughnioga Rivers. Based on 2009 population estimates, 5,352 people live within the five town area. Ninety two percent of the labor force is employed with 24% working in education, health care and social services, 13% in manufacturing, 12% in construction, 9% in retail trade, and 7% in farming and forestry. Median per capita income is $18,246 and 15% of the population is living in poverty. Camp Georgetown, two school districts and the B.F. Gladding Co. are local employers.

The Plan defines goals and objectives for conserving **biodiversity**, enhancing public use and recreation, and strengthening community-based forestry. To conserve biodiversity, management actions will foster the development of diverse ecological conditions, maintain landscape connectivity and protect 1,760 acres of **wetlands**, riparian zones, natural areas and steep slopes where timber harvesting, road construction and other developments are restricted. Timber will be harvested on 228 acres each year over the next 20 years. Requests to lease for exploration, development and production of oil and natural gas will be considered in an open public process, and restrictions will be established to limit environmental impacts.

Public use and recreation opportunities will be improved to provide safe, enjoyable and stimulating outdoor experiences. Twenty miles of **recreational trail** cross the Unit and are maintained by four local clubs through Adopt-A-Natural Resource Agreements (AANRA). A new horse trail will be developed to link the Unit with regional trail networks on private and other public lands. The trail will use a combination of roads and trails across Muller Hill and Three Springs State Forests. A 1.1 mile motorized access trail for people with disabilities has been designated. Qualified individuals may obtain a **Temporary Revocable Permit** (TRP) to use all terrain vehicles (ATVs) on the designated trail.

The Muller Hill Interpretive Site will be constructed to raise awareness about local history and to improve access to Muller Pond. A 0.50 mile trail accessible to people with disabilities will be constructed into the Pond. The former Muller Mansion site will be reclaimed and signage installed. A platform will be constructed at the Pond to improve fishing and boating access and to

provide opportunities for wildlife viewing. A total of 10 new parking areas will be constructed to support public use on the Unit.

The Plan will advance community based forestry through collaborative management, public programs and by maintaining dialogue with citizens, forest workers and local government.

I. Information on the Unit

A. History

Human occupation of central New York is linked with the final retreat of the Wisconsin ice sheet, nearly 12,000 years ago. Groups of Paleo-Indian hunters arrived from points south by following channels and tributaries of the Susquehanna and Allegheny Rivers. These freely wandering bands were related by blood and marriage and their movements and temporary encampments were dependent on the migration of wildlife species such as mastodon, elk, deer and many smaller mammals (Ritchie).

Beginning nearly 2000 years ago, during the Woodland Stage, permanent settlements were established leading to the development of ceramics, agriculture and village life. During the Woodland Stage the Owasco people inhabited central New York and cultivated corn, beans and squash to supplement foods gathered from the wild. The late Woodland Stage is notable for the establishment of longhouse villages, a developed agricultural economy and the unification of the Six Nations into the Iroquois Confederacy. According to Iroquois tradition, the Confederacy was founded by Deganaeidah in the late fourteenth or early fifteenth century to advance peace between the Mohawk, Oneida, Cayuga, Onondaga and Seneca peoples. A sixth tribe, the Tuscaroras, joined the Confederacy in the early 18th century after migrating from North Carolina following wars with American colonists. The Oneidas inhabited what is today Madison and Chenango Counties.

Throughout the Revolutionary War, while the Confederacy was allied with the British and actively engaged in combat with the colonist, the Oneida remained neutral. In return, General John Sullivan's campaign in 1779 to "strike a blow for the prompt and permanent overthrow of the Indian power" spared the villages and crops of the Oneidas. In retaliation for their neutrality however, the Mohawk chief Joseph Brant mounted an expedition against the Oneidas, forcing them to take refuge in white settlements where they remained in active alliance with the colonists until the close of war. Despite this alliance, a treaty drawn at Fort Stanwix in 1784 resulted in the Oneidas ceding to the Federal government much of their land west of the Unadilla River. Governor George Clinton eventually acquired for the State of New York all land occupied by the Iroquois Confederacy with the exception of certain reservations (Hagan).

On November 11, 1794 Chiefs from each of the Six Nations of the Iroquois Confederacy and representatives of the United States governments signed the Canandaigua Treaty. Also known as

the Pickering Treaty, after the government's sole agent Timothy Pickering, it established reservation boundaries for each of the six tribes. With the reservation period that followed the Pickering Treaty, Iroquois communalism was eventually replaced by a more isolated family life on farmsteads scattered about the reservation lands. By 1800, the longhouse, which represented the unity of both individual clans and the larger Iroquois Confederacy, was increasingly being replaced by the single family log cabin of European introduction (Ritchie).

By 1830, approximately 40,000 people had moved into Madison County and cleared a quarter of a million acres of forestland. There were 172 sawmills, 41 gristmills and 22 asheries operating in the County (Weiskotten). Alan Taylor argues that forest clearing radically diminished nature's wild diversity but a "domesticated ecosystem" supported larger human populations. Within a period of fifty years, the wilderness of central New York, which one observer described as a "vast dome of vegetation where thousands of species are intertwined in a sort of chaos" had vanished.

Georgetown was one of the original Chenango Twenty Towns and was patented to Thomas Ludlow Jr. of New York City on March 2, 1793. It was formed from Cazenovia and later DeRuyter and named Georgetown only after the State Legislature denied a local petition to name the town Washington. The first settlement was made in 1803 by Ezra Sexton of Litchfield Connecticut followed by William Paine and Michael Atwood. Smith reports that when Georgetown was first settled it was one unbroken forest:

> *..the bights of her hills crowned with large straight hemlocks, somber looking as they reared their dark forms above the spreading beech, her valley and plateaus presenting a fine sweep of sugar maples, while her swamps were gloomy with their magnificent pines, whose stately forms towered far upward- ancient monarch of the forest; reigning with undisputed sway over the mass of tangled, struggling foliage beneath them.*

Perhaps it was a similar description or maybe the remote location of Georgetown in New York's frontier that in 1808 attracted the French expatriate Lewis Anathe Muller. Of the many texts inspired by Muller, none fail to mention that his persona was shrouded in mystery. Soon after arriving in New York City with his wife and young son, Muller purchased 2,700 acres of hilltop land between Slab City (Village of Georgetown) and DeRuyter from Thomas Ludlow. The family traveled from New York and lived in the Village of Hamilton where Muller directed construction and other improvements on his newly acquired estate. In the *Seigneur of Slab City*, T. Wood Clarke describes that in addition to one hundred and fifty thousand dollars in gold, Muller brought with him a "large retinue of French servants and a considerable corp of artisans". A small army of 150 workmen cleared 300 acres of land, constructed a "fortress-like" mansion of native cherry timbers and built Bronder Hollow, a self-sufficient community for those in Muller's employ. The mansion was expensively furnished with fireplaces of black marble, imported wallpaper and a "well chosen" library. Shrubs and "every variety of rich fruit" were planted, water was diverted to

a constructed trout **pond** and a high fence was erected around the entire property to keep "game in and intruders out."

There is much speculation about the reason for Muller's sojourn to America but his arrival and departure from Georgetown appear to be closely linked with the rise and fall of Napoleon Bonaparte. In a paper read at the 1939 annual meeting of the New York Historical Association, F. Reed Alvord suggests that Muller was probably a "refuge from the wrath of the mighty little dictator." His habit of never traveling beyond the property without two loaded pistols in his holsters and uniformed, armed and mounted bodyguards or, as Clarke notes, "building his mansion in a secure location beyond rifle shot from the nearest rock or tree" suggests that Muller feared for his life. Smith observes that "the secluded hills of Georgetown would afford [Muller] a residence unknown and unobserved and a safe retreat from present dangers." He followed the news from Europe "breathlessly" and would read aloud to his employees dispatches of Napoleon's "mad career of conquest and devastation". Convinced that Napolean's end was near, Muller took particular pleasure in the ill-fated march on Russia. In 1814, when Napoleon abdicated and was imprisoned on the Island of Elba, Muller suddenly packed up his family and traveled to New York. He entrusted the care of his estate to an agent and returned to France "to make arrangements for restoration to his natural and original condition". The trusted agent was in fact a "rascal" who was reported to have "sold every moveable article from the estate and decamped with the proceed to parts unknown". When Muller returned to Georgetown in 1816 he found the estate in shambles: the roads were rutted, the house stripped of its furnishings, the grounds choked with weeds and "the whole estate desolate and forlorn." In *Meditations of Artois*, William Benton attempts to capture Muller's somber mood at the time of his final departure from Georgetown:

I take my leave-I sure must speak
With trembling lip -sad home, adieu!
No more these rugged hills I seek,
Where oft my steps have brushed the dew

I look abroad- again I turn
Once more, sad home, thy form to view;
My cheeks are drowned mid tears that burn;
But I must go-adieu!-adieu!

Muller returned to New York where he sold the estate to Abijah Weston for one third what he had originally paid for the land alone. He sailed one last time for France, never to be heard from again. In 1907, almost one hundred years from rising high atop Muller Hill, the mansion was consumed by fire and burned to the ground.

The population and economy of Georgetown grew throughout much of the 19th century. In 1870 there were 1,423 residents, 243 farms and much of the town was in an open, improved condition producing potatoes, hops, cheese, butter and apples. Sheep were the dominant livestock and cloth was manufactured on local looms. Both the West Shore and the New York Oswego and Midland

Railroads passed through Georgetown linking distant markets with locally produced farm and manufactured goods. In 1870, "improved land" occupied much of the landscape and it is estimated that as little as 30% of central New York was forested.

Urbanization, westward expansion and increasing demand for industrial labor in the late 19th century however, reconfigured the rural landscape of central New York. Urban factories, mills and sweatshops provided an alternative to farming and the opening of America's western frontier encourage migration out of the region. The same industries that drew people to the cities also produced labor saving implements and technologies that required fewer people on the farm. Between 1870 and 1930 Georgetown, DeRuyter, Otselic and Lincklaen lost approximately half of their populations and the amount of land under cultivation within each township also dropped dramatically. In the absence of plowing, mowing and grazing livestock, much of the wide open landscape began its slow transition back to forest.

By 1929, a declining rural population coupled with farm abandonment, rural poverty and property tax delinquency was debated within New York State government. Together with Charles J. Hewitt, chairman of the State Senate's Finance Committee, Governor Franklin Roosevelt undertook an ambitious program to reclaim former agricultural land through **reforestation** and scientific forest management. They successfully campaigned for the passage of the Hewitt Amendment which authorized acquisition of State Reforestation areas "to be forever devoted to the planting, growth and harvesting of trees." Approximately 20,000 acres of reforestation areas would eventually be acquired in Madison County with much of it concentrated in the upland towns of Brookfield, Georgetown and DeRuyter.

In 1931, Governor Roosevelt created the Temporary Emergency Relief Administration and hired 10,000 men to work in the woods. As President in 1932, he drew on this experience and pledged to put a million men to work in a national reforestation program. In 1933 President Roosevelt signed legislation authorizing the Civilian Conservation Corp (CCC) to employ young men left jobless by the Great Depression. Under supervision of U.S. Army personnel, men between the ages of 18 and 26 were employed in a variety of conservation projects including flood control, reforestation, road construction and wildlife habitat improvement. There were four camps in Madison County including Camp S-103, a camp for World War I veterans in DeRuyter and Camp S-101, in Sheds. The focus of the camp at DeRuyter was reforestation and in 1935 recruits planted 3 million trees. Recruits also built **Public Forest Access Roads**, improved streams and sponsored Blister Rust Control Week to raise local awareness about the disease. At Sheds, the focus was on soil conservation where recruits built dams to prevent gully erosion and planted shrubs to stabilize soils on steep slopes (Evans, 2005).

While much CCC history focuses on conservation work as a response to economic depression, Roosevelt's critics argued that the camps were an effort to militarize labor and mobilize American men for World War II. In a recent essay, Tom Patton describes a 1933 protest at a black camp in Chenango County and how the national response to this incident raised questions about American race relations and the role of the CCC in preparing for war (Patton, 2001).

In 1960, Camp Georgetown was established by the Department of Corrections (DOC) at a former CCC camp on Muller Hill State Forest. The mission of the camp was to rehabilitate juvenile delinquents through forest management. Theories of correction were changing in New York and maximum security prisons were increasingly being supplemented with facilities designed for rehabilitation and not simply incarceration. One chronicler of Camp Georgetown observed that it "had no walls, no fences and the atmosphere was relaxed and free of the tensions, stresses and strains ever-present in the "big house". Joseph F. David, a former information officer with DOC, remarked that "better lives and better lumber" would be correction camp products (Anonymous, 2001). Inmates worked thinning **plantations** and sawing lumber. They maintained Public Forest Access Roads, constructed ponds and established public access on the surrounding State Forests. In 1970 community service was introduced and inmates began working with local churches, highway departments and civic organizations. Prior to closing, approximately 135 inmates resided at Camp Georgetown, working in the woods and in local communities throughout Madison and Chenango Counties. In addition to Department of Corrections staff, volunteers from local communities assisted with literacy programs and helped inmates with conflict resolution, overcoming substance abuse and transiting back to home.

A sawmill and wood treatment plant were located at Camp Georgetown between 1970 and 1983. The treatment plant operated as a dip tank process using the chemical biocide pentachlorophenal (PCP) to preserve round poles used for DEC construction and maintenance projects. In 1983 the PCP treatment was discontinued and replaced with a pressure treatment process using chromated copper arsenate (CCA). In 1999, DEC listed the Camp Georgetown site on the State's Registry of Inactive Hazardous Waste Disposal Sites. The site, consisting of the property south of Crumb Hill Road, was designated a Class 2 site, defined as one which "presents a significant threat to public health and the environment". A Record of Decision (ROD) issued by DEC in 2004 called for the installation of a multi-layered geomembrane cap as a method of site remediation. In 2007 a change to the ROD was proposed calling for excavation and off-site disposal of contaminated soils. A ground water monitoring program was also proposed for a period of five years to determine the effectiveness of the remediation (NYSDEC, 2007). In 2008, all material was excavated and disposed off-site and ground water monitoring wells were installed. In 2011 the 27 acre Camp Georgetown Correctional Facility was closed and all inmates and staff were transferred to other State facilities. Ownership of the camp will be transferred to a non state agency or sold to a private entity.

B. Geography - Community Profile

The Muller Hill Unit is located within the Madison County Towns of DeRuyter and Georgetown, the Chenango County Town of Lincklaen and Otselic and the Town of Cuyler in Cortland County.

Second growth forest and streams feeding the Tioughnioga and Otselic Rivers occupy most upland **sites**. The two river valleys are flat and open with wide meandering channels, working farms and state highways. Approximately 70% of the landscape is forested. South Otselic, Georgetown and the Village of DeRuyter are local centers with schools, churches, residential

areas and stores. Otselic, Lincklaen Center, Mariposa and Quaker Basin are other local place names.

Based on the 2009 population estimates, there are 5,352 people living within the five town area. Ninety two percent of the labor force is employed with 24% working in education, health care and social services, 13% in manufacturing, 12% in construction, 9% in retail trade, and 7% in farming and forestry. Twenty percent of the labor force works in government. Median per capita income is $18,246 and 15% of the population is living in poverty. Camp Georgetown, two school districts and the B.F. Gladding Co. are local employers.

Local government is organized at the town level with an elected supervisor, town council and highway superintendent. Each town supervisor is represented on the Madison County Board of Supervisors and has committee appointments. The Village of DeRuyter has an elected mayor, trustees, street superintendent and clerk. There are 432 students in the Otselic Valley Central School and 529 students in the DeRuyter Central School.

Between 2002 -2007 the amount of active farmland in Madison and Chenango Counties declined 10%. There was a 17% drop in the number of milk cows and a 20% decline in milk production. Despite declines, dairying represented 72% of the total market value of farm products sold in the two counties with approximately $108 million in sales.

The Muller Hill Unit consists of four connecting State Forests that straddle the boundary between Chenango, Madison and Cortland Counties.

State Forest	**Reforestation #**	**Acres**	**Townships**
Mariposa	Chenango/Madison #1 & 2	3,093	Cuyler, DeRuyter, Georgetown, Lincklaen, Otselic
Three Springs	Madison #3	797	DeRuyter
Muller Hill	Madison #5	3,091	Georgetown, Otselic
TOTAL		6,981	

Total assessed value of the 6,981 acre Unit is $6,230,875 and a total of $247,296 was paid in real property taxes in 2005. Additional information on real property taxes can be found in **Appendix I.**

The Unit occupies the flat and gently rolling tops of Crumb, Muller and Paradise Hills. It is evenly divided between **native** hardwood forest and **conifer plantations** with approximately 13% of the area occupied by mixed **stands** of hemlock and hardwood. A very small percentage of the Unit is in a shrub condition or occupied by water. Headwater stream channels are steep and flow southwest into the Tioughnioga River and southeast into the Otselic River. A network of State

Forest Public Forest Access Roads and town roads provide access to interior sections of the Unit. Two communication towers occupy private hilltop parcels immediately adjacent to State Forests. The red and white lattice of the enormous tower atop Muller Hill provides regional radio communication and is a local landmark visible from 10 miles away. The VORTAC site is adjacent to Three Springs State Forests and is a high frequency omni-range facility for aircraft safety.

C. Geology

The Muller Hill Unit is located within the Allegheny Plateau physiographic province, a large upland area extending throughout much of south central and western New York State and into the northern portion of Pennsylvania. The high plateau of southern Madison County is characterized by large, rounded, bedrock controlled hills and ridges. Hilltops are nearly level and, because of glacial scouring of stream channels and valley floors, the upland plateau has a rugged and rolling appearance.

Geologically, Madison County is underlain by bedrock that includes Pre-Cambrian Era rocks comprised of **igneous** and **metamorphic** type rocks. These rocks are generally referred to as basement rocks and are found at depths greater than 5,000 feet. Overlying the layers of igneous and metamorphic rocks under the Unit are **sedimentary** rocks deposited during the Cambrian Period over 500 million years ago and are comprised primarily of sandstone and shale.

Following the Cambrian Period was the Ordovician Period, and deposition of limestone, dolomites and shale in warm, shallow, and relatively open marine seas that occupied this region 435-500 million years ago. Pre-Cambrian, Cambrian and Ordovician rocks are only located in the subsurface of Madison County; that is, they never intersect or are exposed at the ground's surface in the county. However, these rocks do come to the surface north of Madison County in adjacent Oneida County. This is due to the dip (or inclination) of rock units to the south at a rate of approximately 50 feet per mile.

There has been recent interest in the Ordovician limestone and dolomites, due to significant natural gas production from similar age rocks in various counties to the north and southwest of Madison County. There is also interest in gas production from Ordovician and Silurian age rocks within Madison County, but this has been limited.

Overlying the Ordovician age sedimentary rocks are sedimentary rocks deposited during the Silurian Period. The Silurian age rocks are comprised of primarily evaporites (gypsum, anhydrite and salt), shales with some limestones and dolomites, which were deposited in more restrictive marine seas than the underlying Ordovician age rocks. These rocks are considered to have been deposited 400 to 435 million years ago.

Following the Silurian Period, the Devonian Period (from 345 to 435 million years ago) resulted in the deposition of sedimentary rocks comprised primarily of shale with some limestone and dolomites interbedded. Devonian age rocks are the youngest bedrock located in Madison County. Younger rocks such as Mississippian and Pennsylvanian age rocks were either not deposited in

the area or were subsequently eroded by other natural events such as glaciation and/or erosion. Silurian and Devonian age rocks are the only bedrock that is exposed or outcrops within Madison County. These rocks outcrop in a general east-west trend across the county.

One can observe shale formations at exposed highway roadcuts and in areas dissected by streams. Evidence of the County's limestone formations are visible at various sites along the Helderberg Escarpment, an east-west trending feature that crosses the county eight to ten miles north of the hamlet of Nelson.

The land forms visible today are largely the result of glaciations. During the Pleistocene ice age, which lasted for approximately 1.25 million years, there were a series of glacial advances and retreats that occurred due to alternating global cooling and warming. Some of the inter-glacial intervals were times of warm and semi-tropical climate in regions that are today temperate. As the glacial ice advanced it rose over hills and mountains and filled valley floors with vast sheets of ice. Embedded with rock and soil, these ice sheets scoured hilltops and gouged out valleys and lake bottoms. Approximately 12,000 years ago the receding Wisconsin glacier deposited a heterogeneous mixture of weathered rock and soil material known collectively as glacial till. Because of the diverse ways in which it was deposited and the chemical composition of parent material, glacial till and the soils that ultimately formed from them are extremely variable. Valley floors were the last to see the glaciers retreat and here meltwater deposited pockets of soils, sands and rocks known as outwash deposits. **Kames**, **eskers** and **moraines** are some of the formations resulting from these deposits. Today, commercial sand and gravel establishments throughout the region owe their existence to the glaciers work.

D. Soils

Mardin, Lordstown, and Volusia are common recurrent soil series found on the Unit. Bath, Chippewa, Stockbridge, and Tuller occur intermittently as well. A notable number of these soils are characterized by layers of Channery in one or more of the horizons. The typical landscape for these soils consists of broad, rolling, or undulating uplands dissected by a few narrow valleys. Soil slopes can range from 0 to 50 percent, but most commonly are between 3 and 18 percent. Soils are generally deep to moderately deep with medium texture. The main limitations of the soils are seasonally high water tables, low fertility, high acidity, and erosion on the steeper slopes. Plant rooting is frequently limited by a firm substratum or bedrock. These limitations impact the vegetative composition and growth, as well as management activities including the location and construction of forest roads, trails, and other facilities, and in particular the harvesting of forest products.

Although soil description provides information on subsurface characteristics, ground-level conditions reveal much about land use history and ecological complexity. The relatively smooth ground surface condition in most plantations is due in part to repeated plowing and cropping during the 19th and early 20th centuries. These soils typically have a well-defined plow layer and soil properties such as porosity and availability of nutrients have been altered from pre-settlement conditions. Stones and other impediments to plowing have been removed resulting in a relatively

uniform soil texture. Unplowed soils in contrast, have an undulating surface condition with a well-developed hummock and hollow micro topography. The hollows are created when trees are wind thrown, while the hummocks are the decayed and toppled remains of the tree's root system.

E. Land Classification and Stages within the Unit

An overwhelming majority of the Unit is in a forest condition (96%) consisting of three distinct size classes. Tree saplings (1"-5" dbh - **diameter at breast height**) occupy 6% of the Unit, pole timber trees (6"-11"dbh) occupy 25% and **sawtimber** trees (12"+dbh) occupy 69%. The remaining 4% of the Unit consists of ponds and open wetlands that occupy 55 acres, grass and shrubland that occupy 82 acres and roads and developed land that occupy 111 acres.

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

See **Appendix II** for a table of land classifications and stages within the Unit.

F. Forest Resources

Northern hardwood and conifer plantations are the dominant forest **cover type** on the Unit.

Ninety six percent or 6,733 acres of the Unit is in a forested condition with 53% occupied by native hardwood or native hardwood/ hemlock forest and 43% occupied by conifer plantations. Of this total, 5% or 345 acres are occupied by **forested wetlands**.

Forests throughout the region have experienced some level of human **disturbance** ranging from clearing and conversion to agricultural fields, to less intensive disturbances associated with **selective cutting**, fire and livestock grazing. The majority of forest land on the Unit range in age from 70-120 years, based on ring counts from cut trees, aerial photography and other data.

Northern hardwoods are native throughout much of New York State and include several distinct forest cover types. The sugar maple-beech-yellow birch type best describe local northern hardwood conditions with sugar maple being the dominant species in most stands (Berglund, 1980). Within this type, associated species include white ash, red maple, black cherry, basswood and hemlock. Depending on land use history and other site characteristics, any one of these species can represent the majority of stand stocking. In addition to tree seedlings, **understory** vegetation include serviceberry, eastern hophornbeam, striped maple, viburnum and witch hazel. Reschke (1990) identifies blue cohosh, Christmas fern, jack-in-the-pulpit, white baneberry, wild leek, wild ginger, false Solomon's seal and bloodroot as characteristic ground level vegetation. Conifer plantations were established on former agricultural fields primarily during the 1930s with additional acreage planted since that time. Red pine and Norway spruce are the dominant plantation species with additional acreage in white spruce, Scotch pine, larch and white pine. Reschke reports that ground level vegetation in conifer plantations is limited to speedwell

(*Veronica officinalis*) but silvicultural treatments and other stand level disturbances have increased **species richness**.

G. Wetlands and Water Resources

The Unit lies within the upper reaches of the Susquehanna River drainage basin with tributary streams feeding either the Tioughnioga or Otselic Rivers. These two rivers converge at Whitney Point Reservoir, flow south into the Chenango River and eventually the Susquehanna River at Binghamton. Leaving New York, the Susquehanna flows south through Pennsylvania and Maryland before discharging into the Chesapeake Bay.

Four of these tributary streams: Mann, Ashbell and Mud Brooks and Glenn Creek are classified trout streams. The classification system, regulations and accompanying authority are described in the Environmental Conservation Law (ECL), Sections 15-0313 and 17-0301. In addition to the four classified streams located on the Unit, an additional 544 acres of land have been designated as riparian protection zones where timber harvesting and other site disturbances are restricted. The purpose of this designation is to limit stream-side soil disturbance, protect riparian vegetation and enhance overall watershed quality.

In New York State, freshwater wetlands qualify as legally protected if they meet the criteria found in ECL, Section 24-0107 (the Freshwater Wetlands Act)and occupy at least 12.4 acres of surface area. The Act establishes four separate classes that rank wetlands based on their ability to perform specifically defined wetland functions and benefits. Approximately seven acres of a larger Class II wetland (SO-1) are located east of Dublin Road on Chenango-Madison Reforestation Area #1.

In addition to the seven acres of classified wetland on the Unit, there are 345 acres of forested wetland and 35 acres of open wetland that are not classified but where timber harvesting and other disturbances will be restricted. See **Appendix VII**.

There are two constructed ponds on the Unit. One is a 12.5 acre Muller Pond located north of Muller Hill Road on Madison R.A. #5. This pond was constructed in 1953 under the Division of Fish and Game's Marsh Development Program. A drop box, dam and emergency spillway are maintained annually to control water flow and a gate adjacent to the town road restricts vehicle access into the pond area. A smaller, 0.5 acre, fire pond is located on Paradise Hill Road on Chenango Madison #1. See **Appendix VI**.

