

STATE OF CONNECTICUT

DEPARTMENT OF ENERGY AND ENVIRONMENTAL
PROTECTION



Bureau of Natural Resources

Division of Forestry

FOREST MANAGEMENT PLAN
2015 through 2025

Wyantenock State Forest
Woodville Block

721 Acres

Approvals:

 7/22/15

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Division of Forestry

 7/29/15

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 8/10/2015

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A. Executive Summary

The Woodville Block of Wyantenock State Forest consists of 721 contiguous acres of forest in the town of Warren, in Litchfield County, Connecticut. It is one of seven blocks of Wyantenock. The entire state forest totals approximately 4060 acres, and occurs in the towns of Warren, Cornwall, and Kent. The Woodville Block is approximately 18% of the land area of Wyantenock. The Woodville Block is the most accessible block of the forest, but is relatively isolated as a state parcel.

The Woodville Block occurs in the southeast corner of the town of Warren, near the Litchfield and Washington town lines. It is situated between two major recreational water bodies: Bantam Lake to the east and Lake Waramaug to the southwest, while major Waterbury drinking water reservoirs, the Upper and Lower Shepaug Reservoirs, lie just to the north and northeast. The entire block is north of Route 341 and all current access is via 341.

The Woodville Block is an essentially undeveloped state forest that boasts some high quality timber and growing sites with long-term natural resource potential. Some primary objectives include:

- Create early successional habitat to benefit New England cottontail (NEC), a candidate species for Federal Threatened or Endangered status. This is currently the major short-term goal for the block, and the reason for the timing of this plan development.
- Sustainably harvest forest products to maximize age class, species and cover type diversity.
- Increase the conifer component wherever possible (lacking in virtually all stands).
- Actively and aggressively manage for oak on those sites likely to successfully regenerate and support oak. Otherwise the dramatic decline of the oak component in the next rotation period seems imminent.
- Convert those high quality sites less favorable to successful oak regeneration to northern hardwoods, with particular emphasis on sugar maple.
- Secondary goal is to improve the road system infrastructure and reduce the illegal trails and uses that threaten the health of the forest resource, soil and water quality, and state listed species occurring on the property.

B. History

- 1. Reason for acquisition and funding sources:** The original parcels of Wyantenock were acquired in 1925. The majority of the acreage in the Woodville Block was acquired in 1943 from one landowner, Mr. Charles B. Curtis. There is little detailed information available about reasons and funding for acquisition of the Woodville Block. If this history surfaces in the years ahead, it will be included in future management plans for this or other blocks of Wyantenock.
- 2. Development of resource prior to and after acquisition:** There has been little or no development of the resource during state ownership of this block and management as a state forest. An existing road system on the north and east sides has been sporadically improved and then abandoned, and a gravel forest access road system was constructed for harvest of forest products over the years.

- 3. Changes in the last 10 years:** There was a final shelterwood harvest in stand 2-8 in 2006. Management has been limited to roadside fuelwood lottery permits, boundary maintenance, and some road maintenance by Support Services. Drafts of comprehensive management plans for the Woodville Block have been written in the past by the Forestry Division but none have achieved department approval. The block was stand-typed and inventoried in 2013 for a Qualified Forester’s Report to satisfy PA-490 requirements for the Assessor in the Town of Warren.
- 4. Rotations and cutting cycles used:** There has been no approved management plan, and therefore no comprehensive prescription for rotations or cutting cycles. Most existing records of forest management activities are from the 1980s and 1990s, and past Forestry staff prescribed both even-aged and uneven-aged management in a few stands but no lengths of cutting cycles and rotations were outlined.

C. Acres and Access

- 1. Acres:** The total GIS acreage of the Woodville Block is 721 acres, composed of 657 forested acres, 51 acres of combination open marsh/wooded swamp, and 13 acres of open water (ponds). The total forested area that will be under active management in this plan is 556 acres (77% of the total acreage, 85% of forested acres). 101 acres of forest are not under active management (14% of the total acreage, 15% of forested acres)
- 2. Present access:** All current access for management is via the public entrance to the parking area off Route 341. There is no intent at present to upgrade the old City Hill Road that enters the northwest corner of the block from Angevine Road. The benefit of this is considered minimal, in light of the existing forest road system to Route 341. There are no acres accessible by DOT or town roads. All forest roads are gated by one standard metal DEEP gate. There is an estimated 19,800 feet of forest road (3.75 miles), including 16,900 feet in a main “loop” and 2,900 feet of a connector road. 11,800 feet will be upgraded and maintained while 8,000 feet in the loop will likely never be reused (see Map E-Special Features). This includes 4,500 feet of the old City Hill Road that forms the northeast boundary. This section of road is in extremely poor shape due to washouts and inadequate drainage, further impacted by illegal ATV activity. It is also completely blocked on the north end by significant beaver dam activity. This stretch of City Hill on the boundary with Waterbury Water serves as frontage along stands that will not be actively managed.
- 3. Inaccessible areas and access potential:** There are no actively managed stands that are considered inaccessible, although increased land ownership on the east side of the block with frontage on Valley Road would improve access to that side (Compartment 4 stands), and an improved road from the west from Angevine Road using the roadbed that divides Compartments 1 and 2 could improve access on the north end of the block. Stands not included in active management are mostly inoperable because of topography or wetland soils.

4. **Rights-of-Way:** There are no known easements or rights-of-way. There are neither known deed encumbrances nor parcels acquired through specific funding sources that would prohibit or restrict forest management activities.
5. **Boundary Conditions and total miles of boundary:** Nearly 100% of boundaries (approximately 43,500 linear feet or 8.2 miles) were marked in 2004, and will be marked again very early in this plan period. Boundaries should be remarked at least every 10 years according to S.O.P., which includes tagging, blazing, and yellow paint.
6. **Known boundary problems:** There are no known boundary problems. Any missing corner monuments will be documented and reported during the next boundary marking. GPS coordinates will also be recorded and provided for corner monuments. Replacements for missing monumentation will only be requested where the absence makes boundary identification uncertain or impossible. Any sections of boundary that cannot be identified and clearly marked on the ground will be reported to DEEP's Constituent Affairs/Land Management Division, as will any ongoing encroachments.

D. Special Use Areas

1. **Lakes and Ponds:** There are two wetland impoundments originally created to provide waterfowl breeding and migratory stopover areas. These include one estimated at 3 acres in the southern extent of the property, visible from Route 341 (Stand # 3-8a), and a larger 10-acre impoundment in the northern part of the block (Stand #2-4a). These bodies of water are surrounded by larger areas of marsh and swamp that blend the open water to the nearby forest. Inland Fisheries could not locate records for either stocking or fish population surveys for these impoundments. Since they are not stocked with trout, they are open to year-round angling, and likely support warm-water fish communities. Regulations for limits and sizes apply, primarily for largemouth bass and chain pickerel, as they occur (for updated regulations, [DEEP Fishing Regulations](#)). There is no minimum length or daily creel limit for sunfish, yellow perch, golden shiner, or brown bullhead.
2. **Rivers and Streams:** There are no major rivers and named streams, but there are numerous intermittent and ephemeral streams following the steep topography in parts of this block, and a perennial stream forming the boundary on the north side of Compartment 4 eventually drains into the Shepaug River to the east. These streams may provide habitat for native brook trout. Protection of streams by recognizing border strips, minimizing crossings, or avoiding harvesting during wet and soil-sensitive periods is recommended to protect drinking water supply and water quality for potential trout streams.
3. **Cultural Sites:** There are no known cultural sites. Stone walls and cellar holes will be protected from damage. Existing gapways in stone walls will be used whenever possible during harvests and new openings minimized.
4. **Recreation and Scenic Sites – Trails and Signs:** There is regulated hunting and bird watching. Some local residents enjoy fishing in the ponds or hiking the forest roads and walking their dogs. There is

parking at the entrance off Route 341. The majority of the road system is not accessible to the public by vehicle and is gated year-round. In the future, consideration will be made by State Parks and Forestry to blaze and map certain forest roads on the property to create the first public trail map.

Mattatuck Trail, a Blue-blazed Trail, was recently approved for a new section along the edge of this block in the northeast portion. As of this writing, the trail route (created as a way to connect broken sections of Mattatuck Trail and provide a more continuous hike) has not been blazed or mapped by the Connecticut Forest and Park Association (CFPA). The trail will follow the old roadbed on the boundary, and a new proposed spur may extend through a portion of Compartment 4. The New England Mountain Biking Association (NEMBA) has expressed interest in possible future trails in this area. Any new recreational trails would have to go through the DEEP Trails Committee application review and approval process. Illegal trails will be eradicated during timber harvest activities in the respective stands.

A Special Use License was held by the Woodbury Litchfield Hills Foxhounds Inc. in 2009, and has expired but may be renewed. This license allowed a group based on an abutting property to conduct an equestrian drag hunt (simulated fox hunt on horseback) on the forest roads with terms and limitations expressed within the document.

- 5. Critical Habitat:** The DEEP Natural Diversity Database (NDDDB) records (see letter in Appendix) indicate that two species of State Special Concern occur in the vicinity: The wood turtle (*Glyptemys insculpta*) and eastern ribbon snake (*Thamnophis sauritus*). Both species are riparian and can occur in wet meadows associated with riparian areas. Virtually all riparian and wetland areas at Wyantenock will not be actively managed, and crossings of streams will occur minimally and only when necessary. Lack of work in riparian areas, especially during active periods for the reptiles, summarizes most management recommendations in the NDDDB protection strategies, along with keeping eyes open for turtles. All NDDDB occurrences mapped for these species indicate that they are primarily associated with the pond in stand 2-4a and surrounding wetlands. In general, no work will occur in that area except in stand 2-3 on the west side. This stand will be managed uneven-aged, and in this stand only, harvest will be restricted to the winter months when no reptiles are active as an added precaution.

Note that New England cottontail (*Sylvilagus transitionalis*) occurs on private land in the vicinity but is not known in the state forest at present. This is has been a candidate for Federal Threatened or Endangered status since 2006. A primary goal in this management plan is to produce early successional brushy habitat for this species that is currently lacking in the block.

Management for habitat at Wyantenock will find a balance to protect and promote critical habitat, including protecting riparian areas, and cutting to produce early successional cover while maintaining the forest interior/core forest character wherever possible in the remaining acreage.

- 6. Natural Areas:** There are no state-recognized Natural Area Preserves within the Woodville Block.

7. **Old Forestland Management Sites:** Stands that occur on wetland soils, or are inaccessible or inoperable due to steep topography will not be managed and allowed to mature naturally. 165 acres (101 acres of forest, 64 acres of open water and swamps) will not be managed.
8. **Research Areas:** There are no known ongoing research areas. The Connecticut Agricultural Experiment Station (CAES) will be notified of any clearcuts for possible use in establishing new plots of hybrid chestnut plantings for long-term research on chestnut blight. The Forestry Division is open to suggestion for future research in the Woodville Block by CAES or other entities.
9. **Miscellaneous:** There is an opportunity to promote the growth of sugar maple to eventually be leased for tapping by local maple syrup producers, although this is very long-term and accessibility may limit the practicality. Management such as TSI and crop tree release may sometimes be achieved through DEEP staff and the Division of Forestry Homeowner Firewood Program, or the work may be tied to nearby commercial sales. Noncommercial work that includes helping ensure public safety (roadside and trailside trees and hazards) and invasive plant control will be taken care of as funding allows and may also be connected to commercial harvesting. As of this writing, a concerted effort to salvage ash expected to decline from exotic emerald ash borer (EAB) attack is underway by the DEEP Forestry Division in state forests across the state, but no significant ash salvage is expected at the Woodville Block. Ash decline, possibly from ash yellows disease, is already advanced in some stands prior to known occurrence of EAB in the town of Warren. Additionally, the majority of the remaining ash occurs on wetland soils that will not be actively managed.

