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Shawangunk Ridge

UNIT MANAGEMENT PLAN

FINAL

Towns of Deerpark, Greenville, Mount Hope, Mamakating, Shawangunk, Wawarsing, and Gardiner

County of Orange, Ulster, and Sullivan

January 2017

DIVISION OF LANDS AND FORESTS
Bureau of State Land Management, Region 3

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MEMORANDUM

TO: The Record

FROM: Basil Seggos, Commissioner

SUBJECT: Shawangunk Ridge Unit Management Plan

The Unit Management Plan for Shawangunk Ridge 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.

Shawangunk Ridge

Unit Management Plan

A planning unit consisting of approximately 6,000 acres encompassing 6 State Forests, 2 Multiple Use Areas and 3 Detached Parcels of Forest Preserve in 3 Counties:

Huckleberry Ridge, Graham Mountain, Wurtsboro Ridge, Roosa Gap (and adjoining detached Forest Preserve parcel), Shawangunk Ridge and Gobbler's Knob State Forests

Witch's Hole (and adjoining detached Forest Preserve parcel) and Shawangunk Multiple Use Areas

Oregon Trail Detached Forest Preserve Parcel

January 2017

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Acknowledgments

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New York State Department of Environmental Conservation
Division of Lands and Forests
Region 3

DEC's Mission

"The quality of our environment is fundamental to our concern for the quality of life. It is hereby declared to be the policy of the State of New York to conserve, improve and protect its natural resources and environment and to prevent, abate and control water, land and air pollution, in order to enhance the health, safety and welfare of the people of the state and their overall economic and social well-being." - Environmental Conservation Law 1-0101(1)

Vision Statement

State Forests on the Shawangunk Ridge Unit will be managed in a sustainable manner by promoting ecosystem health, enhancing landscape biodiversity, protecting soil productivity and water quality. In addition, the State Forests on this unit will continue to provide the many recreational, social and economic benefits valued so highly by the people of New York State. DEC will continue the legacy which started more than 80 years ago, leaving these lands to the next generation in better condition than they are today.

This plan sets the stage for DEC to reach these ambitious goals by applying the latest research and science, with guidance from the public, whose land we have been entrusted to manage.

Executive Summary

The Shawangunk Ridge UMP consists of 11 different DEC properties totaling 6,000 acres along the Shawangunk Ridge in Ulster, Sullivan and Orange Counties. This original UMP addresses the use, history, inventory of resources, budget and management actions on each the properties. The properties include Huckleberry Ridge State Forest, Graham Mountain State Forest, Wurtsboro Ridge State Forest, Roosa Gap State Forest, Shawangunk Ridge State Forest, Witch's Hole Multiple Use Area, Shawangunk Multiple Use Area, and 3 detached parcels of Forest Preserve.

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PREFACE

STATE FOREST OVERVIEW

The public lands comprising this unit play a unique role in the landscape. Generally, the State Forests of the unit are described as follows:

- large, publicly owned land areas
- managed by Department of Environmental Conservation (DEC) foresters
- green certified jointly by the Forest Stewardship Council (FSC) & Sustainable Forestry Initiative (SFI)
- set aside for the sustainable use of natural resources
- open to recreational use

Management will ensure the **sustainability**, **biological diversity**, and protection of **functional ecosystems** and optimize the ecological benefits that these State lands provide, including the following:

- maintenance/increase of local and regional biodiversity
- response to shifting land use trends that affect habitat availability
- mitigation of impacts from invasive species
- ensure the sustainability of natural resource use
- response to climate change through carbon sequestration and habitat, soil and water protection

Legal Considerations

Article 9, Titles 5 and 7, of the Environmental Conservation Law (ECL) authorize DEC to manage lands acquired outside the Adirondack and Catskill Parks. This management includes **watershed protection**, production of **timber** and other forest products, **recreation**, and **kindred purposes**.

For additional information on DEC's legal rights and responsibilities, please review the statewide Strategic Plan for State Forest Management (SPSFM) at http://www.dec.ny.gov/lands/64567.html. Refer specifically to pages 33 and 317.

MANAGEMENT PLANNING OVERVIEW

The Shawangunk Ridge Unit Management Plan (UMP) is based on a long range vision for the management of the following state lands: Huckleberry Ridge State Forest, Graham Mountain State Forest, Wurtsboro Ridge State Forest, Roosa Gap State Forest, Shawangunk Ridge State Forest, Gobbler's Knob State Forest, Witches Hole Multiple Use Area, Shawangunk Multiple Use Area, and three (3) detached Forest Preserve parcels. This plan seeks to balance long-term ecosystem health with current and future demands. This Plan addresses management activities on this unit for the next ten years, though some management recommendations will extend beyond the ten-year period. Factors such as budget constraints, wood product markets, and forest health problems may necessitate deviations from the scheduled management activities.

Public Participation

One of the most valuable and influential aspects of UMP development is public participation. Public meetings are held to solicit input and written and verbal comments are encouraged while management plans are in draft form. In addition, mass mailings, press releases and other methods for soliciting input are often used to obtain input from adjoining landowners, interest groups, and the general public.

Strategic Plan for State Forest Management

This unit management plan is designed to implement DEC's statewide Strategic Plan for State Forest Management (SPSFM). Management actions are designed to meet local needs while supporting statewide and eco-regional goals and objectives.

The SPSFM is the statewide master document and Generic Environmental Impact Statement (GEIS) that guides the careful management of natural and recreational resources on State Forests. The plan aligns future management with principles of landscape ecology, ecosystem management, multiple use management and the latest research and science available at this time. It provides a foundation for the development of Unit Management Plans. The SPSFM divides the State into 80 geographic "units," composed of DEC administered State Forests that are adjacent and similar to one another. For more information on management planning, see SPSFM page 21 at http://www.dec.ny.gov/lands/64567.html.

DEC'S MANAGEMENT APPROACH AND GOALS

Sustainability and Forest Certification

Sustainability, in this instance, means the capacity of State Forests on the unit to maintain their long term health, productivity, diversity, and overall integrity over the long run, in the context of human activity and use. Forest certification is DEC's method of making certain and public that these State Forests are sustainably managed. In 2008, DEC received joint Forest Stewardship Council (FSC) and Sustainable Forestry Initiative (SFI) certification under independent annual audits. Forest products derived from wood harvested off State Forests may now be labeled for the consumer as "green certified."

In 2000, New York State DEC-Bureau of State Land Management received Forest Stewardship Council® (FSC®) certification under an independent audit conducted by the National Wildlife Federation - SmartWood Program. This certification included 720,000 acres of State Forests in DEC Regions 3 through 9 managed for water quality protection, recreation, wildlife habitat, timber and mineral resources (multiple-use). To become certified, the Department had to meet more than 75 rigorous criteria established by FSC. Meeting these criteria established a benchmark for forests managed for long-term ecological, social and economic health. The original certification and contract was for five years.

By 2005 the original audit contract with the SmartWood Program expired. Recognizing the importance and the value of dual certification, the Bureau sought bids from prospective auditing firms to reassess the Bureaus State Forest management system to the two most internationally accepted standards - FSC and the Sustainable Forestry Initiative® (SFI®) program. However, contract delays and funding shortfalls slowed the Departments ability to award a new agreement until early 2007.

Following the signed contract with NSF-International Strategic Registrations and Scientific Certification Systems, the Department was again audited for dual certification against FSC and additionally the 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.

State Forests continue to maintain certification under the most current FSC and SFI standards. Forest products derived from wood harvested off State Forests from this point forward may now be labeled as "certified" through chain-of-custody certificates. Forest certified labeling on wood products may assure consumers that the raw material was harvested from well-managed forests.

The Department is part of a growing number of public, industrial and private forest land owners throughout the United States and the world whose forests are certified as sustainably managed. The Department's State Forests can also be counted as part a growing number of working forest land in New York that is *third-party certified* as well managed to protect habitat, cultural resources, water, recreation, and economic values now and for future generations.

FSC
www.fsc.org

The mark of responsible forestry

FSC® C002027

SUSTAINABLE FORESTRY INITIATIVE
SFI-00102

Ecosystem Management Approach

State Forests on this unit will be managed using an ecosystem management approach which will holistically integrate principles of landscape ecology and multiple use management. These management techniques will promote habitat biodiversity and enhance the overall health and resiliency of our State Forests.

Ecosystem management is a process that considers the total environment - including all non-living and living components; from soil micro-organisms to large mammals, their complex interrelationships and habitat requirements and all social, cultural, and economic factors. For more information on ecosystem management, see SPSFM page 39 at http://www.dec.ny.gov/lands/64567.html.

Multiple-use Management

DEC will seek to simultaneously provide many resource values on the unit such as fish and wildlife, wood products, recreation, aesthetics, minerals, watershed protection, and historic or scientific values.

DEC'S MANAGEMENT APPROACH and Goals

Landscape Ecology

The principle ecosystem management approach on the unit will be to provide a wide diversity of habitats that naturally occur within New York, while ensuring the protection of rare, endangered and threatened species and perpetuation of highly ranked unique natural communities. The actions included in this plan have been developed following an analysis of habitat needs and overall landscape conditions within the planning unit (i.e. the geographical area surrounding and including the State Forests) and the larger ecoregion and New York State.

Landscape ecology seeks to improve landscape conditions, taking into account the existing habitats and land cover throughout the planning unit, including private lands

Ecosystem Management Strategies

The following strategies are the tools at DEC's disposal, which will be carefully employed to practice landscape ecology and multiple-use management on the unit. The management strategy will affect species composition and habitat in both the short and long term. For more information on these management strategies, please see SPSFM page 81 at http://www.dec.ny.gov/lands/64567.html.

Passive Management

DEC foresters will employ passive management strategies by designating natural and protection areas as well as buffers around those areas. Examples include ponds, streams and their riparian areas, and other wetlands, where activity is limited.

Silviculture (Active Management)

DEC foresters will practice silviculture; the art and science of controlling the establishment, growth, composition, health, and quality of forests and woodlands, in an effort to promote biodiversity and produce sustainable forest products. There are two fundamental silvicultural systems which can mimic the tree canopy openings and disturbances that occur naturally in all forests; even-aged management and uneven aged management. Each system favors a different set of tree species. In general, even-aged management includes creating wide openings or clearcuts for large groups of trees that require full sunlight to regenerate and grow together as a cohort, while uneven-aged management includes creating smaller patch openings for individual trees or small groups of trees that develop in the shade but need extra room to grow to their full potential.

Prescribed Fire (Active Management)

Prescribed fire is another active management tool to maintain naturally occurring fire dependent communities and tree species such as oak and pitch pine. Led by the Nature Conservancy and the Shawangunk Ridge Biodiversity Partnership along with assistance from the NYS Forest Rangers, prescribed fire is currently being used on the Shawangunk Ridge to maintain fire dependent communities.

Adaptive Management

Ecosystems are dynamic and ever changing systems. New and changing threats to the health of our State Forests often require adaptive approaches to management, which may include actively managing

for invasive plants and insects, adjusting silviculture practices, or protecting areas for habitation of endangered species.

State Forest Management Goals

Goal 1 – Provide Healthy and Biologically Diverse Ecosystems

Ecosystem health is measured in numerous ways. One is by the degree to which natural processes are able to take place. Another is by the amount of naturally occurring species that are present, and the absence of non-native species. No single measure can reveal the overall health of an ecosystem, but each is an important part of the larger picture. DEC will manage State Forests so that they demonstrate a high degree of health as measured by multiple criteria, including the biodiversity that they support.

Goal 2 – Maintain Man-made State Forest Assets

Man-made assets on State Forests include structures, boundary lines, trails, roads and any other object or infrastructure that exists because it was put there by people. Many of these items need no more than a periodic check to make sure they are still in working order. Others need regular maintenance to counteract the wear of regular use. It is DEC's intent to ensure that all man-made items on State Forests are adequately maintained to safely perform their intended function.

Goal 3 – Provide Recreational Opportunities for People of all Ages and Abilities

State Forests are suitable for a wide variety of outdoor recreational pursuits. Some of these activities are entirely compatible with one another, while others are best kept apart from each other. Equally varied are the people who undertake these activities, as well as their abilities, and their desire to challenge themselves. While not all people will be able to have the experience they desire on the same State Forest, the DEC will endeavor to provide recreational opportunities to all those who wish to experience the outdoors in a relatively undeveloped setting.

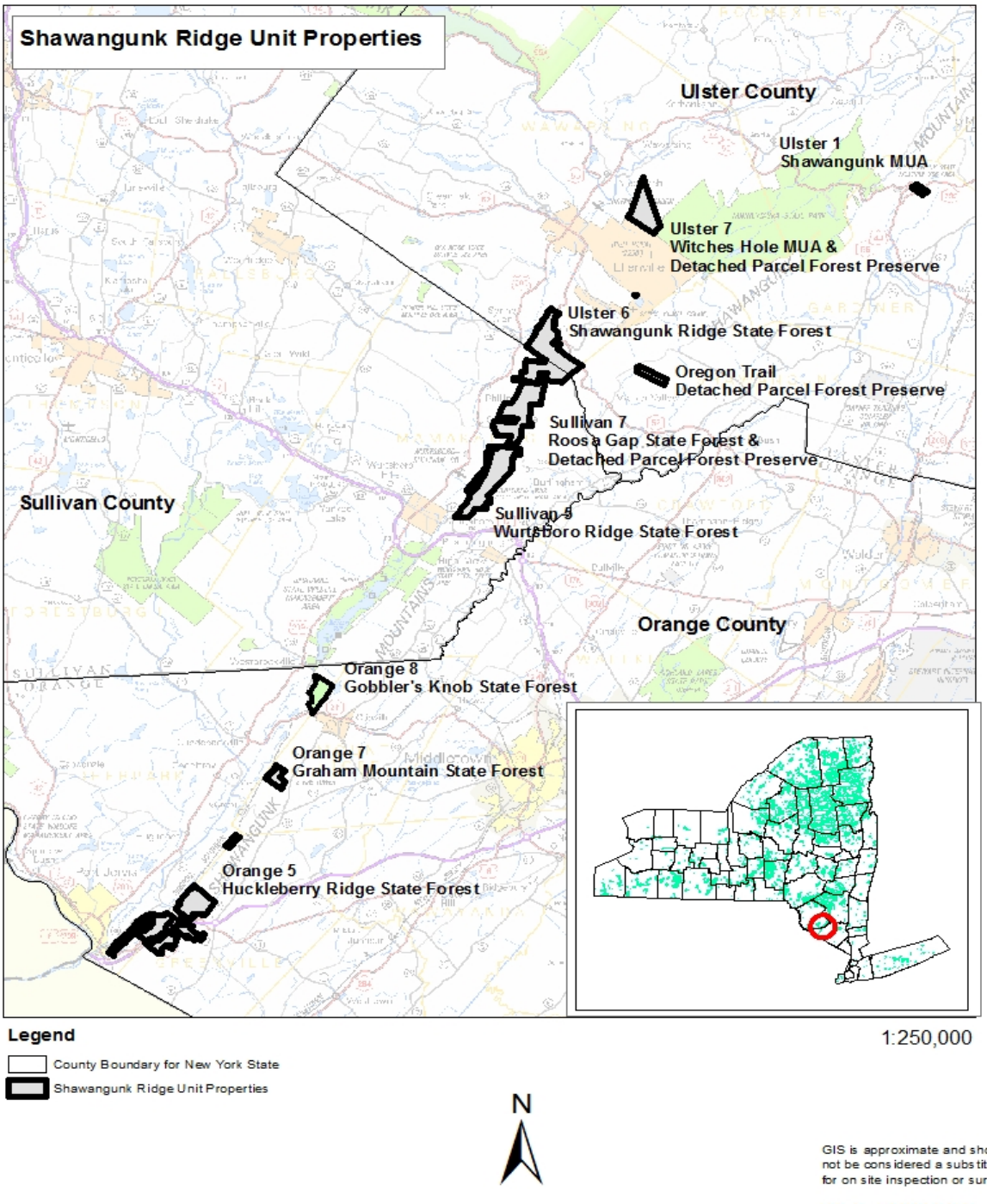
Goal 4 – Provide Economic Benefits to the People of the State

ECL §1-0101(1) provides in relevant part that "It is hereby declared to be the policy of the State of New York to conserve, improve and protect its natural resources and environment and to prevent, abate and control water, land and air pollution, in order to enhance the health, safety and welfare of the people of the state and their overall **economic** and social well being" (Emphasis added). In considering all proposed actions, the Department will attempt to balance environmental protection with realizing potential economic benefit.

Goal 5 – Provide a Legal Framework for Forest Conservation and Sustainable Management of State Forests

Staff must have clear and sound guidance to direct their decisions and actions. Likewise, the public must have clear information regarding what they are and are not allowed to do on State Forests. Both of these are provided by well-written laws, regulations and policies. DEC will work to improve existing legal guidance in response to changing conditions, and create new guidance that is needed but does not yet exist.

LOCATION MAP



INFORMATION ON THE SHAWANGUNK RIDGE UNIT

STATE LANDS IN THE UNIT

Table I.A. contains the names of the state land facilities that make up this unit. Internal DEC names (ie. Orange 5) and common property names are used to identify properties. For clarity, common names will be primarily used throughout the rest of this plan. A web page will be developed for each of the State Forests. Each web page will feature an updated map of the State Forest with recreational information and natural features.

Table I.A. – State Lands in the Unit

Facility Name and Webpage	Acreage
Orange 5 - Huckleberry Ridge State Forest	1,450*
Orange 7 - Graham Mountain State Forest	161.2
Orange 8 - Gobbler's Knob State Forest	303.59
Sullivan 5 – Wurtsboro Ridge State Forest	1,139
Sullivan 7 – Roosa Gap State Forest	931.14*
Ulster 6 – Shawangunk Ridge State Forest	1411.7
Ulster 7 – Witch's Hole Multiple Use Area	451.9
Ulster 1 – Shawangunk Multiple Use Area	58.4
Patrick Brennan Lot (Oregon Trail Forest Preserve)	125.4
Robert Davidson Lot (Roosa Gap Forest Preserve)	159.86
Witch's Hole Forest Preserve	140.1
TOTAL	6332.29
*survey incomplete	

SOILS

Soils provide the foundation, both figuratively and literally, of forested ecosystems. They support an immense number of microorganisms, fungi, mosses, insects, herpetofauna and small mammals which form the base of the food chain. They filter and store water and also provide and recycle nutrients essential for all plant life. For information on DEC's policies for the protection of forest soils, as well as water resources, please see SPSFM page 108 at http://www.dec.ny.gov/lands/64567.html.

Table I.B. - Soils (see Figure 1 for maps and descriptions)		
Facility Name	**Predominant Soil Type(s)**	**Acres**
Huckleberry Ridge State Forest	Rock outcrop-Arnot Complex Arnot-Lordstown Complex Swartswood and Mardin Rock outcrop-Nassau Complex	489 acres/33% 369 acres/25% 348 acres/23% 245 acres/16%
Graham Mountain State Forest	Arnot-Lordstown Complex	105 acres/65%
Gobbler's Knob State Forest	Swartswood and Mardin	220 acres/73%
Wurtsboro Ridge State Forest	Arnot-Rock Outcrop Complex Arnot-Lordstown Complex Swartswood & Lackwanna	651 acres/57% 182 acres/16% 125 acres/11%
Roosa Gap State Forest and adjoining Detached Parcel Forest Preserve	Arnot-Rock Outcrop Complex Swartswood & Lackwanna Arnot-Lordstown Complex	505 acres/55% 222 acres/24% 105 acres/11%
Shawangunk Ridge State Forest	Arnot-Rock Outcrop Complex Arnot-Lordstown Complex Bath & Mardin Swartswood & Lackawanna	677 acres/47% 226 acres/15% 220 acres/15% 118 acres/8%
Witch's Hole Multiple Use Area and adjoining Detached Parcel Forest Preserve	Arnot-Oquaga-Rock outcrop Rock outcrop-Arnot complex Arnot-Lordstown-Rock outcrop Lordstown-Arnot-Rock outcrop	228 acres/38% 144 acres/24% 111acres/18% 98 acres/16%
Shawangunk Multiple Use Area	Bath-Nassau Complex Nassau-Manlius Complex Volusia	24 acres/41% 17 acres/29% 10 acres/17%

WATER RESOURCES

DEC's GIS data contains an inventory of wetlands, vernal pools, spring seeps, intermittent streams, perennial streams, rivers and water bodies on the unit. This data is used to establish special management zones and plan appropriate stream crossings for the protection of water resources. Table I.C. contains a summary of water resources data on the unit.

Table I.C. – Water Resources (see Figure 2 for maps)		
Watersheds		
Hydrologic unit(s)		Mid-Delaware River-02040104 Wallkill River-02020007
Primary source aquifer		None
		0 acres
Municipal water supply (serving municipalities of over 5,000 people)		None
		0 acres
Wetlands		
NYS Regulated wetlands		60.5 acres
Other wetlands		31.4 acres
Streams/Rivers		
Intermittent streams (if known)		unknown
Perennial streams/rivers	AA or A	2.3 miles
	B	.5 miles
	C	2 miles
	D	.4 miles
Trout streams/rivers	AA (T), A (T), B (T) or C (T)	2.6 miles
Water Bodies		
Water bodies (open-water ponds and lakes)		0 acres

Major Streams, Rivers and Water Bodies

Heinlein Lake – A 14 acre freshwater pond located partially in Huckleberry Ridge State Forest northwest of Lime Kiln Road.

Huckleberry Ridge State Forest - Compartment 1 has three separate classified streams. The first stream flows northwest through the property. Hawthorn Lake is its source. The stream flows through the southern edge of the compartment and eventually enters the Neversink River to the northwest. This stream is classified as “B” and is protected.

The other two streams are unprotected. A class “D” stream flows through the center of the property in a north east direction into a protected class “CT” tributary of the Neversink River. A class “C” stream flows from two federally designated wetlands along the northern edge of the Compartment into the same protected class “CT” tributary.

Graham Mountain State Forest -This State Forest has a small unprotected class “C” stream originating from a federally designated Palustrine wetland. The stream flows in a northwesterly direction and terminates in a protected “C(T)” stream.

Gobbler's Knob State Forest - This newly acquired State Forest has two high gradient streams that are tributary to the Basher Kill, and may likely contain a self- sustaining trout population, which needs to be verified. Both streams are shown as intermittent on the USGS quadrangle, and both are classified as C(T).

Wurtsboro Ridge State Forest - An unprotected class C stream flows west along the northern boundary of the property. The stream flows into the D & H Canal which is classified as a protected B(T) stream.

Shawangunk Ridge State Forest - There are four (4) protected streams located on this property. The first three are part of the headwaters of the Plattekill. These three streams are located on the east side of the ridge and flow in a southeasterly direction. They are all classified as B(T). The fourth protected steam is located on the western side of the ridge and flows in a northwesterly direction into Sandburg Creek. It is classified as a B(T) stream.

Witch’s Hole Multiple Use Area - There are three protected Class “AA” streams that flow in a northwesterly direction. The three streams come together before leaving the property and continuing through Department of Corrections lands and eventually into the Rondout Creek.

BIODIVERSITY

Information regarding biodiversity has been gathered to support the following goals:

- “Keep Common Species Common” by maintaining landscape-level habitat diversity and a wide variety of naturally occurring forest-based habitat as well as managing plantations according to DEC natural resources policy.
- Protect, and in some cases manage, known occurrences and areas with potential to harbor endangered plants, wildlife, and natural communities.
- Consider other “at-risk species” whose population levels may presently be adequate but are at risk of becoming imperiled due to new incidences of disease or other stressors.

Common Species

Please refer to table Figure 8 of the appendix for a list of all species known to inhabit the ridge and surrounding areas.

At Risk Species

Please refer to Figure 9 of the appendix for a list of all at risk species and their status known to inhabit the ridge and surrounding areas.

Habitat

The following information provides several representations of habitat types on the unit.

Vegetative Types and Stages

Table I.D. - Vegetative Types and Stages within the Unit (see Figure 6 for maps)					
Vegetative Type	**Acres by Size Class**				**% of Total**
	0 -5 in	6 - 11 in	12+ in	Other	
Natural Forest Hardwood	0	4342.5	870.6		82.33
Natural Forest Conifer		38	19.7		0.91
Plantation Softwoods					0.00
Plantation Hardwoods					0.00
Wetland				35	0.55
Ponds					0.00
Open/Brush					0.00
Other (Includes Protected Stands, Forest Preserve, Parking Areas, etc.)				970.56	15.33
Total (Acres)		4380.5	890.3	1005.56	99.12

***The remaining lands have not been inventoried as of this date**

Significant Natural Communities

Community Name	Vegetative Type	NYNHP Rank	Acreage
Representative Sample Areas of Commonly Occurring Natural Communities			
Chestnut Oak Forest	Natural Forest Hardwood	A	3559.9
Pitch Pine-Oak-Heath Rocky Summit	Other	AB	826.1
Hemlock-Northern Hardwood Forest	Natural Forest Hardwood	AB	411.5
Highbush blueberry bog thicket	Other	AB	25.5

At-Risk Natural Communities (NYNHP Rank S1, S2, G1, or G2)			
None			

Resource Protection Areas

In the course of practicing active forest management, it is important to identify areas on the landscape that are either reserved from management activity or where activity is conducted in such a manner as to provide direct protection and enhancement of habitat and ecosystem functions. For more information on these protective measures, see SPSFM page 85 at http://www.dec.ny.gov/lands/64567.html.

Special Management Zones (SMZ's) are defined and delineated by DEC as vegetation strips extending from wetland boundaries, high-water marks on perennial and intermittent streams, vernal pool depressions, spring seeps, ponds and lakes, recreational trails, camp grounds and other land features requiring special consideration during active management. Portions of SMZ's may include protection buffers where applicable as described in the *DEC Division of Lands and Forests Management Rules for Establishment of Special Management Zones on State Land.* For more information on the establishment of special management zones, see SPSFM page 110 at http://www.dec.ny.gov/docs/lands_forests_pdf/sfsmzbuffers.pdf

SMZ's provide continuous overstory shading of riparian areas and adjacent waters, by retaining sufficient tree cover to maintain acceptable aquatic habitat and protect riparian areas from soil compaction and other impacts. DEC's buffer guidelines also maintain corridors for movement and migration of all wildlife species, both terrestrial and aquatic. SMZ's have been delineated and will be reviewed prior to the implementation of management actions. See Figure 3 for SMZ maps.

Habitat Related Demands

The majority of forest types found within the unit are dependent upon disturbance in order to regenerate. Humans, either intentionally or unintentionally, have played a very important role in the establishment and maintenance of these forest types. These disturbances are well documented dating back to when Native Americans routinely burned the ridge to promote the growth of hard and soft mast species such as oak and blue berries. Oak forests were highly valued by the Native Americans for their hard mast (acorns) and the abundance of game species they sustained. Settlement patterns show that the villages were located near the fertile river corridors. These locations were ideal for growing crops while foraging and hunting grounds were located in oak forests like the ones located on the ridge (Williams, 1989). These foraging/hunting grounds were "managed" primarily through the use of fire. Oak is extremely tolerant of fire while competitor species such as birch and maple are not. When applied properly, fire serves as an efficient way of removing these species from competition thereby promoting the perpetuation of oak and pitch pine. Widespread clearing of these forests by Anglo-American settlers also played a large part in promoting these disturbance dependent cover types. Much of the chestnut oak forests found on the ridge are a direct result of such activities (The Shawangunk Ridge Biodiversity Partnership, 2011).

The disturbance dependent forest types found within the unit require that DEC use certain tools to perpetuate these species. These tools include the use of silviculture and prescribed fire. Sliviculture is

defined as the art and science of controlling the establishment, growth, composition, and health of forests and woodlands to meet the diverse needs and values of landowners and society on a sustainable basis. (Helms, 1998) There are many different silvicultural systems that can be applied to the forest in order to achieve a goal of regenerating a certain forest type. Oak forests make up the majority of the unit. Each oak stand is comprised of individuals that are within 10 to 20 years of age as the majority of the trees in that stand. The characteristics of these stands, resource limitations, safety and the habitat demands of this forest type require that DEC apply an even aged management system in order to successfully manage for mid-successional species such as oak. This silvicultural system will consist of a planned series of treatments for tending, harvesting, and reestablishing these oak forests through the creation of large openings or clearcuts.

Another tool used to perpetuate disturbance dependent habitat is the use of fire. Fire has a long history within the forests of the Shawangunk Ridge. Oak forests respond quite favorably to low intensity forest fires. The oak seedlings are better equipped to survive a wildfire than many of their competitors such as birch and maple. This provides them with a competitive advantage. Fire has long been used on the ridge by Native Americans and later Anglo-American Settlers to perpetuate the oak/pitch-pine forests for the purpose of clearing land, improve habitat for wild game, and promote hard mast (oak/hickory/chestnut) and soft mast (blue berries/huckleberries) species. (Cronon 1983). The Shawangunk Ridge Biodiversity Partnership (SRPB) has been instrumental in reintroducing the role of fire into these habitat types. Where appropriate, the DEC will work with SRBP to develop targeted burn plans for disturbance dependent habitats.

Forest Matrix Blocks and Connectivity Corridors

The majority of the lands within the Unit fall within either a Forest Matrix Block or a Connectivity Corridor. Forest Matrix Blocks are identified as large unfragmented forested areas. These areas are considered important for conservation and biodiversity protection. Connectivity Corridors are forested pathways between Forest Matrix Blocks that allow for the efficient movement of species between the blocks. Maintaining the integrity of the Forest Matrix Block and their Connectivity Corridors while also perpetuating a species that is dependent upon heavy disturbance such as oak can be challenging but entirely feasible. Various techniques utilized to mimic natural overstory such as “feathering” hard edges and using various levels of retention within the harvested area can serve to regenerate these forests while maintaining their role within the context of the forested landscape.

At-Risk Species

The presence of at-risk species and communities on the Shawangunk Ridge Unit and in the surrounding landscape has been investigated to inform appropriate management actions and protections. The investigation was conducted in development of this UMP and the associated inventory of State Forest resources. There are no at-risk natural communities on the Shawangunk Ridge Unit and a more focused assessment will be conducted before undertaking specific management actions that may impact at-risk species. Appropriate protections for at-risk species may include reserving areas from management

activity or mitigating impacts of activity. For more information on protection of at-risk species, please see SPSFM page 115 at http://www.dec.ny.gov/lands/64567.html.

Investigation of at-risk species and natural communities included:

- Review of Element Occurrence Records found on NYNHP=s Biological and Conservation Data System
- Completion of a Biodiversity Inventory by NYNHP and review of NYNHP conservation guides
- Review of the NYS Comprehensive Wildlife Conservation Strategy

Figure 9 lists the species confirmed or predicted on the State Forests that comprise this unit and in the larger landscape, as well as their required habitats.

HISTORIC AND CULTURAL RESOURCES

Natural History of the Unit

Excerpt from "The Story of the Shawangunk Mountains Region" by Wendy E. Harris, M.A., M.Phil., Cragsmoor Consultants. "Historical Resources" pages 44-52, Shawangunk Mountains Scenic Byway Corridor Management Plan developed by Shawangunk Mountains Regional Partnership.

Most of the natural resources that we enjoy today and that were exploited in the past by Native Americans, Euro-American settlers, and other previous inhabitants of the region, have their origins in the unique geology of the Shawangunk Ridge. The most visible geological feature of the ridge is the white rock that forms its "backbone." Caught by the sun at certain angles, the Shawangunks seem to glow from within. In the 17th century, the Dutch, searching for minerals that they believed lay in the wilderness west of the Hudson River, spoke of a "crystal mountain" (Anonymous 1907a). It was probably the Shawangunk Ridge.

Geologists call the ridge's caprock "the Shawangunk formation." Contained within it are layers of sandstone, siltstones, shales, and—most notably—a hard white conglomerate rock known as "Shawangunk grit" or "Shawangunk conglomerate." This conglomerate is the layer that is most exposed and visible throughout the ridge. An extraordinarily resilient rock, it is made of quartz pebbles bound together in a cement-like matrix of white sand. Over the millennia it has resisted the effects of erosion by water and glaciation. Its formation dates to a time designated as the Silurian Period by geologists - about 420 million years ago. Originating as erosional sediments washed from the slopes of an ancient mountain chain ancestral to today's Taconic Mountains, the conglomerate was deposited in braided rivers that flowed into an inland sea. This shallow Silurian Period sea became deeper during the Devonian Period (345 million years ago to 395 million years ago). Subsequent layers of fossil-rich limestone accumulated above the Shawangunk conglomerate. Below the entire Shawangunk Formation was a 10,000-foot thick layer of compacted mud and silt known as the Martinsburg Formation. It was formed from deep ocean deposits during the Ordovician Period, approximately 465 million years ago. In contrast to the hard white

conglomerate, the Martinsburg shale is grayish brown in color and easier to erode. Tens of millions of years of mountain building and erosion are represented in the unconformable contact between the two formations (Davis 2003: personal communication; Fagan 1998: 11-23; Kiviat 1988: 3-8; Snyder and Beard 1981: 8-12; Van Diver 1985).

Approximately 330 to 280 million years ago, the entire Shawangunk Formation was affected by a sequence of folding and faulting known as the Alleghenian Orogeny. At this point in geological history, the general topography that we would eventually recognize as the Shawangunk Ridge and the adjoining valleys took shape. Because all of this rock remained buried beneath layers and layers of sediments, the process also involved the uplifting and exhumation of the Shawangunk formation and underlying formations. The actual emergence of the ridge occurred during the last 100 million years, when subsequent erosion of overlying rock revealed the erosion resistant Shawangunk conglomerate (Davis 2003, personal communication).

Beginning about two million years ago a great ice sheet lying to the north began a series of advances and retreats, burying the Shawangunks in ice that was at times as much as a mile deep. The erosive forces of glaciation sculpted the terrain that we see today. Overlying soils, as well as the remaining softer limestones and underlying shales, were removed, leaving jagged escarpments and bare ridge tops composed of durable conglomerate. The Shawangunks' sky lakes (Maratanza, Mud Pond, Awosting, Mohonk, and Minnewaska) are also a legacy of the glaciers—created when water pooled in deep basins quarried by ice into the bedrock's surface. During glaciation and afterwards, weathering of the conglomerate formed the crevices, pinnacles, and sharp cliff faces that comprise the familiar Shawangunk landscape. Even today, weaker shales exposed at the base of the cliffs are continually eroding away, causing more breakage above, and thus sharpening the already dramatic contours of the conglomerate formations above (Davis 2003, personal communication; Kiviat 1988).

Glacial and post-glacial events also modified the two valleys adjoining the ridge. For millions of years, streams flowing from the Catskills and the Shawangunk Ridge carved out the Rondout Valley from Devonian limestones, shales and siltstones that formed the north and west sides of the Shawangunks. The legacy of the advancing and retreating ice sheet here is mostly depositional. The flatness of the central valley floor is due to glacial outwash and sediments deriving from extinct glacial meltwater river and lakes. In the Wallkill Valley, the very fractured shales and siltstones forming its bedrock were easily eroded by the passage of the ice. As the ice retreated north up the Hudson Valley, the Wallkill Valley served as a basin for a series of extinct glacial lakes. There was a time when the view from the Shawangunk Ridge was of vast lakes on either side, and of a wall of white ice melting back towards present day Albany (Davis 2003, personal communication; Fagan 1998: 1-23; Isachsen et al. 2000, Van Diver 1985: 91, 124-125).

The highest points in the Shawangunks range from about 1,000 to 2,200 feet above sea level, as opposed to the valleys lying to its east and west which average about 250 feet in elevation. Covering the ridge is an array of vegetation as distinctive as the underlying geology. The ridge contains a variety of natural communities including: cliff, talus, and ice cave communities; extensive northern hardwood forests; the

second largest chestnut oak forest in New York State (30,000 acres), approximately 7,000 acres of pitch-pine-oak heath rocky summit; and the globally rare dwarf pine ridge community. Found within these communities are 33 rare plant, animal, and nonvascular species (Batcher 2000: 5). The sheer scope of the Shawangunks' biodiversity elements, along with its geological inheritance, makes it one of the most compelling landscapes in the world.

The ridge's unique natural communities are very much a product of the underlying Shawangunk conglomerate. Harder even than granite, the conglomerate has weathered very slightly since the last glaciation, producing the thin, nutrient poor, acidic soils that support pitch pines and other forms of plant life characteristic of the Shawangunk Ridge. Interspersed with these conglomerate-derived soils are other markedly different soil types originating from glacial tills, shales, limestones, and the more recent breakdown of organic matter. As the naturalist Erik Kiviat (1988: 14-15) explains, the result is: "a fine-scale mosaic of topography and soil types that are related to the considerable variety in the habitats available to plants and animals." Other adaptational influences include high elevations and frequent fires.

The geologic and natural history of the Shawangunks has greatly affected the region's cultural history. It was not just the availability of the ridge's resources—such as animal skins, limestone, huckleberries, and timber—but also the very fact of the ridge's physical presence that would prove so influential to the people and communities existing within its sight.

Inventory of Historic and Cultural Resources

The term cultural resource encompasses a number of categories of human created assets including structures, archaeological sites and related artifacts. It also may denote areas of significant importance to local and/or tribal communities. For more information on protection of historic and cultural resources, please see SPSFM page 139 at http://www.dec.ny.gov/lands/64567.html.

Fire Towers

There are two fire towers within the land unit:

Graham Mountain State Forest - This tower, a 60' Aermotor LS40 was previously located on Pocatello Mt. since 1930 until it was moved to Graham in 1948. The tower ceased operation at the end of the 1988 season and was officially closed in early 1989 when the DEC determined that fire towers were no longer effective and decided to phase them out of service. Graham Tower appears on the National Historic Lookout Registry.

Roosa Gap State Forest - The structure at Roosa Gap is a 35' standard Aermotor tower erected by the Conservation Department in 1948. When DEC acquired this property, it also inherited an agreement that Sullivan County had with the previous owner to operate the County's emergency communications equipment from this tower. This agreement will cease when the County completes its plan to build a new emergency communications tower, rendering its existing equipment obsolete. The tower is currently not open to the public.

Mines

There are two known mine areas within the land unit. These mines are located on Shawangunk Ridge State Forest and Wurtsboro Ridge State Forest. Mines present their own unique management issues. Aside from the physical hazard they present to the public, they can be an attractive nuisance, and could contain contaminated materials associated with past mining activity.

Shawangunk Ridge State Forest - The mine consists of a horizontal shaft located near Lewis Road opposite Route 209 from Spring Glen. Not much is known about what exactly was mined there. Some records indicate that the mine was established to extract silver.

Wurtsboro Ridge State Forest - This mine area consists of 4 known shafts. The three upper shafts are located high on the western side of the ridge overlooking the Wurtsboro Airport. These are primarily vertical shafts with large tailing piles located down slope from each shaft. The lower shaft is located at the bottom of the slope near the D & H Canal. This shaft is horizontal in nature and has water flowing from its entrance. The water continues down slope through the tailing piles and into the D & H Canal. Major mining of this area began in the 1830's and continued sporadically through 1920, though small scale extraction reportedly occurred much earlier (1600's). The primary resource extracted was lead.

Use, demand, and issues with the mines:

- Shawangunk Ridge State Forest - There is no indication that the area around the mine itself poses a human health risk, but the mine shaft could pose a safety hazard to users if they choose to explore beyond the shaft entrance.

- Wurtsboro Ridge State Forest - The primary resource extracted at this mine site was lead. Lead can pose a significant human health risk and can accumulate in wildlife if present in the environment above certain concentration levels. Limited sampling to date at both the upper and lower sites have found concentration levels of lead within the soil, sediment, and surface water that exceeded DEC environmental standards. See Figure 7 for further information. Additional sampling is needed to formulate a remediation plan. In addition to the presence of lead within the environment adjacent to each shaft, the actual shafts themselves constitute an attractive nuisance for users who choose to explore beyond the entrance.

- The shafts associated with both mines may offer bat habitat which must be considered if any management actions are undertaken to address the issues listed above.

Archaeological Site Protection

The archaeological sites located within this unit as well as additional unrecorded sites that may exist on DEC property are protected by the provisions of the New York State Historic Preservation Act (SHPA - Article 14 PRHPL), Article 9 of Environmental Conservation Law and Section 233 of Education Law. No actions that would impact these resources are proposed in this Unit Management Plan. Should any such actions be proposed in the future they will be reviewed in accordance with SHPA. Unauthorized excavation and removal of materials from any of these sites is prohibited by Article 9 of Environmental Conservation Law and Section 233 of Education Law.

REAL PROPERTY

Archaeological Research

The archaeological sites located on this unit as well as additional unrecorded sites that may exist on the property will be made available for appropriate research. All future archaeological research to be conducted on the unit will be accomplished under the auspices of all appropriate permits. Research permits will be issued only after consultation with the New York State Museum and the Office of Parks, Recreation and Historic Preservation (OPRHP). Extensive excavations are not contemplated as part of any research program in order to assure that the sites are available to future researchers who are likely to have more advanced tools and techniques as well as different research questions.

REAL PROPERTY

DEC's Bureau of Real Property GIS system contains maps and deeds for State Forest properties. Original deeds were also consulted to complete the information below. Please see Figure 11 for a complete list of all Exceptions and Deeded Restrictions.

Boundary Lines

Table I.E – Status of Boundary Lines

Facility Name	Length of Boundary (mi.)	Length Needing Maintenance	Length Needing Survey
Huckleberry Ridge State Forest	19.94	19.94	19.94
Graham Mountain State Forest	2.41	2.41	2.41
Gobbler's Knob State Forest	3.8	3.8	0
Wurtsboro Ridge Open Space	12.63	10.36	2.27 – Section along Railroad
Roosa Gap State Forest	6.90	5.33	5.33
Sullivan Detached Forest Preserve (adjoins Roosa Gap State Forest)	2.40	2.4	0
Shawangunk Ridge State Forest	12.19	12.19	0
Witch's Hole State Forest	4.21	4.21	0
Ulster Detached Forest Preserve (adjoins Witches Hole State Forest)	2.57	2.57	0
Ulster Detached Forest Preserve (Oregon Trail Road)	2.39	2.39	0
Ulster Detached Forest Preserve (3 Acre)	0.28	.28	0
Shawangunk Multiple Use Area	1.31	1.31	0
Gobblers Knob State Forest	3.72	3.72	3.72

For more information on boundary line maintenance, please see SPSFM page 153 at http://www.dec.ny.gov/lands/64567.html.

Land Acquisition

Acquisition of real property from willing sellers on the landscape surrounding the unit may be considered in the following priority areas:

- in-holdings and adjoining properties that would reduce management costs and benefit resource protection and public access goals
- the mineral estate wherever it is split from a State Forest tract
- properties within identified matrix forest blocks and connectivity corridors
- forested lands in underserved areas of the state
- forested lands in areas that are in need of watershed protection

DEC recently closed on Gobblers Knob State Forest, and is working to acquire additional parcels within the unit. As parcels are acquired, they will be classified, inspected, inventoried, named and added to future UMP updates. For more information on land acquisition, please see SPSFM page 147 at http://www.dec.ny.gov/lands/64567.html.

Infrastructure

State Forests are managed with a minimal amount of improvements to accommodate rustic, forest based recreational opportunities while providing for resource protection, public health and safety, and access for individuals of all ability levels. For more information on infrastructure policies, please see SPSFM page 157 at http://www.dec.ny.gov/lands/64567.html.

Roads and Trails

DEC's GIS data contains an inventory of public forest access roads, haul roads and multiple-use-trails on the unit, including a representation of the allowable uses along each road or trail segment.

Table I.F. contains a summary of roads, trails and related infrastructure on the unit.

ADDITIONAL INFORMATION

DECinfo Locator – An interactive online mapper can be used to create custom maps of recreational trails on this Unit to help people plan outdoor activities. Located at DEC's Mapping Gateway: http://www.dec.ny.gov/pubs/212.html

Google Earth Virtual Globe Data - Some of DEC's map data, including accessible recreation destinations, boat launches, lands coverage, roads and trails on this Unit can be viewed in Google Maps or Google Earth. (Also located at DEC's Mapping Gateway)

Table I.F. – Existing Access and Parking (see Figure 3 for maps)

Category	Total Amount	Needing Improvement
Public Forest Access Roads	0	mi.

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Table I.F. – Existing Access and Parking (see Figure 3 for maps)		
Category	**Total Amount**	**Needing Improvement**
Haul Roads	0	mi.
Trails	20.8 miles	mi.
Stream Crossings		
Bridges	1	1
Culverts	Unknown	Unknown
Related Infrastructure		
Parking Areas / Trailheads	6	2
Gates / Barriers	5	2

Use and Demand on Roads, Haul Roads and Parking Areas. Trails are discussed under Recreation.

Public Roads and Highways - Occasionally, State Lands are acquired with existing public roads that have not been formally abandoned by the entities that are in charge of managing their use. The following situations occur within the unit.

Shawangunk Ridge State Forest - The northern portion of the property contains an approximately 1.6 mile section of Old Route 52. This section of the road has not been formally abandoned by the County as of this date.

Parking Lots - There are currently 11 official parking lots within the unit:

Huckleberry Ridge State Forest –

- Five car parking area is located on Old Greenville Turnpike.
- Three car parking area is located on Raymond Drive
- Three car parking area is located on Greenville Turnpike
- Ten car parking area is located on Rt. 6

Roosa Gap State Forest –

- Three car parking area is located near the Fire Tower.
- Five car parking area on the lower section of Roosa Gap Summitville Road.

Shawangunk Ridge State Forest –

- 10 car parking area is located on Route 52.
- Three car parking area is located at the end of Old Mountain Road
- 10 car parking area is located on the west side of Cox Road

Wurtsboro Ridge State Forest - A five car parking area is located on Summitville Road near the intersection of Summitville, Firetower, and Roosa Gap Roads.

Shawangunk Multiple Use Area - A parking lot is located on the south side of Route 299.

Issues and concerns with roads and parking lots:

- Shawangunk Ridge State Forest - Until the section of Old Route 52 is formally abandoned, the DEC cannot legally block vehicular access via the installation of a gate where the road enters the state forest.

Signs/Kiosks

Kiosks - There are 10 kiosks on the unit:

Huckleberry Ridge State Forest –

- At the five car parking area is located on Old Greenville Turnpike
- At the three car parking area is located on Raymond Drive
- At the three car parking area is located on Greenville Turnpike
- At the ten car parking area is located on Rt. 6

Roosa Gap State Forest –

- At the three car parking area located near the Fire Tower.
- At the five car parking area on the lower section of Roosa Gap Summitville Road.

Shawangunk Ridge State Forest –

- At the ten car parking area located on Route 52.
- At the three car parking area located at the end of Old Mountain Road
- At the ten car parking area located on the west side of Cox Road

Shawangunk Multiple Use Area - There is currently a kiosk located on the south side of the road providing information regarding rules and regulations and a map of designated campsites located on the property.

Facility signs - There are 11 facility signs on the unit:

Huckleberry Ridge State Forest –

- At the five car parking area is located on Old Greenville Turnpike
- At the three car parking area is located on Raymond Drive
- At the three car parking area is located on Greenville Turnpike
- At the ten car parking area is located on Rt. 6

Roosa Gap State Forest –

- At the three car parking area located near the Fire Tower
- At the five car parking area located on the lower section of Roosa Gap Summitville Road

Shawangunk Ridge State Forest –

- At the ten car parking area located on Route 52
- At the three car parking area located at the end of Old Mountain Road
- At the ten car parking area located on the west side of Cox Road

Shawangunk Multiple Use Area - There is currently one facility sign located by the driveway on the south side of the road for the Shawangunk MUA.

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Wurtsboro Ridge State Forest - There is a facility sign for the property located at the parking area on Summitville Road.

Designated Campsites and Lean-tos - There are currently (9) designated campsites within the unit: Shawangunk Multiple Use Area - All nine designated campsites within the unit are located on the south side of Route 299.

Camping facilities, as well as their use and demand are discussed under the Recreation section.

Communications Facilities - There is currently one communication facility located within the unit:

Roosa Gap State Forest - Sullivan County maintains emergency communications equipment on the Roosa Gap fire tower under an agreement with the DEC.

Utility Transmission - There are currently 1.1 miles of utility transmission facilities with the Shawangunk Ridge Unit:

Huckleberry Ridge State Forest - There are 1.1 miles of transmission lines within compartments 2 and 3 that are currently maintained under an easement by Orange and Rockland Power Company.

Other Facilities

Fire towers - There are two fire towers within the unit:

Graham Mountain State Forest - This tower, a 60' Aermotor LS40 was previously located on Pocatello Mt. since 1930 until it was moved to Graham in 1948. The tower ceased operation at the end of the 1988 season and was officially closed in early 1989 when the DEC determined that fire towers were no longer effective and decided to phase them out of service. Graham Tower appears on the National Historic Lookout Register.

Roosa Gap State Forest - The structure at Roosa Gap is a 35' standard Aermotor tower erected by the Conservation Department in 1948. The tower is currently not open to the public. DEC currently has an agreement with Sullivan County to operate emergency communications equipment from the tower. Sullivan County will build a new emergency communications tower rendering their current equipment obsolete. The County has agreed to remove obsolete equipment and a small shed after their new emergency communications equipment tower is built.

Gates - There are a number of gates within the unit:

Huckleberry Ridge State Forest - There is a gate located at the end of Lime Kiln Road. The gate provides access to some private in-holdings and DEC staff. The gate was erected by a previous landowner.

Wurtsboro Ridge State Forest - There is a gate located at the McDonald Road access.

Wurtsboro Ridge State Forest - A gate is located at the entrance of the NYNJTC property formerly owned by Lafarge Cement Company providing management access to the northern portion of the property.

Roosa Gap State Forest - A gate exists on DEC property leading up to the fire tower.

Shawangunk Ridge MUA - A gate is located just off of the parking area on the southern portion of the property.

Buildings - There are currently 3 buildings located on the properties within the unit:

Graham Mountain State Forest - A building is present just below the fire tower. The building was used as a cabin for the observer who used to work in the tower until 1988.

Roosa Gap State Forest - A building that once served as a hunting camp is located on the north side of Summitville Rd.

Roosa Gap State Forest - A storage shed is located at the base of the fire tower. The shed provides storage for equipment and a backup generator used by Sullivan County to provide power to the emergency communications equipment located on the tower.

FORMAL AND INFORMAL PARTNERSHIPS AND AGREEMENTS

Conservation and stewardship partnerships are increasingly important, especially for public land management agencies. Considering the fact that resources will always be limited, collaboration across political, social, organizational and professional boundaries is necessary for long-term success and sustainability. Encouraging the development of cooperative and collaborative relationships is and can be done through DEC's Volunteer Stewardship Program, or other agreements. For more information on these and other partnerships, please see SPSFM page 181 at http://www.dec.ny.gov/lands/64567.html.

Partnerships in Acquisition of New Public Lands: DEC has built very effective partnerships with local and national non-profit organizations to conserve and protect the resources of the Shawangunk Ridge. Using the State's Open Space Plan as guidance, these groups have effectively worked with DEC to acquire and permanently protect important parcels along the ridge. These lands have been gradually transferred over to state ownership as resources become available. Organizations such as the New York/New Jersey Trail Conference, the Open Space Institute, and the Trust for Public Land among others have been invaluable in this effort to expand public ownership of the ridge and conserve its natural resources.

Partnerships in Management: DEC is a member of the Shawangunk Ridge Biodiversity Partnership and will work together and with other interested organizations to maintain, and where necessary, restore natural communities and native species of the Shawangunk Ridge and the ecological processes on which they depend. The Shawangunk Ridge Biodiversity Partnership has completed *Protection and Management Guidelines for the Shawangunk Ridge*. These guidelines recommend actions to be implemented individually and collaboratively by Partnership members to protect the biological diversity of the ridge. DEC is a member of the Shawangunk Ridge Biodiversity Partnership.

In addition to assisting in the State's acquisition efforts, local organizations such as the New York/New Jersey Trail Conference (NYNJTC) have been crucial in assisting DEC staff in the implementation of management actions along the ridge. Through the DEC's Volunteer Stewardship Program, NYNJTC has been an instrumental partner in working with DEC staff to establish and maintain an extensive network of hiking trails on State Lands within the Shawangunk Ridge Unit.

RECREATION

Recreation is a major component of planning for the sustainable use of State Forests on this unit. DEC accommodates diverse pursuits such as snowmobiling, horseback riding, hunting, trapping, fishing, picnicking, cross-country skiing, snowshoeing, bird watching, geocaching, mountain biking and hiking. Outdoor recreation opportunities are an important factor in the quality of life. We often learn to appreciate and understand nature by participating in these activities. However, repeated use of the land for recreational purposes can have significant impacts. For further discussion of recreational issues and policies, please see SPSFM page 187 at http://www.dec.ny.gov/lands/64567.html. The following section includes an inventory of recreational opportunities available on this unit as well as a description of use and demand for each activity. Recreational maps and geographic data are available at DEC's Mapping Gateway http://www.dec.ny.gov/pubs/212.html in Google format or in the State Lands Interactive Mapper.

Exceptional Recreational Opportunities

- Exceptional hiking opportunities exist throughout the unit along the Shawangunk Ridge Trail (SRT). This trail provides some spectacular views of the Hudson, Rondout, Neversink, and Delaware River Valleys as well as the Catskills and Hudson Highlands. Huckleberry Ridge, Wurtsboro Ridge, Roosa Gap, and Shawangunk Ridge State Forests along with Witch's Hole Multiple Use Area all have exceptional views along the SRT.

Wildlife-Related Recreation

Hunting

Demand for hunting opportunities on the unit is generally unknown. Specific data on hunter use of the unit are not available. Hunting license sales information for the counties that encompass the unit are as included in Figure 10 of the Appendices as well as harvest data for the Towns and Wildlife Management Units in which this Unit is located.

Fishing

The following is a description of classified streams and fisheries resources available on lands within the unit.

Huckleberry Ridge State Forest:

D-1-5-2 (outlet Hawthorne Lake, 0.71 miles within this unit) - Class "B", no fisheries data exists for this high gradient tributary, although it was judged to be brook trout compatible in 1935.

D-1-5-3 (0.5 mi within this Unit) - Class "D", no fisheries data exists for this high gradient tributary, although it was judged to be brook trout compatible in 1935.

D-1-5-4 (0.2 mi within this Unit) - Class "C", no fisheries data exists for this high gradient tributary

Recommended management:

Fisheries management at this time should consist of the continuation of Statewide size, season, and bag limits for all regulated species which may be present. The streams suspected of containing cold water should be sampled to verify the presence of brook or brown trout, and the appropriateness of the respective water quality Classification and Standard. Additionally, periodic fish surveys should be conducted to update the overall species list for the unit.

Gobbler's Knob State Forest:

D-1-12-7 (0.3 mi within the Unit). Class C(T). There is no fisheries data from this unnamed tributary in the files, although it was noted as being cold in 1935, with a small brown trout stocking policy recommended at that time. This stream is shown as intermittent on the USGS quadrangle. This high gradient stream is tributary to the Basher Kill, and may likely contain a self- sustaining trout population, which needs to be verified.

D-1-12-7-1 (0.2 mi within the Unit). Class C(T). There is no fisheries data from this unnamed tributary in the files, although it was noted as being cold in 1935, with a small brown trout stocking policy recommended at that time. This stream is shown as intermittent on the USGS quadrangle. This high gradient stream is tributary to the above noted D-1-12-7, then ultimately the Basher Kill, and may likely contain a self- sustaining trout population, which needs to be verified.

Wurtsboro Ridge State Forest:

H-139-14-38-14-7 (0.86 mi within the unit) - Class "C", no fisheries data exists for this high gradient tributary to the old Delaware & Hudson canal, and this stream is shown as intermittent on the USGS quadrangle.

H-139-14-38-14-7-1 (0.56 mi within the unit) - Unclassified, no fisheries data for this high gradient tributary to the old Delaware & Hudson canal, and this stream is shown as intermittent on the USGS quadrangle.

D-1-12-?? (0.37 mi within the unit) - Unclassified. According to the USGS quadrangle, this apparently unnumbered high gradient tributary to the Basher Kill flows straight down the west slope of the Shawangunk Ridge, turning south before entering the Basher Kill. Its source is a similarly unnumbered pond located approximately 0.2 mi west of Shawanga Lodge Road at the top of the ridge. No fisheries data exists for either the pond or its outlet stream.

D-1-12-26 (0.44 mi within the unit) - Unclassified, no fisheries data exists for this high gradient tributary to the Basher Kill/Delaware & Hudson Canal, which flows straight down the west slope of the Shawangunk Ridge in the vicinity of the confluence with Gumaer Brook. This stream is shown as intermittent on the USGS quadrangle. This tributary was noted to be cold during the summer of 1935, which may predict the presence of a self- sustaining trout population, depending on the actual degree of intermittence of the stream.

RECREATION

D-1-12, H-139-14-38-14 (1.41 mi within the unit) - Class "C(T)". This "stream" is actually the historic Delaware & Hudson Canal bed, which was constructed/excavated around 1825. Interestingly, the watershed divide is located within this section, at a location just north of the confluence with Gumaer Brook, based on a 2002 field visit. A 2002 fish sample was collected from this water at a location just north of the confluence of Tributary 7, with the objective of collecting fish for contaminants analysis. High levels of lead have been detected in both the surface drainage from the abandoned lead mine located on the western slope of the property, as well as some nearby soil samples. It was necessary to analyze a fish sample for lead content to evaluate the threat to human health from consumption of these fish.

This sampling effort collected creek chubsucker (*Erimyzon oblongus*), chain pickerel (*Esox niger*), brown bullhead (*Ameirus nebulosis*), yellow bullhead (*Ameirus natalis*), and pumpkinseed (*Lepomis gibbosus*). An analysis of the creek chub, brown bullhead, and chain pickerel indicated mean lead levels (whole fish) of 1.2 - 4.0 ppm, by species. Although these mean levels are all above the NYS Department of Health's 1.0 ppm advisory threshold, it should be noted that muscle tissue samples are typically much lower. No advisory has been issued against consuming fish from this water.

Recommended management:

Fisheries management at this time should consist of the continuation of Statewide size, season, and bag limits for all regulated species which may be present. The streams suspected of containing cold water should be sampled to verify the presence of brook or brown trout, and the appropriateness of the respective water quality Classification and Standard. Additionally, periodic fish surveys should be conducted to update the overall species list for the unit.

Additional sampling should be conducted downstream of all mine drainages to verify contaminant levels in fish present there, with consumption advisories issued as appropriate.

Shawangunk Ridge State Forest - Contains four discreet stream segments, with the following identified fish resources:

H-139-14-38-13 (0.86 mi within the unit) - Class "B(T)". There is no fisheries data from this unnamed tributary in the files, although it was noted as being cold in 1936. This high gradient stream is tributary to the Sandburg Creek (containing a wild brown trout population), and may likely contain a self- sustaining trout population, which needs to be verified.

H-139-13-19-15 (Platte Kill or Holliday Brook, 0.64 mi within the unit) - Class "B(T)". This is a small, low productivity high gradient stream within the unit which likely goes dry or nearly dry some summers. Unlike the above noted streams, this stream drains east off the Shawangunk Ridge into the Shawangunk Kill. This stream has been documented to contain brook trout (*Salvelinus fontinalis*), brown trout (*Salmo trutta*), blacknose dace (*Rhinichthys atratulus*), common shiner (*Notropis cornutus*), and slimy sculpin (*Cottus cognatus*) in the vicinity of the unit. Brown trout are stocked annually by the Department approximately four miles downstream from the unit.

H-139-13-19-15-3 (0.50 mi within the unit) - Class "B(T)". No fisheries data exists for this high gradient tributary to the Platte Kill, although the stream was noted to be cold in the summer of 1936. Likely intermittent during some summers, this stream may contain a wild brook trout population.

H-139-13-19-15-4 (0.15 mi within the unit) - Class "B(T)". No fisheries data exists for this tributary to the Platte Kill, although only a very small portion of this stream is contained within the unit. It was noted to be "warm" in the summer of 1936, so it likely does not contain trout.

Recommended management:

Fisheries management at this time should consist of the continuation of Statewide size, season, and bag limits for all regulated species which may be present. The streams suspected of containing brook or brown trout should be sampled to verify the presence of these species, and the appropriateness of the respective water quality Classification and Standard. Additionally, periodic fish surveys should be conducted to update the overall species list for the unit.

Witch's Hole Multiple Use Area and Detached Parcel FP - Contains one identified fish resource, an unnamed stream with two tributaries:

H-139-14-37 (1.13 mi within the Unit) - Class "AA". This stream was noted to be dry in 1980 at a point 0.2 mi above the mouth, with an additional 1986 sampling effort 0.8 mi above the mouth documenting no fish seen or collected.

H-139-14-37-1 (0.23 mi within the unit) - Class "AA". No fisheries data available.
H-139-14-37-2 (0.53 mi within the unit) - Class "AA". No fisheries data available.

All of these streams within this property are high gradient freestone streams, and likely intermittent. Shading and fish habitat quality were noted to be excellent in 1986, although no fish were seen or collected. The pH was noted to be 6.0, with an unusually high conductivity of 220 micromhos. However, the 1986 sample site was noted to be downstream of the Eastern Correctional Facility water treatment facility, which may have affected this parameter through an unknown mechanism. Typically, conductivity would be expected to be lower here.

Recommended management:

Fisheries management at this time should consist of the continuation of Statewide size, season, and bag limits for all regulated species which may be present. Additionally, periodic fish surveys should be conducted to update the species list for the unit.

Shawangunk Multiple Use Area:

H-139-13-19-1-2 (0.09 mi within the unit) - Class "B". A 1991 sample of this low gradient stream collected common shiner, creek chub (*Semotilus atromaculatus*), and white sucker (*Catostomus commersoni*).

H-139-13-19-1-2-2 (0.04 mi within the unit) - Class "B". No specific fisheries data exists for this water, although it likely contains the same species as H-139-13-19-1-2.

RECREATION

Recommended management:

Fisheries management at this time should consist of the continuation of Statewide size, season, and bag limits for all regulated species which may be present. Additionally, periodic fish surveys should be conducted to update the overall species list for this Unit.

Local Use and Demand
DEC has no historic or current estimates of angler use on any of the fisheries resources located within the unit. It is assumed that fishing pressure is relatively low (especially compared to actively stocked and publicized major trout streams, or lakes with public boat ramps), and likely occurs as an incidental activity along with hiking, etc. It is likely that some use is by anglers who live local to the respective fish resources.

Existing Statewide species-specific size, season, and bag limits are routinely considered adequate protection for those species in the absence of resource-specific Special Regulations. If, in the future, evidence is obtained that angler harvest is excessive, or fish population metrics indicate an out-of-balance condition, DEC may:

- institute resource-specific size, season, and/or bag limits on affected species, and/or
- institute a fish stocking policy utilizing one of the species reared by the State hatchery system, or available commercially

Trapping

Demand for trapping opportunities on the unit is generally unknown. As with hunting, gauging demand for trapping opportunities on a specific state land unit from county-based license sales data is difficult. It is notable that although the unit provides trapping opportunities for wide-ranging predator species such as fisher, bobcat, and coyote, trapping opportunities for aquatic furbearers are virtually absent from the unit.

Camping

Camping is allowed on properties within the Shawangunk Ridge Unit for up to three nights without obtaining a permit. Primitive campsites must be located a minimum of 150 feet away from roads, trails or water resources unless the site is designated by the DEC.

Designated Campsites - Designated campsites allow users to camp within 150 feet from a road, trail, or water body. The Shawangunk MUA designated campsites were closed in spring 2016, so there are currently no designated campsites in the Shawangunk Ridge Unit. The demand for these campsites was primarily related to the parcels proximity to eco-tourism destinations such as the Mohonk Preserve and Minnewaska State Park, and the Palisades Interstate Park Commission developed an alternate campground.

Trail-based Recreation

Table I.G. – Multiple Use Trails (see Figure 3 for maps)	
Use	**Length (mi.)**
Foot Trail Use	20.8
Cross Country Skiing**	NA
Equestrian**	NA
Mountain Biking**	NA
Snowmobile**	NA

**While there are no designated trails for these activities within the unit, such activities are permitted on the extensive network of unmapped and unmaintained woods roads found throughout the unit. Exceptions include detached parcels of forest preserve where snowmobiling is prohibited unless on designated snowmobile trails.

Multiple Use Trails

Unmaintained Multiple Use Trails - The properties within the unit have an extensive network of abandoned roads, rail beds, woods roads, and carriageways. Many of these roads/trails are not maintained by DEC and are therefore not mapped, however the public is welcome to utilize these roads/trails for non-motorized recreational uses. Exceptions include properties designated as detached parcels of forest preserve lands. Snowmobiling is prohibited on forest preserve lands UNLESS it is on a trail marked and designated for such use. On State Forests and Multiple Use Areas, no such restrictions exist.

Maintained Multiple Use Trails - The Shawangunk Ridge Trail (SRT) network is a marked trail system that traverses both private and public lands along the ridge. The trail system extends from Sam's Point Preserve in the north to the New York/New Jersey state line in the south. Approximately 21 miles of this trail is located on State Lands covered by this Unit Management Plan. These trails are currently maintained under a Volunteer Stewardship Agreement with the New York/New Jersey Trail Conference (NYNJTC). Some sections of this trail are designated for foot traffic ONLY for the purpose of public safety and resource protection. Trail markers along these sections will say "Foot Trail" rather than the standard "Trail" markers.