H. Fisheries Resources

There are 32 miles of streams on the Unit, of which 4.4 miles are protected (ECL Sections 15-0303 and 17-0301), and 27.6 miles are unprotected. Streams with protected status sustain trout or were considered to have suitable habitat for trout when first surveyed in the early part of the 20th century.

Muller Pond is a 12.5 acre impoundment that provides habitat for warm water fish. However, no data is available on the quality and extent of this fishery.

I. Wildlife Resources

The Unit falls within the Central Appalachian ecological zone. This zone is 8,830 square miles in size and covers much of the Southern Tier of New York State. The management Unit comprises a comparatively small area of this zone. The Unit is almost completely forested, consisting of northern hardwood, hardwood/hemlock and conifer plantations. Much of the area is occupied by forest in middle to late stages of **successional** development. The terrain consists of rolling hills and hill tops with a moderate number of interspersed drainages. These drainages consist of springs, seeps, and small creek or brook headwaters that eventually drain into the Otselic and Tioughnioga rivers. For a list of wildlife species and their protective status see **Appendix XI.** For a list of the occurrence of amphibians and reptiles on the Unit, see **Appendix XII.**

The Atlas of Breeding Birds in New York State lists all bird species that are classified under possible, probable, or confirmed breeding status within a given survey block. Within the eight survey blocks containing the Unit, 121 species were identified with most being confirmed breeders, see **Appendix XIII**.

Tables of the calculated game harvests in the vicinity of the Unit can be seen in **Appendix IV.**

J. Significant Plants, Wildlife and Ecological Communities

The New York Natural Heritage Program (NHP) is a partnership between DEC and The Nature Conservancy. NHP specializes in conducting inventories of rare plants, animals, and significant ecological communities. In 2004 NHP staff conducted a biodiversity inventory of all state forests in DEC's Region 7. There are no historic records of rare plants or ecological communities on the Unit and no new observations were made during the recent inventory.

Significant wildlife species include those listed as Endangered, Threatened, or as Species of **Special Concern** for New York State.

Bird survey blocks from *The Atlas of Breeding Birds in New York State* list two Threatened birds of prey, the Northern Harrier (*Circus cyaneus*) and the Red Shouldered Hawk (*Buteo lineatus*) as possible breeders on the Unit.

The Northern Harrier or Marsh Hawk is a ground nester that breeds in grassy marshes or meadows and in particular favors cattail marshes. Hunting occurs over cultivated farm fields as well as within the breeding areas. A large wetland area extending from the Unit onto adjacent private land located east of Dublin Road may provide suitable habitat for the Marsh Hawk.

The Red Shouldered Hawk prefers upland **deciduous** and mixed deciduous-conifer forests or bottomland hardwoods as both nesting and hunting sites. The key component for any suitable habitat is closed **canopy** of **mature** trees. Nests are almost always found near water bodies such as a swamp, river, or pond with surrounded by forest. The level of understory vegetation may vary, but sparse sub-canopies are favored for hunting. Prey consists of small mammals, amphibians, and arthropods.

Species of Special Concern are those not yet recognized as Threatened or Endangered, but for which documented concern exists for their continued welfare in New York State. Of those listed for the Central Appalachian ecological zone the Cooper's Hawk (*Accipiter cooperii*), Northern Goshawk (*Accipiter gentilis*) and Sharp-shinned Hawk (*Accipiter striatus*) are likely to frequent the Unit. Habitat on the Unit may be sufficient to support the Spotted Turtle (*Clemmys guttata*), Wood Turtle (*Glyptemys insculpta*), and Jefferson Salamander (*Ambystoma jeffersonianum*) however these species are not identified on the New York State Amphibian and Reptile Atlas as occurring at this location. Others, including the Eastern Bluebird (*Sialia sialis*), Vesper Sparrow (*Pooecetes gramineus*), and Grasshopper Sparrow (Ammodramus savannarum) require grassland and/or **early successional** habitats that are limited on the Unit, making their occurrence rather unlikely.

The Northern Goshawk is a confirmed breeder within the bird survey blocks that encompass the Unit. Common breeding areas consist of mature, contiguous forests that are safeguarded from human activity and development. Characteristics of goshawk breeding forests include large-sized trees, a closed canopy, and an open understory.

The Sharp-Shinned Hawk is a confirmed breeder within the bird survey blocks that encompass the Unit. Sharp-shinned Hawks nest in large forests composed of conifer, deciduous, or mixed woodlands with a closed canopy dense enough so that the nest is completely hidden. Nest trees are generally located near openings and brushy areas where prey is abundant and cover is sufficient for the perch and dash foraging style.

The Cooper's Hawk is a confirmed breeder within the bird survey blocks that encompass the Unit. Common breeding areas consist of low **alluvial** forests and wooded swamps, generally in the larger tracts, with nests situated near clearings or forest **edges**. It frequently utilizes old crow nests and is often found in a habitat similar to that of the Red Shouldered Hawk. For the most part it avoids urban areas, but may take advantage of good habitat near small communities. Other smaller birds are the primary prey species; an accumulated build up of pesticides in the smaller birds may be responsible for much of the decline of this hawk.

Jefferson salamanders are most often found in large tracts of upland deciduous, and mixed deciduous-coniferous forest with abundant stumps and logs, but sometimes they occur in bottomland forests bordering disturbed and agricultural areas. Spotted turtles typically use **vernal pools** in spring; upland forest for dormancy during part of the summer; and wet meadows, forest swamps, or sphagnum bogs for overwintering. Wood turtles have large home ranges that typically

include riverside or streamside habitats bordered by woodlands or meadows. Within activity areas, they tend to occupy open sites close to water with low canopy cover, and may use agricultural lands (Gibbs).

In 2001, a dry fungus beetle (*Eurysphindus comatulus*) was identified on Muller Hill. This is a rare beetle with only one other individual of this species previously observed in New York State. (M. Evans personal communication 12/17/01)

K. Recreational Resources

The remote character of the Unit provides opportunities for dispersed recreational activities such as hunting, snowmobiling, hiking and camping. A segment of the Finger Lakes Trail passes through Mariposa State Forest and the Madison County Link Trail passes through Muller Hill and Mariposa State Forests. A network of town roads and State Forest Public Forest Access Roads provide access throughout the Unit and are popular routes for snowmobiling in winter. Snowmobile registrations by County are listed in **Appendix VIII**.

Hunting, fishing and trapping are permitted throughout the Unit except where prohibited by regulation, law or sign. Fall deer season is the most popular time of year for hunting followed by fall and spring wild turkey season. There are no designated campsites on the Unit but camping is permitted for up to three nights with groups fewer than ten people without a permit. Camping is prohibited within 150' of a designated trail, road, stream, pond or spring.

All terrain vehicles are prohibited on the Unit except on trails signed for permitted individuals with qualifying disabilities.

L. Cultural Resources

The New York State Archeological Site Index Map indicates that there are no sites of historic or cultural significance on the Unit. However, in addition to the Muller Hill site described in a previous section, there are a number of ordinary cultural artifacts that provide clues about settlement and land use history. Cellar holes, mill sites, stone walls and abandoned lanes are located throughout the Unit and each tells a story about the people who cleared the forest and transformed wild nature into a working landscape.

A cultural resource analysis of the Unit was completed during the summer of 2006. This analysis was conducted to identify, inventory and evaluate the remains of 19th and 20th century home, farm and mill sites for the purpose of preservation, interpretation and public education.

M. Property Use Agreements

See **Appendix X** for easements and other property use agreements.

N. Roads

There are seven Public Forest Access Roads (PFARs) on the Unit with a combined distance of 9.3 miles. On Muller Hill State Forest, there are five PFARs with a combined total length of 7.6 miles. The former Bundy Road (a.k.a. Wood Road) that delineates the west boundary of Proposal I on Muller Hill State Forest was abandoned by the Town of Georgetown and is now a PFAR. The remaining length of this road within Muller Hill State Forest is abandoned. Mariposa and Three Springs State Forests each have one Public Forest Access Road with total lengths of 0.3 and 1.4 miles respectively. These roads are designed for public access and administrative purposes with a speed limit of 25 mph. They are not plowed in winter unless a temporary permit is granted.

The former Williams Road within Proposal B on Three Springs State Forest is presumed to be abandoned. This presumption is based on lack of public use and local government maintenance. No local government maintenance has occurred in the last nine years. The road is not passable due to down trees and other obstructions. Peckham Hollow Road and Wilcox Road, both on Muller Hill State Forest were abandoned by the Town of Georgetown in 1976. Calvert Hill Road on Muller Hill State Forest is presumed to be an abandoned road. This presumption is based on lack of public use and local government maintenance. The road is not passable with a vehicle due to rutting, down trees and other obstructions. There has been no maintenance by local government in at least nine years. An unnamed road within Proposal S, north of Davenport Road on Muller Hill State Forest is presumed to be an abandoned road. This presumption is based on lack of public use and local government maintenance. No local government maintenance has occurred in the last six years. The road is impassable due to down trees and other obstructions. Chapman Road on Muller Hill State Forest was proposed for abandonment by the Town of Georgetown in 1974 but adjacent private landowners claimed hardship and the proposal was rescinded. Department records indicate that the entire length of Chapman Road within Muller Hill State Forest is subject to qualified abandonment by the Town of Georgetown. Gast Road and Fuller Road within Proposal A on Mariposa State Forest (Chenango-Madison R.A. #2) are presumed to be an abandoned road. This presumption is based on lack of local government maintenance which has not occurred in the last nine years. Gast Road is impassable but Fuller Road is maintained by a local club for snowmobile use. An unnamed road within Proposal A on Mariposa State Forest (Chenango-Madison R.A. #1), is presumed to be an abandoned road. An unnamed road within Proposal G, south of Richmond Hill Road on the same forest is presumed to be an abandoned road. This presumption for both roads on this forest is based on lack of public use and local government maintenance. No local government maintenance has occurred in the last nine years. Both roads are impassable due to down trees and other obstructions.

O. Other Facilities

The following are State Forest assets requiring periodic maintenance:

Recreational Trails:	
Finger Lakes Trail-	6.5 miles
Madison County Link Trail-	4.0 miles
Snowmobile Trails-	8.2 miles
Access Trail for Persons with Disabilities (M-3) -	1.1 miles
Total-	18.7 miles
Boundary Lines:	
Mariposa State Forest (CM1) -	20.3 miles
Mariposa State Forest (CM2) -	14.4 miles
Three Springs State Forest (M3) -	6.5 miles
Muller Hill State Forest (M5) -	29.7 miles
Total-	70.9 miles

The Former Camp Georgetown Correctional Facility (Restricted):
Muller Hill State Forest - Public access is restricted to the former Camp Georgetown Correctional Facility, north of Crumb Hill Road (27 acres of developed land and 42 acres in forest surrounding the camp). There is a 1.2 mile electric utility line passing through Muller Hill State Forest that services the former Camp. New York State Electric and Gas (NYSEG), the utility company that supplies the power to the former Camp, considers it a "private" line. There is no easement for the line to the utility company across the state forest. Maintenance of the line is the responsibility of the Department of Corrections and the DEC. Mariposa State Forest: Public access is restricted to the DEC Maintenance and Operations Facility south of Crumb Hill Road (9 acres of developed land).

Shooting Range (Restricted):
Mariposa State Forest - Public access to this facility is restricted- Ridge Road.

Gates:
Mariposa State Forest- Shooting Range Access- Ridge Road.
Muller Hill State Forest- Muller Pond Access- Muller Hill Road.

Lean-to:
Mariposa State Forest-Finger Lakes Trail

State Forest Identification Signs and Historic Markers:
Three Springs State Forest- Junction of Carpenter Road and PFAR.
Muller Hill State Forest- Junction of Crumb Hill Road and PFAR
Mariposa State Forest - Mariposa Road
New York State Historic Marker -AMuller Mansion@-Muller Hill Road.

P. Forest Insects and Diseases

Insects and diseases that affect trees are constant natural forces that shape the forest. While many insects and diseases have negligible or beneficial impacts to forest health some, particularly **invasive exotic** species are especially damaging. Insects and diseases addressed below are those that currently or could potentially have significant impacts on forest health on the Unit.

Asian Long-horned Beetle - This insect was first detected in New York City in 1996. Potential impacts from it could be devastating since it prefers maple trees. As of 2003, over 6,000 infested trees had been identified in New York City and Long Island. There are no known natural factors which will limit the spread of this insect.

Beech Bark Disease - This disease is a fungus spread by the beech scale insect and is native to Europe. It has been established for several decades on the Unit. Its impact has resulted in the decline and death of most mature beech trees. Although small beech are common, they usually are not able to grow to their full maturity before dying prematurely from the disease.

Butternut Canker - This disease, of unknown origin, has infected nearly all the butternut in New York State. The disease is fatal.

Dutch Elm Disease - This disease is a non-native fungus that is spread by both the European and native elm bark beetles. It was first detected in central New York in 1946 and has since spread throughout New York State. Although elm has historically been a minor component of the forests on the Unit, the disease has killed most of what was there. The disease continues to kill mature trees that had escaped previous infection.

Emerald Ash Borer - This beetle from Asia was first identified in southeastern Michigan in 2002. It has since spread to New York with a total of eighteen counties under quarantine. It feeds on all native ash trees and kills the trees from feeding larvae girdling the branches. Millions of ash trees in Michigan have been killed by this beetle. There are no known natural factors which will limit the spread of this insect. In 2010, the Department released *Emerald Ash Borer Management Response Plan* which defines goals to slow ash mortality in New York State.

European Pine Shoot Beetle - This is a non-native beetle that is present and has the potential to impact red pine plantations on the Unit. Chenango and Madison counties are in a Federal quarantine area which regulates and limits the transportation of pine logs to sawmills out of the area.

European Woodwasp - This woodwasp was discovered near Fulton, New York in 2004. As of November, 2006 this insect had spread to 25 counties in central and western New York, including Madison County. It is native to Europe, Asia and North Africa and arrived in New York State in solid wood packing material used in cargo ships. It is an exotic invasive species in this country that attacks pine plantations and can cause up to 80% tree mortality. At low populations, the woodwasp attacks stressed trees for egg laying. The trees are killed by a fungus that is injected with the eggs. Traps have been set in the vicinity of the Unit to monitor for the presence of this insect. Quarantines on the movement of pine logs are expected to be established to prevent the spread of this insect.

Gypsy Moth - Although present, this moth from Europe has not had significant outbreaks on the Unit. This may be due to the scarcity of its preferred oak species on the Unit.

Hemlock Wooly Adelgid - This insect from Asia is perhaps the most imminent threat to the forests on the Unit. It has been devastating to hemlock in the lower Delaware and Hudson River valleys. The adelgid attacks and kills all sizes of hemlock. In 2002, it was identified in Delaware County. As of 2004, it had spread as far north as Albany County. Hemlock stabilizes the soil on steep slopes and their shade often keeps streams cool in the heat of summer. During winter, they provide thermal cover for deer and other wildlife. Many wildlife species such as red squirrels and black-throated green warblers are strongly associated with hemlock. There are no known natural factors which will limit the spread of this insect. Current control efforts focus on the release of Japanese lady beetles into infested areas. The beetle is a natural predator of the adelgid in Japan. If this biological control approach is not successful, the long-term consequence of this insect may likely be the elimination of eastern hemlock from the landscape.

Peach Bark Beetle - This native insect historically impacted peach trees. It has recently been discovered in black cherry trees. The beetle bores into the trunk of the tree forcing the trees to exude gum in an attempt to expel the insect. Although the insect does not kill the tree, it's boring and resulting gum production can significantly reduce the commercial value of this species.

Viburnum leaf beetle - A non native beetle that first appeared in NYS along Lake Ontario in 1996. It has spread to all counties in central and western New York and most counties in the Adirondack and Catskill regions. Both larvae and adults feed on viburnum shrubs. This insect has had a significant impact on native stands of arrowwood (*Viburnum dentatum*) on the Unit.

Q. Hardwood Regeneration & Interfering Vegetation

Northern hardwood forests on the Unit consist of high quality stands dominated by sugar maple, red maple, black cherry, and white ash. These species have both ecological and economic value. Some northern hardwood stands have been managed using the uneven- aged system, which regenerates mostly shade tolerant species such as sugar maple, hemlock and beech.

Vegetation interfering with forest **regeneration** is a concern because it compromises efforts to sustain the northern hardwood **forest type**. The absence of desirable hardwood regeneration on the Unit will diminish the long term ecological and economic value that these stands provide. Difficulty in regenerating northern hardwood persists throughout the Unit. It appears to be most prevalent in stands managed using the **uneven-aged** system or in stands with little or no history of silvicultural treatments. In addition to the interfering tree species such as striped maple, hophornbeam and American beech, hay-scented fern and New York fern prevent the establishment of hardwood regeneration.

There are a number of contributing factors that have caused this problem including:

- Interfering vegetation is shade tolerant. Decades of dense forest canopy conditions have favored the development of shade tolerant species over shade intolerant species.
- Elevated deer populations have produced subtle, yet significant impacts on understory vegetation. Most hardwood stands on the Unit were established after periods of heavy cutting, 70-100 years ago, when populations of deer were relatively low. Research studies suggest that populations of white-tailed deer are now much higher than at historic pre-settlement levels. Sugar maple, red maple, and white ash are all preferred **browse** species for deer. In contrast, beech and hophornbeam are not preferred browse species; striped maple is occasionally browsed. Consequently, deer, at high enough populations, have the ability to eliminate or significantly reduce the abundance of maple and ash regeneration. Elevated deer populations also have negative impacts on the species diversity of native forest herbs and shrubs. For example, deer can suppress or eliminate species such as white trillium and witch hazel.
- Traditional uneven aged management using the selection system results in small canopy gaps that regenerate primarily sugar maple in a patchy distribution across the forest. These patches can be easily targeted by browsing deer. The small canopy gaps also allow a limited amount of light to reach the forest floor. This limits both the abundance and growth rate of the seedlings that develop.

Uneven-aged management is desired in many areas to maintain large blocks of interior forest habitat. Successful implementation of this silvicultural system requires the regeneration and development of desirable species such as sugar maple. However, interfering vegetation and current white tail deer densities are making it increasingly difficult to regenerate desirable species through uneven-aged management, particularly the single tree selection method. Therefore, alternative management strategies are needed to establish and sustain the northern hardwood forest type.

II. Resource Demands on the Unit

A. Timber Resources

Timber resources include hardwood and softwood sawtimber, **pulpwood**, and firewood. Some of the factors affecting timber demand on the Unit include timber value, distance to markets, timber

species and quality, the availability or scarcity of similar timber in the area, international trade policies and market demand.

The demand for timber on the Unit is part of the larger regional timber market which is part of the global market for wood products. For example - hardwood trees grown and cut within the Unit are often purchased by local loggers or sawmills, sawn into lumber at a mill within the region, and may eventually end up in a consumer product sold in Europe, Asia, or South America. The United States is a large part of the global market and has the highest per capita wood consumption of any nation. Wood products have been essential to the development of our country and continue to be an essential need of our society. As worldwide population continues to increase and the economies of other countries develop, there will be a continued long term increase in the global timber demand.

The continuous, long-term management of State Forests have resulted in a timber resource of very high quality. New York's State Forests have been "green certified" by the Forest Stewardship Council (FSC) and the Sustainable Forestry Initiative (SFI) programs. The forests were certified as being managed using sustainable forestry practices which have met the policies and principles of the FSC and SFI. This certification indicates that New York State Forests are managed for long-term ecological, social and economic health.

At the regional scale, there is an historic strong demand for hardwood sawtimber from regional sawmills. **Appendix IX** illustrates the change in price for black cherry, white ash, sugar maple and red maple based upon figures from the DEC **Stumpage** Price Report for the reporting area which includes Chenango County. Demand for red pine has been steady due to demand from regional and foreign industries which manufacture it into log cabins, landscaping wood and utility poles. The primary source of pine used for regional industries are the abundant plantations located on State Forests and their relative scarcity on private lands.

The market for spruce is almost exclusively for saw logs. There are no spruce sawmills in New York State and the majority of logs are trucked to Canadian sawmills for processing. These Canadian mills also purchase red pine logs. The Canadian demand for spruce and pine logs fluctuates along with the general state of the economy since most Canadian mills are only hauling logs back north after they have delivered a load of retail products into New York State. The other primary factor affecting the demand for spruce logs is the housing market since spruce lumber is primarily used for wood framing construction.

At the local scale, there is a somewhat different demand for wood products. While many local loggers supply larger mills with hardwood logs, lesser valued products such as hemlock or larch logs and firewood can be profitably cut and sold to local markets. Hemlock and larch are often sawn by small local band mills for use in barn construction. Firewood is cut by individuals for their own use or for resale to home owners. Within the five town area, 18% of households use wood as their primary heating fuel.

The demand for timber on the Unit also is an indicator of those employed in the forest products sector of the economy who view State Forests as a source of employment. One rough measure of this is the number of people who want to receive notice of timber sales from State Forests in the Unit. Currently 121 individuals or companies have expressed interest in or actually purchase timber sales within the Unit. Of this total, 70 individuals or companies are located within 50 miles of the Unit. Of these 70 individuals or companies, 13 regularly purchase timber sales from State Forests.

As the stumpage price chart in **Appendix IX** indicates, prices for the hardwood species rose steadily until 2008. This rise in hardwood values promoted heavy cutting or "high grading" on many private forest lands in the region. Frequently, these practices remove only the high quality trees with reduced potential for sustaining timber production. If this trend continues, the future demand for high quality timber from State Forests will increase as those high quality trees become increasingly scarce on private lands.

B. Biological Resources

Conservation of biological resources is increasingly a societal demand. There is heightened awareness about biological resources such as **old growth** forests, species diversity, rare or declining plant and animal species, scarce habitats and the ecological implications of a consumer society. Many people also achieve satisfaction just knowing that the full range of native species and habitats are present, even though they will have no direct contact with them.

This increased awareness has come about, in part, through the development of the internet which has enabled instant access to current research, reports and other information about wildlife, ecosystems, and the environmental impacts of human activities. This has enabled citizens to develop informed opinions about natural resource issues. Public lands have emerged as important places for debating natural resource values. The demand for biological resources and potential conflict over how best to manage them is expected to increase.

C. Recreational Resources

The primary recreational activities on the Unit are hunting, snowmobiling, hiking, pleasure driving, and wildlife/nature observation, as described below. Other recreational activities include trapping and horseback riding. Measuring demand for some activities such as pleasure driving and wildlife/nature observation is difficult since there are no quantitative records of participant numbers. License fees paid by snowmobilers, hunters, anglers and trappers provide some measure of demand though data is often not available on the local scale.

Fishing: From 2002-09 fishing license sales in New York State increased 11%.

Horseback Riding: Horse riding is a popular recreational activity and demand is expected to rise. The most recent farm statistics indicate that the number of horses in Madison County has

increased 37% to 1,802 in the five year period ending in 2007. The Cazenovia Equine Association has expressed interest in a long distance horse trail that would traverse through portions of Muller Hill and Three Springs State Forests. Local support for trails was expressed during the public meetings in 2006 and 2010

Hiking: Demand for hiking on the Unit is high. The Madison County Link Trail and the Finger Lakes Trail connect the Unit with an extensive regional and national hiking trail network. Two organizations maintain 10.5 miles of designated hiking trails on the Unit under Adopt-A-Natural Resource Agreements.

Hunting: Big game deer hunting is the most popular form of hunting on the Unit. Since 2002, big game license sales increased 9% in New York State with 849,217 licenses sold in 2009. Other hunting opportunities available on the Unit include turkey, grouse and coyote. Since 2002, small game license sales have increased 10% in New York State with 348,630 licenses sold in 2009.

Snowmobiling: From 1994 – 2004, the number of registered snowmobiles in Chenango and Madison Counties increased by 57%and 51% respectively. Three local clubs maintain 8.2 miles of snowmobile trails connecting the Unit with a regional network that cross private and other public lands.

Trapping: New York State is one of the nation's top producers of wild furs for the commercial fur trade and New York City remains a center for the production and marketing of fur garments. Beaver, muskrat and mink are common furbearing species found on the Unit. Since 2002 license sales for trapping in New York increased 19% with 13,608 licenses sold in 2009.

Wildlife/Nature Observation: The diversity of habitats on the Unit provides opportunities for wildlife viewing. There are no local records of participation in this activity but anecdotal evidence suggests that a significant number of people use the Unit for observing game, bird watching, photography and driving.

D. Mineral Resources

The 2002 New York State Energy Plan, prepared by New York State Energy Research and Development Authority examines the State's energy consumption and projected needs to the year 2021. As reported in the plan, approximately 62% of New York's current natural gas demand is met from supplies originating in the Gulf Coast and Canada. Gas production in New York is growing and currently meets about 2% of the State's annual demand.

According to the plan, statewide demand for natural gas is expected to increase at a rate of approximately 1.5% per year until 2021. Most of the projected increase in gas use is expected to be for electric power generation. There is some uncertainty about this projection however, since the number of new power plants that will actually be built is unknown.

Natural gas production in New York State has increased substantially as a result of new exploration and development. In the ten year period ending in 2005 natural gas production increased 195% from 18.7 to 55.2 billion cubic feet. During the same period, the average wellhead price for gas increased 238% from $2.30 to $7.78 per thousand cubic feet. Since 2005, statewide production has been stable, decreasing 12% between 2008-09. Highly productive natural gas fields have recently been discovered in various locations in the Southern Tier of New York State, most notably in Steuben and Schuyler Counties. Wells drilled in these areas are extracting gas from depths between 7,000 - 11,000 feet in the Trenton-Black River formation

As of 2010, there were four dry holes and one plugged natural gas well within the five townships occupied by the Unit. However, in the adjacent Madison County township of Lebanon, there are 44 active wells and 8 plugged wells, a 76% increase since 2006. Active wells are producing from the Bradley Brook and Lebanon Fields.

With natural gas increasingly becoming the fuel of choice for both residential heating and electrical utilities, demand in New York is expected to increase. This will likely stimulate future exploration and development activity in Madison County and elsewhere within the region.

III. Constraints on the Unit

The following factors pose limitations to activities or management decisions on the Unit.

