

STATE OF CONNECTICUT

DEPARTMENT OF ENERGY AND ENVIRONMENTAL  
PROTECTION



Bureau of Natural Resources

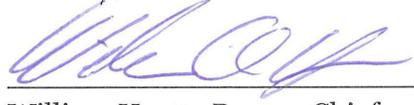
Division of Forestry

FOREST MANAGEMENT PLAN  
2012 through 2022

Camp Columbia State Forest  
And State Historic Park

Approvals:

  
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Division of Forestry      Dec. 11, 2012

  
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## A. Executive Summary

Camp Columbia State Forest and Camp Columbia State Historic Park lie in the southern half of Morris, Connecticut, south of Bantam Lake, adjoining a finger of the lake known as "South Bay". A small area of the forest extends into the town of Bethlehem. The majority of the acreage lies immediately south of the Route 109/209 intersection. Route 109 forms the north boundary of some of the state park and forest.

The property is contiguous, although separated into two designations: [The State Historic Park](#), the northernmost area, is 72 acres and includes most of the buildings from the former Columbia University camp, as well as the entire piece north of Route 109. The remaining 527 acres is State Forest. This plan focuses on the 527 acres of State Forest.

This is the first vegetation management plan produced by DEEP for this property.

## B. History

Camp Columbia State Forest and State Historic Park were purchased from Columbia University in 2000 and dedicated as Camp Columbia State Forest (CCSF) and State Historic Park (SHP) in 2004.

Until 1903 the area was primarily farmland. Columbia University purchased the land to create a summer camp to facilitate practical field education for engineering and surveying students. Camp Columbia remained in near continuous use for 80 years, until the camp closed in 1983.

During World War I, Camp Columbia served a temporary war-time purpose. The property was used in 1917 and 1918 to combat train college students that planned to apply for commissions as officers. Students were trained to march, drill, dig trenches, and fight in simulated warfare that included real gunfire and explosives. Even today, eroded remnants of trenches dug during the training are still evident on the property.

Throughout the 20<sup>th</sup> Century, CCSF also hosted various dignitaries who were either guests of, or affiliated with, the University. President Dwight D. Eisenhower reportedly hunted on the property.

A more intimate history of Camp Columbia is available on a video produced by Columbia University Alumni, copies of which are retained and archived by DEEP.

Following camp closure in the 1980s, the University pursued forest management on the property, which included commercial timber harvests and planting Christmas trees. In 1988, Columbia University hired the Irland Group of Augusta, Maine to prepare the first comprehensive forest management plan for the property. The plan provided extensive timber volume growth projections and prescriptions by stand. Between 1988 and 1997 there were four commercial timber sales to harvest 382,000 board feet and 116 cords for a total value of \$81,452.25 across 172 acres. These sales occurred in stands now labeled 2, 7, 8, 10, 14, and C. Christmas trees (4,500) were planted in two locations (stand 2-5 and an area of state park south of the caretaker's house) and actively maintained through pruning, weeding, and herbicides/pesticides to produce quality stock. In 1989, approximately 2,000 white pine seedlings were also planted in 2 acres of abandoned gravel pit in stand 2-6. Other activities included pre-commercial crop-tree release work on at least 22 acres, as well as white pine release across many of the small patches and stands wherever it naturally occurs.

In 1991, Connwood Foresters, Inc. of Rockfall, CT, was retained by the Irland Group to take over active management activities and planning due to the impracticality of Irland handling the work from out of state. Connwood administered most of the timber sales, Christmas tree management, and TSI/crop-tree work that occurred in the 1990s. In 1989, the forest was designated a Pioneer Tree Farm by the American Tree Farm System.

Since Camp Columbia became a DEEP property, the most notable active forest management activities have included fuelwood permitting and some thinning and pruning of remaining Christmas tree stock by a local vo-ag school. Firewood permits have been issued annually since 2002 at Camp Columbia. As of this writing, six years of cordwood cutting (at a rate of typically 20-30 cords/year) have resulted in small-scale improvements to portions of roadside and interior stands.

## C. Acres and Access

### 1. Acres

Estimated total acres: 599

State Forest Acres: 527

State Park Acres (not included in CCSF management strategy): 72

Managed State Forest Acres: 329 (62% state forest acreage)

Non-managed State Forest Acres: 198 (38% state forest acreage)

\*192 of the 198 acres of non-managed state forest acres are wetlands of some type, broken down as follows:

Wooded Swamp:	128 acres
Open Swamp/Marsh:	43 acres
Vernal Pool Complex:	21 Acres

### 2. Present access (areas to be managed)

Sixty-eight (68) acres are accessed exclusively from Munger Lane, a town road. A small 2-acre stand (Stand 1) is accessed from Todd Hill Road. Many stands in Compartments 2 and 3 can be accessed by the main access road originating at the junction of Routes 109 and 209.

### 3. Inaccessible areas (acres) and access potential

There is uncertainty of using the north-south road for access into compartments 2 and 3 at the Bethlehem town line. It must be clarified whether or not that road is an abandoned town road in Bethlehem, whether DEEP has a right-of-way on the roadway out to Bergman Hill Road, and whether or not the current maintained roadbed between Bergman Hill and the old gate at the town line/Columbia property boundary is the historic and legal location of the road. Lack of access from Bethlehem means loss of access to manage stands 15, 16, 17, 18, and loss of the best access to stands 9 and 10. These stands encompass one-third of Compartment 2, and the

southern half of Compartment 3. Forestry has notified DEEP Land Acquisition and Management Division (LAMD) and requested legal clarification of DEEP's rights to use this access at the town line. No resolution has been reached by LAMD as of October 2012.

The biggest issue limiting access at CCSF is the abundance of wetlands. Most wetlands are open swamps or hardwood swamps and are expansive enough to make crossing with equipment impossible. They limit forest management in two ways—by reducing acreage of operable forest and by blocking and reducing access potential to other stands. The best solutions to improve the access situation would be acquisition of additional adjacent land, to be discussed under "I. Specific Acquisition Desires".

#### 4. Right-of-Way's

The deed for DEEP's acquisition of the property from Columbia University in 2000 (Bethlehem volume 207, pages 14, 15) references a right-of-way originally from Dwight C. Kilbourne and Wheaton F. Dowd to Columbia University, found in Volume 7, Page 212 of the Morris Land Records on 11/01/1912. Another right-of-way reserved from John McL. Nash to Columbia is recorded in Volume 9, Page 68 of the Morris Land Records on 05/22/1908. There are no details provided as to the nature of these right-of-ways.

One power line easement was granted to CL & P and recorded in the Morris Land Records in Volume 25, Page 562 on 12/09/1959. Power lines run along Route 109 and extend to the former camp along Camp Columbia Road, the main entrance road. Electric service is also available along part of Munger Lane.

The same deed references rights that may exist to maintain a boundary encroachment attributed to a log cabin (also reflected on the survey map), which belongs to an abutting boys' camp (Compartment 5, State Park land north of Route 109). Unless proof of such a right can be provided, this encroachment will be treated as such, and not as a right.

The survey by Dicara Land Surveying Services shows that the White Memorial Foundation has a 15' right-of-way over the Dowd Passway through State Park Compartment 5 for approximately 180 feet.

A right-of-way was also inherited with the 8.41-acre inholding acquired in 2001. It is referred to as a right-of-way to the "Highway" (presumably Route 109), recorded in Volume 15, Page 12 of the Morris Land Records. No available information shows where this right-of-way passes northward to 109.

There is also a right-of-way on the north-south road off Route 109 in Morris into the property. This is an abandoned town road and DEEP owns to the centerline of the road outside of Camp Columbia property. The same right may exist where the roadbed enters Bethlehem, but this has not been shown yet.

#### 5. Boundary Conditions and total miles of boundary

All boundaries were surveyed upon acquisition. Prior to that time, Camp Columbia was one of the most repeatedly surveyed properties. Boundaries were surveyed for Columbia University in 1988 and for DEEP in 2001.