Hiking Trails - Users are encouraged to hike on the numerous marked and unmarked Multiple Use Trails and Foot Trails found within the unit. Trail difficulty and slope range from easy (0-5%) slope to difficult (20-30%).

Local Use and Demand - The properties in the unit have a long history of providing hiking opportunities for users. The Shawangunk Ridge Trail (SRT) is a major corridor for hikers which extends from New Jersey to New Paltz and links up with the Long Path (LP) in Minnewaska State Park. DEC anticipates that use and demand for hiking on the ridge will continue and increase as the actions within this plan are implemented.

RECREATION

Cross Country Skiing - Cross Country Skiing is permitted on all properties within the unit. DEC does not manage any trails within the unit for the intended purpose of this activity. There are a number of abandoned rail road beds that would be ideal for beginner level cross country skiing.

Local Use and Demand - Cross Country Skiing and snowshoeing are popular activities on the ridge. DEC anticipates that these activities will increase within the land unit as the recreational facilities such as parking lots are developed.

Equestrian - Horseback riding is permitted anywhere within the State Forests, Multiple Use Areas and Detached Parcels of Forest Preserve found in this unit except on:

- Land devoted to intensively developed facilities, such as a boat launch, day use area, campsites, ski centers, education centers, fish hatcheries, game farms or headquarter complexes, and land managed for public safety, such as flood control levees
- Designated foot trails, except where such trails are part of a publicly maintained road, or are specifically designated to allow travel by horses thereon
- Designated snowmobile trails and cross-country ski trails that are covered with ice and snow

Local Use and Demand - There are a number of local equestrian groups that use state properties. Within the unit, equestrian use is rather low due to the limitations of the terrain. The absence of parking areas that can accommodate horse trailers is also a limiting factor. DEC anticipates that the level of equestrian use will increase during the planning period as the recreational facilities on the land unit are developed and the availability of the unit becomes known among the equestrian community.

Mountain Biking

Mountain biking is permitted throughout the Shawangunk Ridge Unit. The abundance of maintained and unmaintained multiple use trails allow users within this group to experience a wide variety of technical difficulty. Bicycles are not allowed on forest access roads, truck trails, roads, trails or other areas on state lands outside of the forest preserve which are POSTED or DESIGNATED by DEC as closed to bicycle use.

Local Use and Demand - Mountain biking activity has significantly increased on state lands throughout the Region. Current use on properties associated with this plan is relatively low compared to other state properties in Region 3. The low demand within this unit can be related to any number of things but the terrain seems to be a large contributing factor. DEC anticipates an increase in mountain bike use on the properties within this unit as the recreational facilities are developed. While no single track trails specifically designed to accommodate mountain bikes are proposed in this plan DEC is open to all proposals and has a history of working with the biking community to accommodate their goals while respecting the interests of other state land users.

Snowmobiling

Snowmobiling is permitted anywhere on State Forests and Multiple Use Areas within the Shawangunk Ridge Unit UNLESS posted or designated by DEC as closed to snowmobile use. On Detached Parcels of Forest Preserve, snowmobiling is ONLY permitted on trails designated as snowmobile trails. At this time

there are no trails designated as snowmobile trails on detached parcels of forest preserve within the Shawangunk Ridge Unit.

Local Use and Demand - Most of the snowmobiling within this unit is done by users who live adjacent or near the properties. The areas that are ideal for this kind of activity are somewhat fragmented by terrain that does not suit this kind of use. Official trails designated and maintained for snowmobile use are not included in this plan due to the somewhat fragmented nature of the properties and their terrain. As public ownership increases along the ridge, the opportunity for such a trail network may increase depending upon the suitability of the new acquisitions.

Overall Assessment of the Level of Recreational Development

It is important that recreational use is not allowed to incrementally increase to an unsustainable level that may lead to resource degradation. DEC must consider the potential impacts from increased use in relation to other management goals or other recreational uses, and must consider the full range of impacts, including long-term facility maintenance and the balancing of multiple uses.

Recreational use within the Unit is currently at a level where other uses are not impacted. On Shawangunk Multiple Use Area, overuse is having an adverse impact on the property. For many years this property has been used as a place to camp for the purpose of accessing some of the parks and preserves found within a short distance from the property. As the ecotourism in the region has increased, so too has the level of use on the property. The actions specified in this plan will address the impacts related to overuse.

UNIVERSAL ACCESS

DEC has an essential role in providing universal access to recreational activities that are often rustic and challenging by nature, and ensuring that facilities are not only safe, attractive and sustainable, but also compatible with resources. For more information on universal access policies, please see SPSFM page 173 at http://www.dec.ny.gov/lands/64567.html.

Currently, there are no designated sites for people with disabilities within the Shawangunk Ridge Unit. People of all abilities are encouraged to check out and use the lands for themselves, and contact the Department with any feasible project proposals.

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.

Title II also requires that new facilities, and parts of facilities that are newly constructed for public use, are to be accessible to people with disabilities. In rare circumstances where accessibility is determined to be structurally impracticable due to terrain, the facility, or part of facility is to be accessible to the greatest extent possible and to people with various types of disabilities.

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.

Any new facilities, assets and accessibility improvements to existing facilities or assets proposed in this UMP are identified in the section containing proposed management actions.

The Department is not required to make each of its existing facilities and assets accessible as long as the Department's programs, taken as a whole, are accessible.

For copies of any of the above mentioned laws or guidelines relating to accessibility, contact the DEC Universal Access Program Coordinator at 518-402-9428 or UniversalAccessProgram@dec.ny.gov

SUPPORTING LOCAL COMMUNITIES

Tourism

State Forests can be an economic asset to the local communities that surround them. It is estimated that more than three out of every four Americans participate in active outdoor recreation of some sort each year. When they do, they spend money, generate jobs, and support local communities. For more information, please see SPSFM page 245 at http://www.dec.ny.gov/lands/64567.html.

DEC will strive to coordinate our planning and activities with the communities and agencies that could benefit from the implementation of this plan. Agencies and organizations such as the Palisades Interstate Park Commission (PIPC), and the Office of Parks, Recreation, and Historic Preservation (OPRHP), The Nature Conservancy, New York/New Jersey Trail Conference, Orange/Sullivan/Ulster Counties, and all of the towns included in the Land Unit will likely benefit from the actions listed in this plan. It is anticipated that the recreational activities discussed previously will increase along the ridge DEC develops potential access points and trail networks within the unit.

Taxes Paid

The New York State Real Property Tax Law provides that all reforestation areas are subject to taxation for school and town purposes. Some reforestation areas are also subject to taxation for county purposes. Most unique areas and multiple use areas are exempt from taxation. All of these lands are assessed as if privately owned.

Detailed tax information can be obtained by contacting the local assessor or County Clerk. The following taxes were paid for state lands within these towns:

Deer Park

- Town Tax (incl. highway, general, fire taxes, etc): $205
- Total School Tax: $1033
- Total County Tax: NA
- Other Tax: $48

Gardiner

- Town Tax (incl. highway, general, fire taxes, etc): $42
- Total School Tax: $378
- Total County Tax: $83
- Other Tax: $12

Greenville

- Town Tax (incl. highway, general, fire taxes, etc): $2,749
- Total School Tax: $21,668
- Total County Tax: NA
- Other Tax: $1,543

Mamakating

- Town Tax (incl. highway, general, fire taxes, etc): $12,145
- Total School Tax: $63,531
- Total County Tax: $13,846
- Other Tax: $5,182

Mount Hope

- Town Tax (incl. highway, general, fire taxes, etc): NA
- Total School Tax: NA
- Total County Tax: NA
- Other Tax: NA

FOREST PRODUCTS

Shawangunk

- Town Tax (incl. highway, general, fire taxes, etc): $1,387
- Total School Tax: $193,917
- Total County Tax: $1,993
- Other Tax: $564

Wawarsing

- Town Tax (incl. highway, general, fire taxes, etc): $40,786
- Total School Tax: $166,472
- Total County Tax: $15,359
- Other Tax: $11,954

Total Taxes Paid

- Town Tax (incl. highway, general, fire taxes, etc): $57,314
- Total School Tax: $447,444
- Total County Tax: $31,281
- Other Tax: $19,303

TOTAL: $555,342

FOREST PRODUCTS

Timber

Timber management provides a renewable supply of sustainably-harvested forest products and can also enhance biodiversity. The products harvested may include furniture quality hardwoods, softwoods for log cabins, fiber for paper making, firewood, animal bedding, wood pellets, biofuel, and chips for electricity production. For more information, see SPSFM page 251 at http://www.dec.ny.gov/lands/64567.html. Information on forest management activities planned for the unit is contained in the land management action schedules in Part III of this plan.

There is a well established demand for the forest products found within the unit. There are a number of local mills and buyers of timber that help satisfy the demand for standard and specialized markets found within the area. Green Certified forest products from the state forests within this unit include firewood for the local homeowner to hardwoods and softwoods for local family owned sawmills.

FOREST HEALTH

Forest health is pursued with the goal of maintaining biodiversity. Any agent that decreases biodiversity can have a deleterious effect on the forest as a whole and its ability to withstand stress. Forest health in general should favor the retention of native species and natural communities or species that can thrive in

site conditions without reducing biodiversity. For more information on forest health, please see SPSFM page 277 at http://www.dec.ny.gov/lands/64567.html.

Invasive Species

As global trade and travel have increased, so have the introduction of non-native species. While many of these non-native species do not have adverse effects on the areas in which they are introduced, some become invasive in their new ranges, disrupting ecosystem function, reducing biodiversity and degrading natural areas. Invasive species have been identified as one of the greatest threats to biodiversity, second only to habitat loss. Invasive species can damage native habitats by altering hydrology, fire frequency, soil fertility and other ecosystem processes.

Table I.H. – Invasive Species, Pests and Pathogens*

Plants	Status
Japanese Barberry	Confirmed in all Counties containing the Unit. Observed within the Unit.
Multi-Flora Rose	Confirmed in all Counties containing the Unit. Observed within the Unit.
Tree of Heaven	Confirmed in all Counties containing the Unit. Observed within the Unit.
Japanese Knotweed	Confirmed in all Counties containing the Unit. Observed within the Unit.
Mile a Minute Vine	Confirmed in Orange, Ulster and Dutchess Counties. Not observed within the Unit
Black and Pale Swallow Wort	Confirmed in all Counties containing the Unit. Not observed within the Unit
Japanese Stiltgrass	Confirmed in all Counties containing the Unit. Observed within the Unit.
Oriental Bittersweet	Confirmed in all Counties containing the Unit. Observed within the Unit.
Insects	**Status**
Hemlock Woolly Adelgid	Confirmed in all Counties containing the Unit. Observed within the Unit.
Emerald Ash Borer	Confirmed in Ulster, Orange, Dutchess and Westchester Counties. Not observed within the Unit.
Diseases	**Status**
Chestnut Blight	Confirmed in all Counties containing the Unit. Observed within the Unit
Beach Bark Disease	Confirmed in all Counties containing the Unit. Observed within the Unit

FOREST HEALTH

Table I.H. – Invasive Species, Pests and Pathogens*	
Dutch Elm Disease	Confirmed in all Counties containing the Unit. Observed within the Unit
Animals	**Status**
None	

*The above list includes some of the more commonly occurring species within the Unit or species that are considered an immediate threat to the forests within the Unit. A full list of all invasive species found within the counties that contain the Unit can be found in Figure 12.

DEC will take action to eradicate invasive species where and when it is feasible to do so. Certain invasive pests and diseases are impossible to eradicate while others can be contained if they are managed early in the establishment process. All accepted forms of Integrated Pest Management may be used to mitigate the ecological and economic impacts associated with these pests when possible. DEC will continue to work cooperatively with Federal, State and local governments as well as other interested organizations in managing invasive threats.

Managing Deer Impacts

There is limited ability to manage deer impacts using silvicultural systems. The most effective method of keeping deer impacts in line with management objectives is to monitor impacts while working with the DEC's wildlife biologists to observe and manage the herd. On properties where deer are suspected of impacting values and objectives associated with biodiversity and timber management, such impacts must be inventoried and assessed. For more information on managing deer impacts, please see SPSFM page 291 at http://www.dec.ny.gov/lands/64567.html.

Preliminary assessments conducted during our forest inventory process of State Lands within the unit indicate that deer density levels are not having an adverse impact on the ability of the forest to regenerate. This is primarily due to the fact that all DEC lands within the unit are open to public hunting and there has been an abundance of antlerless deer management permits available for the Wildlife Management Units (WMU) containing the subject parcels. DEC has and will continue to monitor deer impacts within the Shawangunk Ridge Unit and take more aggressive action if necessary. Actions available are specified in the Strategic Plan for State Forest Management (SPSFM). These actions include efforts to increase hunter access, work within the deer management task force process to adjust antlerless harvest within the WMU, and instituting a property specific deer reduction program using deer hunting as the primary tool of implementation.

SUMMARY OF ECO-REGION ASSESSMENTS

To practice ecosystem management, foresters must assess the natural landscape in and around the management unit. State Forest managers utilized The Nature Conservancy Eco-Region Assessments to evaluate the landscape in and around this management unit. The Shawangunk Ridge Unit falls within the Lower New England/Northern Piedmont Eco-Region.

ECO-REGION SUMMARY (FROM THE STRATEGIC PLAN FOR STATE FOREST MANAGEMENT)

The Lower New England – Northern Piedmont (LNE-NP) Eco-Region includes portions of 12 states and the District of Columbia (Barbour et al. 2000). The Lower New England Eco-Region extends from southern Maine and New Hampshire with their formerly glaciated, low mountain and lake studded landscape through the limestone valleys of western Massachusetts and Connecticut, Vermont and eastern New York. Rhode Island, eastern Massachusetts and Connecticut are distinctive in that the communities are more fire adapted including pitch pine and oak dominated forests on glacially deposited sandy till that forms a broad plain with many ponds. In New York, the LNE-NP Eco-Region consists primarily of the Hudson Valley region, from below Lake George, south to New York City.

Large portions of the Appalachian Mountains lie within the ecoregion including the Palisades in New York and New Jersey, the Taconics and the Berkshires in Massachusetts, New York, Vermont, and Connecticut, and the widely strewn Monadnocks of southern New Hampshire. Large rivers originating in the Appalachians cut across the Atlantic slope lowlands generally from north or west to east emptying into the Atlantic Ocean. The Potomac, Susquehanna, Delaware, Hudson, Housatonic, Connecticut, Merrimack, and Saco Rivers provide a diversity of high- and low-energy aquatic habitats. The natural character of the ecoregion in New York is perhaps best seen currently within existing protected lands, primarily state-held, found in Palisades Park in New York and New Jersey.

The LNE-NP Eco-Region remains one of the most highly populated in the country with many cities including Nashua and Manchester, NH, Springfield and Worcester, MA, Hartford, CT, Albany, NY and New York City, Baltimore, MD, York and Lancaster, PA, and Washington, D.C. Added to these metropolis areas are the suburbs for the cities of Boston, Providence, RI, New Haven, CT, New York, and Philadelphia. The great forest expanses are now being increasingly fragmented by first and second home development. While the mountainous areas of the ecoregion are lightly settled, the valleys have long been developed for agriculture, and both are rapidly succumbing to development pressures.

ECO-REGION ASSESSMENT

Table II.A. Land Use and Land Cover for the Landscape Surrounding the Shawangunk Ridge Unit		
Land Use and Land Cover	**Approximate Acreage**	**Percent of Landscape**
Deciduous Forest	1,321,869	34.8
Crop Land and Pasture	798,367	21.1
Developed (High, Medium, Low Intensity)	655,307	17.4
Forested Wetland	350,613	9.2
Mixed Forest	235,895	6.2
Conifer Forest	186,920	4.9
Open Water	130,085	3.4
Shrub and Brush Range Land (includes seedling/sapling type)	84,171	2.2
Emergent Herbaceous Wetlands	17,215	0.4
Grassland/Herbaceous	9,017	0.2
Barren Land	6,200	0.2
Total	**3,795,659**	**100**

*Source: National Land Cover Database (NLCD) Summary 2001 from the Multi-Resolution Land Characteristics Consortium.

LOCAL LANDSCAPE CONDITIONS

A Gap analysis was performed on the Nature Conservancy Eco-Regional Assessment to determine which, if any, of the above listed land covers are needed to provide/maintain biodiversity of habitat on the landscape. DEC utilizes this information to make land management decisions within management units to decide how these lands are to be managed. Within the Lower New England/Lower Piedmont Eco-Region, a number of different land covers were identified as being below average in their presence within the ecoregion compared to the rest of the state.

Deciduous Forest: The Gap analysis lists deciduous forest as “Potentially Needed” within the Lower New England/Lower Piedmont Eco-Region. Within the Shawangunk Ridge Unit, deciduous forest cover is well represented. Approximately 88% (4,875 acres) of the land Unit has been inventoried. Approximately 78% of the inventoried acreage is deciduous forest. This is well above the ecoregional estimate of 34.8%. For this reason, there will be no management actions intended to increase the presence of deciduous forest.

Coniferous Forest: The Gap analysis lists Evergreen forest as “Needed” within the Lower New England/Lower Piedmont Eco-region. Within the Shawangunk Ridge Unit, coniferous forest stands are rare constituting only 0.8% (44 acres) of the inventoried acreage. This is well below the ecoregional estimate of 4.9%. Where appropriate, effort will be made to increase the amount of coniferous forest within this unit.

Wooded Wetlands: The majority of lands within the Shawangunk Ridge Unit do not support conditions conducive for wetlands. In general, the soils are shallow and excessively well drained. For this reason, there are very few wooded wetlands found within the properties of this unit. Approximately 91 acres of the land inventoried is considered wetland (emergent and wooded). This equates to 1.5% of the inventoried acreage. Increasing the acreage via the construction of wetlands is not desirable at this time.

Early Successional Forest: The Gap analysis lists early successional forests as "Needed" within the Lower New England/Lower Piedmont Eco-Region. Within the ecoregional assessment, this cover type is classified as shrub and brush land. This includes seedling and sapling forests which are the primary source of early successional habitat within a forested landscape. This cover type constitutes 2.2 percent of the land area within the Lower New England/Northern Piedmont Eco-Region. No early successional forests are found within the unit, and this is also well below state wide average of 2% for this cover-type. Where appropriate, effort will be made to increase the amount of early successional forest within this unit using well planned even aged forest management techniques, such as creating wide openings or clearcuts.

MANAGEMENT OBJECTIVES AND ACTIONS

OBJECTIVES

Ecosystem Management

Actions needed to meet the objectives are further described in the Ten Year List of Management Actions for each property.

Table III.A. –Ecosystem Management Objectives and Actions	
Objective	**Actions**
Statewide Management	
SM I – Implement SPSFM in UMPs	Action 1, Action 2
Active Forest Management	
AFM I – Apply sound silvicultural practices	Refer to tables III F, G, H
AFM II – Use harvesting plans to enhance diversity of species, habitats & structure	Refer to tables III F, G, H
AFM III – Fill ecoregional gaps to maintain and enhance landscape-level biodiversity	Refer to tables III F, G, H
AFM IV – Enhance matrix forest blocks and connectivity corridors where applicable	The majority of the Unit falls within either a Matrix Forest Block or a Connectivity Corridor as outlined by the SPSFM (pp. 85-89). Maintaining a closed canopy condition within these areas is desirable to foster the movement of various species throughout the landscape. Even aged treatments necessary for the perpetuation of the disturbance dependent forests of the Shawangunks will be designed in a manner that respects the integrity of the matrix forest block and it's corridors to the extent possible.
AFM V – Practice forest and tree retention on stands managed for timber	Refer to tables III F, G, H as well as State Forest Retention Policy Standards.

Resource Protection

Table III.B. –Resource Protection Objectives and Actions	
Objective	**Actions**
Soil and Water Protection	

MANAGEMENT OBJECTIVES AND ACTIONS

OBJECTIVES

Table III.B. –Resource Protection Objectives and Actions	
Objective	**Actions**
SW I – Prevent erosion, compaction and nutrient depletion	Use Best Management Practices when building new trails or conducting Timber Harvests.
SW II – Identify and map SMZ's and highly-erodible soils	SMZ's have been mapped and will be used during recreational development and timber harvest planning.
At-Risk Species and Natural Communities	
ARS I – Protect ARS&C ranked S1, S2, S2-3, G1, G2 or G2-3 where present	Rattlesnakes 1. Before undertaking any timber harvesting, prescribed fire, or mowing within 1.5 miles of a known rattlesnake den location between April 1 to October 31, consult with Bureau of Wildlife staff to review proposed action for potential impacts to timber rattlesnakes or critical habitat as prescribed in DEC's guidelines. 2. Construction of roads, skid trails and landings should be kept at least 330 feet from all known or potentially suitable basking and gestating habitats, and, to minimize the potential for collapse or disturbance of dens, heavy equipment use should be prohibited within 660 feet of any known den. Peregrine falcons 1. Conduct annual surveys to locate any new peregrine falcon nesting activity on the Unit. 2. Reroute or close trails within 500' of the nest, especially those trails above the nest, from March 1 to July 31. Furthermore, close the area around the nest to rock climbing for that duration. 3. Avoid timber harvesting of any type at any time within 500' of a known peregrine falcon nest site. If a nest site is not used for 2 consecutive years, it will be considered unoccupied and this restriction will no longer apply. 4. Avoid timber harvesting within 0.5 miles of a known peregrine falcon nest site from March 1 to July 31 to avoid nest disturbance and abandonment.

ARS III - Consider protection and management of Species of Greatest Conservation Need	Early Successional Habitat 1. Favor even-aged forest management whenever possible using harvesting strategies such as clearcutting or shelterwood cuts. Because early successional habitat types are ephemeral, developing a system of providing sustained availability of these habitats both temporally and spatially is critically important. Maintaining 10% of the landscape in early successional forest (<10 years of age) or shrub habitat is an achievable objective. However, due to constraints on active habitat management on some lands on the Ridge (i.e. preserves), lands where active management is allowable may need to provide the bulk of the early successional habitat on a landscape level. 2. If uneven-aged forest management is necessary to maintain a specific forest type, favor a group selection harvest technique which would create larger openings than single tree selection. 3. Maintain native shrub communities through the active removal of tree species. 4. Promote the development of a defined shrub layer in areas with an intact forest canopy by facilitating the management of white-tailed deer populations through recreational hunting. 5. Develop signage and other literature to explain the importance of early successional habitats to the public. Protect forest-breeding raptor SGCN on the Unit 1. Develop a Unit-wide database of red-shouldered hawk, Cooper's hawk, sharp-shinned hawk and northern goshawk nest locations. 2. Avoid timber harvesting within 330' of known nest locations for forest-breeding raptors between February 15 to July 31 to minimize nest disturbance and abandonment. If a nest location is unused, this restriction will be reduced to 66 feet. 3. Temporarily close or reroute any trail within 330' of known nest locations between February 15 and July 31. Protect seasonal wetland-breeding amphibian SGCN on the Unit. 1. For all ecologically significant seasonal wetlands and seasonal wetland complexes the Department established Special Management Zone Guidelines that protect the integrity of these features and the areas immediately adjacent to them.
Visual Resources and Aesthetics	

MANAGEMENT OBJECTIVES AND ACTIONS

OBJECTIVES

Table III.B. –Resource Protection Objectives and Actions	
Objective	**Actions**
VR I – Maintain or improve overall quality of visual resources	Maintain scenic vistas
VR II – Use natural materials where feasible	All access points will be developed using natural materials such as stone and wood.
VR IV – Develop kiosks to provide education and reduce sign pollution	Kiosks will be placed at all major access points to provide information about the property, its management, appropriate contact numbers, maps, and rules and regulations. Huckleberry Ridge SF - Actions 3, 4, 5, 6 Wurtsboro Ridge SF - Action 4, 5, 6 Roosa Gap SF - Actions 5, 6 Shawangunk Ridge SF - Actions 4, 5 Oregon Trail FP - Action 3
Historic and Cultural Resources	
HC I – Preserve and protect historic and cultural resources wherever they occur	As historical and cultural resources become apparent, appropriate staff will be notified to determine the significance of the resource and what actions should be taken to protect it.

Infrastructure and Real Property

Table III.C. –Infrastructure and Real Property Objectives and Actions	
Objective	**Actions**
Boundary Line Maintenance	
BL I – Maintain boundary lines	DEC will strive to inspect and maintain boundary lines once every seven years.
BL II – Address encroachments and other real property problems	New York State Forest Rangers routinely patrol boundary lines. Any encroachments will be addressed using all resources at the DEC's disposal.
Infrastructure	

Table III.C. –Infrastructure and Real Property Objectives and Actions	
Objective	**Actions**
INF I – Provide and maintain public forest access roads, access trails, haul roads, parking areas, and associated appurtenances	Access will be developed to accommodate a wide variety of uses within the unit. Forest management operations will be planned to assist in developing parking areas and trail systems throughout the unit while achieving silvicultural objectives. Huckleberry Ridge SF - Action 1, 2, 7, 9, 10 Graham Mountain SF -Action 1,2 Wurtsboro Ridge SF - Action 1,2,3,7,8,9,10,11,13 Roosa Gap SF - Action 1,2,3,7,13 Shawangunk Ridge SF - Action ,1,2,3,7,9 Witch's Hole MUA - Action 1 Oregon Trail FP - Action 1
INF II – Upgrade, replace or relocate infra-structure out of riparian areas where feasible	Existing Infrastructure found within riparian areas will be assessed on a case by case basis to determine the current impacts of the infrastructure within the riparian areas, the impacts associated with future use, replacement, and relocation.
INF III – Resolve issues of uncertain legal status or jurisdiction	Graham Mountain SF - Action 5
INF IV – Prevent over-development	Shawangunk MUA - Action 3

Public/Permitted Use

Table III.D –Public / Permitted Use Objectives and Actions	
Objective	**Actions**
Universal Access	
UA I – Use minimum tool approach to provide universal access to programs	Roosa Gap SF -Action 13 DEC will continually look for ways to increase public access to lands with the unit as resources and other lands become available.
Formal and Informal Partnerships and Agreements	
PRT I – Collaborate with local organizations and governments to reach mutual goals	Unit Wide-Action 1, 2

MANAGEMENT OBJECTIVES AND ACTIONS

OBJECTIVES

Table III.D –Public / Permitted Use Objectives and Actions	
Objective	**Actions**
PRT II – Consider full range of impacts associated with TRPs	DEC will evaluate, TRP's and other agreements on a case by case basis to consider the effects such agreements could have upon the resource and other uses of the property.
Recreation	
REC I – Accommodate public use while preventing illegal activity, reducing impacts and enhancing public safety	Huckleberry Ridge SF - Action 8 Graham Mountain SF - Action 3 Wurtsboro Ridge SF - Actions 12,13,14,15,16 Roosa Gap SF - Action 8, 9, 11, 12 Shawangunk Ridge SF - Actions 6,8 Shawangunk MUA - Actions 1, 3
REC II – Provide public recreation information	Update our State Lands Interactive Mapper and develop online descriptions of the properties within the Unit.
REC IV – Enhance fish & game species habitat	Use forest management techniques to achieve habitat goals for various fish and game species.
Off-Highway and All-Terrain Vehicle Use	
ATV I – Enhance recreational access by people with disabilities under the MAPPWD program	Roosa Gap SF - Action 3, 13
ATV II – Consider requests for ATV connector routes across the unit	No actions proposed at this time
Mineral Resources	
MR I – Provide for mineral exploration and development while protecting natural resources and recreation	No actions proposed at this time
Supporting Local Communities	
LC I – Provide revenue to New York State and economic stimulus for local communities	A multitude of actions listed in this plan assist in accomplishing this objective including ecological tourism, recreational tourism, hunting opportunities and production of forest products. All of these activities have been shown to benefit the economies of the communities surrounding State Forest lands.
LC II – Improve local economies through forest-based tourism	See LCI
LC III – Protect rural character and provide ecosystem services to local communities.	See LCI

Forest Management and Health

Table III.E. –Forest Management and Health Objectives and Actions	
Objective	**Actions**
Forest Products	
FP I – Sustainably manage for forest products	Refer to tables III F, G, H
FP II – Educate the public about the benefits of silviculture	Develop signage for each forest management operation that describes the objectives and benefits of the treatment.
Plantation Management	
PM I – Convert plantation stands to natural forest conditions where appropriate	No actions proposed at this time.
PM II – Artificially regenerate plantations where appropriate	Refer to tables III F, G, H
Forest Health	
FH I – Use timber sales to improve forest health and the diversity of species	Refer to tables III F, G, H
FH II – Protect the unit and surrounding lands from introduced diseases and invasive plant and animal species	DEC will continually examine and evaluate the health of state forest lands within the unit with respect to the presence of introduced diseases and invasive plants and animals. The department may implement Integrated Pest Management practices to address any adverse impacts such diseases and species may have on the lands within this unit.
Managing Deer Impacts	
DM I – Monitor impacts of deer browsing on forest health and regeneration	As needed within the Unit
DM II – Address issues of over-browsing	As needed within the Unit
Fire Management	
FM I – Support Forest Rangers in controlling the ignition and spread of wildfires	As needed and requested

Table III.E. –Forest Management and Health Objectives and Actions	
Objective	**Actions**
FM II – Maintain naturally occurring fire-dependent communities	Fire may be used as a tool to regenerate and maintain fire dependent communities when feasible. Refer to tables III F, G, H for a description of which stands will be regenerated. Please note that fire is only one tool that can be used to regenerate these communities and that just because a stand is scheduled to be regenerated this does not necessarily mean that it will be appropriate to employ prescribed fire in those areas.
Carbon Sequestration	
CS I – Keep forests as forests, where appropriate	Management actions taken on the ridge will be implemented with the goal of perpetuating forest eco-system and communities. Such a management scheme will serve to enhance the carbon sequestration ability of state lands within the unit.
CS II – Enhance carbon storage in existing stands	As stands are treated and regenerated, their ability to store carbon will increase along with growth and the development of a rapidly growing new cohort of trees in the understory. Refer to tables III F, G, H
CS III – Keep forests vigorous and improve forest growth rates	Commercial thinning and non-commercial treatments such as Forest Stand Improvements increase the efficiency of growth among residual stems. Refer to tables III F, G, H
CS IV – Sequester carbon in forest products	As forest products are removed from the unit and converted into value added products, their stored carbon is sequestered permanently. Please refer to tables III F, G, H

TEN-YEAR LIST OF MANAGEMENT ACTIONS

Unit-wide Actions

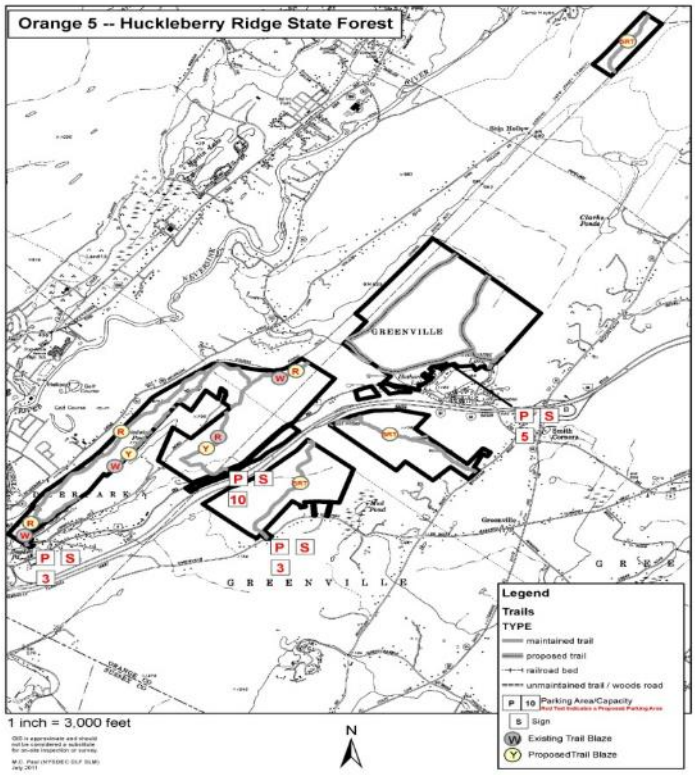
Action 1: Collaborate with local interest, volunteer, and community groups for help with specific projects. Maintain membership in the Shawangunk Ridge Biodiversity Partnership

Action 2: Coordinate trail development with New York/New Jersey Trail Conference (NYNJTC).

Orange 5-Huckleberry Ridge State Forest Actions

Actions completed as part of Governor's Access Initiative

1. Parking Area & Kiosk (New Construction): Off of Old Greenville Turnpike, 3 car capacity.
2. Parking Area & Kiosk (New Construction): On the north side of Route 6, 10 car capacity*
3. Parking Area & Kiosk (New Construction): On the dead end of Raymond Drive.
4. Parking Area & Kiosk (New Construction): Off of Greenville Turnpike.
5. Trails: The Department collaborated with our partners to modify trail route in order to minimize "road hiking". The trail was built and is maintained by NYNJTC volunteers using the DEC's Volunteer Stewardship Agreement (VSA) Program.



Actions to be completed as part of this UMP

1. Gate: A gate is to be maintained at the end of Lime Kiln Road. Access through the gate will serve the private landowners and DEC staff.

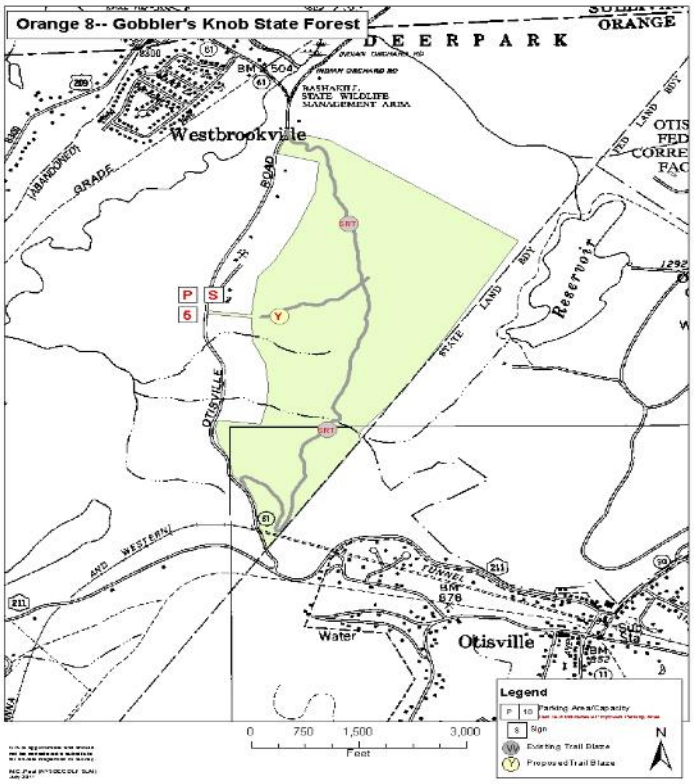
Orange 7-Graham Mountain State Forest Actions

1. Parking Area (New Construction): At the base of the fire tower next to the Ranger Cabin. 5 car capacity*
2. Trails: The Shawangunk Ridge Trail currently follows the rail bed located down slope on the Western edge of the property. A red spur trail connects the SRT with the main point of interest on the property which is the fire tower located at the highest point. These trails will be maintained by the New York/New Jersey Trail Conference via a Volunteer Stewardship Agreement or alternative volunteer agreements with DEC.
3. Fire tower: The fire tower will be evaluated by DEC engineers to determine if it can be opened to public access. Any improvements recommended will be evaluated to determine if resources are available for improving the structure.
4. The Ranger Cabin will be removed.
5. A legal interpretation has been requested to determine the public's right to use a traditional Right of Way to access the fire tower.

*Public access to the fire tower and the construction of a parking lot will be dependent upon the legal determination rendered regarding public access to the property.

TEN-YEAR LIST OF MANAGEMENT ACTIONS

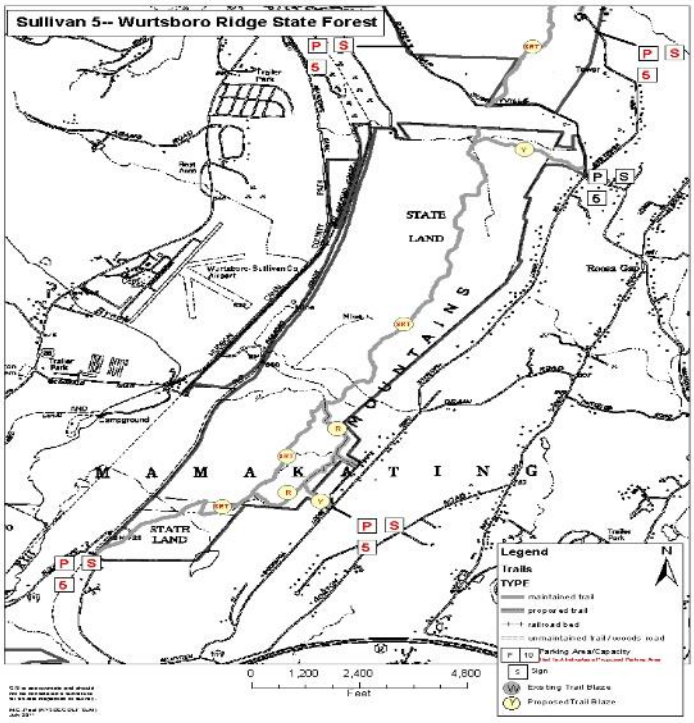
Orange 8 – Gobbler's Knob State Forest Actions



1. Parking Area (New Construction): construct a new parking area along Otisville Road. 5 car capacity.
2. Trails (New Construction): The Shawangunk Ridge Trail (SRT) currently runs through the middle of the property, with hikers accessing the trail from an informal parking area. A formal parking area, and spur trail connecting the parking area to the SRT using an existing woods road, will need to be constructed. DEC will work with our partners at the trail conference to design and construct this trail.

Sullivan 5-Wurtsboro Ridge State Forest Actions

1. Parking Area and Kiosk (New Construction): Hair pin turn on the corner of Bloomingburg Mountain Road and VFW Road. 10 car capacity
2. Parking Area (New Construction): Near intersection of Flaherty Drive and Shawanga Lodge Rd. 5 car parking
3. Parking Area and Kiosk (New Construction): Shawanga Lodge and Pickles Roads. 5 car capacity
4. Kiosk (New Construction): Upper Roosa Gap Summitville Road
5. Trails: The Shawangunk Ridge Trail currently runs through the middle of the property. A marked spur trail connects the only formal parking area on the property with the SRT. Additional loops are planned to connect the users of the SRT with the rail beds and D & H Canal properties to the west. All trails will be constructed and maintained under an Adopt a Natural Resource Agreement or alternative volunteer agreements.
6. Emergency Access: The east edge of the State Forest has an extensive network of trails and woods roads that crest the top of the ridge. These roads will be cleared occasionally for emergency purposes.



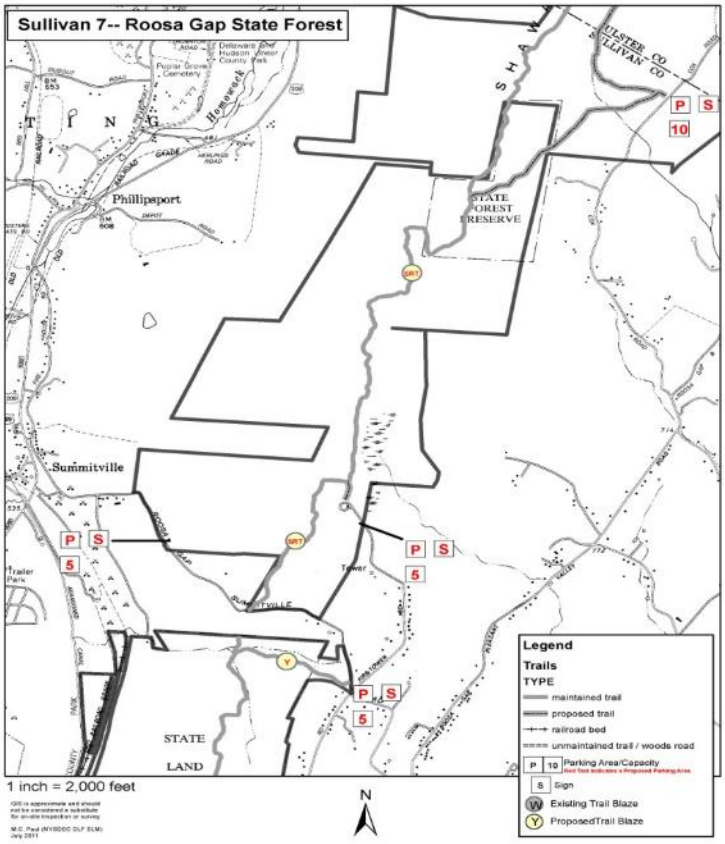
Flaherty Drive will serve as the main access point for emergency personnel onto the state forest. Additionally, emergency personnel will access the lower (western) areas of the state forest along an old rail bed via the McDonald Road Gate (to the South) or the Trail Conference Property (located to the North). The lower rail bed will also be maintained to provide access throughout this section of the property.

7. Gate (New Construction): The rail bed leading into the State Forest from the south on VFW road will be blocked by permanent barriers.
8. Gate: The gate located at the end of McDonald Road will be maintained and serve as access for DEC staff.
9. Gate (New Construction): A gate will be installed on state land leading into the eastern section of the State Forest from Flaherty Drive. It will be maintained to serve as access to Administrative and Emergency personnel.
10. Mine: Additional sampling of the shafts and tailing piles associated with the mine is needed to formulate a remediation plan. Gate shafts for safety and protection of bat habitat.
11. Gate: The gate located at the entrance to the NYNJTC property leading into the north of the state property will be maintained.

Sullivan 7-Roosa Gap State Forest Actions

Actions completed as part of the Governor's Access Initiative

1. Parking Area and Kiosk (New Construction): A formal parking area and kiosk on the lower section of Roosa Gap Summitville Road on the Buckhorn acquisition. 5 car capacity
2. Parking Area and Kiosk (New Construction): A formal parking area and kiosk at the end of Firetower Road. 5 car capacity



Actions to be completed as part of this UMP

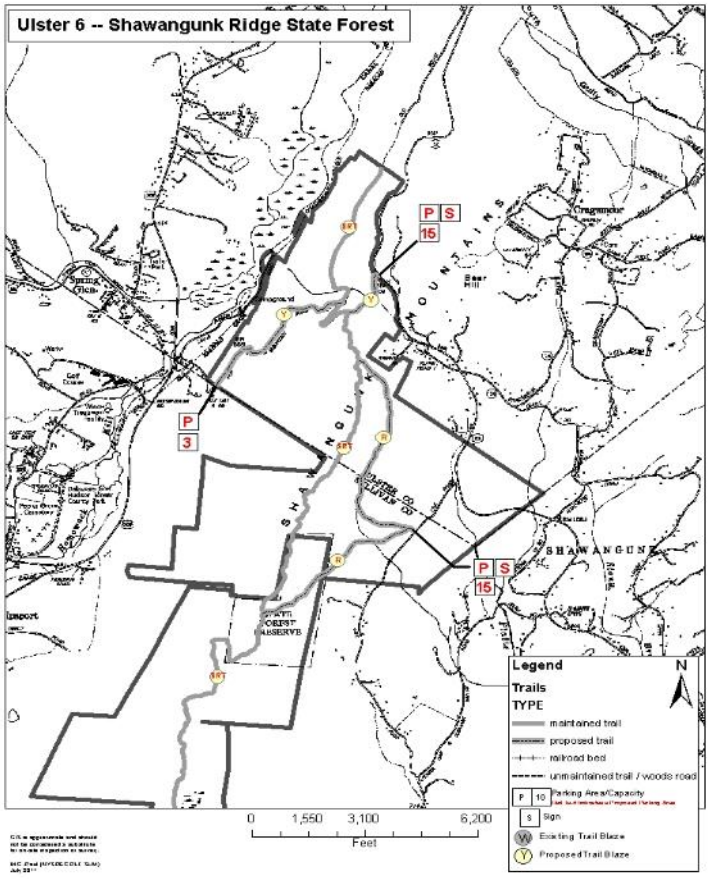
1. Access: Allow motorized access for people with disabilities up to the fire tower. Construct a viewing platform just south of the fire tower.
2. Recreation: Install a designated campsite near the border of Wurtsboro Ridge SF and Shawangunk Ridge SF.
3. Trails: The Shawangunk Ridge Trail runs through the middle of the property. New trails will be constructed and existing trails will be maintained by the NYNJTC under a Volunteer Stewardship Agreement or alternative volunteer agreements with DEC. Proposals for new trails will be reviewed by the DEC.
4. Gate: A gate will be maintained on the access road leading up to the fire tower.

5. Barriers (New Construction): Barriers will be installed on the forest roads leading in the southern portion of the State Forest from behind the old Buckhorn camp on Roosa Gap Road.
6. Fire tower: The fire tower will be evaluated by DEC engineers to determine if it can be opened to public access.
7. Building: A building that once served as a hunting camp on the north side of Summitville Rd will be removed.
8. Building: A storage shed is located at the base of the fire tower. The shed provides storage for equipment and houses a backup generator used by Sullivan County to provide power to the emergency communications equipment located on the tower. The shed and emergency communications equipment will be removed from the tower after the County vacates.
9. Develop access from the gate located at the end of Firetower Road to the fire tower to allow for vehicular access to people with disabilities. A Motorized Access Permit for People with Qualifying Disabilities will be required.

Ulster 6- Shawangunk Ridge State Forest Actions

Actions completed as part of the Governor's Access Initiative

1. Parking Area and Kiosk (New Construction): At the large landing on the west side of Cox Road. 10 car capacity.
2. Parking Area (New Construction) At the large landing on the south side of Rt. 52. 10 car capacity.
3. Parking Area and Kiosk (New Construction): At the end of Mountain Road. 3 car capacity.
4. Access (New Construction): Replaced timber bridge on state land leading from the proposed parking area on Old Mountain Road.

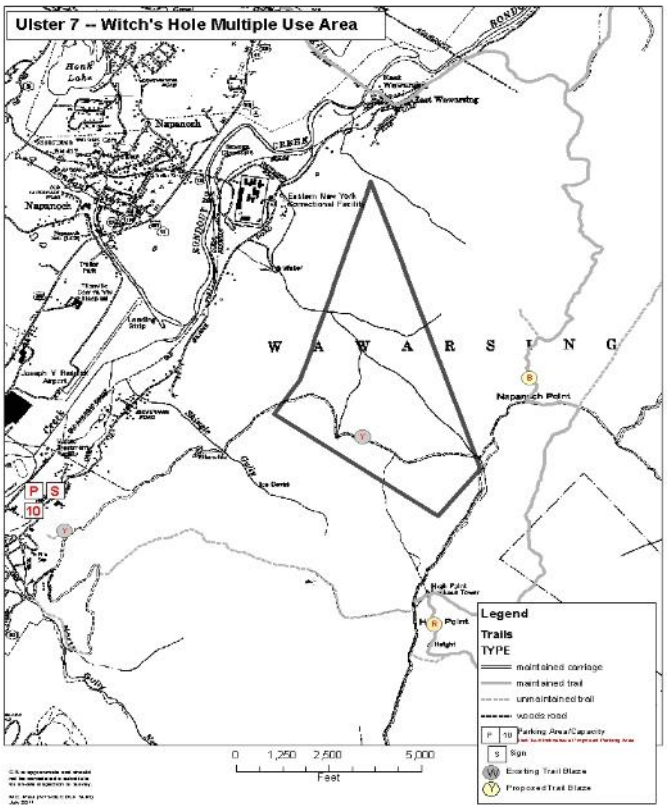


Actions to be completed as part of this UMP

1. Gate (New Construction): Access from Old Mountain Road will be gated on at the proposed parking area.
2. Gate (New Construction): Install and maintain a gate at the north access into the state forest from Old Rt. 52.
3. Access: Construct a trail connection from Cox Road to the Shawangunk Ridge Trail (SRT). The Shawangunk Ridge Trail runs through the middle of the property. New trails will be constructed and existing trails will be maintained by the NYNJTC under an Adopt a Natural Resource Agreement or alternative volunteer agreements with DEC. Proposals for new trails will be reviewed by DEC.

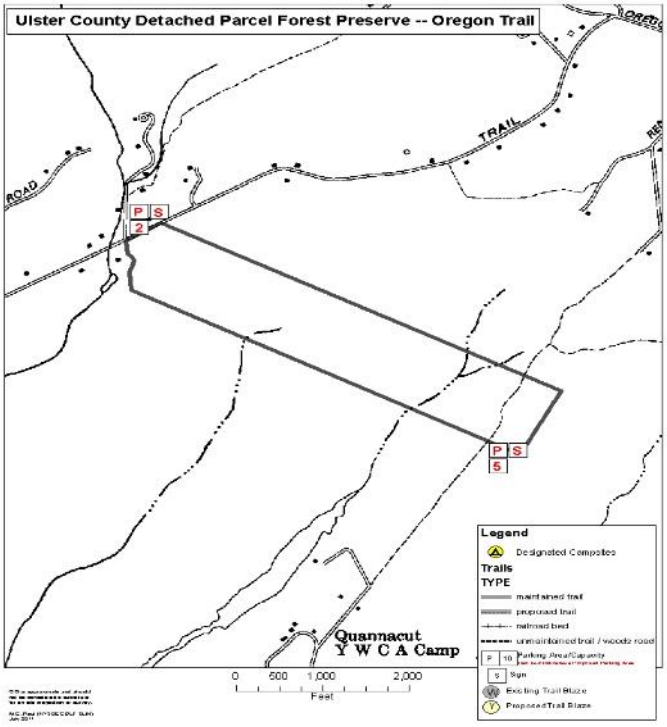
Ulster 7 – Witches Hole Multiple Use Area Actions

1. Access: Working with our partners and neighbors, construct a trail connection from Berme Road Park to the Long Path located on Minnewaska State Park.



Ulster County Detached Parcel Forest Preserve—Oregon Trail Forest Preserve Actions

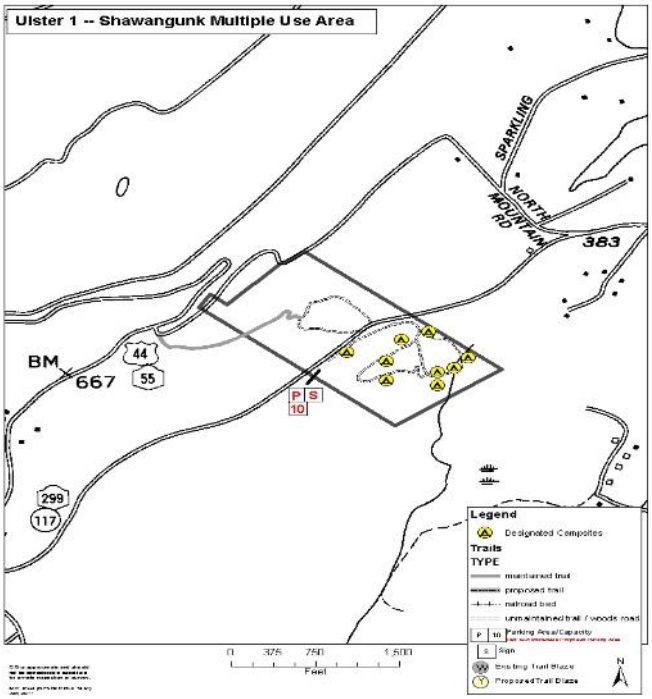
1. Parking Area (New Construction): Install a parking area at the end of Quannacut Road. 5 car capacity
2. Parking Area (New Construction): Install a parking area along Oregon Trail Road. 2 car capacity
3. Kiosk: (New Construction) Install a small on pane informational kiosk at each parking area



TEN-YEAR LIST OF MANAGEMENT ACTIONS

Ulster 1—Shawangunk Multiple Use Area Actions

1. Camping was closed on the property in spring 2016.
2. Initiate restoration of impacted areas.
3. Consider interagency transfer of property to OPRHP.



Ten Year List of Proposed Infrastructure Improvements by Property, Anticipated Time Frame for Completion and Estimated Costs

Property	Time Frame	Action
Orange 5-Huckleberry Ridge State Forest	0-5	1. Parking Area (New Construction): Old Greenville Turnpike. 3 car capacity ($6,000) Completed 2014 2. Parking Area (New Construction): On the dead end of Raymond Drive. 5 car capacity ($6,000) Completed 2014 3. Parking Area (New Construction): On Route 6. 10 Car capacity ($12,000) Completed 2014 4. Parking Area (New Construction): On Greenville Turnpike. 3 car capacity ($6,000) Completed 2014
	0-5	1. Kiosk (New Construction): At Old Greenville Turnpike($1,000) 2. Kiosk (New Construction): On the dead end of Raymond Drive. ($1,000) 3. Kiosk (New Construction): On Route 6. ($1,000) 4. Kiosk (New Construction): On Greenville Turnpike. ($1,000) All kiosks installed in 2014
	0-5	Trails - DEC will work with our partners at the trail conference to modify trail route in order to minimize “road hiking”. A connection through the NYNJTC property formerly owned by Cardinale and into Compartment 1 of Huckleberry Ridge SF is currently being planned. The trail will be built and maintained by NYNJTC volunteers using DEC’s

Property	Time Frame	Action
		Volunteer Stewardship Program or alternative volunteer agreements.
	0-15	Gate - A gate is to be maintained at the end of Lime Kiln Road. Access through the gate will serve the private landowners and DEC staff. ($1,500)
	0-10	Survey, blaze, and post boundary for entire property.
Orange 7- Graham Mountain State Forest	0-5	Parking Area (New Construction) - At the base of the fire tower next to the Ranger Cabin. 5 car capacity* ($4,000) *This action is dependent upon a legal determination regarding the status of public access to the property.
	0-5	Trails - The Shawangunk Ridge Trail currently follows the rail bed located down slope on the Western edge of the property. A red spur trail connects the SRT with the main point of interest on the property which is the fire tower located at the height of land. These trails will be maintained by the New York/New Jersey Trail Conference via a Volunteer Stewardship Agreement with the DEC or alternative volunteer agreements.
	0-5	The Ranger Cabin will be processed and demolished. ($25,000)
	0-10	Survey, blaze, and post boundary for entire property.
Orange 8- Gobbler's Knob State Forest	0-10	1. Parking Area (New Construction) - Otisville Road. 10 car capacity ($12,000) 2. Survey, blaze, and post boundary for entire property.
Sullivan 5- Wurtsboro Ridge State Forest	0-5	1. Parking Area (New Construction) - Hair pin turn on the corner of Bloomingburg Mountain Road and VFW Road. 10 car capacity. ($12,000) 2. Parking Area (New Construction) - Shawanga Lodge, and Pickles Roads. 5 car capacity (Completed) 3. Parking Area (New Construction) – Near Intersection of Flaherty Drive and Shawanga Lodge Road. 3 car parking. ($6,000)
	5-10	1. Parking Area (New Construction) - Upper Roosa Gap Summitville Road near the intersection of fire tower. 5 car capacity. ($6,000) 2. Parking Area (New Construction) - Shawanga Lodge and Pickles Roads. 5 car capacity. Completed 3. Parking Area (New Construction) - Lafarge Property/Firehouse Road**10 car capacity. ($12,000)

MANAGEMENT OBJECTIVES AND ACTIONS

TEN-YEAR LIST OF MANAGEMENT ACTIONS

Property	Time Frame	Action
	5-10	1. Kiosk - Hair pin turn on the corner of Bloomingburg Mountain Road and VFW Road. ($1,000) 2. Kiosk - Shawanga Lodge, and Pickles Roads. ($1,000) 3. Kiosk - Upper Roosa Gap Summitville Road near the intersection of Firetower. ($1,000)
	0-5	Trails - The Shawangunk Ridge Trail currently runs through the middle of the property. A marked spur trail connects the only formal parking area on the property with the SRT. Additional loops are planned to connect the users of the SRT with the rail beds and D & H Canal properties to the west. All trails will be constructed and maintained under a Volunteer Stewardship Agreement or alternative volunteer agreements between the DEC and the Trail Conference.
	0-5	Mine - Additional sampling of the shafts and tailing piles associated with the mine is needed to formulate a remediation plan. Gate shafts for public safety and protection of bat habitat.
Sullivan 5-Wurtsboro Ridge State Forest (Contd.)	0-5	Emergency Access - The east edge of the State Forest has an extensive network of trails and woods roads located on top of the ridge. These roads will be cleared occasionally for emergency purposes. Flaherty Drive will serve as the main access point for emergency personnel onto the state forest. Additionally, emergency personnel will access the lower (western) areas of the state forest along an old rail bed via the McDonald Road Gate (to the south)or the Trail Conference Property (located to the north).* The lower rail bed will also be maintained to provide access throughout this section of the property.
Sullivan 7-Roosa Gap State Forest	0-5	Parking Area (New Construction) - A formal parking area is to be located at the end of Firetower Road. 5 car capacity. ($6,000) Completed in 2015
	5-10	Parking Area (New Construction) - A formal parking area is to be located on the lower section of Roosa Gap Summitville Road on the Buckhorn acquisition. 5 car capacity. ($6,000)
	5-10	Recreation: Install a camping shelter near the border of Roosa Gap SF and Shawangunk Ridge SF. ($10,000)
Sullivan 7-Roosa Gap State Forest	5-10	Kiosk (New Construction) - Lower Roosa Gap Summitville Road on the Buckhorn acquisition. ($1,500)
	0-5	Kiosk (New Construction)- Install a kiosk at the end of Firetower Road. ($1,500) Completed in 2015
	0-5	Trails - The Shawangunk Ridge Trail runs through the middle of the property. New trails will be constructed and existing trails will be maintained by the NYNJTC under a Volunteer Stewardship Agreement

Property	Time Frame	Action
		or alternative volunteer agreements with the DEC. Proposals for new trails will be reviewed by the DEC. Road - Develop access from the gate located at the end of Firetower Road to the fire tower to allow for vehicular access to people with disabilities. A Motorized Access Permit for People with Qualifying Disabilities will be required. ($10,000)
	0-5	Gate - A gate will be maintained on the access road leading up to the fire tower. ($1,500)
	5-10	Barrier (New Construction)- Barriers will be installed on the forest roads leading in the southern portion of the State Forest from behind the old Buckhorn camp on Roosa Gap Road. ($500)
	0-5	Fire tower - The fire tower will be evaluated by DEC engineers to determine if it can be opened to public access. Sullivan County's emergency communications equipment is located on the fire tower. The County will remove all equipment as well as a small shed next to it after their new tower is built.
	5-10	Building - A building that once served as a hunting camp is located on the north side of Summitville Rd will be demolished. ($25,000)
	0-10	Survey the Buckhorn Acquisition
	0-10	Survey the Prober Acquisition
Oregon Trail Forest Preserve	0-5	Install two parking areas: 1. Parking Area (New Construction): Quannacut Road. 5 car parking. ($6,000) 2. Parking Area (New Construction): Oregon Trail Rd. 2 car parking. ($3,000)
		Kiosk (New Construction) - Install a one pane kiosk on Oregon Trail Road. ($1,000) Kiosk (New Construction) - Install a one pane kiosk on Quanicut Road. ($1,000)

TEN-YEAR LIST OF MANAGEMENT ACTIONS

Property	Time Frame	Action
Ulster 6-Shawangunk Ridge State Forest	0-5	1. Parking Area (New Construction) Install a parking area at the large landing on the west side of Cox Road. 15 car capacity. ($15,000) Completed in 2015 2. Parking Area (New Construction) Install a parking area at the large landing on the south side of Rt. 52. 15 car capacity. ($15,000) Completed in 2015
	5-10	Parking Area (New Construction) Install a parking area at the end of Mountain Road. 3 car capacity. ($3,000) Completed in 2015
	0-5	Kiosk (New Construction) Install a large 3 pane kiosk at the landing on the west side of Cox Road. ($2,500) Completed in 2015
	5-10	Kiosk (New Construction) Install a small 1 pane kiosk at the end of Mountain Road. ($1,500) Completed in 2015
	0-5	Access from Old Mountain Road will be gated on at the proposed parking area. ($1,500)
	5-10	Replace timber bridge on state land leading from the proposed parking area on Old Mountain Road.*($10,000)
	0-5	Gate (New Construction) Install and maintain a gate at the north access into the state forest from Old Rt. 52. ($2,500)
Ulster 7 – Witches Hole Multiple Use Area	5-10	Trails: Working with our partners and neighbors, construct a trail connection from Berme Road Park to the Long Path located on Minnewaska State Park.

Estimated Total Cost of Proposed Projects

Property	Estimated Expenditures for Time Frame 0-5	Estimated Expenditures for Time Frame 5-10
Orange 5-Huckleberry Ridge State Forest	$35,000	

Orange 7-Graham Mountain State Forest	$29,000	
Orange 8-Gobbler's Knob State Forest	$12,000	
Sullivan 5-Wurtsboro Ridge State Forest	$30,000	$33,000
Sullivan 7-Roosa Gap State Forest	$14,500	$25,000
Ulster 6-Shawangunk Ridge State Forest	$36,500	$14,500
Oregon Trail Forest Preserve	$11,000	
TOTAL	$168,000	$72,500

FOREST TYPE CODES

Natural Forest Types

10 Northern Hardwood
11 Northern Hardwood-Hemlock
13 Northern Hardwood-Spruce-Fir
12 Northern Hardwood-White Pine
14 Pioneer Hardwood
15 Swamp Hardwood
16 Oak
17 Black Locust
18 Oak-Hickory
19 Oak-Hemlock
20 Hemlock
21 White Pine
22 White Pine-Hemlock
23 Spruce-Fir
24 Spruce-Fir-Hemlock-White Pine
25 Cedar
26 Red Pine
27 Pitch Pine
28 Jack Pine
29 Tamarack
30 Oak-Pine
31 Transition Hardwoods (NH-Oak)
32 Other Natural Stands
33 Northern Hardwood-Norway Spruce
97 Seedling-Sapling- Natural
99 Non-Forest
-99 Null

Plantation Types

40 Plantation: Red Pine
41 Plantation: White Pine
42 Plantation: Scotch Pine
43 Plantation: Austrian Pine
44 Plantation: Jack Pine
45 Plantation: Norway Spruce
46 Plantation: White Spruce
47 Plantation: Japanese Larch
48 Plantation: European Larch
49 Plantation: White Cedar
50 Plantation: Douglas Fir
51 Plantation: Balsam Fir
52 Plantation: Black Locust
53 Plantation: Pitch Pine
54 Plantation: Misc. Species (Pure)
60 Plantation: Red Pine-White Pine
61 Plantation: Red Pine-Spruce
62 Plantation: Red Pine-Larch
63 Plantation: White Pine-Spruce
64 Plantation: White Pine-Larch
65 Plantation: Scotch Pine-Spruce
66 Plantation: Scotch Pine-Larch
67 Plantation: Larch-Spruce
68 Plantation: Bucket Mixes
70 Plantation: Pine-Natural Species
72 Plantation: Misc. Hardwood
98 Plantation: Seedling-Sapling

MANAGEMENT STRATEGY

Timber Management:

Even Age (T-EA)-A stand of trees composed of a single age class in which the range of tree ages is within 20 percent of rotation.

Un-Even Age (T-UE)-A planned sequence of treatments designed to maintain and regenerate a stand with THREE or more age classes

Non-Silvicultural (T-NS)

TREATMENT TYPE

Harvest (HV)- An intermediate or final cutting that extracts salable trees

Release (RL) –A treatment designed to release established advance regeneration of a target species.

Salvage (SL)-The removal of dead trees or trees damaged or dying because of injurious agents other than competition, to recover economic value that would otherwise be lost.

Sanitation (SN)-the removal of trees to improve stand health by stopping or reducing the spread of insects and disease.

Thinning (TH)-A cultural treatment made to reduce stand density of trees primarily to improve growth, enhance forest health, or recover potential mortality

Regeneration (RG)-removal of trees intended to assist regeneration already present or to make regeneration possible.