E. Resource Management Concerns

1. **Trails/signs:** Informational signs will be placed at timber harvest staging areas.. For NEC habitat work, the Wildlife Division will provide additional signs to describe the benefits. Caution signs regarding harvest and trucking activity will also be used for each operation. Trails that pass through or near harvests may be closed with signage, for public safety.
2. **Wetlands:** In general, harvest activity will not occur on wetland soils but any crossing of such areas through bridging or corduroy will be made using current guidelines for Best Management Practices (BMP). Soils with slower drainage and moderate drainage that must be included in harvests will only be operated upon in dry or frozen conditions. The option must be left open for some future harvesting on soils that are not classified as wetland but support some vegetation typically associated with wetlands, such as spicebush in stands 2-9a and 2-9b. Operations in these areas are recognized by the Wildlife Division as beneficial to woodcock and may be recommended in future management plans in consultation with a DEEP Wildlife Biologist, provided that BMPs are followed and there is no adverse impact to water quality in the watershed.
3. **Unauthorized or illegal activity:** The primary unauthorized activities are the cutting of illegal trails, mostly within Compartment 2, which are used by mountain bikes, and illegal ATV riding of the roads, including the old roadbed forming the boundary between DEEP and the Waterbury Water

Department, on the northeast edge of the block. The damage to the roadway for approximately 4,000 feet in this area is extensive and has diverted drainages, caused erosion, and sometimes affects the water quality downstream in the Shepaug Reservoir watershed. Most of these water quality concerns will be mitigated with an Inland Fisheries drainage project to be proposed by project request. Illegal trails will be eradicated through adjacent forest management activities.

F. Wildlife Habitat – DEEP Wildlife

- 1. Investment in habitat improvement** – There are approximately 6 former game plots along the forest road system between Compartments 2 and 3, and along the edge of Compartment 4. These plots were established in about the 1970s and were already abandoned by the 1980s. They will not be maintained, but young forest patches will be created in other nearby stands.

Regeneration harvests scheduled during this plan period will increase the amount of early-successional habitat required by many wildlife species experiencing population decline from lack of suitable habitat throughout the state. In particular, early successional habitat will benefit the nearby candidate species for Federal listing, NEC .

NEC has been listed as a candidate for Endangered or Threatened status since 2006, and is currently considered a species of greatest conservation need in Connecticut and all states throughout the range. A region-wide decline in the population is attributed to habitat loss and fragmentation, and increased competition from the introduced eastern cottontail. Over the past half-century, NEC has had an 85% decline in its distribution, and this corresponds to the decline of many other shrubland/young forest dependent wildlife species. The Woodville Block of Wyantenock is the 1st ranked parcel for NEC in the entire Goshen Uplands Focus Area. It is the 25th ranked parcel in the state of Connecticut and 52nd in ranking throughout the entire multi-state range (See Appendix for Wildlife Division narrative on NEC and the Goshen Uplands Focus Area). Therefore, NEC habitat needs are the highest single priority during the decade covered by this management plan.

Planned forestry activities at Wyantenock 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. Vernal pools are protected through the use of carefully planned harvest roads. Wildlife species such as whip-poor-will, American woodcock, ruffed grouse, prairie warbler, eastern towhee, and NEC that require early successional forest conditions will benefit from targeted habitat enhancements in this 10 year plan. Although the planned forestry operations will exceed sustainability in the short-run, forestry will be moderating to total sustainability in the long-run within one rotation.

Young forest habitat is ephemeral and declines in usefulness to its respective species in the 10 to 15 years following a clearcut. Forestry will primarily continue to rotate harvests to produce early successional habitat in different stands as part of sustainable forestry and scheduled regeneration cutting, rather than produce permanent forest openings that require repetitive treatment to maintain.

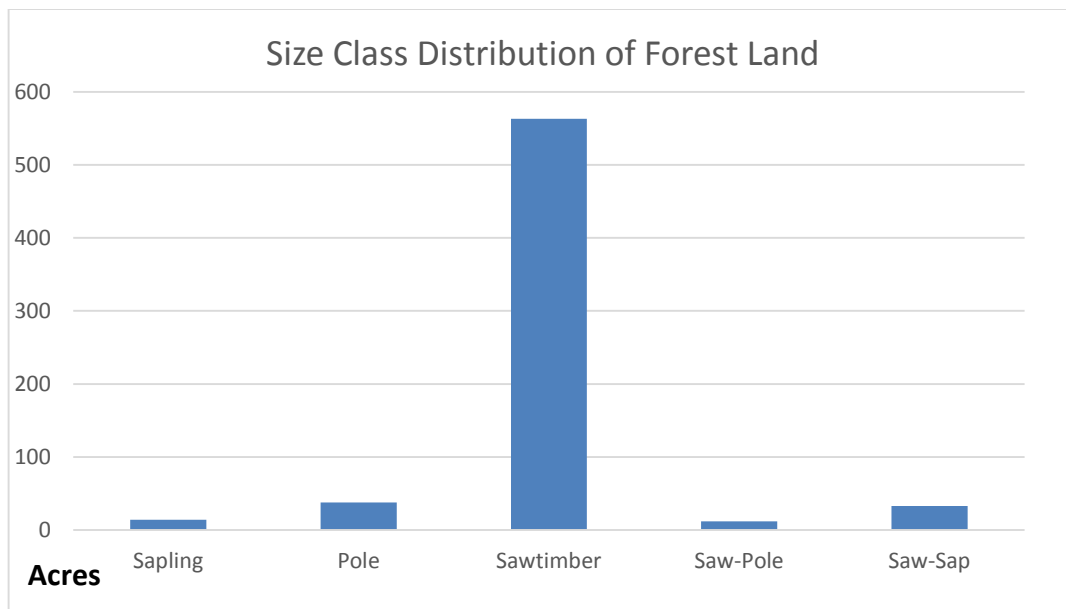
If permanent forest openings are determined necessary by the Wildlife Division for any specific reason, this option will be explored in future management plans.

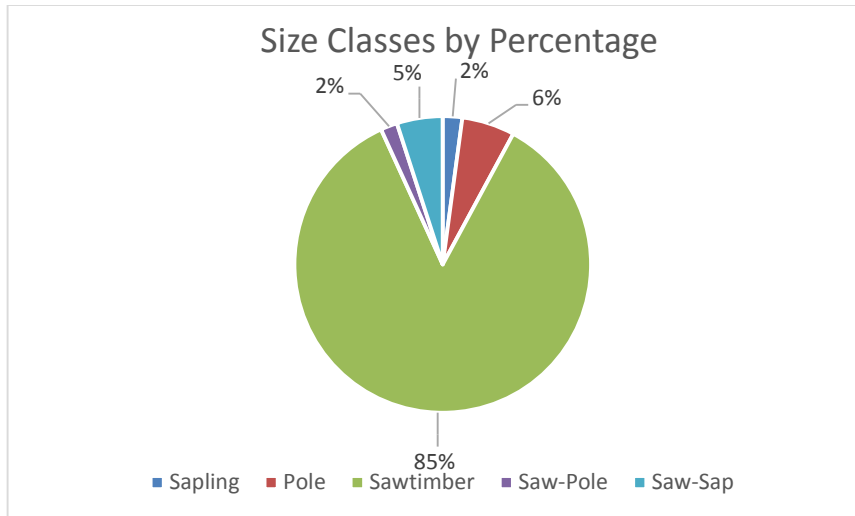
The Wildlife Division staff will work closely with the Forestry Division to seek additional funding or commercial harvesting to ensure the perpetual existence of young forest habitat for the local NEC populations, as long as this continues to be a concern in the vicinity.

- 2. Existing diversity conditions:** Maintaining a diverse, interconnected forested ecosystem with a variety of age classes and sizes is regarded as most beneficial to wildlife. An interspersion of specialized habitats such as grasslands, shrublands, wetlands, vernal pools, and young forest within a maturing forest is important when considering maintaining wildlife species diversity. A breakdown of the current diversity at the Woodville Block follows:

Total state forest acres in block (721 acres total)--

- 1. Forest Cover: 91% (657 acres)
 - a. Sapling: 2% (14 acres)
 - b. Pole: 6% (39 acres)
 - c. Mature sawtimber: 85% (560 acres)
 - d. Mix sawtimber-pole: 2% (12 acres)
 - e. Mix sawtimber-sapling: 5% (32 acres)
- 2. Open Field/Grassland: None
- 3. Wetlands/Water: 9% (64 acres)
 - a. Pond/Open Water: % (13 acres)
 - b. Open swamps/marshes: % (51 acres)
- 4. Leased Lands: None





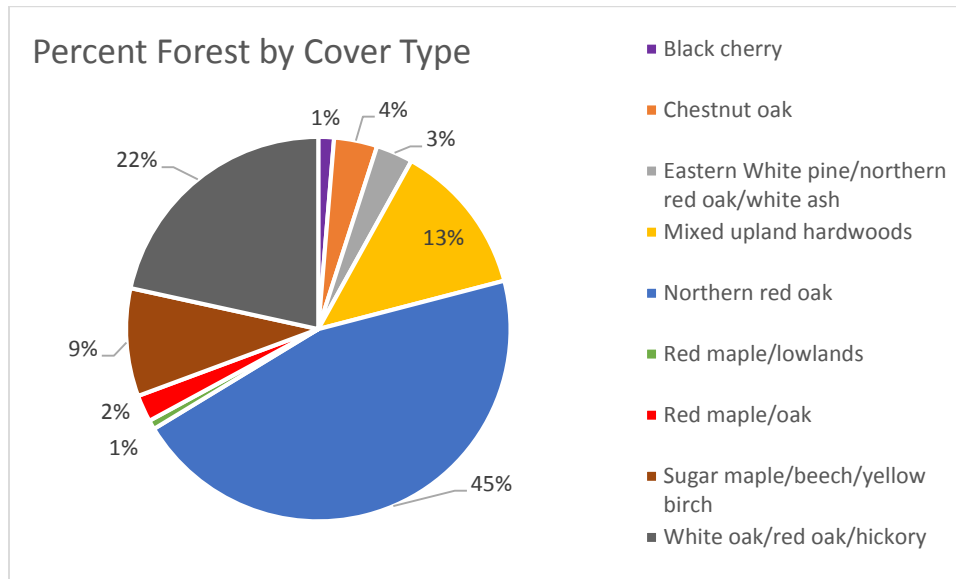
As shown in the previous pie chart, only 2 percent is comprised of sapling-sized forest. It is important to consider immediately increasing the component of young forest/shrubland habitat that is most dramatically lacking, and across Connecticut as a statewide trend. It is considered critical by the Wildlife Division to improve and maintain habitat conditions for NEC and its associated early-successional wildlife 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 Woodville Block’s 561 actively managed 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.

Landscape context: According to University of Connecticut Center for Land Use Education and Research (CLEAR), as of 2006, 78% of the landscape in Warren is considered forestland, and 50% of the forest is considered “Core Forest”. Only 6% is considered developed. The forested acreage at the Woodville Block alone accounts for 4.8% of the total forestland in the Town of Warren.

The Wildlife Division will explore the possibilities of creating suitable NEC habitat on adjacent private land and Waterbury Water Department property to continue working on habitat objectives in the larger framework of the landscape in the Goshen Uplands Focus Area.

Wildlife-Based Recreation: The Forest is open to hunting for a full range of seasons and game, including Small Game, Waterfowl, Spring Turkey, Fall Archery (Deer/Turkey), Fall Firearms Turkey, Muzzleloader Deer, and No-Lottery Deer firearms seasons.