The boundaries were marked by the [DEEP Forestry](#) and Parks divisions during the winter of 2002 and re-marked by DEEP Forestry in 2010. There are an estimated 39,378 linear feet, or 7.46 miles of boundaries, including both the state forest and park property.

#### 6. Known boundary problems

Known encroachments include mowing onto state land off Route 109, a wooden fence onto state land, a small shed constructed on the boundary off 109, and, most importantly, a prominent ATV entry point from private land across the Bethlehem town line, on the south boundary. Another serious encroachment occurs off 109 from houses which drain their septic via open pipe directly onto state forest land at the northwest corner of the state property. The encroachments are being addressed by LAMD on a priority basis.

Most unauthorized activity consists of ATVs riding on state land. ATVs and off-road dirt bikes are not permitted. ATVs disturb wildlife and wetlands, accelerate erosion, destroy erosion control measures on forest roads, and quickly create new trails that encourage further impacts. Use of trails by hikers, mountain bikers, and horseback riders should be on DEEP approved trails. Unauthorized uses of paths that exist in the forest, or creation of new ones, undermine the efforts of forest management. Unapproved uses can result in public safety compromises.

Timber harvest contracting will be used to assist blocking illegal trails. ATVs are an immediate concern in the southeast corner, in Compartment 3, stand 14. Here there are well-worn trails that pass through the vernal pool complex, an area of critical habitat focus on the property. The Forestry Division, in cooperation with [DEEP Wildlife](#) or State Parks division personnel, will thoroughly block the trails at two points, north and south, where they approach the vernal pools. It is also advisable to block entry points from neighboring properties, particularly along the south line/Bethlehem town line, and along the southern half of the eastern boundary of Camp Columbia.

## D. Special Use Areas

### 1. Lakes and ponds

There is a small man-made pond in the southeast corner of Compartment 4 (State Park), near the larger Christmas tree plantation. There are no plans to use this pond for recreational purposes.

There is approximately 100 feet of frontage on Bantam Lake near the boathouse in Compartment 5. Tanker fire trucks can draft water here in case of wildland fire.

### 2. Rivers and streams

There are no significant or named streams and rivers within Camp Columbia. Most streams are ephemeral, or otherwise are part of the wetlands flowage network that runs from northwest to southeast across much of the property.

3. Cultural sites

Nearly all buildings from the Columbia University camp were demolished by DEEP Support Services due to disrepair and hazardous conditions. The 1914 boathouse on Bantam Lake and the unique stone water tower is closed off, but could serve as an observation tower, were left as a result of recommendations at a site review by The State Historic Preservation Office. Other than the camp itself, signs of pre-camp construction around the property will be respected and impacts minimized, including stone walls and cellar holes.

A previous management plan for Columbia University mapped the extensive stone walls on the Camp Columbia property, which crisscross and divide portions of the property into small blocks for miles, a testament to the farmland history of the acreage.

4. Recreation and scenic sites – trails and signs

Regulated hunting is permitted in the state forest. The property is used for bird watching. A public parking area was constructed on Route 109 in 2007 for public access to a developing trail system on the large main parcel of the property. The first DEEP trail system was established in October 2008, and is used for hiking, mountain biking, cross-country skiing and snowshoeing, dog walking, and horseback riding.

5. Critical Habitat (State listed rare or endangered plants and animals)

Review of the State's Natural Diversity Data Base of the DEEP Wildlife Division shows no known populations of Federal or State Endangered, Threatened, or Special Concern species at Camp Columbia.

In 2006 New England Cottontail (NEC) became a candidate for Threatened or Endangered status by the US Fish and Wildlife Service. There is brushy habitat for NEC west of the main access road in compartment 2, stand 4 (2-4). In 2007, by trapping, the DEEP Wildlife Division confirmed the presence of NEC. The NEC is the only native rabbit species to Connecticut. Populations have dramatically declined in the region due to habitat loss and fragmentation, as well as competition from the more adaptable eastern cottontail. This sapling and shrubland stand is rapidly returning to forest as a part of natural succession. The area is losing the character that made it a desirable habitat. Any work that returns vegetation to early successional growth and maintains areas of shrubby cover in 2-4 would be beneficial to NEC, as well as providing early successional habitat for other species. Because 2-4 has great value for wildlife habitat, it will be managed according to the priorities of the Wildlife Division in relation to NEC and other early succession species.

A second significant area of biological interest to DEEP Wildlife is a unique [vernal pool](#) complex in the southeast corner of the property (Compartment 3, Stand K). There are six vernal pools of various sizes and types all in close proximity. Forestry has requested spring amphibian population surveys by the Wildlife Division at all pools. A survey will help determine the most appropriate management for this special area. CT DEEP's "[Best Management Practices for Water Quality While Harvesting Forest Products](#)" recommends an undisturbed 50 foot buffer with at least 50% crown cover maintained. Since all pools have these associated buffers according to BMPs, a 21-acre area encompassing all adjacent pools has been established that will be left out of active forest management for the period of this management plan. This area is designated as stand "K". No operation in

stand 3-14 or 3-15 near the vernal pools is scheduled for this 10-year period. This should allow enough time to survey species and populations in the pools and determine the best management strategy for the complex and nearby stands.

#### 6. Research Areas

Population survey research by the Wildlife Division for NEC, early successional habitat birds, and amphibians utilizing the vernal pool complex at the southeast corner of the property is a project for this management plan decade.

## **E. Extensive Areas of Concern**

### 1. Trails/signs

There are 3.21 miles of recreational trails open to the public. Construction of boardwalks and bridges are planned to complete a multiple-use trail system that can accommodate more than just foot traffic.

Harvest operations implemented as part of this plan will give due respect to the trail system. As a matter of Standard Operating Procedure (SOP) during harvest operations, no more than 50% of the basal area is cut within 100 feet of authorized trails and no slash will be left within 25 feet. These guidelines apply to DEEP approved trails.

For public safety, trails will be temporarily closed to the public during harvests. Caution and/or informational signs will be posted to warn/inform the public about work in progress. Due to the planned level of firewood permit cutting that will take place on the property, interpretive signage will be used wherever trails pass nearby.

There is a standard wooden shield sign for "Camp Columbia State Park" on Route 109 at the entrance of the new parking area. A shield sign for the "State Forest" is planned for Munger Lane. At the head of the hiking trails on 109, a standard DEEP Park information kiosk has been constructed for visitors. An historic sign or plaque should be installed by Parks, where the trail passes by the area of the former campus.

Due to potential confusion to the public regarding the separation of the state forest and park areas, signs will be maintained by the Wildlife Division along the boundary between the two areas to make it clear that hunting is not allowed on the Park portion of the property.

### 2. Wetlands

There are an estimated 128 acres of hardwood wetlands and another 43 acres of open wetlands in the state forest portion of the property, as well as six vernal pools across a 21-acre area.

The primary stream, producing a nearly continuous series of swamps and marshes, flows from the northwest to southeast corner of the property. Occasionally, more minor streams flow into and out of this strip of wetlands, producing fingers of additional wetland acreage. The primary flowage produces a nearly impassable barrier to management and access across the heart of the property but adds diversity of character and wildlife habitat value to an otherwise nearly uniform hardwood forest.

## **F. Wildlife Habitat – DEEP Wildlife (Author—Peter Picone)**

### 1. Investment in habitat improvement

Although constituting only a small block of the region's forested landscape, Camp Columbia provides good forestland habitat for a variety of reptiles, amphibians, mammals and birds. It provides hardwood forests of both the upland and lowland variety, mature, immature, and medium-aged, of mixed species, and includes many hard mast and soft mast producers. It provides wetlands (wooded and open), small streams, a network of vernal pools, unique pockets of conifer habitat, and early successional growth providing a mix of shrubs, grasses, and saplings.