A. Physical Constraints

Buried telecommunication lines - Buried utility cables may restrict surface activities.

County, Town and State roads - The presence and condition of public roads determines the quality of access to Sate Forests. Roads in poor condition restrict access. Highways restrict access due to safety concerns with vehicles traveling at high speeds.

Cultural resources - **Cultural resources** include foundations, cemeteries and other evidence of human activity. These are important resources which are protected on State Forests. Therefore, activities which may disturb or damage these resources are restricted.

Deeded rights-of-way - Deeded rights-of-way restrict activities on State Forests due to a lack of exclusive rights.

*Density and placement of **recreational trails** or facilities* - Recreational trails or facilities occupy their immediate ground space and influence the management of the surrounding areas of land. The areas of land occupied by these facilities also cannot be used for other purposes.

Electrical transmission and telephone lines - Utility line **corridors** are maintained in an open condition and prevent the management of these areas for tree cover. Furthermore, the land occupied by these corridors is not available for many other uses.

Fragmented ownership patterns - Some areas of State Forests are inaccessible due to a lack of continuity in property boundaries.

Geologic properties - Geologic properties such as the depth to and type of bedrock, rock outcroppings, and the presence and location of natural gas resources influence management actions on the surface.

Limited access - Some portions of State Forests are remote or may only be accessed by foot, due to steep slopes, ravines, etc. In areas having limited access, it may not be possible to harvest timber, develop recreational trails or drill for natural gas.

Natural gas collection and distribution lines - Buried gas lines may restrict surface activities, activities requiring soil excavation or crossing of gas lines with equipment and vehicles.

Potential insect and disease infestations - Forest insect or disease infestations have impacts on the establishment, growth and regeneration of trees and other vegetation on the Unit.

Soil characteristics - Soil properties such as drainage, depth, fertility and type have a large part in determining the vegetation characteristics of a site. They also determine the sensitivity of a site to erosion or other soil impacts caused by human use.

Steep slopes - Areas of steep topography limit access for forest management.

B. Administrative Constraints

Fluctuations in wood markets - The demand for wood products usually fluctuates over time. It may not be possible to commercially treat some forest stands during times when there is little demand for the product.

Inadequate budgets - Inadequate budgets may constrain any activity which requires the expenditure of funds.

Staffing shortages - During periods of staffing shortages, management activities that are not essential to the Department's mission may not be pursued.

C. Societal Influences

Management decisions are grounded in human values. The strength of any plan is measured by the degree to which an informed public is willing and able to participate in the planning process.

Efforts have been made to engage people in a dialogue about the future of the Muller Hill Unit. Citizens, local government, forest workers, recreationists, sportsmen and many others have participated in public programs designed to foster dialogue about forest management on the Muller Hill Unit. While all comments and recommendations were considered, the degree to which they can be satisfied will vary.

D. Department Rules, Regulations and Laws

Appendix III lists Department Policies, Rules, Regulation and Laws governing State Forest management activities.

IV. Vision Statement

The Muller Hill Unit will be a healthy and productive forest providing social, economic and environmental benefits for current and future generations.

V. Goals and Objectives

A. Land Management

Conserve biodiversity in working forests by sustaining ecological conditions favorable to a broad range of native plant and animal species.

Conserving biodiversity is essential for maintaining forest health. Following Hunter (1991, 1999) and Lindenmayer & Franklin (2003), conserving biodiversity on the Unit is guided by five principles:

(1) Maintenance of landscape connectivity - An example of this is the protection of undisturbed riparian corridors or zones and maintenance of areas of continuous forest cover.
(2) Maintenance of landscape diversity - This is the diversity, size and spatial arrangement of habitat conditions.
(3) Maintenance of stand structural complexity - This refers to the spatial arrangement of multiple forest age classes, sizes of live trees, snags, cavity trees and downed wood.
(4) Maintenance of the integrity of aquatic ecosystems - There is a direct association between forest conditions and water quality. In addition to providing clean drinking water, wetlands, lakes, ponds, and **riparian zones** provide habitat for aquatic and terrestrial species.
(5) Implement multiple management strategies at the landscape, forest and stand level - This is necessary because conservation of biodiversity requires providing suitable habitat for a wide variety of species, each of which has unique habitat requirements. In addition, if

one strategy fails, there will likely be others that may provide the necessary conditions for sensitive species.

Land Management Objectives

1. Manage 56 acres in an open land condition.
Grass and **shrub lands** will be maintained to support wildlife species that use early successional habitats for food, nesting and cover. These habitats are located within two utility **right-of-ways**, a reclaimed shale pit and on a new acquisition with recent agricultural activity.

Grasslands will be mowed after July 15 to prevent establishment of trees and shrubs and to encourage nesting conditions suitable for grassland birds. **Shrublands** and old orchards will be treated on a ten year schedule to remove trees that compete with apples and shrub species.

2. Manage 3,240 acres in an even-aged forest condition.
Even -age **silviculture** is a system for maintaining and regenerating forest stands with trees of approximately the same age. Conifer plantations and regrown natural forests are typical examples of **even-aged** stands. Intermediate harvests, such as **thinning** and **improvement cuts**, will favor the retention of robust **crop trees** to support stand regeneration (Smith)

Application of even-age silviculture will focus on conversion of red pine plantations to native hardwood species, regeneration of Norway spruce and regeneration of shade intolerant hardwood species such as white ash and black cherry. Since red pine is poorly adapted to regeneration on the Unit's soils, these plantations will most often be converted to native hardwood species. Norway spruce is adaptable to a wider range of soil conditions than red pine and therefore efforts will be made to perpetuate this species.

Rotation age is the time between stand establishment and final harvest. It occurs when **mature** trees are cut to establish growing conditions for a new stand**.** Rotation ages on the Unit range between 60 and 160 years. **Clearcutting, shelterwood** and **seed tree** methods for stand regenerations will be sequenced to optimize diversity of even-aged conditions across the Unit and contribute to the availability of **open land** conditions on a temporary basis early in the rotation.

3. Manage 1,362 acres in an uneven-aged forest condition.
Uneven-age silviculture is a system for maintaining and regenerating forest stands with at least three distinct age classes. This system favors shade tolerant species such as sugar maple, hemlock and American beech and creates a stratified **stand structure** with trees of different heights represented in all levels of the forest canopy. Regeneration and control of uneven-age stand structure is accomplished using the individual tree selection system with periodic cuts favoring the retention of the most vigorous shade tolerant species in all age classes (Smith).

As most stands on the Unit are currently even-aged, conversion to uneven-aged conditions will require a long term commitment to regenerating at least two new age classes through controlled

cutting of mature trees. Where conditions allow, crop trees will be grown to a maximum diameter of 26".

The selection system will be applied to restrict canopy gaps to 1/4 acre. Gaps of this size and smaller will promote stand regeneration while maintaining an unfragmented canopy with interior forest conditions. Furthermore, skid lanes for removing logs will not exceed 12' in width and will be designed to maintain closed canopy conditions.

Interfering vegetation and current white tail deer densities are making it increasingly difficult to regenerate desirable species through uneven-aged management, particularly the single tree selection method. Alternative management strategies are needed to establish and sustain the northern hardwood **forest type** including: increased use of the **group selection method,** installation of deer exclosures (fencing), **artificial regeneration** (planting), increased deer harvest, and **herbicide** application to reduce interfering vegetation for a short period of time to allow the natural establishment of hardwood species. Herbicide application methods and the timing of applications will be selected to reduce the total amount of chemical needed to protect water quality and reduce impact on non-target species. Herbicide application will be undertaken by a licensed pesticide applicator and will follow the product label instructions. No herbicide/pesticide on the Forest Stewardship Council's list of "highly hazardous pesticides" will be used. Herbicide application will be in compliance with SEQR and the Strategic Plan for State Forest Management (2011)

4. Manage 431 acres using the variable retention harvest system.
Variable retention is an experimental harvest system for increasing biodiversity in stands managed for timber production (Franklin; Lindenmayer & Franklin). It will be applied in both even and uneven-aged stands to increase structural complexity by permanently retaining trees, uncut patches and **coarse woody debris**.

Variable retention will be applied in 229 acres of uneven-aged stands and 202 acres of even-aged stands. Retention patches will be no larger than one acre and represent no more than 50% of the stand area. In stands with more than 50% of **basal area** in native conifer, eastern hemlock and eastern white pine will be favored for retention. Riparian zones, wet seeps and poorly drained sites within stands will be favored for retention. Sites with snags, decaying logs and existing or potential cavity trees will be favored for retention. Sites with **vernal pools**, hedgerows, rocky outcrops, abrupt pit/mound topography, steep slopes and other unique features will be favored for retention. Rotation in even-age stands will be 160 years. Utilization of harvested trees will be restricted to a 10" top diameter and individual wind thrown trees will not be salvaged.

The precise quantity and distribution of retention features will vary depending on analysis prior to **stand treatments**. Retention trees and patches will be identified during current stand treatments.

5. Manage 552 acres for late successional forest conditions.
Stands managed for **late successional** forest conditions are withdrawn from commercial timber production, natural gas exploration and other intensive uses. Together with riparian and wetland forests, they will develop late successional characteristics with old trees, structural complexity and a seemingly chaotic appearance. Treatments will be considered to protect forest health (e.g. fire, invasive plant species and insect or disease infestations); to enhance structural complexity and species diversity; to protect, restore or enhance significant habitats or to create regeneration opportunities for desired plant species.

Late successional forests are a critical component of any effort to conserve biodiversity because they support ecological conditions separate from those in forests managed for commodity production. In the absence of logging and gas drilling, these stands will develop old growth forest characteristics that are scarce within the larger rural landscape of Madison, Cortland and Chenango Counties. Old forests are important because they represent the most biologically diverse portion of the successional sequence and that with few old stands remaining; there is a scarcity of late successional habitat (Hunter).

6. Protect 969 acres of ponds, wetlands and riparian zones.
Ponds, **wetlands** and riparian forests are extremely complex and diverse ecosystems that provide environmental, economic and recreational benefits. They are distinct ecological communities that support a diversity of plant and animal species not often found elsewhere in the landscape (Calhoun & Brinson in Hunter).

The management objective will ensure a clean supply of water, enhanced biodiversity and opportunities for water based recreation. Timber harvesting, gas well development and road construction will avoid, wherever possible, wetland and riparian forests. These forests are vulnerable to impacts resulting from logging and drilling with the potential of increasing stream sedimentation, disrupting habitat conditions and diminishing overall watershed quality. Stream crossing and associated tree cutting within riparian zones will be permitted for removal of forest products and other management activities. **Appendix VII** lists wetlands on the Unit.

Muller Pond was constructed to improve habitat for waterfowl. Periodic pond maintenance will include cleaning drop boxes, late season (after July 15 to avoid disturbance to nesting birds) dike mowing and removing debris from trickle tubes and spillways.

7. Protect 233 acres of steep slopes and inaccessible sites.
Timber harvesting will not be permitted on slopes in excess of 40%. This terrain is extremely vulnerable to soil erosion with the potential of increasing stream sedimentation if sites are impacted by harvesting activity. Log landings and clearings for other management activities will not be constructed on slopes exceeding 10% unless a site analysis results in an overwhelming benefit over alternate sites. Significant slope modification is necessary to establish landings on these sites and there is the potential of impacting drainage patterns and creating abrupt and permanent contrasts in landscape patterns.

Sites having conditions suitable for management are designated inaccessible if riparian, wetland and other protection zones will be impacted as a result of management activities or if the environmental cost of establishing access outweighs the benefits derived from the management activity.

8. Protect 6 acres for visual quality.
Select viewsheds will be managed to preserve conditions that enhance the visual quality of a landscape or a particular site. Six acres of roadside plantation on Muller Hill State Forest will be protected to maintain visual quality.

9. Preserve cultural resources.
Cultural resources on the Unit offer clues about the historic relationship between people and nature. Farm sites, cellar holes, stonewalls and similar artifacts reveal cultural practices and provide clues about settlement patterns. Preservation of cultural resources will ensure that future generations have access to information about the past.

Cultural resources will be managed to preserve the integrity of individual sites such that the association between site features is not diminished. For example, the relationship between foundations, stone walls, garden plot and old orchards provides evidence about a functioning farmstead. Activities that disrupt this integration decrease the accuracy of site interpretation and lessen our ability to learn about the past.

Cultural resources will be protected from disturbances associated with timber harvesting, well site construction and some recreational activities. Stone walls and other structures will not be dismantled and efforts will be made to accommodate access using existing gateways. Hedgerows, shade and fruit trees, garden shrubs and other ornamental plants associated with cultural sites will not be harvested and efforts will be made to sustain non-invasive vegetation through thinning and pruning. Hedgerows may have hazard trees removed.

Fourteen sites of cultural significance have been identified and specific management strategies have been developed to ensure long term preservation. Following Demler, three sites: Muller Mansion, Peckham Hollow Creamery and Three Springs Mill are of particular importance because they are either associated with a notable person (Muller) or have multiple site features (Peckham and Three Springs). At the Muller Site, compromising vegetation will be removed and the mansions stone foundation will be exposed and reconstructed (see Public Use and Recreation Objective # 9). At Peckham and Three Springs, compromising vegetation will be removed to protect stone structures and to clarify the relationship between different site features.

Any archeological research conducted on the Unit will require a permit issued through the State Museum and the Agency Preservation Officer.

10. Consider future requests for oil and gas leasing in an open public process and establish restrictions on development to limit environmental impacts.
Article 23, Title 11, Section 23-1101 of the Environmental Conservation Law and State Finance Law authorizes the Department to make leases on behalf of the State for exploration, production and development of oil and gas on State lands. Proposals to lease parcels of Department regulated State lands for this purpose will be considered following public notice in the Environmental Notice Bulletin (ENB), and in local newspapers.

Initial title review indicates that the State owns the mineral estate under all State Forests within the Unit, with the qualification that the mineral reservation may exist and no expressed or implied warranty of title is being offered in this Plan.

Prior to leasing any land in the Unit, the Department will initiate the state land leasing process described in **Appendix XIV**. A public meeting will be held to provide information about natural gas development specific to the Unit and receive comments. A 30-day public comment period will follow and the Department will consider all comments prior to making a decision.

If the Department decides to pursue leasing, a no-surface occupancy lease is preferred to avoid potential conflicts with biodiversity conservation, public recreation, cultural resource preservation and protection of water quality. The site specific conditions for limiting impacts on natural resources encompassed in this plan will be drafted by land managers in coordination with Mineral Resource staff and incorporated into contract documents. These conditions will include but not be limited to criteria for site selection, mitigation of impacts and land reclamation upon completion of drilling.

A number of factors will be considered during a tract assessment process to determine the compatibility of surface disturbance associated with natural gas development including, but not limited to, proximity to wetlands, riparian areas, slope steepness, recreation trails, rare, threatened or endangered species, and other unique ecological communities. Compatibility will be determined during field inspection and the tract assessment process on a case by case basis. Individual tract proposal reviews for each forest within this Unit will be completed prior to leasing with determinations made regarding exclusion zones prior to awarding a lease. Any parcel designated for non-surface entry in the lease will no longer be subject to the review process detailed above due to the prohibition of surface disturbance(s). Exceptions to the tract assessments are possible if additional analysis, protective measures, new technology, or other issues warrant a change in compatibility status of an area.

The process of locating well sites will be guided by stand management objectives. Options for well site locations will be considered using a drilling hierarchy. The hierarchy will first consider drilling in areas such as fields and conifer plantations. Drilling options will decrease as stand management move from even aged to uneven aged conditions. The least favorable locations for drilling will be in stands managed for old growth characteristics. Upon completion of drilling,

well sites will be reclaimed with native vegetation to a condition consistent with the surrounding stand management objectives.

The Department will only consider well pad densities of greater than one pad in 320 acres when the additional impact can be addressed with heightened mitigation measures and well location restrictions. These will address well site placement, along with routing considerations for supporting roads and pipelines. In any event well pad densities of one well pad in 40 acres cannot be considered as this would result in unacceptable impacts to the resource and cause conflicts with the other uses and goals for the management of this property. This spacing would definitely 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.

Access roads associated with well sites will not exceed 14' in width between ditches and will be designed to maintain closed **canopy** conditions, where appropriate. On turns and intersections roads will not exceed a total cleared width of 36 feet. Roads will be constructed with gravel over filter fabric to minimize soil disturbance. 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 will be authorized by a Temporary Revocable Permit (TRP).

Pipelines may be constructed on State Forest lands only if a portion of the mineral resources to be transported was extracted from State lands. Pipeline and road development must be in compliance with State Forest tract assessments, the Strategic Plan for State Forest Management, and the Generic Environmental Impact Statement and Supplemental Generic Environmental Impact Statement on the Oil, Gas and Solution Mining Regulatory Program.

Pipelines will be located immediately adjacent to Public Forest Access Roads. The location of the roads and pipelines will be in compliance with tract assessments. Pipelines may be located in stands managed for closed canopy conditions only along pre-existing roads that intersect such area. Additional surface disturbance associated with such construction will be considered only in areas other than stands which are managed for relatively unbroken canopy conditions. Areas managed for unbroken canopy conditions may be referred to using various terms such as “uneven-aged,” “uneven-aged variable retention,” “all aged,” “high canopy,” “closed canopy” or others.

Pipeline development on State land will not be permitted if the Department determines that it creates a significant long-term conflict with any management activities or public use of the State Forests, or with other management objectives in this plan. All pipelines will be gated to restrict motorized access, and if necessary hardened crossings or bridges will be installed, to allow heavy equipment access across pipelines. These requirements will be satisfied by the Lessee.

Exceptions to the above guidance must be approved by the Division of Lands and Forests, in consultation with the Division of Mineral Resources.

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.

Requests to use State land to conduct geophysical (such as seismic survey), geochemical and/or surface sampling procedures will require an approved lease and a Temporary Revocable Permit. These procedures are necessary to determine the extent and distribution of natural gas fields. Sampling procedures are less invasive than development operations and will be subject to the Department's seismic testing guidelines. If the property is subject to lease agreement, only the lessee, or parties authorized by the lessee, can be issued a TRP for these purposes. Seismic testing will not be permitted prior to leasing.

The Unit is not being considered for underground 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, and will precipitate the UMP amendment process, including additional public meetings and full compliance with SEQRA. Any proposal for gas storage development must be consistent with the objectives of this Plan.

11. Prohibit commercial extraction of minerals and/or rock (including salt) other than oil and gas from the Unit.

Under Article 7 of the New York State Consolidated Laws, any citizen of the United States may apply for permission to explore and/or extract any mineral on State lands. At present, there are no mining contracts, permits or operations within the Unit. Current Department policy is to decline any commercial mining application(s) pertaining to lands covered by this Unit Management Plan, as these activities are not compatible with the purposes for which Reforestation Areas were purchased. However, surface mining may be permitted if the Department deems it necessary for infrastructure purposes.

If the Department proposes future mineral resource extraction within the Unit, then the Regional Forester/Operation Supervisor and Mined Land Reclamation Specialist will determine if a mined land reclamation permit is required before excavation begins. If determined that proposed annual extraction requirements will be above present Mined Land Reclamation Law thresholds, the mining and reclamation permit application will be prepared and submitted to the Regional Mined Land Reclamation Specialist for review and approval before any excavation takes place.

If it is determined that a mined land reclamation permit is not required, but mineral resources will be extracted for infrastructure maintenance and construction necessitated by the Department, the basic mining and reclamation standards will be followed as outlined in **Appendix XIV.**

If extraction takes place at any level within the Unit, the exact location of the area to be disturbed will be mapped and become part of the Unit Management Plan until all sites are closed and reclaimed according to Division standards.

12. Protect active nesting sites for raptors listed as species of Special Concern.
Many raptors in New York are listed as species of special concern. Within the Unit, these may include: Sharp-shinned Hawk, Cooper's Hawk, Goshawk and Red-shouldered Hawk. Each species has specific habitat requirements when nesting. Birds may occupy territory seasonally, or return to the same location yearly. During breeding season, usually between April and July, human activity near nests may disrupt breeding or cause the adult birds to abandon their young. DEC Bureau of Wildlife staff will be consulted and management activities will be adapted to minimize disturbance to birds that are known to be nesting on the Unit. Adaptive management strategies and actions will be developed and applied on a case by case basis. These strategies may place restrictions on timber harvesting and gas exploration activities and could include: setbacks, no-cut or no disturbance zones, or seasonal restrictions. For recreational uses, actions may include trail closures or rerouting of trails. When specific management strategies for individual species are developed, they will be incorporated into the management plan.

Licensed falconers will continue to be permitted to remove raptors from the Unit, in compliance with ECL Article 11 and 6 NYCRR Part 173. Licensed falconers seeking to remove raptors from State land are required to obtain a permit from the Department's Special License Unit. To obtain additional data on the distribution, abundance and allowable levels of take, the Department's Wildlife Diversity Section requires the cooperation of the falconry community in providing the Department with the locations of known active nests. This should be done at the time of application for the taking of eyas. Additionally, the Wildlife Diversity Section recommends that Regional Wildlife Staff accompany the falconer when the eyas is taken to assess immediate impacts on the breeding pair. The falconer should be required to provide a minimum of 24 hours notice to both the Regional Wildlife Manager and Regional Law Enforcement Office to enable them to accompany the falconer to the nest site and witness the capture of the eyas. Falconers are required to leave at least one eyas within the nest and to install flashing near the base of a nest tree to protect against predators after an eyas is removed from a nest.

The Department will encourage monitoring and research on the status of northern goshawks to ensure sustainable populations, and to ensure that our knowledge of the natural history and ecology of these raptors continues to increase.

13. Transfer ownership of the former Camp Georgetown

In 2011 the 27 acre Camp Georgetown Correctional Facility was closed and all inmates and staff were transferred to other State facilities. Ownership of the camp will be transferred to a non state agency or sold to a private entity. DEC will retain ownership of a 1.2 mile three-phase electric utility line and corridor that crosses through Muller Hill State Forest and currently services the Camp. Continued use of the service line will be negotiated with the new owner through a Temporary Revocable Permit (TRP). All maintenance and associated expenses of the line will be the responsibility of the new owner. No expansion of the utility line corridor will be permitted. Prior to expiration of the TRP, the new owner will install a permanent utility line on private land to provide electric service to the facility.

Upon completion of the permit, the three-phase line will be discontinued and removed. The line is subject to frequent interruption due to ice and snow storms and difficult to maintain. It also fragments multiple forest stands.

A new single phase line will be installed on Crumb Hill Road to service the Department's buildings south of the former Camp.

B. Public Use and Recreation

Public Use and Recreation Goal

Provide safe and enjoyable recreational experiences that are compatible with natural and cultural resource conservation.

State Forests within the Muller Hill Unit are covered by the Strategic Plan for State Forest Management (SPSFM), which includes guidelines for recreational development on State Forests throughout the state. 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.

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 principles 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 constraints and recreational opportunities beyond the boundaries of the Unit.

Application of the Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA), along with the Architectural Barriers Act of 1968 (ABA) and the Rehabilitation Act of 1973; Title V, Section 504, have had a profound effect on the manner by which people with disabilities are afforded equality in their recreational pursuits. The ADA is a comprehensive law prohibiting discrimination against people with disabilities in employment practices, use of public transportation, use of telecommunication facilities and use of public accommodations. Title II of the ADA requires, in part, that reasonable modifications must be made to the services and programs of public entities, so that when those services and programs are viewed in their entirety, they are readily accessible to and usable by people with disabilities. This must be done unless such modification would result in a fundamental alteration in the nature of the service, program or activity or an undue financial or administrative burden.

Consistent with ADA requirements, the Department incorporates accessibility for people with disabilities into the planning, construction and alteration of recreational facilities and assets supporting them. This UMP incorporates an inventory of all the recreational facilities or assets supporting the programs and services available on the Unit, and an assessment of the programs, services and facilities on the Unit to determine the level of accessibility provided. In conducting this assessment, DEC employs guidelines which ensure that programs are accessible, including buildings, facilities, and vehicles, in terms of architecture and design, transportation and communication to individuals with disabilities. A federal agency known as the Access Board has issued the ADA Accessibility Guidelines (ADAAG) for this purpose.

An assessment was conducted, in the development of this UMP, to determine appropriate accessibility enhancements which may include developing new or upgrading of existing facilities or assets. The Department is not required to make each of its existing facilities and assets accessible so long as the Department's programs, taken as a whole, are accessible. New facilities, assets and accessibility improvements to existing facilities or assets proposed in this UMP are identified in the Proposed Management Actions section.

For copies of any of the above mentioned laws or guidelines relating to accessibility, contact Carole Fraser, DEC Universal Access Program Coordinator at 518-402-9428 or cafraser@gw.dec.state.ny.us

See **Appendix V** for additional ADA information.

Maps with the location of proposed and existing public use and recreation facilities are in **Appendix XVI**.

Public Use and Recreation Objectives

1. Construct and maintain 1.1 miles of accessible trails for people with disabilities using motorized vehicles (CP-3 trails).
To ensure that people with disabilities have the opportunity to enjoy the benefits of State lands, an access trail for those with mobility impairments has been designated and will be constructed on the Unit. Qualified individuals may obtain a Temporary Revocable Permit to use all terrain vehicles (ATVs) or other off-highway vehicles on the designated trail. The trail will be located on Three Springs State Forest. The trail will begin at the terminus of the Three Springs Public Forest Access Road and passes through conifer plantations, mature northern hardwood forests, shrubland, and terminates at a hilltop site with long views across active farmland.

1a. Prohibit public use of ATVs on the Unit.
Public use of ATVs is not permitted outside of the CP-3 trail. Public ATV riding is not compatible with the goal of protecting the Unit's natural and cultural resources. The network of wetlands, creeks and tributary streams that occupy the Unit would be adversely impacted by ATV use. The predominant soil types on the Unit are poorly drained and ATV trail development would be costly to establish and maintain. Current illegal ATV use on the Unit has resulted in soil erosion, stream sedimentation, damage to trees and other vegetation and impacts to cultural resources. Currently there are no public ATV trails on lands adjacent to the Unit.

2. Develop a 9 mile horse trail.
Interest in developing a horse trail was expressed at the Unit Management Plan meetings in 2006 and 2010.