G. Vegetative Condition



1. Silviculture:

Based on forest stand inventory analysis from approximately 100 sample points distributed in each forest stand of the Woodville Block, 86% of the forested acres falls within the Oak-Hickory Cover Group, and is classified as an oak cover type or otherwise labeled as a mixed stand with a strong oak component. There is a management responsibility to perpetuate a representation of this oak-dominated forest, as oaks are declining in Connecticut from lack of disturbance-based management to regenerate the species. Oaks are valuable to the forest ecosystem as they provide a high-quality food source for many species of wildlife and are a highly marketable forest product. Securing future generations of oaks on state lands is a necessity. Many private woodlots have been high-graded by removing the best quality oaks and there are fewer even-aged silviculture treatments used on private lands to grow this shade-intolerant species. Managing suitable sites for oak regeneration can serve as an educational demonstration to the public on the clearcut or shelterwood technique and why it is a beneficial instrument in the forester’s toolbox for maintaining even-aged forest types.

The particular challenge is deciding where oak will be competitive enough to successfully regenerate, and where uneven-aged management to convert the area to a new type stand is more logical and practical. Some of the best growing sites with the highest quality sawtimber oak will not likely see oak in the next rotation and will transition to other hardwoods, primarily beech-birch-maple. Most likely, oak is dominant on these sites as a product of land use history and human interventions, including chestnut blight, wildfires, and widespread clearcutting from the charcoal era. Therefore, the drier sites will be devoted to oak types and even-aged management, while the richer, moist sites will be managed for northern hardwoods, with emphasis on promoting sugar maple wherever possible.

A conifer component is an important part of the diversity of a forest and its habitats. The Woodville Block is greatly lacking in a conifer component and potential for it, except in stand 2-6. This stand will

be managed on an uneven-aged basis to maintain and regenerate the white pine , without the risk of losing the component through pure even-aged management. An uneven-aged or all-aged approach will allow for multiple attempts to regenerate and expand white pine through cuttings and openings of varying sizes over time.

Of the 561 acres under active management, 41% (230 acres) will be maintained as an even-aged system regenerated at the end of the rotation through shelterwood or clearcut harvesting. These areas will follow a 100-year rotation. The remaining 59% (331 acres) will be maintained as an uneven-aged system to create a patch mosaic of stands with different species and distributions of age classes. Uneven-aged management practices will increase the variety of forest types other than oak, ultimately enhancing the diversity of the Forest. Selection harvests under this management scheme will increase vertical stratification and diversify canopy layers within the Forest. Uneven-aged areas will have recurring harvests every 20 years.

80% of the acres under active management are overstocked and need at least a thinning. Another 57 acres were identified as understocked and need regenerating, according to traditional stocking guidelines. To keep a block of forest on a sustainable management program, however, it is impossible to address all areas within any 10-year timeframe. The goal is continuous forest management work each decade within a rotation, and to achieve diversity objectives gradually without harvest exceeding growth during any management plan period. Stands were prioritized for silvicultural treatments based on a number of factors: Their ratio of unacceptable growing stock (UGS) to acceptable growing stock (AGS), the relative density, the relative soil-index quality, and interest in NEC habitat by the Wildlife Division, which is stronger in stands to the west and northwest (least in Compartment 4). The presence or absence of advance regeneration was also a deciding factor in some cases when determining priority or management system for a stand. Presence of advance oak regeneration was an indicator for early successional work that could also regenerate a new oak stand. Abundance of beech and birch regeneration would steer the stand toward an uneven-aged approach and conversion of the stand to that system.

In most state forest management plans with 20-year cutting cycles, sustainability would dictate harvesting half the acres under uneven-aged management during every 10-year plan. At the end of 20 years, all stands managed on this basis will see one harvest for their 20 years in the cutting cycle. In keeping with that guideline, this plan prescribes harvesting on 172 of the 331 acres included in this management system, or 52%. The remaining 159 acres will have selection harvests under the next management plan.

Under most circumstances in Connecticut state forests, where a 100-year rotation is set, approximately 10% of the acres managed under even-aged management would be regenerated and brought back to seedling size during every 10-year plan period. This plan is a short-term departure in that parameter of sustainability, for the sake of more quickly meeting NEC habitat needs in this high priority parcel. A total of 71 acres in even-aged management is scheduled to be regenerated during the 10-year scope of this plan, or 31% of the even-aged acres (13% of total managed forest acres, 10% of total acreage of the Woodville Block). This includes 14 acres returned to sapling phase in 2006,

which is simply being cut back to early seedling habitat to increase usefulness of this area to early successional species a little longer and to remove residuals and hedgerows that might hinder use of the habitat by key species. This degree of regeneration cutting will be cut in half during the next plan, assuming that NEC habitat becomes less of a management urgency by then, and some success is attained through work on private parcels in the Focus Area. By the beginning of yet another plan to start years 20-30, the regeneration rate in even-aged areas will be reduced to less than 10%.

2. Forest size classes by forest type (*total forest*)

Cover Types	Sapling	Pole	Saw	Saw-Pole	Saw-Sap	Grand Total
Black cherry		9				9
Chestnut oak			12	12		24
Eastern White pine/northern red oak/white ash					20	20
Mixed upland hardwoods	14	30	41			85
Northern red oak			287		12	299
Red maple/lowlands			5			5
Red maple/oak			15			15
Sugar maple/beech/yellow birch			59			59
White oak/red oak/hickory			141			141
Grand Total	14	39	560	12	32	657

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

Northern Red Oak:

Size Class	Growing	Convert	Regenerate	Thin	Salvage	TOTAL
Sapling						0
Pole						0
Saw-Sap			12			12
Saw-Pole						0
Sawtimber	37	214		9		260
TOTAL	37	214	12	9	0	272

White Oak/Red Oak/Hickory:

Size Class	Growing	Convert	Regenerate	Thin	Salvage	TOTAL
Sapling						0
Pole						0
Saw-Sap						0
Saw-Pole						0
Sawtimber		30	33	78		141
TOTAL	0	30	33	78	0	141

Mixed Upland Hardwoods:

Size Class	Growing	Convert	Regenerate	Thin	Salvage	TOTAL
Sapling			14			14
Pole	30					30
Saw-Sap						0
Saw-Pole						0
Sawtimber	9	8	24			41
TOTAL	39	8	38	0	0	85

Sugar Maple/Beech/Yellow Birch (Northern Hardwoods):

Size Class	Growing	Convert	Regenerate	Thin	Salvage	TOTAL
Sapling						0
Pole						0
Saw-Sap						0
Saw-Pole						0
Sawtimber					7	7
TOTAL	0	0	0	0	7	7

Chestnut Oak:

Size Class	Growing	Convert	Regenerate	Thin	Salvage	TOTAL
Sapling						0
Pole						0
Saw-Sap						0
Saw-Pole						0
Sawtimber	12					12
TOTAL	12	0	0	0	0	12

Eastern White Pine/Northern Red Oak/White Ash:

Size Class	Growing	Convert	Regenerate	Thin	Salvage	TOTAL
Sapling						0
Pole						0
Saw-Sap		20				20
Saw-Pole						0
Sawtimber						0
TOTAL	0	20	0	0	0	20

Red Maple/Oak:

Size Class	Growing	Convert	Regenerate	Thin	Salvage	TOTAL
Sapling						0
Pole						0
Saw-Sap						0
Saw-Pole						0
Sawtimber		12			3	15
TOTAL	0	12	0	0	3	15

Black Cherry:

Size Class	Growing	Convert	Regenerate	Thin	Salvage	TOTAL
Sapling						0
Pole			9			9
Saw-Sap						0
Saw-Pole						0
Sawtimber						0
TOTAL	0	0	9	0	0	9

4. Forest Health

- *Invasive plants* are not widespread and mostly occur in wetland areas where management is not prescribed. Where invasives do occur in stands to be harvested, they must be addressed as part of the prescription. This will usually mean control prior to harvests and monitoring for eradication success and possible return of the invasives. Removal of invasives will mean use of staff to brush cut and/or propane torch in cases of light and scattered occurrence, or licensed vendor to treat with herbicides in more challenging cases.

- *Insect and disease concerns* are not presently a major factor affecting health of the managed forest acres. The biggest single concern is emerald ash borer (EAB), an insect from Asia expected to eventually eliminate most to all ash trees in Connecticut. Ash occurs in numerous stands at Wyantnock, but mostly in the wetter sites—primarily in stands that will not be managed, or otherwise in portions of managed stands that will not be operated due to slow drainage or perched water tables. Ash will not be salvaged in those areas. In most occurrences of ash within managed stands, the trees are already in an advanced state of decline prior to confirmed presence of EAB. There is no hemlock component in this block to bring concern of exotic insect issues currently affecting that species. There is little else of appreciable insect or disease concerns, other than some occurrence of beech bark disease and *Neonectria* canker on birch.
- *Weather* and its future effects on a forest are hard to predict. But the best way a forest manager can prevent devastating impacts is to manage for a diversity of native species, cover types, and age classes across the landscape, in event that a hurricane or ice storm or other rare and major weather event occurs that has the potential to damage large numbers of trees. Tornado damage and resulting salvage has been documented at the Woodville Block in the past. In all cases of unexpected impacts to forest health, whether from insects, disease, or weather, comprehensive plans can be modified to mitigate concerns or salvage trees affected by previously unforeseen circumstances (see “K. Adaptive Management”).

H. Landscape Context – Forestry

The Woodville Block of Wyantnock is a relatively small state forest parcel that provides a forest resource for wood supply, wildlife habitat, watershed protection, and outdoor recreation in an area where the landscape is rural and characterized primarily by forest and farmland. It will be managed on a sustainable basis in the long-run and to increase rare and declining habitats in the short-run, as an individual unit that is complementary to the active management taking place elsewhere in Warren and the region. This block alone cannot replace all declining or rare habitats and cover types of the regional landscape, but it can place greater emphasis on those types within the realm of sustainability.

Information sharing by DEEP was suggested and offered to the Waterbury Water Department, the largest single abutter to the state forest, and as a landowner that also manages and influences large tracts of forest land in the vicinity.

I. Specific Acquisition Desires

There are no specific and researched acquisition desires at this time. Improved access on the east side of the property (Compartment 4) would be beneficial in managing those stands, but is not likely due to housing development on the road, and steep topography along the west side of most of the Valley Road frontage. Any increase of frontage on Route 341 would also improve management access potential, especially near the southeast corner of the block. In future management plans, acquisition possibilities may be suggested based on specific management challenges experienced during implementation of the Work Plan.

J. Public Involvement

A copy of this management plan has been provided to the Warren Conservation Commission and CFPa for comment (See Appendix A). The Waterbury Water Department, the major abutting landowner that also actively manages its forest, was offered the opportunity to review and comment on the plan. Details of the plan have been promoted and publicized on the “list-serve” e-mail list of interested neighbors, forest users, and town officials, who primarily reside in Goshen, Cornwall, and Sharon and are concerned with Mohawk and Housatonic State Forests. Formal presentations on the plan were offered by the DEEP authoring forester to the Warren Conservation Commission and the City of Waterbury Water Department.

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 its management approach as environmental change and resource needs warrant. Some of these changes may be associated with biological factors such as insect and disease outbreaks. Increased unauthorized motorized or nonmotorized recreation which erodes trails and roads may require action unforeseen during the composition of this plan. Additionally, environmental conditions such as hurricanes, major ice events, drought or record-breaking precipitation may additionally affect resource condition and work requirements. The Division of Forestry and its colleagues in Parks, Wildlife, Fisheries, and Agency Support Services, 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. Any necessary plan or management modification should be made with continued long-term sustainability in mind.