### 2. Existing diversity situation – wetlands

Total state forest acres: 527

1. Forest Cover: 92% (485 acres)
  - a. Sapling: 7% (37 acres)
  - b. Pole: 3% (16 acres)
  - c. Mix pole-sapling: 4% (21 acres)
  - d. Mature sawtimber: 54% (285 acres)
  - e. Mix sawtimber-pole: 24% (126 acres)
2. Open Field/Grassland
  1. Permanent open field (herbaceous cover): None
3. Wetlands
  - a. Total Wetlands: 32% (171 acres)
    - i. Wooded Swamp: 24% (128 acres)
    - ii. Open swamps/marshes: 8% (43 acres)

This area is open to legal regulated hunting and trapping. This includes small game, waterfowl, spring turkey, fall firearms turkey, fall archery deer and turkey, muzzleloader, and lottery firearms deer hunting.

There are special area restrictions at Camp Columbia. The 72 acres of state historic park are completely closed to hunting, 150 acres of state forest is archery only, and the remaining 377 acres of state forest (the southern two-thirds of Compartment 2 and all of Compartment 3) is open to all types of regulated hunting normally permitted in Connecticut state forests.

There is no need for any species-specific population controls on wildlife at this time other than those achieved through the use of regulated hunting and trapping.

Problems created by beaver will be assessed and dealt with through use of the state lands trapping system unless site-specific conditions dictate otherwise. It is not desirable to lose more productive forest land and access to beaver activity at Camp Columbia.

### 3. Landscape context – DEEP Wildlife

Resource managers take into account the regional context of a block of State-owned forest when developing strategies to enhance or protect wildlife resources. CCSF provides a significant forested area and contributes to the quantity and quality of the region's biodiversity. Its importance and value ecologically will continue to grow as surrounding properties are subdivided and fragmented.

CCSF comprises about 8.5 percent of the 7,083 acres of forestland of the town of Morris (Univ. of CT. Center for Land Use Education and Research, or C.L.E.A.R., 2008). The town of Morris has experienced about a 4.7 percent increase in developed area (housing) over the last 17 years according to the C.L.E.A.R. website.

The scientific management of the forest resources of CCSF could have a positive effect on the biological diversity of the area. Opportunities to protect and enhance habitat for a variety of wildlife species is possible.

### 4. Recreation Based Wildlife – DEEP Wildlife

Maintaining a diverse, interconnected forested ecosystem with a variety of age classes and sizes is a great benefit to wildlife (Scanlon, 1992). An interspersion of specialized habitats such as grasslands, shrublands, wetlands, vernal pools, and young forest within a maturing forest environment is important when considering maintaining wildlife species diversity.

Planned forestry activities at Camp Columbia will promote and improve forest stands comprised mostly of sawtimber age classes. Wildlife species that thrive on sawtimber-sized stands will continue to benefit during this ten-year plan. Forest interior bird species such as red-eyed vireo, wood thrush, pileated woodpecker, and ovenbird will find stable and improving habitat conditions. Reptiles such as eastern box turtle will benefit to meet its seasonal needs without interference of paved roads and road traffic typical of what happens in a suburbanizing landscape of Connecticut. Vernal pools are protected through the use of carefully planned harvest roads. Wildlife species such as NEC, American woodcock, ruffed grouse, and eastern towhee that require early successional forest conditions will benefit from targeted habitat enhancements in this 10 year plan. Young forest habitat for NEC is ephemeral and declines in the quality of its habitat occur in the 10 to 15 years following a patch cut or clearcut. The Wildlife Division will work closely with the Forestry Division to seek additional funding to ensure the perpetual existence of young forest habitat patches for the local NEC populations. Most action and investment in habitat should improve conditions for early successional habitat wildlife species, particularly NEC, American woodcock, ruffed grouse, prairie warbler, eastern towhee and whippoorwill.

In Stand 3-11, cordwood cutting could help maintain dense understory, thick edges and brush piles, and thus improve conditions for NEC. An active public cordwood cutting program at Camp Columbia will help continue the improvement of NEC habitat.

It is recommended that opportunistic management for control of the following invasive non-native woody species be implemented during this ten-year plan: Oriental bittersweet (*Celastrus orbiculatus*), tree-of-heaven (*Ailanthus altissima*), black locust (*Robinia pseudo-acacia*) and Norway maple (*Acer platanoides*). These four invasive non-native woody species have the potential to affect overstory canopy conditions and large areas

through their spread and dominance of sunlight, space, moisture and nutrients. Certain other species common on the property, such as Japanese barberry and multi-flora rose, are worthy of control, but do not as readily affect the overstory canopy.

In 2-4 a 4.5-acre area was cut in 2008 (DEEP Grant CT Income Tax Check-Off ). All trees 2 inches in diameter and up were cut using a feller-buncher. DEEP Wildlife is monitoring, through live-trapping, the post-cut use of 2-4 by NEC. A pre-cut live-trapping of 2-4 was conducted by DEEP Wildlife during 2007-2008. An adjacent additional patch cut occurred in 2011, with a third anticipated in 2012 or 2013, all within 2-4.

Only 7 percent (37 acres) of CCSF land is comprised of sapling-sized forest. It is important to consider at least doubling the amount of sapling forest in order to improve and maintain habitat conditions for the NEC and its associated early successional wildlife species. Stands 2-4, 3-11 and 3-12 are in close proximity to existing NEC habitat and could be places to create additional patch cuts to improve habitat for NEC. The adjacent State Historic Park land along Camp Columbia Road closest to these stands should also be considered for future habitat work.

Forestry will follow BMP guidelines around vernal pools, unless surveys by the Wildlife Division result in more specific recommendations. For the present 10-year planning period, a 21-acre buffer has been established to protect the pools. For a more scientifically-accurate prescription covering this area, more data is needed on utilization of the pools by amphibian species.

Through the collaborative efforts of the forester and wildlife biologist, science-based forest management strategies can be employed to improve the biodiversity and health of the forested areas included in the Camp Columbia 599 acres. The landscape-level forest management planning set forth in this document, as well as the tailoring of wildlife habitat needs in individualized forest operation plans to come, will ensure that wildlife habitat will be enhanced, protected and, in some cases, created.

## **G. Vegetative Condition**

### **1. Silviculture**

Forest management at CCSF will utilize both even-aged and uneven-aged management based on the composition of each stand, growing site, and diversity objectives. In general, uneven-aged management will be used in shade tolerant northern hardwood types composed of beech-birch-maple. It will also be used on the better quality sites with greater soil moisture and a higher site index, where oak regeneration would be less able to compete. One-third of the managed acres are expected to become uneven-aged. Uneven-aged management will be based on 20-year cutting cycles. A 20-year cycle means half of the acres managed on an uneven-aged basis must be treated every 10 years. Uneven-aged management will be practiced on a total of 7 stands (109 acres). The 10-year work schedule calls for work on 48 acres, or just less than half the uneven-aged acres.

Even-aged management will be used in stands dominated by oak species or in stands that are severely under stocked. Approximately two-thirds of the managed acres will be on an even-aged basis. Even-aged areas will be managed on a 100-year rotation. An average of 10% of the even-aged areas is to be completely regenerated every 10 years. The 10-year work schedule plans for 17 acres of clearcut in 2-4. Thinning and improvement cuts

will occur on 54 acres of even-aged stands in the first 10 years. Meanwhile, cordwood cutting will do timber stand improvement work in several areas.

Forest size classes by forest type (total forested acres; not just managed acres; State Park Area excluded)

Type	Sapling	Pole	Sawtimber	Sapling-Pole	Sawtimber Pole	TOTAL
Eastern White Pine	0	3	0	0	0	3
White Oak/ Red Oak/ Hickory	0	0	0	0	10	10
White Oak	0	8	0	0	0	8
Northern Red Oak	0	0	81	0	0	81
Scarlet Oak	0	0	0	0	35	35
Red Maple/ Oak	0	0	0	0	19	19
Mixed Upland Hardwoods	29	0	50	0	0	79
Red Maple/ Lowland	0	0	123	0	5	128
Black Cherry	0	5	2	0	1	8
Red Maple/ Upland	4	0	26	17	57	104
Paper Birch	0	0	0	5	0	5
TOTAL	33	16	282	22	127	480

Forest type, size class and condition class on areas to be managed

By USFS Forest Cover Type (includes all areas where work is due, and not just in next ten years)

EASTERN WHITE PINE 103 – 2 small stands

SIZE CLASS	Satisfactory	THIN	REGENERATE Even-Aged*	Convert to Uneven-Aged	TOTAL
Sapling					
Pole		4			4
Sapling-Pole					
Pole-Sawtimber					
Sawtimber					
TOTAL		4			4

\*"Regenerate" column in tables include all phases of shelterwood cuts, even if not scheduled within 10 year plan.