A horse trail will be developed by groups having Adopt-A-Natural Resource Agreements. Construction will be the responsibility of the adopting groups. Collaboration will be sought between all users committed to building a new trail. The new trail will link the Unit's natural and cultural features with regional trail networks on private and other public lands. The trail will use a combination of existing roads and logging trails across Muller Hill and Three Springs State Forests. The trail will not use the existing Link Trail or Finger Lakes Trail.

3. Maintain 4.0 miles of the Link Trail through the Department's Adopt -A- Natural Resource Program.
Long distance hiking trails are important regional assets. The north-south Madison County Link Trail connects the Erie Canal towpath in Canastota with the Finger Lakes Trail in Chenango County. Through an Adopt-A-Natural Resource Agreement, the Department will continue to work in cooperation with the Central New York Chapter of the North Country Trail Association to ensure safe and enjoyable hiking experiences. The trail is located on Muller Hill and Mariposa State Forests.

4. Maintain 6.5 miles of the Finger Lakes Trail through the DEC's Adopt-A-Natural Resource Program.
The east-west Finger Lakes Trail connects the Catskill Mountains with the Allegheny State Park by passing through New York State's Southern Tier. Through an Adopt-A-Natural Resource Agreement, the Department will continue to work in cooperation with the Finger Lakes Trail Conference to ensure a safe and enjoyable hiking experience. The trail is located on Mariposa State Forest.

5. Maintain 8.2 miles of snowmobile trails through the DEC's Adopt-A-Natural Resource Program.
Snowmobiling is a popular form of winter recreation that is experiencing growing participation within the region. The Snow Valley Riders, The Moonlight Riders, and The Cortland County Trail Hounds are three local clubs that maintain trails on the Unit and are AANR partners. Designated trails utilize town roads, PFARs and off-road segments. Standards and practices for maintaining trails to ensure safe and enjoyable riding conditions are defined in the Adopt-A-Natural Resource Agreements between the clubs and the Department.

6. Construct and Maintain Parking Areas
Parking areas will support public use on the Unit. They will be hardened with stone material and designated with signage. Nine new areas will be constructed and two will be upgraded. One existing parking area will be maintained. Each area will accommodate three vehicles with the exception of the Muller Hill Interpretive parking area which will accommodate six vehicles. Most areas will have one parking space reserved for people with disabilities. New parking areas will be constructed with an 8" base of screened gravel and surfaced with 4" of crushed limestone or equivalent.

7. Install 7 rock barricades and maintain 3 gates to restrict motor vehicle access from designated areas. Off-road motor vehicles are destructive to vegetation, wildlife habitat, water resources and cultural sites. Rock barricades will be installed at seven sites to permanently restrict vehicle access. Three gates will be maintained at locations where periodic Department access is necessary.

8. Construct and maintain the Muller Hill interpretive area.
Muller Hill provides opportunities for interpretation of local cultural and natural resources, boating, fishing and wildlife viewing. Currently there are no facilities to accommodate public access and recreational use at this site.

A 0.50 mile trail accessible to people with disabilities will be constructed between Muller Hill Road and Muller Pond. The former Muller Mansion site will be reclaimed to establish conditions that reference its history. The mature sugar maple shade trees that line the entry drive will be pruned and new trees will be planted to replace those that have died. Interpretive signage describing natural and cultural history, local ecology and state forest management will be installed. A platform will be constructed at the Pond to improve fishing and car- top (canoe and kayak) boating access and to provide opportunities for wildlife viewing. The roadside New York State historic marker will be restored. The Georgetown Historical Society will be encouraged to take an active role in site management through an Adopt-A-Natural Resource Agreement. In addition to maintaining new facilities, the earthen dam at Muller Pond will be mowed on a

biennial basis and the water level control devise (drop box) will be cleared of debris on an annual basis.

9. Design, produce and install three informational kiosks.
Kiosks will supply the public with site specific information on each State land property. Information will include a State land map that identifies important features and recreational facilities; rules and regulations; and a registration box.

10. Maintain 9.3 miles of Public Forest Access Roads
To ensure both public safety and efficiency in conducting forest management activities, PFARs require annual roadside mowing, culvert clearing and bi-annual surface grading.

11. Acquire land from willing sellers to improve access, protect water quality, and enhance other attributes of the Unit.
Any acquisition of land will be from willing sellers and consistent with the guidelines set forth in New York State's Open Space Conservation Plan.

C. Community Forestry

Community Forestry Goal

Strengthen participation of local people in forest management.
Community forestry is a participatory approach to forest management that seeks to build vibrant local economies while protecting and enhancing local forest ecosystems. 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 (Gray).

Community Forestry Objectives
1. Conduct one public program each year to promote community involvement in forest management.
Engaging citizens, local government, schools, conservation organizations and other groups in a dialogue about forest management provides the necessary forum for advancing community forestry. Public programs could include guided walks, workshops, tree planting and other activities that strengthen local involvement in forest and resource 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 and watershed restoration.

3. Encourage participation in the DEC's Cooperative Forest Management (CFM) program.
The Cooperative Forest Management program is designed to advise private landowners on sustainable forestry practices. Department staff will provide forest management assistance for conserving natural resources while at the same time supporting forest-based economies. Silviculture and practices such as stream protection, trail design and habitat improvement provide

benefits beyond the boundaries of individual properties. Furthermore, cooperation with, and between, forest landowners will allow for greater success in achieving landscape level management goals such as conserving biodiversity, protecting watershed quality and raising awareness about local forest conditions.

4. Increase dialogue with local government

Town governments are critical to the success of community forestry efforts. They are the elected representatives of the people who live in rural communities throughout the Muller Hill Unit. Strengthening communication between the Department and local government will ensure that issues of mutual concern are discussed and potential conflicts are identified before they reach an unmanageable level. Town board meetings provide an opportunity for the Department to both update local residents on forest management activities and to discuss issues of local concern.

VI. Management Action Schedules

A. Land Management Actions

The following table presents a 20-year schedule of planned management actions referenced by stand number and year of management. Management treatments scheduled for 2008-2010 are ongoing or complete. Abbreviations or codes for the table are listed following:

Management Direction Codes

Code	Management Direction	Definition
AP	Apple	Apple Trees
BR	Brush	Shrub species other than apple
E	Even aged	Even aged forest with maximum 120 year rotation
EL	Even aged long rotation	Even aged forest with maximum 160 year rotation
ES	Even aged short rotation	Even aged forest with maximum 60 year rotation
EVR	Even aged variable retention	Even aged forest with retention trees and groups
FNA	Future Natural area	Late successional forest currently in plantation
GR	Grass	Grass
NA	Natural area	Late successional forest
PD	Pond	Pond, constructed or natural
U	Uneven aged	Uneven aged forest with 20 year cutting cycle
UVR	Uneven aged variable retention	Uneven aged forest with retention trees and groups
ZA	Protection	Access
ZF	Protection	Recreation areas
ZH	Protection	Historic sites and cultural resources
ZR	Protection	Riparian zones
ZV	Protection	Viewshed
ZW	Protection	Wetlands

Treatment Codes

Code	Treatment	Definition
FW	Firewood	Hardwood firewood harvest
IN	Integrated harvest	Hardwood firewood and sawtimber harvest
MO	Mow	Mow grass
PU	Spruce thinning	Spruce pulpwood and sawtimber harvest
RA	Release apple	Remove trees competing with apple trees
RC	Pine/ larch conversion	Conversion of plantation to hardwood forest
RT	Pine/ larch thinning	Thinning in plantation.
ST	Sawtimber harvest	Hardwood sawtimber harvest
TR	Pine/ larch thinning and conversion	Combination harvest in plantation.
TSI	Timber stand improvement	Non commercial harvest

Vegetation Type and Objective Type Codes

Code	Definition
AP	Apple
BR	Brush
GR	Grass
HE	Hemlock
LA	Japanese or European Larch
NF	Non Forest (Camp Georgetown)
NH	Northern Hardwood
NS	Norway Spruce
PD	Pond
PH	**Pioneer** Hardwood
RP	Red Pine
SH	Norway or White Spruce and Hardwood
SP	Scotch Pine
WO	Wetland Open
WP	White Pine
WS	White Spruce

Table of Land Management Actions

State Forest	Com*	Stand	Acres	Vegetation Type	Management Direction	Objective Type	Year	Treatment	Year**	Add=l Treat
C-M 1	A	1.00	10.9	NH HE	ZW	NH HE				
C-M 1	A	2.00	9.9	NH	E	NH	2010	ST		
C-M 1	A	3.00	2.6	NH NS	E	NH	2014	PU		
C-M 1	A	4.00	37.4	NH	U	NH	2010	ST		
C-M 1	A	5.00	6.0	RP NS	E	NH	2014	RT		
C-M 1	A	6.00	28.3	RP NS	E	NH	2014	RT		
C-M 1	A	7.00	20.0	RP	E	NH	2014	RT		

State Forest	Com*	Stand	Acres	Vegetation Type	Management Direction	Objective Type	Year	Treatment	Year**	Add=l Treat
C-M 1	A	8.00	1.7	RP	E	NH	2014	RT		
C-M 1	A	9.00	3.5	NH	ZW	NH				
C-M 1	A	10.00	6.8	RP	E	NH	2014	RC		
C-M 1	A	11.00	3.5	NH	E	NH	2008	FW		
C-M 1	A	12.00	9.7	NH	E	NH	2010	IN		
C-M 1	A	13.00	2.4	RP	E	NH	2014	RT		
C-M 1	A	14.00	1.5	NH	E	NH				
C-M 1	A	15.00	14.1	NH	E	NH	2010	IN		
C-M 1	A	16.00	7.7	NH	E	NH				
C-M 1	A	17.00	24.2	RP NS	E	NH NS	2017	RT		
C-M 1	A	18.00	9.9	NH	ZS	NH				
C-M 1	A	19.00	10.9	NH HE	ZW	NH HE				
C-M 1	A	20.00	101.6	RP NS	E	NH NS	2017	RT		
C-M 1	A	21.00	22.7	NH	U	NH	2010	IN		
C-M 1	A	22.00	10.2	NH	U	NH	2010	IN		
C-M 1	A	23.00	3.2	SP	E	NH				
C-M 1	A	24.00	26.8	BR NH	E	NH				
C-M 1	A	25.00	6.7	RP NH	EV	NH				
C-M 1	A	26.00	3.0	RP	EV	NH				
C-M 1	A	27.00	5.0	RP NH	ZR	NH				
C-M 1	A	28.00	3.3	NH	ZA	NH				
C-M 1	A	29.00	0.5	NH	E	NH				
C-M 1	A	30.00	5.4	NS LA	E	LA NS				
C-M 1	B	1.00	2.8	RP	ZA	NH				
C-M 1	B	2.00	42.6	NH	E	NH				
C-M 1	B	3.00	10.6	NS RP	E	NH	2010	PU		
C-M 1	B	4.00	13.1	NH	U	NH	2010	IN		
C-M 1	B	5.00	40.6	NH HE	ZR	NH HE				
C-M 1	B	6.00	10.9	NH HE	NA	NH HE				
C-M 1	B	7.00	4.3	NH	ZS	NH				
C-M 1	B	8.00	28.8	RP	ZA	NH				
C-M 1	B	9.00	50.7	NH HE	NA	NH				
C-M 1	B	10.00	36.8	NH	NA	NH				
C-M 1	B	11.00	51.0	RP	E	NH	2015	RT		
C-M 1	B	12.00	10.8	NH HE	U	NH	2010	IN		
C-M 1	B	13.00	8.5	WP	EL	WP NH	2008	RT		
C-M 1	B	14.00	53.7	WP	EL	WP NH	2008	RT		
C-M 1	B	15.00	22.7	NH	U	NH	2015	IN		
C-M 1	B	16.00	12.7	NH	U	NH	2015	FW		
C-M 1	B	17.00	44.3	RP NS	E	NH NS	2019	RT		
C-M 1	B	18.00	125.3	RP NS	E	NH NS	2019	RT		

State Forest	Com*	Stand	Acres	Vegetation Type	Management Direction	Objective Type	Year	Treatment	Year**	Add=l Treat
C-M 1	B	19.00	29.4	NH HE	U	NH HE	2015	IN		
C-M 1	B	20.00	42.6	NH	U	NH	2015	IN		
C-M 1	B	21.00	5.3	NH	U	NH				
C-M 1	B	22.00	28.1	NH HE	ZR ZS	NH HE				
C-M 1	B	23.00	20.2	NS WP	UL	NH WP	2015	PU		
C-M 1	B	24.00	5.1	NH	U	NH	2015	IN		
C-M 1	B	25.00	7.2	NH	ZS	NH				
C-M 1	B	26.00	5.0	WP NS	UL	NH WP	2015	RT PU		
C-M 1	B	27.00	6.5	WP NS	UL	NH WP	2015	RT PU		
C-M 1	B	28.00	7.0	NH	U	NH	2015	IN		
C-M 1	B	29.00	14.0	NH HE	U	NH				
C-M 1	B	30.00	27.0	NH HE	ZR ZS	NH HE				
C-M 1	B	31.00	0.3	GR	BR	BR	2008	RE		
C-M 1	B	32.00	0.5	GR	BR	BR	2008	RE		
C-M 1	C	1.10	55.0	NH WP	E	NH				
C-M 1	C	1.20	10.5	WP	EL	WP NH	2008	RT		
C-M 1	C	1.30	0.5	PD	PD	PD				
C-M 1	C	1.40	2.8	NH WP	EV	NH WP	2010	IN		
C-M 1	C	1.50	8.9	WP	EL	WP NH	2008	RT		
C-M 1	C	2.00	7.6	NH	EV	NH	2010	IN		
C-M 1	C	3.00	128.0	WP NH	E	WP NH	2010			
C-M 1	C	4.00	12.7	NH	E	NH	2012	FW		
C-M 1	C	5.10	46.6	NH	U	NH	2023	IN		
C-M 1	C	5.20	4.8	NH	ZR	NH				
C-M 1	C	5.30	24.3	NH	U	NH	2023	IN		
C-M 1	C	6.00	7.1	NH	U	NH	2023	IN		
C-M 1	C	7.00	78.9	WP NH	EV	WP NH	2017	IN		
C-M 1	C	8.10	15.6	NH	U	NH	2023	IN		
C-M 1	C	8.20	45.2	NH	U	NH	2023	IN		
C-M 1	C	8.30	1.0	BR AP	U	NH				
C-M 1	C	8.40	52.8	NH	U	NH	2020	IN		
C-M 1	C	8.50	4.4	NH HE	U	NH HE	2020	IN		
C-M 1	C	9.00	16.8	RP NS	U	NH	2011	TR		
C-M 1	C	10.00	35.2	NS LA	ZW	NH				
C-M 1	C	11.00	6.1	RP	ZA	NH				
C-M 1	C	12.00	7.3	NH	ZR	NH				
C-M 1	C	13.00	9.2	RP NH	ZA	NH				
C-M 1	C	14.10	4.6	NH HE	ZW	NH HE				
C-M 1	C	14.20	1.4	NH HE	ZW	NH HE				
C-M 1	C	14.30	5.8	NS	ZW	NS NH				
C-M 1	C	15.00	8.7	NH HE	ZW	NH HE				

State Forest	Com*	Stand	Acres	Vegetation Type	Management Direction	Objective Type	Year	Treatment	Year**	Add=l Treat
C-M 1	C	16.10	8.9	NS	ZW	NS NH				
C-M 1	C	16.20	7.0	NS	ZW	NS NH				
C-M 1	C	17.10	65.0	NS	ZW	NS NH				
C-M 1	C	17.20	7.7	NH HE	ZW	NH HE				
C-M 1	C	17.30	0.9	BR	BR	BR AP	2008	RA		
C-M 1	C	17.40	1.5	GR	BR	BR GR	2008	RA		
C-M 1	C	18.00	15.0	WO	ZW	WO				
C-M 1	C	19.10	20.5	NH	ZS	NH				
C-M 1	C	19.20	1.6	NH HE	ZR ZS	NH				
C-M 1	C	19.30	1.9	LA	ZW	NH				
C-M 1	C	19.40	4.1	NH HE	ZS	NH HE				
C-M 1	C	19.50	2.4	NH HE	ZR	NH HE				
C-M 1	C	19.60	17.2	NH	U	NH	2011	IN		
C-M 1	C	19.70	7.1	NH	ZR	NH				
C-M 1	C	19.80	6.0	NH HE	ZS	NH HE				
C-M 1	C	20.00	12.4	NH	U	NH	2011	IN		
C-M 1	C	21.00	35.2	LA	E	NH	2014	RT		
C-M 1	C	22.00	31.0	NH	U	NH	2011	IN		
C-M 2	A	1.10	18.0	NS RP	E	SH	2014	IN		
C-M 2	A	1.20	9.7	RP NS	E	SH	2014	IN		
C-M 2	A	2.10	20.0	NH	U	NH	2016	IN		
C-M 2	A	2.20	8.4	NH	U	NH HE	2016	IN		
C-M 2	A	3.00	4.6	RP NH	ZW	NH				
C-M 2	A	4.00	7.4	NH	EV	NH	2009	FW		
C-M 2	A	5.00	18.0	RP	E	NH	2014	RT		
C-M 2	A	5.20	1.1	NH	E	NH				
C-M 2	A	5.30	2.4	NH	E	NH				
C-M 2	A	5.40	3.8	RP	E	NH	2014	RT		
C-M 2	A	6.00	35.3	NH HE	ZW	NH HE				
C-M 2	A	7.00	2.1	NH	E	NH				
C-M 2	A	8.00	18.1	NH	E	NH				
C-M 2	A	9.00	30.6	NH	U	NH	2009	IN		
C-M 2	A	10.00	30.8	NS RP	E	NH	2022	RT		
C-M 2	A	11.00	3.0	PH	E	PH				
C-M 2	A	12.00	58.9	NH	U	NH	2009	IN		
C-M 2	A	13.00	36.9	NS	E	HS	2025	PU		
C-M 2	A	14.00	12.6	NH	E	NH	2009	FW		
C-M 2	A	15.00	6.3	NH	EV	NH	2009	IN		
C-M 2	A	16.00	4.3	RP	E	NH	2010	TSI		
C-M 2	A	17.00	6.4	RP	E	NH	2010	TSI	2027	RT
C-M 2	A	18.00	9.0	NF	NF	NF				

State Forest	Com*	Stand	Acres	Vegetation Type	Management Direction	Objective Type	Year	Treatment	Year**	Add=l Treat
C-M 2	A	19.00	13.6	NH	E	NH	2027	FW		
C-M 2	A	20.00	25.3	NH HE	U	NH HE	2021	IN		
C-M 2	A	21.00	12.4	NH HE	ZR	NH HE				
C-M 2	A	22.00	14.7	NH HE	ZA	NH HE				
C-M 2	A	23.00	2.8	WO	ZR	WO				
C-M 2	A	24.00	1.1	GR	GR	GR				
C-M 2	A	25.00	10.0	RP NS	ZA	NS RP				
C-M 2	A	26.00	1.7	BR AP	ZH	BR				
C-M 2	A	27.00	0.7	NH	ZR	NH				
C-M 2	A	28.00	2.0	NS	ZR	NS				
C-M 2	A	29.00	3.6	NH	ZA	NH				
C-M 2	A	30.00	2.1	NH	ZA	NH				
C-M 2	A	31.00	11.6	NH	ZA	NH				
C-M 2	A	32.00	2.6	RP NH	ZW	NH				
C-M 2	A	33.00	7.8	NH HE	ZR	NH HE				
C-M 2	A	34.00	3.1	NH	E	NH				
C-M 2	A	35.00	2.5	RP NH	E	BR	2014	RA		
C-M 2	A	36.00	4.5	RP	E	NH	2014	RC		
C-M 2	A	37.00	2.4	NH HE	ZW	NH HE				
C-M 2	A	38.00	14.2	NH HE	ZR	NH HE				
C-M 2	A	39.00	1.8	NH HE	ZW	NH HE				
C-M 2	A	40.00	6.7	NH HE	ZS	NH HE				
C-M 2	A	41.00	0.7	BR	BR	BR				
C-M 2	A	42.00	2.9	NH	E	NH	2010	TSI		
C-M 2	A	43.00	1.5	NH	E	NH	2008	FW		
C-M 2	A	44.00	0.9	BR	BR	BR	2008	RA		
C-M 2	A	45.00	1.3	BR	BR	BR	2008	RA		
C-M 2	A	46.00	4.0	RP	E	NH	2010	TSI	2022	RT
C-M 2	A	47.00	2.1	NH HE	U	NH	2025	IN		
C-M 2	A	48.00	10.3	RP	E	NH	2010	TSI	2022	RT
C-M 2	A	49.00	2.4	NH	ZV	NH				
C-M 2	A	50.00	1.7	NH	E	NH	2009	FW		
C-M 2	A	50.00	1.7	NH	E	NH	2009	FW		
C-M 2	A	51.00	6.7	NH HE	ZR	NH HE				
C-M 2	A	52.00	3.2	NH	ZA	NH				
C-M 2	A	53.00	4.2	NH	ZA	NH				
C-M 2	A	54.00	6.3	LA	E	NH	2024	RT		
C-M 2	A	55.00	2.0	BR	BR	BR				
C-M 2	A	56.00	5.1	NS	E	SH	2012	PU/TSI		
C-M 2	A	57.00	1.7	RP	E	NH				
C-M 2	A	58.00	4.0	LA	E	NH	2012	TSI		

State Forest	Com*	Stand	Acres	Vegetation Type	Management Direction	Objective Type	Year	Treatment	Year**	Add=l Treat
C-M 2	A	59.00	3.2	RP NS	E	NH	2012	TSI		
C-M 2	A	60.00	3.9	GR	GR	GR	2008	MO		
C-M 2	A	61.00	11.5	BR	BR	BR	2008	RA		
C-M 2	A	62.00	9.1	NH	EV	NH				
C-M 2	A	63.00	0.9	WO	ZW	WO				
C-M 2	A	64.00	14.3	NH	U	NH	2025	ST		
C-M 2	B	1.00	54.3	NS RP	E	SH	2024	IN		
C-M 2	B	2.00	11.6	WO	ZW ZH	WO				
C-M 2	B	3.00	16.9	NH	E	NH	2011	ST		
C-M 2	B	4.00	35.1	NH	E	NH	2021	ST		
C-M 2	B	5.00	14.8	NH	U	NH	2011	IN		
C-M 2	B	6.00	7.0	NS RP	E	SH	2013	IN		
C-M 2	B	7.00	7.4	NH HE	E	NH	2022	FW		
C-M 2	B	8.00	6.6	NH	E	NH	2022	FW		
C-M 2	B	9.00	15.7	NH HE	ZR	NH HE				
C-M 2	B	10.00	25.2	RP	E	NH	2012	RT		
C-M 2	B	11.00	14.8	NH	E	NH	2021	ST		
C-M 2	B	12.00	1.4	NH	E	NH	2011	TSI		
C-M 2	B	13.00	11.6	NH	U	NH	2020	ST		
C-M 2	B	14.00	3.6	NH	U	NH	2020	IN		
C-M 2	B	15.00	2.6	WO	ZW	WO				
C-M 2	B	16.00	6.8	RP	E	NH				
C-M 2	B	17.00	3.7	NS	E	SH	2009	TSI		
C-M 2	B	18.00	31.1	NH HE	UV	NH	2024	ST		
C-M 2	B	19.00	6.9	NH	U	NH	2011	IN		
C-M 2	B	20.00	25.8	RP WP	E	NH	2014	RT		
C-M 2	B	21.00	64.2	RP NS	E	SH	2024	IN		
C-M 2	B	22.00	2.1	NH	ZH	NH				
C-M 2	B	23.00	8.2	NS RP	E	SH	2013	IN		
C-M 2	B	24.00	1.6	NH	UV	NH				
C-M 2	B	25.00	2.4	BR	ZH	BR				
C-M 2	B	26.00	0.3	BR	ZH	BR				
C-M 2	B	27.00	1.5	NH HE	ZW	NH HE				
C-M 2	B	28.00	8.6	NH	E	NH	2008	FW	2021	ST
C-M 2	B	29.00	4.3	NH HE	ZS	NH HE				
C-M 2	B	30.00	6.8	NS	ZS	NS				
C-M 2	B	31.00	0.4	NS	E	NH				
C-M 2	B	32.00	9.2	WO	ZW	WO				
C-M 2	B	33.00	2.3	RP	E	NH	2011	RT		
C-M 2	B	34.00	0.9	NH	E	NH				
C-M 2	B	35.00	0.6	BR	ZH	BR	2009	RA		

State Forest	Com*	Stand	Acres	Vegetation Type	Management Direction	Objective Type	Year	Treatment	Year**	Add=l Treat
C-M 2	B	36.00	2.6	NS	ZW	NH				
C-M 2	B	37.00	4.4	NH	UV	NH	2024	ST		
C-M 2	B	38.00	23.1	RP NH	U	NH	2014	TR		
M 3	A	1.00	21.6	NH	E	NH	2009	FW		
M 3	A	2.00	2.2	NH HE	ZW	NH HE				
M 3	A	3.00	2.8	NH	E	NH	2026	FW		
M 3	A	4.00	4.2	AP	E	AP	2026	RA		
M 3	A	5.10	35.8	NS RP	E	NH NS	2016	RT		
M 3	A	5.20	2.4	NH	E	NH				
M 3	A	5.30	2.2	NS RP	ZS	NH NS				
M 3	A	5.40	3.2	NS RP	E	NH	2016	RC		
M 3	A	6.00	6.2	NH NS	ZR	NH NS				
M 3	A	7.00	0.7	NH	ZW	NH				
M 3	A	8.00	45.4	NH	U	NH	2026	IN		
M 3	A	9.00	6.0	NH	ZS	NH				
M 3	A	10.00	78.0	RP SP	E	NH	2026	RT		
M 3	A	11.00	3.0	NH	ZR	NH				
M 3	A	12.00	1.7	BR	ZH	OPEN				
M 3	A	13.00	9.3	RP NH	E	NH	2026	RT		
M 3	A	14.00	40.5	RP	E	NH	2026	RT		
M 3	A	15.00	11.2	NS RP	E	NH	2022	PU		
M 3	A	16.00	4.5	NH HE	ZR	NH HE				
M 3	A	17.00	14.0	NS RP	E	NH	2022	PU		
M 3	A	18.00	5.4	NH	UV	NH	2022	IN		
M 3	A	19.00	46.8	NH	U	NH	2026	IN		
M 3	A	20.00	22.7	NH	ZA ZR	NH				
M 3	A	21.00	10.6	NH HE	ZR	NH HE				
M 3	A	22.00	101.6	NH	UV	NH	2016	IN		
M 3	A	23.00	59.1	NH	UV	NH	2016	IN		
M 3	A	25.00	10.3	WP NH	EL	WP NH	2024	RT		
M 3	A	26.00	6.7	NH	E	NH				
M 3	A	27.00	10.8	RP NS	E	NH	2024	RT		
M 3	A	28.00	9.0	NH	ZR ZH	NH				
M 3	A	29.00	6.1	NH NS	E	NH NS	2026	RT		
M 3	A	30.00	4.0	NH	U	NH	2011	FW		
M 3	A	31.00	59.6	RP NS	E	NH NS	2012	RT		
M 3	A	32.00	14.4	RP NS	E	NH NS	2026	RT		
M 3	A	33.00	5.8	NH	E	NH				
M 3	A	34.00	5.1	NH	E	NH	2014	TSI		
M 3	A	35.00	2.4	NH	E	NH				
M 3	A	36.00	1.7	NH	E	NH	2014	TSI		