LAND MANAGEMENT ACTION SCHEDULES

Table III.F. - Land Management Action Schedule for First Five-Year Period (by State Forest)

State Forests	Stand	Acres	Forest Type			Management Category		Treatment Type
			Current	Post Treatment	Future	Current	Future	
Sullivan 5 Compartment 1	3	27	16	16	16	T-EA	T-EA	RG
Sullivan 5 Compartment 1	4	121	16	16	16	T-EA	T-EA	RG
Sullivan 5 Compartment 1	11	208	16	16	16	T-EA	T-EA	RG
Sullivan 5 Compartment 1	13	110	16	16	16	T-EA	T-EA	TH

LAND MANAGEMENT ACTION SCHEDULES

Table III.F. - Land Management Action Schedule for First Five-Year Period (by State Forest)

State Forests	Stand	Acres	Forest Type			Management Category		Treatment Type
			Current	Post Treatment	Future	Current	Future	
Sullivan 7 Compartment 1	4	14	16	16	16	T-EA	T-EA	RG
Ulster 6 Compartment 1	1	24	16	16	16	T-EA	T-EA	RG
Ulster 6 Compartment 1	2	21	16	16	16	T-EA	T-EA	RG
Ulster 6 Compartment 1	3	25	16	16	16	T-EA	T-EA	RG
Ulster 6 Compartment 1	9	60	16	16	16	T-EA	T-EA	RG
Ulster 6 Compartment 1	10	57	16	16	16	T-EA	T-EA	RG
Ulster 6 Compartment 1	11	58	16	16	16	T-EA	T-EA	RG
Ulster 6 Compartment 1	14	43	16	16	16	T-EA	T-EA	RG

Table III.G. - Land Management Action Schedule for Second Five-Year Period (by State Forest)

State Forests	Stand	Acres	Forest Type			Management Category		Treatment Type
			Current	Post Treatment	Future	Current	Future	
Orange 5 Compartment 1	7	27	16	16	16	T-EA	T-EA	RG
Orange 5 Compartment 3	3	34	16	16	16	T-EA	T-EA	TH
Sullivan 5 Compartment 1	7	183	16	16	16	T-EA	T-EA	TH
Ulster 6 Compartment 1	4	30	16	16	16	T-EA	T-EA	RG
Ulster 6 Compartment 1	5	31	16	16	16	T-EA	T-EA	RG
Ulster 6 Compartment 1	6	6	20	20	20	T-EA	T-EA	RG

Table III.H. - Stands without Scheduled Management within 10 Years (by State Forest)

State Forests	Stand	Acres	Forest Type	
			Current	Future
Orange 5 Compartment 1	1	24	19	19
Orange 5	2	81	16	16

LAND MANAGEMENT ACTION SCHEDULES

Table III.H. - Stands without Scheduled Management within 10 Years (by State Forest)

State Forests	Stand	Acres	Forest Type	
			Current	Future
Compartment 1				
Orange 5 Compartment 1	3	50	16	16
Orange 5 Compartment 1	4	173	16	16
Orange 5 Compartment 1	5	18	16	16
Orange 5 Compartment 1	8	32	32	32
Orange 5 Compartment 1	9	16	16	16
Orange 5 Compartment 1	10	32	32	32
Orange 5 Compartment 1	11	99	99	99
Orange 5 Compartment 1	12	54	12	12
Orange 5 Compartment 2	1	13	32	32
Orange 5 Compartment 2	2	114	16	16
Orange 5 Compartment 2	3	10	32	32

Table III.H. - Stands without Scheduled Management within 10 Years (by State Forest)

State Forests	Stand	Acres	Forest Type	
			Current	Future
Orange 5 Compartment 2	4	10	99	99
Orange 5 Compartment 2	5	24		
Orange 5 Compartment 2	6	123	16	16
Orange 5 Compartment 3	2	15	32	32
Orange 5 Compartment 3	4	18	32	32
Orange 5 Compartment 3	5	90	19	19
Orange 5 Compartment 3	6	60	16	16
Orange 7 Compartment 1	1	130	16	16
Orange 7 Compartment 1	2	28	19	19
Sullivan 5 Compartment 1	1	30	12	12
Sullivan 5 Compartment 1	2	29	10	10
Sullivan 5	5	27	16	16

Table III.H. - Stands without Scheduled Management within 10 Years (by State Forest)

State Forests	Stand	Acres	Forest Type	
			Current	Future
Compartment 1				
Sullivan 5 Compartment 1	6	86	16	16
Sullivan 5 Compartment 1	7	183	16	16
Sullivan 5 Compartment 1	8	53	16	16
Sullivan 5 Compartment 1	9	73	16	16
Sullivan 5 Compartment 1	10	144	16	16
Sullivan 5 Compartment 1	12	34	12	12
Sullivan 7 Compartment 1	1	165	32	32
Sullivan 7 Compartment 1	2	270	16	16
Sullivan 7 Compartment 1	3	33	99	99
Sullivan 7 Compartment 1	5	199	16	16
Sullivan 7	1.1	87	16	16

Table III.H. - Stands without Scheduled Management within 10 Years (by State Forest)

State Forests	Stand	Acres	Forest Type	
			Current	Future
Compartment 2				
Sullivan 7 Compartment 2	1.2	58	16	16
Sullivan 7 Compartment 3	1	23	99	99
Sullivan 7 Compartment 3	2	21	30	30
Sullivan 7 Compartment 3	3	51	18	18
Sullivan 7 Compartment 3	4	6	32	32
Ulster 6 Compartment 1	7	11	32	32
Ulster 6 Compartment 1	8	19	11	11
Ulster 6 Compartment 1	12	122	31	31
Ulster 6 Compartment 1	13	27	16	16
Ulster 6 Compartment 1	15	221	16	16
Ulster 6	16	82	82	82

LAND MANAGEMENT ACTION SCHEDULES

Table III.H. - Stands without Scheduled Management within 10 Years (by State Forest)

State Forests	Stand	Acres	Forest Type	
			Current	Future
Compartment 1				
Ulster 6 Compartment 1	17	26	11	11
Ulster 6 Compartment 1	18	27	18	18
Ulster 6 Compartment 1	19	198	16	16
Ulster 6 Compartment 1	20	14	16	16
Ulster 6 Compartment 1	21	48	11	11
Ulster 6 Compartment 1	22	85	11	11
Ulster 6 Compartment 1	23	59	16	16
Ulster 6 Compartment 1	24	36	16	16
Ulster 6 Compartment 1	25	46	16	16
Ulster 6 Compartment 1	26	24	16	16
Ulster 6	27	12	16	16

Table III.H. - Stands without Scheduled Management within 10 Years (by State Forest)

State Forests	Stand	Acres	Forest Type	
			Current	Future
Compartment 1				
Ulster 7 Compartment 1	1	69	16	16
Ulster 7 Compartment 1	2	46	16	16
Ulster 7 Compartment 1	3	12	30	30
Ulster 7 Compartment 1	4	33	16	16
Ulster 7 Compartment 1	5	159	97	97
Ulster 7 Compartment 1	6	21	32	32
Ulster 7 Compartment 1	7	32	32	32
Ulster 7 Compartment 1	8	39	11	11
Ulster 7 Compartment 1	9	41	11	11

Table III.I.- Natural Areas (by State Forest)			
State Forests	Stand	Acres	Forest Type
None			
	Total Acres		

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APPENDICES & FIGURES

APPENDIX A - SUMMARY OF COMMENTS DURING PUBLIC SCOPING SESSIONS

Shawangunk Ridge UMP Public Comments from the scoping session held May 30, 2007

Access and Trails

- The Shawangunk Ridge UMP should be a flexible living document able to incorporate changes such as land acquisitions and trail rerouting
- The UMP should incorporate current and planned trails and be able to incorporate new trails that will provide greater access and link existing trails
- The UMP should accommodate area rail-trails and the D&H canal towpath
- Additions of new looped hiking trails and adjacent camping areas connecting Witches Hole and other parcels in this UMP should be constructed over the next several years
- A rerouting of a section of the long path will be completed on the woods roads in the Shawangunk Ridge State Forest
- Snowmobile trails should be constructed within the Shawangunk Ridge State Forest for hiking, cross-country skiing, rescue access, and revenue to area businesses
- A complete loss of the snowmobile trail network that encompassed the ridge in the 1970-80's has greatly restricted access and user groups to these lands
- Multiple uses such as horse-back riding, cross country skiing, snowmobiling, hiking, and hunting and fishing can peacefully coexist on snowmobile trails with a seasonal use calendar designating the times of the year each could take place
- Using the Adopt-a-Natural resource program, proposed snowmobile trails and parking areas could be created and maintained
- Creation of multiple use snowmobile trails would be efficient and increase health benefits to users, economic benefits to the area, and the quality of life to residents

APPENDIX A - SUMMARY OF COMMENTS DURING PUBLIC SCOPING SESSIONS

- Cox road is in poor shape, has become a dumping ground, and runs through state land and should be closed off to general public use with only parking spaces for hunters and hikers

- Legal trails should be implemented for ATV use such as in the Wurtsboro Ridge-led mine area to avoid illegal use

Inclusion into the Shawangunk Ridge UMP

- The Bashakill Wildlife Management area and the Shawangunk Ridge are ecologically linked and should be addressed in the same unit management plan

- Inclusion of the Bashakill Wildlife Management area into the Shawangunk Ridge UMP will afford enhanced protection from unwarranted development.

Wildlife

- Increased bobcat protection should be considered

- Raptor migration should be documented and raptor management should improve

- Rare and unique bird species should be protected

- Deer population should be controlled for both herd and ecosystem health

- Wetlands and their inhabitants should be protected when making management decisions

- The UMP should protect water resources, wildlife habitat, and enhance the natural corridor that extends the length of the ridge and links other protected spaces to it

- A State Wildlife Grant proposal has been prepared that would increase training for deer pellet analysis and browse surveying

- A State Wildlife Grant proposal was submitted to evaluate how prescribed burns affect bird habitat in the Shawangunks

Law Enforcement

- Parking disputes at Shawangunk Ridge MUA should be remedied
- The snowmobile community is willing to self-police and had funds to support this statement
- ATV's should not be allowed on state forests
- Access stamps could be implemented that allow for designated use of ATV's
- It is alarming that restricting camping at the MUA is being considered, and managers are losing sight of the objectives and goals of the MUA, such as recreational uses and camping

Forest Management

- Forest Management should continue on the ridge
- The PRISM partnership on invasive species for the lower Hudson Valley has designated the Shawangunks as a "weed prevention zone" as they are relatively free of invasive species
- The Biodiversity Research Grant to improve mapping of the Chestnut Oak Forests on the Ridge was turned down
- Workshops are being held for the Citizen Advisory Committee and Environmental Commission members focusing on how habitat can be taken into consideration in land use decisions in communities bordering the ridge properties
- Active management such as burning and cutting should occur on the ridge to support habitat diversity

Multi-Agency Collaboration

APPENDIX A - SUMMARY OF COMMENTS DURING PUBLIC SCOPING SESSIONS

- A high level of cooperation should be maintained between the DEC, the Palisades Interstate Park Commission (PIPC), and the Office of Parks, Recreation, and Historic Preservation (OPRHP). Further, collaboration by the mentioned organizations with non-profit groups who collectively manage over 10,000 acres on the ridge should occur to accomplish recreational, educational, and ecosystem protection goals for the ridge as a cooperatively managed landscape.

- The Shawangunk Ridge Multiple Use Area should be transferred from the DEC to the OPRHP/PIPC.

APPENDIX B - RESPONSIVENESS SUMMARY TO PUBLIC COMMENTS

Forest Management

Comments: The UMP lacks Timber Stand Improvement (TSI) treatments to improve the overall health and vigor of remaining trees.

Response: Forest inventory data was collected on all properties to provide for the scientific basis for forest management actions and treatments at the stand level. TSI was recommended for very few stands as noted. The majority of the stands inventoried are currently growing at optimal levels or on the poorer soils are understocked. TSI is not needed to improve the overall health and vigor of understocked stands growing on poorer soils or stands currently growing at optimal levels. The focus of many of the treatments listed in the UMP is on retaining important forest ecosystems containing chestnut oak and pitch pine, which are best suited to the shallow, excessively drained soils commonly found along the ridge.

Comments: The size of the harvest treatments recommended by the plan are too small and will not attract enough interested bidders.

Response: DEC recognizes that the quality of the forest products within these stands and the nature of the treatments may make it difficult to interest bidders for a sale in an individual forest stand. DEC will focus on marking larger sales encompassing multiple stands to add more volume to a sale with the hope that larger sales with more volume will attract more bidders. While the UMP lists each stand to be treated, DEC fully intends to group treatments of multiple stands into a single sale provided that it is geographically and logistically possible. Much of the forest products generated by these treatments will be of low quality until such time that the necessary regeneration is present to allow for overstory removal and the beginning of a new forest of the best suited trees for the site.

Wildlife:

Comment: Management actions developed to achieve the objective of protecting at-risk wildlife species on the Unit are too restrictive. Specifically, restrictions on the use of prescribed fire associated with the protection of timber rattlesnakes and limitations on timber harvesting associated with the protection of forest-breeding raptor SGCN (species of greatest conservation need) are overly burdensome, are inconsistent with other plans, guidelines, and recommendations, and are not supported by research.

Response: The management actions intended to protect at-risk wildlife species have been modified to address these concerns. Restrictions on prescribed fire, timber harvesting, and mowing have been scaled back to allow for additional management opportunities. Current UMP recommendations are consistent with Department guidelines and supported by current research.

Comment: The draft UMP acknowledges the potential impacts deer herbivory can have on forest ecosystems. Many studies suggest that deer are having a detrimental impact on forest regeneration in southeastern New York State. While the plan reference low levels of deer herbivory on DEC lands included in this plan, evidence suggests that deer impacts are great across the entire region. It is encouraged that DEC consider management actions that reduce deer herd levels regionally.

Response: Whitetail deer are managed primarily through hunting in NYS. Their populations are regulated via the harvest of female deer. The challenge in southeastern NY is recruiting new hunters and providing

quality access to forest lands where they will have the opportunity to harvest deer. Access to doe tags is usually not an issue in the Wildlife Management Units that encompass the Shawangunk Ridge Unit. The new facilities proposed and discussed in this plan will make these properties more appealing to sportsmen/women and provide them with greater access to interior portions of State Forest lands. It is understood that deer are sensitive to hunting pressure and will move from areas of greatest to lowest pressure when hunting season begins. Quite often these areas of low hunting pressure do not include State Forest lands where unlimited hunting opportunities exist for hunters. This could be a reason that deer densities and impacts on these lands seem to be below average compared to the rest of the region. This plan focuses on management actions that can be taken specifically for the State Forest lands included in the Shawangunk Ridge Unit. For this reason the actions listed in the plan and Strategic Plan for State Forest Management are appropriate.

Access

Comments: The DEC should install a parking area on Route 52 just east of Ellenville. There is an area well suited for a large parking facility on the Ellenville side of the Ridge.

Response: DEC has discussed this comment with DOT and the final version of the Unit Management Plan includes the development of a parking area at this site with a kiosk and facility sign. A gate will also need to be installed on the woods road leading from the proposed parking area into the Shawangunk Ridge State Forest.

Comment: The Public has no right to use the traditional Right Of Way leading to the fire tower at Graham Mountain State Forest. Access along that ROW is only for the purpose of servicing the Firetower and the grounds immediately around it. The larger parcel that was purchased by the state and forms the majority of the Graham Mountain State Forest does not have any access agreement along the private road that services the firetower. For this reason, the public cannot use this Right Of Way to access Graham Mountain State Forest. The owner of the Right of Way leading to Graham Mountain State Forest is liable for damages if a member of the public gets hurt while attempting to access State Land.

Response: This is the only viable access the public would have to Graham Mountain State Forest. A legal interpretation has been requested to determine the public's right to use a traditional Right of Way to access the fire tower. Public access to the fire tower and the construction of a parking lot will be dependent upon the legal determination rendered regarding public access to the property.

Comment: The DEC should erect no parking signs on Cox Rd. to prevent the public from parking on the public Right of Way and accessing the public lands through private property. Also, vehicles have a tendency to partially block mail boxes during hunting season.

Reponse: DEC does not have the authority to regulate parking on public roads. The towns of Wawarsing and Mamakating share management of that section of Cox Rd. It is recommended that residents contact the appropriate Town Highway Department to discuss the necessity of any parking restrictions along Cox Road. DEC does post and paint its boundary lines and suggests that our neighbors clearly post their boundaries to prevent accidental trespass by the public from State Lands.

Comment: The UMP proposes a new trail to be built extending south from the proposed parking area on Cox Road. The route indicated on the map takes hikers close to the corner of private property and does not seem to use existing features such as woods roads.

Response: As mentioned in the UMP, routes indicated on the map are subject to change based upon conditions present on the ground. DEC and partner organizations like the New York/New Jersey Trail

Conference (NYNJTC) will strive to use existing features such as woods roads when designing a trail system. Local volunteers who have a unique perspective and familiarity of the area can be tremendously valuable during the layout and construction phase of these trails. In this particular case, the proximity of this trail to the boundary line and its potential impact upon our neighbors will be evaluated during the design phase. DEC will endeavor to build a trail that accomplishes our access goals while respecting the integrity of neighboring properties.

Comment: The Shawangunk Ridge should have more developed multi-use single track trails for mountain bikers.

Response: Mountain biking is an accepted use of State Forest lands. There is an extensive network of woods roads and rail beds that are open to mountain biking. DEC welcomes any proposals the mountain bike community may have to further develop and improve recreational opportunities for all users provided that such plans respect the integrity of the ecosystem, our neighbors, and other user groups.

Comment: The mountain bike community would support a linear mountain bike trail that extends the length of the entire ridge from Port Jervis to the Catskills.

Response: DEC welcomes any proposal that expands recreational opportunities for all users while respecting management needs and goals for the individual properties that would be impacted. A long distance mountain bike trail as described in the above comment would need to cross private properties as well as lands managed by other agencies. While we are interested in working with other landowners on long distance trail opportunities, DEC cannot incorporate management actions for lands it does not manage into this UMP.

Comment: The UMP mentioned that "foot trails are designated for safety and resource protection". Please explain that statement. Trails designed in a sustainable fashion would be suitable for both mountain bikers as well as hiking and running. Multi-Use trails unite users and should be encouraged while single use trails divide users and should be discouraged.

Response: The designation of a foot trail prohibits horses and snowmobiles but **does not prohibit** use of bicycles on the State Forest Lands within the Shawangunk Ridge Unit. This is not the case on all state lands particularly Wilderness Areas inside of the Catskill and Adirondack Parks. DEC strives to make its recreational facilities accessible to all users. Most of the narrow single-track trails within the Shawangunk Ridge Unit that are marked and maintained by DEC and its volunteers are considered foot-trails and were specifically designed to accommodate hikers. The terrain is difficult and the soils are thin. All users are responsible for knowing their own limitations when using these trails.

Comment: Under the Management Objectives and Actions Section for the Shawangunk Multiple Use Area, it is recommended that the DEC eliminates camping rather than reduces the number of campsites. The imminent opening of a nearby campground constructed and owned by the Palisades Interstate Park Commission and the New York State Office of Parks, Recreation, and Historic Preservation; and operated by the Mohonk Preserve and American Alpine Club, will replace the described function of the MUA as a car camping area which services nearby eco-tourism destinations of Mohonk Preserve and Minnewaska State Park Preserve.

Response: DEC is encouraged by the construction of the new campground not far from the Shawangunk Multiple Use Area (MUA). The development of a formal campground equipped with amenities such as running water and bathroom facilities should help alleviate the overuse and crowding issues associated with the MUA. If not, DEC may use any of the options discussed in the UMP to address any further overuse and resource degradation issues.

APPENDIX B - RESPONSIVENESS SUMMARY TO PUBLIC COMMENTS

Comment: The plan states that "DEC will endeavor to provide recreational opportunities to all those who wish to experience the outdoors in a relatively undeveloped setting". It is hoped that snowmobiling will continue to be one of these recreational opportunities.

Response: Snowmobiling is allowed on all State Forests and Multiple Use Areas. Detached parcels of Forest Preserve require that a snowmobile be on a designated trail while using the property. At this time there is no proposal in the plan to create a trail network on any of the properties mentioned in this plan. This is primarily because the location and terrain of these parcels make a viable snowmobile trail network impossible. DEC welcomes and will review any proposals that snowmobilers may have to further develop and improve recreational opportunities for their sport.

Comment: How does the plan preserve hunting access on the ridge? It seems that other agencies who have control of ridge properties have made it more difficult to hunt. I suggest allowing for more access with Parks and the Nature Conservancy.

Response: The facilities proposed and discussed in this plan will make NYSDEC managed properties more appealing to sportsmen/women and provide them with greater access to interior portions of State Forest lands. DEC has worked with our partners at the Mohonk Preserve, Nature Conservancy (TNC) and the Office of Parks, Recreation, and Historic Preservation (OPRHP) through the Shawangunk Ridge Biodiversity Partnership to expand hunting opportunities on the ridge. DEC is aware that this is an ongoing process and is looking forward to continuing our close working relationship with our partners to provide the greatest amount of opportunities for sportsmen/women possible.

Comment: Parking at Oregon Trail has always been an issue especially during hunting season. How will the DEC manage parking and keep hunters from parking on the road.

Response: DEC intends to build two small parking areas to access the Oregon Trail parcel. DEC has no authority to regulate parking on a public road.

Comment: There is a concern that not enough is being done to accommodate people with disabilities. This concern is related primarily to using a motor vehicle on state land to hunt.

Response: Opportunities for vehicular access on the interior of DEC lands covered in this UMP are somewhat limited at this time. Future acquisitions particularly along the abandoned rail beds within the Rt. 209 corridor will provide a high potential for developing facilities to accommodate people with a wider range of abilities. In addition, DEC has developed a Commissioners Policy regarding access to DEC lands by people with disabilities which can be found on our website at:

http://www.dec.ny.gov/outdoor/76213.html

Comment: The parking areas need to be designed to accommodate horse trailers.

Response: DEC will strive to design the larger parking facilities proposed in the plan to accommodate vehicles with trailers.

Funding

Comments: The UMP includes a lot of infrastructure development and improvement specifically related to access. It is recommended some of these features use natural material such as rock and soils mounds to save on costs associated with maintenance.

Response: DEC often incorporates natural features such as boulders and soil to manage access to our lands. Such features add a natural and pleasing aesthetic value to our facilities as well as a reduction in maintenance costs associated with more perishable materials.

Comment: The plan specifies improvements that seem worthy as long as there is a demonstrated need and costs of maintenance or improvement are covered.

Response: The improvements listed in the plan are necessary to provide a basic level of access to the properties included in the plan. Our scoping session conducted in 2007 indicated that there was a high level of interest for such improvements. Funding for capital improvements and maintenance are determined annually based on priority and need. The development of these facilities will occur over a time frame listed in the plan. Their maintenance will be incorporated into our annual work plans.

Land Acquisition

Comments: The State Forests along the ridge are scattered with significant private holdings between them. There is value in acquiring fee ownership of parcels surrounded by state forest land but little value in acquiring adjacent parcels unless they severely limit access. It is recommended that the DEC work with private adjacent landowners through conservations easements to address concerns related to public access and forest land protection.

Response: Working with our partners, New York State intends to use all tools at our disposal to protect the forests of the Shawangunk Ridge and ensure that they continue to provide ecological and recreational benefits in perpetuity. DEC's intentions regarding land acquisition along the ridge are clearly defined in the NYS Open Space Plan. It is recognized that the Shawangunk Ridge provides an important corridor for various species of wildlife as well as having the potential to provide excellent recreational opportunities for the public. For this reason, DEC will continue to pursue land acquisition of parcels located along the Shawangunk Ridge as resources become available.

Comment: There is a local interest for the State to acquire the Andrew Lawn property bordering Witch's Hole Multiple Use Area. The property would provide needed road frontage and ideal access into the MUA.

Response: DEC recognizes the benefits of having this property in public ownership.

Other

Comment: An Executive Summary would be a nice feature in the plan.

Response: An Executive Summary will be included in the final plan.

Comment: Please enlarge the camping area at the Shawangunk MUA and increase the number of permitted camp sites. This is a key public resource and has had relatively few issues with regard to public health and safety. The private camp ground cannot be relied upon to remain in operation and there is a continued need for a public option.

Response: There have been numerous issues associated with overuse of the Shawangunk MUA in the past. DEC has worked with local officials as well as our neighbors to reduce potential public safety

concerns as well as resource degradation associated with such a high level of use. The development of a camp ground with facilities that can accommodate the high use and demand for camping in that area has allowed DEC to slowly reduce the number of campsites. As stated in the plan, DEC intends to reduce camping further, or eliminate camping on the property altogether. DEC does not intend to increase the size and capacity of the existing parking area since it will most likely encourage a level of use that is inconsistent with the goals of the Unit Management Plan and the Strategic Plan for State Forest Management.

Comment: Existing logging roads along Cox Road and Rt. 52 allow for vehicles to illegally access the Shawangunk Ridge State Forest and dump garbage. These access points should be blocked.

Response: DEC will work with our neighbors and the State and Town Highway Department to do what is necessary to curtail illegal access and dumping along Rt. 52 and Cox Rd. DEC may barricade unofficial parking pull offs and woods roads.

Comment: It is requested that the public comment period be extended past the December 15th deadline to allow interest groups to better understand and evaluate the Unit Management Plan. The short comment period favors large, organized, outside non-local points of view.

Response: DEC feels that the time allotted for public comment and review of the draft UMP was adequate. The majority of the comments received are from local individuals and organizations with direct interest in the properties included in the Unit Management Plan. An extensive mailing that included local recreational organizations, sportsman groups, local media outlets, and town and county elected officials was initiated at the same time the draft was released. Additionally, hardcopy drafts of the plan were available to the public at 4 different public libraries located in ridge towns as well as the DEC regional office.

Comment: There is local interest in working with various ownerships along the ridge to create a comprehensive plan that would tie DEC properties, various town and village lands, Dept. of Corrections properties, DOT Right-of-Ways, and private lands together. Such a project could be an economic stimulus for this area.

Response: Agreed, DEC fully supports any plan that encourages new recreational opportunities for various user groups while respecting the management needs and goals of all property owners.

Comment: Some of the road names look incorrect.

Response: New York State Department of Transportation planimetric base map were used to create the maps included in the Unit Management Plan. It is common for discrepancies to occur because local common names can take the place of official names within the local vernacular.

APPENDIX C - STATE ENVIRONMENTAL QUALITY REVIEW (SEQR)

State Environmental Quality Review (SEQR)

This Unit Management Plan and the activities it recommends will be in compliance with State Environmental Quality Review (SEQR), 6NYCRR Part 617. The State Environmental Quality Review Act (SEQRA) requires the consideration of environmental factors early in the planning stages of any proposed action(s) that are undertaken, funded or approved by a local, regional or State agency. The Strategic Plan for State Forest Management (SPSFM) serves as the Generic Environmental Impact Statement (GEIS), regarding management activity on State Forests. To address potential impacts, the SPSFM establishes SEQR analysis thresholds for each category of management activity.

Management actions in this Plan are within the thresholds established in the SPSFM, therefore these actions do not require additional SEQR. Any future action that does not comply with established thresholds will require additional SEQR prior to conducting the activity.

Reasons Supporting This Determination:

1. The Department will apply best management practices for new trail and parking facilities construction. These practices include, but are not limited to the establishment of erosion control measures such as water bars and maximum average slope thresholds.

2. None of the other actions listed include any activities deemed outside of the scope of the SPFGEIS for management of state lands

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

APPENDIX C - STATE ENVIRONMENTAL QUALITY REVIEW (SEQR)

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]).

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FIGURE 1. – SOILS TYPES AND MAPS

Soils

There are 14 major soil series located within the Shawangunk Mountains Study Area: Arnot, Bernardston, Chenango, Darien, Farmington, Hoosic, Mardin, Nassau, Palms, Rhinebeck, Sloan, Varysburg, Wayland, and Wellsboro. Below are the official soil series descriptions provided by the Natural Resources Conservation Service.[1]

Arnot Series: The Arnot series consists of shallow, somewhat excessively to moderately well drained soils formed in loamy till. Bedrock is at depths of to 10 to 20 inches. Slope ranges from 0 to 70 percent. Mean annual temperature is 47 degrees F, and mean annual precipitation is 38 inches.

Bernardston Series: The Bernardston series consists of very deep, well drained soils formed in till derived mainly from dark gray phyllite, slate, or schist. The soils are moderately deep to dense till. They are nearly level to very steep soils on uplands. Saturated hydraulic conductivity is moderately high or high in the solum and low to moderately high in the substratum. Slope ranges from 0 to 50 percent. The mean annual temperature is about 49 degrees F. and the mean annual precipitation is about 45 inches.

Chenango Series: The Chenango series consists of very deep, well and somewhat excessively drained soils formed in water-sorted material on outwash plains, kames, eskers, terraces, and alluvial fans. Slope ranges from 0 to 60 percent. Mean annual temperature is 47 degrees F, and mean annual precipitation is 36 inches.

Darien Series: The Darien series consists of very deep, somewhat poorly drained soils formed in Wisconsinan age till on till plains, drumlins, and moraines. Permeability is moderately slow in the subsoil and slow in the substratum. Slope ranges from 0 to 25 percent. Mean annual temperature is about 49 degrees F, and mean annual precipitation is about 36 inches.

Farmington Series: The Farmington series consists of shallow, well drained and somewhat excessively drained soils formed in till. They are nearly level to very steep soils on glaciated uplands. Bedrock is at a depth of 10 to 20 inches. Slope ranges from 0 to 70 percent. The mean annual temperature is 49 degrees F. and the mean annual precipitation is 37 inches.

Hoosic Series: The Hoosic series consists of very deep, somewhat excessively drained soils formed in glacial outwash. They are nearly level to very steep soils on outwash plains, terraces, kames, eskers, and moraines. Slope ranges from 0 to 60 percent. Mean annual temperature is 48 degrees F. and mean annual precipitation is 38 inches.

Mardin Series: The Mardin series consists of very deep, moderately well drained soils formed in loamy till. They are in glaciated uplands, mostly on broad hilltops, shoulder slopes and backslopes. The Mardin soils have a dense fragipan that starts at a depth of 14 to 26 inches below the soil surface. Slope ranges from 0 to 50 percent. Mean annual temperature is 48 degrees F., and mean annual precipitation is 38 inches.

APPENDICES & FIGURES

FIGURE 1. – SOILS TYPES AND MAPS

Nassau Series: The Nassau series consists of shallow, somewhat excessively drained soils formed in till. They are nearly level to very steep soils on bedrock controlled glacially modified landforms. Bedrock is at a depth of 10 to 20 inches. Slope ranges from 0 to 70 percent. Mean annual temperature is 48 degrees F. and mean annual precipitation is 40 inches.

Palms Series: The Palms series consist of very deep, very poorly drained soils formed in herbaceous organic material 16 to 51 inches thick and the underlying loamy deposits in closed depressions on moraines, lake plains, till plains, outwash plains, and hillside seep areas, and on backswamps of flood plains. Permeability is moderately slow to moderately rapid in the organic material, and moderate or moderately slow in the loamy material. Slope ranges from 0 to 6 percent. Mean annual precipitation is about 35 inches, and mean annual temperature is about 50 degrees F.

Sloan Series: The Sloan series consists of very deep, very poorly drained soils formed in loamy alluvium on flood plains. Slope ranges from 0 to 2 percent. Mean annual precipitation is about 914 mm (36 inches), and mean annual air temperature is about 11 degrees C (51 degrees F).

Varysburg Series: The Varysburg series consists of very deep, well drained and moderately well drained soils on dissected lake plains. They are nearly level to steep soils formed in gravelly outwash material and the underlying very slowly permeable clayey lacustrine sediments. Slope ranges from 0 to 50 percent. Permeability is moderate to moderately rapid in the gravelly mantle and very slow in the clayey lacustrine material. Mean annual precipitation ranges from 30 to 40 inches, mean annual air temperature from 45 to 49 degrees F., and mean growing season from 130 to 180 days.

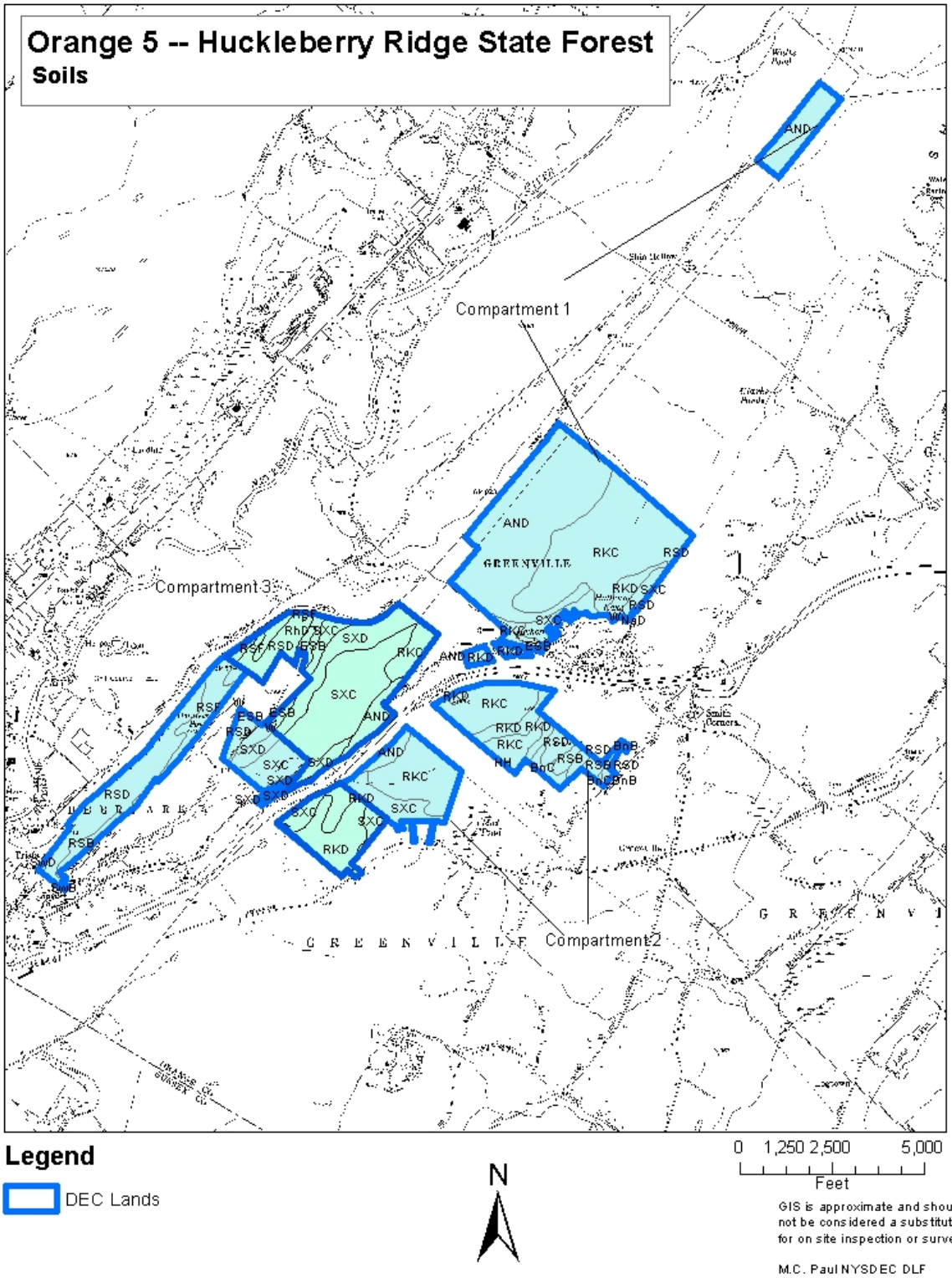
Wayland Series: The Wayland series consists of very deep, poorly drained and very poorly drained, nearly level soils formed in recent alluvium. These soils are in low areas or slackwater areas on flood plains. Saturated hydraulic conductivity is moderately high or high in the mineral soil. Slope ranges from 0 to 3 percent. Mean annual temperature is 49 degrees F. and mean annual precipitation is 36 inches.

Wellsboro Series: The Wellsboro series consists of very deep moderately well and somewhat poorly drained soils formed in till derived from red sandstone, siltstone, and shale. Slope ranges from 0 to 50 percent. Permeability is moderate in the surface and upper subsoil layers and slow or very slow in the lower subsoil and substratum. Mean annual precipitation is 41 inches. Mean annual temperature is 48 degrees F.

Rhinebeck Series: The Rhinebeck series consists of very deep, somewhat poorly drained soils formed in clayey lacustrine sediments. They are on glacial lake plains and uplands mantled with lake sediments. Slope ranges from 0 to 15 percent. Mean annual temperature is 48 degrees F, and mean annual precipitation is 39 inches.

1. Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Official Soil Series Descriptions

FIGURE 1. – SOILS TYPES AND MAPS



APPENDICES & FIGURES

FIGURE 1. – SOILS TYPES AND MAPS

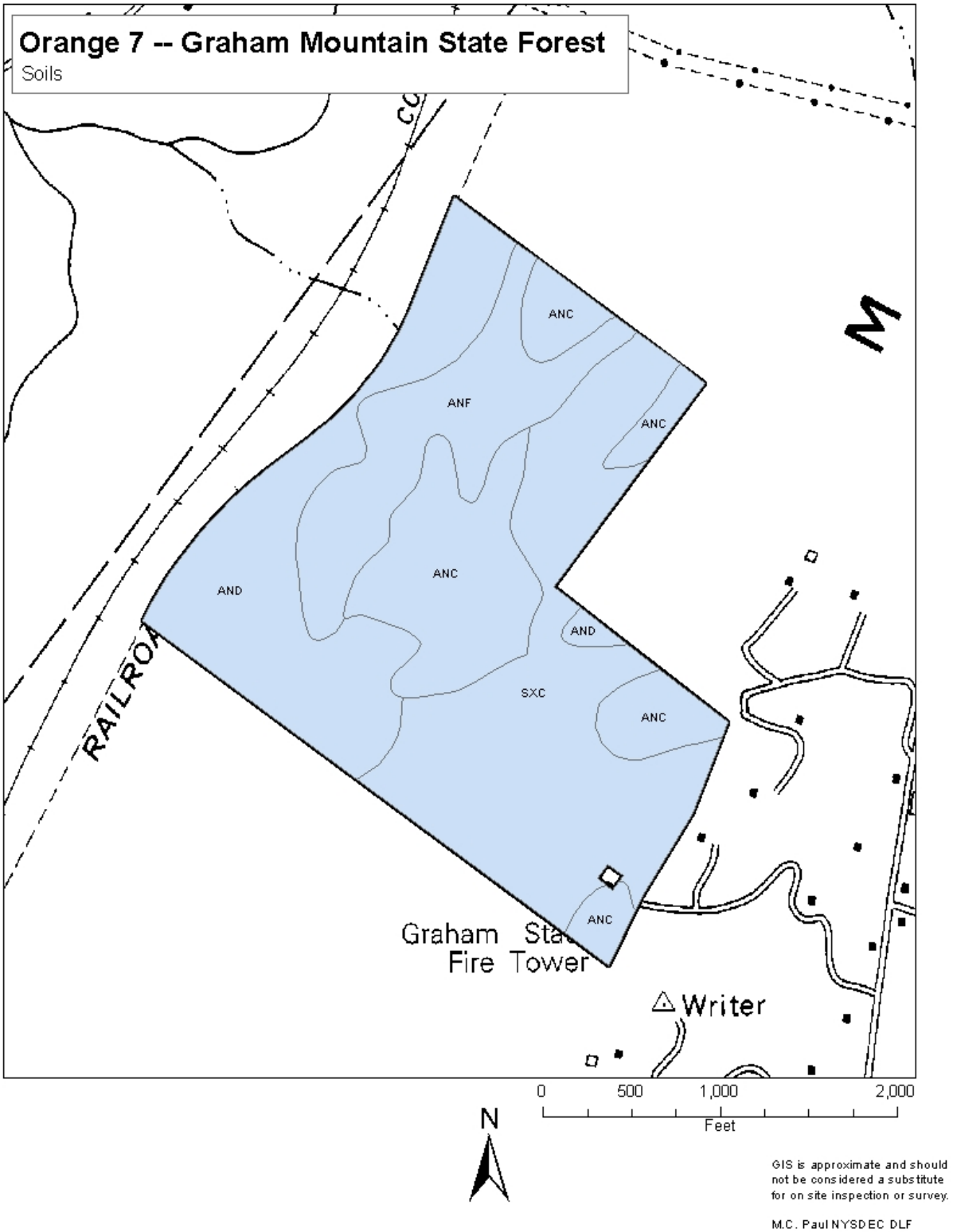
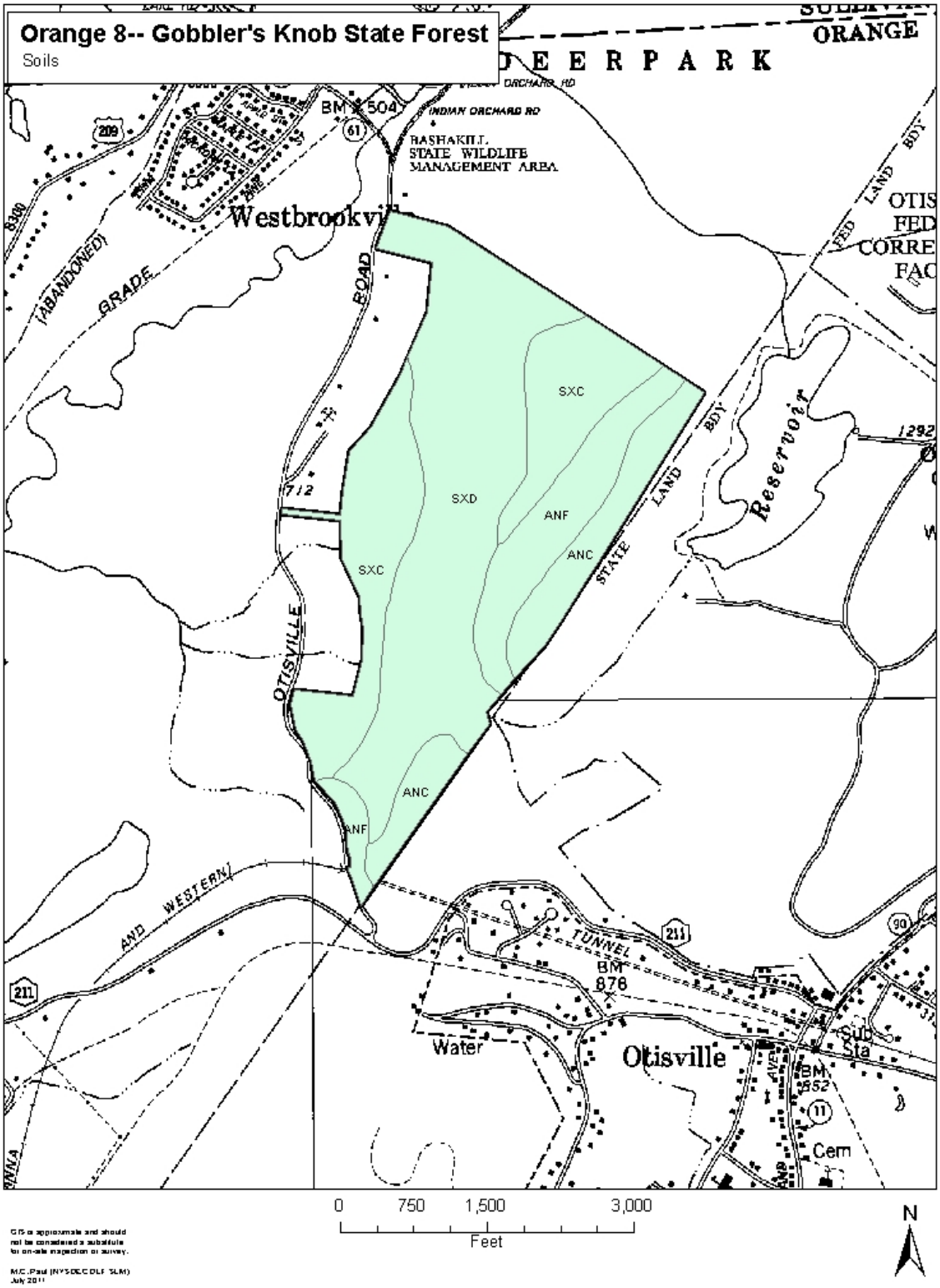


FIGURE 1. – SOILS TYPES AND MAPS



APPENDICES & FIGURES

FIGURE 1. – SOILS TYPES AND MAPS

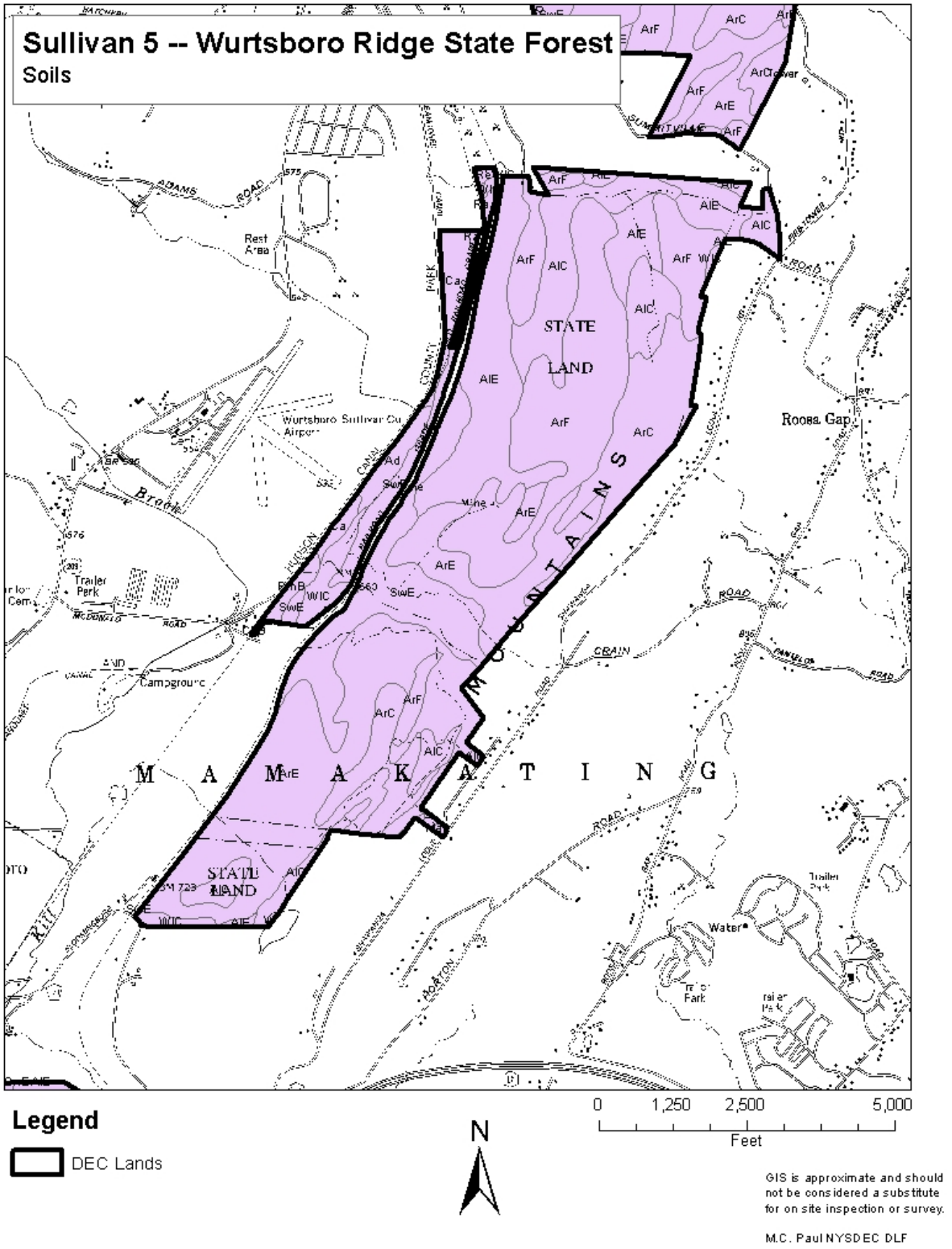


FIGURE 1. – SOILS TYPES AND MAPS

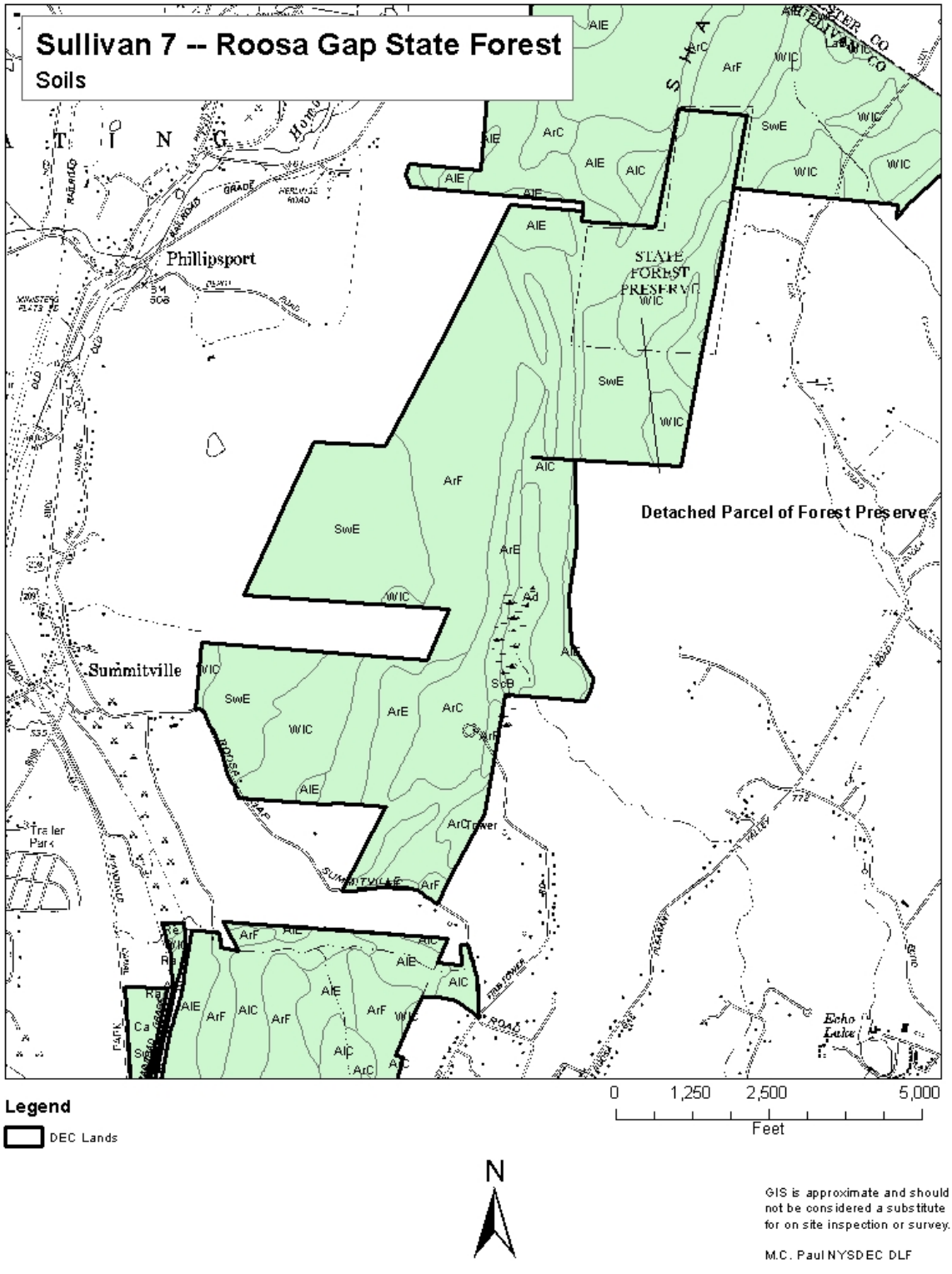


FIGURE 1. – SOILS TYPES AND MAPS

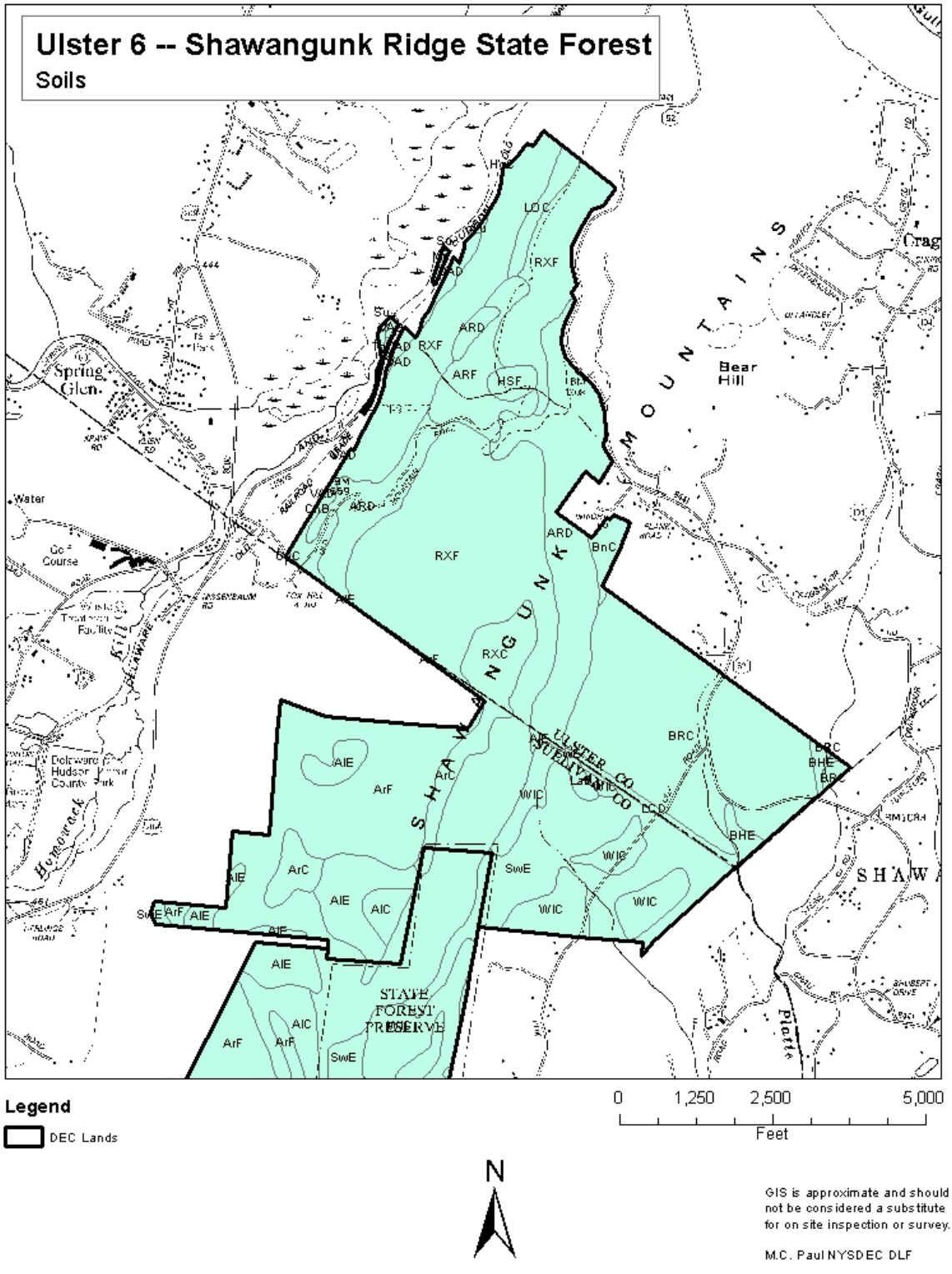
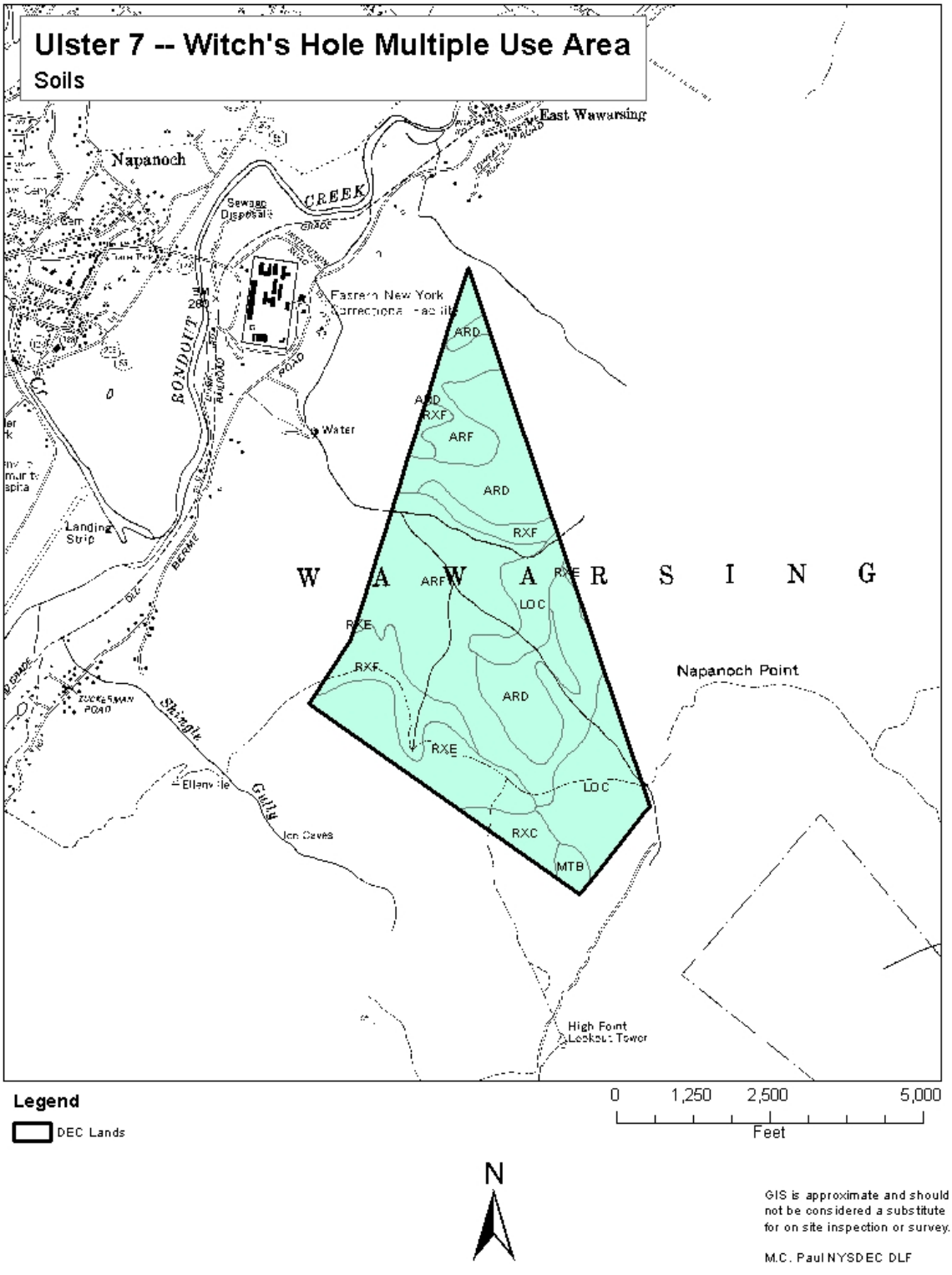
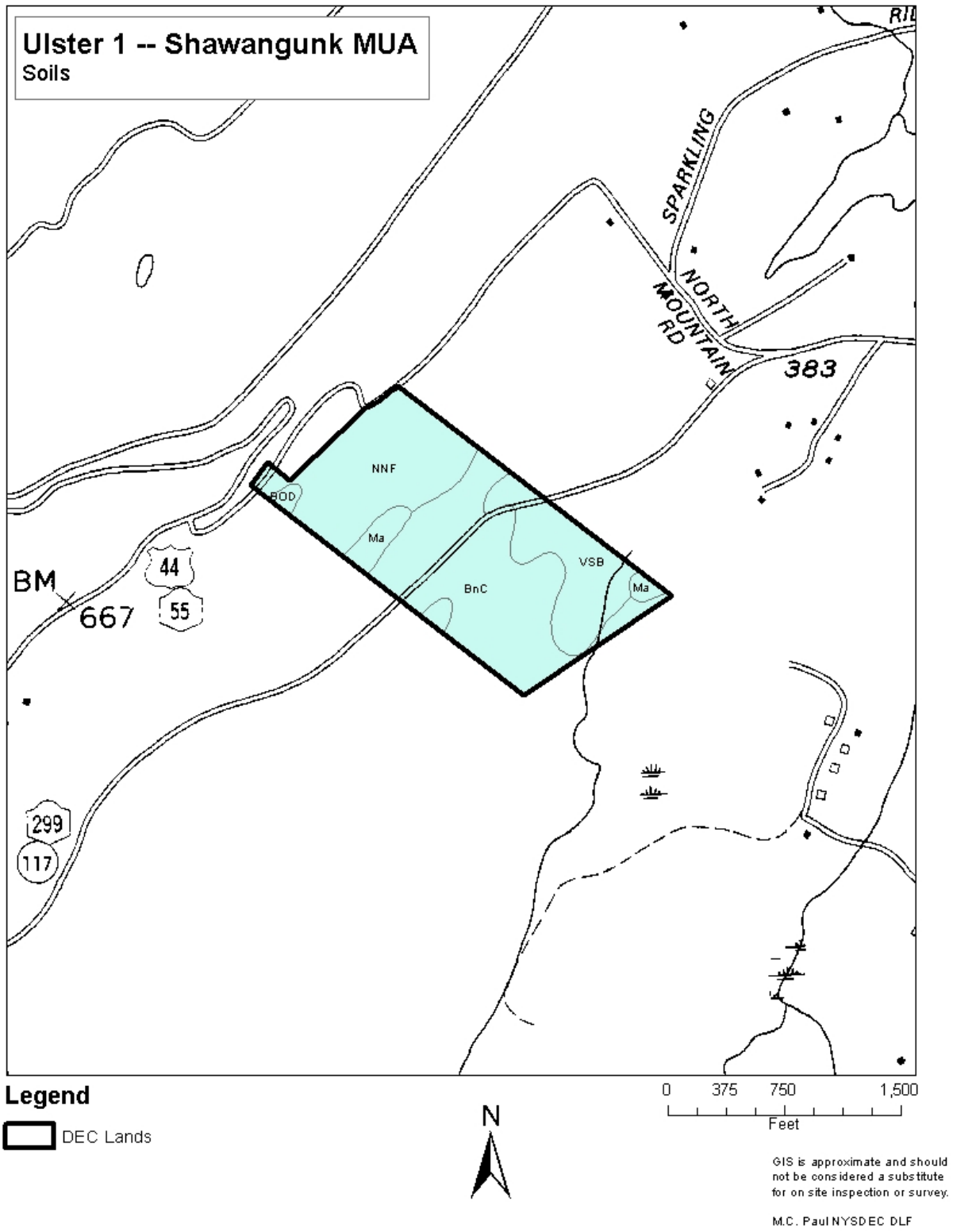


FIGURE 1. – SOILS TYPES AND MAPS




Ulster 1 -- Shawangunk MUA
Soils
SPARKLING
NORTH MOUNTAIN RD
383
NNF
BOD
Ma
VSB
BnC
Ma
BM
667
44
55
299
117
Legend
DEC Lands
N
0 375 750 1,500
Feet
GIS is approximate and should not be considered a substitute for on site inspection or survey.
M.C. Paul NYSDEC DLF

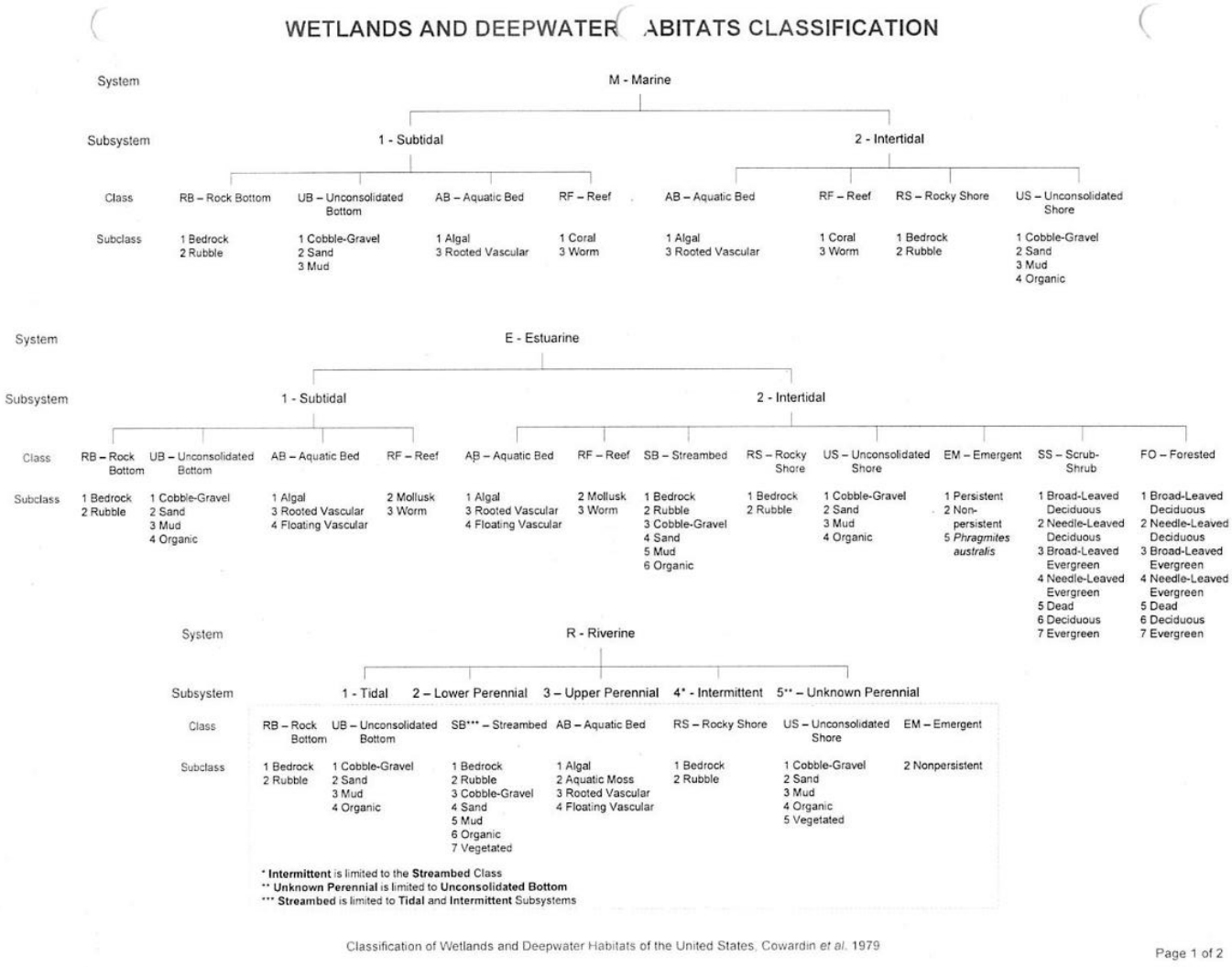
Symbol	Soil Type
Ad	Alden silt loam
AlC	Arnot-Lordstown complex, 0 to 15 percent slopes, very rocky
AlE	Arnot-Lordstown complex, 15 to 35 percent slopes, very rocky
ANC	Arnot-Lordstown complex, sloping
AND	Arnot-Lordstown complex, moderately steep
ANF	Arnot-Lordstown complex, very steep
ArC	Arnot-Rock outcrop complex, 0 to 15 percent slopes
ARD	Arnot-Lordstown-Rock outcrop complex, moderately steep
ArE	Arnot-Rock outcrop complex, 15 to 35 percent slopes
ArF	Arnot-Rock outcrop complex, 35 to 70 percent slopes
ARF	Arnot-Oquaga-Rock outcrop complex, very steep
BHE	Bath very stony soils, steep
BnB	Bath-Nassau channery silt loams, 3 to 8 percent slopes
BnC	Bath-Nassau channery silt loams, 8 to 15 percent slopes
BOD	Bath-Nassau-Rock outcrop complex, hilly
BRC	Bath and Mardin very stony soils, sloping
Ca	Carlisle muck
ChB	Chenango gravelly loam, 3 to 8 percent slopes
CnB	Chenango gravelly silt loam, 3 to 8 percent slopes
CnC	Chenango gravelly silt loam, 8 to 15 percent slopes
ESB	Erie extremely stony soils, gently sloping
HgC	Hoosic gravelly loam, rolling
HH	Histic Humaquepts, ponded
HSF	Hoosic soils, very steep
LaB	Lackawanna channery loam, 3 to 8 percent slopes
LCD	Lackawanna and Swartswood very bouldery soils, moderately steep
LEE	Lackawanna and Swartswood extremely bouldery soils, steep
LOC	Lordstown-Arnot-Rock outcrop complex, sloping
LY	Lyons-Atherton complex, very stony
Ma	Madalin silty clay loam
MaD	Manlius channery silt loam, 15 to 25 percent slopes

Symbol	Soil Type
MO	Menlo very bouldery soils
Mr	Middlebury silt loam
MTB	Morris-Tuller complex, very bouldery, gently sloping
NaD	Nassau channery silt loam, 15 to 25 percent slopes
NNF	Nassau-Manlius complex, very steep
PmB	Pompton gravelly fine sandy loam, 3 to 8 percent slopes
Ra	Raynham silt loam
Re	Red Hook sandy loam
RhD	Riverhead sandy loam, 15 to 25 percent slopes
RKC	Rock outcrop-Arnot complex, sloping
RKD	Rock outcrop-Arnot complex, moderately steep
RSB	Rock outcrop-Nassau complex, undulating
RSD	Rock outcrop-Nassau complex, hilly
RSF	Rock outcrop-Nassau complex, very steep
RXC	Rock outcrop-Arnot complex, sloping
RXE	Rock outcrop-Arnot complex, steep
ScB	Scriba loam, 3 to 8 percent slopes, stony
SEB	Scriba and Morris very bouldery soils, gently sloping
Su	Suncook loamy fine sand
SwB	Swartswood gravelly loam, 3 to 8 percent slopes
SwC	Swartswood gravelly loam, 8 to 15 percent slopes
SwD	Swartswood gravelly loam, 15 to 25 percent slopes
SwE	Swartswood and Lackawanna soils, steep, very stony
SXC	Swartswood and Mardin very stony soils, sloping
SXD	Swartswood and Mardin very stony soils, moderately stee p
Tg	Tioga fine sandy loam
VAB	Valois very bouldery soils, gently sloping
VAD	Valois very bouldery soils, moderately steep
VSB	Volusia very stony soils, gently sloping
W	Water
WLB	Wellsboro and Wurtsboro very bouldery soils, gently sloping
WlC	Wellsboro and Wurtsboro soils, strongly sloping, extremely stony

FIGURE 2 – WATER RESOURCES

APPENDICES & FIGURES

FIGURE 2 – WATER RESOURCES



WETLANDS AND DEEPWATER ABITATS CLASSIFICATION

System: L - Lacustrine

Subsystem: 1 - Limnetic

Class	Subclass
RB – Rock Bottom	1 Bedrock 2 Rubble
UB – Unconsolidated Bottom	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
AB – Aquatic Bed	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular

Subsystem: 2 - Littoral

Class	Subclass
RB – Rock Bottom	1 Bedrock 2 Rubble
UB – Unconsolidated Bottom	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
AB – Aquatic Bed	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular
RS – Rocky Shore	1 Bedrock 2 Rubble
US – Unconsolidated Shore	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated
EM – Emergent	2 Nonpersistent

System: P - Palustrine

Class	Subclass
RB – Rock Bottom	1 Bedrock 2 Rubble
UB – Unconsolidated Bottom	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
AB – Aquatic Bed	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular
US – Unconsolidated Shore	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated
ML – Moss-Lichen	1 Moss 2 Lichen
EM – Emergent	1 Persistent 2 Nonpersistent 5 *Phragmites australis*
SS – Scrub-Shrub	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen
FO – Forested	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen

MODIFIERS

In order to more adequately describe the wetland and deepwater habitats, one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

Water Regime			Special Modifiers	Water Chemistry			Soil
Nontidal	**Saltwater Tidal**	**Freshwater Tidal**		**Coastal Halinity**	**Inland Salinity**	**pH Modifiers for all Fresh Water**	
A Temporarily Flooded	L Subtidal	S Temporarily Flooded-Tidal	b Beaver	1 Hyperhaline	7 Hypersaline	a Acid	g Organic
B Saturated	M Irregularly Exposed	R Seasonally Flooded-Tidal	d Partly Drained/Ditched	2 Euhaline	8 Eusaline	t Circumneutral	n Mineral
C Seasonally Flooded	N Regularly Flooded	T Semipermanently Flooded-Tidal	f Farmed	3 Mixohaline (Brackish)	9 Mixosaline	I Alkaline	
E Seasonally Flooded/ Saturated	P Irregularly Flooded	V Permanently Flooded-Tidal	h Diked/Impounded	4 Polyhaline	0 Fresh		
F Semipermanently Flooded			r Artificial	5 Mesohaline			
G Intermittently Exposed			s Spoil	6 Oligohaline			
H Permanently Flooded			x Excavated	0 Fresh			
J Intermittently Flooded							
K Artificially Flooded							

Page 2 of 2

Classification of Waters

All waters of the state are provided a class and standard designation based on existing or expected best usage of each water or waterway segment.