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WHITE OAK/ RED OAK/ HICKORY (503) – 1 Stand

SIZE CLASS	Satisfactory	THIN	REGENERATE Even-Aged*	Convert to Uneven-Aged	TOTAL
Sapling					
Pole					
Sapling-Sawtimber					
Pole-Sawtimber		10			10
Sawtimber					
TOTAL		10			10

WHITE OAK (504) – 1 Stand

SIZE CLASS	Satisfactory	THIN	REGENERATE Even-Aged*	Convert to Uneven-Aged	TOTAL
Sapling					
Pole		8			8
Pole-Sawtimber					
Sawtimber					
TOTAL		8			8

NORTHERN RED OAK (505) – 2 Stands

SIZE CLASS	Satisfactory	THIN	REGENERATE Even-Aged*	Convert to Uneven-Aged	TOTAL
Sapling					
Pole					
Sapling-Sawtimber					
Pole-Sawtimber					
Sawtimber		55			55
TOTAL		55			55

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SCARLET OAK (510) – 1 Stand

SIZE CLASS	Satisfactory	THIN	REGENERATE Even-Aged*	Convert to Uneven-Aged	TOTAL
Sapling					
Pole					
Sapling-Sawtimber					
Pole-Sawtimber		35			35
Sawtimber					
TOTAL		35			35

RED MAPLE/ OAK (519) – 1 Stand

SIZE CLASS	Satisfactory	THIN	REGENERATE Even-Aged*	Convert to Uneven-Aged	TOTAL
Sapling					
Pole					
Sapling-Sawtimber					
Pole-Sawtimber		19			19
Sawtimber					
TOTAL		19			19

MIXED UPLAND HARDWOODS (520) – 3 Stands

SIZE CLASS	Satisfactory	THIN	REGENERATE Even-Aged*	Convert to Uneven-Aged	TOTAL
Sapling	29				29
Pole					
Sapling-Sawtimber					
Pole-Sawtimber					
Sawtimber	2			48	50
TOTAL	31			48	79

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BLACK CHERRY (802) – 2 Stands

SIZE CLASS	Satisfactory	THIN	REGENERATE Even-Aged*	Convert to Uneven-Aged	TOTAL
Sapling					
Pole			5		5
Sapling-Sawtimber					
Pole-Sawtimber					
Sawtimber				2	2
TOTAL			5	2	7

RED MAPLE/ UPLAND (809) – 5 Stands

SIZE CLASS	Satisfactory	THIN	REGENERATE Even-Aged*	Convert to Uneven-Aged	TOTAL
Sapling	4				4
Pole-Sapling			17		17
Sapling-Sawtimber					
Pole-Sawtimber			30	27	57
Sawtimber				26	26
TOTAL	4		47	53	104

PAPER BIRCH (902) – 1 Stand

SIZE CLASS	Satisfactory	THIN	REGENERATE Even-Aged*	Convert to Uneven-Aged	TOTAL
Sapling					
Pole-Sapling			5		5
Pole					
Pole-Sawtimber					
Sawtimber					
TOTAL			5		5

2. Forest health

a. Understory concerns

Japanese barberry occurs in some stands, particularly near old fields. Multi flora rose and autumn olive are found in some old-field and wetlands. These invasives should be eliminated wherever they occur. Any commercial harvest work in stands with invasive plants will include invasive controls.

b. Emerald Ash Borer (EAB)

This invasive insect is considered a threat to the ash component of the CCSF ecosystem.

## H. Landscape Context – Forestry – adjacent land uses

Camp Columbia is located in a region of the Litchfield Hills noted for its rural character, including abundant private and public forest land and active farmland.

The White Memorial Foundation is a landowner in the vicinity with nearly 4,000 acres of land in Litchfield and Morris, including some parcels of forest land on the north side of Route 109, around Bantam Lake (approximately 65 acres accessed from Dowd Passway through Columbia), and another parcel on the south side of 109 near, but not abutting, Camp Columbia. White Memorial also actively manages their forest through long-term planning, which was discussed with the staff forester during development of this DEEP plan. DEEP and White Memorial will begin sharing management information and plans on a more regular basis in a new effort to acknowledge and complement work beyond their respective boundaries. Common goals are the management of the forest to produce quality timber, creating early successional habitat, and protection of critical areas.

## I. Specific Acquisition Desires

Development limits future acquisition possibilities to expand CCSF.

The list below enumerates possible acquisitions. This section of the plan will be provided to LAMD.

A. Town of Morris:

1. Map 8, lot 25—7.3 acres. This parcel is a “back lot” with an access right-of-way through town assessment lot 19 off Munger Lane. However, DEEP would have improved access to the parcel through existing adjacent land.
2. Map 8, lot 53—26.54 acres. It provides access from Todd Hill Road. The two lots together would increase acreage at Camp Columbia by nearly 6% and afford protection to a quarter-mile of stream and an estimated 18 acres of additional wetland.
3. Map 2, lot 241—30.6 acres. This parcel increases DEEP’s frontage on Munger Lane. The lot includes 26 acres of forest and 4.5 acres of farm land. The forest is already under active management by a consulting forester and would be a logical addition to the southern boundary of Compartment 1.
4. Map 3, lot 174—17.22 acres. Lot is located near the southeast corner of Camp Columbia and has no access by itself. One vernal pool occurs on the property boundary, so ownership of this parcel would afford complete protection of this pool and provide a greater buffer for the entire complex area. It

should also provide new access for logging equipment around the vernal pools to facilitate management of the southern extent of stand 14 and all of stand 15. Ownership could also provide improved prevention of illegal ATV access through this private parcel, and protect approximately 1,000' of stream that drains directly into Whittlesey Brook and Long Meadow Pond just southeast of Camp Columbia.

5. Map 9, lot 179—15.3 acres. This is a landlocked vacant lot that would expand forested acres and assist in protecting a wetland and streams. Due to terrain at the boundary, it is not likely that DEEP would have management access to this parcel from existing land unless lot 174 was also purchased.

The following 3 lots are worth pursuing only if the forested acres are subdivided from the house lots, as all 3 parcels contain homes:

1. Map 9, lot 60, currently total of 53.9 acres—North Terrell Farm Road, would provide access via a new road for DEEP and providing more vernal pool protection. Lot 60 also contains an abundance of streams and wetlands. *Without acquisition of lot 174 this parcel is of no use for Camp Columbia.*
2. Map 9, lot 161 (43 acres) and Map 9, lot 207 (29.5 acres) abut one another and Camp Columbia on the northeast side. They have significant frontage on Route 109 and are valuable if separated from houses. Lot 207 has over 5 acres of valuable farmland.

#### B. Town of Bethlehem

The only priority acquisition property on the Bethlehem side of the town line is map 10-9, lot 15 (12.98 acres), on the south side of Bergemann Hill Road. This lot does not directly abut existing DEEP land and is not recommended for acquisition unless DEEP can also acquire map 2, lot 241 on the Morris side.

No properties are considered a specific acquisition desire at this time if they do not abut existing Camp Columbia property, or unless non-abutting parcels can be acquired simultaneously with parcels that do directly abut current land.

## J. Public Involvement

A draft of this plan was made available to the Morris Conservation Commission for review and comments. A presentation regarding this plan was also offered to the town commission, to be provided by the authoring forester, in cooperation with a DEEP Wildlife Biologist. No feedback was received from the town.

The plan was also reviewed by the Connecticut Forest and Park Association (CFPA) although no Blue-blazed Trails are present on the property.