L. 10 Year Goals

561 acres (78% of the total 721 acres of forested area) will *eventually* undergo forest management.

275 acres (approximately half the managed acreage) will be harvested during this 10 years.

For even-aged management, rotations of 100 years will be recognized. Before regenerating all stands managed on an even-aged basis, many will be well in excess of 100 years in age, since the majority of the forest is already past 100. There are 230 acres of stands to be managed even-aged (14 stands). 35% of the forested acres are managed on an even-aged basis, or 41% of the managed forest. Intermediate harvests will be used to thin stands before the end of rotation. Shelterwoods or clearcuts will be used at end of rotation to regenerate the stand. These methods will be used to regenerate oak and other shade intolerant species, and to produce early successional habitat where deemed critical by the Wildlife Division. In the first 10 years, under this plan, thinning will begin on roughly half the area due for these intermediate cuts. Regeneration cutting will begin at a higher than sustainable rate to produce NEC early successional habitat, in this top priority parcel of the entire Goshen Uplands Focus Area.

For uneven-aged management, cutting cycles of 20 years will be used. There are 331 acres of stands to be managed uneven-aged (13 stands). 50% of the forested acres are managed on an uneven-aged basis, or 59% of the managed forest. All harvesting in these stands will both thin and regenerate through selection cutting,

which will be a combination of single-tree and group selection. Most group selection openings will not exceed half-acre in size, but exception will be made where salvage is involved or the need and benefit for larger openings is determined desirable by the DEEP forester or wildlife biologist. This management system will be used in most areas favoring northern hardwoods by composition or site quality, where oak would be less competitive. In the first 10 years, to keep management of these areas sustainable and continuous, half the acres managed uneven-aged will be harvested.

M. Work Plans

Road maintenance, gates, and signs: The wooden shield state forest sign at the entrance to the public parking area on Route 341 has been missing for years. This sign will be replaced by State Parks.

An estimated 11,800 linear feet (2.23 miles) of forest road will be improved to provide access to stands for harvests. This includes 6,400 feet of the main access road through the gate up to the City Hill intersection, another 1,500 feet of the old City Hill Road, and another 2,900 feet of the newer forest products connector road that cuts off the loop between compartments 2 and 3. Finally, a 1,000' section of road will be improved between compartments 3 and 4 to improve access to stands 3-3 and 4-3 for those proposed harvests. All improvements are intrinsic to specific forestry and habitat plans. All specifics in terms of gravel volume, spreading, and drainage improvements will be provided via operation plan or project request at later times.

The most important maintenance issue for the existing road system is maintaining sufficient drainage on the steep hill within the first half mile inside the gate. Waterbars and broad-based dips must be maintained at all times on this hill.

An estimated 4,500 feet of the old City Hill Road that forms the northeast boundary of the block will never be re-used and improved. This section of road is in extremely poor shape due to washouts and inadequate drainage, further impacted by illegal ATV activity over the years. It is also completely blocked on one end by significant beaver dam activity. The section of road primarily serves as frontage along stands that will not be actively managed.

There is one standard metal DEEP gate for the block at the public parking area. This gate must be kept in good condition or otherwise promptly repaired or replaced by State Parks, for public safety and to preserve the road improvement investments on the property. The public parking area and estimated 100 yards of access road off Route 341 must remain suitable for 2-wheel drive cars for spring/summer/fall visitors. The parking area and access is not maintained in winter.

Boundary marking: All of the Forest boundaries will be remarked at least once within the next ten years, on a remark cycle of approximately every 8 years.

Stream improvement: A project request to address the drainage problem in the old City Hill roadbed on the northeast edge will be written in consultation with the Inland Fisheries Division.

Recreation or scenic site work: The parking area near Route 341 may need more gravel or drainage work during the plan period. Forestry will work with State Parks to create an official trail map, which includes the forest roads acceptable for hiking. The map could be posted at the site and on the DEEP website.

Trail maintenance: There are presently no approved or authorized recreational trails within the block that area managed by the department, other than the forest road system. Blue-blazed Trails are maintained by CFPA. Forest roads and trails approved by Forestry and State Parks for hiking or multiple-use recreational trails may be blazed by Parks in the future.

Upland wildlife opening work or leasing: There are no special plans for enhancing upland wildlife opening work in the next ten years. Even-aged silviculture will create habitat suitable for upland wildlife species through clearcutting and shelterwoods. Uneven-aged silviculture may contribute through planned group selection or salvage. Openings desired for habitat will be produced through sustainable forestry activities. Federal funding for NEC work will create openings in noncommercial areas, but all openings are expected to be ephemeral and not permanently maintained, and in the long-term remain within the realm of sustainable forest management.

Wildlife habitat improvement: Noncommercial clearcutting is proposed for stands 2-16 and 2-8, using federal money for NEC habitat creation. There are no other wildlife habitat improvement projects planned for the Forest in the next ten years, other than the benefits achieved through the diversity provided by proposed forest management activities. The Wildlife Division may be able to assist with the first shelterwood in stand 4-3, to remove the noncommercial material, and the same in future plan periods in stand 2-6, whether via habitat funds or equipment/manpower.

Wildlife population controls: Regulated hunting will continue to be allowed.

Forest Stand Harvests

Forest stand commercial thinning (even-aged management):

Only one stand is designated for thinning this plan period: Stand 2-10a, 20 acres.

Forest stand regeneration (even-aged management):

Stand #	Acres	Activity
2-2	22	Clearcut
2-7	15	Clearcut
2-8	14	Non-Comm. Clearcut**
2-16	9	Non-Comm. Clearcut
2-10b	11	First/Final Shelterwood
4-3 *	12	First Shelterwood
Total	83	

**Note that Stand 4-3 will only receive an initial shelterwood treatment, and will not count toward complete regeneration and early successional habitat. Stand 2-10b will receive both a first shelterwood and final shelterwood treatment during this plan period. Actual area regenerated at the Woodville Block through even-aged management will be 71 acres during the work plan period covered here.*

*** “Non-Commercial Clearcut” refers to operations not carried out under normal sales agreement. These harvests are accomplished by the Wildlife Division through Federal funding.*

Forest stand conversion (to uneven-aged management):

Stand #	Acres	Activity
2-3	34	Selection Cut*
3-1	30	Selection Cut
3-3	34	Selection Cut
3-6	31	Selection Cut
4-2	43	Selection Cut
Total	172	

**Mix of single-tree and group selection cutting in all uneven-aged management at Wyantnock.*

Burning, mechanical, chemical work: Prescribed fire use at Woodville is not likely due to access and control limitations, but would be considered if determined beneficial for promoting specific forest regeneration or wildlife habitat on a stand basis. Herbicides will be considered in specific stands if invasive plants threaten objectives of native regeneration. In the latter case, licensed and approved vendors will be used for invasive controls. Native saplings and poles in stands 2-8 and 2-16 (approximately 23 acres total) will be cut to ground level using funding the Wildlife Division provides for creating NEC habitat.

Planting: Planting will not likely be done by DEEP Division of Forestry staff. It will be considered as a future option in the area of stand 2-6 to help maintain a conifer component, but funding for seedlings, and labor for planting and follow-up weeding would be needed. Primarily, silviculture on the property will promote natural regeneration of native species appropriate in each stand.

Forest stand rotational cutting: Approximately one-fifth of the forested acres will not be actively managed (22%). Of the remaining forest, roughly half will be managed even-aged (42%) and half uneven-aged (36%) to promote a variety of canopy openings and disturbances for a greater diversity of habitat, cover types and age classes (See “10 Year Goals”). An average of 10% of the even-age managed stands, or 4.2% of the total forest, should receive an end-of-rotation regeneration cut every decade. During this 10-year period, slightly more, or 5.3%, will receive final harvest treatments.

Pre-fire suppression work: No specific work for pre-fire suppression is planned. The perimeter roads and cut-offs/loops provide for natural firebreaks and access. The road system will be upgraded and maintained as previously discussed.

APPENDIX A

1. COMMENTS from DEEP Western District

Support Services Division:

Skip Kearns, District Operations Supervisor, 02-23-15.

“Looks good, there are no Support service concerns with this plan.”

State Parks Division:

Tammy Talbot, Parks District Supervisor, 02-24-15.

“Good with me, thanks.”

Josh Rimany, Unit Manager-Lake Waramaug/Macedonia Brook SP, 03-05-15.

“The plan looks good.”

Inland Fisheries Division:

Donald J. Mysling, Senior Fisheries Biologist, 02-23-15.

“The comments pertaining to fisheries resources within the Wyantenock-Woodville Block, of which I had previously provided to you, have been accurately incorporated into the *Management Plan*. Additional comment is not warranted.”

Wildlife Division

Wildlife biologists Peter Picone and Paul Rothbart have been involved in this plan since early development. They each contributed specific editing suggestions and additional contributions on 02-24-15, all of which have since been incorporated into this draft.

2. Reviews outside DEEP

(Compiled and summarized April 9, 2015)

Connecticut Forest and Park Association (CFPA)

Plan sent electronically on March 6, 2015. Given two weeks to provide comments, to be included in the plan draft. Comments received following review by Clare Cain, CFPA Trail Stewardship Director, on March 26, 2015: “I have no comments. Thanks for the opportunity to review! I also forwarded your note to Peter Dorpalen.” (Dorpalen is the local trail manager)

Waterbury Water Department, City of Waterbury

Plan sent electronically on March 9, 2015 to Chris Bogucki, the Superintendent of Water, following a phone conversation regarding the plan. Mr. Bogucki promised to share with Don Carver, their Environmental Resources/Water Quality Manager. Waterbury was also offered the opportunity for a presentation on the plan at their convenience, but no interest was expressed to date. They were given two weeks for comments to be included in the draft, and time was later extended by e-mail on March 23. No responses and comments have been received after one month of review time.

Town of Warren, Conservation Commission/Inland Wetlands Comm.

Plan sent electronically on March 9, 2015 to Stacey Sefcik, the Town of Warren Zoning and Inland Wetlands Enforcement Officer and Conservation Commission Chair, following a phone conversation regarding the plan. Ms. Sefcik reviewed and shared with other Commission members and the First Selectman of Warren. The town was also offered a public or private presentation on the plan, but no request for a presentation was made. Two weeks were provided to include comments in the plan, and the time extended for additional days. A special meeting of the Commission was scheduled on March 23 specifically to discuss the plan. Stacey Sefcik provided the following by e-mail on April 1, 2015: “Hi David, I am very sorry to have kept you waiting so long. . . . The Commission talked about the plan at their special meeting on March 23rd, and no one had any particular concerns to forward to you. Consensus was very positive, particularly on the creation of habitat for the NE Cottontail. The only minor thought I have is that, if it is not too much trouble, if your office can give us a heads up when work might be starting – just in case I get a call from a concerned resident, I can let them know what’s going on and show them the materials you sent. Thank you again for all of your help and information!” DEEP Forestry has agreed to contact the Warren Town Hall any time a harvest is beginning at Wyantenock.

APPENDIX B

References

Notable references used in creating this plan:

CT DEEP, Division of Forestry, rev. 2006. Standard Operating Procedures for State Forest Management.

CT DEP, Division of Wildlife, 2005. Connecticut’s Comprehensive Wildlife Strategy.

DeGraaf, et al. 1992. *New England Wildlife: Management of Forested Habitats*, US Forest Service.

Kelty, et al. 2003. “The Conversion of Even-Aged Stands to Uneven-Aged Structure in Southern New England”, *Northern Journal of Applied Forestry*.