- The classification AA or A is assigned to waters used as a source of drinking water.
- Classification B indicates a best usage for swimming and other contact recreation, but not for drinking water.
- Classification C is for waters supporting fisheries and suitable for non - contact activities.
- The lowest classification and standard is D.

Waters with classifications A, B, and C may also have a standard of (T), indicating that it may support a trout population, or (TS), indicating that it may support trout spawning (TS). Special requirements apply to sustain these waters that support these valuable and sensitive fisheries resources.

Small ponds and lakes with a surface area of 10 acres or less, located within the course of a stream, are considered to be part of a stream and are subject to regulation under the stream protection category of Protection of Waters.

To determine the classification and standard of a given watercourse, contact the Department of Environmental Conservation regional office responsible for the area in which the watercourse is located (see page vi of this guide for addresses and phone numbers).

Certain waters of the state are protected on the basis of their classification. Streams and small water bodies located in the course of a stream that are designated as C(T) or higher (i.e., C(TS), B, or A) are collectively referred to as "protected streams," and are subject to the stream protection provisions of the Protection of Waters regulations.

The Environmental Resource Mapper (ERM), a new web based interactive mapping application developed by DEC, can be used to identify protected streams based on their classification. ERM can also be used to create simple maps that can be submitted as part of the Protection of Waters Permit Application process.

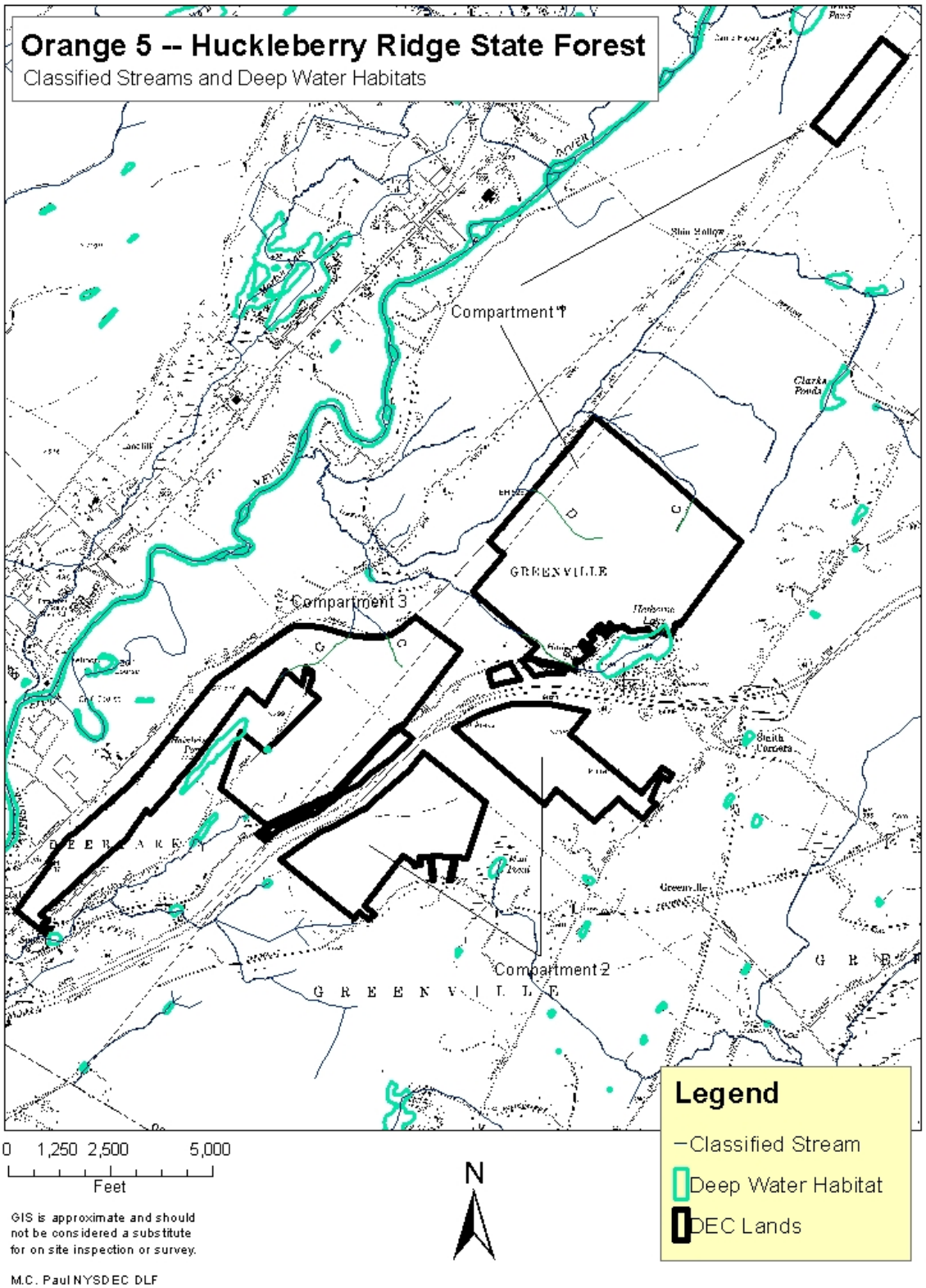
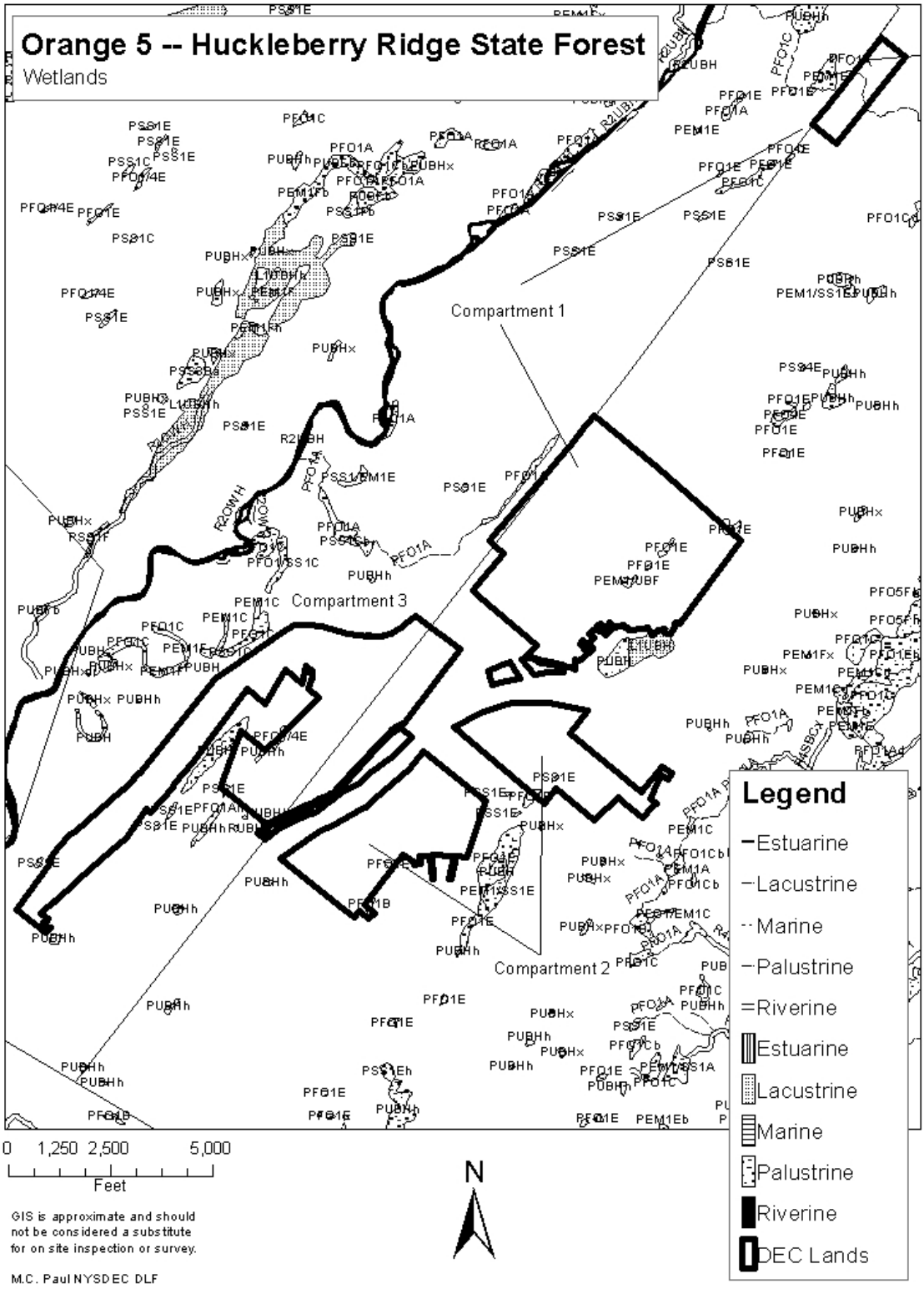

Orange 5 -- Huckleberry Ridge State Forest
Classified Streams and Deep Water Habitats
Compartment 1
Compartment 3
Compartment 2
GREENVILLE
0 1,250 2,500 5,000
Feet
N
GIS is approximate and should not be considered a substitute for on site inspection or survey.
M.C. Paul NYSDEC DLF
Legend
Classified Stream
Deep Water Habitat
DEC Lands

FIGURE 2 – WATER RESOURCES



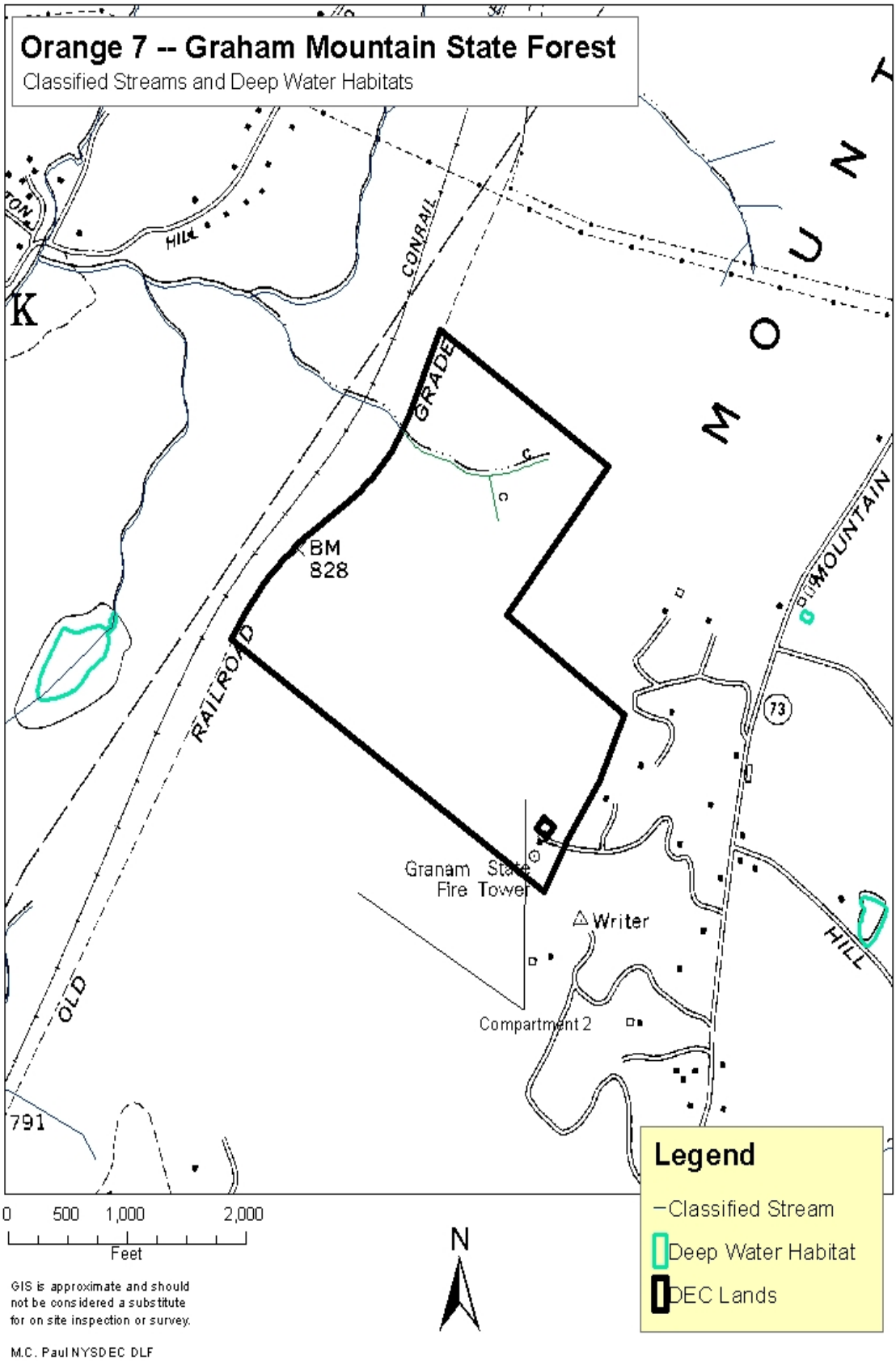
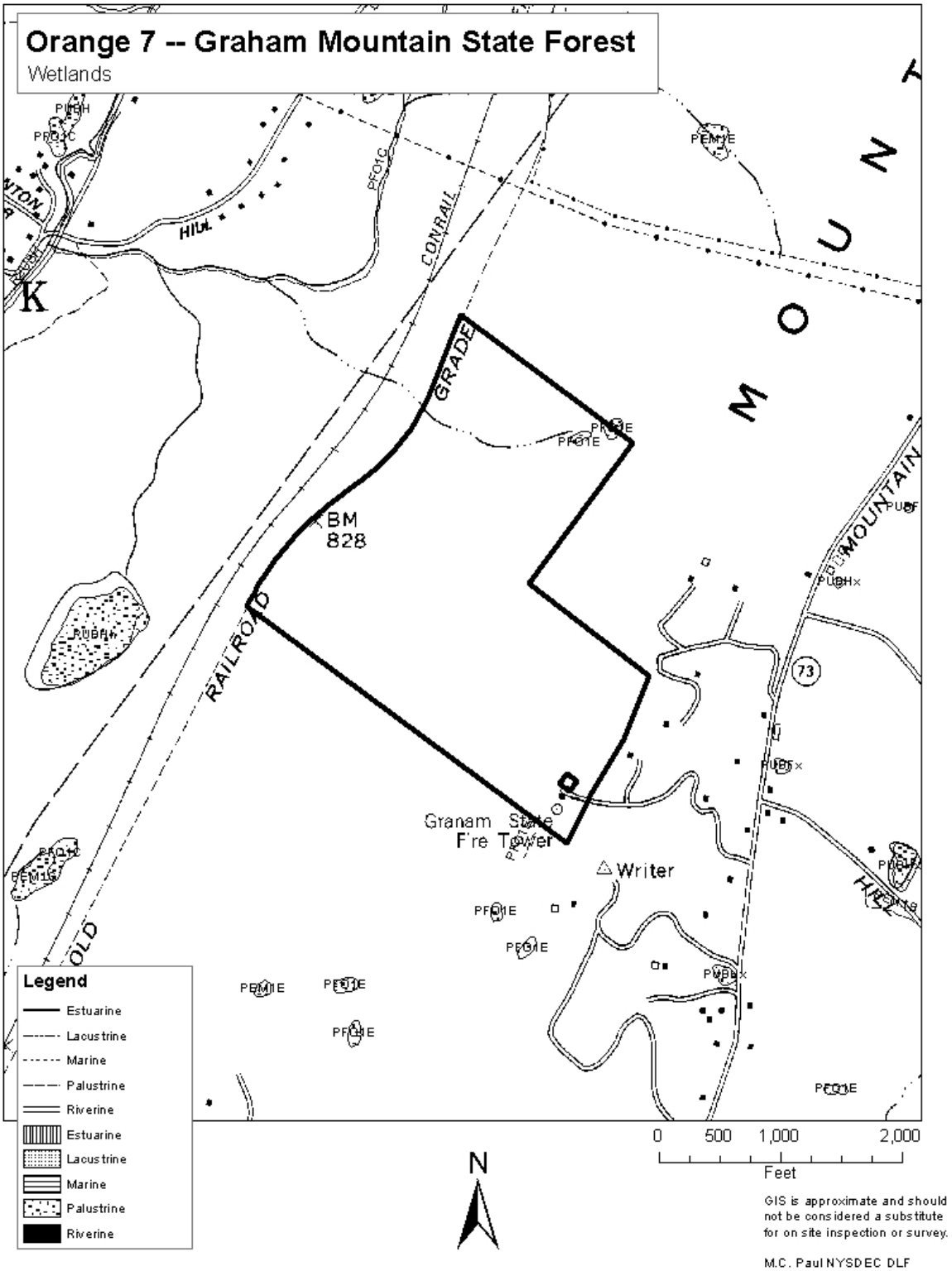

Orange 7 -- Graham Mountain State Forest
Classified Streams and Deep Water Habitats
CONRAIL
GRADE
BM
828
RAILROAD
OLD
MOUNTAIN
73
Granam State
Fire Tower
Writer
Compartment 2
HILL
791
Legend
Classified Stream
Deep Water Habitat
DEC Lands
0 500 1,000 2,000
Feet
N
GIS is approximate and should not be considered a substitute for on site inspection or survey.
M.C. Paul NYSDEC DLF

FIGURE 2 – WATER RESOURCES



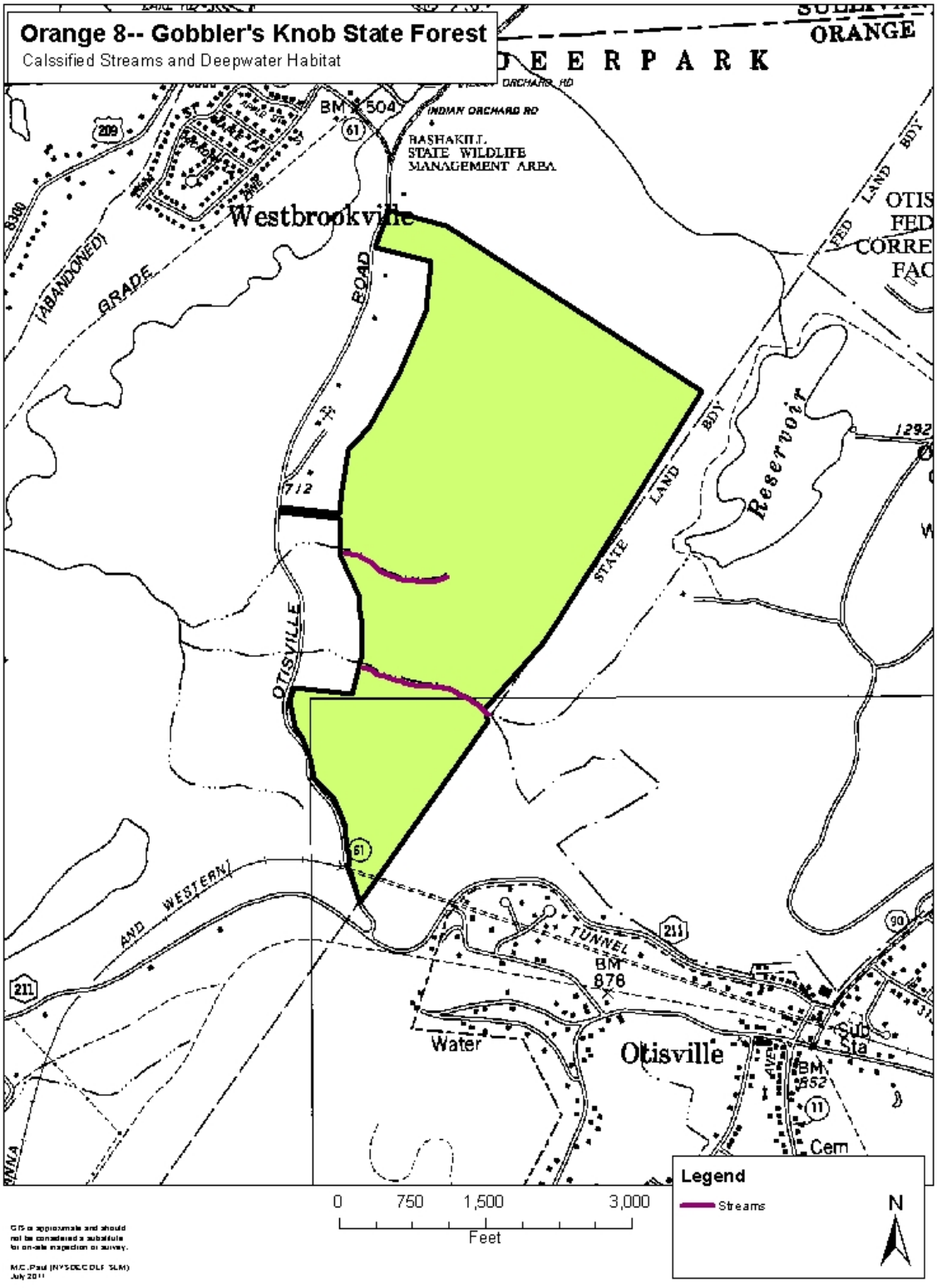
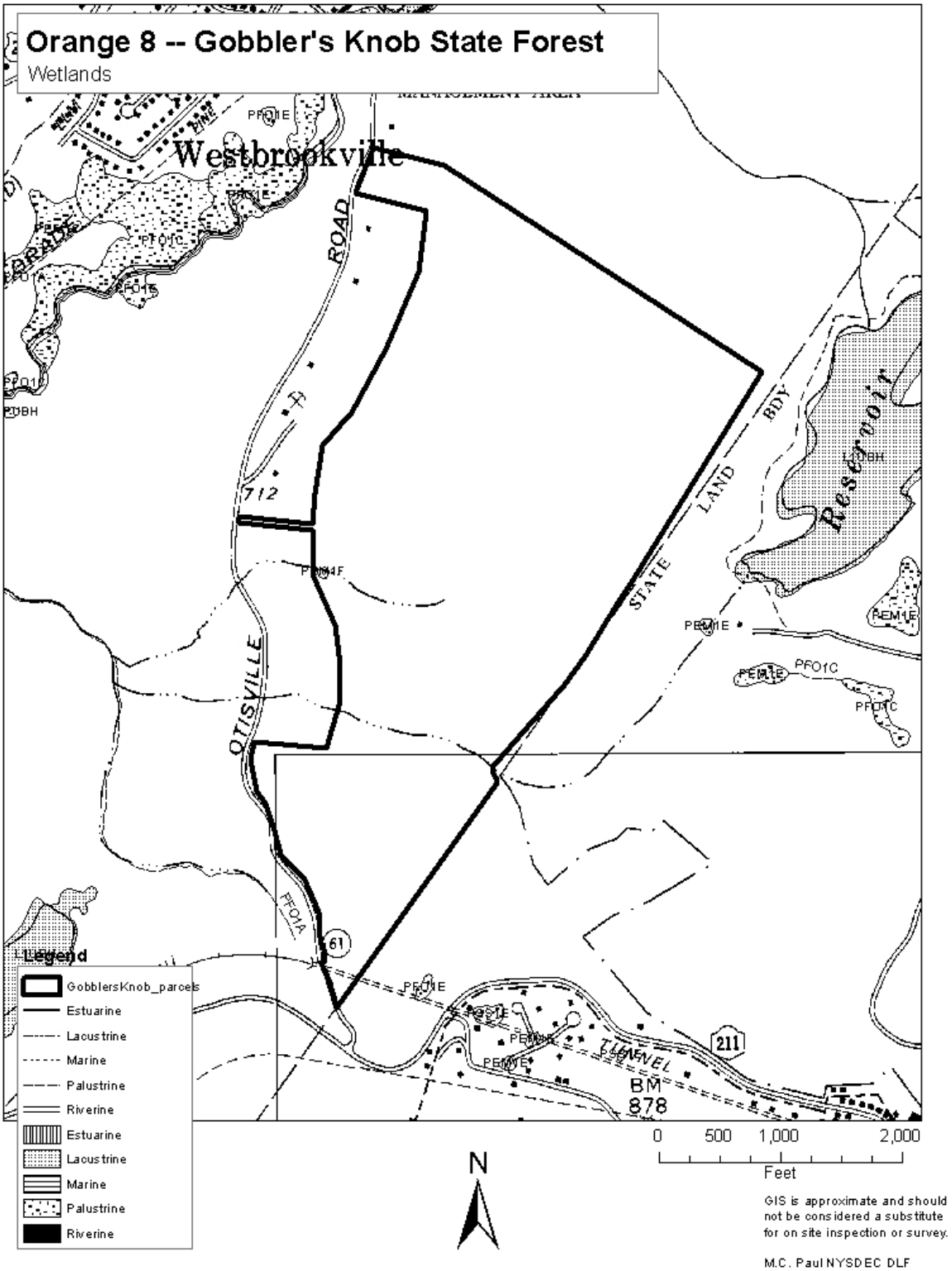

Orange 8-- Gobbler's Knob State Forest
Calssified Streams and Deepwater Habitat
ORANGE
DEERPARK
BM 504
INDIAN ORCHARD RD
BASHAKILL
STATE WILDLIFE
MANAGEMENT AREA
Westbrookville
(ABANDONED)
GRADE
ROAD
OTISVILLE
STATE LAND BDY
Reservoir
1292
712
AND WESTERN
TUNNEL
BM 876
Water
Otisville
Sub Sta
BM 852
Cem
0 750 1,500 3,000
Feet
Legend
Streams
N
GIS is approximate and should not be considered a substitute for on-site inspection or survey.
M.C.Paul (NYSDEC DLF SLM)
July 2011

FIGURE 2 – WATER RESOURCES



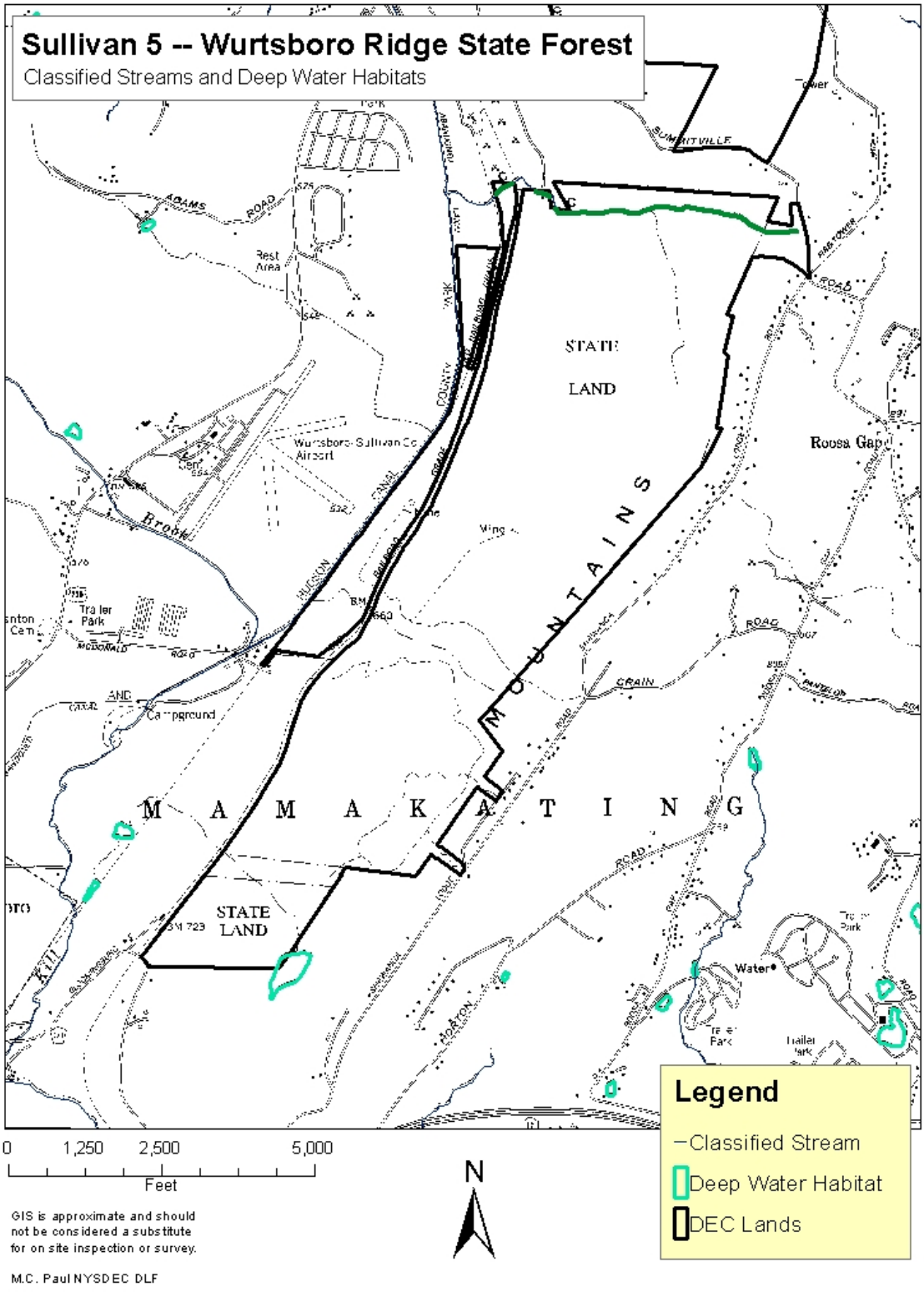

Sullivan 5 -- Wurtsboro Ridge State Forest
Classified Streams and Deep Water Habitats
STATE
LAND
STATE
LAND
M A M A K A T I N G
MOUNTAINS
Wurtsboro-Sullivan Co Airport
Rest Area
Roosa Gap
Trailer Park
Campground
ADAMS ROAD
SUMMITVILLE
Legend
Classified Stream
Deep Water Habitat
DEC Lands
0 1,250 2,500 5,000
Feet
N
GIS is approximate and should not be considered a substitute for on site inspection or survey.
M.C. Paul NYSDEC DLF

FIGURE 2 – WATER RESOURCES

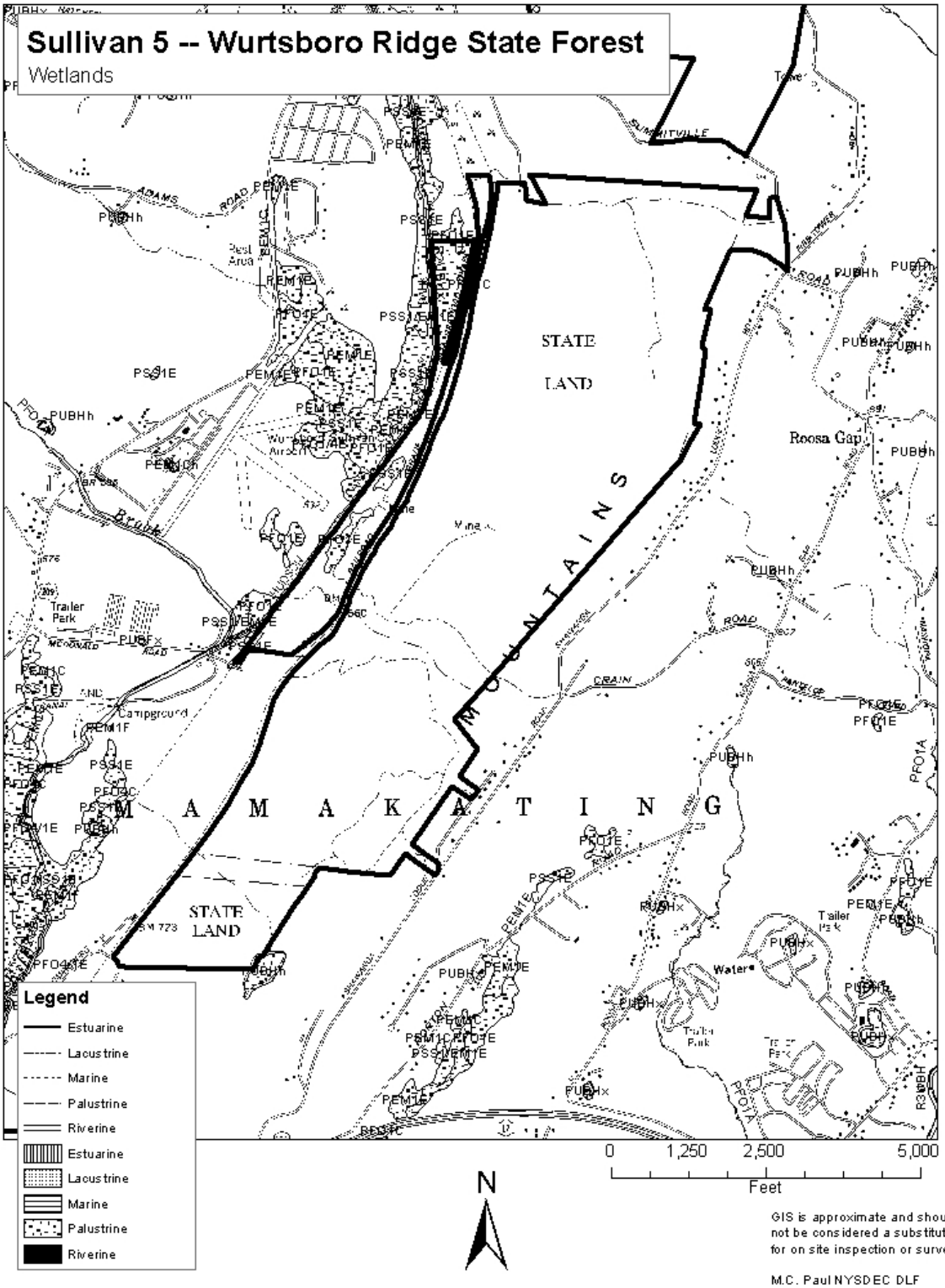


FIGURE 2 – WATER RESOURCES

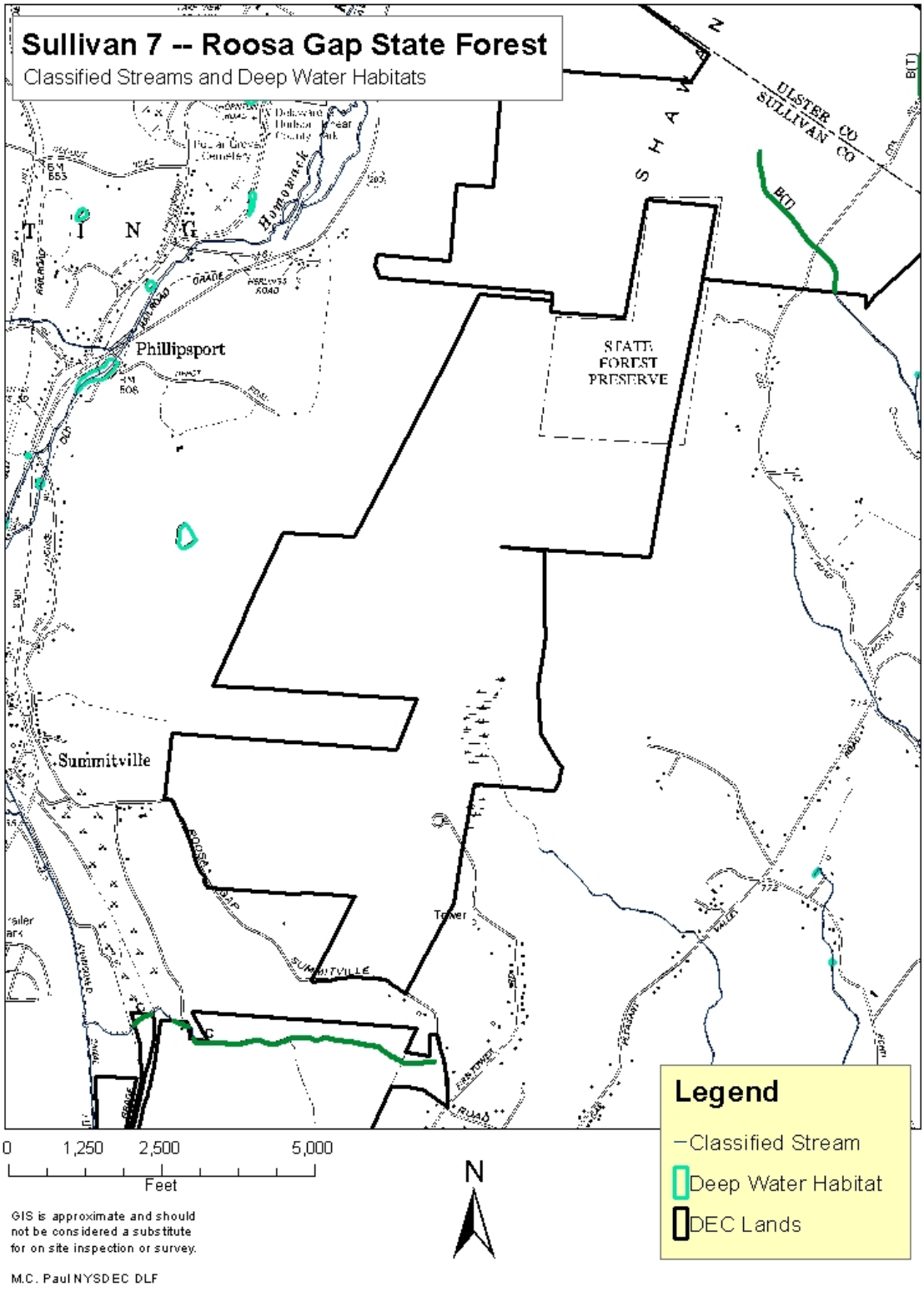
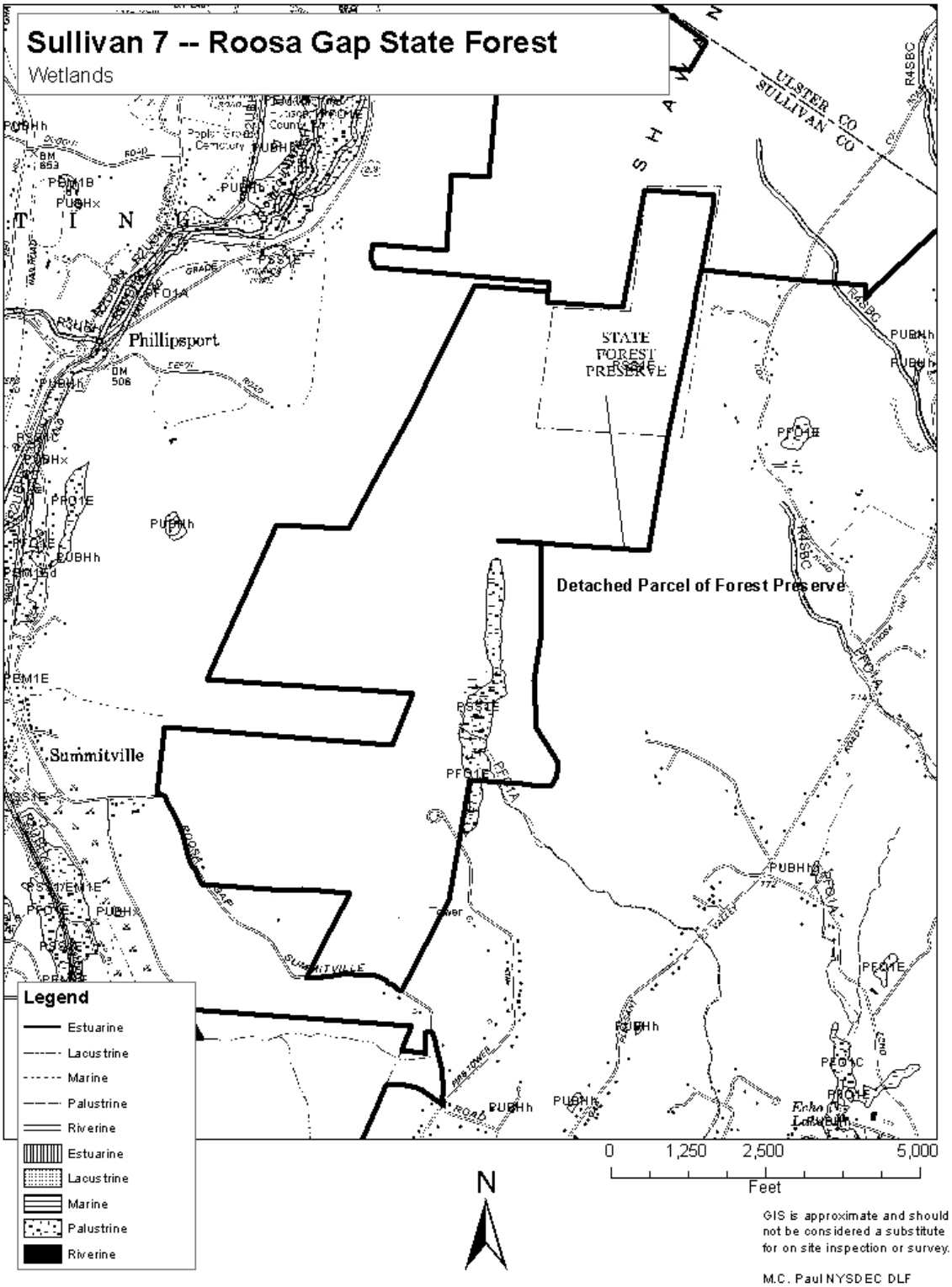


FIGURE 2 – WATER RESOURCES



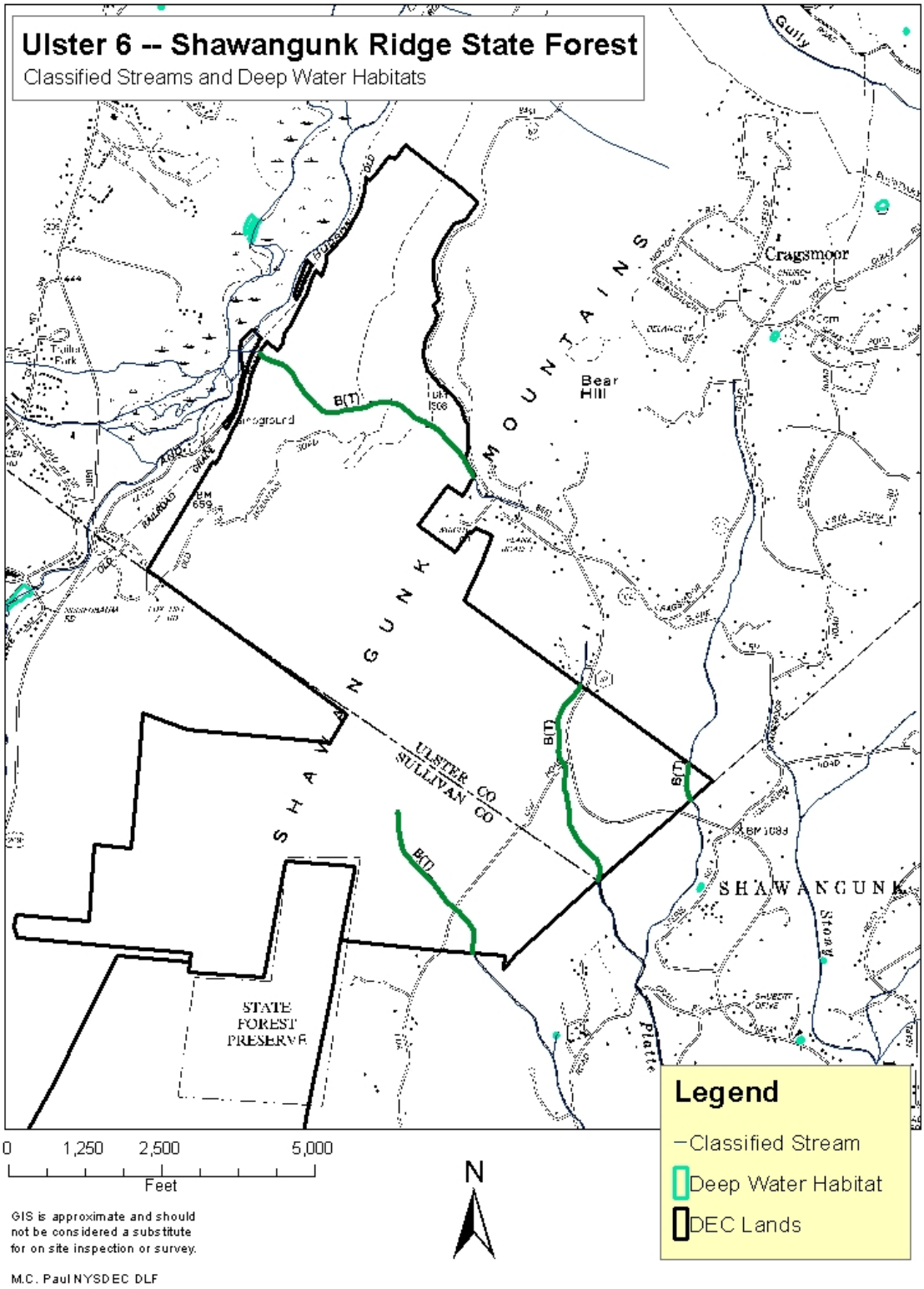
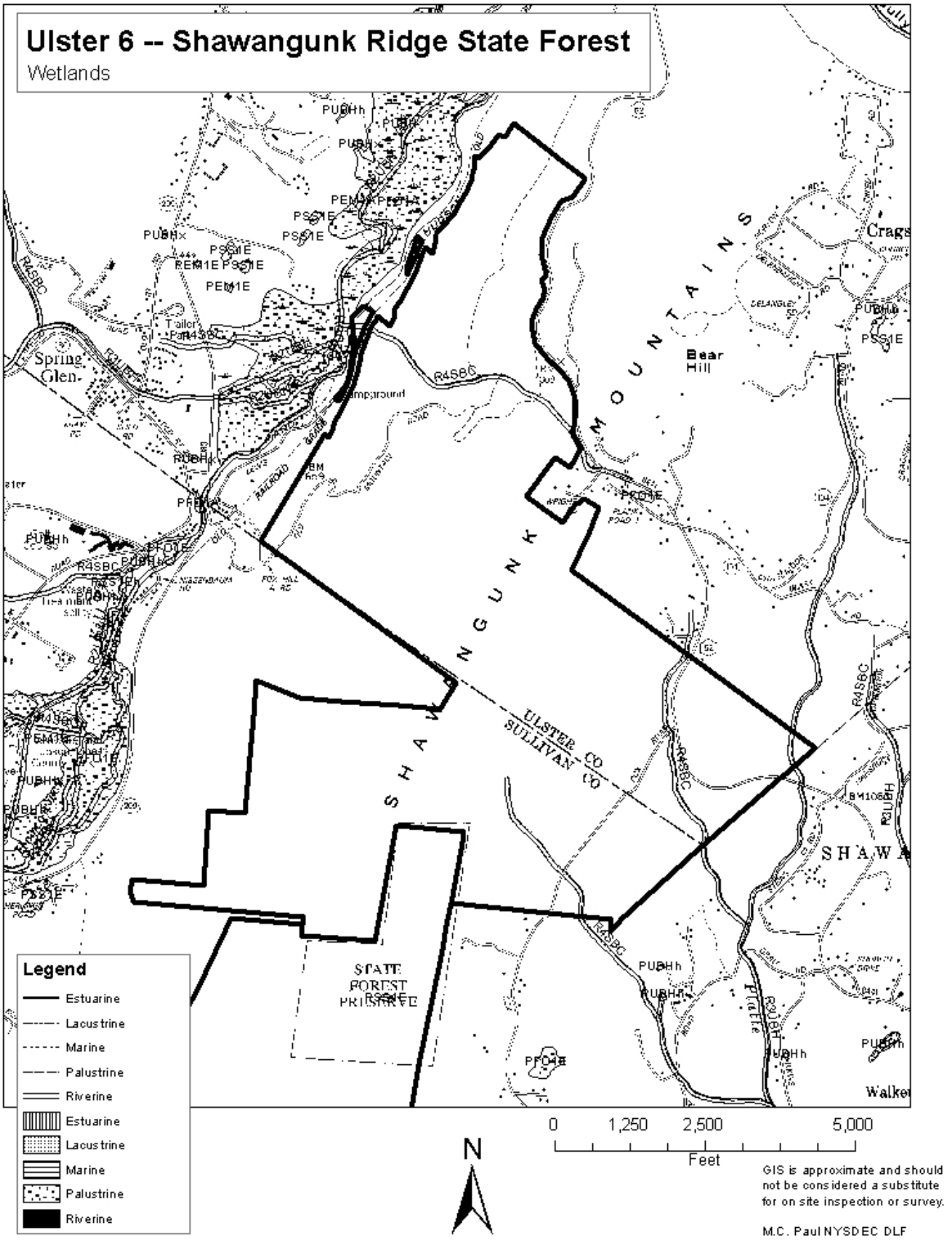
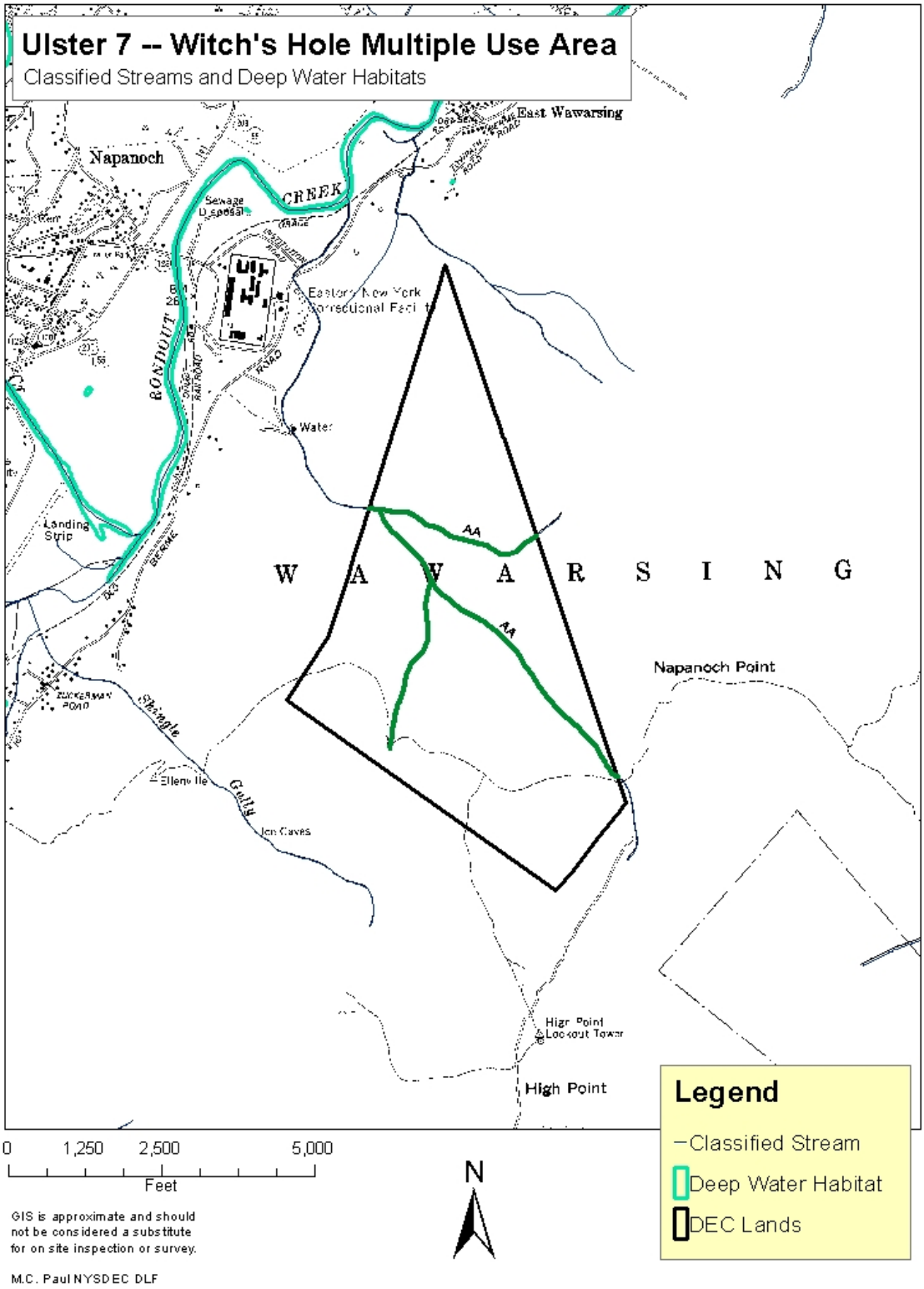

Ulster 6 -- Shawangunk Ridge State Forest
Classified Streams and Deep Water Habitats
SHAWANGUNK MOUNTAINS
Cragsmoor
Bear Hill
Gully
B(T)
B(T)
B(T)
B(T)
ULSTER CO
SULLIVAN CO
STATE FOREST PRESERVE
SHAWANGUNK
Stony
Plaatte
0
1,250
2,500
5,000
Feet
N
GIS is approximate and should not be considered a substitute for on site inspection or survey.
M.C. Paul NYSDEC DLF
Legend
Classified Stream
Deep Water Habitat
DEC Lands

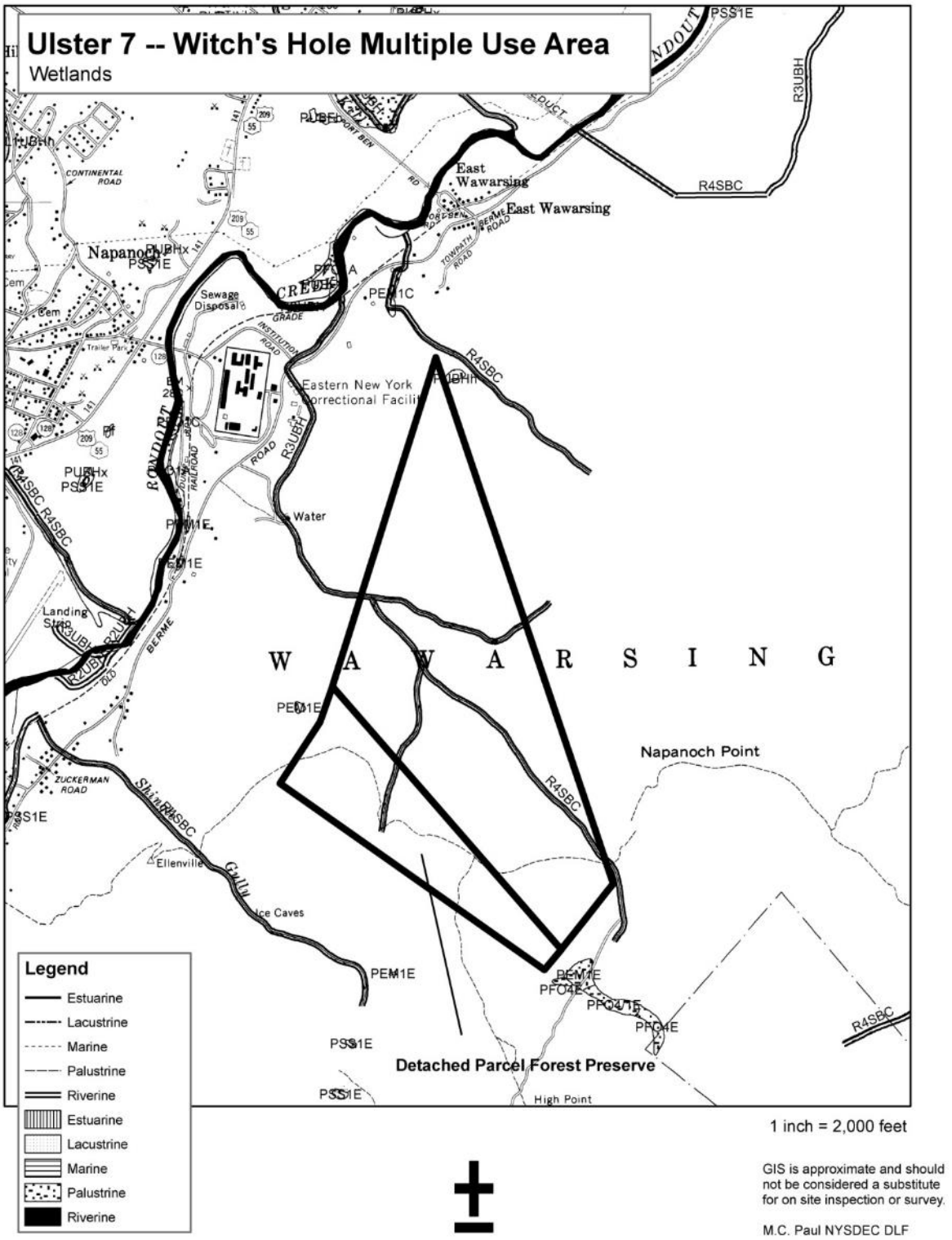
FIGURE 2 – WATER RESOURCES




Ulster 7 -- Witch's Hole Multiple Use Area
Classified Streams and Deep Water Habitats
Napanoch
East Wawarsing
CREEK
Sewage Disposal
Eastern New York Correctional Facility
RONDOUT
Water
Landing Strip
AA
AA
W A W A R S I N G
Napanoch Point
Shingle Gully
Ice Caves
Ellenville
Higr Point Lookout Tower
High Point
0 1,250 2,500 5,000
Feet
GIS is approximate and should not be considered a substitute for on site inspection or survey.
M.C. Paul NYSDEC DLF
N
Legend
Classified Stream
Deep Water Habitat
DEC Lands