State Forest	Com*	Stand	Acres	Vegetation Type	Management Direction	Objective Type	Year	Treatment	Year**	Add=l Treat
M 3	A	37.00	2.7	NH	E	NH	2014	FW		
M 3	A	38.00	12.7	AP	BR	BR	2014	RA		
M 3	A	39.00	0.4	RP	ZR	ZR				
M 3	A	40.00	1.0	BR	PT	BR	2014	RA		
M 3	A	42.00	10.0	AP	BR	BR	2014	RA		
M 3	A	43.00	7.7	NH	U	NH	2010	FW		
M 3	A	44.00	1.1	NH	BR	BR	2014	RA		
M 3	A	45.00	3.7	NH	E	NH	2010	FW		
M 3	A	46.00	7.2	NH	E	NH	2026	FW		
M 3	A	47.00	11.2	NH	E	NH	2014	IN		
M 3	A	48.00	21.4	RP NH	ZR	ZR				
M 3	A	50.00	1.9	RP NH	ZV	ZV				
M 3	A	51.00	1.2	RP	ZV	ZV				
M 3	A	52.10	1.4	NH	E	NH	2012	FW		
M 3	A	52.20	1.0	RP	E	NH	2012	RT		
M 3	A	53.00	2.5	NH	ZR	NH				
M 3	A	54.00	11.6	RP	E	NH	2012	RT		
M 3	A	55.00	9.4	NH	E	NH	2016	IN		
M 3	A	56.00	4.9	NH	ZR	ZR				
M 5	A	1.00	37.0	NH	E	NH	2018	IN		
M 5	A	2.00	5.2	RP	E	NH	2013	RC		
M 5	A	3.00	6.2	NH	E	NH				
M 5	A	4.00	9.7	NH HE	ZR	NH HE				
M 5	A	5.00	3.8	NH HE	ZR	NH HE				
M 5	A	6.00	31.8	NH	E	NH	2018	IN		
M 5	A	7.00	1.2	NH	E	NH				
M 5	A	8.00	27.2	NH	E	NH	2018	IN		
M 5	A	9.00	2.1	NH	E	NH				
M 5	A	10.10	20.2	NH	E	NH				
M 5	A	10.20	3.5	RP	E	NH	2013	RT		
M 5	A	10.30	11.3	RP	E	NH	2013	RC		
M 5	A	11.00	6.2	NH	E	NH	2018	IN		
M 5	A	12.00	19.6	NH	ZR	NH				
M 5	A	13.10	3.7	RP	E	NH	2013	TSI		
M 5	A	13.20	1.1	RP	E	NH	2013	TSI		
M 5	A	13.30	2.3	RP	E	NH	2013	TSI		
M 5	A	14.10	20.2	RP	E	NH	2013	RT		
M 5	A	14.20	7.9	RP	E	NH	2023	RT		
M 5	A	15.00	16.8	NH	U	NH	2023	FW		
M 5	A	16.10	4.7	RP	E	NH	2023	RT		
M 5	A	16.20	3.6	NH	E	NH				

State Forest	Com*	Stand	Acres	Vegetation Type	Management Direction	Objective Type	Year	Treatment	Year**	Add=l Treat
M 5	A	16.30	3.9	RP	E	NH	2010	RC		
M 5	A	17.10	0.6	NH	ZA	NH				
M 5	A	17.20	0.7	RP	ZA	RP				
M 5	A	17.30	0.5	NH	ZA	NH				
M 5	A	18.00	0.4	NH	ZH	BR				
M 5	A	19.00	5.5	NH	U	NH	2023	IN		
M 5	A	20.00	18.9	NH HE	ZR	NH HE				
M 5	A	21.00	13.2	NH	U	NH	2012	ST		
M 5	A	22.00	6.7	NH	U	NH	2012	ST		
M 5	A	23.00	14.8	NH	E	NH	2018	IN		
M 5	A	24.00	16.3	NH HE	ZW	NH HE				
M 5	A	25.00	22.3	WP NS	E	NS WP	2016	RT		
M 5	A	26.00	2.7	NH	E	NH	2023	ST		
M 5	A	27.00	5.3	NH	ZW	NH				
M 5	A	28.00	9.0	NH	E	NH	2023	ST		
M 5	A	29.00	6.9	NH	E	NH	2023	ST		
M 5	A	30.00	22.3	WP WS	ZR	WP WS				
M 5	A	31.00	9.8	NH	E	NH				
M 5	A	32.00	6.9	NH	E	NH	2020	ST		
M 5	A	33.00	8.9	NH	E	NH	2020	IN		
M 5	A	34.00	11.3	NH	E	NH	2010	FW		
M 5	A	35.00	12.8	NH	E	NH	2020	ST		
M 5	A	36.00	23.3	NH HE	ZR	NH HE				
M 5	A	37.00	9.2	NS WP	E	NS WP	2016	ST		
M 5	A	38.00	2.8	NH	E	NH				
M 5	A	39.00	2.1	NS WP	E	NH	2013	IN		
M 5	A	40.00	17.0	NH	E	NH	2018	IN		
M 5	A	41.00	3.9	WP	E	WP	2018	TSI		
M 5	A	42.00	14.5	NH	U	NH	2020	ST		
M 5	A	43.00	12.5	PD	PD	PD				
M 5	A	44.00	13.8	NH HE	ZW	NH HE				
M 5	A	45.00	7.8	NH	E	NH	2010	IN		
M 5	A	46.00	24.4	NH	E	NH	2010	IN		
M 5	A	47.00	19.8	NH	E	NH	2010	ST		
M 5	A	48.00	6.6	NH	E	NH	2010	IN		
M 5	A	49.00	10.5	WS NH	E	WS	2010	PU		
M 5	A	50.00	0.9	WS NH	ZR	NH WS				
M 5	A	51.00	13.2	WS	E	WS	2010	PU		
M 5	A	52.00	8.0	NH	E	NH	2018	IN		
M 5	A	53.00	22.6	WP WS	E	WP	2018	TSI		
M 5	A	54.10	24.5	WP WS	E	WP	2020	TSI		

State Forest	Com*	Stand	Acres	Vegetation Type	Management Direction	Objective Type	Year	Treatment	Year**	Add=l Treat
M 5	A	54.20	2.6	WP	E	WP	2020	TSI		
M 5	A	54.30	22.0	WP WS	E	WP	2010	TSI		
M 5	A	55.00	3.9	WP NH	ZR	NH WP				
M 5	A	56.00	2.5	NH WP	ZH	BR				
M 5	A	57.00	1.2	WP NH	E	NH	2010	FW		
M 5	A	58.00	56.0	WP NS	EV	WP	2024	ST		
M 5	A	59.00	9.6	NH HE	U	NH HE	2027	IN		
M 5	A	60.00	17.8	NH HE	U	NH HE	2027	ST		
M 5	A	61.00	8.7	NH HE	U	NH HE	2027	ST		
M 5	A	62.00	12.9	NH HE	ZW	NH HE				
M 5	A	63.00	1.0	NH	E	NH	2024	IN		
M 5	A	64.00	26.0	NH	U	NH	2017	ST		
M 5	A	65.10	16.1	WP NS	E	WP	2024	IN		
M 5	A	65.20	1.0	NS WP	E	NH WP	2024	IN		
M 5	A	66.00	27.0	NH HE	ZR	NH HE				
M 5	A	67.00	54.1	NH	U	NH	2017	ST		
M 5	A	68.10	28.7	NS WP	E	NS WP	2016	ST		
M 5	A	68.20	40.2	WP NS	E	NS WP	2016	IN		
M 5	A	68.30	7.0	WP NS	ZR	NS WP				
M 5	A	69.00	11.2	WP NS	E	NS WP	2016	RT		
M 5	A	70.00	1.6	LA	E	NH	2010	RT		
M 5	A	71.00	71.1	NH	U	NH	2019	ST		
M 5	A	72.10	17.6	NS WP	E	NS WP	2014	IN		
M 5	A	72.20	4.5	NS WP	ZR	NH HE				
M 5	A	72.30	7.9	NS WP	E	NS WP	2014	IN		
M 5	A	72.40	8.3	NH	E	NH	2011	ST		
M 5	A	72.50	4.2	NS WP	E	NS WP	2014	IN		
M 5	A	73.00	5.4	WS	E	WS NH				
M 5	A	74.10	0.8	NH	NA	NH				
M 5	A	74.20	1.8	WP NS	NA	NH WP				
M 5	A	75.00	9.9	NH	NA	NH				
M 5	A	76.00	7.3	NH HE	ZR	NH HE				
M 5	A	77.10	15.6	WP NH	NA	WP NH				
M 5	A	77.20	1.2	WP NH	ZR	WP NH				
M 5	A	77.30	20.6	WP NH	NA	WP NH				
M 5	A	78.10	9.5	WS	NA	NH				
M 5	A	78.20	1.3	WP WS	ZR	WP WS				
M 5	A	78.30	0.7	NH	NA	NH				
M 5	A	79.00	17.0	NH	NA	NH				
M 5	A	80.10	41.9	NH	NA	NH				
M 5	A	80.20	4.6	NH HE	NA	NH HE				

State Forest	Com*	Stand	Acres	Vegetation Type	Management Direction	Objective Type	Year	Treatment	Year**	Add=l Treat
M 5	A	80.30	20.2	NH HE	NA	NH HE				
M 5	A	81.00	35.5	NH	NA	NH				
M 5	A	82.10	13.5	NH	NA	NH				
M 5	A	82.20	3.0	NH HE	ZW	NH HE				
M 5	A	83.00	44.9	NH HE	ZR	NH HE				
M 5	A	84.00	20.7	NH	E	NH	2008	ST IN		
M 5	A	85.00	25.8	RP	E	NH	2010	RT		
M 5	A	86.00	7.8	NH	E	NH	2008	IN		
M 5	A	87.00	15.1	NH	U	NH	2019	ST		
M 5	A	88.00	35.6	NH	U	NH	2019	ST		
M 5	A	89.00	25.3	NH	NA	NH				
M 5	A	90.00	19.5	NH	NA	NH				
M 5	A	91.00	3.8	NH	ZH	NH				
M 5	A	92.10	32.2	NH	NA	NH				
M 5	A	92.20	2.7	NH HE	ZW	NH HE				
M 5	A	93.00	2.0	RP NH	NA	NH				
M 5	A	94.00	4.3	RP	NA	RP NH				
M 5	A	95.00	8.7	NH	NA	NH				
M 5	A	96.00	4.2	NH HE	ZW	NH HE				
M 5	A	97.00	13.1	NH	NA	NH				
M 5	A	98.10	39.5	NH HE	ZW	NH HE				
M 5	A	98.20	2.2	NH HE	ZW	NH HE				
M 5	A	99.00	11.6	RP	ZA	RP NH				
M 5	A	100.00	0.8	NH	E	NH				
M 5	A	101.00	17.8	NH	ZR	NH				
M 5	A	102.00	1.7	NH	EL	NH				
M 5	A	103.00	35.6	NH	E	NH	2026	TSI		
M 5	A	104.00	17.0	NS	E	NS	2026	TSI		
M 5	A	105.00	47.8	RP NH	E	NH	2026	IN		
M 5	A	106.00	20.8	RP	FNA	NH	2008	RT		
M 5	A	107.00	23.6	NH	NA	NH				
M 5	A	108.00	1.4	PT	BR	BR				
M 5	A	109.00	16.1	NH	NA	NH				
M 5	A	110.00	2.9	RP NH	ZR	NH RP				
M 5	A	111.10	10.7	NH	NA	NH				
M 5	A	111.20	12.1	NH	NA	NH				
M 5	A	112.10	11.6	RP	FNA	NH	2008	RT		
M 5	A	112.20	29.3	RP	FNA	NH	2008	RT		
M 5	A	113.10	11.4	NH HE	ZR	NH HE				
M 5	A	113.20	3.8	NH	NA	NH HE				
M 5	B	1.00	9.9	RP	E	NH	2010	RC		

State Forest	Com*	Stand	Acres	Vegetation Type	Management Direction	Objective Type	Year	Treatment	Year**	Add=l Treat
M 5	B	2.00	5.5	NH	E	NH	2020	FW		
M 5	B	3.00	4.2	NH	E	NH	2020	IN		
M 5	B	4.00	2.9	RP NH	ZA	NH RP				
M 5	B	5.00	26.2	NH	UV	NH	2012	IN		
M 5	B	6.00	5.1	NH HE	ZR	NH HE				
M 5	B	7.00	6.5	NH	U	NH	2012	IN		
M 5	B	8.00	8.4	NH	U	NH	2008	FW		
M 5	B	9.00	41.3	NH	E	NH	2020	ST		
M 5	B	10.10	24.5	NH	U	NH	2009	ST		
M 5	B	10.20	4.1	NH	ZR	NH				
M 5	B	10.30	6.6	NH HE	U	NH	2008	FW		
M 5	B	10.40	2.7	NH HE	ZR	NH HE				
M 5	B	10.50	2.0	NH	U	NH	2008	FW		
M 5	B	11.00	25.3	NH	U	NH	2009	IN		
M 5	B	12.00	3.0	NH HE	ZW	NH HE				
M 5	B	13.10	5.5	NH	U	NH	2010	IN		
M 5	B	13.20	3.4	NH HE	U	NH	2010	IN		
M 5	B	14.00	3.6	NH HE	ZR	NH HE				
M 5	B	15.10	20.3	NH	E	NH	2010	ST		
M 5	B	15.20	31.1	NH	U	NH	2010	ST		
M 5	B	16.00	10.5	NS	E	NS NH	2021	PU		
M 5	B	17.00	4.3	NS	E	NS NH	2021	PU		
M 5	B	18.00	36.8	NS	E	NS NH	2021	PU		
M 5	B	19.00	1.2	NH	ZH	NH				
M 5	B	20.00	4.1	NH NS	E	NH	2021	PU		
M 5	B	21.00	16.2	NH HE	ZR ZH	NH HE				
M 5	B	22.00	13.9	NH NS	E	NH NS	2008	FW		
M 5	B	23.00	3.4	NH HE	U	NH HE	2010	IN		
M 5	B	24.00	16.3	NS	E	NS NH	2015	PU		
M 5	B	25.00	6.2	NS WS	E	NS NH	2015	PU		
M 5	B	26.00	9.2	NS	E	NS NH	2015	PU		
M 5	B	27.00	10.3	NS	E	NS NH	2015	PU		
M 5	B	28.00	2.5	NH	EV	NH	2023	IN		
M 5	B	29.10	17.8	NH	EV	NH				
M 5	B	29.20	1.1	NH SP	ZR	NH				
M 5	B	30.00	13.9	NH	E	NH	2015	ST		
M 5	B	31.00	5.3	RP SP	ZR	RP SP				
M 5	B	32.00	17.0	NF	NF	NF				
M 5	B	33.10	10.1	RP NH	U	NH	2017	IN		
M 5	B	33.20	4.1	NH WS	ZR	NH				
M 5	B	34.00	1.9	NS	E	NS NH				

State Forest	Com*	Stand	Acres	Vegetation Type	Management Direction	Objective Type	Year	Treatment	Year**	Add=l Treat
M 5	B	35.10	0.9	BR	BR	BR				
M 5	B	35.10	21.4	RP WS	E	NH	2017	RT		
M 5	B	36.00	3.7	NH HE	U	NH HE				
M 5	B	37.00	2.2	RP NH	E	NH	2017	RT		
M 5	B	38.10	15.9	RP WS	E	NH	2017	RT		
M 5	B	38.20	8.4	RP NH	E	NH	2017	RC		
M 5	B	39.00	8.5	NH	U	NH	2015	ST		
M 5	B	40.00	10.8	NH	U	NH	2015	IN		
M 5	B	41.00	36.3	RP NS	U	NH	2017	RT		
M 5	B	42.00	12.8	NS	E	NS	2009	ST		
M 5	B	43.00	4.8	NH NS	E	NH	2009	ST		
M 5	B	44.00	5.9	NH	ZS	NH				
M 5	B	45.00	4.8	NH	BR	NH				
M 5	B	46.00	3.7	NS	E	NH	2009	PU		
M 5	B	47.00	2.3	NH	ZH	NH				
M 5	B	48.00	10.9	NS	ZR	NS NH				
M 5	B	49.00	4.3	NH HE	ZR	NH HE				
M 5	B	50.00	35.5	NH NS	E	NH NS	2009	PU		
M 5	B	51.00	3.2	NH	ZR	NH				
M 5	B	52.00	8.7	NH HE	ZR	NH HE				
M 5	B	53.00	8.7	NH HE	NA	NH HE				
M 5	B	54.10	6.6	NH	E	NH	2015	IN		
M 5	B	54.20	2.9	NH	E	NH				
M 5	B	54.30	17.5	NH	E	NH				
M 5	B	55.10	7.0	NH	E	NH	2015	ST		
M 5	B	55.20	2.8	NH	ZR	NH				
M 5	B	55.30	9.2	NH	E	NH	2015	ST		
M 5	B	56.10	23.5	NH	E	NH	2015	ST		
M 5	B	56.20	3.3	NH HE	ZR	NH HE				
M 5	B	57.00	5.5	NH HE	ZR	NH HE				
M 5	B	58.00	5.6	NH HE	ZW	NH HE				
M 5	B	59.00	4.8	NH HE	NA	NH HE				
M 5	B	60.00	3.2	NH	NA	NH				
M 5	B	61.00	3.9	NH HE	ZW	NH HE				
M 5	B	62.00	2.3	NH HE	ZR	NH HE				
M 5	B	63.00	15.5	RP NH	E	NH	2021	RT		
M 5	B	64.00	3.4	RP NH	E	NH	2010	RT		
M 5	B	65.00	4.4	NH	E	NH	2008	FW		
M 5	B	66.00	10.7	RP	E	NH	2008	RT		
M 5	B	67.00	7.4	NH HE	ZW	NH HE				
M 5	B	68.00	7.7	NH	NA	NH				

State Forest	Com*	Stand	Acres	Vegetation Type	Management Direction	Objective Type	Year	Treatment	Year**	Add=l Treat
M 5	B	69.00	4.9	NH HE	ZR ZS	NH HE				
M 5	B	70.00	17.5	RP WS	E	NH	2021	RT		
M 5	B	71.00	8.2	RP NH	E	NH	2008	RT		
M 5	B	72.00	7.1	NH	ZR ZS	NH				
M 5	B	73.00	0.6	BR	BR	BR	2008	RE		
M 5	B	74.00	1.3	NH	EV	NH	2008	FW		
M 5	B	75.00	9.1	RP NH	E	NH	2012	RC		
M 5	B	76.00	0.9	NH	E	NH	2012	FW		
M 5	B	77.00	3.6	NH	E	NH				
M 5	B	78.00	4.7	RP	E	NS				
M 5	B	79.00	10.1	RP NH	E	NH	2012	RT		
M 5	B	80.00	2.8	NH	EV	NH	2012	FW		
M 5	B	81.00	25.1	NH NS	E	NH	2015	PU		
M 5	B	82.10	16.8	NH	U	NH	2015	ST		
M 5	B	82.20	5.1	NH	ZS	NH				
M 5	B	83.00	1.8	PT	PT	BR				
M 5	B	84.10	110.5	RP LA	E	NH	2022	RT		
M 5	B	84.20	3.7	NH	E	NH				
M 5	B	84.30	5.2	RP NS	ZS	NS RP				
M 5	B	85.00	2.0	NH	U	NH				
M 5	B	86.00	2.5	NH	NA	NH				
M 5	B	87.00	2.2	NH	NA	NH				
M 5	B	88.00	4.3	NS RP	E	NH NS	2022	RC		
M 5	B	89.00	14.4	NS RP	E	NS NH	2022	RT PU		
M 5	B	90.00	0.7	NH	E	NH				
M 5	B	91.00	8.0	NH	E	NH	2022	IN		
M 5	B	92.00	2.3	NH	E	NH				
M 5	B	93.00	5.1	NH NS	E	NS				
M 5	B	94.00	16.0	WS NH	E	WS				

B. Summary of Annual Stand Treatments (acres)

Year	Pine	Spruce	Hardwood	Firewood	TSI	Other	Acres
2008	162	17	11	50	0	22	262
2009	0	87	115	45	4	0	251
2010	41	34	260	24	50	0	409
2011	19	0	107	4	1	0	131
2012	116	0	52	18	7	6	199
2013	40	0	17	0	7	1	65
2014	185	3	58	3	7	27	283
2015	51	87	203	13	0	11	365
2016	113	0	236	0	0	0	349
2017	220	0	80	0	0	0	300
2018	0	0	142	0	26	0	168
2019	170	0	121	0	0	0	291
2020	0	0	161	5	27	0	193
2021	36	56	75	0	0	0	167
2022	160	25	13	14	0	0	212
2023	13	0	166	18	0	0	197
2024	107	55	93	0	0	0	255
2025	0	37	16	0	0	0	53
2026	188	0	100	10	53	3	354
2027	0	0	36	14	0	0	50
Totals	**1,621**	**401**	**2,062**	**218**	**182**	**70**	**4,554**
Acres per Year	**81**	**20**	**103**	**11**	**9**	**4**	**228**

Stand Treatment Schedule by Year

Year	Forest	Stand		Acres	Action
2008	**C-M 1**	A	11	3.5	FW
		B	13	8.5	RT
		B	14	53.7	RT
		B	31	0.3	RE
		B	32	0.5	RE
		C	1.2	10.5	RT
		C	1.5	8.9	RT
		C	17.3	0.9	RA
		C	17.4	1.5	RA
	C-M 2	A	43	1.5	FW
		A	44	0.9	RA
		A	45	1.3	RA
		A	60	3.9	MO
		A	61	11.5	RA
		B	28	8.6	FW
	M 5	A	84	20.7	IN
		A	86	7.8	IN
		A	106	20.8	RT
		A	112.1	11.6	RC
		A	112.2	29.3	RC
		B	8	8.4	FW
		B	10.3	6.6	FW
		B	10.5	2	FW
		B	22	13.9	FW
		B	65	4.4	FW
		B	66	10.7	RT
		B	71	8.2	RT
		B	73	0.6	RE
		B	74	1.3	FW
2009	**C-M 2**	A	4	7.4	FW
		A	9	30.6	IN
		A	12	58.9	IN
		A	14	12.6	FW
		A	15	6.3	IN
		A	50	1.7	FW
		A	50	1.7	FW
		B	17	3.7	TS
		B	35	0.6	RA
	M 3	A	1	21.6	FW
	M 5	B	10.1	24.5	ST
		B	11	25.3	IN
		B	42	12.8	ST
		B	43	4.8	ST
		B	46	3.7	PU
		B	50	35.5	PU
2010	**C-M 1**	A	2	9.9	ST
		A	4	37.4	ST

Year	Forest	Stand		Acres	Action
	C-M 1	A	12	9.7	IN
		A	15	14.1	IN
		A	21	22.7	IN
		A	22	10.2	IN
		B	3	10.6	PU
		B	4	13.1	IN
		B	12	10.8	IN
		C	1.4	2.8	IN
		C	2	7.6	IN
		C	3	32	TS
	C-M 2	A	16	4.3	TS
		A	17	6.4	TS
		A	42	2.9	TS
		A	46	4	TS
		A	48	10.3	TS
	M 3	A	43	7.7	FW
		A	45	3.7	FW
	M 5	A	16.3	3.9	RC
		A	34	11.3	FW
		A	45	7.8	IN
		A	46	24.4	IN
		A	47	19.8	ST
		A	48	6.6	IN
		A	49	10.5	PU
		A	51	13.2	PU
		A	54.2	22	TS
		A	57	1.2	FW
		A	70	1.6	RT
		A	85	25.8	RT
		B	1	9.9	RC
		B	13.1	5.5	IN
		B	13.2	3.4	IN
		B	15.1	20.3	ST
		B	15.2	31.1	ST
		B	23	3.4	IN
		B	64	3.4	RT
2011	**C-M 1**	C	9	16.8	TR
		C	19.6	17.2	IN
		C	20	12.4	IN
		C	22	31	IN
	C-M 2	B	3	16.9	ST
		B	5	14.8	IN
		B	12	1.4	TS
		B	19	6.9	IN
		B	33	2.3	RT
	M 3	A	30	4	FW
	M 5	A	72.4	8.3	ST