The plan and associated maps was shared with the Forestry staff of the abutting White Memorial Foundation land in a renewed cooperative effort at broader management on a landscape level. Their comments and signatures are included with this plan. See Appendix B for letter from White Memorial Foundation.

## K. Adaptive Management

The Division of Forestry understands the nature of forest management as it occurs as part of a dynamic landscape. Management actions are often affected by outside variables which influence the outcome of resource decisions. The Division of Forestry reserves the right to reasonably change our management approach as environmental change and resource needs warrant. Some of these changes may be associated with biological factors such as insect and disease, or population outbreaks. Increased unauthorized motorized recreation which erodes trails and roads may require action unforeseen during the composition of this plan. Additionally, environmental conditions such as hurricanes or record-breaking precipitation may additionally affect resource condition and work requirements. The Division of Forestry and our colleagues in Parks, Wildlife, Fisheries, and Agency Support, evaluate circumstances and use an adaptive-management philosophy and additionally reserve the right to address unforeseen circumstances should they arise during the tenure of this forest management plan.

## L. 10 Year Goals

The primary silvicultural goals for the next ten years under this management plan are improvement of the overall health and vigor of the forest, and providing for increased long-term forest diversity in age classes, forest types and degrees of cover.

- Improve access into property.
- Maintain 100% of boundaries and resolve encroachments.
- Actively pursue acquisition of abutting open space to increase the size of the property and to improve access into existing property. It is also a mutual desire of DEEP and White Memorial to connect their respective property through acquisition wherever possible.
- Complete development of a recreational trail system.
- Improve public information and communications regarding management of the property through a diverse and proactive campaign by DEEP Forestry, Parks, and Wildlife.
- Provide a continuous but sustainable volume of cordwood to the public.
- Critical habitat areas identified and protected for wildlife must take management and research priority.
- Pro-actively prevent illegal ATV access.

## M. Work Plans

### 1. Harvest Schedule, 2012-2022

#### UNEVEN-AGED MANAGEMENT

##### a. Selection Harvest

Stand #	Acres
1-2	48
TOTAL	48

EVEN-AGED MANAGEMENT

b. Thinning and Improvement Cut

Stand #	Acres
3-11	35
3-12	19
TOTAL	54

c. Clearcut

Stand #	Acres
2-4 a	17
TOTAL	17

Total acreage scheduled for commercial or stand level silvicultural treatments during this plan period: 119 (23% of managed acres) Even-Aged Operations: 71 acres. Uneven-Aged Operations: 48 acres.

2. Other Work Plans

A. Road Maintenance/Access Issues

1. Coordinate the acquisition of D.O.T. millings (with DEEP Support Services) from area roadwork for occasionally repairing and improving Camp Columbia Road and its spurs.
2. Confirm a legal decision on DEEP right-of-way on the north-south road from Bethlehem. Clarify and confirm rights of access on both sides of property and enforce such rights as needed to fullest.
3. Prevent illegal access by motorized vehicles. Post those points with "Closed to Motor Vehicles" signs. (DEEP Park-Encon)

B. Road Construction, Gates, and Signs

1. Keep hunting/no hunting areas clearly marked with signs, as well as areas with limitations on hunting, such as "archery only" (DEEP Wildlife Division).
2. Build a permanent Lexan case sign at the main public parking area on Route 109 to house trail maps of the property and other appropriate information. Place a plaque where the trails pass the former camp. (DEEP Parks)
3. Construct a public parking area on Munger Lane with a state forest shield sign. (DEEP Parks)

4. Provide one gate where the north-south road enters Camp Columbia from the north (Morris side). At present, this point is cabled-off to all access. Provide one gate to replace a cable on the east side of Munger Lane, for access into stand 2-6. Remove cables from all roads or trails. (DEEP Parks)

C. Boundary Marking

1. Maintain boundaries (DEEP Forestry).
2. Address ongoing boundary encroachments. (DEEP Forestry, LAMD)

D. Cultural Site Maintenance

Maintain the water tower (keep locked and protected from vandalism) and boathouse, to prevent further degradation. (DEEP Support Services)

E. Recreation or Scenic Site Work

Develop and maintain the recreational trail system with signs and a map identifying approved uses for each trail. Thus includes construction of bridges or boardwalks to protect streams or wetlands. (DEEP Parks)

F. Improvement of Critical Habitat

Provide additional research of amphibian population surveys in the vernal pool complex to devise a more specific long-term management strategy for that area (stands 3-K and 3-14). (DEEP Wildlife)

G. Wildlife Habitat Improvement

1. NEC habitat work. (DEEP Wildlife)
2. Work in the remaining Christmas tree plantations and the white pine stands 3-13a and 3-13b. Work in the Christmas tree plantation will be done by the Wamogo Vo-Ag School. Work in stand 3-13a and 3-13b will be done by the Wildlife Division. (DEEP Forestry/ Wildlife)

H. Land Acquisition

Actively pursue acquisition of abutting open space to increase the size of and access into existing property. It is also a mutual desire of DEEP and White Memorial to connect their respective properties through acquisition wherever possible. (DEEP Forestry)

I. Fuelwood Program (DEEP Forestry)

J. Communications/Public Relations

Improve communications with the local community about proposed harvests. (DEEP Forestry/ Wildlife)

Stand Summary Reference Tables

Stands to be Actively Managed

	Stand 2	Stand 4	Stand 11	Stand 12
Acres	48	17	35	19
USFS Type	Mixed Upland Hardwoods - 520	Red Maple Upland - 809	Scarlet Oak - 510	Red Maple/Oak - 519
Mgmt Unit	Mixed Hardwoods	Old Field	Oak Species Dominant	Mixed Hardwoods
System	Uneven-Aged Management	Even-Aged Management	Even-Aged Management	Even-Aged Management
Dominant Species	Hickory, Northern Red Oak, Red Maple, White Ash, Scarlet Oak, White Oak, Sugar Maple, Yellow Birch	Red Maple, Black Cherry, Pin Cherry, Aspen, Sugar Maple, Paper Birch, Gray Birch, White Ash	Scarlet Oak, Northern Red Oak, Red Maple, White Oak, Hickory, Black Oak	Red Maple, Scarlet Oak, American Beech, Black Birch, Northern Red Oak, Black Cherry
Size Class	Saw (12" dbh or greater)	Mixed Sapling-pole timber stand	Mixed sawtimber-pole stand	Mixed sawtimber-pole stand
Treatment Recommended	Group Selection Cut <sup>1</sup>	Clearcut (Wildlife) Cut <sup>2</sup>	Improvement Cut <sup>3</sup>	Thin <sup>4</sup>

<sup>1</sup> Generally a patch cut of no more than one-fifth to one-quarter of an acre, with a one-half acre maximum

<sup>2</sup> A "silvicultural clearcut", or removal of *all* existing stems 2" and up in diameter to regenerate a new even-aged stand in a single phase.

<sup>3</sup> Uneven-aged conversion, entailing removal of Unacceptable Growing Stock (UGS) and cull material in both pole and sawtimber classes to improve quality of stand and create canopy openings to begin regeneration of shade tolerant species.

<sup>4</sup> Improvement of an even-aged stand by removing primarily UGS and cull material in the *sawtimber* class (upper canopy) only, allowing more growing space for desirable "crop trees". These are regular intermediate cuttings before regeneration cuttings scheduled at the end of the rotation.

## **N. APPENDIX A - REFERENCES**

### **Forester:**

*Even-aged Silviculture for Upland Central Hardwoods*, USDA Forest Service Agriculture Handbook 355, by Benjamin A. Roach and Samuel F. Gingrich, 1968.

*Ecology and Management of Northern Hardwood Forests in New England*, USDA Forest Service General Technical Report NE-159, by James W. Hornbeck and William B. Leak, 1991.

*A Silvicultural Guide for Northern Hardwoods in the Northeast*, USDA Forest Service Research Paper NE-143, by William B. Leak, Dale S. Solomon and Stanley M. Filip, 1969.

*A Silvicultural Guide for White Pine in the Northeast*, USDA Forest Service General Technical Report NE-41, by Kenneth F. Lancaster and William B. Leak, 1978.