APPENDICES & FIGURES

FIGURE 2 – WATER RESOURCES



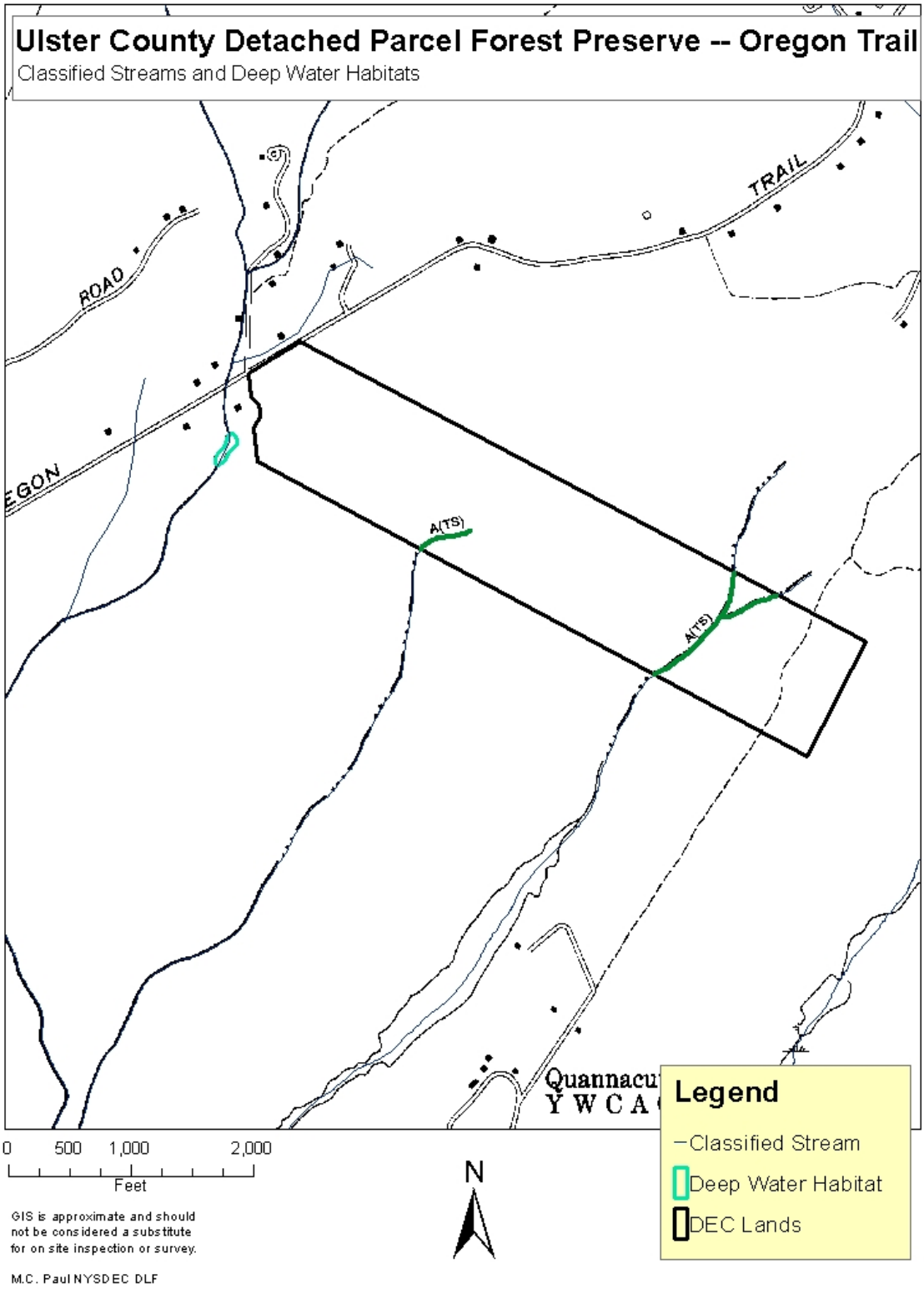
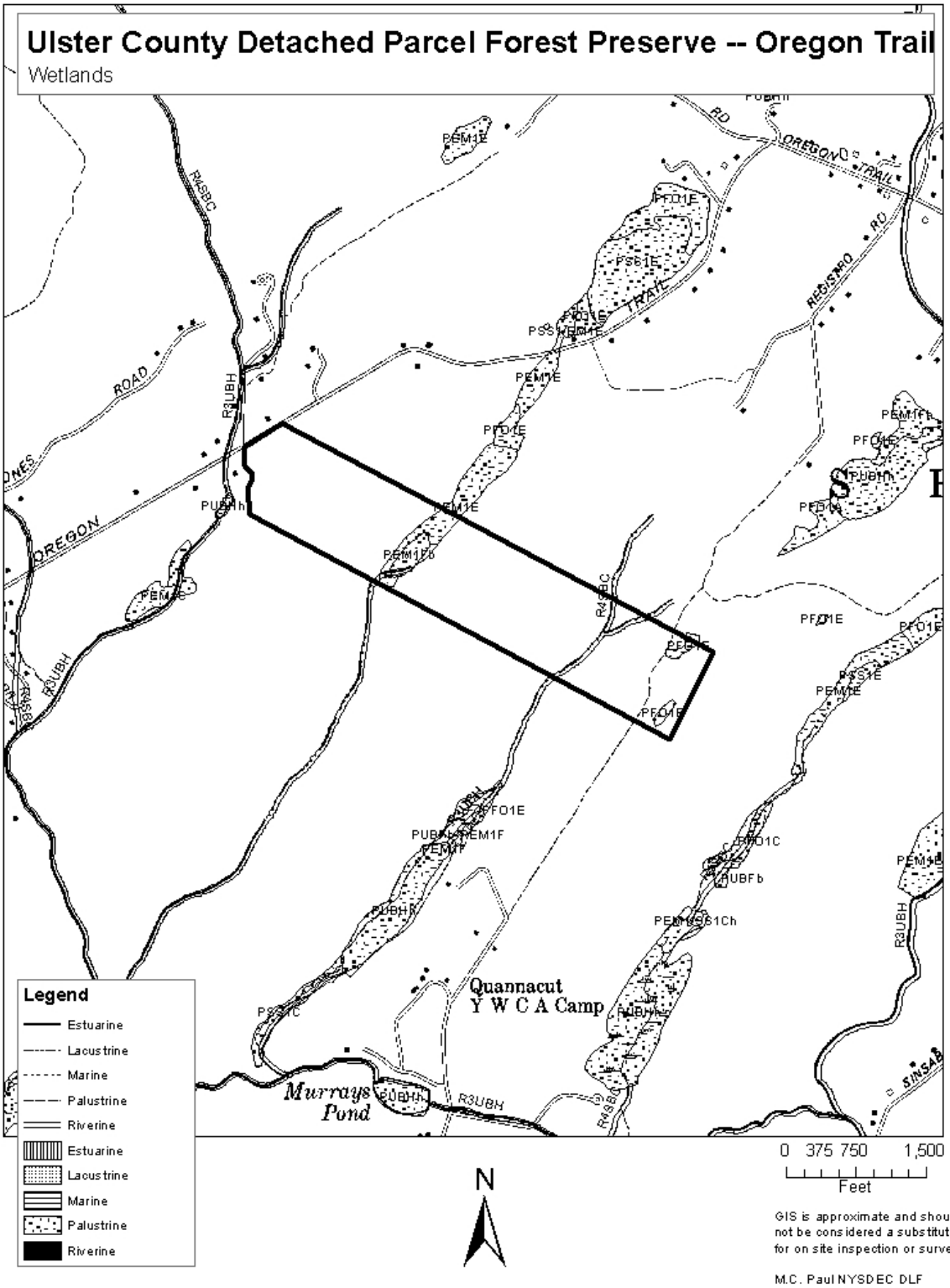

Ulster County Detached Parcel Forest Preserve -- Oregon Trail
Classified Streams and Deep Water Habitats
TRAIL
ROAD
EGON
A(TS)
A(TS)
Quannacu
Y W C A
Legend
Classified Stream
Deep Water Habitat
DEC Lands
0 500 1,000 2,000
Feet
N
GIS is approximate and should not be considered a substitute for on site inspection or survey.
M.C. Paul NYSDEC DLF

FIGURE 2 – WATER RESOURCES



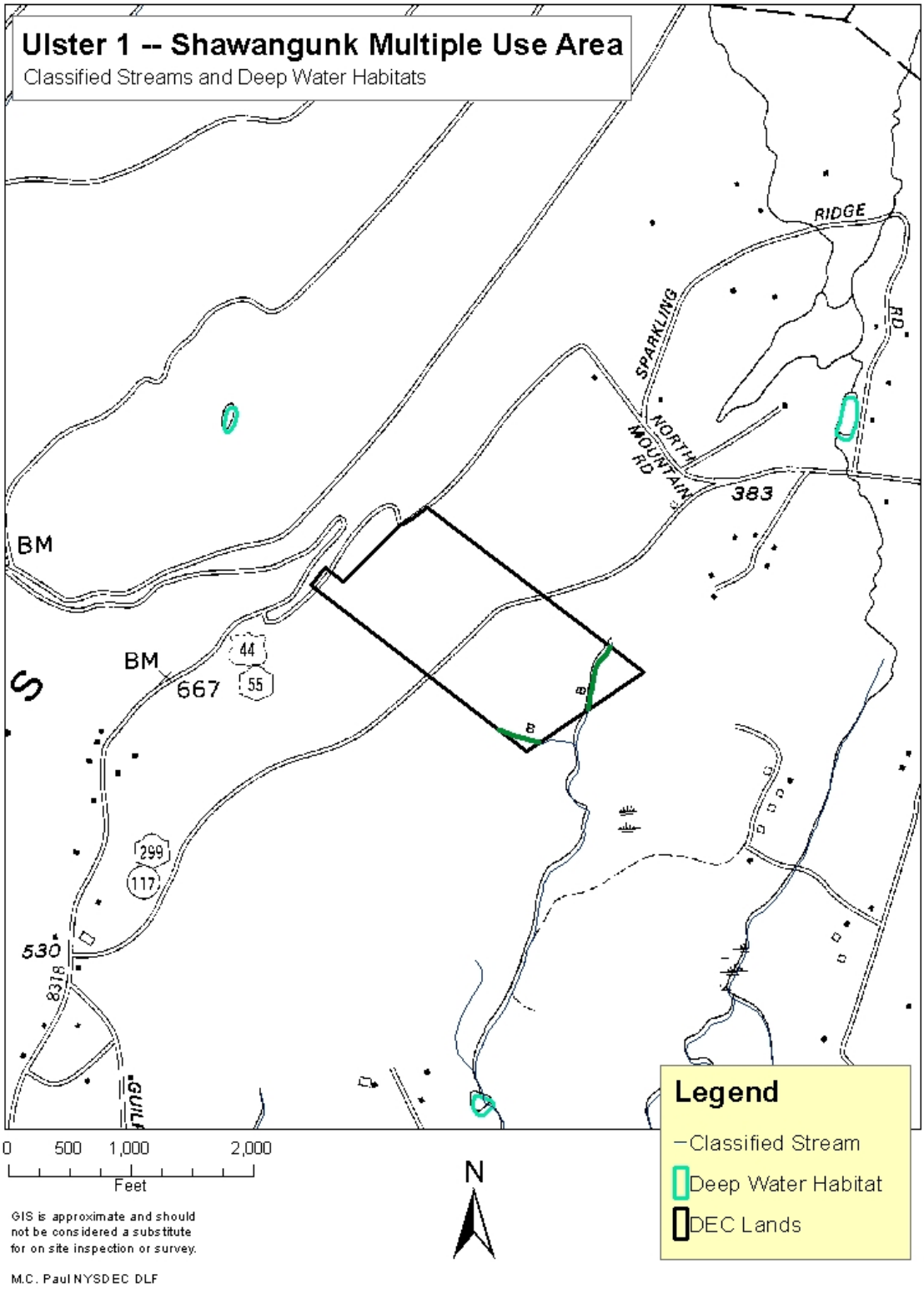

Ulster 1 -- Shawangunk Multiple Use Area
Classified Streams and Deep Water Habitats
RIDGE
SPARKLING
RD.
NORTH MOUNTAIN RD
383
BM
BM
667
44
55
299
117
530
8318
GULF
0 500 1,000 2,000
Feet
N
GIS is approximate and should not be considered a substitute for on site inspection or survey.
M.C. Paul NYSDEC DLF
Legend
Classified Stream
Deep Water Habitat
DEC Lands

FIGURE 3 –SPECIAL MANAGEMENT ZONES

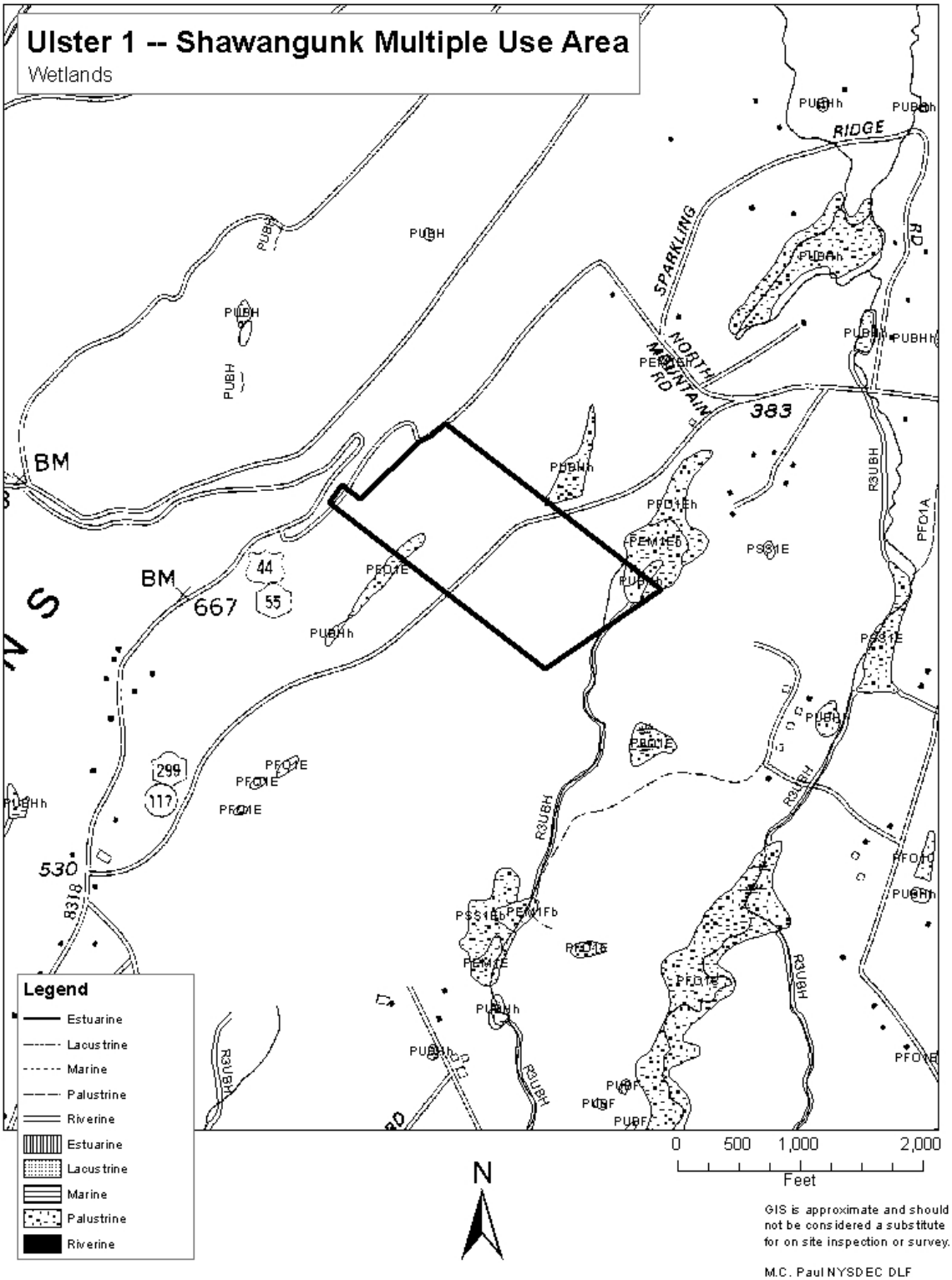


FIGURE 3 –SPECIAL MANAGEMENT ZONES

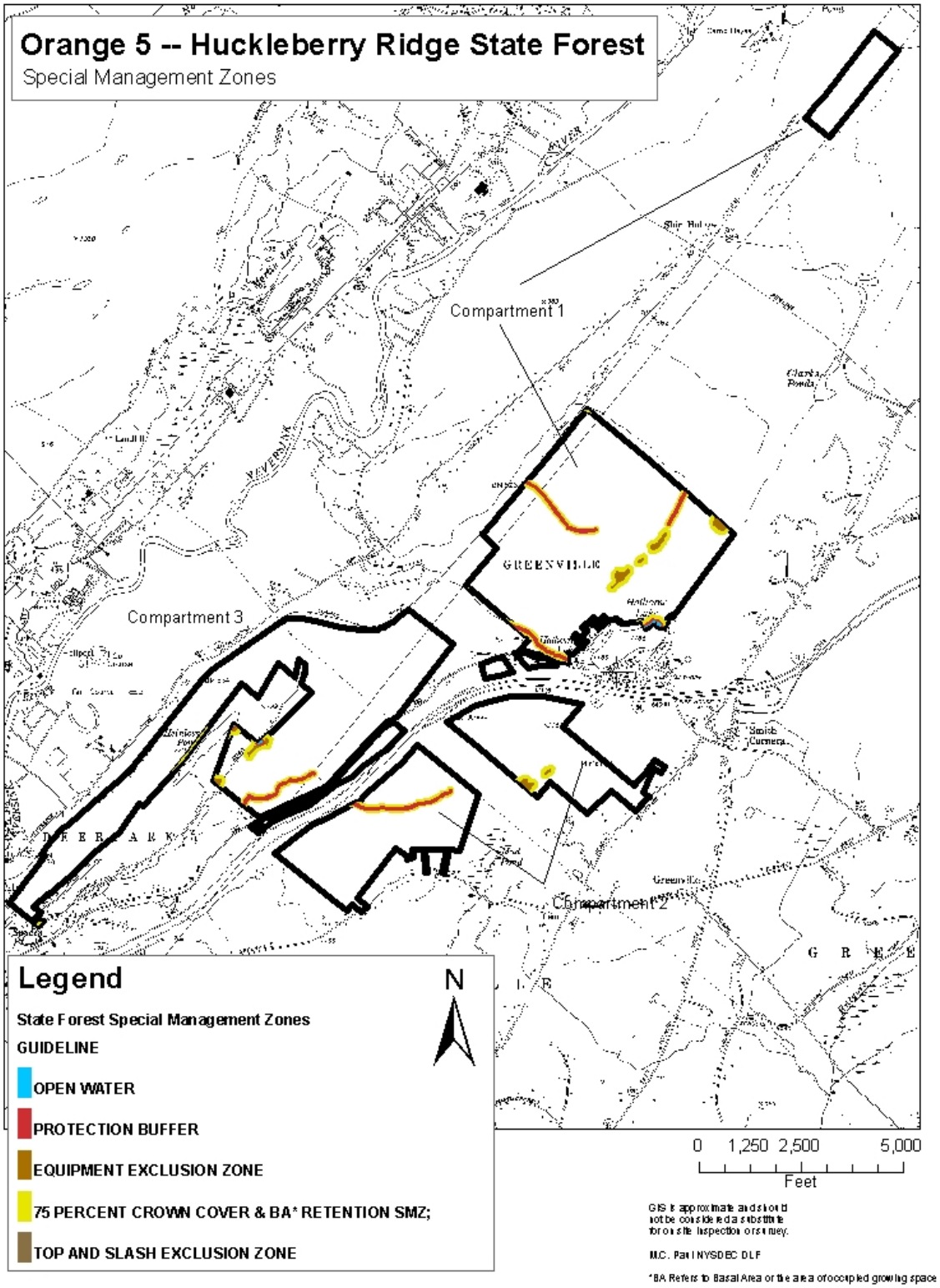


FIGURE 3 –SPECIAL MANAGEMENT ZONES

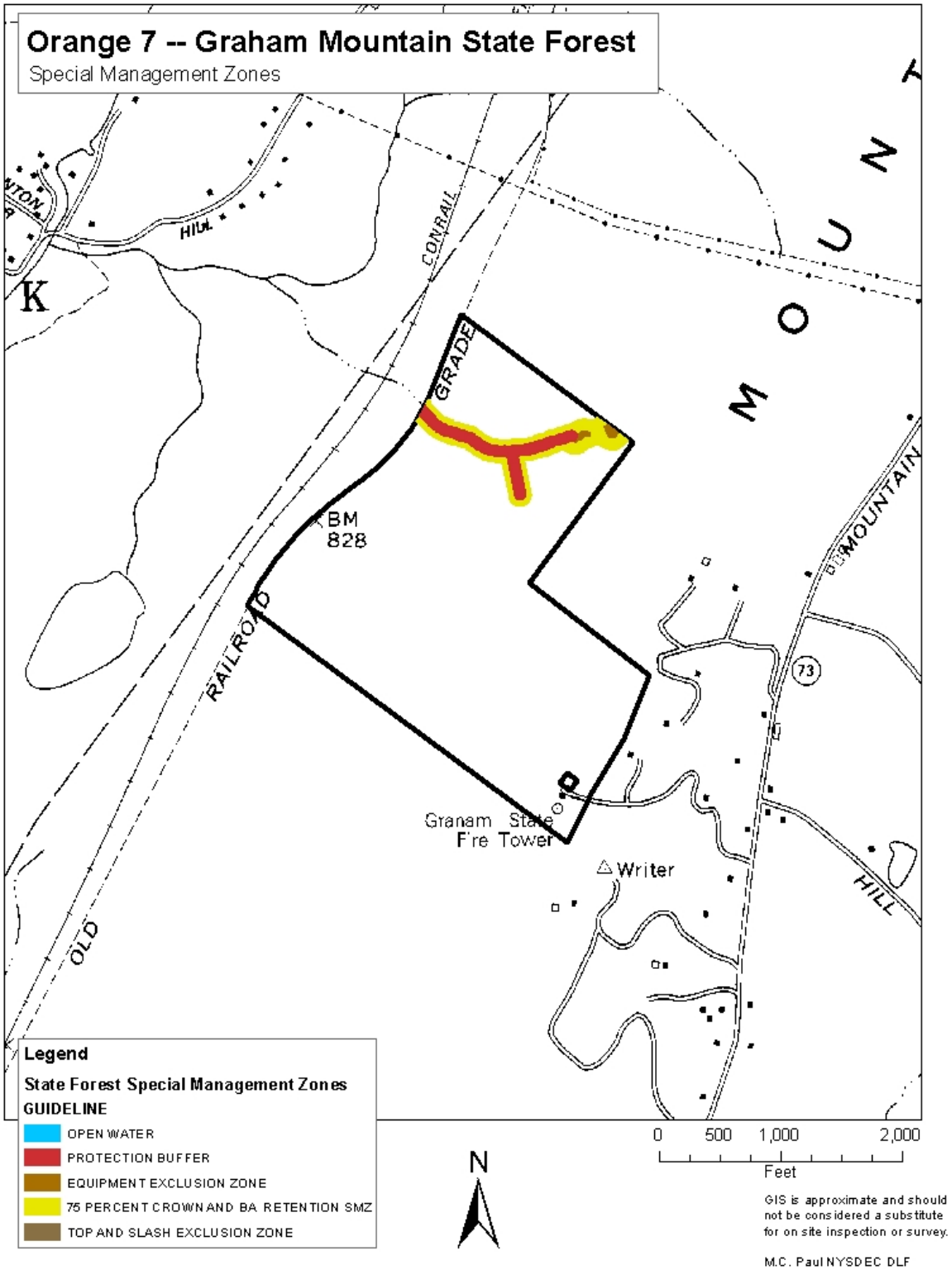


FIGURE 3 –SPECIAL MANAGEMENT ZONES

Map of the special management zones (SMZ) on Huckleberry Ridge State Forest.

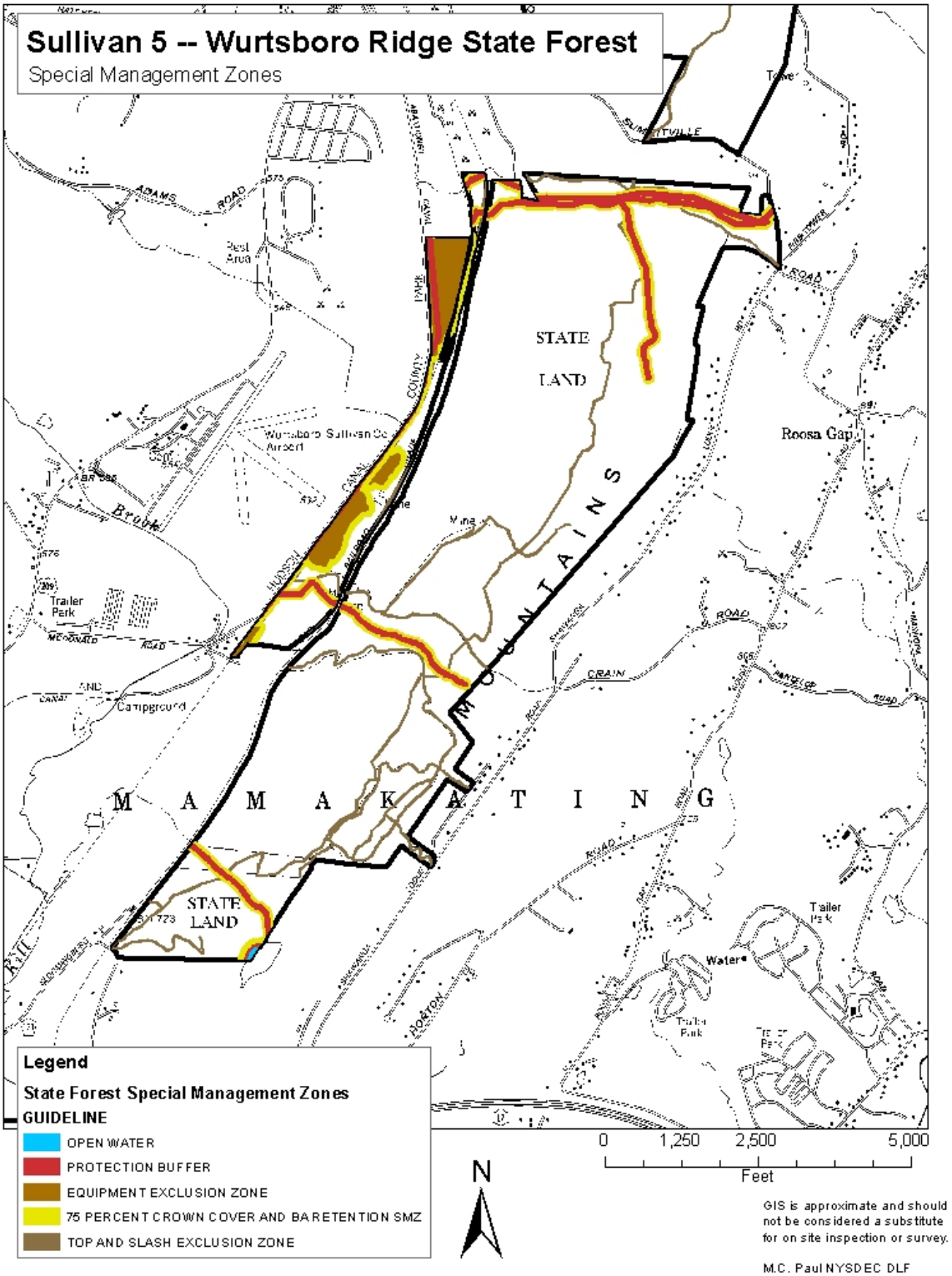


FIGURE 3 –SPECIAL MANAGEMENT ZONES

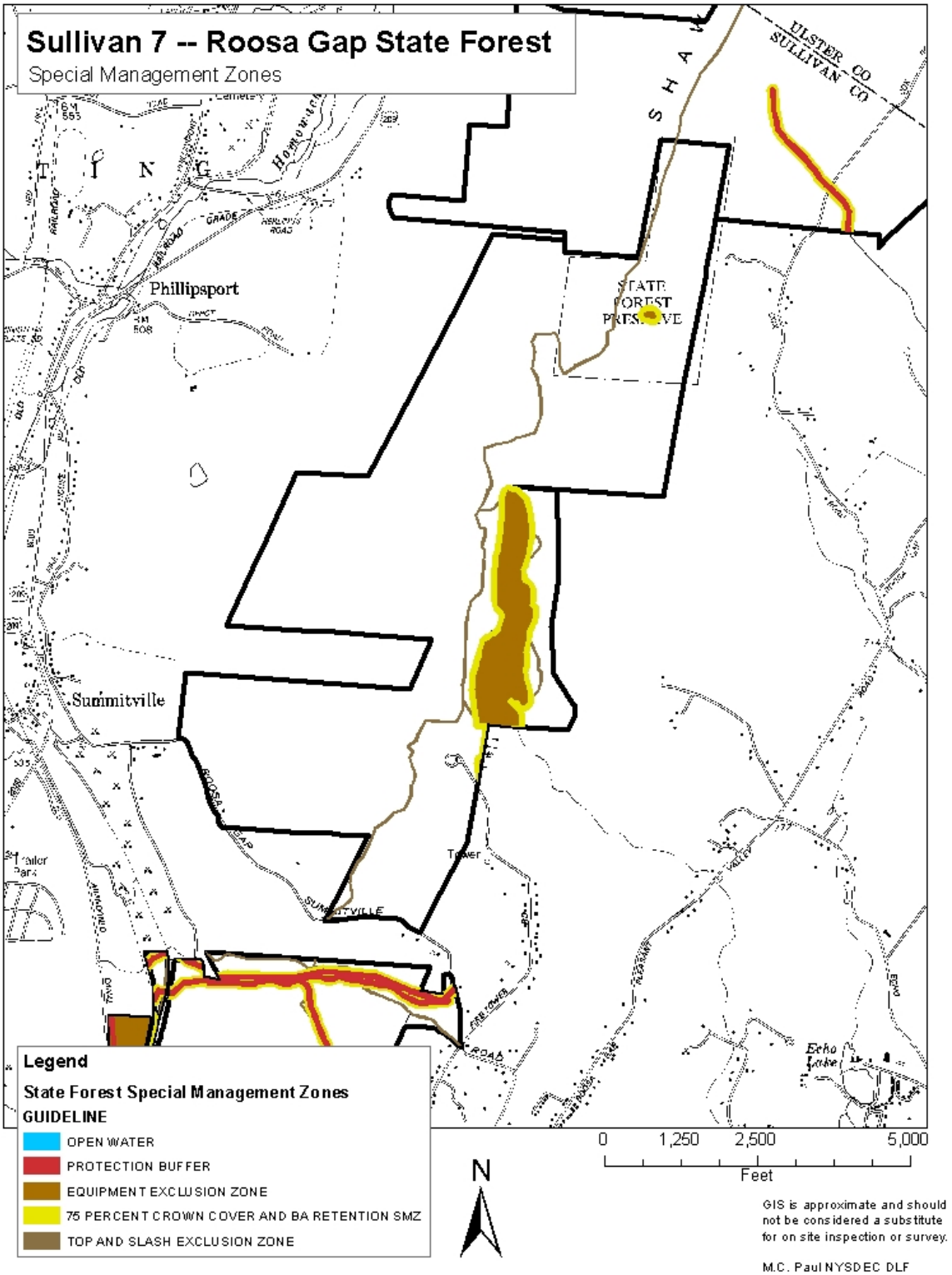


FIGURE 3 –SPECIAL MANAGEMENT ZONES

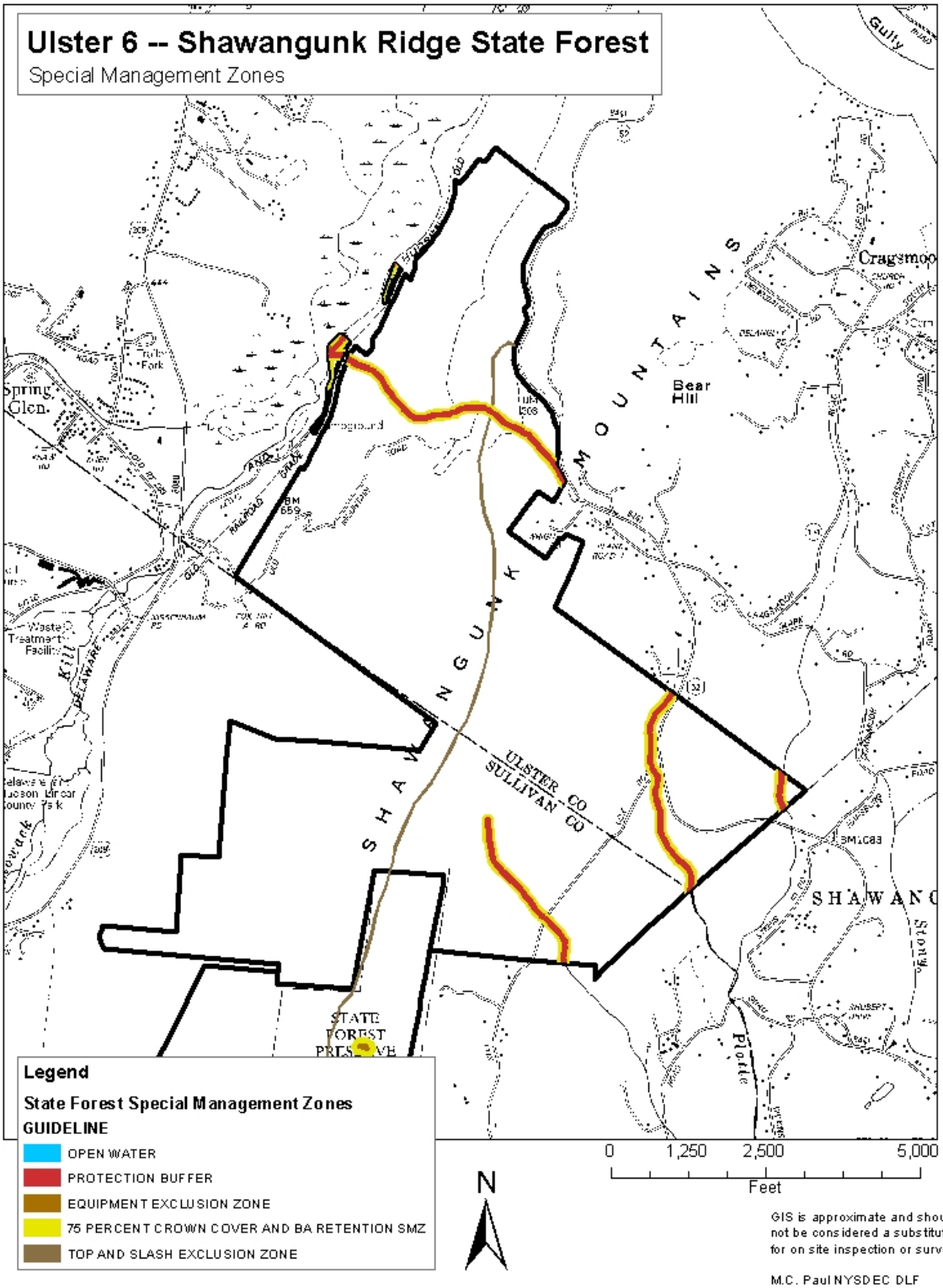


FIGURE 3 –SPECIAL MANAGEMENT ZONES

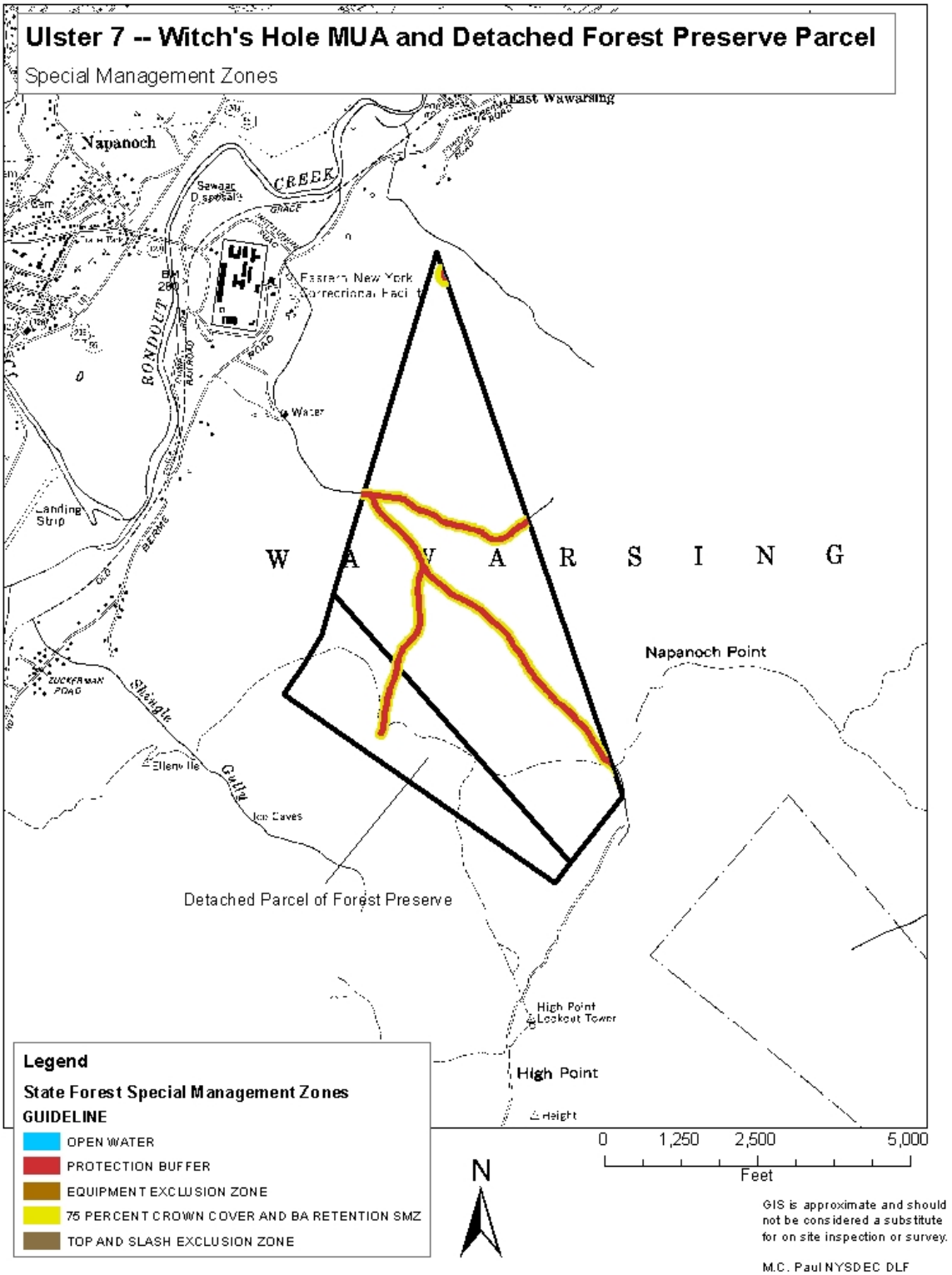


FIGURE 3 –SPECIAL MANAGEMENT ZONES

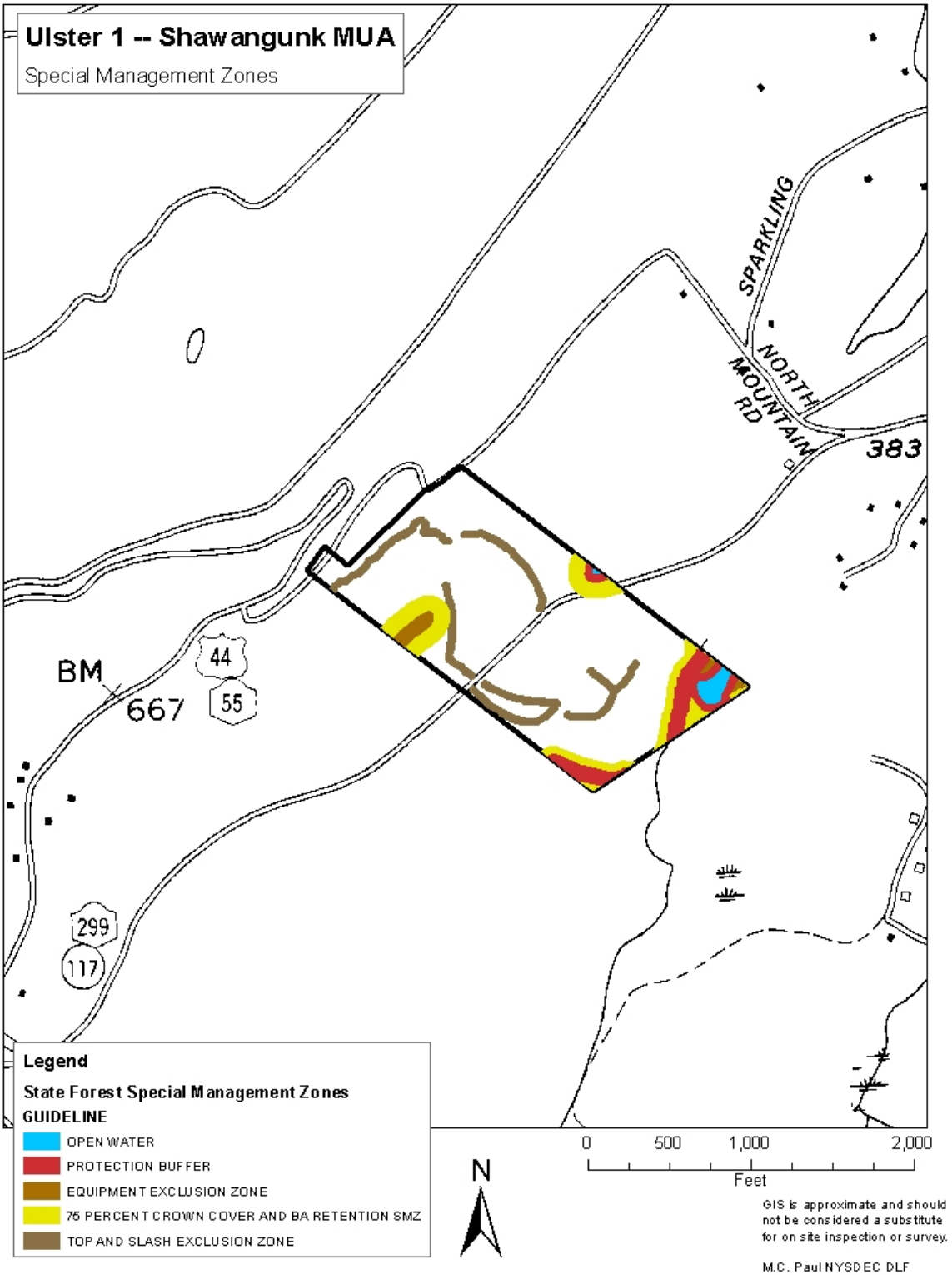
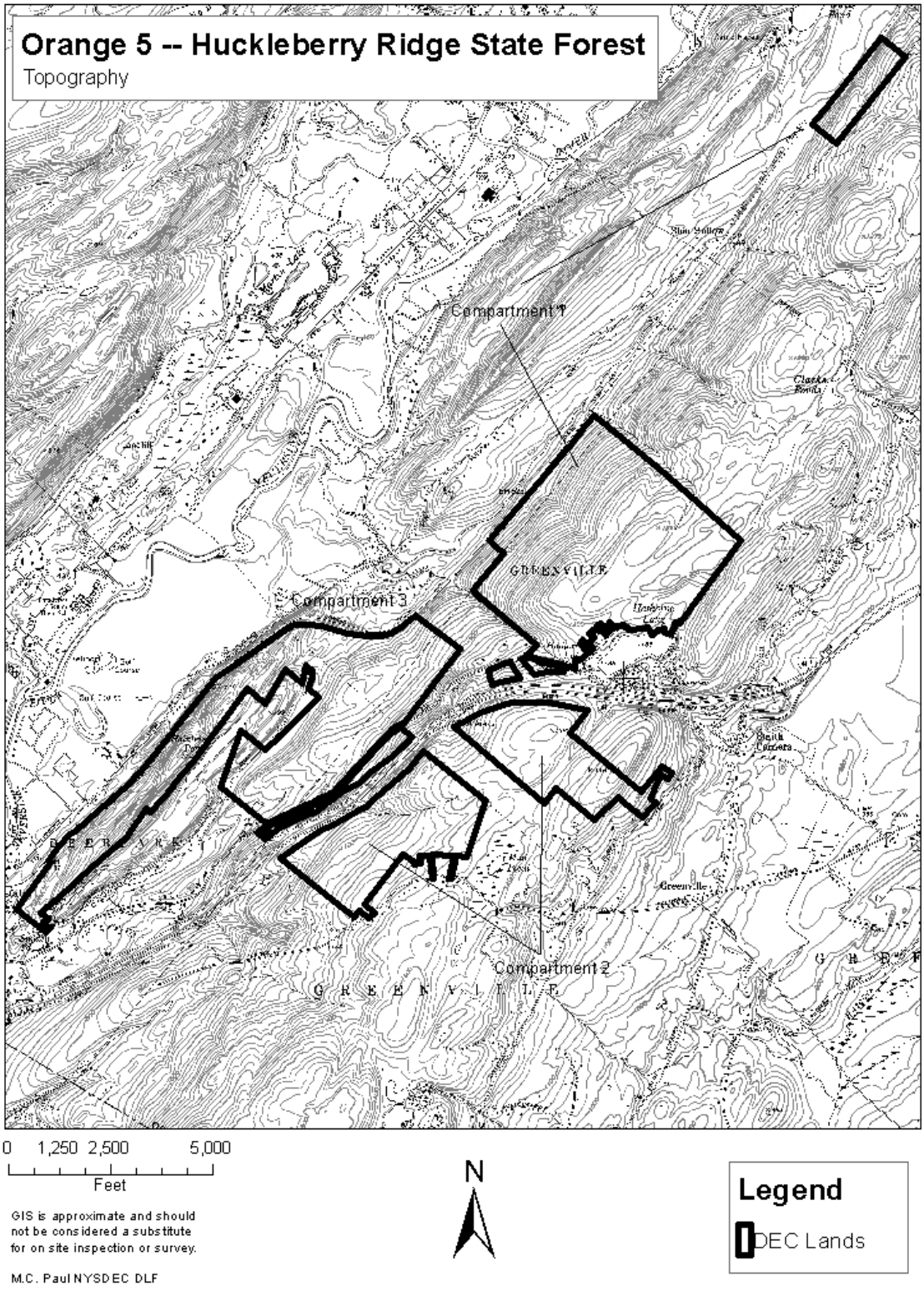


FIGURE 4 – TOPOGRAPHY MAPS



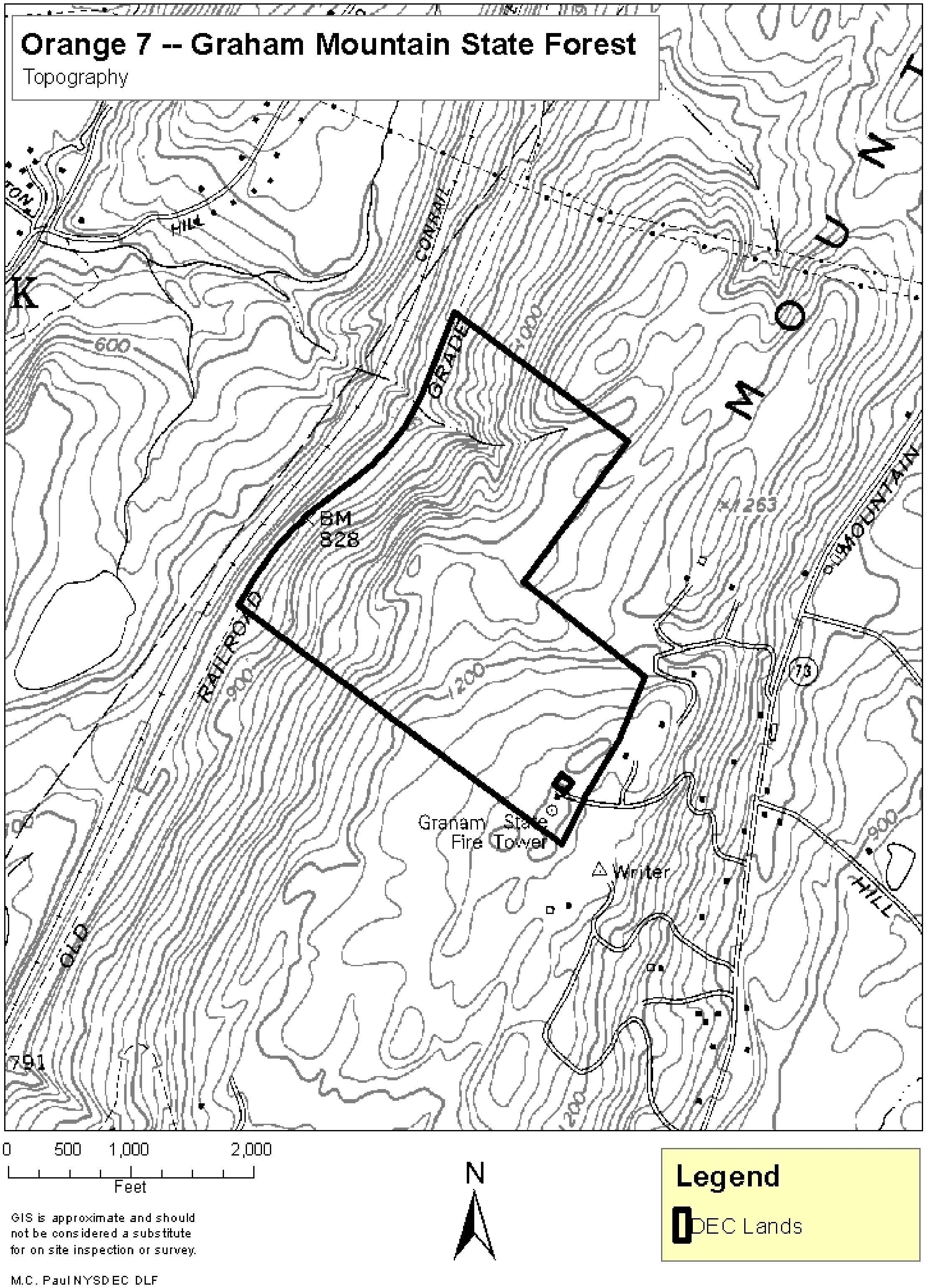
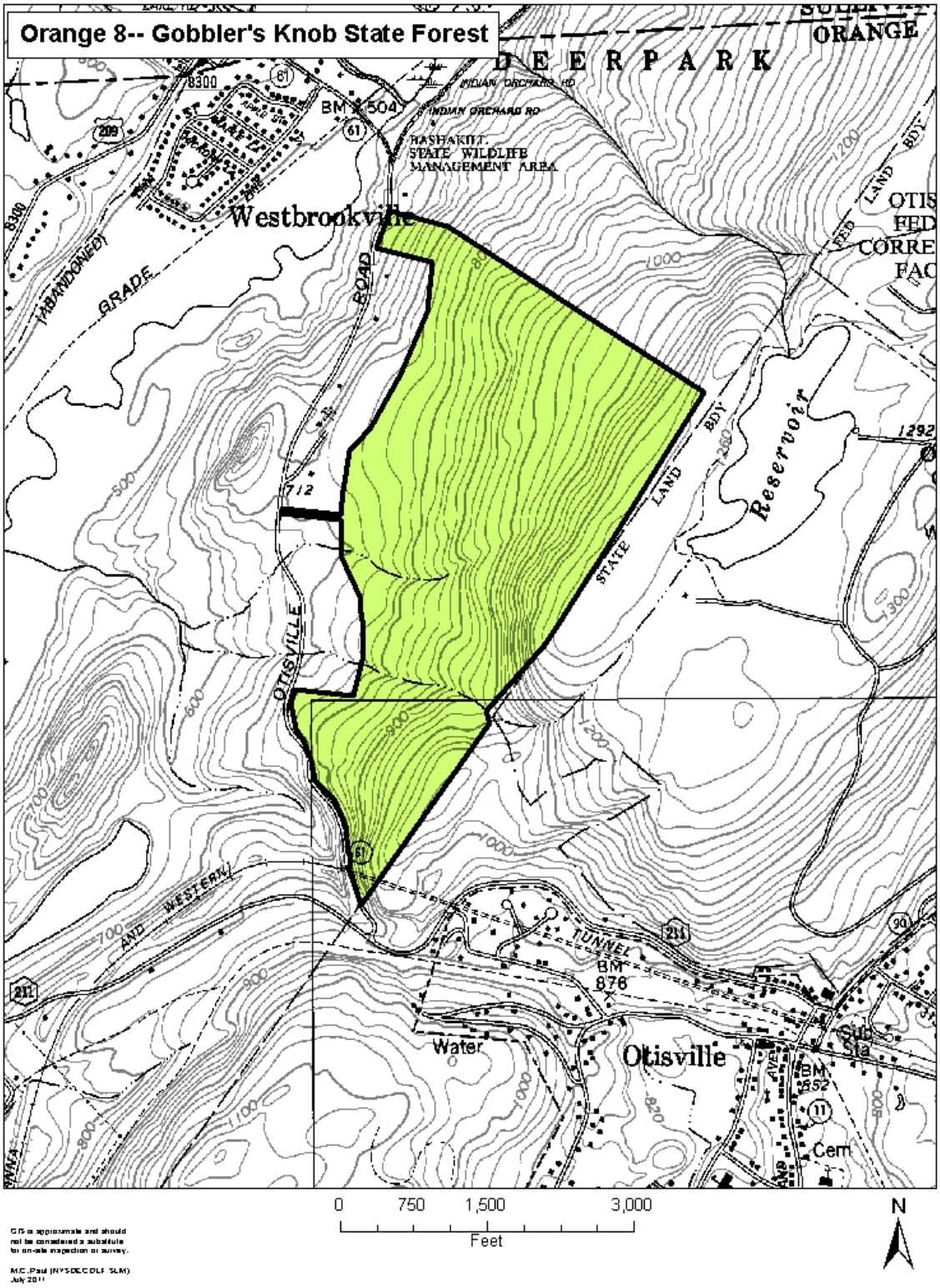

Orange 7 -- Graham Mountain State Forest
Topography
CONRAIL
GRADE
RAILROAD
OLD
HILL
K
600
1000
900
1200
BM
828
1263
MOUNT
MOUNTAIN
HILL
73
Graham State
Fire Tower
Writer
791
0 500 1,000 2,000
Feet
N
GIS is approximate and should not be considered a substitute for on site inspection or survey.
M.C. Paul NYSDEC DLF
Legend
DEC Lands

FIGURE 4 – TOPOGRAPHY MAPS



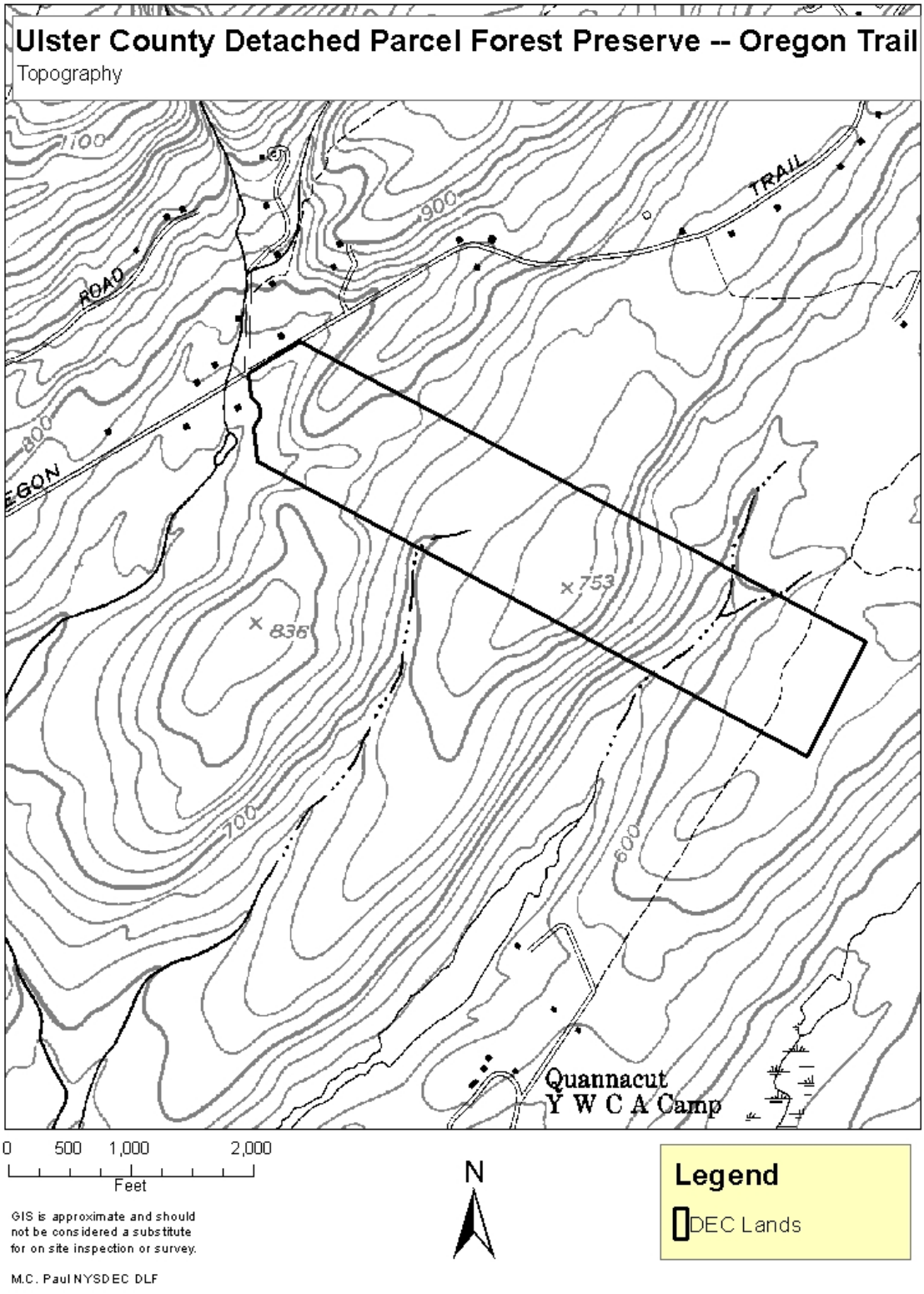
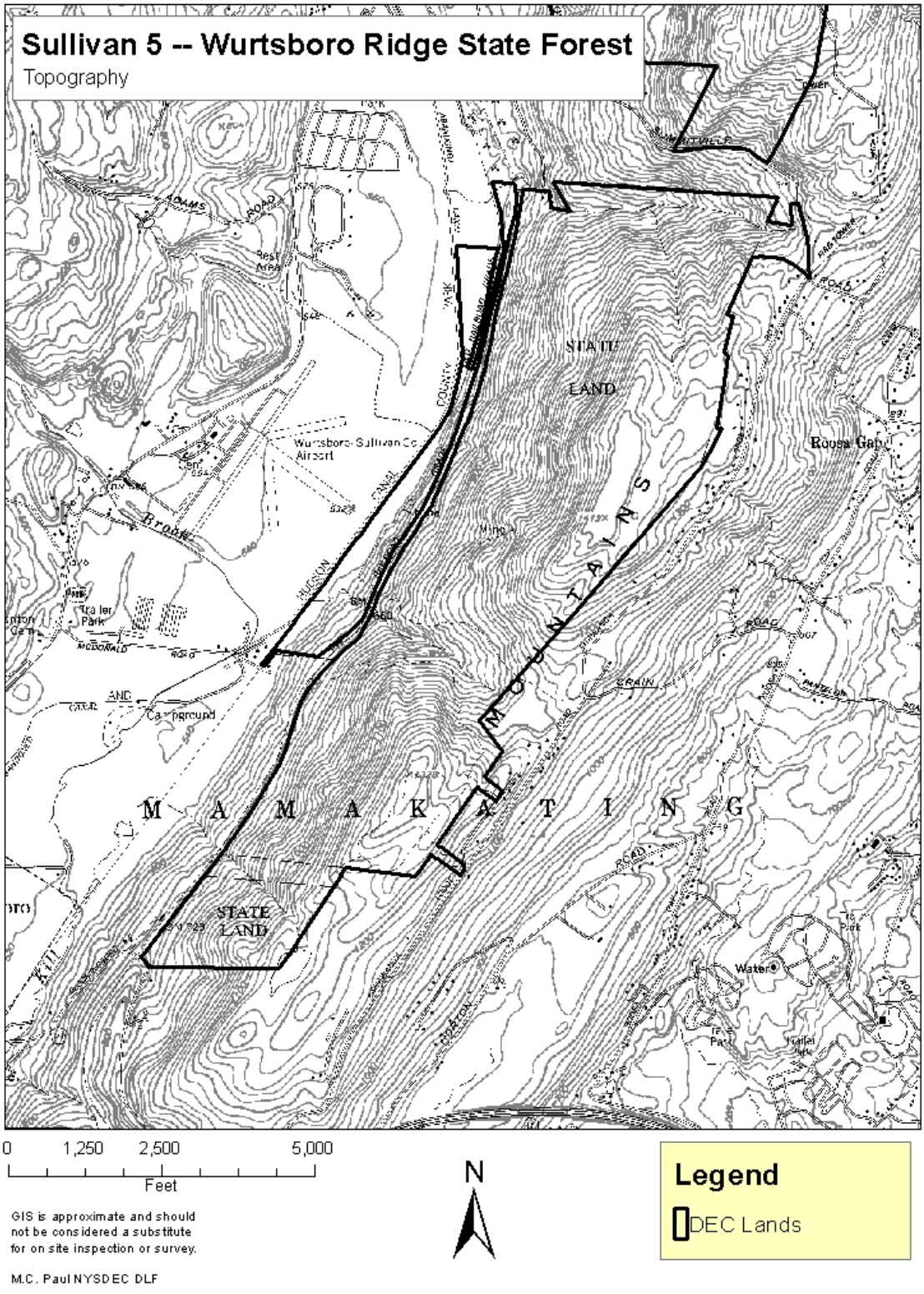

Ulster County Detached Parcel Forest Preserve -- Oregon Trail
Topography
1100
900
800
700
600
TRAIL
ROAD
EGON
753
836
Quannacut
Y W C A Camp
0 500 1,000 2,000
Feet
N
Legend
DEC Lands
GIS is approximate and should not be considered a substitute for on site inspection or survey.
M.C. Paul NYSDEC DLF