Year	Forest	Stand		Acres	Action
2012	**C-M 1**	C	4	12.7	FW
	C-M 2	A	56	5.1	PU
		A	58	4	TS
		A	59	3.2	TS
		B	10	25.2	RT
	M 3	A	31	59.6	RT
		A	52.1	1.4	FW
		A	52.2	1	RT
		A	54	11.6	RT
	M 5	A	21	13.2	ST
		A	22	6.7	ST
		B	5	26.2	IN
		B	7	6.5	IN
		B	75	9.1	RC
		B	75	9.1	PT
		B	76	0.9	FW
		B	79	10.1	RT
		B	80	2.8	FW
2013	**C-M 2**	B	6	7	IN
		B	23	8.2	IN
	M 5	A	2	5.2	RC
		A	10.2	3.5	RT
		A	10.3	11.3	RC
		A	13.1	3.7	TS
		A	13.2	1.1	TS
		A	13.3	2.3	TS
		A	14.1	20.2	RT
		A	39	2.1	IN
2014	**C-M 1**	A	3	2.6	PU
		A	5	6	RT
		A	6	28.3	RT
		A	7	20	RT
		A	8	1.7	RT
		A	10	6.8	RC
		A	13	2.4	RT
		C	21	35.2	RT
	C-M 2	A	1.1	18	IN
		A	1.2	9.7	IN
		A	5	18	RT
		A	5.4	3.8	RT
		A	35	2.5	RA
		A	36	4.5	RC
		B	20	25.8	RT
		B	38	23.1	TR
	M 3	A	34	5.1	TS
		A	36	1.7	TS
		A	37	2.7	FW
		A	38	12.7	RA

Year	Forest	Stand		Acres	Action
	M 3	A	40	1	RA
		A	42	10	RA
		A	44	1.1	RA
		A	47	11.2	IN
	M 5	A	72.1	17.6	IN
		A	72.3	7.9	IN
		A	72.5	4.2	IN
2015	**C-M 1**	B	11	51	RT
		B	15	22.7	IN
		B	16	12.7	FW
		B	19	29.4	IN
		B	20	42.6	IN
		B	23	20.2	PU
		B	24	5.1	IN
		B	26	5	RT PU
		B	27	6.5	RT PU
		B	28	7	IN
		C	3	32	TS
	M 5	B	24	16.3	PU
		B	25	6.2	PU
		B	26	9.2	PU
		B	27	10.3	PU
		B	30	13.9	ST
		B	39	8.5	ST
		B	40	10.8	IN
		B	54.1	6.6	IN
		B	55.1	7	ST
		B	55.3	9.2	ST
		B	56.1	23.5	ST
		B	81	25.1	PU
		B	82.1	16.8	ST
2016	**C-M 2**	A	2.1	20	IN
		A	2.2	8.4	IN
	M 3	A	5.1	35.8	RT
		A	5.4	3.2	RC
		A	22	101.6	IN
		A	23	59.1	IN
		A	55	9.4	IN
	M 5	A	25	22.3	RT
		A	37	9.2	ST
		A	68.1	28.7	ST
		A	68.2	40.2	IN
		A	69	11.2	RT
2017	**C-M 1**	A	17	24.2	RT
		A	20	101.6	RT
		C	7	19.7	TS
	M 5	A	64	26	ST
		A	67	54.1	ST

Year	Forest	Stand		Acres	Action
2017	**M 5**	B	33.1	10.1	IN
		B	35.1	21.4	RT
		B	37	2.2	RT
		B	38.1	15.9	RT
		B	38.2	8.4	RC
		B	41	36.3	RT
2018	**M 5**	A	1	37	IN
		A	6	31.8	IN
		A	8	27.2	IN
		A	11	6.2	IN
		A	23	14.8	IN
		A	40	17	IN
		A	41	3.9	TS
		A	52	8	IN
		A	53	22.6	TS
2019	**C-M 1**	B	17	44.3	RT
		B	18	125.3	RT
	M 5	A	71	71.1	ST
		A	87	15.1	ST
		A	88	35.6	ST
2020	**C-M 1**	C	3	32	TS
		C	7	19.7	TS
		C	8.4	52.8	IN
		C	8.5	4.4	IN
	C-M 2	B	13	11.6	ST
		B	14	3.6	IN
	M 5	A	32	6.9	ST
		A	33	8.9	IN
		A	35	12.8	ST
		A	42	14.5	ST
		A	54.1	24.5	TS
		A	54.2	2.6	TS
		B	2	5.5	FW
		B	3	4.2	IN
		B	9	41.3	ST
2021	**C-M 2**	A	20	25.3	IN
		B	4	35.1	ST
		B	11	14.8	ST
		B	28	8.6	ST
	M 5	B	16	10.5	PU
		B	17	4.3	PU
		B	18	36.8	PU
		B	20	4.1	PU
		B	63	15.5	RT
		B	70	17.5	RT
2022	**C-M 2**	A	10	30.8	RT
		A	46	4	RT
		A	48	10.3	RT

Year	Forest	Stand		Acres	Action
	C-M 2	B	7	7.4	FW
		B	8	6.6	FW
	M 3	A	15	11.2	PU
		A	17	14	PU
		A	18	5.4	IN
	M 5	B	84.1	110.5	RT
		B	88	4.3	RC
		B	89	14.4	RT PU
		B	91	8	IN
2023	**C-M 1**	C	5.1	46.6	IN
		C	5.3	24.3	IN
		C	6	7.1	IN
		C	7	19.7	TS
		C	8.1	15.6	IN
		C	8.2	45.2	IN
	M 5	A	14.2	7.9	RT
		A	15	16.8	FW
		A	16.1	4.7	RT
		A	19	5.5	IN
		A	26	2.7	ST
		A	28	9	ST
		A	29	6.9	ST
		B	28	2.5	IN
2024	**C-M 2**	A	54	6.3	RT
		B	1	54.3	IN
		B	21	64.2	IN
		B	37	4.4	ST
	M 3	A	25	10.3	RT
		A	27	10.8	RT
	M 5	A	58	56	ST
		A	63	1	IN
		A	65.1	16.1	IN
		A	65.2	1	IN
2025	**C-M 1**	C	3	32	TS
	C-M 2	A	13	36.9	PU
		A	47	2.1	IN
		A	64	14.3	ST
2026	**C-M 1**	C	7	19.8	TS
	M 3	A	3	2.8	FW
		A	4	4.2	RA
		A	8	45.4	IN
		A	10	78	RT
		A	13	9.3	RT
		A	14	40.5	RT
		A	19	46.8	IN
		A	29	6.1	RT
		A	32	14.4	RT
		A	46	7.2	FW

Year	Forest	Stand		Acres	Action
2026	**M 5**	A	103	35.6	TS
		A	104	17	TS
		A	105	47.8	IN
2027	**C-M 2**	A	17	6.4	RT
		A	19	13.6	FW
	M 5	A	59	9.6	IN
		A	60	17.8	ST
		A	61	8.7	ST

C. Grassland Maintenance

TREAT YEAR	FOREST	SUB COMP	STAND	ACRES	MNGT DIR	TREAT
Triennially	CM-2	A	60	4	GR	MO

D. Boundary Line Maintenance

YEAR	STATE FOREST	MILES
2011	CM-1	20.3
2011	CM-2	15.4
2012	M-5	29.7

E. Public Use Action Schedule

Year	Action
2011	Construct parking area (M#5, Stand B-41)
2011	Construct Parking area (M#5, Stand B-78)
2011	Construct parking area (M#3, Stand A-40)
2011	Construct Parking area (CM#1, Stand B-2)
2012	Develop multi use trail
2012	Renew three State Forest identification signs (CM#2 Stand B-1; M#3, Stand A-39; M#5, Stand B-41)
2013	Install three kiosks (CM#2, Stand B-35; M#3, Stand A-40; M#5, Stand B-41)
2013	Construct Parking area (CM#2, Stand B-35)
2014	Establish Muller Hill Interpretive Area
2014	Construct Parking area in conjunction with timber sale (CM#1, Stand A-30)
2015	Construct Parking area in conjunction with timber sale (CM#1, Stand B-4)
2016	Upgrade Parking area (CM#2, Stand A-10)
2016	Construct Parking area in conjunction with timber sale (M-5, Stand A-68.1)

F. Boundary Line Survey

The following surveys will be contracted to private surveyors as funding becomes available:

Three Springs State Forest (M-3): Proposal B and F, request for survey of the boundary lines of the lands leased to the Federal Aviation Administration for the VORTAC facility. Right of access road to the VORTAC facility on Proposal B is questioned. A report of a 1-2 acre hayfield encroachment on Proposal F.

Muller Hill State Forest (M-5): Proposal Z, Corner monument tied in as a precaution in case it was disturbed by reconstruction of Chapman Rd. Some possible encroachments by road work reported later. Proposal T, report that a survey of an adjoining property disagrees with the painted State Forest boundary line. Proposal GG, acquired without a survey, thirty-six feet of exterior boundary line. Exterior boundary line in Proposals BB and Y lack blazing and monuments and will require a survey.

Mariposa State Forest (CM-2): Proposal H, report of disagreement between the State's marked line and the survey of an adjacent property. Proposal J, acquired without survey in 2004. Approximately 8,700 feet of exterior line created.

G. Forest Inventory Data Collection

Year	State Forest	Acres
2012	**M-3**	**797**
2012	**M-5**	**3,091**
2020	**CM-1**	**2,034**
2020	**CM-2**	**1,059**

VII. Glossary

aesthetics - forest value, rooted in beauty and visual appreciation and providing a distinct visual quality**.**

alluvial - sand, gravel, and silt deposited by rivers and streams in a valley bottom

artificial regeneration - a method of establishing a young forest through direct seeding or planting seedlings or cuttings (Helms, 1998).

basal area - the cross sectional area of all stems of a species or all stems in a stand measured at breast height and expressed per unit of land area (i.e. basal area/ acre) (Helms, 1998).

basal area /acre - a measure of forest density, the sum total of the basal areas of all trees on one acre

best management practices - a practice or a combination of practices that are designed for the protection of water bodies and riparian areas and determined to be the most effective and practicable means of controlling point and non-point source water pollutants.

biological diversity (biodiversity) - The variety of life on earth. The variety of things and the variability found within and among them. Biodiversity also encompasses processes, both ecological and evolutionary, that allow organisms to keep adapting and evolving. Includes genetic diversity (unique combinations of genes found within and among organisms), species diversity (numbers of species in an area), ecological diversity (organization of species into natural communities and the interplay of these communities with the physical environment B interactions among organisms and between organisms and their environment is the key here), Landscape diversity (refers to the geography of different ecosystems across large areas and the connections between them).

browse - portions of woody plants including twigs, shoots, and leaves consumed by animals such as deer.

canopy - the aerial branches of terrestrial plants (usually trees and shrubs), and their complement of leaves, that form the uppermost layers of vegetation in a community (Reschke, 1990).

clearcut - A harvesting and regeneration technique that removes all the trees, regardless of size, on an area in one operation. This practice is done in preparation of the re-establishment of a new forest through reforestation, stump sprouting, or changing habitats, i.e., from forest to brush or grass cover.

conifer plantation - a stand composed primarily of cone bearing (i.e. spruce, pine) trees established by planting or artificial seeding. (Helms, 1998)

corridor - A linear strip of land identified for the present or future location of a designed use within its boundaries. *Examples*: recreational trails, streams, transportation or utility rights-of-way. When

referring to wildlife, a corridor may be a defined tract of land connecting two or more areas of similar management or habitat types through which a species can travel from one area to another to fulfill any variety of life-sustaining needs.

cover type - the plant species forming a majority of composition across a given area**.**

cultural resources - significant historical or archaeological assets on sites as a result of past human activity which are distinguishable from natural resources.

deciduous - tree and shrub species that lose their foliage in autumn

diameter at breast height (DBH) - the diameter of a tree at breast height; the diameter of a tree at 4.5' from the ground (Helms, 1998).

disturbance - any relatively discrete event in time that disrupts ecosystem, community, or population structure and changes resources, substrate availability, or the physical environment (Helms, 1998).

early successional - early vegetative stages such as grass, shrubs, or aspen forests; the animal species which require these early vegetative stages.

ecosystem - living organisms and their environment functioning as an interacting unit; *note:* an ecosystem can be of any size, e.g., a log, pond, field, forest or the earth's biosphere (Reschke, 1990)

edge - the more or less well-defined boundary between two or more elements of the environment; e.g., a field adjacent to a woodland or the boundary of different silvicultural treatments.

esker - a long narrow ridge or mound of sand, gravel and boulders deposited from a stream flowing from a glacier.

even-aged - a class of forest or stand composed of trees of about the same age; the maximum age difference is generally 10-20 years.

exotic - any species that is not native to a particular geographic region or ecosystem.

forbes - herbaceous plants that are not grass-like, especially used for broad leaved herbaceous plants such as ferns (Reschke, 1990).

forest - an assemblage of trees and associate organisms on sites capable of maintaining at least 60% crown closure at maturity**.**

forest type - a group of stands of similar character as regards composition and development due to given physical and biological factors, by which they may be differentiated from other groups of stands.

forested wetland - an area characterized by woody vegetation where soil is periodically saturated with or covered by water.

grassland - land on which the vegetation is dominated by grasses, grass like plants, or forbs

green certification - endorsement by an organization which certifies environmentally responsible, socially beneficial, and economically viable management of forests to promote responsible stewardship; involves an inspection audit of a landowner=s forest management activities by an independent, accredited team to verify that it meets internationally-agreed upon forest management principles; if the forest unit complies with the standard, the landowner receives a certificate of conformance characterizing their forests as Agreen@.

habitat - the geographically defined area where environmental conditions (e.g., climate, topography, etc.) meet the life needs (e.g., food, shelter, etc.) of an organism, population, or community.

herbicide - a chemical used for killing or controlling the growth of plants. (Helms, 1998).

igneous - rocks formed from melted rock that has cooled and solidified; also called volcanic rock; includes: obsidian (volcanic glass), granite, basalt, and andesite (USGS, 2007).

improvement cut - the removal of less desirable trees of any species in a stand of poles or larger trees, primarily to improve composition and quality.

invasive - species that, after they have been moved from their native habitat to a new location, or following disturbance in their native habitat, spread on their own, displacing other species, and sometimes causing environmental damage.

kame - an irregular ridge or hill of stratified glacial drift. (Brady, 1974).

kiosk - a small, free standing structure with panels used for mounting signs.

landscape - a relatively large spacial mosaic representing natural conditions that have been modified by cultural practices.

late successional - A transitional stage of forest development beyond the age at which the trees have reached financial maturity and before the age at which they are old-growth. Northern hardwood forests are in the late successional stage of development typically between approximately 100 - 200 years of age. Late successional forests may have evidence of previous harvesting activity.

mature - pertaining to an even-aged stand that has attained most of its potential height growth, or has reached merchantability standards; *note:* within uneven-aged stands, individual trees may become mature but the stand itself consists of trees of diverse ages and stages of development.

metamorphic - rock that has undergone chemical or structural changes produced by increase in heat or pressure or by replacement of elements by hot, chemically active fluids (USGS, 2007)**.**

moraine - a hill-like pile of rock rubble located on or deposited by a glacier; an end moraine forms at the terminus of a glacier; a terminal moraine is an end moraine at the farthest advance of the glacier; a lateral moraine forms along the sides of a glacier.

multiple use - a strategy of land management fulfilling two or more objectives, e.g. forest products removal and recreation.

native - Species believed to have existed in a particular geographic region or ecosystem of the Northeast prior to European settlement and subsequent large-scale alteration of the landscape. The state reference for native species is Mitchell. 1997 Revised Checklist of New York State Plants.

natural regeneration - the establishment of a forest stand from natural seeding, sprouting, suckering or layering.

old growth - An abundance of late successional tree species, at least 180 - 200 years of age in a contiguous forested landscape that has evolved and reproduced itself naturally, with the capacity for self perpetuation, arranged in a stratified forest structure consisting of multiple growth layers throughout the canopy and forest floor, featuring canopy gaps formed by natural disturbances creating an uneven canopy, and a conspicuous absence of multiple stemmed trees. Old growth forest sites typically are characterized by an irregular forest floor containing an abundance of coarse woody materials which are often covered by mosses and lichens; show limited signs of artificial disturbance and have distinct soil horizons. The understory displays well developed and diverse surface herbaceous layers. Single, isolated trees may be considered as old growth if they meet some of the above criteria.

open land - a cover type dominated by grasses or **forbes** that is not a wetland.

overstory - that portion of the trees in a forest forming the upper or uppermost canopy layer.

pioneer - a plant capable of invading bare sites (newly exposed soil) and persisting there or colonizing them until supplanted by successional species**.**

plantation - a stand composed primarily of trees established by planting or artificial seeding; a plantation may have tree or understory components that have resulted from **natural regeneration.**

pond - a constructed or naturally-occurring impoundment of water

Public Forest Access Roads - Permanent, unpaved roads which may be designed for all-weather use depending upon their location, surfacing and drainage. These roads provide primary access for administration and public use within the Unit. The design standards for these roads are those of the Class A and Class B access roads as provided in the Unpaved Forest Road Handbook (8/74). As a

general guideline, sufficient access is typically achieved when 1 mile of PFAR is developed for each 500 acres of state land, and no position within the Unit lies more than 1 half mile from a PFAR or public highway.

pulpwood - low grade or small diameter logs used to make paper products, wood chips, etc.

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

reforestation - the re-establishment of forest cover by natural or artificial means.

regeneration - seedlings or saplings existing in a stand (Helms, 1998).

right-of-way - permanent, paved or unpaved roads across State Forests which allow access to private in-holdings; similar access which allows the Department ingress and egress to State Forest properties while crossing private land; also relates to utility transmission lines or gas pipelines**.**

rotation - in even aged silviculture, the period between forest stand establishment and final harvest. (Helms, 1998).

sawtimber - trees that are generally 12 inches and larger diameter at breast height**.**

second growth - the forests re-established following removal of previously unharvested or old growth stands; most northeastern forests are either second or third growth**.**

sedimentary - rocks formed from pre-existing rocks or pieces of once-living organisms; formed from deposits that accumulate on the Earth's surface; often have distinctive layering or bedding. (USGS, 2007).

shrub land - a plant community dominated by woody perennial shrubs with more than 50% canopy cover in shrub species (i.e. viburnum, dogwood, alder).

silviculture - the art, theory and practice of controlling forest establishment, composition and growth (Smith, 1962).

site - the area in which a plant or forest stand grows, considered in terms of its environment, particularly as this determines the type and quality of the vegetation the area can support

special concern species - those native species that are not yet recognized as endangered or threatened, but for which documented evidence exists relating to their continued welfare in New York State; the special concern category exists within DEC rules and regulations, but such

designation does not in itself provide any additional protection; however, special concern species may be protected under other laws.

stand - a contiguous group of trees sufficiently uniform in species composition, arrangement of age classes, and condition to be a homogeneous unit (Smith, 1962).

stand structure - the horizontal and vertical distribution of components of a forest stand including the height, diameter, crown layers, and stems of trees, shrubs, herbaceous understory, snags, and down woody debris.

stand treatment - work done in a stand which is directed towards the management of the stand.

State Forest - the collective term applied to lands administered by the Division of Lands and Forests which are located outside the forest preserves; includes acreage acquired and classified as Reforestation Areas, Multiple Use Areas and Unique Areas.

State Reforestation Area - Lands acquired by the Department pursuant to Title 3 Article 9-0501 of the Environmental Conservation Law; Reforestation Areas are adapted for reforestation and for the establishment and maintenance thereon of forests for watershed protection, the production of timber and other forest products, and for recreation and kindred purposes**.**

stumpage - the [market] value of timber as it stands uncut in the forest.

succession - the natural series of replacements of one plant community (and the associated fauna) by another over time and in the absence of disturbance.

temporary revocable permit (TRP) - a Department permit which authorizes the use of state land for a specific purpose for a prescribed length of time.

thinning - intermediate cuttings that are aimed primarily at controlling the growth of stands through adjustments in stand density.

understory - the smaller vegetation (shrubs, seedlings, saplings, small trees) within a forest stand, occupying the vertical zone between the **overstory** and the herbaceous plants of the forest floor.

uneven-aged - a stand with trees of three or more distinct age classes, either intimately mixed or in small groups.

uneven-aged silviculture - a system for maintaining and regenerating forest stands with at least three distinct age classes; this system favors shade intolerant species such as sugar maple, hemlock, and beech; uneven aged silviculture creates a stratified stand structure with trees of different heights represented in all levels of the forest canopy.

variable retention - retention of structural elements (patches, tree, snags, logs) within a harvested stand to achieve various ecological objectives (i.e. structural complexity, riparian protection, habitat improvement).

vernal pools - seasonal wetlands consisting of naturally formed isolated depressions, without visible surface connections to flowing water that hold water in winter and spring but are usually dry by mid-summer or fall. These are critical breeding habitats for reptiles and amphibians.

watershed - an area where the water drains to a common waterway, such as a wetland, a stream, a river, a lake, or even the ocean.

wetland - a transitional area between aquatic and terrestrial ecosystems that is inundated or saturated for periods long enough to produce hydric soils and support hydrophytic vegetation. (Helms, 1998).

VIII. References

Anonymous. 2001. Camp Georgetown: Better Lives and Better Lumber. *DOCS Today*. www.geocities.com/Motorcity/Downs/3548/facility/georgetown.html last accessed 2/15/07

Alvord, Reed F. 1938. Muller Hill. *New York History*. Vol. XIX No. 2. New York Historical Association. Cooperstown

Atlas of Madison County, New York. 1875. Pomeroy, Whitman and Company. Philadelphia.

Benton, William B. 1930. *Meditations of Artois*. In: Ames W.W.: The Mystery of Muller Hill. 3rd Edition. The Gleaner Press. DeRuyter

Berglund, John V. 1980. Eastern Forest Cover Types: Sugar Maple-Beech-Yellow Birch. In Eyre, F.H., ed: Forest Cover Types of the United State and Canada. Society of American Foresters. Washington D.C.

Brady, Nyle C. 1974. The Nature and Properties of Soils. 8th Edition. MacMillian Publishing Co. New York.

Brinson, Mark and Jos. Verhoeven. 1999. Riparian Forests. Pps. 265-299. In Hunter, M. ed: *Maintaining Biodiversity in Forest Ecosystems*. Cambridge University Press. Cambridge.

Calhoun, Aram. 1999. Forested Wetlands. Pps. 300-331 In Hunter, M. ed.: *Maintaining Biodiversity in Forest Ecosystems*. Cambridge University Press. Cambridge.

Chambers, R.D. 1983. Integrating Timber and Wildlife. SUNY ESF. Syracuse NY.

Chenango County. 2005. County Tax Rolls. Real Property Tax Services. Norwich NY.

Clarke, T. Wood. 1941. Emigres in the Wilderness, Chapter 12: *The Seigneur of Slab City*. The Macmillian Company. New York

Cortland County Real Property Tax Services. 2005. Tax Rolls for Cuyler. Cortland

Demler, John 2006 Cultural Resource Management on the Muller Hill Unit, Final Report. Upstate Institute. Colgate University. Hamilton

Evans, Joseph. 2005. The New Deal in Madison County: Public Welfare Assistance, Work Relief, and Economic Regulation in Rural New York. Upstate Institute. Colgate University. Hamilton

Franklin, Jerry F., Dean Rae Berg, Dale A. Thornburgh and John C. Tappeiner. 1997. Alternative Silvicultural Approaches to Timber Harvesting: Variable Retention Harvest Systems. Pps. 111-139. In Kohm & Franklin: *Creating a Forestry for the 21st Century*. Island Press. Washington DC.

Franklin, Jerry F. 1989. Toward a New Forestry. *American Forests*. 11: 37-44

Gibbs, James P. Alvin R. Breisch, Peter Ducey, Glenn Johnson, John L. Behler, Richard Bothner. 2007. *The Amphibians and Reptiles of New York State: Identification, Natural History, and Conservation.* Oxford University Press. New York

Gotie, R.F. 1983. Biological Reconnaissance of the Wildlife Management Areas in Region 7-Pharsalia WMA Fed. Aid. Perf. Report W-137-D. Albany

Gray, Gerald F., Maia J. Enzer and Jonathan Kusel, editors. 2001. *Understanding Community-Based Forest Ecosystem Management*. Food Products Press. New York.

Hagan, William T. 1975. *Longhouse Diplomacy and Frontier Warfare*. Albany. New York State Education Department.

Helms, John A. 1998. The Dictionary of Forestry. The Society of American Foresters. Bethesda MD.

Hunter, Malcom L. ed. 1999. *Maintaining Biodiversity in Forest Ecosystems*. Cambridge University Press. Cambridge.

Hunter, Malcom L. 1991. *Wildlife, Forests & Forestry*. Prentice Hall. Englewood Cliffs NJ.

Kohm, Kathryn and Jerry F. Franklin.1997. *Creating a Forestry for the 21st Century*. Island Press. Washington D.C.

Lindenmayer, David B. and Jerry F. Franklin. 2003. *Conserving Forest Biodiversity: A Comprehensive Multiscaled Approach*. Island Press. Washington DC.

Madison County Real Property Tax Services. 2005. Tax Rolls for Georgetown and DeRuyter. Wampsville

National Wildlife Federation/ Smartwood. 1999. Forest Management Assessment Report for NYS DEC Division of Lands and Forests, Bureau of Public Lands.

NYSDEC, 1992 Final Generic Environmental Impact Statement on the Oil, Gas and Solution Mining Program, Division of Mineral Resources. Albany

NYSDEC. 1995. New York State Oil, Gas and Mineral Resources. Annual Report. Division of Mineral Resources. Albany

NYSDEC.1998. New York State Amphibian and Reptile Atlas. Http://www.dec.state.ny.us/website/dfwmr/wildlife/herp last accessed 2/15/07

NYSDEC. 2005 New York State Breeding Bird Atlas. http://www.dec.state.ny.us/cfmx/extapps/bba last accessed 2/15/07

NYSDEC.2005. New York State Oil, Gas and Mineral Resources. Annual Report. Division of Mineral Resources. Albany

NYSDEC. 1997-2006. Stumpage Price Reports. Division of Lands & Forests. Summer and Winter, #50-68. Albany.

NYSDEC. 2005. Draft ATV Policy for ATV Access to Recreation Programs on the Forest Preserve, Reforestation, Multiple Use, Unique Area, Wildlife Management Area, Environmental Education Centers and Conservation Easement Lands. http://www.dec.state.ny.us/website/dlf/publands/atv.html, last accessed 2/15/07

NYSDEC. 2007. Proposed Record of Decision Amendment: Camp Georgetown Site. Registry No.7-27-010. Division of Environmental Remediation. Albany.

NYSDEC, 2011. Strategic Plan for State Forest Management. http://www.dec.ny.gov/lands/64567.html

NYS Education Department. 1981. *Geology of New York: A Short Account.* Educational Leaflet #20. New York State Museum. Albany

NYS Energy Research and Development Authority. 2002. *New York State Energy Plan*. Albany

NYSOPRHP. 1995. Snowmobile Trail Manuel: Guidelines for Development. Digitech Publishing Inc. Albany NY.