*Management of Early-Successional Communities in Central Hardwood Forests*, USDA Forest Service General Technical Report NC-195, by Frank R. Thompson, III and Daniel R. Dessecker, 1997.

*Managing Grasslands, Shrublands and Young Forests for Wildlife: A Guide for the Northeast*, Northeast Upland Habitat Technical Committee/Massachusetts Division of Fisheries and Wildlife, 2006.

*Wildlife and Oak Management*, Samuel P. Shaw, USDA Forest Service, Northeastern Area, date unknown.

*The Practice of Silviculture*, David M. Smith, John Wiley and Sons Publishers, 1986.

“Standard Operating Procedures for State Forest Management”, CT. DEP Division of Forestry, revised 2006, 2008.

“Best Management Practices for Water Quality while Harvesting Forest Products”, CT. DEP Division of Forestry, 2007 Connecticut Field Guide.

“Forest Management Plan for Camp Columbia, Morris, Connecticut prepared for Columbia University”, by The Irland Group, Augusta, Maine, June 1988.

“Camp Columbia Historic, Architectural and Archeological Assessment”, Ct. DEP, November 15, 2002, Turk Tracey and Larry Architects, LLC, 92 Exchange, Portland, ME 04101.

Columbia University Alumni historical video of Camp Columbia, May 2000 (on file at DEEP).

### **Wildlife Biologist:**

Borgmann, K. L., S.F. Pearson, D.J. Levey, and C.H. Greenberg. 2004. Wintering yellow-rumped warblers (*Dendroica coronata*) track manipulated abundance of *Myrica cerifera* fruits. *Auk* 121:74-87.

Greenberg, C.H., D.J. Levey, and D. L. Loftis. 2007. Fruit production in mature and recently regenerated forests of the Appalachians. *Journal of Wildlife Management* 71(2): 321-335; 2007).

- Martin, A.C., H.S. Zim, and A.L. Nelson. 1951. American wildlife and plants; a guide to wildlife food habits. Dover, New York, New York, USA.
- McCarty, J. P. , D. J. Levey, C. H. Greenberg, S. Sargent. 2002. Spatial and temporal variation in fruit use by wildlife in a forested landscape. *Forest Ecology and Management* 164:277-291.
- Scanlon, J. J. 1992. Managing forests to enhance wildlife diversity in Massachusetts. *Northeast Wildlife* 49:1-9.
- Whitehead, M. A. 2003. Seasonal variation in food resource availability and avian communities in four habitat types in the Southern Appalachian Mountains. Dissertation, Clemson University, Clemson, South Carolina, USA.
- University of Connecticut . 2008. Department of Agriculture and Natural Resources Center for Landuse Education and Research. Storrs, CT. Website landuse data for the towns Hartland and Barkhamsted, <http://clear.uconn.edu/disclaimers.htm>.

## 0. Appendix B – White Memorial Foundation Comments



# THE WHITE MEMORIAL FOUNDATION, INC.

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Keith H. Calverton,  
Executive Director-  
Superintendent  
Lukas Hyder  
Assistant Superintendent-  
Forester  
Bill A. Suedille  
Office Manager

February 12, 2009

David Irwin  
DEP Forestry Division  
Pleasant Valley Field Office  
117 W. River Road  
PO Box 161  
Pleasant Valley, CT 06063

Dear Dave,

Thank you for sending us a copy of the Camp Columbia Management Plan. It is extremely thorough and we don't have any comments except "great job". I have enclosed the signature sheet to show that Keith Cudworth and I have reviewed it, we are the foresters here. I am also having our wildlife biologists look at it. We will keep the copy of the management plan for our files, however, if you need it back, please let me know.

It seems like we have similar goals for our properties, and similar guidelines for management. Again, thanks for including us in the process.

Sincerely,

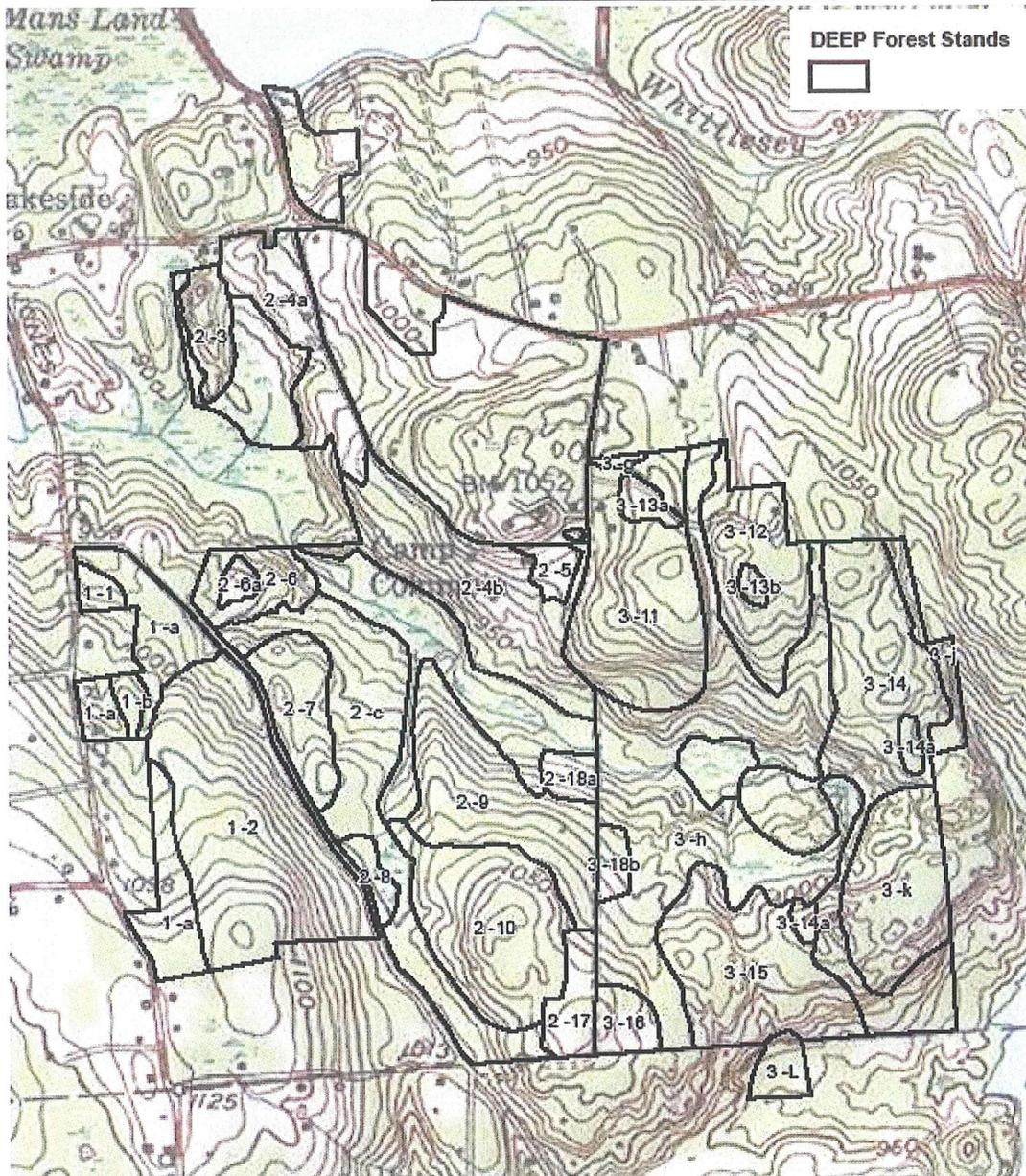
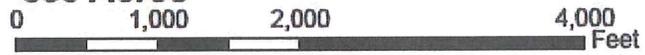
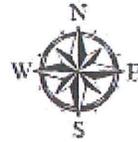
Lukas Hyder  
Assistant Superintendent/Forester