FIGURE 4 – TOPOGRAPHY MAPS



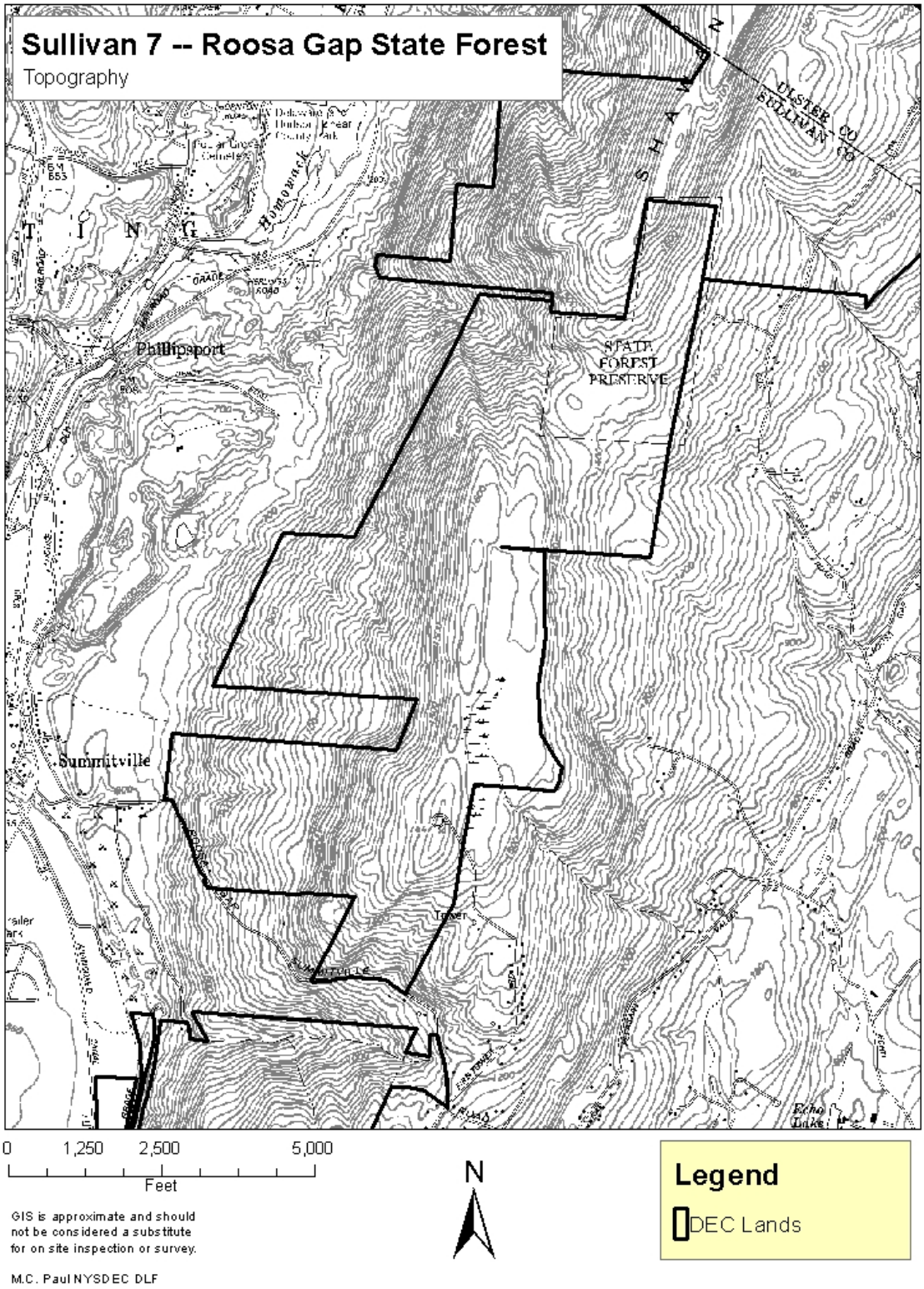
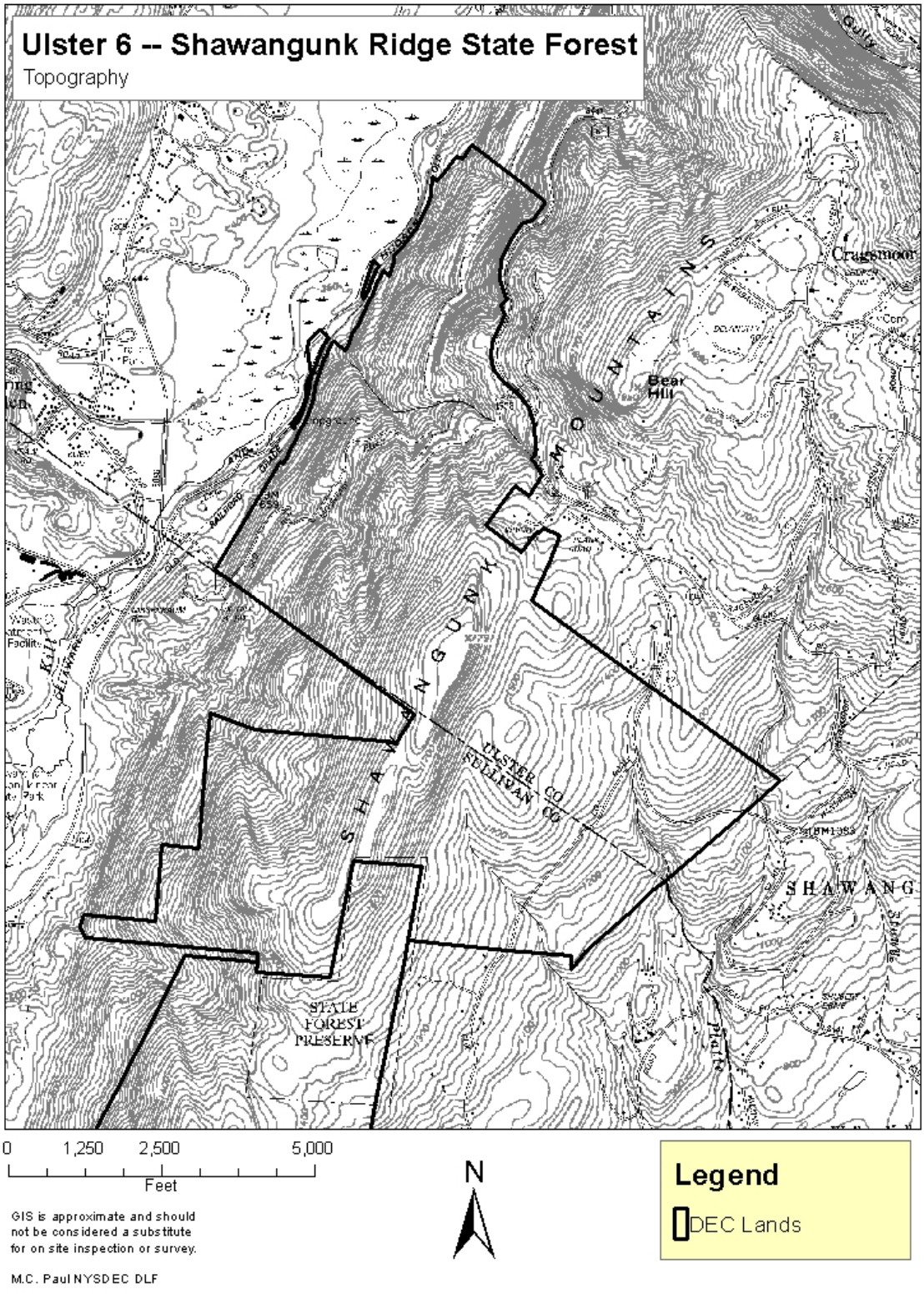

Sullivan 7 -- Roosa Gap State Forest
Topography
Phillipsport
Summitville
STATE FOREST PRESERVE
ULSTER CO
SULLIVAN CO
0
1,250
2,500
5,000
Feet
GIS is approximate and should not be considered a substitute for on site inspection or survey.
M.C. Paul NYSDEC DLF
N
Legend
DEC Lands

FIGURE 4 – TOPOGRAPHY MAPS



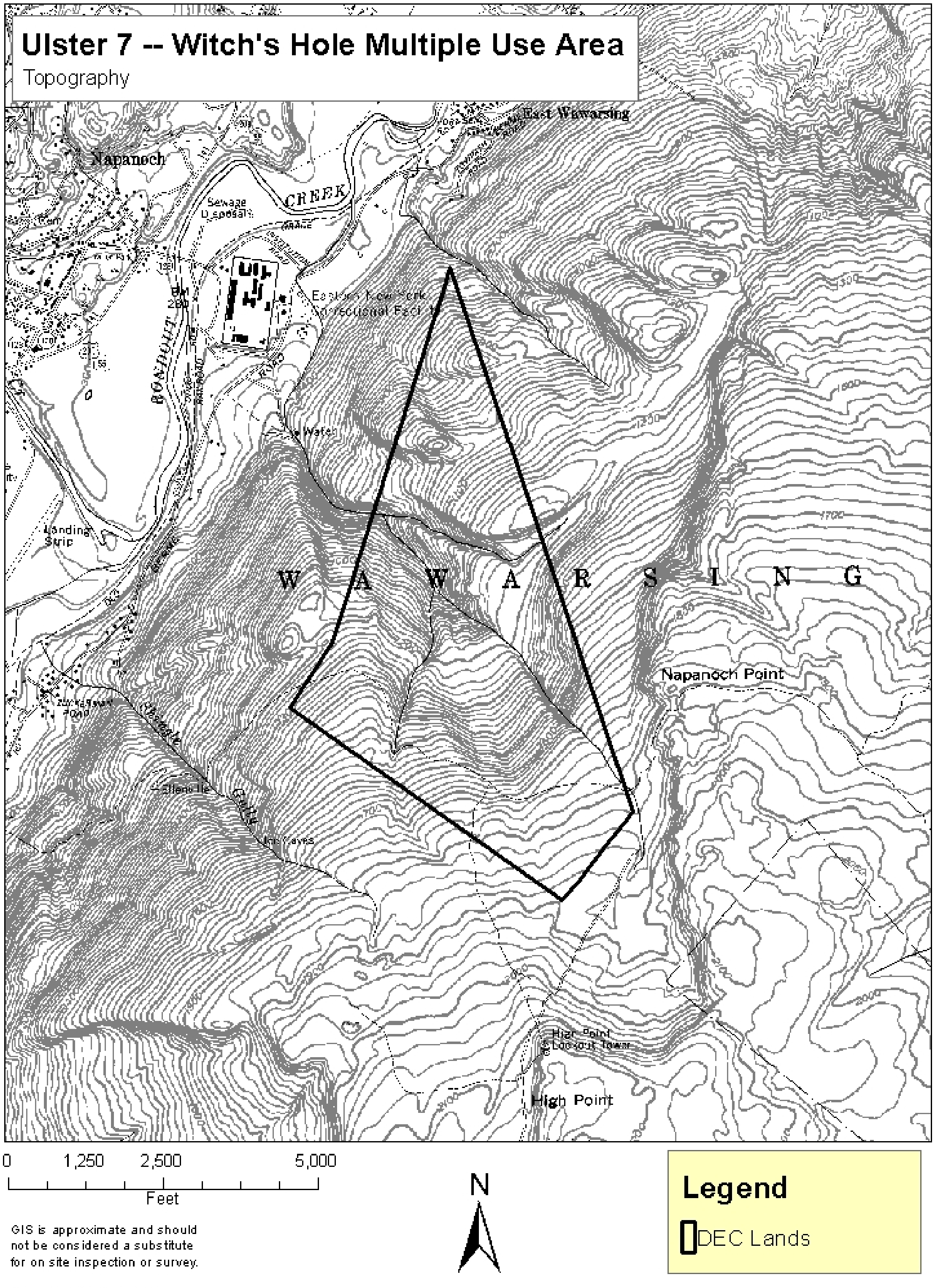

Ulster 7 -- Witch's Hole Multiple Use Area
Topography
Napanoch
East Wawarsing
CREEK
Sewage Disposal
RONDOUT
Water
Landing Strip
W A W A R S I N G
Napanoch Point
Gully
High Point Lookout Tower
High Point
0
1,250
2,500
5,000
Feet
N
Legend
DEC Lands
GIS is approximate and should not be considered a substitute for on site inspection or survey.
M.C. Paul NYSDEC DLF

FIGURE 5 – INFRASTRUCTURE AND RECREATION MAPS

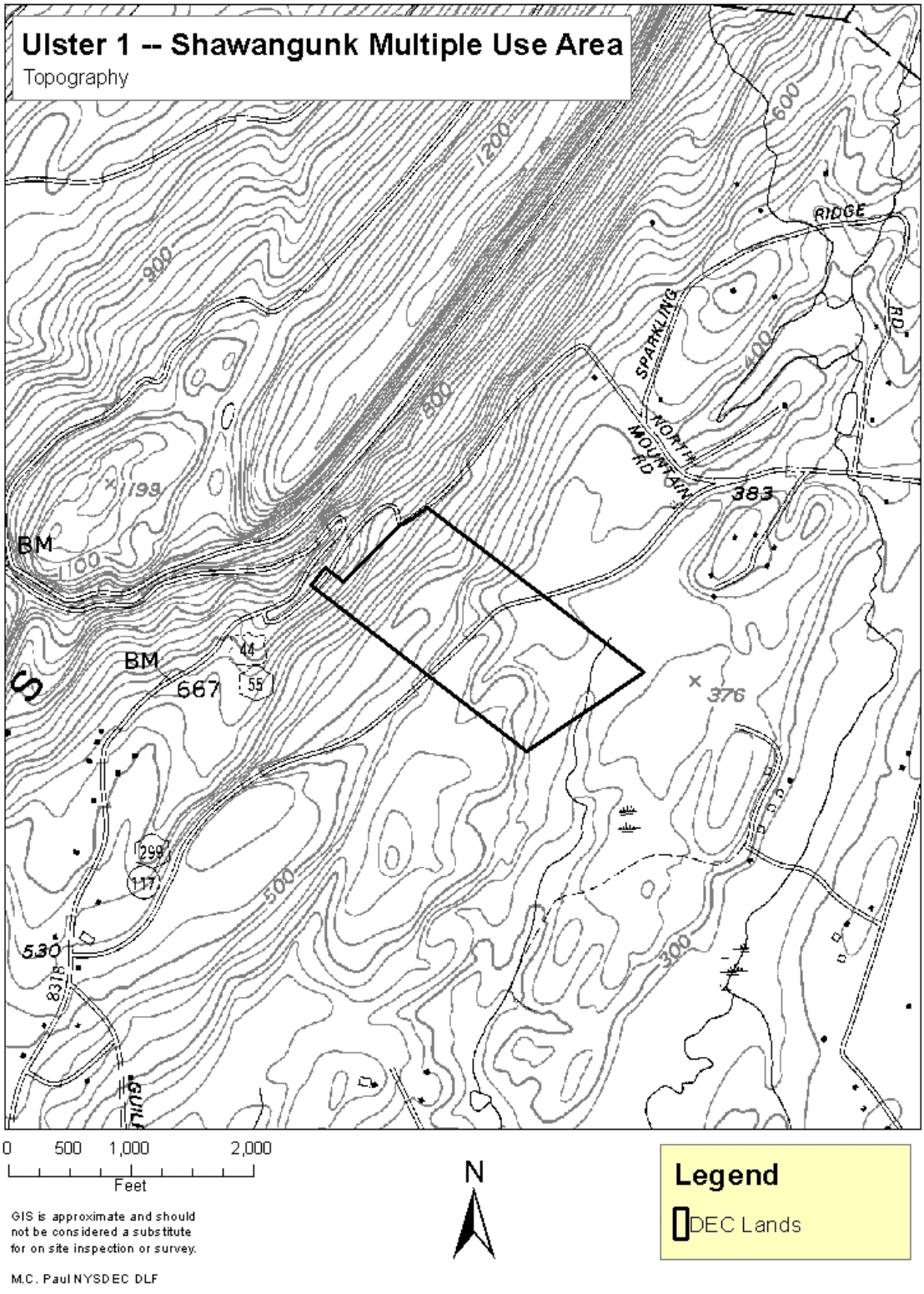


FIGURE 5 – INFRASTRUCTURE AND RECREATION MAPS

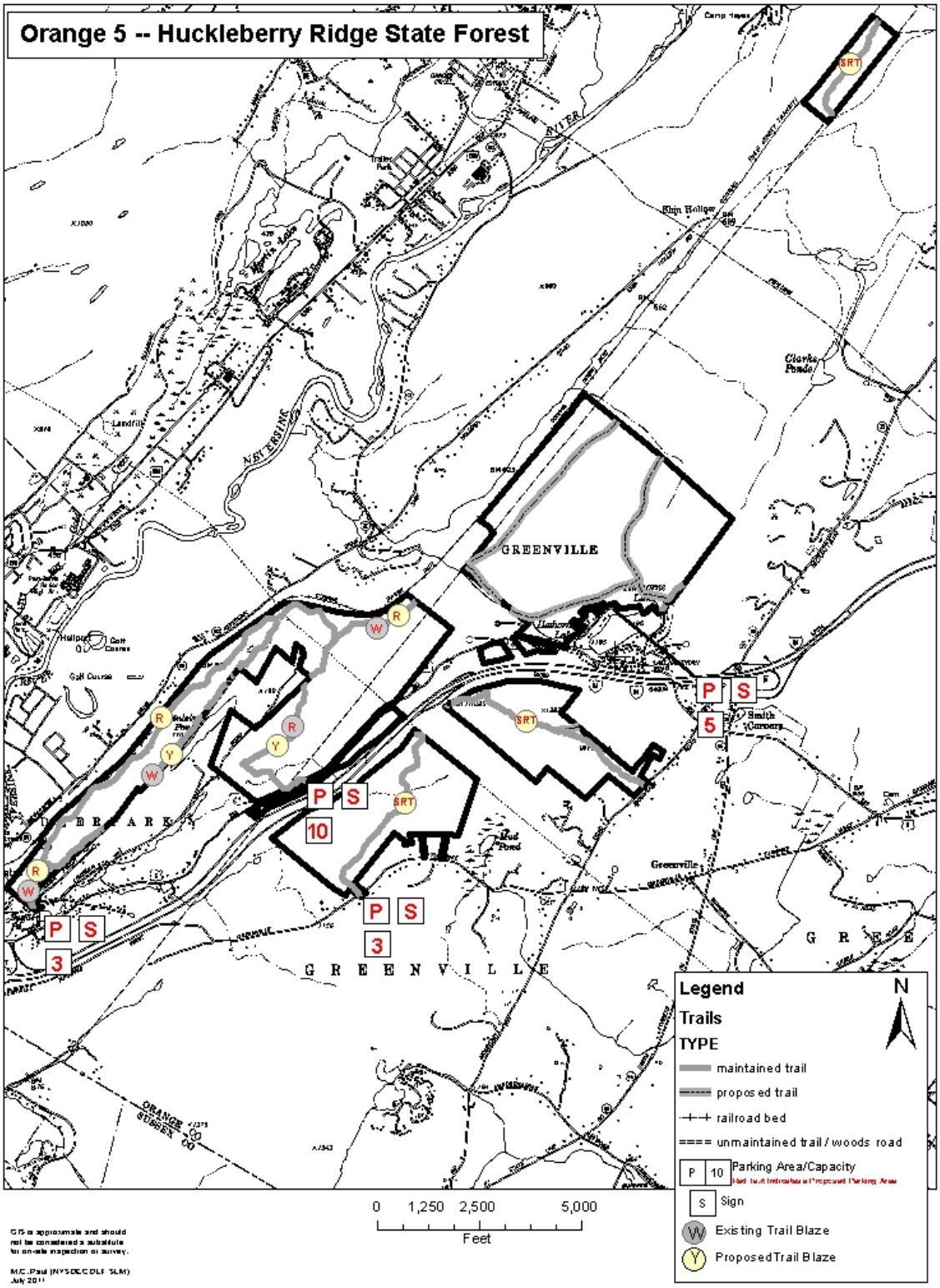


FIGURE 5 – INFRASTRUCTURE AND RECREATION MAPS

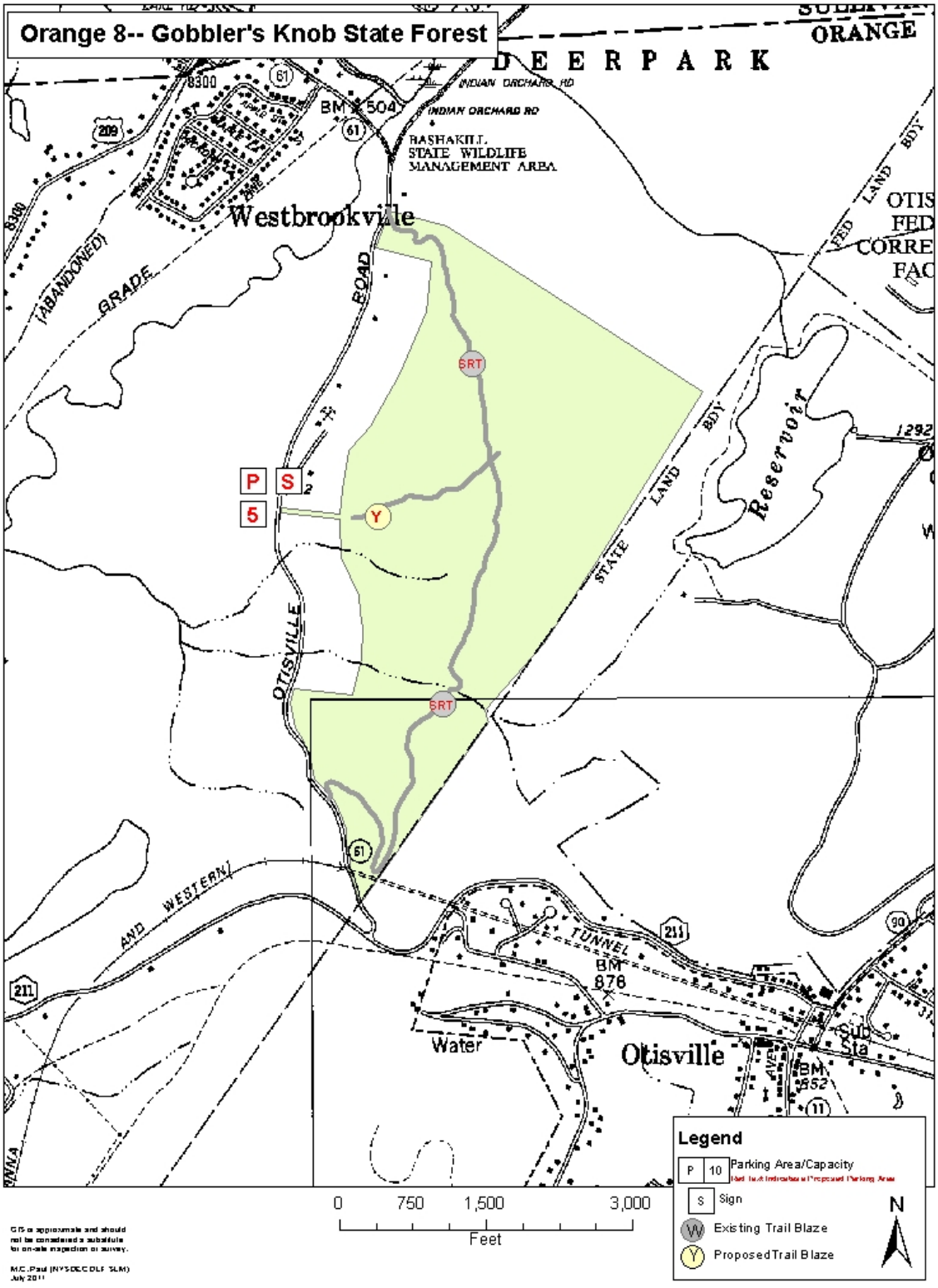


FIGURE 5 – INFRASTRUCTURE AND RECREATION MAPS

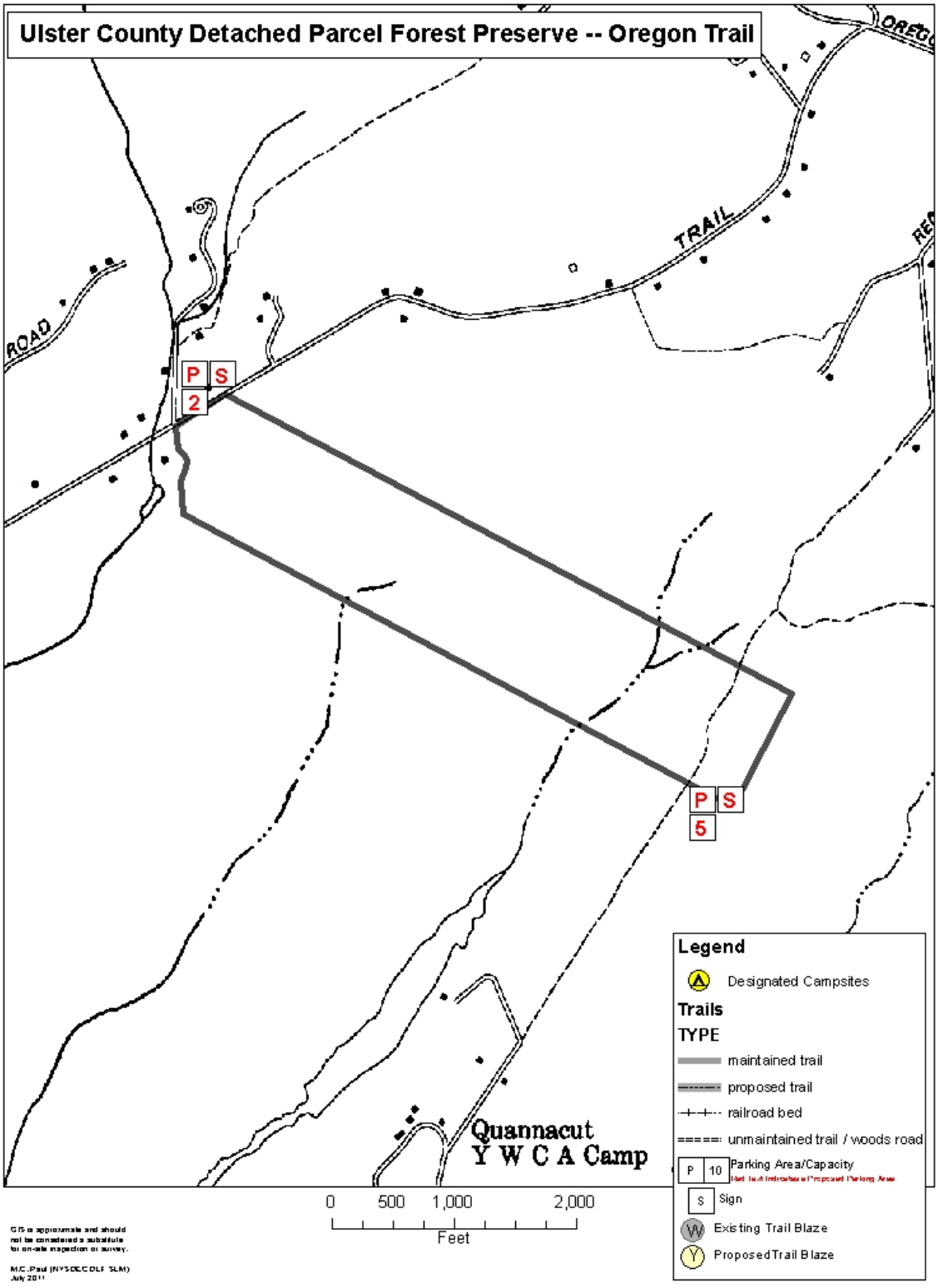


FIGURE 5 – INFRASTRUCTURE AND RECREATION MAPS

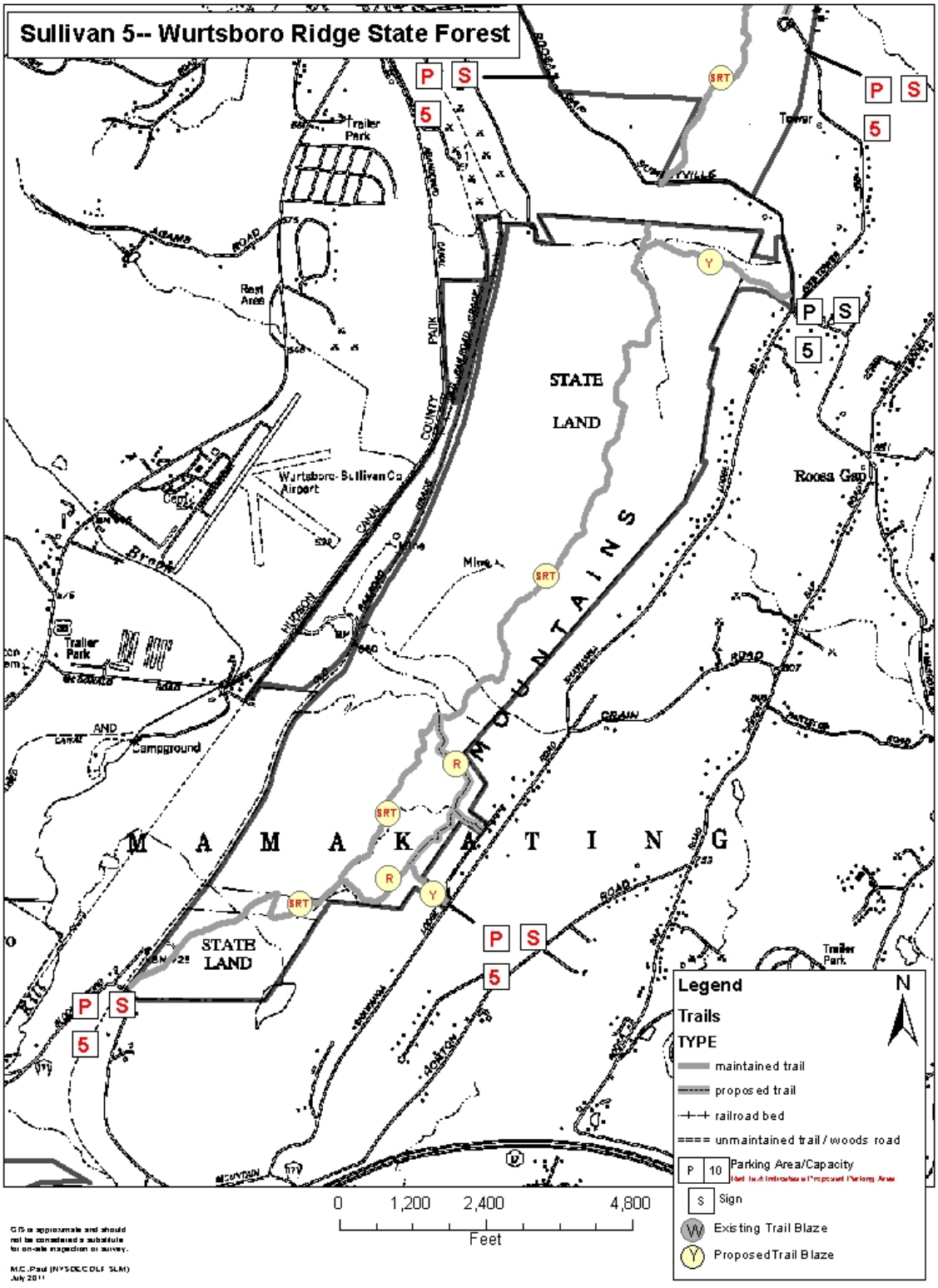


FIGURE 5 – INFRASTRUCTURE AND RECREATION MAPS

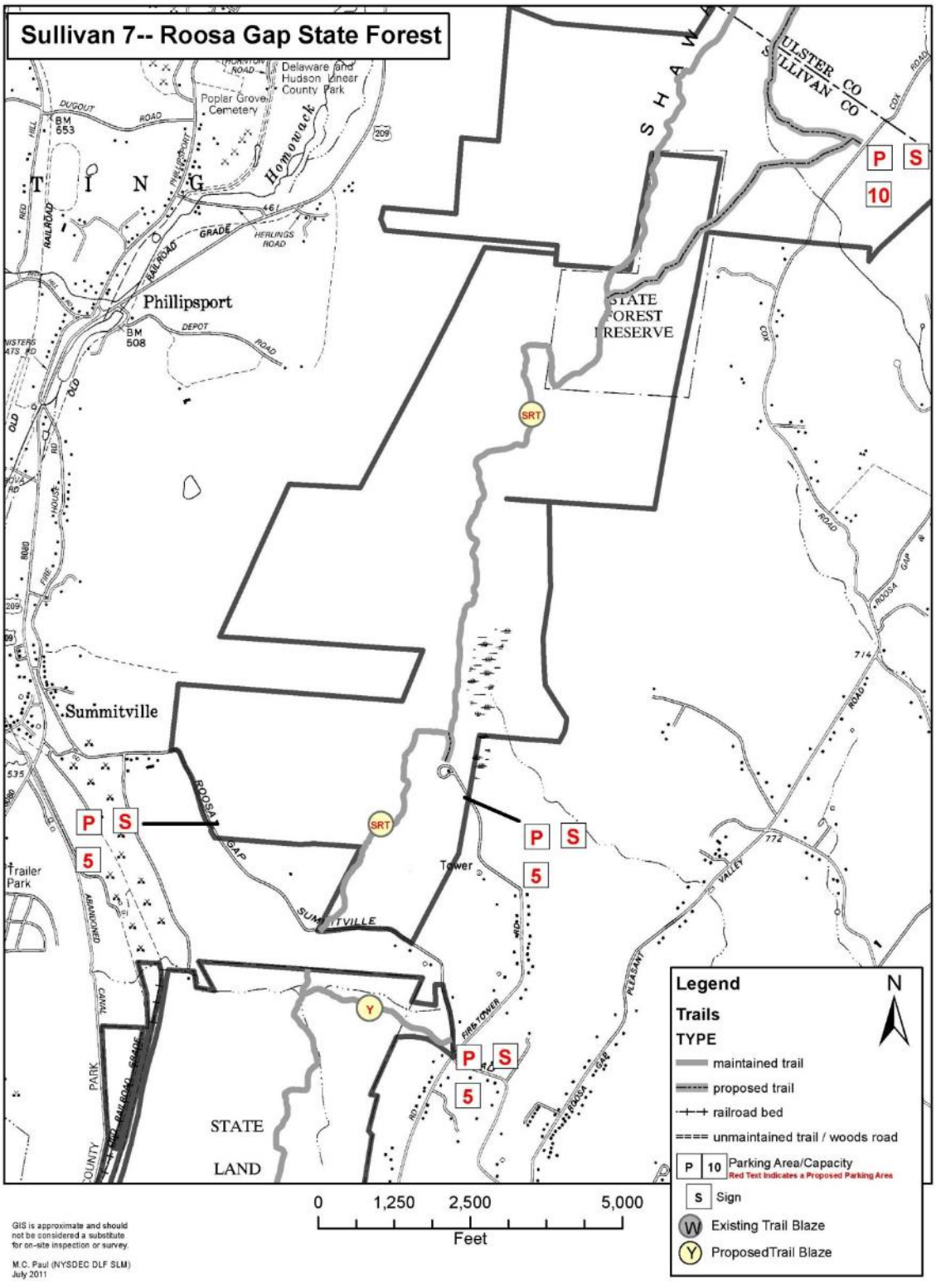


FIGURE 5 – INFRASTRUCTURE AND RECREATION MAPS

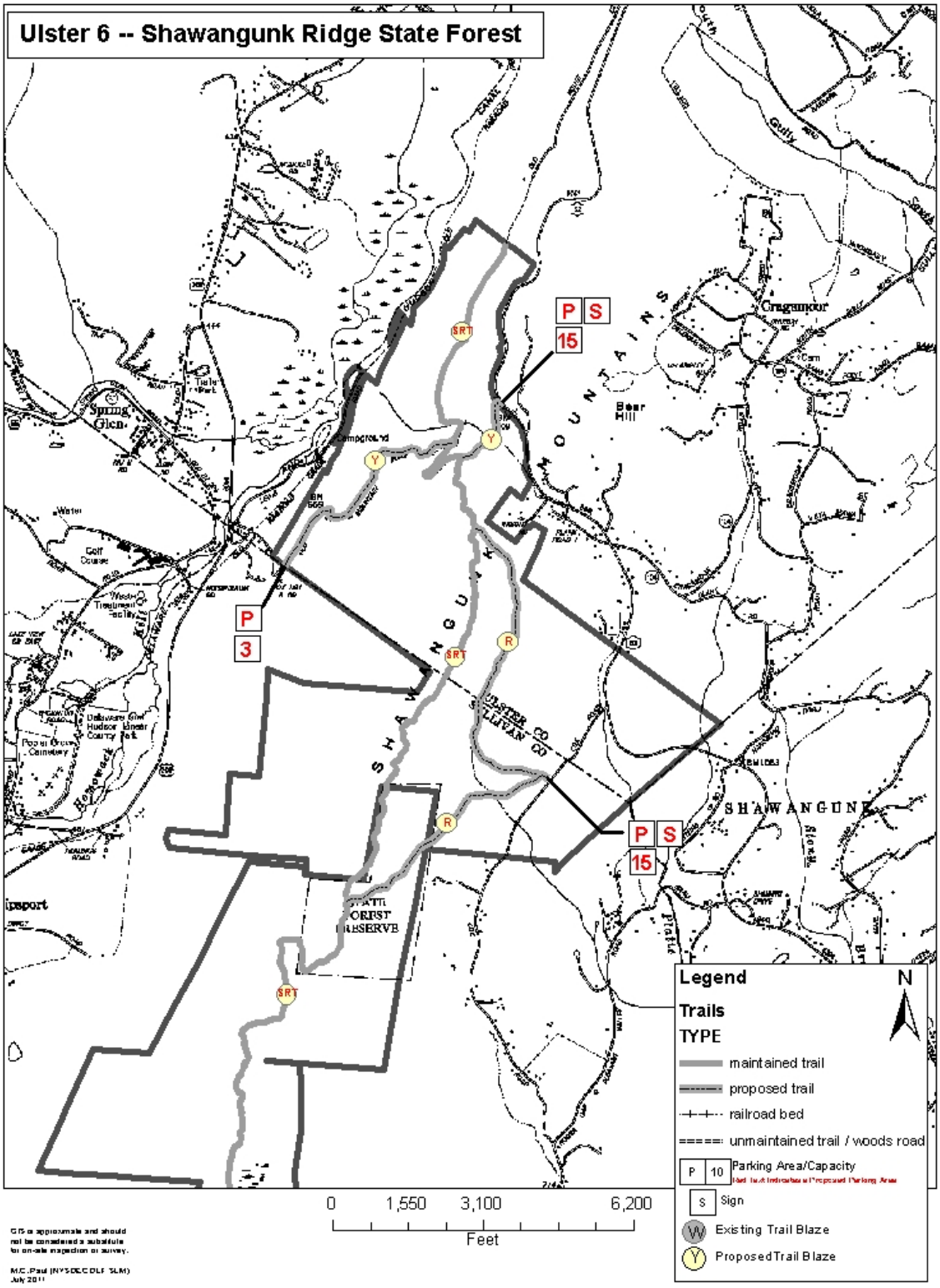


FIGURE 5 – INFRASTRUCTURE AND RECREATION MAPS

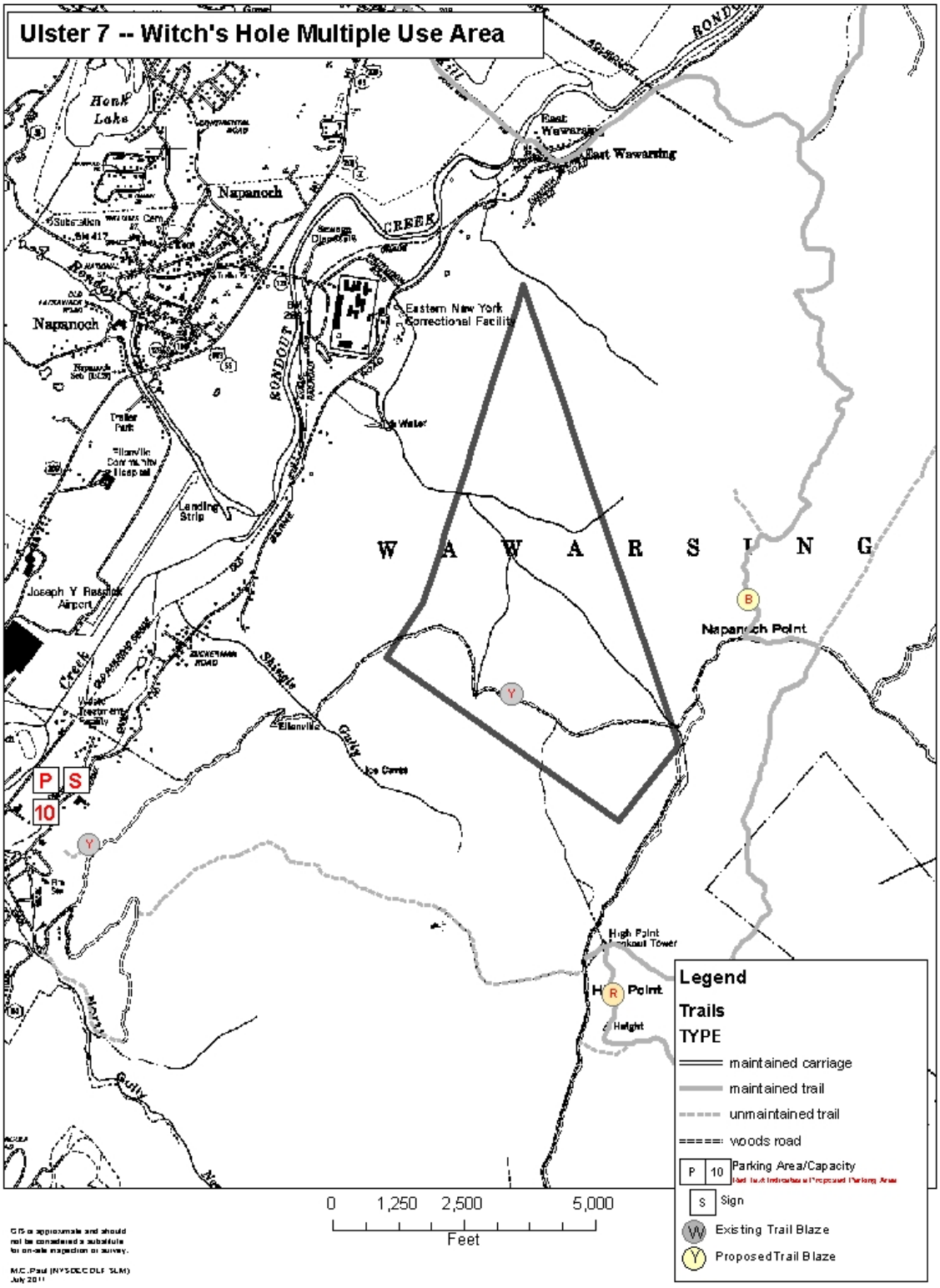


FIGURE 6. – CURRENT FOREST TYPE AND FOREST STANDS

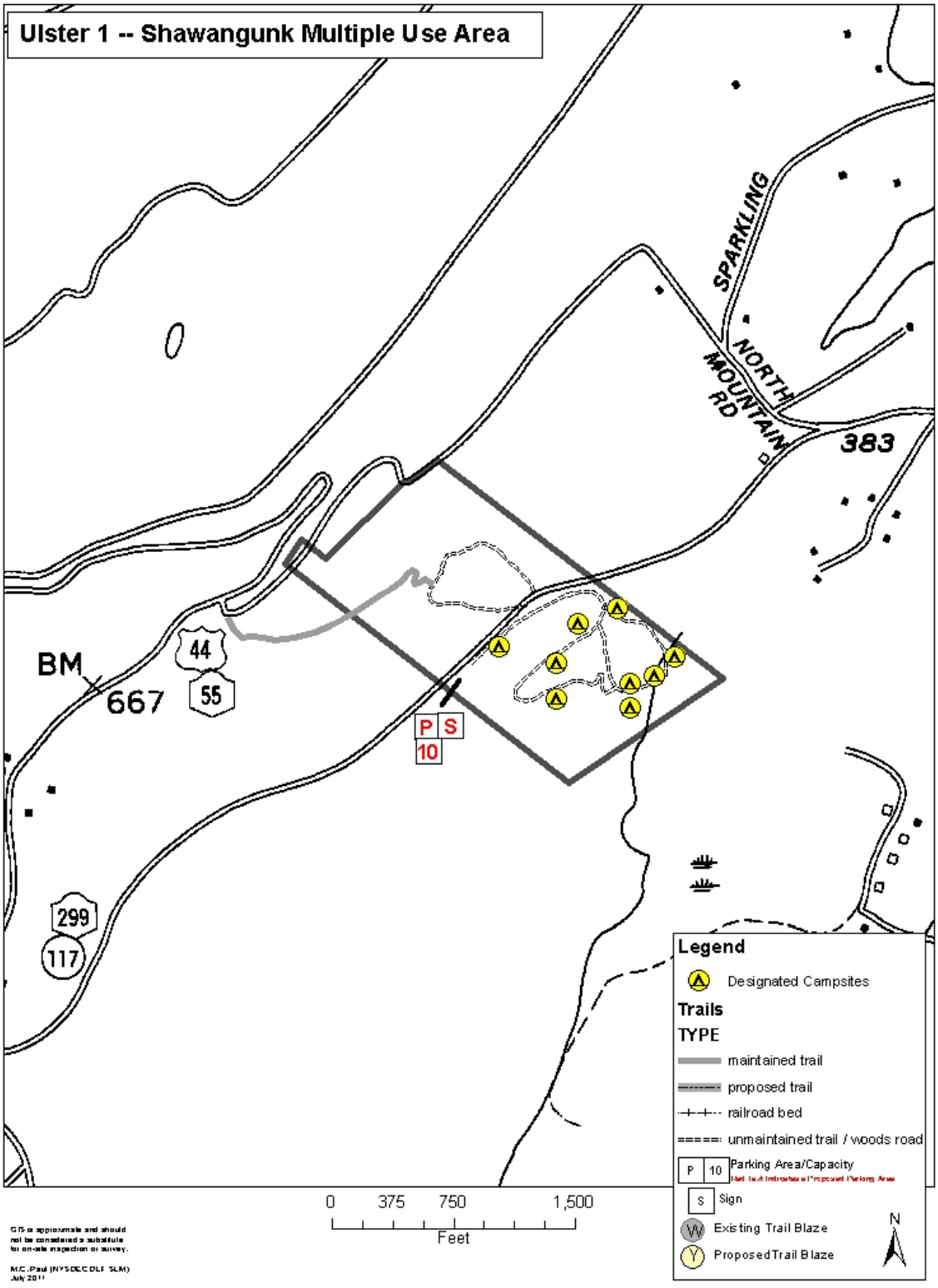


FIGURE 6. – CURRENT FOREST TYPE AND FOREST STANDS

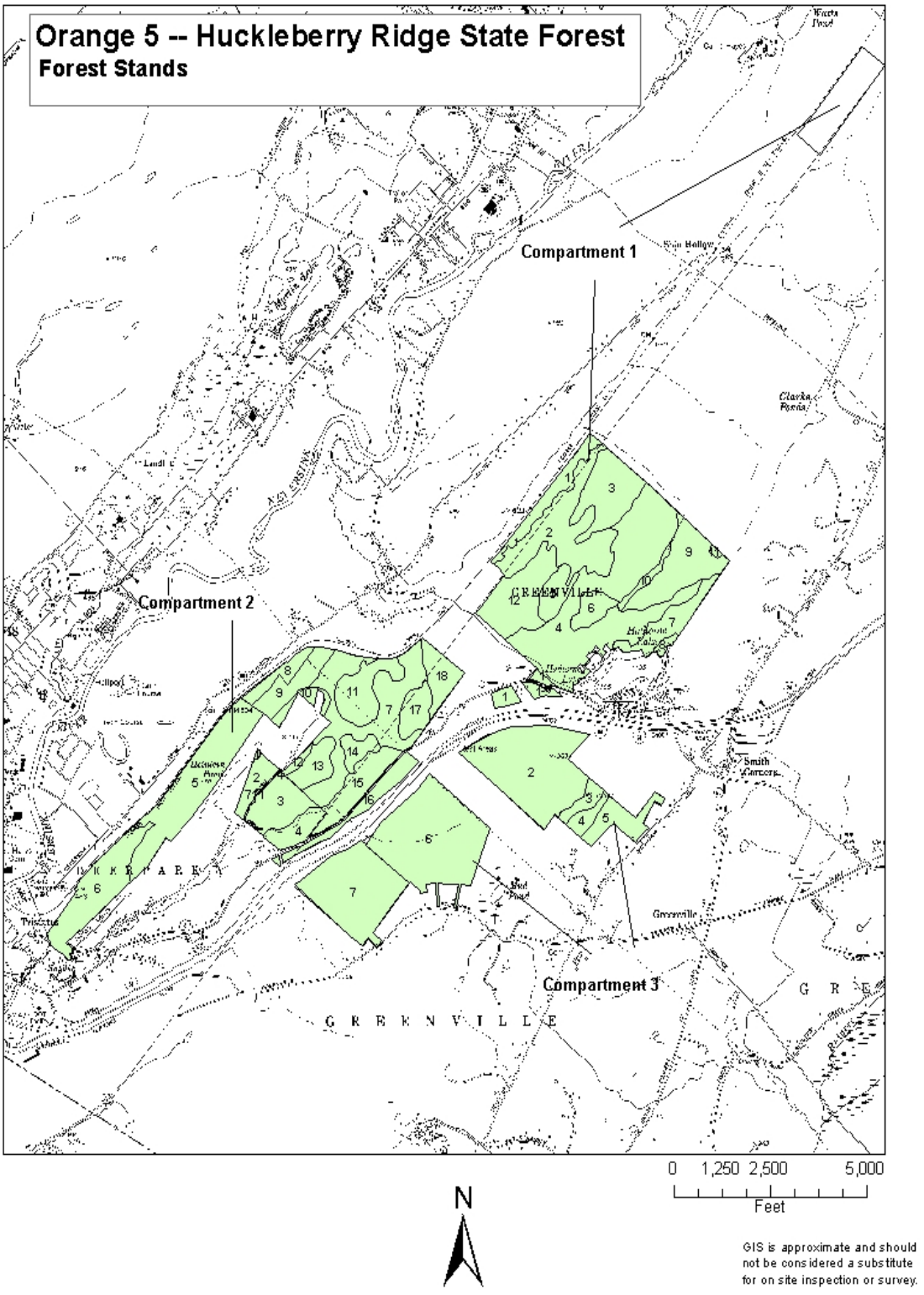


FIGURE 6. – CURRENT FOREST TYPE AND FOREST STANDS

Orange 5

Comp 1

Stand	Cover Type	Acreage	Species (1)	Species (2)	Species (3)	BA	Trees/Acre	M.S.D.	Cull %	System	Management	Year	OSI
1	19	24	HEM 40%	BB 35%	RO 9%	119	163	10.8	0	even	no treatment	x	55
2	16	81	BB 33%	CO 29%	RO 17%	97	139	10.7	0	even	no treatment	x	55
3	16	50	CO 56%	BKO 38%	BB 2%	93	145	10	0	even	no treatment	x	55
4	16	173	CO 75%	PO 12%	RO 10%	84	146	9.6	0	even	no treatment	x	55
5	16	18	CO 41%	PP 39%	PO 8%	67	141	8.8	0	even	no treatment	x	55
7	16	27	WO 27%	HM 15%	RM 13%	102	138	11	0	even	Fully-stocked and Mature, Initiate Regeneration Treatments	6-10	70
8	32	3	RM 96%	SH 4%	N/A	120	234	9.5	0	even	no treatment	x	55
9	16	54	CO 63%	PO 21%	RO 7%	66	100	10.1	0	even	no treatment	x	55
10	32	6	WA 100%	N/A	N/A	10	25	8.6	0	even	no treatment	x	55
11	99	2	N/A	N/A	N/A	2	N/A	N/A	N/A	even	no treatment	x	55
12	12	54	CO 35%	BB 33%	RO 15%	108	142	11	0	even	no treatment	x	55
Comp 2													
Stand	**Cover Type**	**Acreage**	**Species (1)**	**Species (2)**	**Species (3)**	**BA**	**Trees/Acre**	**M.S.D.**	**Cull %**	**System**	**Management**	**Year**	**OSI**
2.00		114.2	CO 40%	SO 27%	RO 19 %	94	93	8.9	18		no treatment		50
6.00		123.2	CO 46%	SO 41%	RM 4%	90	44	9.1	29		no treatment		50
1.00		13.4	CO 52%	SO 24%	RO 12%	84	120	9.4	22		no treatment		50
4.00		9.7	PP 48%	BC 13%	RM 12%	104	143	10.3	18		no treatment		50
3.00		9.6	RO 62%	WA 10%	RM 6%	133	156	11.9	13		no treatment		50
5.00		23.8				0					no treatment		
7.00	16	92.2	RM 14%	HM 13%	BB 12%	103	126	11.9	9		Fully-stocked and Mature, Initiate Regeneration Treatments		
8.00	20	13.7	HEM 32%	CO 19%	SO 24%	124	216	9.8	22		no treatment		
9.00	16	26.3	BB 16%	PO 16%	CO 15%	98	142	10.9	19				
10.00	32	8.8	BB 46%	HEM 39%	RO 4%	153	233	10.9	13				
11.00	19	35.4	WP 21%	BB 21%	HEM 15%	145	213	10.6	18				
12.00													
13.00	16	19.0	CO 36%	BB 14%	HEM 12%	103	144	10.8	11				

FIGURE 6. – CURRENT FOREST TYPE AND FOREST STANDS

14.00	11	11.9	RO 27%	HEM 24%	RM 10%	118	140	11.9	11				
15.00	16	33.1	RO 18%	BB 14%	BKO 12%	126	149	11.9	26				
16.00													
17.00	11	18.5	HEM 16%	BB 14%	YP 14%	123	171	11.3	18				
18.00	16	22.0	CO 34%	PO 24%	RO 16%	91	162	9.5	12				
Comp 3													
Stand	**Cover Type**	**Acreage**	**Species (1)**	**Species (2)**	**Species (3)**	**BA**	**Trees/Acre**	**M.S.D.**	**Cull %**	**System**	**Management**	**Year**	**OSI**
3.00		34.4	CO 30%	BKO 20%	SO 13%	123	140	11.1	18		Overstocked: Thin to B-line		70
2.00		15.3	HM 26%	CO 20%	WO 12%	126	115	13.5	20		no treatment		50
4.00		17.8	HM 23%	BB 16%	WAL 9%	110	140	10.9	16		no treatment		70
5.00		89.8	HEM 59%	CO 17%	PP 10%	132	185	9.1	26		no treatment		50
6.00		59.6	RO 27%	BKO 17%	CO 12%	103	102	12.2	26		no treatment		50

* OSI = Oak Site Index for the predominant soil present in the stand as specified by the NRCS Soils survey.

FIGURE 6. – CURRENT FOREST TYPE AND FOREST STANDS

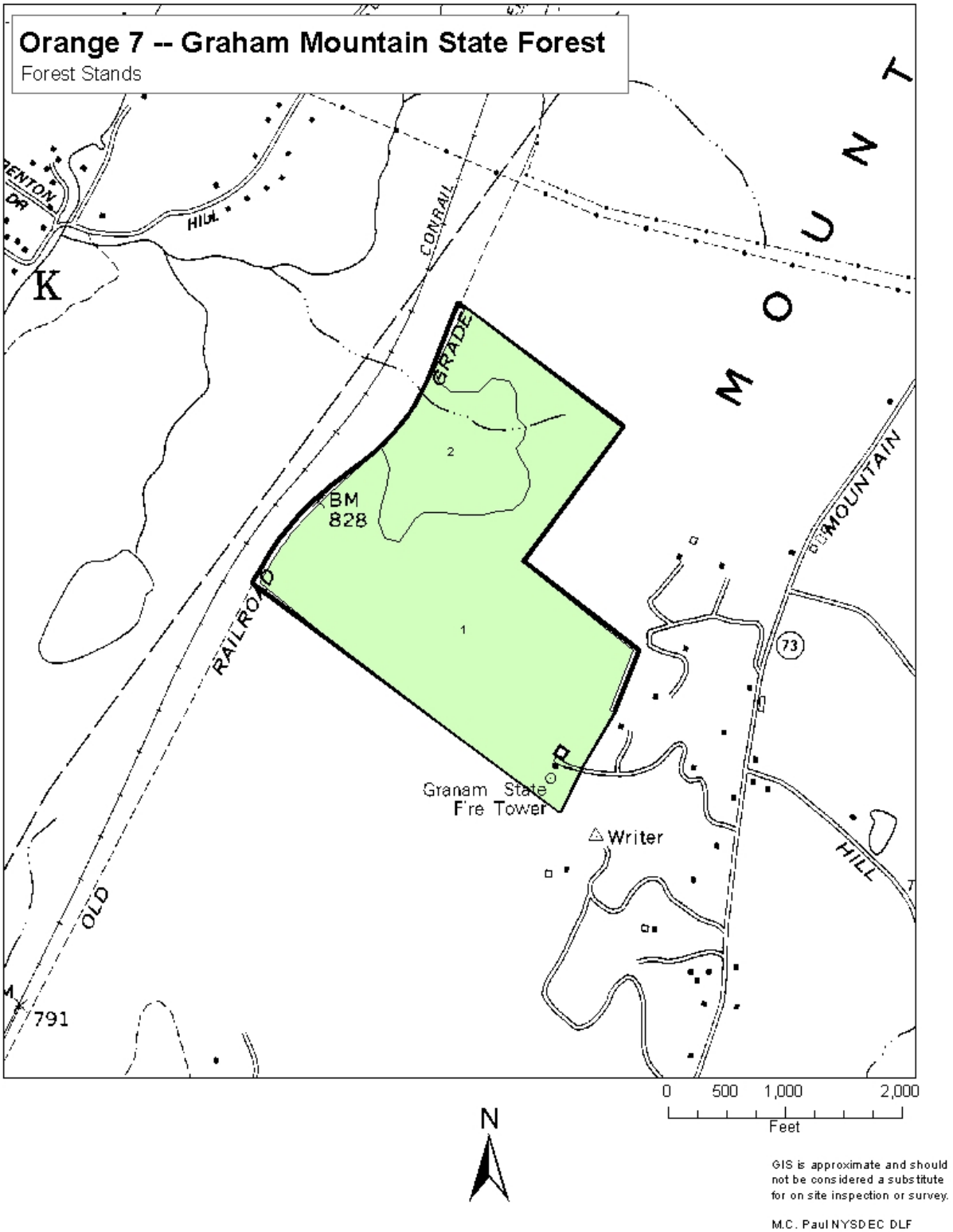


FIGURE 6. – CURRENT FOREST TYPE AND FOREST STANDS

Orange 7

Stand	Cover Type	Acreage	Species (1)	Species (2)	Species (3)	BA	Trees/Acre	M.S.D.	Cull %	System	Management	Year	OSI*
2		28.3	CO 29%	HEM 15%	BB 15%	109	161	10.2	22	Even			55
1		129.5	CO 49%	BKO 11%	SO 10%	96	164	9.3	28	Even			70

* OSI = Oak Site Index for the predominant soil present in the stand as specified by the NRCS Soils survey.

FIGURE 6. – CURRENT FOREST TYPE AND FOREST STANDS

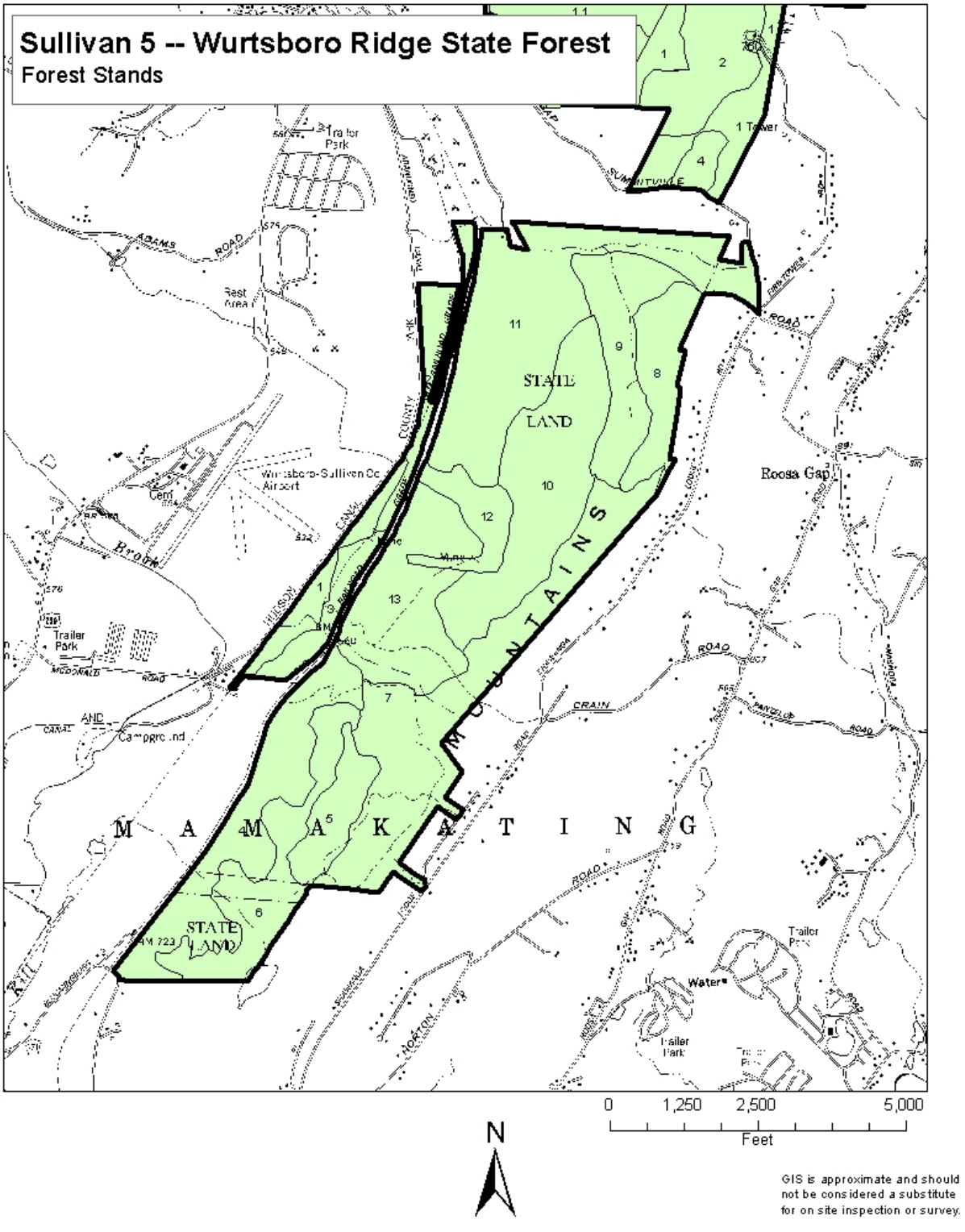


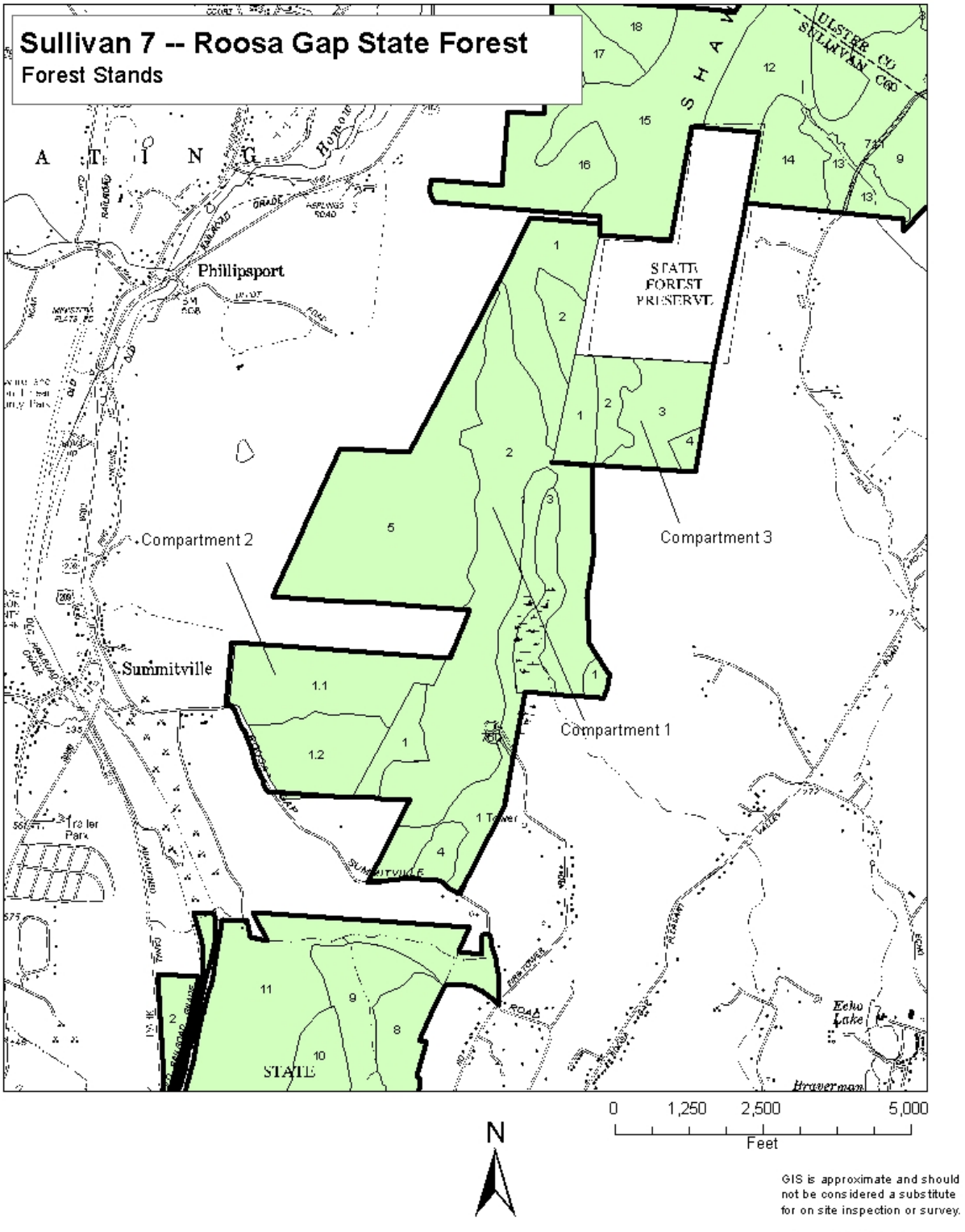
FIGURE 6. – CURRENT FOREST TYPE AND FOREST STANDS

Sullivan 5

Stand	Cover Type	Acreage	Species (1)	Species (2)	Species (3)	BA	Trees/Acre	M.S.D.	Cull %	System	Management	Year	OSI*
1	12	30	WP 51%	RM 18%	WO 5%	101	94	13.3	0	even	no treatment	x	70
2	10	29	RM 61%	YB 20%	HM 4%	119	125	13.1	0	even	no treatment	x	70
3	16	27	RO 25%	WO 17%	CO 15%	144	173	12.0	0	even	Overstocked and Mature, Initiate Regeneration Treatments	1-5	70
4	16	121	CO 34%	RO 16%	RM 10%	141	130	12.9	0	even	Overstocked and Mature, Initiate Regeneration Treatments	1-5	70
5	27	38	PP 39%	OTH 32%	CO 19%	70	118	8.6	0	even	no treatment	x	55
6	16	86	CO 62%	OTH 16%	RO 9%	114	179	9.4	0	even	no treatment	x	55
7	16	183	CO 41%	RM 17%	OTH 17%	111	163	10.0	0	even	Fully stocked, Reduce stocking level to B-line	6-10	55
8	16	53	CO 50%	PP 16%	RO 12%	79	124	9.5	0	even	no treatment	x	55
9	16	73	CO 60%	RM 15%	RO 13%	104	132	10.7	0	even	no treatment	x	55
10	16	144	CO 55%	OTH 39%	PP 2%	83	95	8.6	0	even	no treatment	x	55
11	16	208	RO 27%	CO 22%	RM 9%	135	145	12.2	0	even	Overstocked and Mature, Initiate Regeneration Treatments	1-5	70
12	12	34	WP 44%	RM 18%	CO 12%	143	148	11.4	0	even	no treatment	x	70
13	16	110	CO 36%	RO 22%	BB 17%	106	84	13.1	0	even	Fully stocked, Reduce stocking level to B-line	1-5	70

* OSI = Oak Site Index for the predominant soil present in the stand as specified by the NRCS Soils survey.