NYS Department of Motor Vehicles. Snowmobile Registration for Chenango and Madison Counties. 1995-2004. Albany

Patton, Thomas W. 1994. Forestry and Politics: Franklin D. Roosevelt as Governor of New York. *New York History*. New York State Historical Association. Cooperstown.

Patton, Thomas W. 2001. AA Forest Camp Disgrace@: The Rebellion of Civilian Conservation Corps Workers at Preston, New York, July 7, 1933. *New York History*. Vol. 82 No. 3. New York State Historical Association. Cooperstown.

Reschke, Carol. 1990. *Ecological Communities of New York State*. New York Natural Heritage Program. Albany.

Ritchie, William A. 1994. *The Archeology of New York State*. Fleischmanns, NY. Purple Mountain Press.

Smith, David M. 1962. The Practice of Silviculture. 7th Edition. John Wiley & Sons. NY

Smith James H. 1880. *History of Chenango and Madison Counties*. Syracuse. Mason & Co.

Soil Conservation Service. 1981. Soil Survey of Madison County, New York. Washington.

Taylor, Alan. 1995. The Great Change Begins: Settling the Forest of Central New York. *New York State History*. Vol. LXXV, No. 3 pp. 265-290.

USDA National Agricultural Statistics Service. 2002 Census of Agriculture: New York State and County Profiles. http://www.nass.usda.gov/census/census 02/profiles/ny/index.htm, last accessed 1/11/08

U.S. Census Bureau. Census 2000 Summary. Washington DC: http://www.census.gov, last accessed 2/15/07

United States Census. 1853. The Seventh Census of the United States 1850. Washington. Robert Armstrong, Public Printer.

U.S. Department of Interior, Fish and Wildlife Service, U.S. Department of Commerce and U.S. Census Bureau. 2001. National Survey of Fishing, Hunting and Wildlife-Related Recreation. Washington D.C.

US Geological Survey, 2007, Geologic Glossary, http://geology.wr.usgs.gov/parks/misc/glossarya.html, Last accessed December 19, 2007.

Weiskotten, Daniel H. 2003. Descriptions of Madison County NY in 19th and 20th Century Gazetteers. Http://www.rootsweb.com/~nyccazen/Gazetteers/MadCoGaz.html last accessed 2/15/07

IX Appendices

Appendix I: Real Property Taxes (2006)

State Forest	Acres	Acres Assessed	Assessment Value	County, Town & Fire Tax	School Tax	Tax Total
CM 1	2,034	2,034	$1,821,020.00	$29,315.00	$46,397.00	$75,712.00
CM 2	1,059	864	$646,570.00	$12,188.00	$14,914.00	$27,102.00
M 3	797	797	$737,200.00	$10,218.00	$16,316.00	$26,534.00
M 5	3,091	3,041	$3,026,085.00	$60,283.00	$57,665.00	$117,948.00
Total	**6,981**	**6,736**	**$6,230,875,00**	**$112,004.00**	**$135,292.00**	**$247,296.00**

Appendix II: Land Classification within the Unit

Land Class	Acres	Acres by DBH Class			% of total
		1"-5"	6"-11"	12"+	
Pond	13				<1
Open Land	82				1
Forested and Open Wetland	387	0	169	177	6
Native Hardwood Forest	2,806	249	597	1,960	40
Native Hardwood/ Hemlock Forest	688	4	139	545	10
Conifer Plantation	2,894	145	766	1,983	41
Roads/ Developed Areas	111				2
Total	6,981	398	1,671	4,665	100

Appendix III: Department Laws, Rules, Regulations and Policies

A. Environmental Conservation Laws

ECL Article 8	Environmental Quality Review
ECL Article 9	Lands and Forests
ECL Article 11	Fish and Wildlife
ECL Article 15	Water Resources
ECL Article 23	Mineral Resources
ECL Article 24	Freshwater Wetlands
ECL Article 33	Pesticides
ECL Article 51	Implementation of Environmental Quality Bond Act/1972
ECL Article 52	Implementation of Environmental Quality Bond Act/1972
ECL Article 71	Enforcement

B. Abstracts of Codes, Rules and Regulations of New York State
Title 6, Chapter II, Lands and Forests - Part 190 - Use of State Forests
A complete listing of part 190 can be found at http://www.dec.ny.gov/regs/4081.html.

Section 190.1 - Fire - no fires permitted except for cooking, warmth or smudge. Also specifies depositing matches, etc. and using live trees for fuel is prohibited.
Section 190.2 - Signs and structures - no person shall deface, mutilate or destroy, etc. This section also includes the prohibition of placing trash, garbage, etc.
Section 190.3 - Camping sites - sites must be kept neat, 150 feet from trail, road, stream, pond, spring, etc. and includes emergency closure times and elevation restrictions.
Section 190.4 - Camping permits - camping at one site for four nights or more without a permit is prohibited, length of stay specified, camping restricted in posted areas, groups of 10 or more individuals require permits. Permits will not be issued to anyone under 18 years of age.
Section 190.5 - Permissible structures - no permanent structures allowed, no transfer of existing structures, listing of reasons for cancellation of existing permits for lean-to (open camps).
Section 190.6 - Open camps - specifies number of days a lean-to may be occupied, what constitutes an enclosure, etc.
Section 190.7 - Public campgrounds - Lists of additional public use requirements when a public campground exists on state land.
Section 190.8 - General - restrictions and prohibitions related to the public use of State lands including gambling, use of snowmobiles, toboggans and sleds on ski trails and the sale of alcohol. 25 mph speed limit specified on Public Forest Access Roads. No person shall deface, remove, destroy vegetation without a permit, etc. Use of motor vehicles on State Land is prohibited except where permitted by posted notice or permit issued by the Department. Use of horses is allowed except on intensively developed facilities such as day use areas, campsites, boat launch sites, etc. Horses also prohibited on off road foot trails and snow covered snowmobile or ski trails. Restrictions on bicycles, motorboats, placing permanent structures and storing equipment. Other restrictions apply.
Section 190.9 - Use of pesticides on State lands - none allowed except by written permission.
Section 190.10 - Unique Areas - special regulations listed by area.
Section 190.11 - Environmentally sensitive lands - lists the sections above that apply to people using sensitive lands (Sections 190.0 - 190.9) seems redundant.
Section 190.12 - Conservation Easements - Applies to all easement lands that the public has a right to access. Goes on to list general prohibitions on use, then lists areas under easements.
Section 190.13 - 190.22 - Repealed or not in use.
Section 190.23 - Specific Areas - List of Ski Centers: Belleayre, Gore and Whiteface.
Section 190.24 - Boat launch sites - specific rules of public use of launch sites.
Section 190.25 - 190.33 - Regulations for specific areas such as Zoar Valley, Lake George, the Olympic Area, etc.

C. Department Policies

Public Use	Prescribed Fire
Temporary Revocable Permits	State Forest Master Plan
Motor Vehicle use	Inventory
Timber Management	Acquisition
Unit Management Planning	Road Construction
Pesticides	Recreational Use
	Strategic Plan for State Forest Management

Appendix IV: Approximate Calculated Game Harvest in the Vicinity of the Unit

Calculated Spring Turkey Harvest: 2001-2009

County	2001	2002	2003	2004	2005	2006	2007	2008	2009
Chenango	1,209	1,190	983	736	876	902	1,130	923	986
Madison	1,116	1,150	650	500	499	566	761	726	820

Calculated Fall Turkey Harvest: 2001-2009

County	2001	2002	2003	2004	2005	2006	2007	2008	2009
Chenango	939	620	581	488	394	550	651	598	298
Madison	556	261	228	217	204	213	305	344	199

Coyote Harvest 1996-2004 (no recent data available)

Town	1996	1997	1998	1999	2000	2001	2002	2003	2004
DeRuyter	-	3	-	1	-	-	-	-	-
Georgetown	4	1	-	1	-	1	-	-	-
Lincklaen	-	1	-	-	-	1	-	3	3
Otselic	-	1	-	-	1	1	3	2	-
Cuyler	-	6	-	6	1	-	14	1	11

Total Deer Harvest: 2000-2009

Town	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
DeRuyter	216	144	118	67	44	53	109	135	155	150
Georgetown	218	204	132	172	90	105	122	179	222	189
Lincklaen	135	121	118	97	44	50	107	126	137	102
Otselic	258	201	152	102	88	89	144	179	190	167
Cuyler	291	248	151	195	82	74	192	190	207	233

Adult Bucks/Sq. Mile: 2000-2009

Town	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
DeRuyter	3.4	2.7	2.3	1.5	1.2	1.3	1.8	2.5	2.4	2.9
Georgetown	2.7	2.6	2.2	3.0	1.7	2.4	2.0	2.7	3.1	2.9
Lincklaen	2.0	2.2	2.0	1.9	1.3	1.5	2.1	2.3	2.0	2.2
Otselic	3.4	3.3	2.4	1.1	1.7	1.9	2.0	2.7	2.8	2.4
Cuyler	3.2	2.4	2.1	2.6	1.3	1.5	3.0	2.5	2.7	3.1

Beaver Harvest: 2002-2010

Town	2002	2003	2004	2005	2006	2007	2008	2009	2010
DeRuyter	13	8	9	6	24	36	6	3	12
Georgetown	43	11	11	25	49	28	15	13	14
Lincklaen	16	0	12	15	19	17	5	0	0
Otselic	18	12	6	9	256	19	9	4	4
Cuyler	35	3	13	12	23	23	9	6	8

Appendix V: The Americans with Disabilities Act Accessibility Guidelines

The Americans with Disabilities Act (ADA) requires public agencies to employ specific guidelines which ensure that buildings, facilities, programs and vehicles as addressed by the ADA are accessible in terms of architecture and design, transportation and communication to individuals with disabilities. A federal agency known as the Access Board has issued the ADAAG for this purpose. The Department of Justice Rule provides authority to these guidelines.

Currently adopted ADAAG address the built environment: buildings, ramps, sidewalks, rooms within buildings, etc. The Access Board has proposed guidelines to expand ADAAG to cover outdoor developed facilities: trails, camp grounds, picnic areas and beaches. The proposed ADAAG is contained in 36 CFR Part 1195.
ADAAG apply to newly constructed structures and facilities and alterations to existing structures and facilities. Further, it applies to fixed structures or facilities, i.e., those that are attached to the earth or another structure that is attached to the earth. Therefore, when the Department is planning the construction of new recreational facilities, assets that support recreational facilities, or is considering an alteration of existing recreational facilities or the assets supporting them, it must also consider providing access to the facilities or elements for people with disabilities. The standards which exist in ADAAG or are contained in the proposed ADAAG also provide guidance to achieve modifications to trails, picnic areas, campgrounds (or sites) and beaches in order to obtain programmatic compliance with the ADA.

ADAAG Application

Current and proposed ADAAG will be used in assessing existing facilities or assets to determine compliance to accessibility standards. ADAAG is not intended or designed for this purpose, but using it to establish accessibility levels lends credibility to the assessment result. Management recommendations in each UMP will be proposed in accordance with the ADAAG for the built environment, the proposed 36 CFR Part 1195 for outdoor developed areas, the New York State Uniform Fire Prevention and Building Codes, and other appropriate guiding documents. Until such time as the proposed ADAAG becomes an adopted rule which will apply to state governments, the Department is required to use the best information available to comply with the ADA; this information includes, among other things, the proposed guidelines.

Appendix VI: Ponds on the Unit

State Forest	Stand	Acres	Name
Muller Hill (M#5)	**A-43**	**13**	**Muller Pond**
Mariposa (CM#1)	**C-1.3**	**1**	**DeRuyter Pump Pond**

Appendix VII: Wetlands on the Unit

Forest	Stand	Acres
CM1	A-1	11
CM1	A-9	3
CM1	A-19	11
CM1	C-10	35
CM1	C-14.1	5 (5)
CM1	C-14.2	1
CM1	C-14.3	6 (2)
CM1	CB15	9 (3)
CM1	C-16.1	9
CM-1	C-16.2	7
CM1	C-17.1	65
CM1	C-17.2	8 (1)
CM1	C-18	15
CM1	C-19.3	2
CM2	A-3	5
CM2	A-5.2	35
CM2	A-32	3
CM2	A-37	2
CM2	A-39	2
CM2	A-63	1
CM2	B-2	12
CM2	B-15	3
CM2	B-27	2
CM2	B-32	9
CM2	B-36	3
M3	A-2	2
M3	A-7	1
M5	A-24	16
M5	A-27	5
M5	A-44	14
M5	A-62	13
M5	A-92.2	3
M5	A-96	4
M5	A-98.2	2
M5	B-12	3
M5	B-58	6
M5	B-61	4
M5	B-67	7
M5	A-82.2	3
M-5	A-98.1	39

(#) represents the area of stand that falls within Class II NYS Regulatory Freshwater Wetland SO-1

Appendix VIII: Snowmobile Registrations by County of Principle Use, 1995-2004

	95	96	97	98	99	00	01	02	03	04
Chenango	803	950	1096	1214	1399	1556	1605	1687	1903	1864
Madison	1494	1758	2022	2228	2443	2759	2680	2830	3119	3052

Source: New York State Department of Motor Vehicles

Appendix IX: Stumpage Prices ($/mbf) by Species for 2000 - 2009, All prices are for the Doyle Log Rule.

Species	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Hard Maple	740	830	720	720	770	850	910	800	600	525
Red Maple	230	240	210	210	240	270	260	225	250	200
White Ash	350	330	230	250	270	280	250	200	205	225
Black Cherry	1080	1250	980	1160	1240	1380	1270	1300	1200	800
Hemlock	50	60	50	50	50	60	50	60	70	50

Appendix X: Property Use Agreements

Three Springs State Forest (Madison R.A. #3):

Proposal B - Lease with the Federal Aviation Administration (FAA) dated6/17/1960 pursuant to Chapter 430 of the Laws of 1959.The lease covers 13.1 acres for a VORTAC facility, which is a very high frequency omni-range navigational facility for the safety of aircraft. It is a one year lease, renewable for one year periods. The FAA is to provide 90 days written notice of termination prior to the expiration of the term of the lease and, if no notice is provided, the FAA's option to extend the lease is deemed exercised without any further notice to the Department.

The lease includes the rights for a roadway, structures, fences, markers, utilities, etc. on the leased lands. However, the survey request assigned no. 7-27-379 and an inspection of the plotting of Proposal B on the NYSDOT quadrangle map for the area indicate that a portion of the access road may be located on Proposal B outside of the leased area. The right for the roadway to be present outside of the leased area may be permitted by wording in the lease that states to construct a roadway on and over said leased lands which, together with a continuation thereof over adjacent lands, will provide ingress and egress to and from said facility. If the lease is terminated, the Federal Government has 6 months to remove the VORTAC facility. If it isn't removed, it becomes the property of the State.

Proposal B - was also subject to an oil and gas lease at the time it was acquired in 1932. The lease was held by the Belmont Quadrangle Drilling Corp. of Bradford, PA., ref. 295/435.

Proposal C - the deed into the State says the Proposal is subject to an oil and gas lease held by the Belmont Quadrangle Drilling Corp. (1932).

Proposal F - The deed into the State is subject to a reservation to the grantor for a ROW as more fully shown on the Conservation Dept. Map (map no. 4597). The map shows the ROW running from west to east across the northern portion of Pro. F. In 2004, CNY Forestry proposed to use this ROW for access to a timber harvest. A recommendation was made that the landowner or forester have a survey done to lay out the ROW as shown on map 4597 and that they provide proof that the landowner had been conveyed rights to the ROW. Posting of a bond was also recommended.

<u>Muller Hill State Forest (Madison R.A. #5)</u>

Proposals A, B, G. H. N, P and S were subject to oil and gas leases at the time of their acquisition in 1932-33. The deeds into the State refer to the Belmont Quadrangle Drilling Corp. (of Bradford, PA), if a company is mentioned. The deeds for Proposals G, H, P and S state that the grantors retain the right to any royalties or rents to be paid under the (existing) leases.

Proposal R - Our files have no records regarding the right for Camp Georgetown to be located on Proposal R. In 1998 there was a request to provide adjoining property owners names to the Hazardous Waste Section, Western Remedial Action Bureau in association with hazardous waste remediation at a site on the Camp. In 2003, when a powerline serving the Camp needed poles replaced, no Memorandum of Understanding or other document could be found in the Regional or Central Office Real Property files regarding the Camp or utility service to it.

Proposal Y - Map 4634 shows a spring on the west side of Calvert Hill Road which apparently served private lands on the east side of the road. The spring is near where an extension of

the south line of Proposal EE would intersect the road. There is no mention of the spring in the State's deed.

Mariposa State Forest (Chenango/Madison R.A. #1)

Proposal A - The deed states that the proposal is subject to a telephone easement as shown on the map (map no.4139) labeled 'Local Telephone Line'. There is no record of this easement in the abstract of title. The map shows the line running southeasterly along the west side of Paradise Hill Rd. as it enters Proposal A on the north with the line continuing straight after the road turns east and then intersecting and following the road as it continues south along and beyond the east line of the proposal.

Proposal E - Map 4140 (1932) shows a telephone line along the west side of Madison County Route 53. It isn't mentioned in the deed and no abstract is available. Proposal E is also subject to a reserve of Aone square rod of land, the center of which shall be a spring, and the right to lay and maintain a pipe line from the above mentioned spring to the buildings on a parcel of twenty five (25) acres now owned by the party of the first part.' The spring isn't shown on map 4140 but the 25 acres was located on the west side of Proposal E along the road.

Proposal I - The deed into the State reserved two springs on the west side of Dublin Road to serve property on the east side of the road. The reserved rights were extinguished by the acquisition of Proposal L which included the lands served by the springs.

Proposal K - R. Clare and Edna M. Spaulding reserved the right to use and maintain two springs and two pipelines for so long as they owned adjoining premises (1937). The springs are not shown on map 4649.

Mariposa State Forest (Chenango/Madison R.A. #2)

Proposal A - Map 4141 (1938) shows telephone lines along the west side of Banbury Road and along the west side of Fuller Road from the north line of Proposal A, crossing to follow the north side of a now abandoned section of Gast Road. The lines are not mentioned in the deed or abstract.

Proposal D - Map 4141 shows an abandoned railroad bed crossing Proposal D along Madison County Route 58. The bed would also cross Proposal E. No facts are known about the railroad ROW or how the grantors for Proposals D and E gained title to it.

Proposal E - The State's deed includes any spring and pipeline rights appurtenant to the premises. No springs are shown on map 4822.

Proposal H - Map 2632 (1965) shows an electric and telephone line running west from Madison County Route 16 and turning south to follow Ridge Road. It also shows a sub-surface pipeline along Route 16. Proposal H was acquired by appropriation but utility easements were accepted. The appropriation also excepted any oil and gas leases but it isn=t known if any existed. The abstract isn't available.

Appendix XI: Occurrence and Protective Status of Wildlife on the Unit

The protective status of listed species is based on Federal and State regulations. Following column entries for common and scientific names, a "protective status" category of two entries for Federal protective status and for New York State protective status appear. In **Appendix XIII**, the breeding class is also listed.

The following definitions apply to the abbreviations and terms used as defined in The Checklist of Amphibians, Reptiles, Birds and Mammals of New York State, Including Their Protective Status.

NY State Definitions

End - Endangered Species determined by the New York State Department of Environmental Conservation (DEC) to be in imminent danger of extinction or extirpation in New York State or Federally listed as endangered. All such species are fully protected under New York State's Environmental Conservation Law.

Game Species - Any of a variety of big game or Asmall game species as Stated in the Environmental Conservation Law; many normally have an open season for at least part of the year and are protected at other times. Others are protected year-round.

Prot - Protected Wildlife means wild game, protected wild birds and endangered species of wildlife as defined in the Environmental Conservation Law.

Spec Conc - **Special Concern Species** are those native species which are not yet recognized as endangered or threatened but for which documented evidence exists relating to their continued welfare in New York State. The Special Concern category, while existing in DEC rules and regulations, does not in itself provide protection. Therefore, a species listed as Special Concern is accompanied by a second notation indicating whether or not such species is otherwise protected.

Thr - Threatened Species determined by the DEC as likely to become an endangered species within the foreseeable future in New York State, or federally listed as threatened. All such species are fully protected under New York State's Environmental Conservation Law.

Un - Unprotected means that the species may be taken at any time without limit; however, a license to take may be required.

Mammals

Common Name	Scientific Name	Protective Status
Virginia Opossum	Didelphis virginiana	Game Species
Masked Shrew	Sorex cinereus	Un
Smokey Shrew	Sorex fumes	Un
No. Water Shrew	Sorex palustris	Un
Pygmy Shrew	Microsome hoi	Un
Least Shrew	Cryptotis parva	Un
No. Shorttail Shrew	Blarina brevicauda	Un
Star-nosed Mole	Condylura cristata	Un
Hairy-tail Mole	Parascalop breweri	Un
Little Brown Bat	Myotis lucifugus	Un
Keen=s Bat	Myotis keenii	Un
Small-footed Bat	Myotis leibii	Un - Spec Conc
Silver-haired Bat	Lasionycteris noctivagans	Un
Eastern Pipistrelle	Pipistrellus subflavus	Un
Big Brown Bat	Eptesicus fuscus	Un
Red Bat	Lasiurus borealis	Un
Hoary Bat	Lasiurus cinereus	Un
Black Bear	Ursus americanus	Game Species
Raccoon	Procyon lotor	Game Species
Fisher	Mustela pennanti	Game Species
Shorttail Weasel	Mustela erminea	Game Species

Common Name	Scientific Name	Protective Status
Longtail Weasel	Mustela frenata	Game Species
Mink	Mustela vison	Game Species
River Otter	Lutra canadensis	Game Species
Striped Skunk	Mephitis mephitis	Game Species
Eastern Coyote	Canis latrans	Game Species
Red Fox	Vulpes vulpes	Game Species
Gray Fox	Urocyon cinereoargenteus	Game Species
Bobcat	Lynx rufus	Game Species
Woodchuck	Marmota monax	Un
Eastern Chipmunk	Tamias striatus	Un
Gray Squirrel	Sciurus carolinensis	Game Species
Red Squirrel	Tamisciurus hudsonicus	Un
So. Flying Squirrel	Glaucomys volans	Un
Beaver	Castor canadensis	Game Species
Deer Mouse	Peromyscus maniculatus	Un
White-footed Mouse	Peromyscus leucopus	Un
So. Bog Lemming	Synaptomys cooperi	Un
So. Red-backed Vole	Clethrionomys gapperi	Un
Meadow Vole	Microtus pennsylvanicus	Un
Woodland Vole	Microtus pinetorum	Un
Muskrat	Ondotra zibethica	Game Species
Meadow Jumping Mouse	Zapus hudsonicus	Un
Woodland Jumping	Napaeozapus insignis	Un

Common Name	Scientific Name	Protective Status
Mouse		
Porcupine	**Erethizon dorsatum**	**Un**
Varying Hare	**Lepus americanus**	**Game Species**
Eastern Cottontail	**Sylvalagus floridanus**	**Game Species**
White-tailed Deer	**Odocoileus virginianus**	**Game Species**

Adapted from: Gotie, R.F. 1983 and Chambers, R.E., 1983

Appendix XII: Occurrence of Reptiles and Amphibians on the Unit

COMMON NAME	SCIENTIFIC NAME
Spotted salamander	***Amsytoma Maculatum***
Red spotted newt	***Notophathalmus viridescens***
Northern dusky salamander	***Desmognathus fuscus***
Allegheny dusky salamander	***Desmognathus ochrophaeus***
Northern redback salamander	***Plethodon cinereus***
Northern slimy salamander	***Plethodon glutinosus***
Northern spring salamander	***Gyrinophilus porphyriticus***
Northern two-lined salamander	***Eurycea bislineata***
Eastern American toad	***Bufo americanus***
Northern spring peeper	***Hyla crucifer***
Bull frog	***Rana catesbeiana***
Green frog	***Rana clamitans***
Wood frog	***Rana sylvatica***
Northern Leopard frog	***Rana pipiens***
Pickerel frog	***Rana palustris***
Common snapping turtle	***Chelydra serpentina***

COMMON NAME	SCIENTIFIC NAME
Wood turtle	***Clemmys insculpta***
Eastern painted turtle	***Chrysemys picata***
Northern water snake	***Nerodia spidedon***
Northern brown snake	***Storeria dekay***
Northern redbelly snake	***Storeria occipitamaculata***
Common garter snake	***Thamnophis sirtalis***
Eastern ribbon snake	***Thamnophis sauritis***
Northern ringneck snake	***Diadophis punctatus edwardsi***
Smooth green snake	***Ophreodrys vernalis***
Eastern milk snake	***Lampropeltis trianqulum***