### P. Map A – Topographic Map



October 2012

## Topographic Map Camp Columbia State Forest & State Historic Park Morris 599 Acres

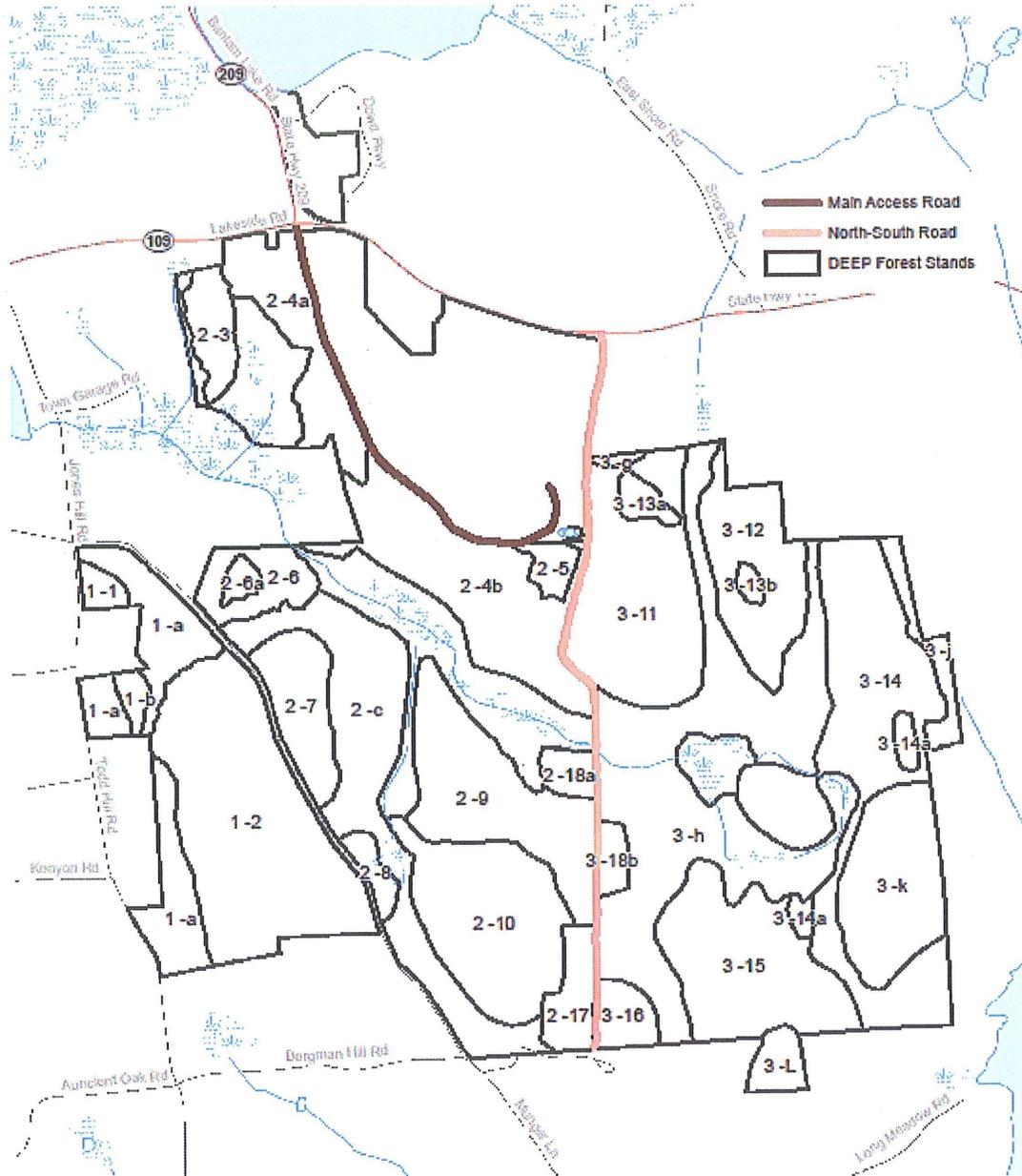


### Q. Map B – Base Map



October 2012

## Base Map Camp Columbia State Forest & State Historic Park Morris 599 Acres

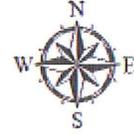


### R. Map C – Site Quality Map

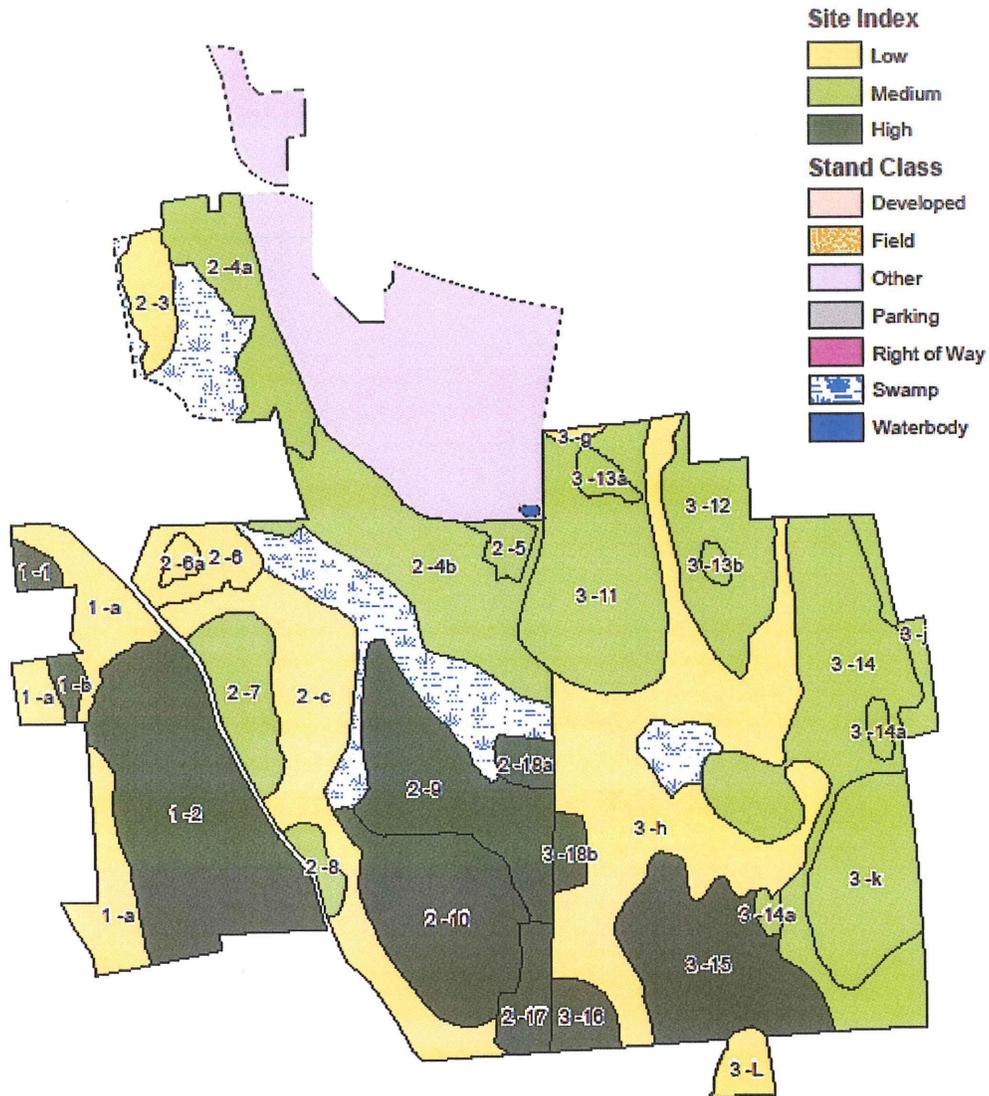


October 2012

## Site Quality Camp Columbia State Forest & State Historic Park Morris 599 Acres



0 500 1,000 2,000  
Feet



### 5. Map D – Forest Type and Size Class Map

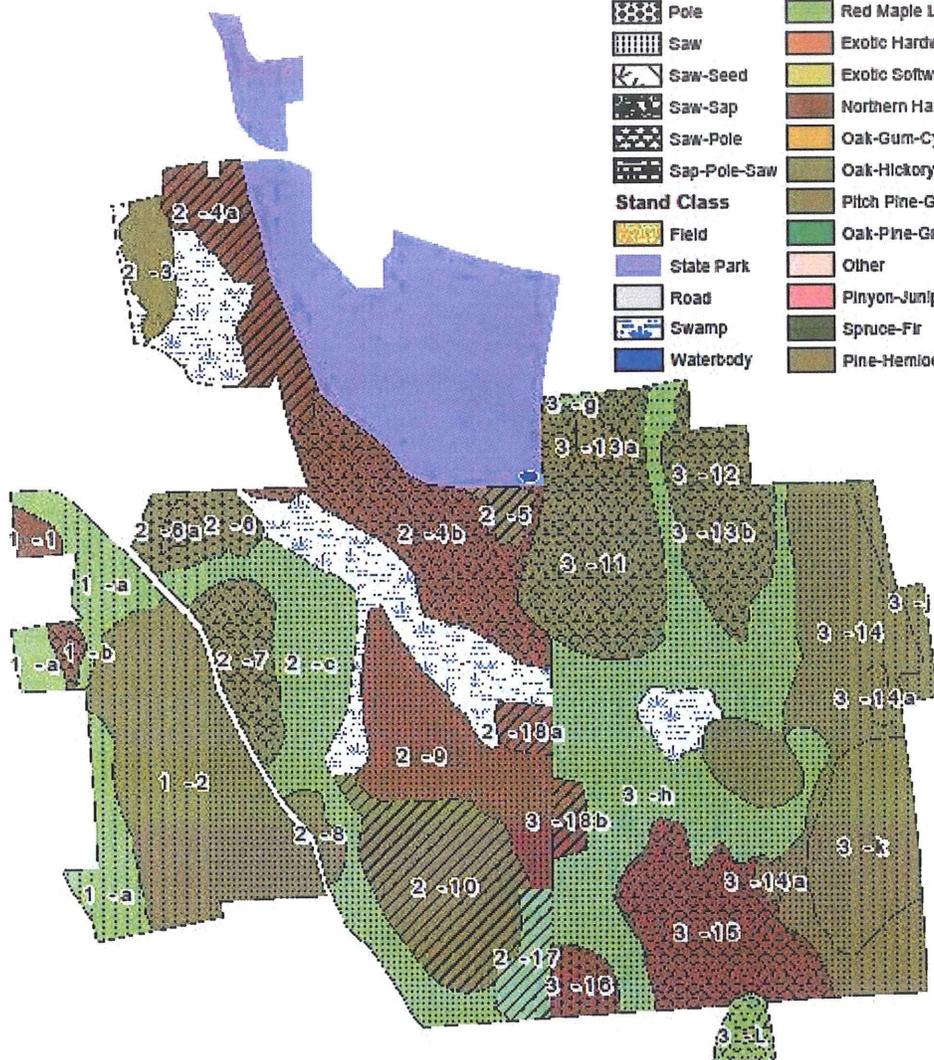


October 2012

## Forest Type & Size Class Camp Columbia State Forest & State Historic Park Morris 599 Acres



Size Class	Forest Type