FIGURE 6. – CURRENT FOREST TYPE AND FOREST STANDS



Sullivan 7

Comp 1

Stand	Cover Type	Acreage	Species (1)	Species (2)	Species (3)	BA	Trees/Acre	M.S.D.	Cull %	System	Management	Year	OSI
1	32	165	CO 90%	WO 5%	BB 5%	63	88	10.5	0	even	no treatment	x	55
2	16	270	CO 31%	PP 29%	OTH 12%	51	75	9.2	0	even	no treatment	x	55
4	16	14	CO 45%	RM 15%	BKO 12%	113	104	12.5	0	even	Fully-stocked and Mature, Initiate Regeneration Treatments	1-5	55
5	16	199	CO 41%	RO 14%	RM 12%	108	146	10.4	0	even	no treatment	x	70

Comp 2													
Stand	Cover Type	Acreage	Species (1)	Species (2)	Species (3)	BA	Trees/Acre	M.S.D.	Cull %	System	Management	Year	OSI
1.1													70
1.2													70

* OSI = Oak Site Index for the predominant soil present in the stand as specified by the NRCS Soils survey.

FIGURE 6. – CURRENT FOREST TYPE AND FOREST STANDS

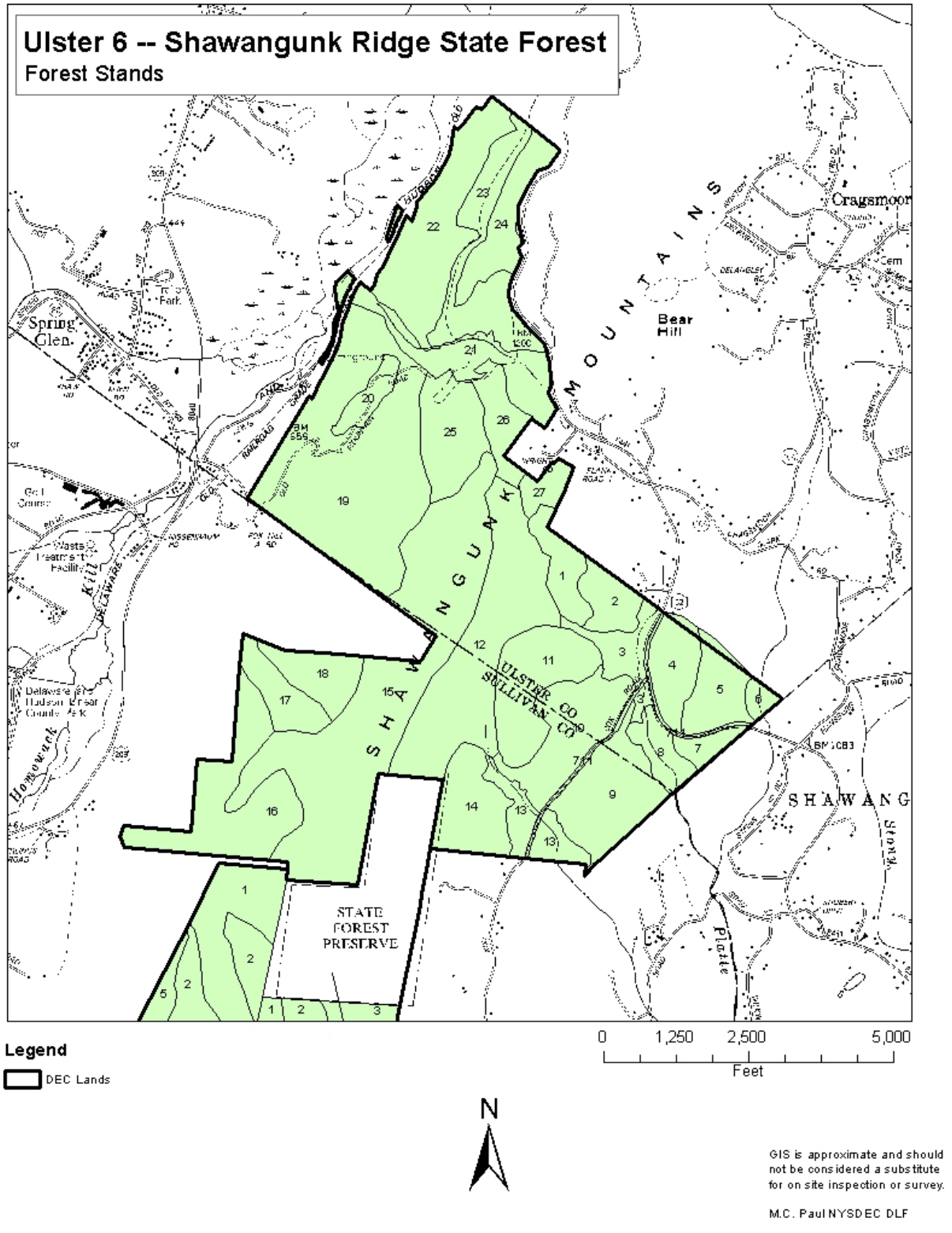


FIGURE 6. – CURRENT FOREST TYPE AND FOREST STANDS

Ulster 6

Stand	Cover Type	Acreage	Species (1)	Species (2)	Species (3)	BA	Trees/Acre	M.S.D.	Cull %	System	Management	Year	OSI*
1	16	24	RO 42%	OTH 17%	CO 12%	107	130	11	52	even	Fully-stocked and Mature; Initiate Regeneration Treatments	1-5	65
2	16	21	RO 33%	WO 16%	CO 16%	94	115	11.4	57	even	Fully-stocked and Mature; Initiate Regeneration Treatments	1-5	65
3	16	25	RM 23%	RO 22%	WO 20%	92	121	11	54	even	Fully-stocked and Mature; Initiate Regeneration Treatments	1-5	65
4	16	30	CO 43%	RO 26%	OTH 13%	111	98	12.2	53	even	Fully-stocked and Mature; Initiate Regeneration Treatments	6-10	65
5	16	31	RO 25%	RM 23%	CO 15%	103	74	13.5	67	even	Fully-stocked and Mature; Initiate Regeneration Treatments	6-10	65
6	20	6	HEM 51%	CO 18%	RO 11%	132	123	13.1	50	even	and Mature; Initiate Regeneration Treatments	6-10	65
7	32	11	BB 30%	RM 25%	CO 14%	71	74	11.8	41	even	no treatment	x	65
8	11	19	HEM 31%	CO 31%	RM 12%	108	139	11	53	even	no treatment	x	65

APPENDICES & FIGURES

FIGURE 6. – CURRENT FOREST TYPE AND FOREST STANDS

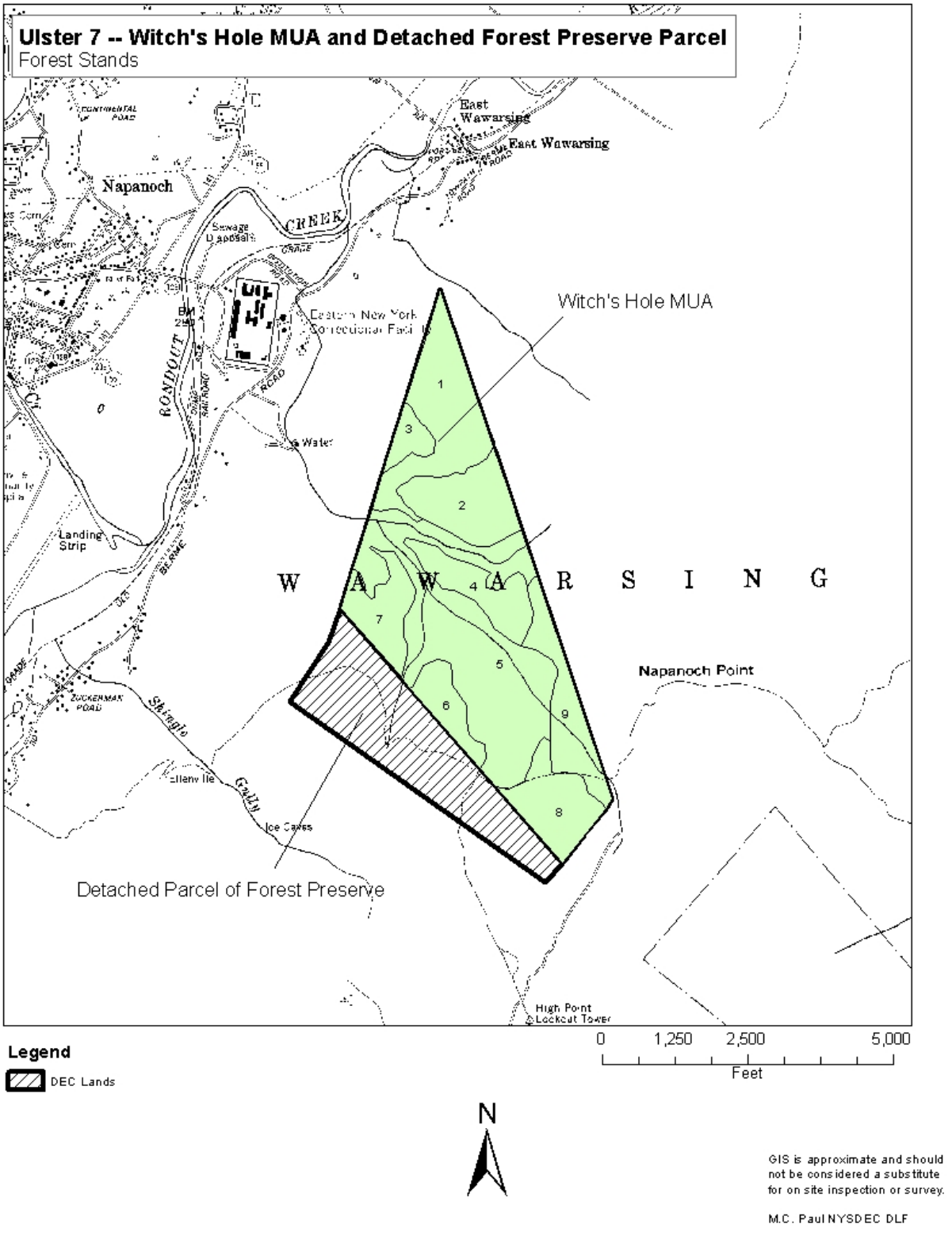
Stand	Cover Type	Acreage	Species (1)	Species (2)	Species (3)	BA	Trees/Acre	M.S.D.	Cull %	System	Management	Year	OSI*
9	16	60	WO 26%	RM 22%	OTH 12%	99	111	11.5	67	even	Fully-stocked and Mature; Initiate Regeneration Treatments	1-5	70
10	16	57	WO 26%	RM 19%	RO 15%	101	131	10.8	62	even	Fully-stocked and Mature; Initiate Regeneration Treatments	1-5	65
11	16	58	OTH 37%	CO 31%	RM 12%	103	138	10.4	57	even	Fully-stocked and Mature; Initiate Regeneration Treatments	1-5	65
12	31	122	HM 25%	RM 25%	RO 16%	73	112	9.9	31	even	no treatment	x	65
13	16	27	RM 30%	RO 14%	CO 14%	97	132	10.4	47	even	no treatment	x	70
14	16	43	RM 32%	RO 21%	BB 10%	94	94	11.7	52	even	Fully-stocked and Mature; Initiate Regeneration Treatments	1-5	70
15	16	221	SH 21%	RO 21%	CO 14%	68	89	9.1	24	even	no treatment	x	55
16	16	82	RO 32%	CO 30%	RM 10%	97	108	11.1	27	even	no treatment	x	55
17	11	26	CO 39%	RM 17%	RO 13%	99	83	12.4	28	even	no treatment	x	55
18	16	27	CO 47%	RO 18%	RM 16%	107	89	12.5	25	even	no treatment	x	55

FIGURE 6. – CURRENT FOREST TYPE AND FOREST STANDS

Stand	Cover Type	Acreage	Species (1)	Species (2)	Species (3)	BA	Trees/Acre	M.S.D.	Cull %	System	Management	Year	OSI*
19	16	198	CO 74%	RO 7%	HM 4%	75	76	9.8	16	even	no treatment	x	55
20	16	14	CO 60%	RO 31%	OTH 4%	108	167	9.3	64	even	no treatment	x	55
21	11	48	HEM 34%	BB 15%	CO 14%	143	163	11.5	32	even	no treatment	x	55
22	11	85	CO 70%	HEM 8%	RM 7%	92	110	11.3	47	even	no treatment	x	55
23	16	59	CO 51%	RM 19%	BB 10%	89	120	10	41	even	no treatment	x	55
24	16	36	CO 41%	BB 17%	RM 14%	82	97	10.9	31	even	no treatment	x	55
25	16	46	CO 61%	RO 13%	RM 12%	81	63	12.3	23	even	no treatment	x	55
26	16	24	RO 31%	CO 25%	RM 19%	97	116	11	33	even	no treatment	x	55
27	16	12	RO 51%	RM 16%	CO 13%	108	157	10.2	44	even	no treatment	x	70

* OSI = Oak Site Index for the predominant soil present in the stand as specified by the NRCS Soils survey.

FIGURE 6. – CURRENT FOREST TYPE AND FOREST STANDS



Ulster 7

Stand	Cover Type	Acreage	Species (1)	Species (2)	Species (3)	BA	Trees/Acre	M.S.D.	Cull %	System	Management	Year	OSI*
1	16	69	CO 57%	RM 14%	RO 13%	119	153	11.2	0	even	no treatment	x	55
2	16	46	CO 81%	RO 6%	RM 5%	96	164	9.4	17	even	no treatment	x	55
3	30	12	CO 41%	PP14%	RM 14%	115	184	9.6	0	even	no treatment	x	55
4	16	33	CO 46%	RM 16%	RO 15%	115	136	11.5	25	even	no treatment	x	55
5	97	159	N/A	N/A	N/A	0	0	0	0		no treatment	x	55
6	32	21	HM 29%	WA 15%	YB 13%	164	230	10.8	0	even	no treatment	x	55
7	32	32	CO 30%	RM 23%	RO 9%	109	120	11.1	0	even	no treatment	x	55
8	11	39	PP 33%	RM 25%	HEM 18%	99	119	9.3	22	even	no treatment	x	65
9	11	41	CO 32%	HEM 25%	RM 20%	153	236	10.1	0	even	no treatment	x	55

* OSI = Oak Site Index for the predominant soil present in the stand as specified by the NRCS Soils survey.

FIGURE 7 – WURTSBORO LEAD MINE

New York State Department of Environmental Conservation
Division of Lands and Forests
Division of Environmental Remediation

in consultation with
New York State Department of Health

FACT SHEET

WURTSBORO RIDGE STATE FOREST
HISTORIC LEAD MINE
DEC SITE # 353013
NOVEMBER 2012

It is the policy of the New York State Department of Environmental Conservation (DEC) to manage state lands for multiple uses to serve the People of New York State. A Unit Management Plan (UMP) is the first step in carrying out that policy. In the course of developing the UMP for the Wurtsboro Ridge State Forest in the Town of Mamakating, Sullivan County, the New York State Department of Environmental Conservation (DEC) learned of the presence of contamination associated with an historic lead mine on the property (see Figure 1 - Site Location Map).

Major mining began in the 1830s and continued until approximately 1920, though small-scale extraction of lead reportedly occurred much earlier (1600s). As a result of these historic mining operations, four distinct surface deposits of mine tailings remain on the property. Three of these are located near the top of the ridge and the fourth is located at the base of the ridge along the Delaware and Hudson (D&H) Canal, where a county-owned linear park runs along the former towpath. Together these piles comprise approximately 2 acres (see Figure 2). In addition, soil particles have eroded from the lower tailings pile and have accumulated as a sediment deposit (i.e., sand bar) in the D&H Canal (see Figure 2).

Due to the presence of these tailings piles, DEC conducted a potential contaminated site investigation of the historic mine areas in association with development of the property's UMP. Limited sampling data obtained to date indicate that lead levels in the tailings piles, surface water in the vicinity of the tailings piles, and the sediment deposit in the D&H Canal near the lower tailings pile, are contaminated with elevated levels of lead. These findings indicate that precautions must be taken to prevent public contact with this contamination until a detailed site investigation and subsequent remediation can be performed. These precautions include the following:

- In accordance with Environmental Conservation Law (ECL), Section 03-0301, DEC will prohibit public use of the areas affected by historic mining operations that include exposed mine tailings and surface waters emanating from the mine shafts by establishing Restricted Areas and posting signage at the locations shown on maps of the area (see Figure 2 for Restricted Areas).
- DEC, in conjunction with the NYS Department of Health (DOH), is informing the public, including user groups of the State Forest and other stakeholders, of the presence of the Restricted Areas and health precautions that should be taken when using the unrestricted portions of the property.
- No one should enter the posted Restricted Areas, including children and pets.
- Users of the unrestricted portions of the property should not drink, and not filter and drink any surface water they encounter in the vicinity of the mined areas.
- Users of the unrestricted portions of the property should make sure to wash their hands and the hands of children thoroughly with uncontaminated water before eating, drinking or smoking during or after a visit to this property. In addition, shoes/boots and pets should be thoroughly cleaned prior to bringing them indoors.
- DEC has advised Sullivan County of the need for restricting public access to a small affected area in and adjacent to the D&H Canal, along the D&H Canal Linear Park (see Figure 2) and will work with the County to post similar warning signs as noted above.

CONSUMPTION ADVICE FOR DEER AND OTHER GAME

High levels of lead in the environment can accumulate in wildlife. Because of this, meat, organs and bones from deer and other game taken in the Wurtsboro Ridge State Forest area could contain elevated lead levels. Since much of lead accumulates in bones, NYSDOH recommends removing the bones from meat of deer and other game taken in the Wurtsboro Ridge State Forest area before cooking. Additionally, small lead fragments can be present in game harvested with lead bullets or shot. Some bullets shatter into small pieces that can be too small to detect by sight, feel, or when chewing. Remove all identifiable bullets, slugs, shot, lead fragments and affected meat (including feathers, fur, debris, etc.) from game when preparing it. You may also want to consider using non-lead alternatives to hunt game.

Reducing exposure to lead is important because lead can cause health problems when it builds up in the body, especially for babies and young children. Lead poisoning can slow a child's physical growth and mental development, as well as cause other effects on the nervous system and other organs. Proper preparation methods, good sanitary practices and using non-lead alternatives can all help to reduce exposure to lead from game.

More Information Concerning Lead Exposure From Fish and Game

- For more information on lead in shot and bullets and best practices when handling or processing animals visit the NYSDOH website at http://www.health.ny.gov/environmental/outdoors/fish/health_advisories/advice_on_eating_game.htm
- Also, for general information on eating fish caught in the waters of New York State please visit the NYSDOH website at: http://www.health.ny.gov/environmental/outdoors/fish/health_advisories/
- For questions about potential health effects and how to reduce your lead exposures, call NYSDOH at 518-402-7800 (toll free at 1-800-458-1158); or email NYSDOH at BTSA@health.state.ny.us.

NEXT STEPS:

DEC will conduct further investigations to determine the extent of contamination for all areas. Test results will be used to formulate a remediation plan. Once the Proposed Remedial Action Plan (PRAP) is developed for the site, it will be presented to the public by the Division of Environmental Remediation. The investigation is planned to begin in 2013, contingent upon the availability of funds. Existing access roads will need to be improved and possibly new portions constructed, to facilitate access to perform the investigation and subsequent remediation work.

The draft UMP is expected to be publically available in 2013. The UMP will be presented, and public comment accepted, at a future public meeting conducted by the Division of Lands and Forests.

FOR MORE INFORMATION CONCERNING THE PROJECT

Project documents are available at the following location(s) to help the public stay informed.

Mamakating Library
Director: Greg Wirszyla
156-158 Sullivan Street
Wurtsboro, NY
Phone: (845) 888-8004
http://mamakatinglibrary.org

NYSDEC Region 3 Office
21 South Putt Corners Road
New Paltz, NY 12561
Phone: (845) 256-3154
(Please call for an appointment)

FIGURE 7 – WURTSBORO LEAD MINE

CONTACTS
Site-related questions should be directed as follows:

Site Investigation Questions	Site-Related Health Questions	State Forest Use Questions
Janet Brown, P.E.	Tony Perretta	Jeffrey Wiegert
NYSDEC	NYS Department of Health	NYSDEC
21 South Putt Corners Rd.	Empire State Plaza, Corning Tower	21 South Putt Corners Rd.
New Paltz, NY 12561	Room 1787	New Paltz, NY 12561
(845) 256-3826	Albany, NY 12237	(845) 256-3084
jebrown@gw.dec.state.ny.us	(518) 402-7880	jawieger@gw.dec.state.ny.us
	BEEI@health.state.ny.us	

We encourage you to share this fact sheet with neighbors and tenants, and/or post this fact sheet in a prominent area of your building for others to see.

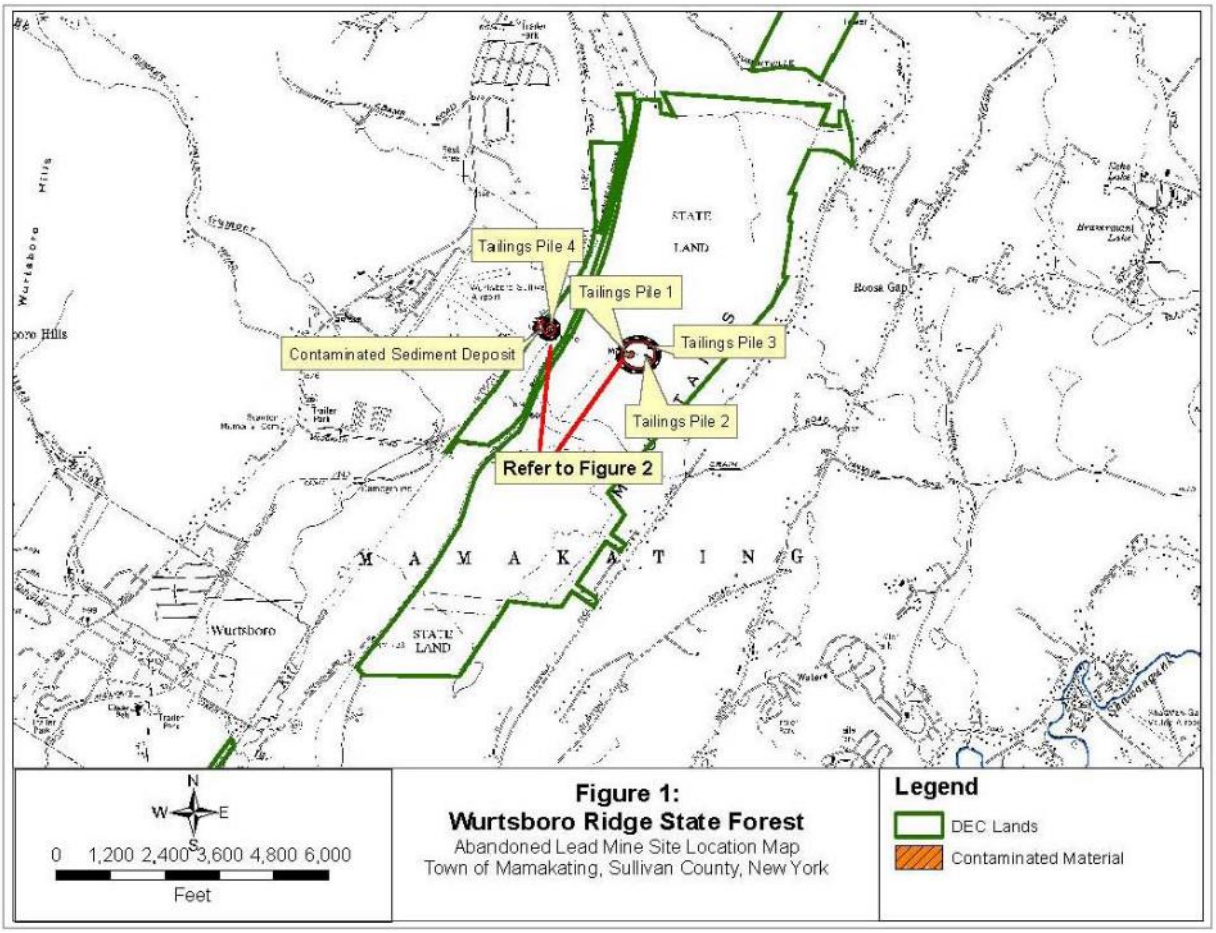


FIGURE 7 – WURTSBORO LEAD MINE

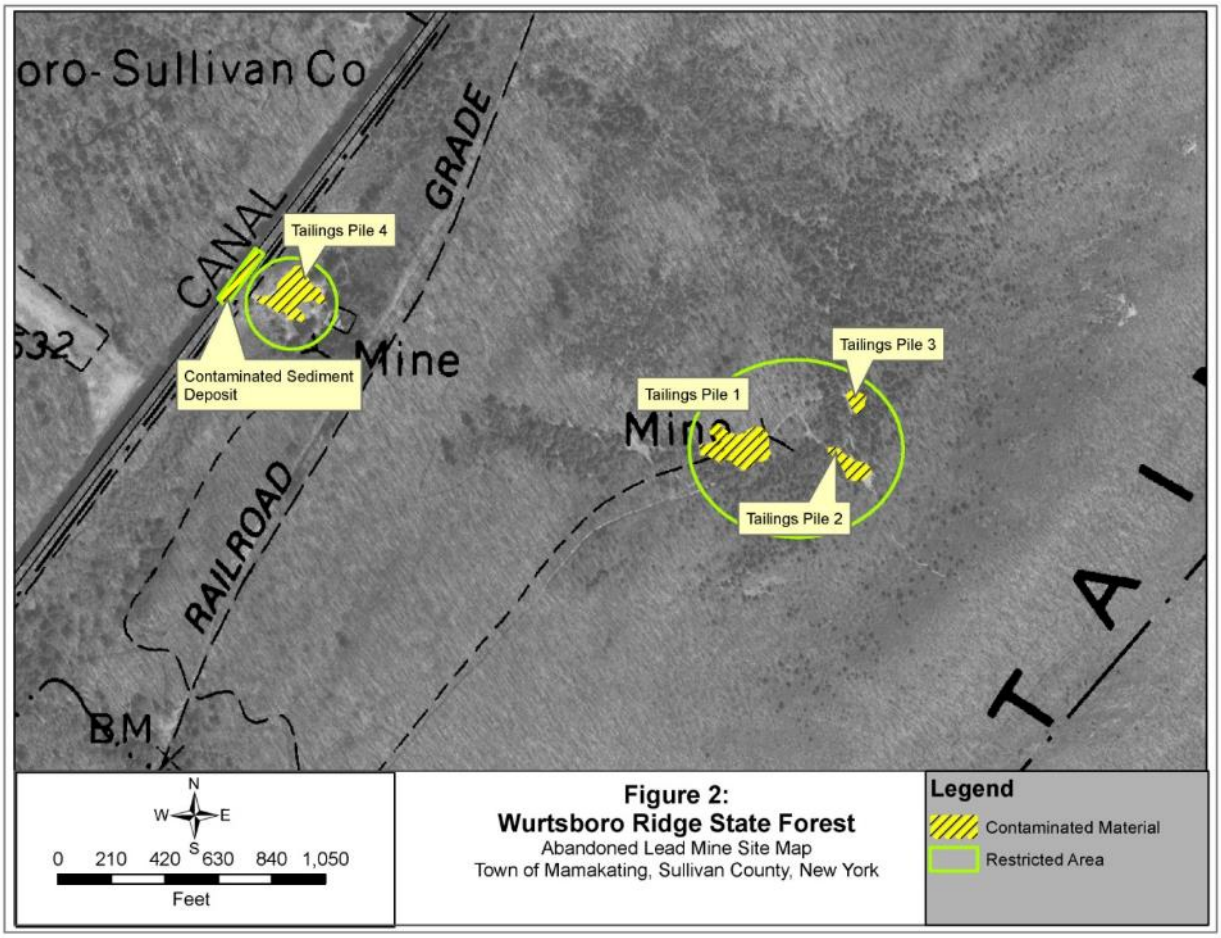


FIGURE 8 – SPECIES FOUND IN THE UNIT OR SURROUNDING AREAS

NYS Breeding Bird Atlas

Breeding Bird Atlas Blocks: 5662C, 5462D, 5461B, 5561C, 5461D, 5461C, 5560A, 5460B, 5460A, 5460C, 5360D, 5358A, 5258B, 5258D, 5258C, 5257B, 5257A

Common Name	**Scientific Name**
Acadian Flycatcher	*Empidonax virescens*
Alder Flycatcher	*Empidonax alnorum*
American Black Duck	*Anas rubripes*
American Crow	*Corvus brachyrhynchos*
American Goldfinch	*Carduelis tristis*
American Kestrel	*Falco sparverius*
American Redstart	*Setophaga ruticilla*
American Robin	*Turdus migratorius*
American Woodcock	*Scolopax minor*
Bald Eagle	*Haliaeetus leucocephalus*
Baltimore Oriole	*Icterus galbula*
Bank Swallow	*Riparia*
Barn Swallow	*Hirundo rustica*
Barred Owl	*Strix varia*
Belted Kingfisher	*Ceryle alcyon*
Black Vulture	*Coragyps atratus*
Black-and-white Warbler	*Mniotilta varia*
Black-billed Cuckoo	*Coccyzus erythropthalmus*
Blackburnian Warbler	*Dendroica fusca*

FIGURE 8 – SPECIES FOUND IN THE UNIT OR SURROUNDING AREAS

Black-capped Chickadee	*Poecile atricapillus*
Black-throated Blue Warbler	*Dendroica caerulescens*
Black-throated Green Warbler	*Dendroica virens*
Blue Jay	*Cyanocitta cristata*
Blue-gray Gnatcatcher	*Polioptila caerulea*
Blue-headed Vireo	*Vireo solitarius*
Blue-winged Warbler	*Vermivora pinus*
Bobolink	*Dolichonyx oryzivorus*
Broad-winged Hawk	*Buteo platypterus*
Brown Creeper	*Certhia americana*
Brown Thrasher	*Toxostoma rufum*
Brown-headed Cowbird	*Molothrus ater*
Canada Goose	*Branta canadensis*
Canada Warbler	*Wilsonia canadensis*
Carolina Wren	*Thryothorus ludovicianus*
Cedar Waxwing	*Bombycilla cedrorum*
Cerulean Warbler	*Dendroica cerulea*
Chestnut-sided Warbler	*Dendroica pensylvanica*
Chimney Swift	*Chaetura pelagica*
Chipping Sparrow	*Spizella passerina*
Cliff Swallow	*Petrochelidon pyrrhonota*
Common Grackle	*Quiscalus quiscula*
Common Merganser	*Mergus merganser*
Common Moorhen	*Gallinula chloropus*
Common Nighthawk	*Chordeiles minor*

FIGURE 8 – SPECIES FOUND IN THE UNIT OR SURROUNDING AREAS

Common Raven	*Corvus corax*
Common Yellowthroat	*Geothlypis trichas*
Cooper's Hawk	*Accipiter cooperii*
Dark-eyed Junco	*Junco hyemalis*
Downy Woodpecker	*Picoides pubescens*
Eastern Bluebird	*Sialia sialis*
Eastern Kingbird	*Tyrannus*
Eastern Meadowlark	*Sturnella magna*
Eastern Phoebe	*Sayornis phoebe*
Eastern Screech-Owl	*Megascops asio*
Eastern Towhee	*Pipilo erythrophthalmus*
Eastern Wood-Pewee	*Contopus virens*
European Starling	*Sturnus vulgaris*
Field Sparrow	*Spizella pusilla*
Fish Crow	*Corvus ossifragus*
Gadwall	*Anas strepera*
Golden-winged Warbler	*Vermivora chrysoptera*
Grasshopper Sparrow	*Ammodramus savannarum*
Gray Catbird	*Dumetella carolinensis*
Great Blue Heron	*Ardea herodias*
Great Crested Flycatcher	*Myiarchus crinitus*
Great Horned Owl	*Bubo virginianus*
Green Heron	*Butorides virescens*
Hairy Woodpecker	*Picoides villosus*
Hermit Thrush	*Catharus guttatus*

FIGURE 8 – SPECIES FOUND IN THE UNIT OR SURROUNDING AREAS

Hooded Merganser	*Lophodytes cucullatus*
House Finch	*Carpodacus mexicanus*
House Sparrow	*Passer domesticus*
House Wren	*Troglodytes aedon*
Indigo Bunting	*Passerina cyanea*
Killdeer	*Charadrius vociferus*
Least Flycatcher	*Empidonax minimus*
Louisiana Waterthrush	*Seiurus motacilla*
Magnolia Warbler	*Dendroica magnolia*
Mallard	*Anas platyrhynchos*
Mallard x Am. Black Duck Hybrid	*Anas platyrhynchos x A. rubripes*
Marsh Wren	*Cistothorus palustris*
Monk Parakeet	*Myiopsitta monachus*
Mourning Dove	*Zenaida macroura*
Mute Swan	*Cygnus olor*
Nashville Warbler	*Vermivora ruficapilla*
Northern Cardinal	*Cardinalis*
Northern Goshawk	*Accipiter gentilis*
Northern Mockingbird	*Mimus polyglottos*
Northern Parula	*Parula americana*
Northern Waterthrush	*Seiurus noveboracensis*
Olive-sided Flycatcher	*Contopus cooperi*
Orchard Oriole	*Icterus spurius*
Osprey	*Pandion haliaetus*
Ovenbird	*Seiurus aurocapillus*

FIGURE 8 – SPECIES FOUND IN THE UNIT OR SURROUNDING AREAS

Peregrine Falcon	*Falco peregrinus*
Pileated Woodpecker	*Dryocopus pileatus*
Pine Warbler	*Dendroica pinus*
Prairie Warbler	*Dendroica discolor*
Purple Finch	*Carpodacus purpureus*
Red-bellied Woodpecker	*Melanerpes carolinus*
Red-breasted Nuthatch	*Sitta canadensis*
Red-eyed Vireo	*Vireo olivaceus*
Red-shouldered Hawk	*Buteo lineatus*
Red-tailed Hawk	*Buteo jamaicensis*
Red-winged Blackbird	*Agelaius phoeniceus*
Ring-necked Pheasant	*Phasianus colchicus*
Rock Dove	*Columba livia*
Rose-breasted Grosbeak	*Pheucticus ludovicianus*
Ruby-throated Hummingbird	*Archilochus colubris*
Ruffed Grouse	*Bonasa umbellus*
Savannah Sparrow	*Passerculus sandwichensis*
Scarlet Tanager	*Piranga olivacea*
Sharp-shinned Hawk	*Accipiter striatus*
Song Sparrow	*Melospiza melodia*
Sora	*Porzana carolina*
Spotted Sandpiper	*Actitis macularia*
Swamp Sparrow	*Melospiza georgiana*
Tree Swallow	*Tachycineta bicolor*
Tufted Titmouse	*Baeolophus bicolor*

FIGURE 8 – SPECIES FOUND IN THE UNIT OR SURROUNDING AREAS

Turkey Vulture	*Cathartes aura*
Upland Sandpiper	*Bartramia longicauda*
Veery	*Catharus fuscescens*
Virginia Rail	*Rallus limicola*
Warbling Vireo	*Vireo gilvus*
Whip-poor-will	*Caprimulgus vociferus*
White-breasted Nuthatch	*Sitta carolinensis*
White-eyed Vireo	*Vireo griseus*
Wild Turkey	*Meleagris gallopavo*
Willow Flycatcher	*Empidonax traillii*
Winter Wren	*Troglodytes*
Wood Duck	*Aix sponsa*
Wood Thrush	*Hylocichla mustelina*
Worm-eating Warbler	*Helmitheros vermivorus*
Yellow Warbler	*Dendroica petechia*
Yellow-bellied Flycatcher	*Empidonax flaviventris*
Yellow-bellied Sapsucker	*Sphyrapicus varius*
Yellow-billed Cuckoo	*Coccyzus americanus*
Yellow-breasted Chat	*Icteria virens*
Yellow-rumped Warbler	*Dendroica coronata*
Yellow-throated Vireo	*Vireo flavifrons*

FIGURE 8 – SPECIES FOUND IN THE UNIT OR SURROUNDING AREAS

Herp Atlas

Herp Atlas Blocks (USGS Quad Names): ELLENVILLE, GARDINER, NAPANOCH, OTISVILLE, PORT JERVIS NORTH, PORT JERVIS SOUTH (NJ), UNIONVILLE, WURTSBORO

Common Name	**Science Name**
Allegheny Dusky Salamander	*Desmognathus ochrophaeus*
American Toad	*Bufo americanus*
Blue-spotted Salamander	*Ambystoma laterale*
Bog Turtle	*Glyptemys muhlenbergii*
Brown Snake	*Storeria dekayi*
Bullfrog	*Rana catesbeiana*
Common Garter Snake	*Thamnophis sirtalis*
Common Musk Turtle	*Sternotherus odoratus*
Common Snapping Turtle	*Chelydra serpentina*
Northern Copperhead	*Agkistrodon contortrix*
Dusky Salamander	*Desmognathus spp.*
Eastern Box Turtle	*Terrapene carolina*
Eastern Hognose Snake	*Heterodon platirhinos*
Five-lined Skink	*Eumeces fasciatus*
Fowler's Toad	*Bufo fowleri*
Gray Treefrog	*Hyla versicolor*
Green Frog	*Rana clamitans*
Jefferson Salamander	*Ambystoma jeffersonianum*
Jefferson Salamander complex	*Ambystoma jeffersonianum x laterale*
Longtail Salamander	*Eurycea longicauda*
Marbled Salamander	*Ambystoma opacum*

FIGURE 8 – SPECIES FOUND IN THE UNIT OR SURROUNDING AREAS

Milk Snake	*Lampropeltis triangulum*
Northern Dusky Salamander	*Desmognathus fuscus*
Northern Leopard Frog	*Rana pipiens*
Northern Redback Salamander	*Plethodon cinereus*
Northern Slimy Salamander	*Plethodon glutinosus*
Northern Two-lined Salamander	*Eurycea bislineata*
Northern Water Snake	*Nerodia sipedon*
Painted Turtle	*Chrysemys picta*
Pickerel Frog	*Rana palustris*
Black Racer	*Coluber constrictor*
Black Rat Snake	*Elaphe obsoleta*
Northern Red Salamander	*Pseudotriton ruber*
Redbelly Snake	*Storeria occiptomaculata*
Red-spotted Newt	*Notophthalmus viridescens*
Eastern Ribbon Snake	*Thamnophis sauritus*
Ringneck Snake	*Diadophis punctatus*
Slider Turtle	*Trachemys scripta*
Smooth Green Snake	*Opheodrys vernalis*
Spotted Salamander	*Ambystoma maculatum*
Spotted Turtle	*Clemmys guttata*
Spring Peeper	*Pseudacris crucifer*
Spring Salamander	*Gyrinophilus porphyriticus*
Timber Rattlesnake	*Crotalus horridus*
Wood Frog	*Rana sylvatica*
Wood Turtle	*Glyptemys insculpta*

FIGURE 9 – AT RISK SPECIES

At-Risk Species*				
Species Name	**NYNHP Rank**	**Habitat**	**Record Source**	**NYS Status**
Confirmed or Predicted within the Unit				
Timber Rattlesnake	S3	Rocky, hardwood forests	Herp Atlas	Threatened, SGCN
Peregrine Falcon	S3B, SZN	Cliffs	BBA	Threatened, SGCN
Marbled Salamander	S3	Seasonal wetlands	Herp Atlas	Endangered, SGCN
Jefferson Salamander	S3	Seasonal wetlands	Herp Atlas	Special Concern, SGCN
Blue-spotted Salamander	S3	Seasonal wetlands	Herp Atlas	Special Concern, SGCN
Longtail Salamander	S2S3	Small streams, springs, and seepages	Herp Atlas	Special Concern, SGCN
Wood Turtle	S3	Small streams, springs, and seepages	Herp Atlas	Special Concern, SGCN
Eastern Box Turtle	S3	Deciduous woodlands	Herp Atlas	Special Concern, SGCN
Sharp-shinned Hawk	S4	Interior woodlands	BBA	Special Concern, SGCN
Cooper's Hawk	S4	Interior woodlands	BBA	Special Concern, SGCN
Northern Goshawk	S4B, S3N	Interior coniferous or mixed woodlands	BBA	Special Concern, SGCN

Red-shouldered Hawk	S4B, SZN	Interior woodlands	BBA	Special Concern, SGCN
Common Nighthawk	S4	Woodlands, farmlands, suburban areas	BBA	Special Concern, SGCN
Whip-poor-will	S4	Coniferous and mixed woodlands	BBA	Special Concern, SGCN
Golden-winged Warbler	S4	Shrublands, utility rights-of-way	BBA	Special Concern, SGCN
Yellow-breasted Chat	NR	Shrublands	BBA	Special Concern, SGCN
Small-footed Bat	S2	Woodlands	NYS CWCS	Special Concern, SGCN
American Woodcock	S5	Shrublands, early successional habitats	BBA	SGCN, Game Species
Black-throated Blue Warbler	NR	Deciduous woodland understory	BBA	SGCN
Blue-winged Warbler	S5	Shrublands	BBA	SGCN
Brown Thrasher	NR	Shrublands	BBA	SGCN
Canada Warbler	S5	Dense woodland understory	BBA	SGCN
Louisiana Waterthrush	NR	Woodland mountain streams	BBA	SGCN
Prairie Warbler	NR	Shrublands	BBA	SGCN
Ruffed Grouse	NR	Early successional habitats	BBA	SGCN, Game Species
Scarlet Tanager	NR	Deciduous woodlands	BBA	SGCN
Willow Flycatcher	S5	Wet shrublands	BBA	SGCN
Wood Thrush	S5	Woodlands	BBA	SGCN
Worm-eating Warbler	S4	Woodland understory	BBA	SGCN
Black Rat Snake	NR	Shrublands, woodland openings	Herp Atlas	SGCN

FIGURE 9 – AT RISK SPECIES

Common Five-lined Skink	NR	Rocky Woodlands	Herp Atlas	SGCN
Eastern Hognose Snake	S3S4	Sandy woodlands (often near water)	Herp Atlas	Special Concern, SGCN
Eastern Ribbon Snake	S5	Aquatic woodland edges	Herp Atlas	SGCN
Northern Copperhead	NR	Rocky woodlands	Herp Atlas	SGCN
Northern Black Racer	NR	Shrublands, woodland openings	Herp Atlas	SGCN
Common Musk Turtle	NR	Permanent wetlands	Herp Atlas	SGCN
Smooth Green Snake	NR	Woodland openings	Herp Atlas	SGCN
Common Snapping Turtle	NR	Permanent wetlands	Herp Atlas	SGCN
Fowler's Toad	NR	Sandy woodlands (often near water)	Herp Atlas	SGCN
Northern Red Salamander	NR	Small streams, springs, and seepages	Herp Atlas	SGCN
Eastern Red Bat	S5B, SZN	Woodlands	NYS CWCS	SGCN
Hoary Bat	S4B, SZN	Woodlands	NYS CWCS	SGCN
Indiana Bat	S1	Riparian woodlands	NYS CWCS	Endangered, SGCN
Silver-haired Bat	S4B, SZN	Woodlands	NYS CWCS	SGCN
Black-billed Cuckoo	NR	Woodlands	NYS CWCS	SGCN
Mountain Spleenwort	S2S3	Woodlands	NYNHP	Threatened
Wood Reedgrass	S1	Woodlands	NYNHP	Endangered
Blue Wild Rye	S1	Woodlands	NYNHP	Unprotected
Confirmed or Predicted in the Landscape and May Be Affected by State Forest Management				
River Otter	NR	Streams, rivers, wetlands	NYS CWCS	SGCN, Furbearer
American Eel	S5	Unobstructed river systems	NYS CWCS	SGCN
American Shad	S4	Unobstructed river systems	NYS CWCS	SGCN

FIGURE 9 – AT RISK SPECIES

Ironcolor Shiner	S1	Bashakill wetland	NYS CWCS	Special Concern, SGCN
Comely Shiner	NR	Medium and large streams	NYS CWCS	SGCN

*Defined as NYNHP rank S1, S2, S2-3, G1, G2 or G2-3 OR identified as an SGCN

* S1 - typically 5 or fewer occurrences

S2 - typically 6-20 occurrences

S3 - typically 21 - 100 occurrences

S4 - apparently secure in NYS

S5 - demonstrably secure in NYS

SA - accidental species

SH - historically known from NYS, but not seen in the past 15 years

SX - apparently extirpated from NYS

SR - reported to occur in NYS, but no specific locations documented

SU - species unrankable due to uncertainty about number of occurrences

SZ - species occurs in NYS, but generally not in specific locations

S? - species not evaluated yet

NR - not rated yet Modifiers - (B) signifies that the species breeds instate, (N) signifies it does not breed instate

FIGURE 9 – AT RISK SPECIES

Key to Codes

BBA - Breeding Bird Atlas

(PRED) - Predicted Species

(CONF) - Confirmed Species

Status

E - Endangered Species (New York)

T - Threatened Species (New York)

PSC - Protected, Special Concern Species (New York)

SGCN - Species of Greatest Conservation Need

FIGURE 10 – GAMES SPECIES HARVEST DATA

License Year (Oct. 1 – Sept. 30)	Sullivan County	Orange County	Ulster County
2002-03	6,923	13,247	8,322
2003-04	6,882	13,060	7,678
2004-05	6,469	13,493	7,907
2005-06	6,060	13,039	7,687
2006-07	6,227	13,075	8,028
2007-08	6,195	13,056	7,706
2008-09	6,073	12,490	8,003
2009-10*	4,623	10,073	6,189
2010-11	4,359	10,026	6,113
2011-12	4,119	9,688	5,802

*Year of license fee increase; lifetime sportsmen license sales in 2009-10 are as follows: Sullivan County – 1,042, Orange County – 1,700, Ulster County – 1,258

Game Species Harvest Levels

Please see below for harvest levels of deer, turkey and bear. Harvest data was compiled from the town within which the Unit is located.

	3J		3M	
Year	Antlered (harvest/sq mi)	Total (harvest/sq mi)	Antlered (harvest/sq mi)	Total (harvest/sq mi)
2002	3.6	7.2	4.1	10.2
2003	3.7	7.0	3.9	9.8
2004	3.0	7.2	3.3	9.3

FIGURE 10 – GAMES SPECIES HARVEST DATA

2005	1.8	4.1	3.4	7.7
2006	2.0	4.7	3.8	7.8
2007	1.9	4.9	3.7	8.7
2008	1.9	4.7	4.1	9.6
2009	2.2	5.1	4.3	11.9
2010	2.2	4.5	4.3	11.7
2011	3.0	5.6	4.7	11.3

Deer Harvest by Town within which the Unit is located.

			Calculated Deer Harvest				
		Orange		Sullivan		Ulster	
	Deerpark	Greenville	Mount Hope	Mamakating	Gardiner	Shawangunk	Wawarsing
2003	631	520	244	700	310	524	657
2004	473	380	321	465	305	464	693
2005	297	344	231	401	196	358	364
2006	373	320	212	386	186	368	352
2007	310	390	207	456	223	334	467
2008	363	408	227	436	244	347	394
2009	301	442	262	446	222	470	478
2010	277	431	273	464	222	459	359
2011	291	382	290	495	244	461	494

Bear Harvest in Orange, Sullivan, and Ulster Counties, 2002-2011

Year	Orange	Sullivan	Ulster
2002	42	87	89
2003	62	134	102
2004	30	97	49
2005	56	133	111
2006	51	115	87
2007	55	116	134
2008	70	98	148
2009	71	106	128
2010	72	92	72
2011	98	133	130

			Reported Bear (Town)				
		Orange		Sullivan		Ulster	
YEAR	Deerpark	Greenville	Mount Hope	Mamakating	Gardiner	Shawangunk	Wawarsing
2003	15	8	0	9	0	2	16
2004	10	3	0	7	0	0	6
2005	15	5	4	11	0	2	14
2006	12	4	1	9	0	2	10
2007	14	7	5	15	3	3	15
2008	9	5	1	7	1	0	9
2009	13	2	3	11	0	2	20
2010	18	4	2	7	1	1	10
2011	19	7	1	7	1	4	7
2012	19	9	4	13	0	4	16

FIGURE 10 – GAMES SPECIES HARVEST DATA

Turkey Harvest in Orange, Sullivan, and Ulster Counties, 2002-2011

	Orange		Sullivan		Ulster	
Year	Spring	Fall	Spring	Fall	Spring	Fall
2002	962	530	656	761	734	460
2003	967	393	708	290	830	287
2004	731	503	475	228	509	258
2005	694	462	444	225	582	238
2006	709	362	465	287	566	179
2007	744	471	826	285	697	194
2008	686	325	559	313	595	291
2009	831	464	534	313	665	210
2010	664	184	461	135	588	122
2011	442	264	362	174	427	207

			Reported Spring Turkey				
		Orange		Sullivan		Ulster	
	Deerpark	Greenville	Mount Hope	Mamakating	Gardiner	Shawangunk	Wawarsing
2003	8	6	3	13	11	14	21
2004	6	9	4	19	5	4	13
2005	10	6	6	7	4	12	9
2006	6	10	6	8	8	18	13
2007	5	2	1	10	10	13	15
2008	11	12	11	17	11	8	16
2009	11	7	11	14	6	18	15
2010	10	12	3	13	11	21	22
2011	10	4	6	9	2	19	21
2012	8	8	3	9	14	12	25

			Reported Fall Turkey				
		Orange		Sullivan		Ulster	
	Deerpark	Greenville	Mount Hope	Mamakating	Gardiner	Shawangunk	Wawarsing
2003	0	3	1	7	0	1	3
2004	3	4	0	8	3	3	8
2005	8	10	2	1	3	6	5
2006	3	7	2	4	7	7	4
2007	7	3	2	3	3	9	4
2008	4	8	3	7	2	7	3
2009	7	3	4	2	3	6	0
2010	1	2	3	3	3	8	9
2011	3	0	1	4	3	7	3
2012	2	0	2	2	2	0	7

FIGURE 11 – EXCEPTIONS AND DEEDED RESTRICTIONS

FIGURE 11 – EXCEPTIONS AND DEEDED RESTRICTIONS

Exceptions and Deeded Restrictions			
Facility Name	**RA #**	**Description** E.g., deeded ROW, easement, access lane, water rights, cemetery, etc.	**Proposal ID (Surveyor's Reference)**
Huckleberry Ridge State Forest	Or. 5	Subject to a right of ingress and egress conveyed to Marcel Witschard (Liber 3087, cp. 114) from the end of Raymond Drive, as it now exists, to the northeasterly bounds of lands conveyed to Marcel Witschard per Liber 2576, cp. 262, (ROW is an extension of Raymond Drive)	Orange 30.02
Huckleberry Ridge State Forest	Or. 5	Excepting premises lying within the bed of Ash Street and George Street which has not been surveyed or conveyed to the Town of Greenville for public highway purposes.	Orange 30.02
Huckleberry Ridge State Forest	Or. 5	Together with a Right of Way as described in Liber 85, cp. 379. (assumed to be old Lime Kiln Road)	Orange 37
Huckleberry Ridge State Forest	Or. 5	Together with a right to use, as means of ingress & egress to the Neversink River, MaryAnn Avenue and MaryAnn Avenue Extension being rights of way owned by the first part (Mary A.S. Crane) or by the public which lead to easterly bounds of the Neversink River, said right of ingress and egress to be used in common with the grantor (Mary A.S. Crane), her heirs and assigns, said Right of Way being same as Liber 2054, cp. 140.	Orange 32
Huckleberry Ridge State Forest	Or. 5	Subject to a Right of Way reserved to John R. Manning, his heirs & assigns per Liber 2056, cp. 665 (ROW described in L. 12688, cp. 225)	Orange 32
Huckleberry Ridge State Forest	Or. 5	Subject to a 100' wide Right of Way granted to Rockland Light and Power Company per Liber 1122 of Deeds at page 287	Orange 33/39
Huckleberry Ridge State Forest	Or. 5	Subject to a Permanent Easement for Drainage acquired by The People of the State of New York per Appropriation Map 12R-1 Parcel 31 and 32	Orange 33/39

FIGURE 11 – EXCEPTIONS AND DEEDED RESTRICTIONS

Huckleberry Ridge State Forest	Or. 5	Together with the benefit to the northerly half and subject to the rights of others to the southerly half of an existing gravel drive as shown on a map entitled: "Woodruff Subdivision" filed in the Orange County Clerk's Office as Map Number 6215 on April 29, 1983	Orange 33/39
Huckleberry Ridge State Forest	Or. 5	Together with the right in common with others, to use the existing Right of Way over the former Lime Kiln Road to and from Lime Kiln Road	Orange 33/39
Graham Mountian State Forest	Or. 7	*Together with the right in common with the County of Orange to the use of a twenty foot wide easement for ingress, egress and regress over an existing roadway the centerline is described in deed (L 12517, cp. 796).*	Orange 36
Graham Mountian State Forest	Or. 7	*Together with a certain right of way "… a right of way through and over the above described premises to the remaining wood land of the party of the first part…" per Liber 198, cp. 591*	Orange 36
Gobbler's Knob State Forest	Or. 8	Excepting easement rights or land acquired by the County of Orange for Rock Slope Stabilization Project for Otisville Road as shown upon plans entitled: "Orange County Department of Public Works Plan Rock Slope Stabilization Otisville Road, County Road No. 61", last revised 10/27/1997 & on file at the Orange County Department of Public Works Offices, Work Order 1646.01, Drawing Nos. C-102 and C-103	Orange 40
Gobbler's Knob State Forest	Or. 8	Excepting the perpetual right privilege or easement to locate, construct, maintain and operate a railroad of two or more tracks by means of a tunnel or subterranean passage per Liber 478 of Deeds at page 585 recorded November 29, 1905. Proposal ID (surveyor's reference)	Orange 40
Gobbler's Knob State Forest	Or. 8	Excepting all those easement rights or land as conveyed to Erie & Jersey Railroad	Orange 40

FIGURE 11 – EXCEPTIONS AND DEEDED RESTRICTIONS

		Company per Liber 485 of Deeds at page 308 recorded August 22, 1906 Proposal ID (surveyor's reference)	
Gobbler's Knob State Forest	Or. 8	Subject to a permanent easement for highway purposes acquired by the People of the State of New York for Otisville-Westbrookville County Road No. 61, Appropriation Map No. 8 Parcel No. 8, filed on June 5, 1981(Notice of Appropriation recorded in Liber 2194, cp. 987) Proposal ID (surveyor's reference)	Orange 40
Gobbler's Knob State Forest	Or. 8	Subject to a fifteen foot wide right of way for Utility Purposes granted to Orange & Rockland Utilities, Inc. and General Telephone Company of Upstate New York, Inc. per Liber 2098 of Deeds at page 163 recorded May 3, 1978. (Along County Road No. 61) Proposal ID (surveyor's reference)	Orange 40
Wurtsboro Ridge Open Space	Sull. 5	Together with a perpetual Right of Way per Liber 302, cp. 514	E-OS Sullivan 86
Roosa Gap State Forest	Sull. 7	**Old Stage Coach Road(old town road) runs through property**	C-159 & C-324
Roosa Gap State Forest	Sull. 7	Excepting and Reserving the right of the state and other pubic to use the road to the fire tower per Liber 629, cp. 289	Sullivan 118.2
Roosa Gap State Forest	Sull. 7	Together with a Right of Way for the purposes of ingress, egress, and regress extending from Town Road 87 over an existing dirt road commonly known as Firetower Road.	Sullivan 118.2
Roosa Gap State Forest	Sull. 7	**Together with an easement for ingress, egress and regress between Cox Road and the North easterly corner of parcel per Liber 1380, cp. 105 and Liber 1474, cp. 54 Easement 1 & 2. Easement 2 (L.1474, cp. 54) no longer exists due to the merger of title with the Sullivan 127(Probber) on May 10, 2011	Sullivan 118.2
Roosa Gap State Forest	Sull. 7	Together with a Right of Way extending from Town Road 87 over lands of Colwell (L.	Sullivan 118.2

		923, cp. 212) in a northerly direction to the roadway known as Shawnee Highway per map titled: "Property of Shawnee Park Land and Development Co." filed February 5, 1924	
Roosa Gap State Forest	Sull. 7	Subject to the rights of the County to the Firetower and the Firetower Road for use as a communications tower(Implemented by a TRP as of current)	Sullivan 118.3
Roosa Gap State Forest	Sull. 7	**Together with the right to use the old town road which runs from the property in question through the lands of the State of New York and other lands out to the town highway known as Cox Road, which Town Road is called Stage Coach Road. This right shall be together with any and all other persons having a right to use said old Town Road. **	Sullivan 118.1
Roosa Gap State Forest	Sull. 7	Together with a Right of Way 50' wide leading from Slimmer Road southerly and westerly as defined in Liber 1278, cp. 122	Sullivan 118.1
Roosa Gap State Forest	Sull. 7	Subject to an easement granted to New York Telephone Company per Liber 275, cp. 137	Sullivan 123
Roosa Gap State Forest	Sull. 7	Subject to a 50' wide easement granted to Cablevision Industries, Inc. per Liber 893, cp. 321(Along Roosa Gap Road)	Sullivan 123
Roosa Gap State Forest	Sull. 7	Subject to the rights of the public to use Roosa Gap Road.	Sullivan 123
Roosa Gap State Forest	Sull. 7	**Together with an easement for ingress, egress and regress as conveyed in Liber 1474 of Deeds at page 58**	Sullivan 127
Roosa Gap State Forest	Sull. 7	Together with a reciprocal easement for ingress, egress and regress as agreed upon in Liber 1380 of Deeds at page 105	Sullivan 127
Roosa Gap State Forest	Sull. 7	**Together with the benefit and subject to the burdens of a Right of Way Agreement per Liber 1474 of Deeds at page 49**	Sullivan 127
Roosa Gap State Forest	Sull. 7	**Subject to a Right of Way for ingress, egress and regress per Liber 1474 of Deeds at page 54 Easements 1 & 2. Easement 2 (L. 1474, cp 54) no longer exist due to the	Sullivan 127

FIGURE 11 – EXCEPTIONS AND DEEDED RESTRICTIONS

		merger of title with Sullivan 127(Probber) on May 10, 2011 **	
Roosa Gap State Forest	Sull. 7	**Subject to a Judgment granted to John A. Howell pursuant to Article 15 of the RPAPL per Liber 1821 of Deeds at page 604 and corrected by Liber 1861 of Deeds at page 51. Easement over the northerly & westerly lines of Probber no longer exist due to the merger of title upon the state's acquisition of Probber on May 10, 2011.**	Sullivan 127
Shawangunk Ridge State Forest	Uls. 6	Former Ellenville-Newburgh Plank Road runs through a portion of the property	Ulster 271.1
Witch's Hole State Forest	Uls. 7	Subject to rights of others to use Smiley Road per Liber 359, cp. 630	Ulster 252.1

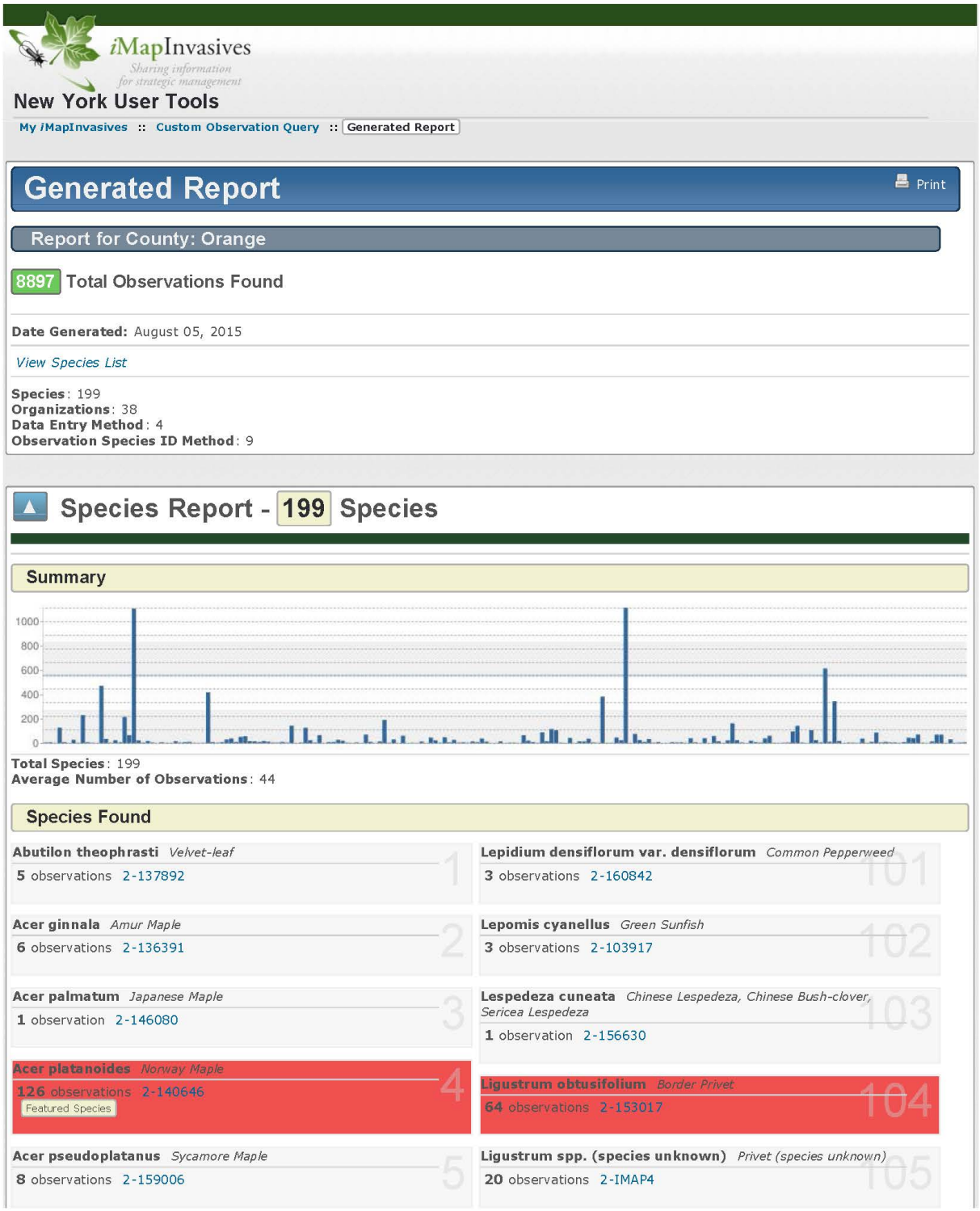
Use and Demand Related to Exceptions and Deeded Restrictions

* A legal interpretation has been requested to determine the public's right to use this Right of Way.

** All easements designated with a double star include a Right of Way that leads westerly and southerly from Cox Road (partially along the old town road known as Stage Coach Road) to the northeast corner of Sullivan 127 (Probber). The People of the State of New York acquired rights, in four separate projects, to use this Right of Way to serve a total area of almost 800 acres.