Adapted from: NYS Amphibian and Reptile Atlas 1998

Appendix XIII: Breeding Birds in the Vicinity of the Unit

Common Name	Scientific Name	Breeding Status	State Legal Status	State Rank	Global Rank
Alder Flycatcher	Empidonax alnorum	Probable	Protected	S5	G5
American Black Duck	Anas rubripes	Probable	Game Species	S4	G4
American Crow	Corvus brachyrhynchos	Confirmed	Game Species	S5	G5
American Goldfinch	Carduelis tristis	Confirmed	Protected	S5	G5
American Kestrel	Falco sparverius	Confirmed	Protected	S5	G5
American Redstart	Setophaga ruticilla	Confirmed	Protected	S5	G5
American Robin	Turdus migratorius	Confirmed	Protected	S5	G5
American Woodcock	Scolopax minor	Probable	Game Species	S5	G5
Baltimore Oriole	Icterus galbula	Confirmed	Protected	S5	G5
Bank Swallow	Riparia riparia	Confirmed	Protected	S5	G5
Barn Swallow	Hirundo rustica	Confirmed	Protected	S5	G5
Barred Owl	Strix varia	Confirmed	Protected	S5	G5
Belted Kingfisher	Ceryle alcyon	Confirmed	Protected	S5	G5
Black-and-white Warbler	Mniotilta varia	Confirmed	Protected	S5	G5
Black-billed Cuckoo	Coccyzus erythropthalmus	Probable	Protected	S5	G5
Blackburnian Warbler	Dendroica fusca	Confirmed	Protected	S5	G5
Black-capped Chickadee	Poecile atricapillus	Confirmed	Protected	S5	G5
Black-throated Blue Warbler	Dendroica caerulescens	Probable	Protected	S5	G5
Black-throated Green Warbler	Dendroica virens	Confirmed	Protected	S5	G5
Blue Jay	Cyanocitta cristata	Confirmed	Protected	S5	G5
Blue-gray Gnatcatcher	Polioptila caerulea	Possible	Protected	S5	G5
Blue-headed Vireo	Vireo solitarius	Confirmed	Protected	S5	G5
Blue-winged Warbler	Vermivora pinus	Confirmed	Protected	S5	G5
Bobolink	Dolichonyx oryzivorus	Confirmed	Protected	S5	G5
Broad-winged Hawk	Buteo platypterus	Confirmed	Protected	S5	G5
Brown Creeper	Certhia americana	Probable	Protected	S5	G5
Brown Thrasher	Toxostoma rufum	Confirmed	Protected	S5	G5
Brown-headed Cowbird	Molothrus ater	Confirmed	Protected	S5	G5
Canada Goose	Branta canadensis	Probable	Game Species	S5	G5
Canada Warbler	Wilsonia canadensis	Confirmed	Protected	S5	G5
Cedar Waxwing	Bombycilla cedrorum	Confirmed	Protected	S5	G5
Cerulean Warbler	Dendroica cerulea	Possible	Protected	S4	G5
Chestnut-sided Warbler	Dendroica pensylvanica	Confirmed	Protected	S5	G5
Chimney Swift	Chaetura pelagica	Confirmed	Protected	S5	G5
Chipping Sparrow	Spizella passerina	Confirmed	Protected	S5	G5
Cliff Swallow	Petrochelidon pyrrhonota	Confirmed	Protected	S5	G5
Common Grackle	Quiscalus quiscula	Confirmed	Protected	S5	G5
Common Moorhen	Gallinula chloropus	Possible	Game Species	S4	G5
Common Snipe	Gallinago gallinago	Probable	Game Species	S5	G5

Common Yellowthroat	Geothlypis trichas	Confirmed	Protected	S5	G5
Cooper's Hawk	Accipiter cooperii	Confirmed	Prot. - Concern	S4	G4
Dark-eyed Junco	Junco hyemalis	Confirmed	Protected	S5	G5
Downy Woodpecker	Picoides pubescens	Confirmed	Protected	S5	G5
Eastern Bluebird	Sialia sialis	Confirmed	Prot. - Concern	S5	G5
Eastern Kingbird	Tyrannus tyrannus	Confirmed	Protected	S5	G5
Eastern Meadowlark	Sturnella magna	Confirmed	Protected	S5	G5
Eastern Phoebe	Sayornis phoebe	Confirmed	Protected	S5	G5
Eastern Screech-Owl	Otus asio	Probable	Protected	S5	G5
Eastern Towhee	Pipilo erythrophthalmus	Confirmed	Protected	S5	G5
Eastern Wood-Pewee	Contopus virens	Probable	Protected	S5	G5
European Starling	Sturnus vulgaris	Confirmed	Unprotected	SE	G5
Field Sparrow	Spizella pusilla	Confirmed	Protected	S5	G5
Golden-crowned Kinglet	Regulus satrapa	Confirmed	Protected	S5	G5
Golden-winged Warbler	Vermivora chrysoptera	Possible	Protected	S4	G4
Grasshopper Sparrow	Ammodramus savannarum	Possible	Prot. - Concern	S4	G4
Gray Catbird	Dumetella carolinensis	Confirmed	Protected	S5	G5
Great Blue Heron	Ardea herodias	Confirmed	Protected	S5	G5
Great Crested Flycatcher	Myiarchus crinitus	Confirmed	Protected	S5	G5
Great Horned Owl	Bubo virginianus	Probable	Protected	S5	G5
Green Heron	Butorides virescens	Confirmed	Protected	S5	G5
Hairy Woodpecker	Picoides villosus	Confirmed	Protected	S5	G5
Hermit Thrush	Catharus guttatus	Confirmed	Protected	S5	G5
Horned Lark	Eremophila alpestris	Confirmed	Protected	S5	G5
House Finch	Carpodacus mexicanus	Possible	Protected	SE	G5
House Sparrow	Passer domesticus	Confirmed	Unprotected	SE	G5
House Wren	Troglodytes aedon	Confirmed	Protected	S5	G5
Indigo Bunting	Passerina cyanea	Confirmed	Protected	S5	G5
Killdeer	Charadrius vociferus	Confirmed	Protected	S5	G5
Least Flycatcher	Empidonax minimus	Confirmed	Protected	S5	G5
Louisiana Waterthrush	Seiurus motacilla	Confirmed	Protected	S5	G5
Magnolia Warbler	Dendroica magnolia	Confirmed	Protected	S5	G5
Mallard	Anas platyrhynchos	Probable	Game Species	S5	G5
Mourning Dove	Zenaida macroura	Confirmed	Protected	S5	G5
Mourning Warbler	Oporornis philadelphia	Confirmed	Protected	S5	G5
Nashville Warbler	Vermivora ruficapilla	Possible	Protected	S5	G5
Northern Cardinal	Cardinalis cardinalis	Confirmed	Protected	S5	G5
Northern Flicker	Colaptes auratus	Confirmed	Protected	S5	G5
Northern Goshawk	Accipiter gentilis	Confirmed	Protected	S4	G4
Northern Harrier	Circus cyaneus	Possible	Threatened	S3	G5
Northern Rough-winged Swallov	Stelgidopteryx serripennis	Confirmed	Protected	S5	G5
Northern Waterthrush	Seiurus noveboracensis	Probable	Protected	S5	G5
Ovenbird	Seiurus aurocapillus	Confirmed	Protected	S5	G5

Pileated Woodpecker	Dryocopus pileatus	Probable	Protected	S5	G5
Pine Siskin	Carduelis pinus	Confirmed	Protected	S5	G5
Pine Warbler	Dendroica pinus	Possible	Protected	S5	G5
Purple Finch	Carpodacus purpureus	Confirmed	Protected	S5	G5
Red Crossbill	Loxia curvirostra	Confirmed	Protected	S3	G5
Red-breasted Nuthatch	Sitta canadensis	Confirmed	Protected	S5	G5
Red-eyed Vireo	Vireo olivaceus	Confirmed	Protected	S5	G5
Red-shouldered Hawk	Buteo lineatus	Possible	Threatened	S4	G5
Red-tailed Hawk	Buteo jamaicensis	Confirmed	Protected	S5	G5
Red-winged Blackbird	Agelaius phoeniceus	Confirmed	Protected	S5	G5
Ring-necked Pheasant	Phasianus colchicus	Possible	Game Species	SE	G5
Rock Dove	Columba livia	Confirmed	Unprotected	SE	G5
Rose-breasted Grosbeak	Pheucticus ludovicianus	Confirmed	Protected	S5	G5
Ruby-throated Hummingbird	Archilochus colubris	Confirmed	Protected	S5	G5
Ruffed Grouse	Bonasa umbellus	Confirmed	Game Species	S5	G5
Savannah Sparrow	Passerculus sandwichensis	Confirmed	Protected	S5	G5
Scarlet Tanager	Piranga olivacea	Confirmed	Protected	S5	G5
Sharp-shinned Hawk	Accipiter striatus	Confirmed	Protected	S4	G5
Song Sparrow	Melospiza melodia	Confirmed	Protected	S5	G5
Spotted Sandpiper	Actitis macularia	Confirmed	Protected	S5	G5
Swamp Sparrow	Melospiza georgiana	Probable	Protected	S5	G5
Tree Swallow	Tachycineta bicolor	Confirmed	Protected	S5	G5
Turkey Vulture	Cathartes aura	Possible	Protected	S4	G5
Veery	Catharus fuscescens	Confirmed	Protected	S5	G5
Vesper Sparrow	Pooecetes gramineus	Probable	Prot. -Concern	S5	G5
Warbling Vireo	Vireo gilvus	Confirmed	Protected	S5	G5
White-breasted Nuthatch	Sitta carolinensis	Confirmed	Protected	S5	G5
White-throated Sparrow	Zonotrichia albicollis	Confirmed	Protected	S5	G5
White-winged Crossbill	Loxia leucoptera	Confirmed	Protected	S2S3	G5
Wild Turkey	Meleagris gallopavo	Confirmed	Game Species	S5	G5
Willow Flycatcher	Empidonax traillii	Probable	Protected	S5	G5
Winter Wren	Troglodytes troglodytes	Confirmed	Protected	S5	G5
Wood Duck	Aix sponsa	Confirmed	Game Species	S5	G5
Wood Thrush	Hylocichla mustelina	Confirmed	Protected	S5	G5
Yellow Warbler	Dendroica petechia	Confirmed	Protected	S5	G5
Yellow-bellied Sapsucker	Sphyrapicus varius	Confirmed	Protected	S5	G5
Yellow-billed Cuckoo	Coccyzus americanus	Possible	Protected	S5	G5
Yellow-rumped Warbler	Dendroica coronata	Confirmed	Protected	S5	G5
Yellow-throated Vireo	Vireo flavifrons	Confirmed	Protected	S5	G5

From: The Atlas of Breeding Birds in New York State; 8 census blocks in and around the Unit

Appendix XIV: Supplemental Mineral Resources Information

Any party desiring to procure minerals, rocks or oil & gas resources (or for the use of those minerals in the case of gas or liquid storage) from the mineral estate under state lands included in this Unit Management Plan, must obtain contractual rights (such as a lease contract) to those minerals from the appropriate state entity administering those resources. The party must also obtain appropriate consent (temporary revocable permit) from the state to access the surface estate during operations. Prior to the commencement of operations the appropriate permits must be obtained. These procedures are further outlined below.

Any activity involving the procurement of oil and gas resources and/or storage of gas and liquids in the subsurface on state lands in this Unit management plan are administered by the NYSDEC Division of Mineral Resources. The procurement of minerals and rocks (inorganic substances), including the solution mining of minerals (such as salt) on these same state lands are administered by the Office of General Services. All activity associated with mining minerals and rocks, solution mining of minerals and oil & gas drilling, including production, are regulated by the NYSDEC Division of Mineral Resources (including the issuance of mining permits and drilling permits).

The surface estate of these state lands is managed through the NYSDEC Division of Lands and Forests or Division of Fish, Wildlife and Marine Resources. In the event the surface estate is to be used in the evaluation and/or extraction of mineral resources from state lands, a Temporary Revocable Permit (TRP) must be obtained from the NYS DEC Division of Lands and Forests prior to conducting any operations. The Department has determined that a lease must be in place prior to conducting an evaluation such as seismic testing or other exploratory method. It should be noted that if the mineral estate is under a lease agreement, only the lessee, or entities authorized by the Lessee, will be issued a TRP for these purposes.

It is NYS DEC policy to recommend excluding operations in surface areas with sensitive habitats (stream banks, wetlands, steep slopes, rare communities etc.) or intensive recreational use. Any proposal for mineral development other than oil and gas would require SEQR review.

In the event a party has an interest in exploring and developing natural gas reserves on the Unit, the NYSDEC will receive requests to nominate specific lands for leasing of the mineral rights. Prior to leasing lands where of the mineral estate is owned by New York State, a thorough review of the lands nominated for leasing will be conducted to determine: (1) which area can be leased will full rights granted (100% surface entry and no special conditions required), (2) which areas may require special environmental and safety conditions and (3) which areas may be leased with no surface disturbance/ entry conditions (non drilling clause). This review is conducted by the area=s land manager (Division of Lands and Forests) in coordination with the Division of Mineral Resources. A tract assessment is then conducted that identifies sensitive resources of the Unit. These resources include, but are not limited to late successional forests, wetlands, riparian zones, steep slopes, recreational sites, unique ecological communities, habitat of rare and endangered species, archeological and cultural sites and scenic vistas and view sheds.

If it is determined that natural gas exploration and development can proceed on the Unit, a lease sale is conducted. The DEC Division of Mineral Resources is the gas leasing agent for these state lands. Lease sales are then conducted through a competitive bid process administered by the Division of Mineral Resources and in accordance with Article 23, Title 11 of the Environmental Conservation Law and State Finance Law.

Revenues from State Reforestation Areas and Multiple Use Areas (State Forests) are deposited into the General Fund while revenues from Wildlife Management Areas are deposited into the Conservation Fund.

In the event leases are granted and the drilling of a well is desired by the lessee on the leased property, an Application for Permit to Drill, Deepen, Plug Back or Convert a Well Subject to the Oil, Gas and Solution Mining Law (form 85-12-5) must be submitted to the Division of Mineral Resources. Site-specific impacts will then be identified by NYS DEC staff during review process and inspection of the proposed well site. The Generic Environmental Impact Statement on the Oil, Gas and Solution Mining Regulatory Program (Draft, 1988) is used to guide the Department in determining whether the proposal will have a significant impact on the environment. Conditions are then attached to the drilling permit as well as the Temporary Revocable Permit (TRP) which covers the mitigation and/or control of surface disturbances.

In the event underground pipelines are planned to transport natural gas across state lands; the Division of Mineral Resources in conjunction with the Division of Lands and Forests will coordinate with the mineral estate lessee to determine the best route for the pipeline(s). It should be noted that any pipeline greater than 1,000 feet in length and/or containing pressures greater than 125 pounds per square inch are regulated by the New York State Public service Commission.

Once the proposal is approved, a drilling permit with site specific conditions is issued by the Division of Mineral Resources along with a Temporary Revocable Permit issued by the Division of Lands and Forests. These permits are administered by their respective programs and are designed to prevent and/or mitigate environmental impacts. Site inspections are conducted by the Division of Mineral Resources to ensure compliance with Article 23 of the Environmental Conservation Law and 6NYCRR Part 550 - 559. The Division of Lands and Forests or Fish and Wildlife will also inspect the site to ensure compliance with the TRP.

The following mined land reclamation standards apply to lands operated and maintained by the Department when mineral resources are to be extracted for purposes of construction related projects. The reclamation standards apply when the amount of material to be extracted from any one site during twelve consecutive months does not exceed the Mined Land Reclamation permit threshold of 1,000 tons or 750 cubic yards.

1. Basic reclamation shall include grading and slope treatment, disposal of refuse or spoil, drainage and water control features and re-vegetation.
2. Where possible, continuing reclamation concurrent with mineral resource extraction will be scheduled and implemented.
3. The perimeter of the mine shall be treated in a manner so as to eliminate hazards and to minimize the visual impact of the mine to the maximum extent. Treatments may include the use of berms, shrub or tree planting and fencing.
4. Topsoil/overburden will first be stripped, stockpiled seeded from areas to be mined for sand, gravel or shale type mineral resources. All topsoil will be saved and used exclusively for reclaiming affected lands. A minimum of six inches of cover material with a soil composition capable of sustaining plant growth shall be provided on all land to be re-vegetated.
5. All mine floor heavy use areas will be ripped and/or disked to alleviate compaction after grading.
6. All final slopes will be graded off and left no steeper than one vertical on two horizontal (26 degrees from horizontal).
7. Topsoil will be replaced on all affected lands after grading, ripping and/or disking.
8. Following replacement of topsoil, the exposed surface areas must be immediately seeded, fertilized limed and mulched.
9. Seeding mixtures and application rates vary. Seed mixtures should be based on the site characteristics (soil texture & drainage) and specific goals and objectives of the Unit management plan.
a. select a seed mixture that will provide initial erosion control results and varieties that will provide the long term vegetative productivity necessary to satisfy goals and objectives of the Unit management plan.
b. fertilize at 600 pounds per acre using a 5-10-10 fertilizer.
c. lime per soil test and adjust between 5.5- 7.5. Approximately 1 ton/ acre application will increase the pH level one tenth of a point.
d. mulch with hay or straw to cover 75-100% of the soil surface (2 tons per acre).

Appendix XV: State Environmental Quality Review Act (SEQRA)

This Unit Management Plan (UMP) does not propose pesticide applications of more than 40 acres, any clearcuts of 40 acres or larger, or prescribed burns in excess of 100 acres. Therefore the actions in the plan do not exceed the thresholds set forth in the Strategic Plan/Generic Environmental Impact Statement for State Forest Management**.**

This Unit Management Plan also does not include any of the following:

1. Forest management activities occurring on acreage occupied by protected species ranked S1, S2, G1, G2 or G3
2. Pesticide applications adjacent to plants ranked S1, S2, G1, G2 or G3
3. Aerial pesticide spraying by airplane or helicopter
4. Any development of facilities with potable water supplies, septic system supported restrooms, camping areas with more than 10 sites or development in excess of other limits established in this plan.
5. Well drilling plans
6. Well pad densities of greater than one well pad in 320 acres or which does not comply with the limitations identified through a tract assessment
7. Carbon injection and storage or waste water disposal

Therefore the actions proposed in this UMP will be carried out in conformance with the conditions and thresholds established for such actions in the Strategic Plan/Generic Environmental Impact Statement , and do not require any separate site specific environmental review (see 6 NYCRR 617.10[d]).

Actions not covered by the Strategic Plan/Generic Environmental Impact Statement

Any action taken by the Department on this Unit that is not addressed in this Unit Management Plan and is not addressed in the Strategic Plan/Generic Environmental Impact Statement may need a separate site specific environmental review.

Appendix XVI: Public Comments (Received at or after public meeting of April 7, 2010)

Land Management Comments

Comment: There is no action plan for insect, pest or invasive plant species.

Response: Efforts to control invasive species on the Muller Hill Unit (Unit) are informed by the *Strategic Plan for State Forest Management* .The Plan defines forest health actions for protection of State Forests from the introduction, establishment and spread of invasive species. Included are invasive species management principles and control methods. Invasive species **best management practices** (BMPs) will be developed in 2011 and species-specific guidelines for control of

invasives are scheduled to be released in 2012. Citizen monitoring networks have been established through Partnerships for Regional Invasive Species Management (PRISM), NY ReLeaf, and other groups working at the local level to manage invasive species.

The Muller Hill Unit Management Plan (UMP) identifies eleven forest insects and disease that could potentially have a significant impact on local forest health. The emerald ash borer, Asian long horned beetle and hemlock wooly adelgid are of particular concern because infestation would have a significant impact on the native northern hardwood type. Vegetation interfering with forest regeneration is also identified as a concern because it compromises efforts to sustain northern hardwoods. Hay scented fern, American beech and striped maple are indigenous plants that have inhibited regeneration of preferred northern hardwood trees including sugar maple, red maple, and black cherry.

Comment: Continue to harvest timber.

Comment: I'm for managed forests. We need jobs and local products.

Response: Working forests provide economic and environmental benefits. Timber production generates revenue and harvesting creates the diverse conditions necessary for conserving biodiversity. In 2010, there was $194K in timber sale revenues on the Unit. The final plan schedules a harvest of 228 acres each year. Forest products include firewood, pulpwood, poles, chips, and sawtimber. (See Management Action Schedule B&C for stand treatment schedule).

Comment: Establish northern white cedar plantations.

Response: Northern white cedar (*Thuja occidentalis)* is a native conifer found in swamps and rocky banks primarily on limestone outcrops. The plan does not propose any tree planting but instead favors natural regeneration. There may be opportunities to plant native conifers, including white cedar and white pine, to supplement **natural regeneration** in stands managed for even-aged conditions.

Comment: Natural gas development is the greatest threat to our State Forests

Response: Natural gas exploration, development and production are permitted activities on State Forests. Through the leasing and tract assessment process, surface disturbance associated with production and development of natural gas will not be permitted on steep slopes, recreational areas, wetland and riparian zones, areas managed for late successional forest and other sites vulnerable to significant impacts from these activities.

In areas accessible to gas development, locating well sites will be guided by stand management objectives. Areas with a history of disturbances where native flora and soil profiles have been impacted by clearing and cropping, are preferred options for well sites. To ensure the compatibility of gas development with stand management objectives, the Division of Lands and Forests will

review and evaluate all proposals for surface disturbance associated with gas drilling on the Unit. While there are risks associated with natural gas development, all efforts will be made to prevent these impacts from occurring. Public meetings and input during the time of proposed State Forest leasing will determine the extent of natural gas development.

Comment: Maintain shale pits in an open condition for wildlife benefit.

Response: Fifty six acres on the Unit will be managed in an open condition to support wildlife species that depend on early successional habitats. These areas include utility rights-of-way, reclaimed shale pits and other existing open land within the Unit.

Comment: Summarize information in the draft plan.

Response: The final Muller Hill Unit Management Plan includes an executive summary.

Comment: Demonstrate horse logging

Response: Since 2004 there has been an increase in local horse logging. The final plan calls for conducting one public program each year to raise community awareness about forest management. Horse logging could be the subject of one such program.

Public Use and Recreation Comments

Comment: Need single-use horse trail

Comments: Create new, off road horse trails that are shared with other trail users.

Comment: Mark trails as multiple use.

Comment: Support the protection of the FLT as a foot trail only.

Comment: Trails need to address safety of all users.

Comment: Horse groups are willing to adopt trails.

Comment: Design of trail should be multi use at inception.

Comment: Consider multi use development of any new trail.

Comment: Horses and roads are incompatible.

Comment: No existing snowmobile trails should be used for multi use trail.

Comment: Include language in the plan where mountain bikes are/ are not permitted.

Comment: Establish rest areas along trails.

Comment: Include distance on trail signs.

Response: Interest in developing a horse trail and a multi use trail was expressed at plan meetings in 2006 and 2010. The final plan includes a multi use trail that incorporates segments of the horse trail defined in the draft plan, increases off-road miles, and will be built in collaboration with individuals and groups having an Adopt-A-Natural Resource Agreement. In addition to foot travel, the trail will be open to horses and mountain bikes. Road segments of the multi use trail will be open to snowmobiles. Collaboration will be sought between all users committed to building a new trail. The trail will connect the Unit's natural and cultural features with regional trail networks on private and other public lands. The trail will use a combination of existing roads and trails across Muller Hill and Three Springs State Forests. The trail will not use the existing Link Trail or Finger Lakes Trail(FLT). Information about trail use and safety will be posted at two State Forest kiosks along the trail. Kiosk sites, parking areas and the proposed Muller Hill Interpretive site will provide rest areas along the trail. Any new trail will be signed with occasional distance markers.

Comment: Control dogs on trails.

Comment: Don't limit use of hunting dogs by leash laws or restrictions.

Response: *Abstracts of Codes, Rules and Regulations of New York* do not list any prohibition of dogs on state land except within public campgrounds. The *Environmental Conservation Law* states: "No owner or trainer of a dog shall allow it to run at large in fields or woods inhabited by deer" and "Wildlife, except skunk, deer and bear, may be taken with the aid of a dog".

Comment: Consider improving codes on action items.

Response: Action codes for management direction, stand treatment, and vegetation type and vegetation objective are formatted in three tables in the final plan to improve readability..

Comment: Include trail use rules in kiosks.

Response: Three kiosks will be constructed on the Unit. Each kiosk will have a map, information about the state forest, and rules and regulations for state forest use.

Comment: More user friendly maps

Comment: Maps are inadequate for identifying locations.

Comment: Add air photography if possible.

Response: Changes have been made to the maps to improve readability. County and Town labels have been included on final plan maps and trail corridors have been updated. Individual State Forest maps within the Unit are available online at www.dec.ny.gov

Appendix XVII: Maps of the Unit

Muller Hill
Access and Facilities

Legend

- Link Hiking Trail
- Finger Lakes Hiking Trail
- Snowmobile Trail
- CP3 Motorized Access Trail
- Muller Hill Interpretive Trail (Proposed)
- Horse Trail (Proposed)
- Public Roads
- County Boundary
- Restricted Area
- Muller Hill Unit Management Area

- K Kiosk Information
- F Forest ID Sign
- P Parking (Existing)
- P Parking (Proposed)
- C Camp Georgetown
- S Shooting Range
- B Barrier
- G Gate
- Lean-to

N W E S

VORTAC Access
Carey Road
Carpenter
Three Springs FAR
Carpenter
Chapman
Chapman Road
Chapman
Chapin Road
Chapin
State Route 80
Parker Hill Road
State Route 26
Muller Hill Road
Burt FAR
Muller Hill Road
Muller Hill Road
Bronder Hollow Road
Georgetown
Town of Georgetown
Carpenter Road
Best
Burt FAR
Crumb Hill Road
Wood
Davenport
Peckham Hollow (FAR)
Bronder Hollow
State Route 80 & 26
Mill Road
Davenport Road
Crumb Hill Road
Lazyville FAR
Ridge
Madison County
Chenango County
State Route 80 & 26
Ridge Road
Crumb Hill Road
Lazyville FAR
Otselic
Town of Otselic
Crumb Hill Road
State Route 26
Richmond Hill Spur Road
Richmond
Lincklaen Road
Paradise Hill Road
Wood Road
Dublin Road
Crumb Hill Road
Mariposa Road
Sherman Road
Town of DeRuyter
Town of Cuyler
Lincklaen Street
Wheelock FAR
Paradise Hill
Dublin Road
Mariposa
Bramberry
Mariposa Road
Ridge Road
Fuller Road
Lincklaen Road
Cortland County
Chenango County
Town of Lincklaen

0 0.5 1 2 3 4 5 Miles

Muller Hill Management Direction

Legend

- Even Aged Forest
- Uneven Aged Forest
- Early Succession (Shrub, Grass, Open)
- Natural Reserve
- Protection (Access, Historic, Steep, Wet)
- Pond
- Non Forest (Facility, Quarry Pit)

N
W E
S

Georgetown

Otselic

0 0.5 1 2 3 4 5 Miles

Muller Hill Water Resources

Legend

- Muller Hill Management Unit
- National Wetlands Inventory
- NYS Regulated Wetlands
- Classified Streams
- Other Streams

N
W E
S

Otselic Creek
Muller Brook
East Branch
Tioughnioga Creek
Otselic River
Houghton Brook
Mann Brook
Mud Creek
Ashbell Brook
Bucks Brook

0 0.5 1 2 3 4 5 Miles


Muller Hill
Stand Identification
N
Chenango Madison 1
Compartment A
Chenango Madison 1
Compartment C
Chenango Madison 1
Compartment B
0
0.25
0.5
0.75
1 Miles