Seedling	Aspen-Birch
Sapling	Douglas-Fir
Pole	Red Maple Lowland
Saw	Exotic Hardwoods
Saw-Seed	Exotic Softwoods
Saw-Gap	Northern Hardwood-Group
Saw-Pole	Oak-Gum-Cypress
Sap-Pole-Saw	Oak-Hickory-Group
Stand Class	Pitch Pine-Group
Field	Oak-Pine-Group
State Park	Other
Road	Pinyon-Juniper
Swamp	Spruce-Fir
Waterbody	Pine-Hemlock-Group

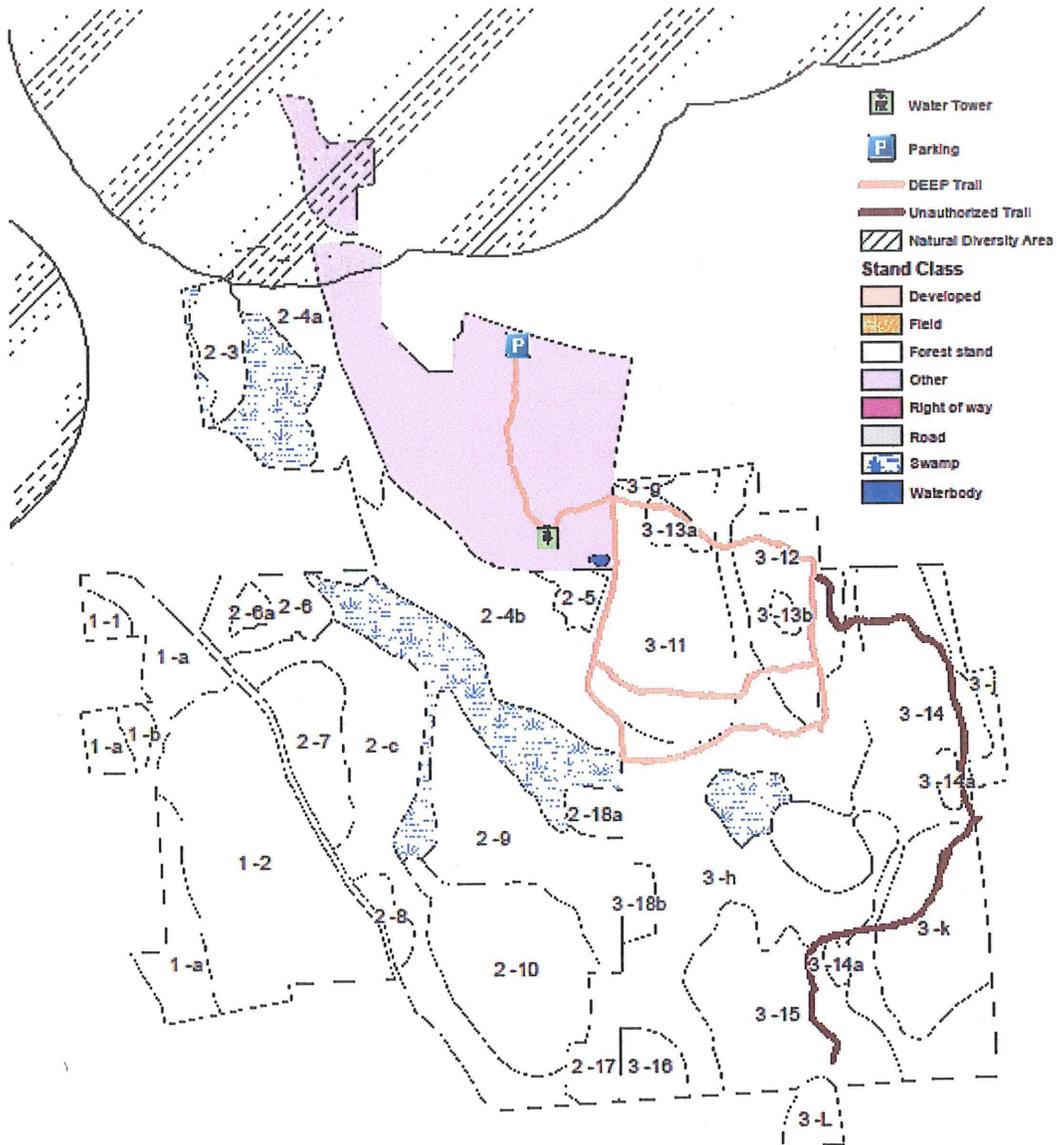
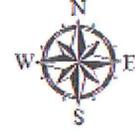


### T. Map E – Special Features Map



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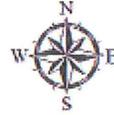
## Special Features Camp Columbia State Forest & State Historic Park Morris 599 Acres



**U. Map F – Work Plan Map**



**Work Plan  
 Camp Columbia State Forest & State Historic Park  
 Morris  
 599 Acres**



October 2012