Picone, Peter, Paul Rothbart, DEEP Wildlife Division, personal consultations, tours and contribution to plan regarding wildlife habitat.

Rimany, Josh, and Tammy Talbot, DEEP State Parks Division, personal consultation regarding trails and recreational use.

Roach, Benjamin, and S. Gingrich. Dec. 1968. *Even-Aged Silviculture for Upland Central Hardwoods*,. Agriculture Handbook 355, US Forest Service.

Twery, Mark J.; Knopp, Peter D.; Thomas, Scott A.; Rauscher, H. Michael; Nute, Donald E.; Potter, Walter D.; Maier, Frederick; Wang, Jin; Dass, Mayukh; Uchiyama, Hajime; Glende, Astrid; Hoffmann, Robin E. 2005. NED-2: A Decision Support System for Integrated Forest Ecosystem Management. Elsevier, Computers and Electronics in Agriculture. 49:24-43

Hornbeck, James W., and William B. Leak. 1992. *Ecology and Management of Northern Hardwood Forests in New England*. USDA Forest Service General Technical Report NE-159.

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

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

Ward, Jeffrey S., Thomas E. Worthley, Peter J. Smallidge, and Karen P. Bennett. 2006. *Northeastern Forest Regeneration Handbook*. USDA Forest Service publication NA-TP-03-06.

Audubon Vermont: *Foresters for the Birds: Integrating Timber and Songbird Habitat Management*, workshop participation June 1 & 2, 2012, Pike, NH, and associated “Toolkit” materials.

CT DEEP Division of Forestry
Wyantenock S.F. –Woodville Block Management Plan 2015-2025

Leak, William B. and Neil I. Lamson. *Revised White Pine Stocking Guide for Managed Stands*. USDA Forest Service NA-TP-01-99.

Siegert, Nate; lecture and PowerPoint on EAB and managing ash in presence of EAB, 2012.

APPENDIX C

DEFINITIONS

Size Classes

Sawtimber - hardwood trees 12-inch dbh (diameter at breast height, or 4.5 feet off the ground) and larger, and softwood trees 10-inch dbh and larger, that contain at least one 8-foot sawlog.

Poletimber- hardwood trees between 5 and 11 inches dbh, and softwood trees 5 to 9 inches dbh. These trees are too small for sawlogs, but could be sold as pulpwood, fuelwood, or other small products where such markets exist.

Saplings - trees 1 to 5 inches dbh.

Seedlings - Trees less than 1 inch dbh.

Stand - an area of trees of a certain species composition (cover type), age class or size class distribution and condition (quality, vigor, risk), usually growing on a fairly homogeneous site.

An **even-aged** stand contains trees in the main canopy that are within 20 years of being the same age. Even-aged stands sometimes are designated by age-class (e.g. a 40- year old stand) or broad size-class (e.g. seedling/sapling, poletimber, sawtimber). An **uneven-aged** stand contains trees of several 15-20 year age-classes. These stands generally contain trees of many sizes (seedlings through sawtimber) due to the range in ages and the differences in growth rates among species.

Types of Silvicultural Treatments

Clearcut- Used in even-aged management to regenerate a new forest using seeds already in the soil, seeds brought in from adjacent areas by wind or animals, and/or sprouts from stumps. All stems are removed to provide maximum sunlight for the new forest. Trees such as black cherry, yellow poplar, aspen, and paper birch often regenerate after clearcuts. Often used to create early successional wildlife habitat.

Selection cut- Used in uneven-aged management. Trees are removed singly or in small groups up to an acre in size, maintaining a fairly continuous canopy.

Selection harvests tend to favor trees that can grow in partial shade such as sugar and red maples, black and yellow birch, beech, and hemlock.

Shelterwood- Used in even-aged management. Understory and lower crown canopy trees are removed to allow the new stand to regenerate in partial sunlight. Trees to be retained are usually of the best quality to serve as a desirable source of seed. After adequate regeneration is established, the overstory is removed in one or two cuts. Shelterwoods are often used to regenerate species such as oak and white pine that have irregular crops of seed.

Thin- Intermediate cut in even-aged management, where regeneration is not a goal. Objective is to improve the health and quality of an existing stand by providing growing space for the most desirable, quality, and healthy trees, removing those of poorest form and condition.

Forest Types (from the U.S. Forest Service)

Forest Type is based on species composition of the overstory, with the overstory defined as all trees in the 1” dbh class and larger. Species composition is based on the proportion of total stand basal area represented by each species or species group. Forest type designations are not assigned to stands until they grow out of the seedling stage into the sapling class.

Forest Types included in this plan are:

Eastern white pine/northern red oak/white ash: Associates—red maple, basswood, yellow birch, bigtooth aspen, sugar maple, beech, paper birch, black cherry, hemlock, and black birch. Sites—deep, fertile, well-drained soil. (OAK/PINE cover group)

Northern red oak: Associates – black oak, scarlet oak, chestnut oak, and tulip-poplar. Sites--spotty distribution on ridge crests and north slopes in mountains but also found on rolling land, slopes, and benches on loamy soil. (OAK/HICKORY cover group)

Red maple/oak: Associates—the type is dominated by red maple and some of the wide variety of central hardwood associates including upland oaks, hickory, tulip-poplar, sassafras. Sites—uplands. (OAK/HICKORY cover group)

Mixed upland hardwoods: Associates – Any mixture of hardwood species typical of the upland central hardwood region, should include some oak. Sites--wide variety of upland sites. (OAK/HICKORY cover group)

Red maple/lowlands: Associates—Most commonly ash, blackgum, yellow birch. Sites—wetland “red maple swamps”, on poorly drained to somewhat poorly drained soils. (ELM/ASH/COTTONWOOD cover group)

Sugar maple/beech/yellow birch: Associates—basswood, red maple, hemlock, northern red oak, white ash, white pine, black cherry, black birch, elm, eastern hophornbeam. Type often known as “northern hardwoods”. Sites—fertile, moist, well-drained sites. (MAPLE/BEECH/BIRCH cover group)

Black cherry: Associates—sugar maple, northern red oak, red maple, white ash, basswood, black birch, butternut, American elm, hemlock. Sites--fertile, moist, well-drained.

Chestnut oak: Associates—scarlet oak, white oak, black oak, pitch pine, blackgum, red maple, red oak. Sites—rocky outcrops with thin soil, ridge tops.

White oak/red oak/hickory: Associates—scarlet oak, bur oak, white ash, sugar maple, red maple, basswood, beech, blackgum, tulip-poplar. Sites—wide variety of well drained upland soils.

APPENDIX D

WYANTENOCK STATE FOREST WOODVILLE BLOCK Stand Summary, 2015-2025

Stand	Acres	USFS Type	Cover Group	Mgmt. System	Size Class	Stocking	Mgmt. Status	Prescription	Next 10 years?
1-1	19	505	OH	U	SAW	Over	Active	Selection	No
1-2	59	503	OH	E	SAW	Over	Active	Thin	No
1-3	2	505	OH	E	SAW	Over	Active	Thin	No
2-1	3	519	OH	U	SAW	Over	Active	Salvage	No
2-2	22	503	OH	E	SAW	Over	Active	Clearcut	Yes
2-3	34	505	OH	U	SAW	Over	Active	Selection	Yes
2-4a	10	--	--	--	--	--	Water	--	--
2-4b	26	--	--	--	--	--	Swamp	--	--
2-5	28	801	NH	N	SAW	Over	Inoperable	Growing	No
2-6	20	401	OP	U	SAW-SAP	Over	Active	Selection	No
2-7	15	520	OH	E	SAW	Under	Active	Clearcut	Yes
2-8	14	520	OH	E	SAP	Full	Wildlife	Clearcut	Yes
2-9a	9	520	OH	E	SAW	Full	Active	Growing	No
2-9b	9	520	OH	E	SAW	Full	Active	Clearcut	No
2-10a	19	503	OH	E	SAW	Over	Active	Thin	Yes
2-10b	11	503	OH	E	SAW	Over	Active	Final	Yes
2-11	30	520	OH	E	POLE	Under	Active	Growing	No
2-12	18	505	OH	U	SAW	Over	Active	Growing	No
2-13	12	502	OH	E	SAW	Over	Active	Growing	No
2-14	12	502	OH	N	SAW-POLE	Full	Inoperable	Growing	No
2-15	7	505	OH	E	SAW	Over	Active	Thin	No
2-16	9	802	NH	E	POLE	Full	Wildlife	Clearcut	Yes
3-1	30	503	OH	U	SAW	Over	Active	Selection	Yes
3-2	17	801	NH	N	SAW	Full	Inoperable	Growing	No
3-3	34	505	OH	U	SAW	Over	Active	Selection	Yes
3-4	8	520	OH	U	SAW	Over	Active	Selection	No
3-5	13	505	OH	N	SAW	Over	Inoperable	Growing	No
3-6	31	505	OH	U	SAW	Over	Active	Selection	Yes
3-7	7	801	NH	U	SAW	Over	Active	Salvage	No
3-8a	3	--	--	--	--	--	Water	--	--
3-8b	25	--	--	--	--	--	Swamp	--	--
3-9	7	801	NH	N	SAW	Full	Inoperable	Growing	No
4-1	12	519	OH	U	SAW	Full	Active	Selection	No
4-2	43	505	OH	U	SAW	Over	Active	Selection	Yes
4-3	12	505	OH	E	SAW-SAP	Under	Active	Shelterwood	Yes
4-4	72	505	OH	U	SAW	Over	Active	Selection	No
4-5	9	505	OH	N	SAW	Over	Inoperable	Growing	No
4-6	5	505	OH	N	SAW	Over	Inoperable	Growing	No
4-7	5	708	RM	N	SAW	Over	Swamp	Growing	No

KEY TO SYMBOLS

I. USFS TYPES: Column 3

The numbers used in the “Type” column of the table represent U.S. Forest Service standardized types.

401	Eastern White Pine/Northern Red Oak/White Ash
502	Chestnut Oak
503	White Oak/Red Oak/Hickory
505	Northern Red Oak
519	Red Maple/Oak
520	Mixed Upland Hardwoods
708	Red Maple/Lowland
801	Sugar Maple/Beech/Yellow Birch
802	Black Cherry

II. COVER GROUP: Column 4 (see map D)

OH =	Oak-Hickory Group
OP =	Oak-Pine Group
RM =	Elm-Ash-Red Maple Group
NH =	Northern Hardwood Group (Maple-Beech-Birch)

III. MANAGEMENT SYSTEM: Column 5 (see map H)

U =	Uneven-Aged Management/All-Aged Management
E =	Even-Aged Management
N =	No Management

IV. SIZE CLASS: Column 6 (see map D)

SAW =	Sawtimber stand, dominated by trees of merchantable size, 12” dbh or greater
POLE =	Poletimber stand, dominated by trees 6” – 10” dbh
SAP =	Sapling stand, trees under 6” dbh
SAW-SAP =	Even mix of Sawtimber-size and Sapling-size trees
SAW-POLE =	Even mix of Sawtimber-size and Pole-size trees

APPENDIX E

WYANTENOCK’S ROLE FOR NEC’S GOSHEN FOCUS AREA DEEP Wildlife Division

The New England cottontail (*Sylvilagus transitionalis*, NEC) was listed as a wildlife species of regional conservation concern in the Northeastern United States in 1999 by the Northeast Fish and Wildlife Diversity Technical Committee. The United States Fish and Wildlife Service (USFWS) designated the NEC as a candidate for Threatened or Endangered status in September 2006. The species is currently considered one of greatest conservation need in Connecticut and all states throughout the range. A region-wide decline in the population and distribution is primarily attributed to habitat loss, habitat fragmentation, and increased competition from the introduced eastern cottontail (*Sylvilagus floridanus*). NEC are the only native cottontail in New England. Eastern cottontails were introduced to the region in the early 1900’s by hunting clubs to bolster rabbit populations. The historic range of NEC covered southern Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, and New York east of the Hudson River. Over the past five decades there has been an 85% decline in the distribution of NEC throughout its range. The disappearance of dense shrub/young forest habitat has led to the decline of this species and many other shrubland dependent wildlife species. Habitat restoration efforts are necessary to maintain this valuable native population of NEG and 47 other shrubland/young forest dependent species. The NEC is believed to be extirpated from Vermont and is listed as state endangered in Maine and New Hampshire. Genetic studies have shown that the population is restricted to five isolated subpopulations. In Connecticut, NEC has been documented in 42 towns.