FIGURE 12 – IMAP INVASIVES TABLES FOR COUNTIES CONTAINING THE UNIT

User Tools | iMapInvasives



http://imapinvasives.org/nyimi/reports/generate/?obscountyname=Orange&user_type=all_data&user_type=all_data[8/5/2015 2:32:01 PM]

FIGURE 12 – IMAP INVASIVES TABLES FOR COUNTIES CONTAINING THE UNIT

User Tools | iMapInvasives

Actinidia polygama *Silver Vine* 6
1 observation 2-884996

Adelges tsugae *Hemlock Woolly Adelgid* 7
26 observations 2-113466
Featured Species

Aegopodium podagraria *Bishop's Goutweed, Goutweed, Bishop Weed, Bishops Goutweed* 8
2 observations 2-141589

Ailanthus altissima *Tree-of-heaven, Tree of Heaven, Chinese Sumac, Ailanthus, Varnish-tree, Copa-tree* 9
229 observations 2-148863
Featured Species

Akebia quinata *Five-leaf Akebia, Chocolate Vine, Fiveleaf Akebia* 10
7 observations 2-144361

Albizia julibrissin *Silk Tree* 11
3 observations 2-155382

Aldrovanda vesiculosa *waterwheel plant* 12
1 observation 2-935212

Alliaria petiolata *Garlic Mustard* 13
469 observations 2-127936
Common Invasive Species Featured Species

Allium vineale *Wild Garlic, Field Garlic* 14
34 observations 2-137664

Alnus glutinosa *European Alder, Black Alder* 15
3 observations 2-135245

Ampelopsis brevipedunculata *Porcelain Berry, Amur Pepper-vine, Porcelain-berry, Porcelainberry, Amur peppervine* 16
23 observations 2-140997

Anthriscus sylvestris *Wild Chervil* 17
6 observations 2-129718

Aralia elata *Japanese Angelica Tree* 18
214 observations 2-136579

Artemisia vulgaris var. vulgaris *Mugwort* 19
65 observations 2-640125
Featured Species

Berberis thunbergii *Japanese Barberry* 20
1102 observations 2-134460

Ligustrum vulgare *European Privet, Common privet* 106
8 observations 2-148992
Featured Species

Linaria vulgaris *Butter-and-eggs* 107
2 observations 2-143356

Lonicera japonica *Japanese Honeysuckle* 108
88 observations 2-129271
Featured Species

Lonicera maackii *Amur Honeysuckle* 109
15 observations 2-150671

Lonicera morrowii *Morrow Honeysuckle, Morrows honeysuckle* 110
115 observations 2-155789
Featured Species

Lonicera spp (species unknown) *Honeysuckle (species unknown)* 111
105 observations 2-IMAP1

Lonicera tatarica *Tartarian Honeysuckle* 112
3 observations 2-155898
Featured Species

Lonicera xylosteum *European Fly-honeysuckle, Dwarf Honeysuckle, European fly honeysuckle* 113
1 observation 2-149298

Lotus corniculatus *Birdfoot Deervetch, Bird's Foot Trefoil, Bacon and Eggs, Hen and Chickens* 114
42 observations 2-160883

Lotus tenuis *Slender Trefoil* 115
1 observation 2-137320

Lychnis flos-cuculi *Ragged Robin* 116
14 observations 2-161130

Lymantria dispar *Gypsy Moth* 117
13 observations 2-117138

Lysimachia nummularia *Creeping Jennie, Moneywort, Creeping Jenny* 118
36 observations 2-146072
Featured Species

Lysimachia punctata *Spotted Loosestrife* 119
5 observations 2-142102

Lysimachia vulgaris *Garden Loosestrife, Yellow Garden Loosestrife*
2 observations 2-158816

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FIGURE 12 – IMAP INVASIVES TABLES FOR COUNTIES CONTAINING THE UNIT

Common Invasive Species | Featured Species

21 **Berberis vulgaris** *Common Barberry, European Barberry*
22 observations 2-138856

22 **Bithynia tentaculata** *Mud Bithynia*
4 observations 2-109963

23 **Bromus inermis** *Smooth brome*
17 observations 2-159898

24 **Bromus tectorum** *Cheatgrass, Drooping Brome-grass, Cheat grass, Drooping brome*
5 observations 2-135508

25 **Broussonetia papyrifera** *Paper-mulberry*
1 observation 2-150463

26 **Cabomba caroliniana** *Carolina Fanwort, Fanwort*
7 observations 2-146971

27 **Callitriche stagnalis** *Pond Water-starwort, Water Chickweed, Pond water starwort*
2 observations 2-128613

28 **Campanula glomerata** *Clustered Bellflower*
1 observation 2-129376

29 **Capsella bursa-pastoris** *Common Shepherd's Purse, Shepherd's Purse*
15 observations 2-155221

30 **Carassius auratus** *Goldfish*
4 observations 2-106481

31 **Cardamine hirsuta** *Hairy Bitter-cress*
8 observations 2-154556

32 **Cardamine impatiens** *Narrowleaf Bittercress, Bushy Rock-cress*
10 observations 2-154987

33 **Carduus nutans** *Musk Thistle; Nodding Thistle*
2 observations 2-161470

34 **Carum carvi** *Common Caraway*
1 observation 2-147735

35 **Catalpa speciosa** *Northern Catalpa*
2 observations 2-145196

120

121 **Lythrum salicaria** *Purple Loosestrife*
381 observations 2-160902
Common Invasive Species | Featured Species

122 **Malus baccata** *Siberian Crabapple, Crabapple*
2 observations 2-153175

123 **Marsilea quadrifolia** *European Water Fern, European Waterclover*
2 observations 2-156840

124 **Melilotus albus** *White Sweet-clover*
45 observations 2-141905

125 **Melilotus officinalis** *Yellow Sweetclover*
23 observations 2-146387

126 **Microstegium vimineum** *Japanese Stiltgrass, Nepalese Browntop, Japanese stilt grass, Nepalgrass*
1109 observations 2-142078
Featured Species

127 **Miscanthus sinensis** *Chinese Silver Grass, Eulalia, Chinese silvergrass, Maiden grass*
1 observation 2-147438
Featured Species

128 **Morus alba** *White Mulberry*
75 observations 2-145482

129 **Myosotis scorpioides** *True Forget-me-not, Forget-me-not*
25 observations 2-145707

130 **Myriophyllum heterophyllum** *Broadleaf Water-milfoil, Variable Water-milfoil*
9 observations 2-158700

131 **Myriophyllum spicatum** *Eurasian Water-milfoil, European Water-milfoil, Spike Water-milfoil, Eurasian watermilfoil*
33 observations 2-159460
Featured Species

132 **Najas minor** *Brittle Naiad, Brittle Water-nymph, Lesser Naiad, Brittle water nymph, Slender-leaved naiad*
3 observations 2-157427

133 **Nasturtium officinale** *Watercress*
8 observations 2-154097

Nelumbo lutea *American Lotus, American Water Lotus, Yellow lotus*

FIGURE 12 – IMAP INVASIVES TABLES FOR COUNTIES CONTAINING THE UNIT

Celastrus orbiculatus *Oriental Bittersweet, Asian Bittersweet, Asiatic Bittersweet* 36
416 observations 2-131407
Featured Species

Centaurea jacea *Brown Starthistle, Brown knapweed* 37
8 observations 2-133744

Centaurea nigra *Lesser Knapweed, Black Starthistle, Black Knapweed* 38
3 observations 2-150184

Centaurea nigrescens *Short-fringe Starthistle, Knapweed, Tyrol knapweed* 39
7 observations 2-143907

Centaurea spp (species unknown) *Knapweed (species unknown), Centaurea (species unknown)* 40
29 observations 2-IMAP7

Centaurea stoebe spp. micranthos *Spotted Starthistle, Spotted Knapweed* 41
38 observations 2-152552
Featured Species

Channa argus *Northern Snakehead* 42
9 observations 2-856894

Chelidonium majus *Greater Celadine, Celandine* 43
51 observations 2-148354

Cichorium intybus *Chicory* 44
56 observations 2-154066

Cirsium arvense *Canada Thistle, Creeping Thistle* 45
16 observations 2-154063
Featured Species

Cirsium vulgare *Bull Thistle* 46
14 observations 2-157401

Clematis terniflora *Japanese Virgin's-bower, Sweet Autumn Clematis, Yam-leaf clematis, Japanese virgin's bower* 47
9 observations 2-146692

Commelina communis var. communis *Asiatic Dayflower* 48
17 observations 2-134523

Convolvulus arvensis *Field Bindweed* 49
11 observations 2-153913

1 observation 2-135254 134

Orconectes obscurus *Allegheny Crayfish* 135
1 observation 2-112938

Orconectes rusticus *Rusty Crayfish* 136
7 observations 2-117283

Orconectes virilis *Virile Crayfish* 137
5 observations 2-112669

Ornithogalum umbellatum *Common Star-of-Bethlehem, Star of Bethlehem, Star-of-Bethelehem* 138
6 observations 2-130811

Parthenocissus tricuspidata *Boston-ivy* 139
2 observations 2-154524

Pastinaca sativa *Wild Parsnip* 140
39 observations 2-149999

Paulownia tomentosa *Princess Tree, Empress Tree, Royal Paulownia* 141
6 observations 2-159590

Perilla frutescens var. frutescens *Beefsteak Plant* 142
1 observation 2-160007

Persicaria longiseta *Bristly Lady's-thumb* 143
40 observations 2-160949

Persicaria nepalensis *Nepal Smartweed* 144
1 observation 2-161484

Persicaria perfoliata *Mile-a-minute Weed, Mile-a-minute Vine, Asiatic Tearthum, Mile a minute weed* 145
58 observations 2-145545
Featured Species

Phalaris arundinacea *Reed Canarygrass* 146
14 observations 2-159238

Phellodendron amurense *Amur Corktree, Amur cork tree, Amur cork-tree* 147
2 observations 2-146046

Phleum pratense *Meadow Timothy, Timothy* 148
22 observations 2-135574

Phragmites australis ssp. australis *Common Reed, Common reed grass*

FIGURE 12 – IMAP INVASIVES TABLES FOR COUNTIES CONTAINING THE UNIT

User Tools | iMapInvasives

Corbicula fluminea *Asian Clam* 50
4 observations 2-109333
Featured Species

Coronilla varia *Common Crown-vetch, Crownvetch, Crown vetch* 51
4 observations 2-135704

Crataegus monogyna *Hawthorn, English Hawthorn* 52
10 observations 2-735801

Cygnus olor *Mute Swan* 53
4 observations 2-100736

Cynanchum louiseae *Black Swallow-wort, Louise's Swallow-wort, Dog-strangling Vine* 54
142 observations 2-151919
Featured Species

Cynanchum rossicum *Pale Swallow-wort, Dog-strangling Vine, European Swallow-wort* 55
1 observation 2-161289
Featured Species

Cynoglossum officinale *Common Hound's-tongue, Beggar's Lice, Common Bur, Houndstongue, Sheep Lice, Glovewort* 56
4 observations 2-159593

Cyprinus carpio *Common Carp* 57
125 observations 2-105636
Featured Species

Cytisus scoparius *Scotch Broom* 58
23 observations 2-138657

Datura stramonium *Jimsonweed* 59
4 observations 2-133730

Daucus carota *Wild Carrot, Queen Anne's Lace* 60
65 observations 2-141876

Digitalis purpurea *Purple Foxglove* 61
1 observation 2-129326

Digitaria ischaemum *Smooth Crabgrass* 62
8 observations 2-138659

Digitaria sanguinalis *Hairy Crabgrass* 63
9 observations 2-150384

Dipsacus fullonum *Fuller's Teasel, Common Teasel, Wild Teasel*
26 observations 2-159982

149
162 observations 2-800788
Common Invasive Species Featured Species

Picea abies *Norway Spruce* 150
23 observations 2-139637
Featured Species

Pilosella caespitosa *Field Hawkweed* 151
5 observations 2-146060

Pistia stratiotes *Water Lettuce* 152
1 observation 2-151080

Poa compressa *Canada Bluegrass, Canada blue-grass* 153
19 observations 2-144119

Poa pratensis ssp. pratensis *Kentucky Bluegrass* 154
7 observations 2-150331

Populus alba *White Poplar* 155
4 observations 2-135044

Potamogeton crispus *Curly Pondweed, Crisped Pondweed, Curly-leaf pondweed, Curlyleaf pondweed, Crispy-leaved pondweed* 156
38 observations 2-145742
Featured Species

Prunus avium *Sweet Cherry* 157
60 observations 2-137270

Prunus cerasus *Sour Red Cherry* 158
2 observations 2-159252

Pueraria montana var. lobata *Kudzu, Japanese arrowroot* 159
1 observation 2-135219
Featured Species

Pyrus calleryana *Bradford Pear, Callery Pear* 160
3 observations 2-142112

Ranunculus repens *Creeping Buttercup* 161
4 observations 2-136133

Reynoutria japonica var. japonica; Fallopia japonica var. japonica *Japanese Knotweed, Japanese Bamboo* 162
95 observations 2-135872
Common Invasive Species Featured Species

Rhamnus cathartica *Common Buckthorn*

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FIGURE 12 – IMAP INVASIVES TABLES FOR COUNTIES CONTAINING THE UNIT

64

Drosophila suzukii *Spotted Wing Drosophila* 65
19 observations 2-870321

Duchesnea indica *Indian Mock-strawberry, Indian Strawberry* 66
3 observations 2-140545

Echinops sphaerocephalus *Great Globethistle, Blue Globethistle* 67
1 observation 2-132742

Egeria densa *Brazilian Water-weed, Brazilian eloda, Brazilian waterweed, Brazilian elodea* 68
5 observations 2-137548

Elaeagnus angustifolia *Russian Olive, Russian-olive* 69
1 observation 2-153771

Elaeagnus umbellata *Autumn Olive, Autumn-olive* 70
69 observations 2-145344
Featured Species

Elymus repens *Creeping Wild Rye, Quack Grass* 71
10 observations 2-127983

Epilobium hirsutum *Codlins And Cream, Willow-herb, Hairy Willow-herb, Fireweed* 72
1 observation 2-160682

Eriocheir sinensis *Chinese Mitten Crab* 73
13 observations 2-114451

Euonymus alatus *Burning Bush, Winged Euonymus, Winged Burning Bush, Winged Spindletree* 74
190 observations 2-128977
Featured Species

Euonymus europaeus *European Spindle-tree, Spindle-tree, European spindletree* 75
3 observations 2-143170

Euphorbia cyparissias *Cypress Spurge* 76
29 observations 2-159303

Euphorbia dentata *Toothed Spurge* 77
1 observation 2-733653

Euphorbia esula *Leafy Spurge, Wolf's Milk* 78
60 observations 2-149354

Fallopia baldschuanica *China Fleece Vine, Silver Lace-vine, Silver*

141 observations 2-145273 163
Common Invasive Species | Featured Species

Rhodotypos scandens *Black Jetbead, Jetbead* 164
4 observations 2-138223

Robinia hispida *Bristly Locust* 165
1 observation 2-149692

Robinia pseudoacacia *Black Locust* 166
105 observations 2-157931

Rosa canina *Dog Rose* 167
24 observations 2-139434

Rosa eglanteria *Sweet Briar* 168
5 observations 2-129610

Rosa multiflora *Multiflora Rose, Rambler Rose* 169
611 observations 2-129203
Featured Species

Rubus laciniatus *Cutleaf Blackberry, Evergreen Blackberry* 170
11 observations 2-139797

Rubus phoenicolasius *Wineberry, Japanese Wineberry, Wine Raspberry* 171
342 observations 2-132592
Featured Species

Salix atrocinerea *Rusty Willow* 172
17 observations 2-161034

Salix cinerea *European Gray Willow, Gray Florist's Willow* 173
1 observation 2-158109

Salix fragilis *Crack Willow, Brittle Willow* 174
4 observations 2-150152

Salix purpurea *Basket Willow, Purpleosier Willow* 175
3 observations 2-160649

Salix x pendulina *Wisconsin Weeping Willow* 176
2 observations 2-138137

Saponaria officinalis *Bouncing-bet, Bouncing Bet* 177
37 observations 2-153728

Schedonorus pratensis *Meadow Fescue*

FIGURE 12 – IMAP INVASIVES TABLES FOR COUNTIES CONTAINING THE UNIT

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79 *Lace, Fleece Vine*
1 observation 2-828693

80 **Festuca filiformis** *Hair Fescue, Fineleaf Sheep Fescue*
2 observations 2-143381

81 **Ficaria verna ssp. verna** *Lesser celandine, Fig Buttercup*
1 observation 2-132789

82 **Frangula alnus** *Glossy Buckthorn, European Buckthorn, Smooth buckthorn*
13 observations 2-146361

83 **Froelichia gracilis** *Slender Cottonweed, Slender Snake Cotton, Cottonweed*
1 observation 2-161215

84 **Glechoma hederacea** *Ground Ivy, Gill-over-the-ground*
45 observations 2-143722

85 **Halyomorpha halys** *Brown Marmorated Stink Bug*
22 observations 2-861748
Featured Species

86 **Hedera helix** *English Ivy*
3 observations 2-147683

87 **Hemerocallis fulva** *Orange Daylily, Tawny Daylily, Day lily, Day-lily*
48 observations 2-153807

88 **Heracleum mantegazzianum** *Giant Hogweed*
6 observations 2-153454
Featured Species

89 **Hesperis matronalis** *Dame's Rocket*
26 observations 2-157721

90 **Hieracium piloselloides** *Kingdevil, King-devil, Tall Hawkweed*
4 observations 2-140313

91 **Humulus japonicus** *Japanese Hops*
6 observations 2-157140

92 **Hydrilla verticillata** *Hydrilla, Water-thyme, Florida Elodea, Water thyme*
3 observations 2-159017
Featured Species

93 **Hylotelephium spectabile** *Showy Stonecrop*
13 observations 2-130732

178 2 observations 2-160302

179 **Sedum sarmentosum** *Stringy Stonecrop*
10 observations 2-139741

180 **Solanum dulcamara var. dulcamara** *Climbing Nightshade, Bittersweet Nightshade, Trailing nightshade*
86 observations 2-160614

181 **Sonchus arvensis ssp. arvensis** *Field Sowthistle, Perrenial Sowthistle*
5 observations 2-141037

182 **Sorbaria sorbifolia** *False Spiraea*
10 observations 2-155020

183 **Spiraea japonica** *Japanese Spiraea, Japanese Meadowsweet*
5 observations 2-142504

184 **Tanacetum vulgare** *Common Tansy*
5 observations 2-141030

185 **Torilis japonica** *Erect Hedge-parsley, Japanese Hedge-parsley*
2 observations 2-139642

186 **Trachemys scripta elegans** *Red-eared Slider Turtle*
8 observations 2-103497

187 **Trapa natans** *Water Chestnut, Water-chestnut*
44 observations 2-149241
Common Invasive Species Featured Species

188 **Trifolium repens** *White Clover*
40 observations 2-147168

189 **Tussilago farfara** *Colt's Foot, Coltsfoot*
70 observations 2-147257

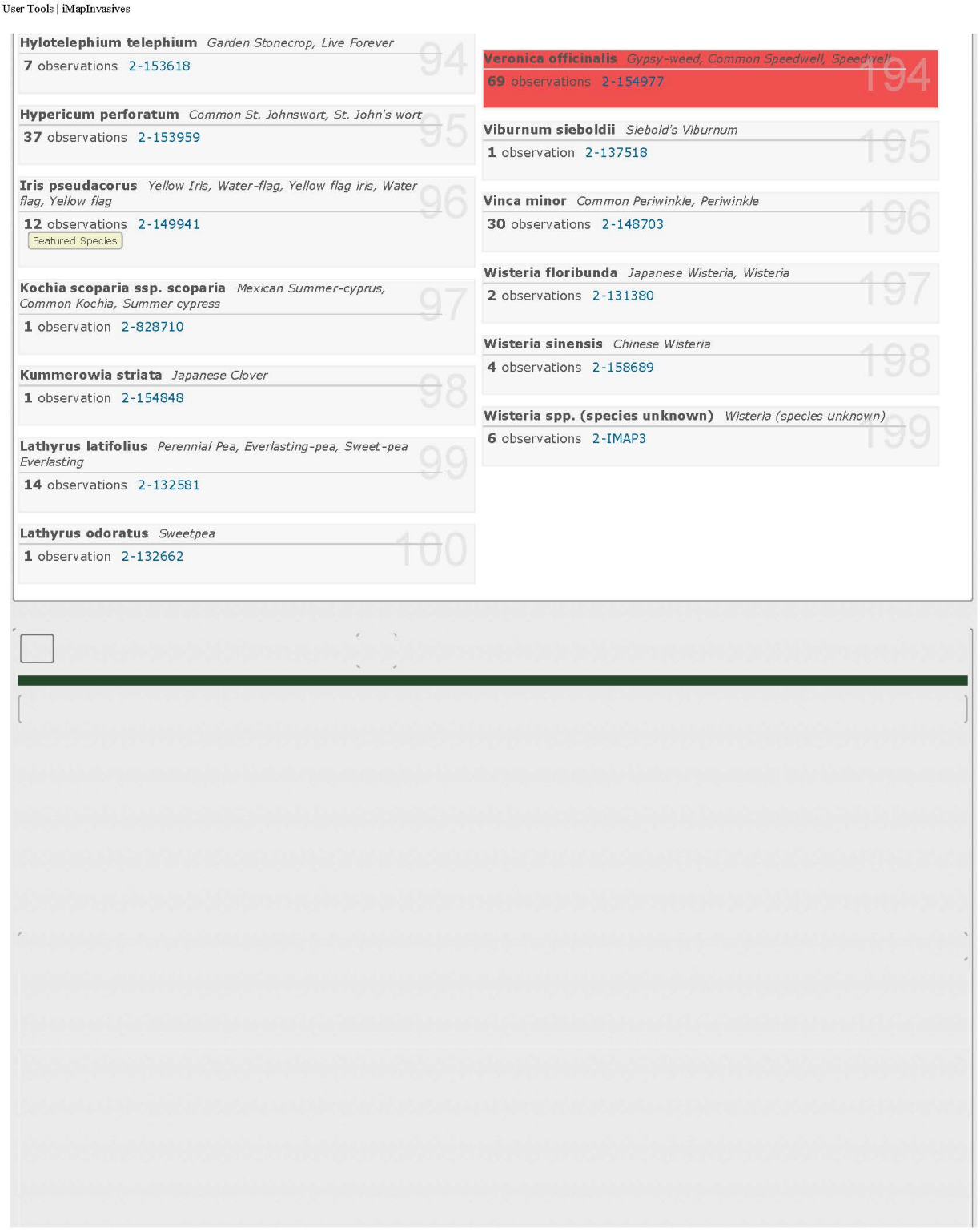
190 **Ulmus pumila** *Siberian Elm*
3 observations 2-137202

191 **Valeriana officinalis** *Common Valerian, Garden Heliotrope*
1 observation 2-136482

192 **Verbascum phlomoides** *Clasping-leaf Mullein*
13 observations 2-130489

193 **Verbascum thapsus** *Great Mullein, Common mullein*
69 observations 2-155675

FIGURE 12 – IMAP INVASIVES TABLES FOR COUNTIES CONTAINING THE UNIT



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Hylotelephium telephium *Garden Stonecrop, Live Forever*
94
7 observations 2-153618

Hypericum perforatum *Common St. Johnswort, St. John's wort*
95
37 observations 2-153959

Iris pseudacorus *Yellow Iris, Water-flag, Yellow flag iris, Water flag, Yellow flag*
96
12 observations 2-149941
Featured Species

Kochia scoparia ssp. scoparia *Mexican Summer-cyprus, Common Kochia, Summer cypress*
97
1 observation 2-828710

Kummerowia striata *Japanese Clover*
98
1 observation 2-154848

Lathyrus latifolius *Perennial Pea, Everlasting-pea, Sweet-pea Everlasting*
99
14 observations 2-132581

Lathyrus odoratus *Sweetpea*
100
1 observation 2-132662

Veronica officinalis *Gypsy-weed, Common Speedwell, Speedwell*
194
69 observations 2-154977

Viburnum sieboldii *Siebold's Viburnum*
195
1 observation 2-137518

Vinca minor *Common Periwinkle, Periwinkle*
196
30 observations 2-148703

Wisteria floribunda *Japanese Wisteria, Wisteria*
197
2 observations 2-131380

Wisteria sinensis *Chinese Wisteria*
198
4 observations 2-158689

Wisteria spp. (species unknown) *Wisteria (species unknown)*
199
6 observations 2-IMAP3

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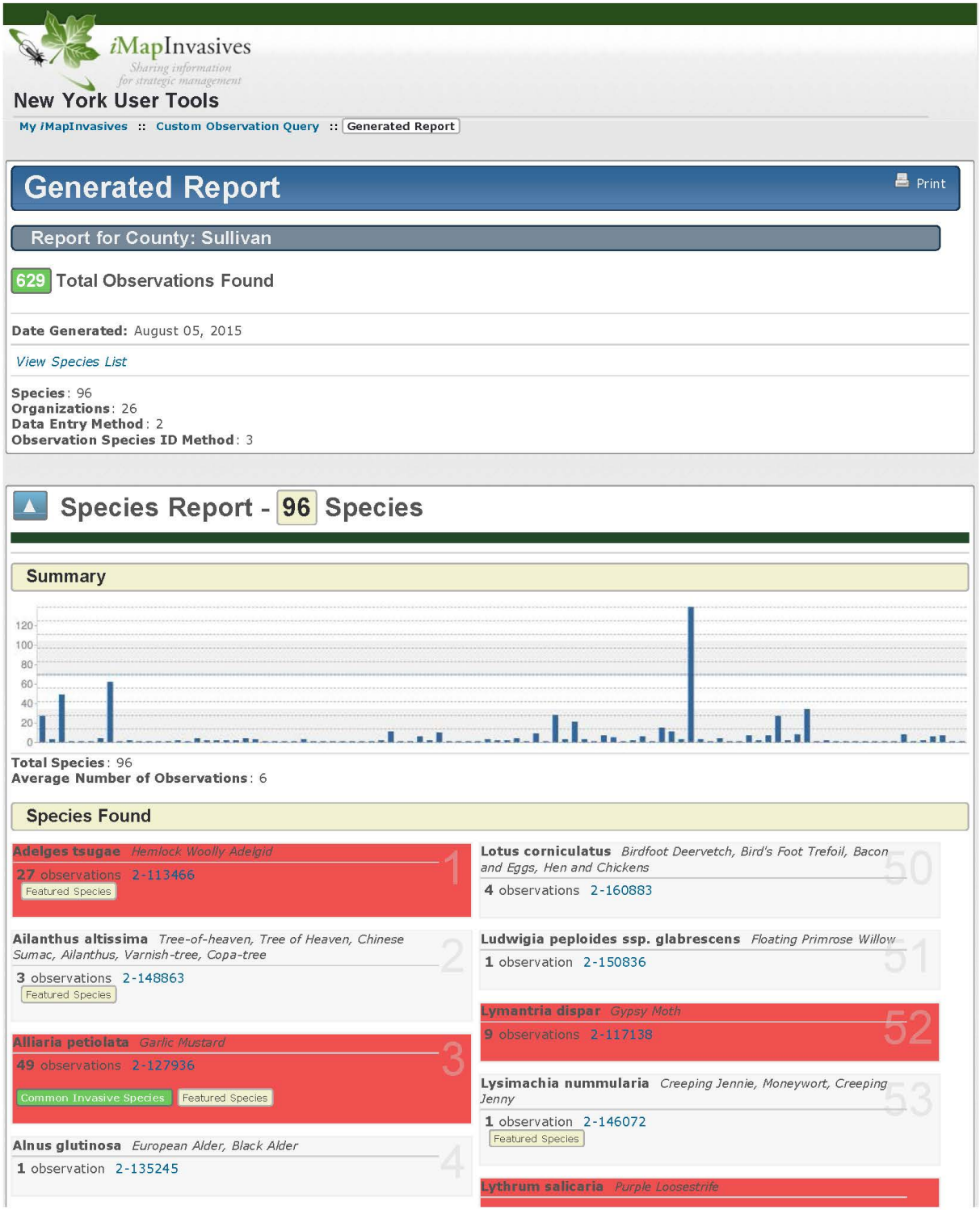
FIGURE 12 – IMAP INVASIVES TABLES FOR COUNTIES CONTAINING THE UNIT



iMapInvasives
Sharing information for strategic management

New York User Tools

My iMapInvasives :: Custom Observation Query :: Generated Report

Generated Report — Print

Report for County: Sullivan

629 Total Observations Found

Date Generated: August 05, 2015

View Species List

Species: 96
Organizations: 26
Data Entry Method: 2
Observation Species ID Method: 3

Species Report - 96 Species

Summary

Total Species: 96
Average Number of Observations: 6

Species Found

Adelges tsugae *Hemlock Woolly Adelgid* 1
27 observations 2-113466
Featured Species

Ailanthus altissima *Tree-of-heaven, Tree of Heaven, Chinese Sumac, Ailanthus, Varnish-tree, Copa-tree* 2
3 observations 2-148863
Featured Species

Alliaria petiolata *Garlic Mustard* 3
49 observations 2-127936
Common Invasive Species Featured Species

Alnus glutinosa *European Alder, Black Alder* 4
1 observation 2-135245

Lotus corniculatus *Birdfoot Deervetch, Bird's Foot Trefoil, Bacon and Eggs, Hen and Chickens* 50
4 observations 2-160883

Ludwigia peploides ssp. glabrescens *Floating Primrose Willow* 51
1 observation 2-150836

Lymantria dispar *Gypsy Moth* 52
9 observations 2-117138

Lysimachia nummularia *Creeping Jennie, Moneywort, Creeping Jenny* 53
1 observation 2-146072
Featured Species

Lythrum salicaria *Purple Loosestrife*

FIGURE 12 – IMAP INVASIVES TABLES FOR COUNTIES CONTAINING THE UNIT

5 **Ampelopsis brevipedunculata** *Porcelain Berry, Amur Pepper-vine, Porcelain-berry, Porcelainberry, Amur peppervine*
1 observation 2-140997

6 **Aralia elata** *Japanese Angelica Tree*
1 observation 2-136579

7 **Artemisia vulgaris var. vulgaris** *Mugwort*
4 observations 2-640125
Featured Species

8 **Berberis thunbergii** *Japanese Barberry*
62 observations 2-134460
Common Invasive Species | Featured Species

9 **Bithynia tentaculata** *Mud Bithynia*
1 observation 2-109963

10 **Bromus inermis** *Smooth brome*
2 observations 2-159898

11 **Bromus tectorum** *Cheatgrass, Drooping Brome-grass, Cheat grass, Drooping brome*
1 observation 2-135508

12 **Cabomba caroliniana** *Carolina Fanwort, Fanwort*
1 observation 2-146971

13 **Cardamine impatiens** *Narrowleaf Bittercress, Bushy Rock-cress*
1 observation 2-154987

14 **Carlina vulgaris** *Carline Thistle*
1 observation 2-148134

15 **Centaurea nigra** *Lesser Knapweed, Black Starthistle, Black Knapweed*
2 observations 2-150184

16 **Centaurea nigrescens** *Short-fringe Starthistle, Knapweed, Tyrol knapweed*
1 observation 2-143907

17 **Centaurea stoebe spp. micranthos** *Spotted Starthistle, Spotted Knapweed*
4 observations 2-152552
Featured Species

18 **Cichorium intybus** *Chicory*
2 observations 2-154066

Cirsium arvense *Canada Thistle, Creeping Thistle*

54 **28** observations 2-160902
Common Invasive Species | Featured Species

55 **Melilotus officinalis** *Yellow Sweetclover*
3 observations 2-146387

56 **Microstegium vimineum** *Japanese Stiltgrass, Nepalese Browntop, Japanese stilt grass, Nepalgrass*
21 observations 2-142078
Featured Species

57 **Misgurnus anguillicaudatus** *Oriental Weatherfish*
3 observations 2-104103

58 **Morus alba** *White Mulberry*
1 observation 2-145482

59 **Myosotis scorpioides** *True Forget-me-not, Forget-me-not*
7 observations 2-145707

60 **Myriophyllum spicatum** *Eurasian Water-milfoil, European Water-milfoil, Spike Water-milfoil, Eurasian watermilfoil*
5 observations 2-159460
Featured Species

61 **Nasturtium microphyllum** *Onerow Yellowcress*
1 observation 2-132321

62 **Orconectes rusticus** *Rusty Crayfish*
2 observations 2-117283

63 **Persicaria nepalensis** *Nepal Smartweed*
6 observations 2-161484

64 **Persicaria perfoliata** *Mile-a-minute Weed, Mile-a-minute Vine, Asiatic Tearthum, Mile a minute weed*
1 observation 2-145545
Featured Species

65 **Petromyzon marinus** *Sea Lamprey*
15 observations 2-106340

66 **Phalaris arundinacea** *Reed Canarygrass*
11 observations 2-159238

67 **Phleum pratense** *Meadow Timothy, Timothy*
3 observations 2-135574

68 **Phragmites australis ssp. australis** *Common Reed, Common reed grass*
139 observations 2-800788

FIGURE 12 – IMAP INVASIVES TABLES FOR COUNTIES CONTAINING THE UNIT

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19
2 observations 2-154063
Featured Species

20
Cirsium vulgare *Bull Thistle*
2 observations 2-157401

21
Commelina communis var. communis *Asiatic Dayflower*
2 observations 2-134523

22
Cyprinus carpio *Common Carp*
4 observations 2-105636
Featured Species

23
Daucus carota *Wild Carrot, Queen Anne's Lace*
3 observations 2-141876

24
Digitalis lanata *Grecian Foxglove*
1 observation 2-136612

25
Digitaria ischaemum *Smooth Crabgrass*
1 observation 2-138659

26
Digitaria sanguinalis *Hairy Crabgrass*
1 observation 2-150384

27
Dipsacus laciniatus *Cut-leaf Teasel, Cutleaf teasel, Cut-leaved teasel*
1 observation 2-140048

28
Elaeagnus umbellata *Autumn Olive, Autumn-olive*
3 observations 2-145344
Featured Species

29
Elymus repens *Creeping Wild Rye, Quack Grass*
1 observation 2-127983

30
Euonymus alatus *Burning Bush, Winged Euonymus, Winged Burning Bush, Winged Spindletree*
1 observation 2-128977
Featured Species

31
Euphorbia cyparissias *Cypress Spurge*
1 observation 2-159303

32
Euphorbia esula *Leafy Spurge, Wolf's Milk*
1 observation 2-149354

33
Festuca filiformis *Hair Fescue, Fineleaf Sheep Fescue*
1 observation 2-143381

Ficaria verna ssp. verna *Lesser celandine, Fig Buttercup*

Common Invasive Species Featured Species

69
Picea abies *Norway Spruce*
3 observations 2-139637
Featured Species

70
Pilosella caespitosa *Field Hawkweed*
1 observation 2-146060

71
Poa compressa *Canada Bluegrass, Canada blue-grass*
4 observations 2-144119

72
Poa pratensis ssp. pratensis *Kentucky Bluegrass*
1 observation 2-150331

73
Populus alba *White Poplar*
1 observation 2-135044

74
Potamogeton crispus *Curly Pondweed, Crisped Pondweed, Curly-leaf pondweed, Curlyleaf pondweed, Crispy-leaved pondweed*
7 observations 2-145742
Featured Species

75
Prunus avium *Sweet Cherry*
2 observations 2-137270

76
Ranunculus repens *Creeping Buttercup*
7 observations 2-136133

77
Reynoutria japonica var. japonica; Fallopia japonica var. japonica *Japanese Knotweed, Japanese Bamboo*
27 observations 2-135872
Common Invasive Species Featured Species

78
Rhamnus cathartica *Common Buckthorn*
2 observations 2-145273
Common Invasive Species Featured Species

79
Robinia pseudoacacia *Black Locust*
8 observations 2-157931

80
Rosa multiflora *Multiflora Rose, Rambler Rose*
34 observations 2-129203
Featured Species

81
Rubus laciniatus *Cutleaf Blackberry, Evergreen Blackberry*
1 observation 2-139797

82
Rubus phoenicolasius *Wineberry, Japanese Wineberry, Wine Raspberry*

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FIGURE 12 – IMAP INVASIVES TABLES FOR COUNTIES CONTAINING THE UNIT

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34
1 observation 2-132789

35
Geranium sibiricum *Siberian Crane's-bill*
1 observation 2-132026

36
Glechoma hederacea *Ground Ivy, Gill-over-the-ground*
2 observations 2-143722

37
Heracleum mantegazzianum *Giant Hogweed*
11 observations 2-153454
Featured Species

38
Hesperis matronalis *Dame's Rocket*
1 observation 2-157721

39
Hydrocharis morsus-ranae *Common Frogbit, European Frog-bit, Frogbit, European frogbit*
1 observation 2-155546
Featured Species

40
Hypericum perforatum *Common St. Johnswort, St. John's wort*
6 observations 2-153959

41
Impatiens glandulifera *Policemen's Helmet, Ornamental Jewelweed, Himalayan Balsam, Purple Jewelweed*
2 observations 2-135654

42
Lepomis cyanellus *Green Sunfish*
10 observations 2-103917

43
Lespedeza cuneata *Chinese Lespedeza, Chinese Bush-clover, Sericea Lespedeza*
1 observation 2-156630

44
Lonicera japonica *Japanese Honeysuckle*
1 observation 2-129271
Featured Species

45
Lonicera maackii *Amur Honeysuckle*
1 observation 2-150671

46
Lonicera morrowii *Morrow Honeysuckle, Morrows honeysuckle*
1 observation 2-155789
Featured Species

47
Lonicera spp (species unknown) *Honeysuckle (species unknown)*
3 observations 2-IMAP1

48
Lonicera tatarica *Tartarian Honeysuckle*
2 observations 2-155898
Featured Species

2 observations 2-132592
Featured Species

83
Salix fragilis *Crack Willow, Brittle Willow*
1 observation 2-150152

84
Saponaria officinalis *Bouncing-bet, Bouncing Bet*
1 observation 2-153728

85
Schedonorus pratensis *Meadow Fescue*
1 observation 2-160302

86
Solanum dulcamara var. dulcamara *Climbing Nightshade, Bittersweet Nightshade, Trailing nightshade*
1 observation 2-160614

87
Sorbaria sorbifolia *False Spiraea*
1 observation 2-155020

88
Spiraea japonica *Japanese Spiraea, Japanese Meadowsweet*
1 observation 2-142504

89
Trachemys scripta elegans *Red-eared Slider Turtle*
1 observation 2-103497

90
Trapa natans *Water Chestnut, Water-chestnut*
8 observations 2-149241
Common Invasive Species Featured Species

91
Trifolium repens *White Clover*
1 observation 2-147168

92
Tussilago farfara *Colt's Foot, Coltsfoot*
2 observations 2-147257

93
Verbascum thapsus *Great Mullein, Common mullein*
6 observations 2-155675

94
Veronica officinalis *Gypsy-weed, Common Speedwell, Speedwell*
7 observations 2-154977

95
Wisteria sinensis *Chinese Wisteria*
1 observation 2-158689

96
Wisteria spp. (species unknown) *Wisteria (species unknown)*
1 observation 2-IMAP3

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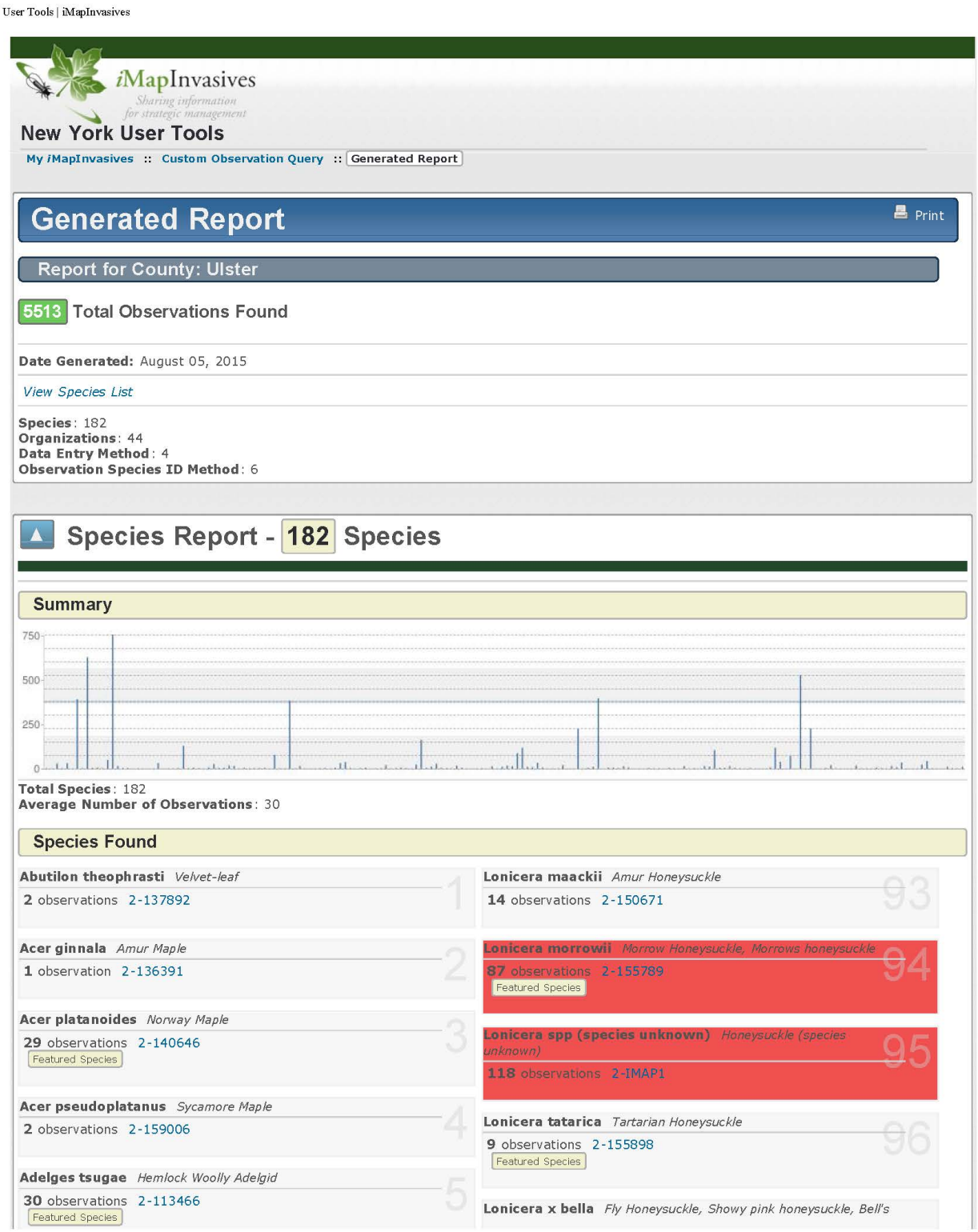
FIGURE 12 – IMAP INVASIVES TABLES FOR COUNTIES CONTAINING THE UNIT

FIGURE 12 – IMAP INVASIVES TABLES FOR COUNTIES CONTAINING THE UNIT



User Tools | iMapInvasives

iMapInvasives
Sharing information for strategic management

New York User Tools

My iMapInvasives :: Custom Observation Query :: Generated Report

Generated Report — Print

Report for County: Ulster

5513 Total Observations Found

Date Generated: August 05, 2015

View Species List

Species: 182
Organizations: 44
Data Entry Method: 4
Observation Species ID Method: 6

Species Report - 182 Species

Summary

Total Species: 182
Average Number of Observations: 30

Species Found

Abutilon theophrasti *Velvet-leaf* 1
2 observations 2-137892

Acer ginnala *Amur Maple* 2
1 observation 2-136391

Acer platanoides *Norway Maple* 3
29 observations 2-140646
Featured Species

Acer pseudoplatanus *Sycamore Maple* 4
2 observations 2-159006

Adelges tsugae *Hemlock Woolly Adelgid* 5
30 observations 2-113466
Featured Species

Lonicera maackii *Amur Honeysuckle* 93
14 observations 2-150671

Lonicera morrowii *Morrow Honeysuckle, Morrows honeysuckle* 94
87 observations 2-155789
Featured Species

Lonicera spp (species unknown) *Honeysuckle (species unknown)* 95
118 observations 2-IMAP1

Lonicera tatarica *Tartarian Honeysuckle* 96
9 observations 2-155898
Featured Species

Lonicera x bella *Fly Honeysuckle, Showy pink honeysuckle, Bell's*

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FIGURE 12 – IMAP INVASIVES TABLES FOR COUNTIES CONTAINING THE UNIT

User Tools | iMapInvasives

honeysuckle 97
8 observations 2-141073

6 **Aegopodium podagraria** *Bishop's Goutweed, Goutweed, Bishop Weed, Bishops Goutweed*
1 observation 2-141589

98 **Lonicera xylosteum** *European Fly-honeysuckle, Dwarf Honeysuckle, European fly honeysuckle*
33 observations 2-149298

7 **Ailanthus altissima** *Tree-of-heaven, Tree of Heaven, Chinese Sumac, Ailanthus, Varnish-tree, Copa-tree*
391 observations 2-148863
Featured Species

99 **Lotus corniculatus** *Birdfoot Deervetch, Bird's Foot Trefoil, Bacon and Eggs, Hen and Chickens*
7 observations 2-160883

8 **Akebia quinata** *Five-leaf Akebia, Chocolate Vine, Fiveleaf Akebia*
3 observations 2-144361

100 **Lotus tenuis** *Slender Trefoil*
1 observation 2-137320

9 **Alliaria petiolata** *Garlic Mustard*
628 observations 2-127936
Common Invasive Species Featured Species

101 **Lychnis flos-cuculi** *Ragged Robin*
2 observations 2-161130

10 **Allium vineale** *Wild Garlic, Field Garlic*
5 observations 2-137664

102 **Lymantria dispar** *Gypsy Moth*
1 observation 2-117138

11 **Anthriscus sylvestris** *Wild Chervil*
7 observations 2-129718

103 **Lysimachia nummularia** *Creeping Jennie, Moneywort, Creeping Jenny*
20 observations 2-146072
Featured Species

12 **Aralia elata** *Japanese Angelica Tree*
3 observations 2-136579

104 **Lysimachia punctata** *Spotted Loosestrife*
1 observation 2-142102

13 **Artemisia vulgaris var. vulgaris** *Mugwort*
49 observations 2-640125
Featured Species

105 **Lysimachia vulgaris** *Garden Loosestrife, Yellow Garden Loosestrife*
1 observation 2-158816

14 **Berberis thunbergii** *Japanese Barberry*
755 observations 2-134460
Common Invasive Species Featured Species

106 **Lythrum salicaria** *Purple Loosestrife*
224 observations 2-160902
Common Invasive Species Featured Species

15 **Berberis vulgaris** *Common Barberry, European Barberry*
14 observations 2-138856

107 **Marsilea quadrifolia** *European Water Fern, European Waterclover*
1 observation 2-156840

16 **Bithynia tentaculata** *Mud Bithynia*
3 observations 2-109963

108 **Melilotus albus** *White Sweet-clover*
5 observations 2-141905

17 **Bromus inermis** *Smooth brome*
4 observations 2-159898

109 **Melilotus officinalis** *Yellow Sweetclover*
10 observations 2-146387

18 **Bromus tectorum** *Cheatgrass, Drooping Brome-grass, Cheat grass, Drooping brome*
1 observation 2-135508

110 **Microstegium vimineum** *Japanese Stiltgrass, Nepalese Browntop, Japanese stilt grass, Nepalgrass*
396 observations 2-142078
Featured Species

19 **Buddleja davidii** *Orange-eye Butterfly-bush*
2 observations 2-145079

111 **Miscanthus sinensis** *Chinese Silver Grass, Eulalia, Chinese silvergrass, Maiden grass*

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FIGURE 12 – IMAP INVASIVES TABLES FOR COUNTIES CONTAINING THE UNIT

User Tools | iMapInvasives

19
2 observations 2-154063
Featured Species

20
Cirsium vulgare *Bull Thistle*
2 observations 2-157401

21
Commelina communis var. communis *Asiatic Dayflower*
2 observations 2-134523

22
Cyprinus carpio *Common Carp*
4 observations 2-105636
Featured Species

23
Daucus carota *Wild Carrot, Queen Anne's Lace*
3 observations 2-141876

24
Digitalis lanata *Grecian Foxglove*
1 observation 2-136612

25
Digitaria ischaemum *Smooth Crabgrass*
1 observation 2-138659

26
Digitaria sanguinalis *Hairy Crabgrass*
1 observation 2-150384

27
Dipsacus laciniatus *Cut-leaf Teasel, Cutleaf teasel, Cut-leaved teasel*
1 observation 2-140048

28
Elaeagnus umbellata *Autumn Olive, Autumn-olive*
3 observations 2-145344
Featured Species

29
Elymus repens *Creeping Wild Rye, Quack Grass*
1 observation 2-127983

30
Euonymus alatus *Burning Bush, Winged Euonymus, Winged Burning Bush, Winged Spindletree*
1 observation 2-128977
Featured Species

31
Euphorbia cyparissias *Cypress Spurge*
1 observation 2-159303

32
Euphorbia esula *Leafy Spurge, Wolf's Milk*
1 observation 2-149354

33
Festuca filiformis *Hair Fescue, Fineleaf Sheep Fescue*
1 observation 2-143381

Ficaria verna ssp. verna *Lesser celandine, Fig Buttercup*

Common Invasive Species Featured Species

69
Picea abies *Norway Spruce*
3 observations 2-139637
Featured Species

70
Pilosella caespitosa *Field Hawkweed*
1 observation 2-146060

71
Poa compressa *Canada Bluegrass, Canada blue-grass*
4 observations 2-144119

72
Poa pratensis ssp. pratensis *Kentucky Bluegrass*
1 observation 2-150331

73
Populus alba *White Poplar*
1 observation 2-135044

74
Potamogeton crispus *Curly Pondweed, Crisped Pondweed, Curly-leaf pondweed, Curlyleaf pondweed, Crispy-leaved pondweed*
7 observations 2-145742
Featured Species

75
Prunus avium *Sweet Cherry*
2 observations 2-137270

76
Ranunculus repens *Creeping Buttercup*
7 observations 2-136133

77
Reynoutria japonica var. japonica; Fallopia japonica var. japonica *Japanese Knotweed, Japanese Bamboo*
27 observations 2-135872
Common Invasive Species Featured Species

78
Rhamnus cathartica *Common Buckthorn*
2 observations 2-145273
Common Invasive Species Featured Species

79
Robinia pseudoacacia *Black Locust*
8 observations 2-157931

80
Rosa multiflora *Multiflora Rose, Rambler Rose*
34 observations 2-129203
Featured Species

81
Rubus laciniatus *Cutleaf Blackberry, Evergreen Blackberry*
1 observation 2-139797

82
Rubus phoenicolasius *Wineberry, Japanese Wineberry, Wine Raspberry*

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FIGURE 12 – IMAP INVASIVES TABLES FOR COUNTIES CONTAINING THE UNIT

Featured Species

Chelidonium majus *Greater Celadine, Celandine* 35
4 observations 2-148354

Cichorium intybus *Chicory* 36
6 observations 2-154066

Cirsium arvense *Canada Thistle, Creeping Thistle* 37
18 observations 2-154063
Featured Species

Cirsium vulgare *Bull Thistle* 38
15 observations 2-157401

Clematis terniflora *Japanese Virgin's-bower, Sweet Autumn Clematis, Yam-leaf clematis, Japanese virgin's bower* 39
1 observation 2-146692

Commelina communis var. communis *Asiatic Dayflower* 40
5 observations 2-134523

Conium maculatum *Poison-hemlock* 41
2 observations 2-133974

Convolvulus arvensis *Field Bindweed* 42
2 observations 2-153913

Corbicula fluminea *Asian Clam* 43
4 observations 2-109333
Featured Species

Coronilla varia *Common Crown-vetch, Crownvetch, Crown vetch* 44
4 observations 2-135704

Crataegus monogyna *Hawthorn, English Hawthorn* 45
1 observation 2-735801

Cynanchum louiseae *Black Swallow-wort, Louise's Swallow-wort, Dog-strangling Vine* 46
77 observations 2-151919
Featured Species

Cynanchum rossicum *Pale Swallow-wort, Dog-strangling Vine, European Swallow-wort* 47
2 observations 2-161289
Featured Species

Cynoglossum officinale *Common Hound's-tongue, Beggar's Lice, Common Bur, Houndstongue, Sheep Lice, Glovewort* 48
1 observation 2-159593

Cyprinus carpio *Common Carp*

Persicaria longiseta *Bristly Lady's-thumb* 127
14 observations 2-160949

Persicaria nepalensis *Nepal Smartweed* 128
1 observation 2-161484

Persicaria perfoliata *Mile-a-minute Weed, Mile-a-minute Vine, Asiatic Tearthum, Mile a minute weed* 129
2 observations 2-145545
Featured Species

Petromyzon marinus *Sea Lamprey* 130
1 observation 2-106340

Phalaris arundinacea *Reed Canarygrass* 131
14 observations 2-159238

Phleum pratense *Meadow Timothy, Timothy* 132
11 observations 2-135574

Phragmites australis ssp. australis *Common Reed, Common reed grass* 133
104 observations 2-800788
Common Invasive Species Featured Species

Picea abies *Norway Spruce* 134
5 observations 2-139637
Featured Species

Pilosella caespitosa *Field Hawkweed* 135
4 observations 2-146060

Poa compressa *Canada Bluegrass, Canada blue-grass* 136
14 observations 2-144119

Poa pratensis ssp. pratensis *Kentucky Bluegrass* 137
4 observations 2-150331

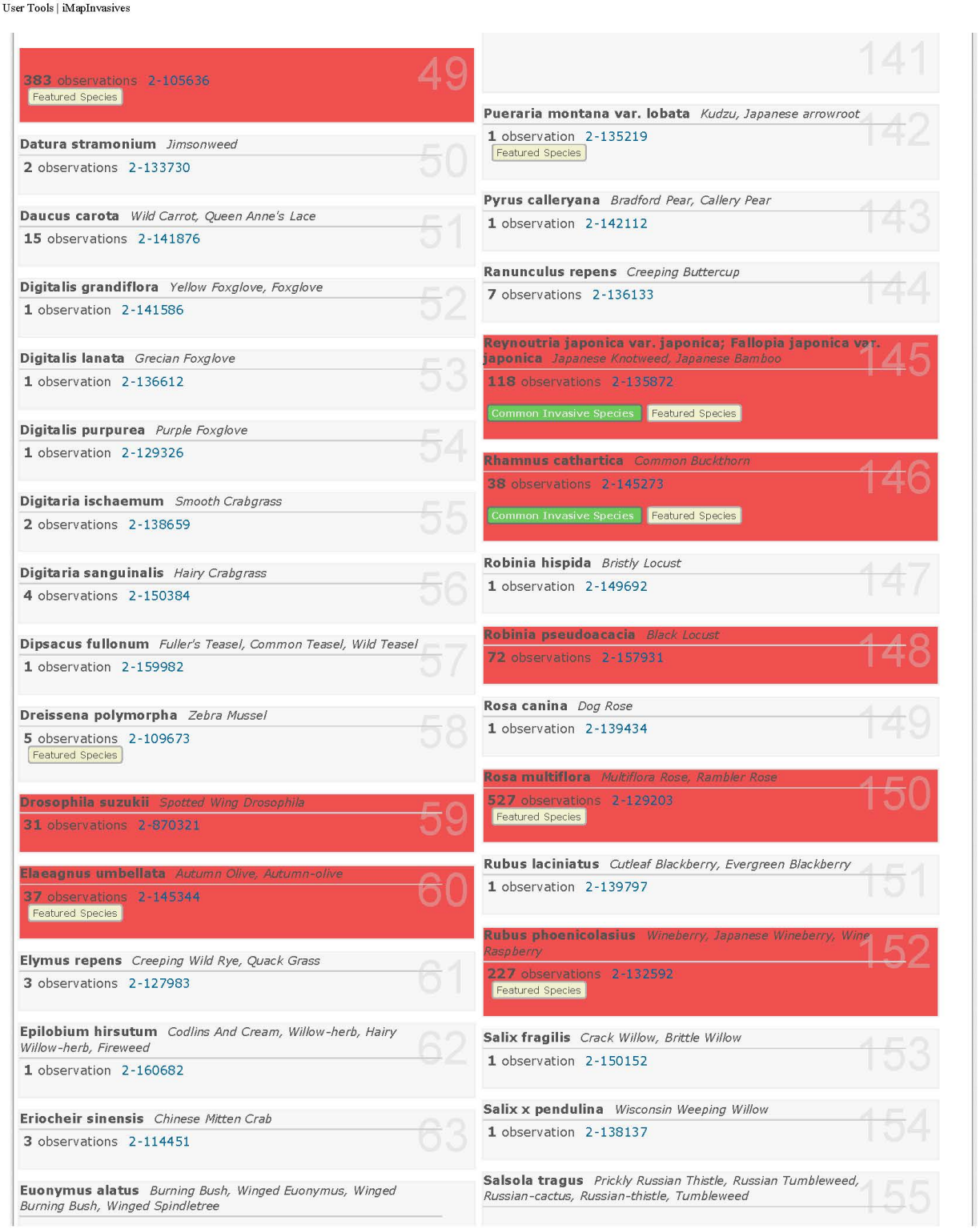
Populus alba *White Poplar* 138
2 observations 2-135044

Potamogeton crispus *Curly Pondweed, Crisped Pondweed, Curly-leaf pondweed, Curlyleaf pondweed, Crispy-leaved pondweed* 139
2 observations 2-145742
Featured Species

Prunus avium *Sweet Cherry* 140
3 observations 2-137270

Prunus cerasus *Sour Red Cherry*
1 observation 2-159252

FIGURE 12 – IMAP INVASIVES TABLES FOR COUNTIES CONTAINING THE UNIT



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383 observations 2-105636 — Featured Species — 49

Datura stramonium *Jimsonweed* — 2 observations 2-133730 — 50

Daucus carota *Wild Carrot, Queen Anne's Lace* — 15 observations 2-141876 — 51

Digitalis grandiflora *Yellow Foxglove, Foxglove* — 1 observation 2-141586 — 52

Digitalis lanata *Grecian Foxglove* — 1 observation 2-136612 — 53

Digitalis purpurea *Purple Foxglove* — 1 observation 2-129326 — 54

Digitaria ischaemum *Smooth Crabgrass* — 2 observations 2-138659 — 55

Digitaria sanguinalis *Hairy Crabgrass* — 4 observations 2-150384 — 56

Dipsacus fullonum *Fuller's Teasel, Common Teasel, Wild Teasel* — 1 observation 2-159982 — 57

Dreissena polymorpha *Zebra Mussel* — 5 observations 2-109673 — Featured Species — 58

Drosophila suzukii *Spotted Wing Drosophila* — 31 observations 2-870321 — 59

Elaeagnus umbellata *Autumn Olive, Autumn-olive* — 37 observations 2-145344 — Featured Species — 60

Elymus repens *Creeping Wild Rye, Quack Grass* — 3 observations 2-127983 — 61

Epilobium hirsutum *Codlins And Cream, Willow-herb, Hairy Willow-herb, Fireweed* — 1 observation 2-160682 — 62

Eriocheir sinensis *Chinese Mitten Crab* — 3 observations 2-114451 — 63

Euonymus alatus *Burning Bush, Winged Euonymus, Winged Burning Bush, Winged Spindletree*

141

Pueraria montana var. lobata *Kudzu, Japanese arrowroot* — 1 observation 2-135219 — Featured Species — 142

Pyrus calleryana *Bradford Pear, Callery Pear* — 1 observation 2-142112 — 143

Ranunculus repens *Creeping Buttercup* — 7 observations 2-136133 — 144

Reynoutria japonica var. japonica; Fallopia japonica var. japonica *Japanese Knotweed, Japanese Bamboo* — 118 observations 2-135872 — Common Invasive Species — Featured Species — 145

Rhamnus cathartica *Common Buckthorn* — 38 observations 2-145273 — Common Invasive Species — Featured Species — 146

Robinia hispida *Bristly Locust* — 1 observation 2-149692 — 147

Robinia pseudoacacia *Black Locust* — 72 observations 2-157931 — 148

Rosa canina *Dog Rose* — 1 observation 2-139434 — 149

Rosa multiflora *Multiflora Rose, Rambler Rose* — 527 observations 2-129203 — Featured Species — 150

Rubus laciniatus *Cutleaf Blackberry, Evergreen Blackberry* — 1 observation 2-139797 — 151

Rubus phoenicolasius *Wineberry, Japanese Wineberry, Wine Raspberry* — 227 observations 2-132592 — Featured Species — 152

Salix fragilis *Crack Willow, Brittle Willow* — 1 observation 2-150152 — 153

Salix x pendulina *Wisconsin Weeping Willow* — 1 observation 2-138137 — 154

Salsola tragus *Prickly Russian Thistle, Russian Tumbleweed, Russian-cactus, Russian-thistle, Tumbleweed* — 155

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FIGURE 12 – IMAP INVASIVES TABLES FOR COUNTIES CONTAINING THE UNIT

User Tools | iMapInvasives

64
6 observations 2-128977
Featured Species

Euonymus europaeus *European Spindle-tree, Spindle-tree, European spindletree* 65
1 observation 2-143170

Euphorbia cyparissias *Cypress Spurge* 66
2 observations 2-159303

Euphorbia dentata *Toothed Spurge* 67
1 observation 2-733653

Euphorbia esula *Leafy Spurge, Wolf's Milk* 68
19 observations 2-149354

Festuca filiformis *Hair Fescue, Fineleaf Sheep Fescue* 69
2 observations 2-143381

Ficaria verna ssp. verna *Lesser celandine, Fig Buttercup* 70
3 observations 2-132789

Fiorinia externa *Elongate Hemlock Scale* 71
7 observations 2-870320

Galium odoratum *Sweet Bedstraw, Woodruff* 72
3 observations 2-133376

Geranium sibiricum *Siberian Crane's-bill* 73
1 observation 2-132026

Glechoma hederacea *Ground Ivy, Gill-over-the-ground* 74
23 observations 2-143722

Halyomorpha halys *Brown Marmorated Stink Bug* 75
162 observations 2-861748
Featured Species

Hemerocallis fulva *Orange Daylily, Tawny Daylily, Day lily, Day-lily* 76
5 observations 2-153807

Heracleum mantegazzianum *Giant Hogweed* 77
11 observations 2-153454
Featured Species

Hesperis matronalis *Dame's Rocket* 78
28 observations 2-157721

Hieracium piloselloides *Kingdevil, King-devil, Tall Hawkweed*
5 observations 2-140313

3 observations 2-144280

Saponaria officinalis *Bouncing-bet, Bouncing Bet* 156
19 observations 2-153728

Scardinius erythrophthalmus *Rudd* 157
1 observation 2-100278

Schedonorus arundinaceus *Tall Fescue, Kentucky Fescue, Reed Fescue, Coarse Fescue, Alta Fescue* 158
1 observation 2-151321

Schedonorus pratensis *Meadow Fescue* 159
1 observation 2-160302

Sedum sarmentosum *Stringy Stonecrop* 160
1 observation 2-139741

Solanum dulcamara var. dulcamara *Climbing Nightshade, Bittersweet Nightshade, Trailing nightshade* 161
18 observations 2-160614

Sorbaria sorbifolia *False Spiraea* 162
2 observations 2-155020

Sorghum halepense *Johnson Grass, Johnsongrass* 163
1 observation 2-138624

Spiraea japonica *Japanese Spiraea, Japanese Meadowsweet* 164
1 observation 2-142504

Tanacetum vulgare *Common Tansy* 165
7 observations 2-141030

Torilis japonica *Erect Hedge-parsley, Japanese Hedge-parsley* 166
3 observations 2-139642

Trachemys scripta elegans *Red-eared Slider Turtle* 167
1 observation 2-103497

Trapa natans *Water Chestnut, Water-chestnut* 168
15 observations 2-149241
Common Invasive Species Featured Species

Trifolium repens *White Clover* 169
8 observations 2-147168

Tussilago farfara *Colt's Foot, Coltsfoot* 170
34 observations 2-147257

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FIGURE 12 – IMAP INVASIVES TABLES FOR COUNTIES CONTAINING THE UNIT

79

Humulus japonicus *Japanese Hops* 80
3 observations 2-157140

Hylotelephium telephium *Garden Stonecrop, Live Forever* 81
1 observation 2-153618

Hypericum perforatum *Common St. Johnswort, St. John's wort* 82
17 observations 2-153959

Iris pseudacorus *Yellow Iris, Water-flag, Yellow flag iris, Water flag, Yellow flag* 83
5 observations 2-149941
Featured Species

Lathyrus latifolius *Perennial Pea, Everlasting-pea, Sweet-pea Everlasting* 84
1 observation 2-132581

Lepidium campestre *Field Pepper-grass* 85
1 observation 2-136576

Lepidium densiflorum var. densiflorum *Common Pepperweed* 86
1 observation 2-160842

Lepomis cyanellus *Green Sunfish* 87
2 observations 2-103917

Ligustrum amurense *Amur Privet* 88
1 observation 2-136697

Ligustrum obtusifolium *Border Privet* 89
13 observations 2-153017

Ligustrum spp. (species unknown) *Privet (species unknown)* 90
1 observation 2-IMAP4

Ligustrum vulgare *European Privet, Common privet* 91
10 observations 2-148992
Featured Species

Lonicera japonica *Japanese Honeysuckle* 92
17 observations 2-129271
Featured Species

Ulmus pumila *Siberian Elm* 171
1 observation 2-137202

Valeriana officinalis *Common Valerian, Garden Heliotrope* 172
1 observation 2-136482

Verbascum phlomoides *Clasping-leaf Mullein* 173
1 observation 2-130489

Verbascum thapsus *Great Mullein, Common mullein* 174
23 observations 2-155675

Veronica officinalis *Gypsy-weed, Common Speedwell, Speedwell* 175
43 observations 2-154977

Viburnum lantana *Wayfaring-tree* 176
2 observations 2-141805

Vicia cracca ssp. cracca *Tufted Vetch* 177
1 observation 2-149182

Vicia grandiflora *Showy Vetch* 178
1 observation 2-156520

Vinca minor *Common Periwinkle, Periwinkle* 179
10 observations 2-148703

Wisteria floribunda *Japanese Wisteria, Wisteria* 180
3 observations 2-131380

Wisteria sinensis *Chinese Wisteria* 181
2 observations 2-158689

Wisteria spp. (species unknown) *Wisteria (species unknown)* 182
10 observations 2-IMAP3

Organizations Report - 44 Organizations