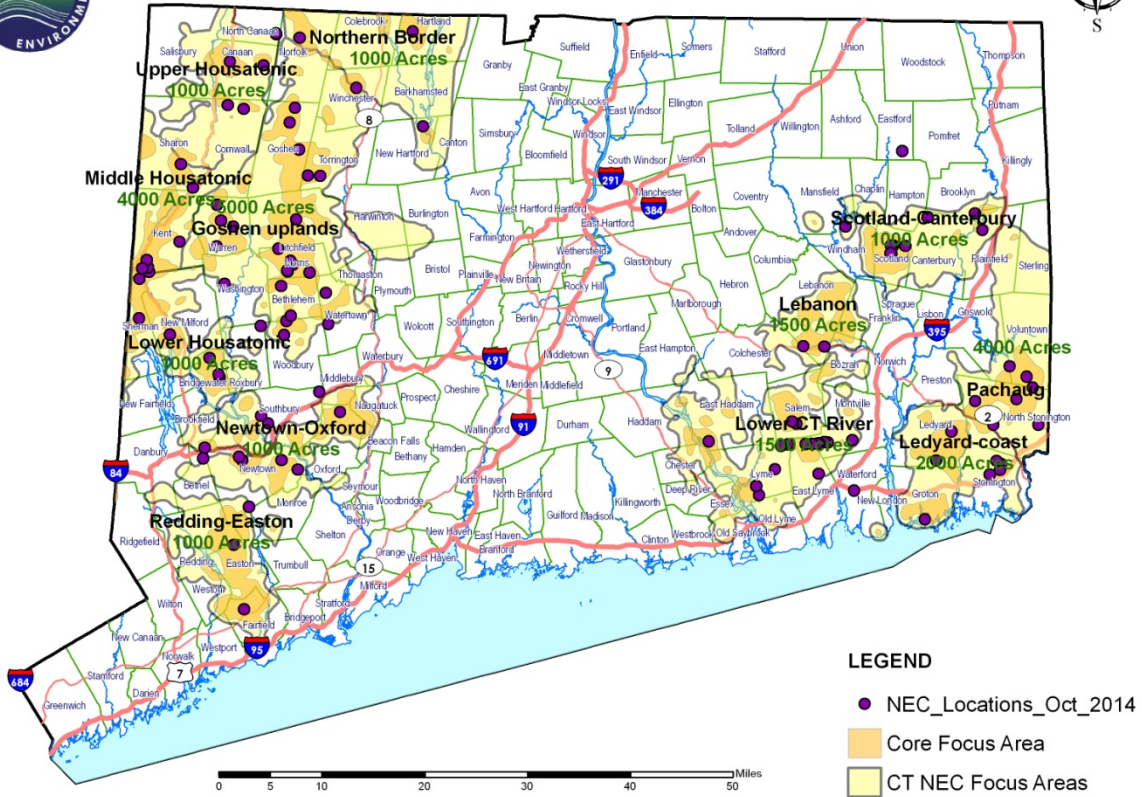
The Woodville Block of Wyantnock State Forest is a regionally important area for New England Cottontail (NEC). The property is the 25th ranked state parcel (out Of 3,800 parcels) and is the #1 ranked parcel within the Goshen Focus Area. It is located within the Goshen Focus Area, one of twelve designated zones of special importance for NEC restoration efforts. Presently there are several documented confirmed NEC locations in proximity to the Woodville Block including .5 miles to the NW, 2 miles to the W/SW, 2 miles to the NW and 3 miles to the E/SE. Several restoration projects have also been conducted or are upcoming within the general area including Camp Columbia SF, Housatonic River WMA, and two private land sites. Within this focus area our long-range goals are to achieve and maintain 5,000 acres of young forest-shrubland thicket habitat to sustain a population of 2,500 NEC throughout the focus area. To meet these goals restoration efforts will be needed on both public and private lands. We also factor in existing suitable habitat presently on the landscape.

The focus area is situated in rural northwestern Connecticut on rolling hills, ranging from 400- 1,000 feet in elevation in the southern portion to 1,500-1,600 feet in the northern sections. This focus area is 70% forested (50% deciduous, 17% coniferous, 3.5% forested wetland), nearly 12% agricultural and 8.4% developed or impervious. The agricultural lands are a mix of animal pasture, hay, corn/crops, and several vineyards and Christmas tree farms. The remaining land cover includes water and non-forested wetlands (4%), tuff and other grasses (~5%), utility ROW (0.2%) and barren land (0.3%). The focus area encompasses 206,268 acres including approximately 17,500 acres of land (excluding major lakes) managed by the Department of Energy & Environmental Protection (CT DEEP) of a total of more than 30,000 acres of secured lands (public and private open space, and farmland preservation lands). More than half of the CT DEEP property is State forest. This State property provides an excellent opportunity for NEC habitat creation through forestry operations.

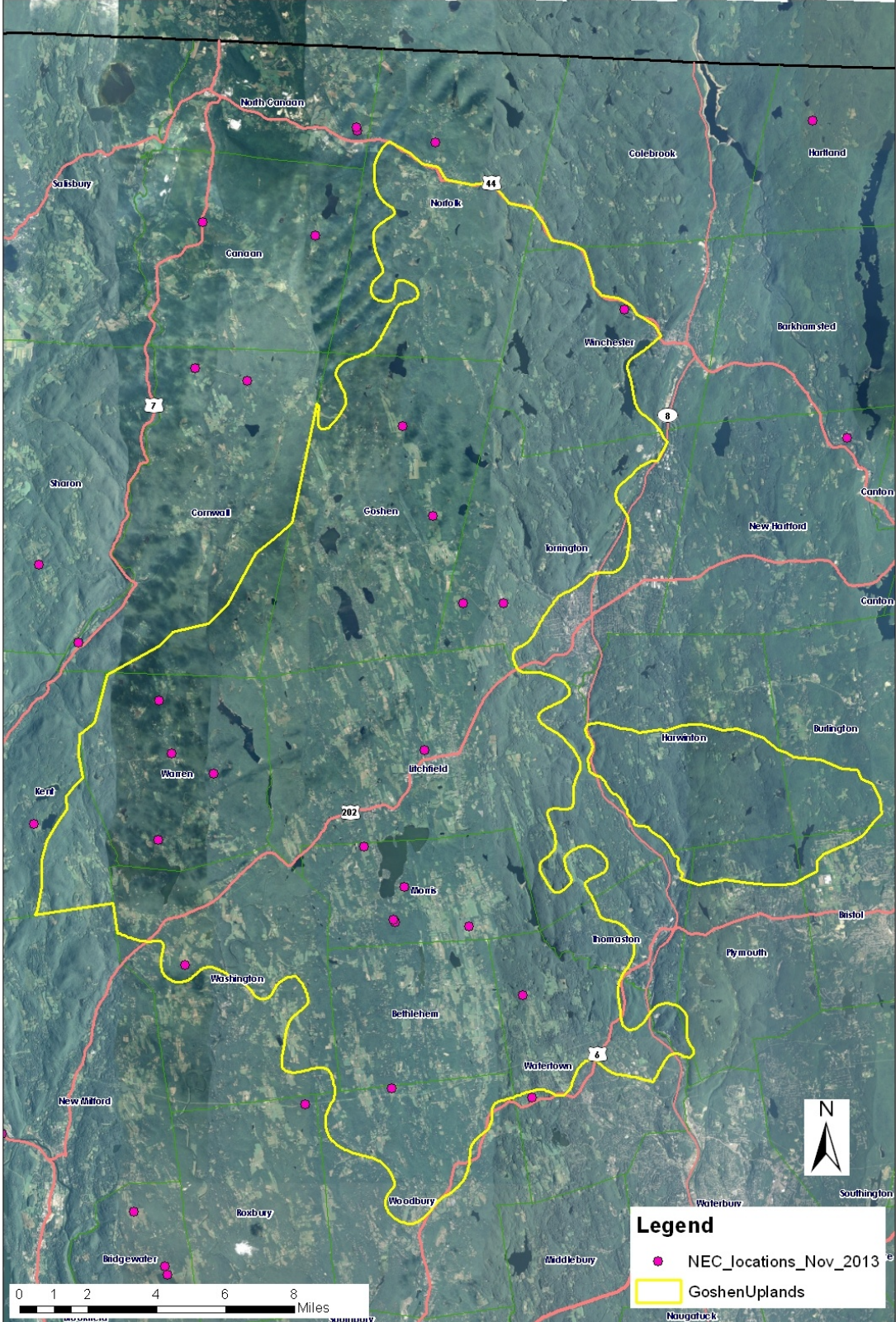
NEC Best Management Practices generally prescribe a scenario such as even-aged patch cuts 10-25 acres in size, located within 2 miles of existing patches. On large parcels such as public lands the goal is to create and maintain a minimum of 10% of the property in the shrub/young forest successional stage. Treatments should take place from August 1 through mid-March to avoid the NEC nesting season. Wildlife Division staff will conduct pre and post harvesting monitoring including stem density measurements and pellet/trapping surveys.



**New England Cottontail Restoration Focus Areas in CT
 (Habitat Acreage Goals in Green)**



Goshen Uplands Focus Area





Connecticut Department of
**ENERGY &
ENVIRONMENTAL
PROTECTION**

July 20, 2015

Mr. David Irvin
CT Division of Forestry
P.O. Box 161
Pleasant Valley, CT 06063-0161
david.irvin@ct.gov

Project: Comprehensive 10 Year Forest Management Plan for Wyantenock State Forest,
Woodville Block in Warren, Connecticut
NDDDB Determination No.: 201500372

Dear Dave,

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map provided for the proposed comprehensive ten year management plan for Wyantenock State Forest, Woodville Block in Warren, Connecticut. According to our information there are extant populations of State Special Concern *Glyptemys insculpta* (wood turtle) and *Thamnophis sauritus* (eastern ribbon snake) in the area of Wyantenock State Forest in Warren. Wood turtles are riparian and so leaving a buffer around riparian areas is an important conservation consideration. Eastern ribbon snakes are usually found in wet meadows associated with riparian areas. Conserving and protecting these snakes usually involve leaving buffers around wet meadows or wetlands and working when they are less active during the fall and winter months.

To minimize impacts to wood turtles we recommend that harvesting/land clearing be done during the turtle's dormant season, which is November through March.

If this is not possible and you plan to do work while they are active (April through October) then the following recommendations will help minimize potential impacts if work is done during their active time:

- The clearing crew should be provided a description of the species and alerted to its possible presence in the project area.
- The immediate area to be harvested each day should be searched for turtles prior to work starting that day.
- The immediate area around staged equipment (located in wood turtle habitat) should be searched each day prior to work starting to ensure that turtles are not run over.
- Any turtles encountered during construction should be moved out of the way, just outside of the work area.

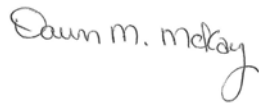
- Any work conducted during the early morning and evening hours should occur with special care not to harm basking or foraging individuals

Thank you for implementing these protection measures for wood turtles and eastern ribbon snakes. I have attached a “Wood Turtle” fact sheet for your file. If you would like to coordinate with program biologists as your management plan is developed please let me know. This determination is good for one year. Please re-submit an NDDDB Request for Review if the scope of work changes or if work has not begun on this project by July 20, 2016.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection’s Natural History Survey and cooperating units of DEEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits.

Please contact me if you have further questions at (860) 424-3592, or dawn.mckay@ct.gov . Thank you for consulting the Natural Diversity Data Base.

Sincerely,

A handwritten signature in cursive script that reads "Dawn M. McKay".

Dawn M. McKay
Environmental Analyst 3

WILDLIFE IN CONNECTICUT

STATE SPECIES OF SPECIAL CONCERN

Wood Turtle

Glyptemys insculpta

Background

Wood turtles may be found throughout Connecticut, but they have become increasingly rare due to their complex habitat needs. Wood turtles also have become more scarce in Fairfield County due to the fragmentation of suitable habitat by urban development.

Range

Wood turtles can be found across the northeastern United States into parts of Canada. They range from Nova Scotia through New England, south into northern Virginia, and west through the Great Lakes region into Minnesota.

Description

The scientific name of the wood turtle, *Glyptemys insculpta*, refers to the deeply sculptured or chiseled pattern found on the carapace (top shell). This part of the shell is dark brown or black and may have an array of faint yellow lines radiating from the center of each chiseled, pyramid-like segment due to tannins and minerals accumulating between ridges. These segments of the carapace, as well as those of the plastron (bottom shell), are called scutes. The carapace also is keeled, with a noticeable ridge running from front to back. The plastron is yellow with large dark blotches in the outer corners of each scute. The black or dark brown head and upper limbs are contrasted by brighter pigments ranging from red and orange to a pale yellow on the throat and limb undersides. Orange hues are most typical for New England's wood turtles. The hind feet are only slightly webbed, and the tail is long and thick at the base. Adults weigh approximately 1.5 to 2.5 pounds and reach a length of 5 to 9 inches.



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Habitat and Diet

Wood turtles use aquatic and terrestrial habitats at different times of the year. Their habitats include rivers and large streams, riparian forests (adjacent to rivers), wetlands, hayfields, and other early successional habitats. Terrestrial habitat that is usually within 1,000 feet of a suitable stream or river is most likely used. Preferred stream conditions include moderate flow, sandy or gravelly bottoms, and muddy banks.

Wood turtles are omnivorous and opportunistic. They are not picky eaters and will readily consume slugs, worms, tadpoles, insects, algae, wild fruits, leaves, grass, moss, and carrion.

Life History

From late spring to early fall, wood turtles can be found roaming their aquatic or terrestrial habitats. However, once temperatures drop in autumn, the turtles retreat to rivers and large streams for hibernation. The winter

is spent underwater, often tucked away below undercut riverbanks within exposed tree roots. Dissolved oxygen is extracted from the water, allowing the turtle to remain submerged entirely until the arrival of spring. Once warmer weather sets in, the turtles will become increasingly more active, eventually leaving the water to begin foraging for food and searching for mates. Travel up or down stream is most likely, as turtles seldom stray very far from their riparian habitats.

Females nest in spring to early summer, depositing anywhere from 4 to 12 eggs into a nest dug out of soft soil, typically in sandy deposits along stream banks or other areas of loose soil. The eggs hatch in late summer or fall and the young turtles may either emerge or remain in the nest for winter hibernation. As soon as the young turtles hatch, they are on their own and receive no care from the adults.

Turtle eggs and hatchlings are heavily preyed upon by a wide variety of predators, ranging from raccoons to birds and snakes. High rates of nest predation and hatchling mortality, paired with the lengthy amount of time it takes for wood turtles to reach sexual maturity, present a challenge to maintaining sustainable populations. Wood turtles live upwards of 40 to 60 years, possibly more.

Conservation Concerns

Loss and fragmentation of habitat are the greatest threats to wood turtles. Many remaining populations in Connecticut are low in numbers and isolated from one another by human-dominated landscapes. Turtles forced to venture farther and farther from appropriate habitat

to find mates and nesting sites are more likely to be run over by cars, attacked by predators, or collected by people as pets.

Other sources of mortality include entanglements in litter and debris left behind by people, as well as strikes from mowing equipment used to maintain hayfields and other early successional habitats.

The wood turtle is imperiled throughout a large portion of its range and was placed under international trade regulatory protection through the Convention on International Trade in Endangered Species (CITES) in 1992. Wood turtles also have been included on the International Union for Conservation of Nature's (IUCN) Red List as a vulnerable species since 1996. They are listed as a species of special concern in Connecticut and protected by the Connecticut Endangered Species Act.

How You Can Help

- *Conserve riparian habitat. Maintaining a buffer strip of natural vegetation (minimum of 100 feet) along the banks of streams and rivers will protect wood turtle habitat and also help improve the water quality of the stream system. Stream banks that are manicured (cleared of natural shrubby and herbaceous vegetation) or armored by rip rap or stone walls will not be used by wood turtles or most other wildlife species.*
- *Do not litter. Wood turtles and other wildlife may accidentally ingest or become entangled in garbage and die.*
- *Leave turtles in the wild. They should never be kept as pets. Whether collected singly or for the pet trade, turtles that are removed from the wild are no longer able to be a reproducing member of a population. Every turtle removed reduces the ability of the population to maintain itself.*
- *Never release a captive turtle into the wild. It probably would not survive, may not be native to the area, and could introduce diseases to wild populations.*
- *As you drive, watch out for turtles crossing the road. Turtles found crossing roads in June and July are often pregnant females. They should **not** be collected but can be helped on their way. Without creating a traffic hazard or compromising safety, drivers are encouraged to avoid running over turtles that are crossing roads. Also, still keeping safety precautions in mind, you may elect to pick up turtles from the road and move them onto the side in the direction they are headed. Never relocate a turtle to another area that is far from where you found it.*
- *Learn more about turtles and their conservation concerns, and educate others.*
- *If you see a wood turtle, leave it in the wild, take a photograph, record the location where it was seen, and contact the Connecticut Department of Environmental Protection (DEP) Wildlife Division at dep.wildlife@ct.gov, or call 860-424-3011 to report your observation.*





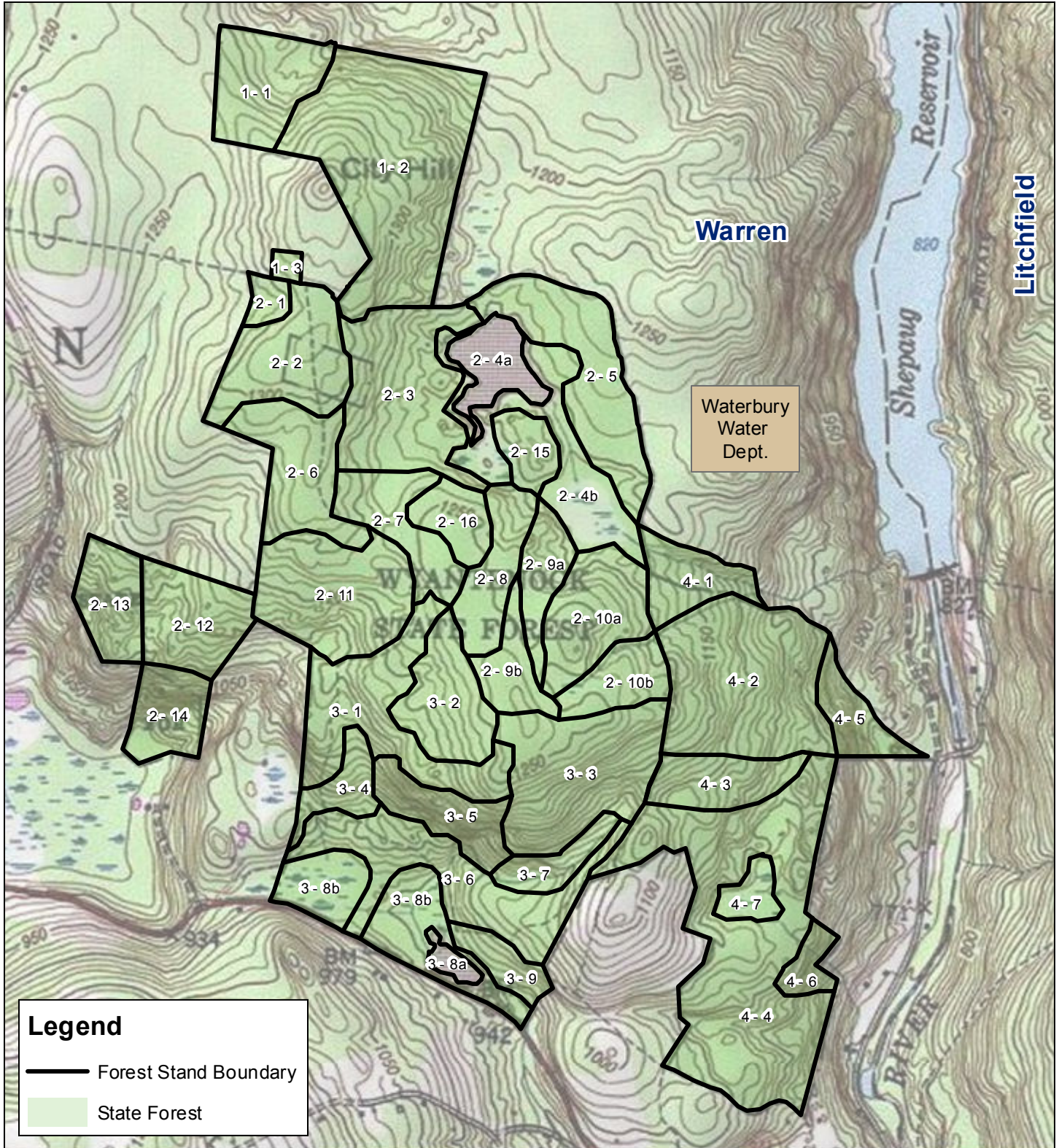
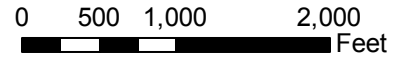
Map A: Topographic Wyantnock State Forest, Woodville Block

Warren, Connecticut
Total Area - 721 Acres



February 6, 2015

Map Scale: 1:15,000 or 1 inch = 1,250 feet



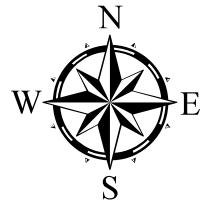
Legend

- Forest Stand Boundary
- State Forest



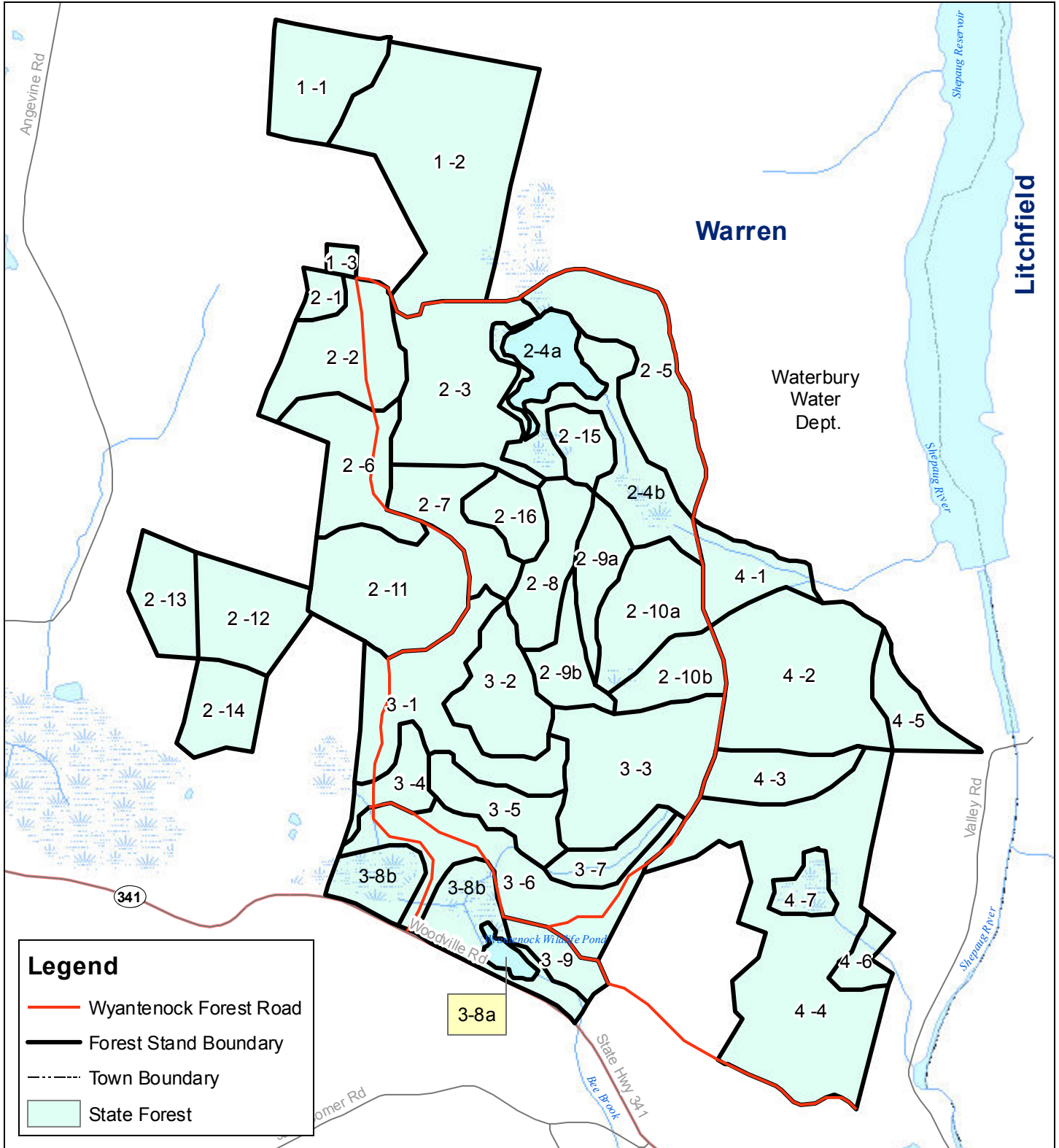
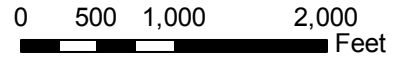
Map B: Base Wyantenock State Forest, Woodville Block

Warren, Connecticut
Total Area - 721 Acres



February 6, 2015

Map Scale: 1:15,000 or 1 inch = 1,250 feet





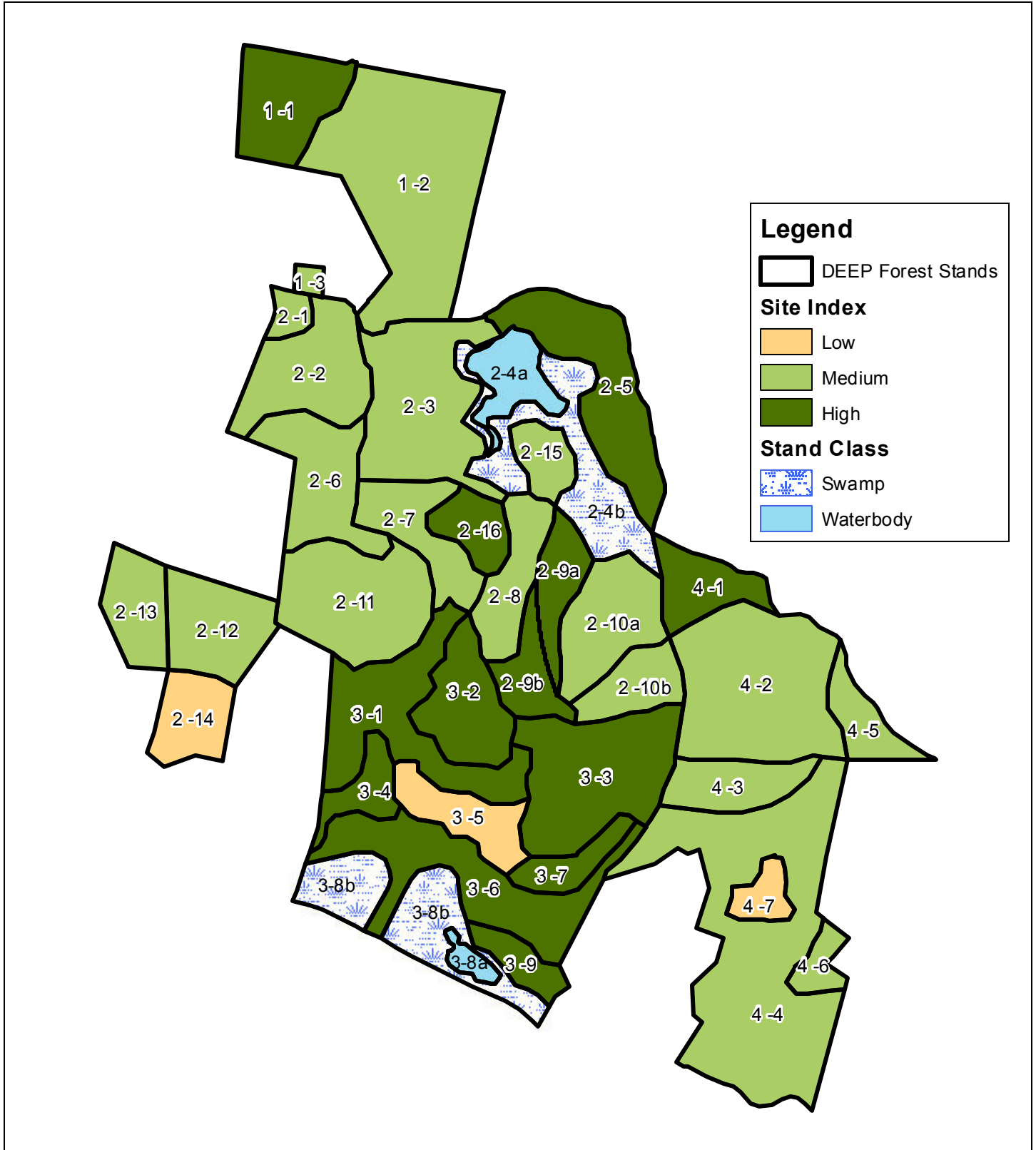
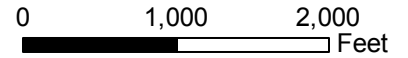
Map C - Site Quality Wyantenock State Forest, Woodville Block

Warren, CT
721 Acres



February 6, 2015

Map Scale: 1:15,000 or 1 inch = 1,250 feet





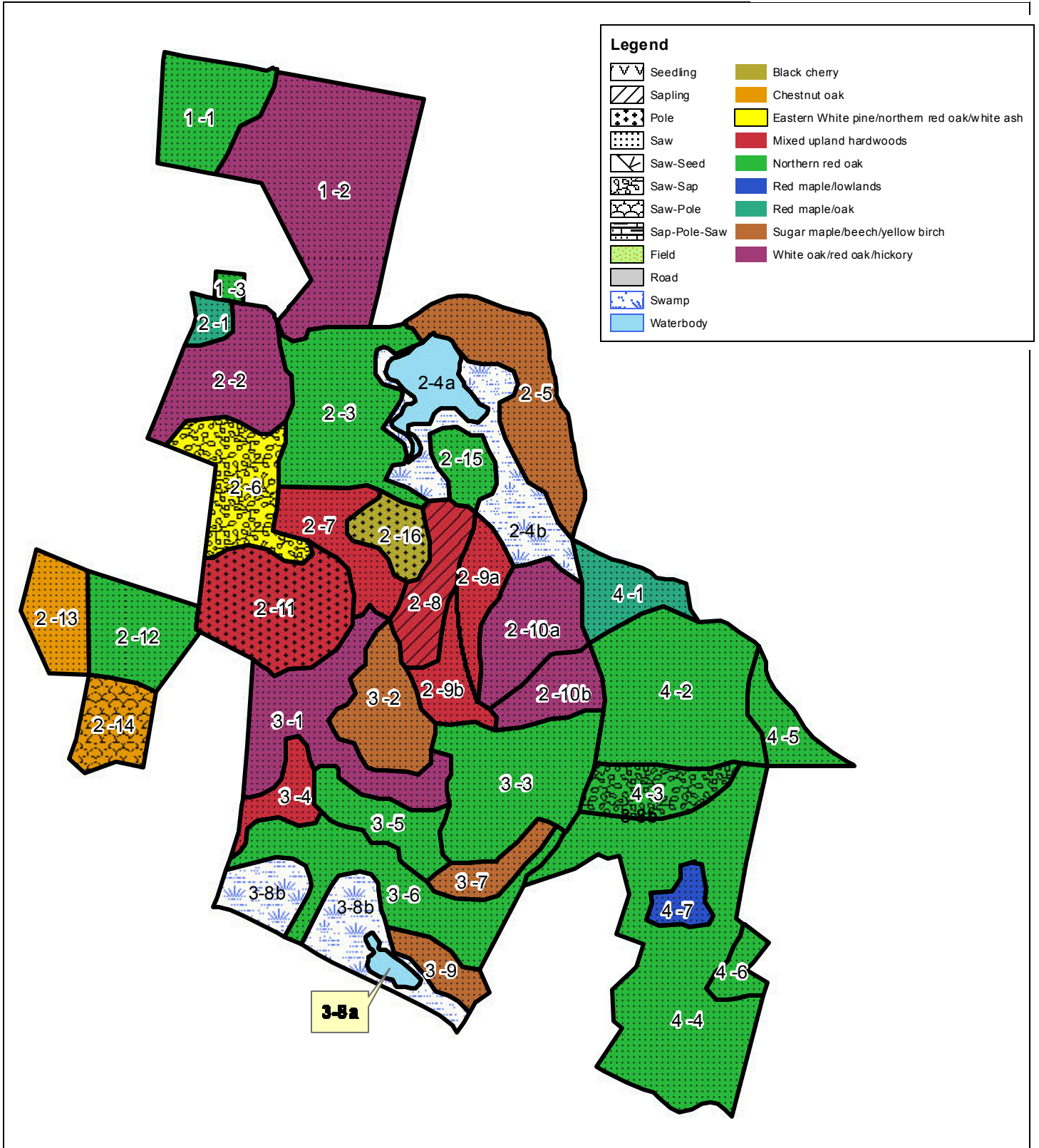
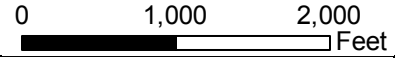
Map D - Forest Type & Size Class Wyantenock State Forest, Woodville Block

Warren, CT
721 Acres



February 6, 2015

Map Scale: 1:15,000 or 1 inch = 1,250 feet





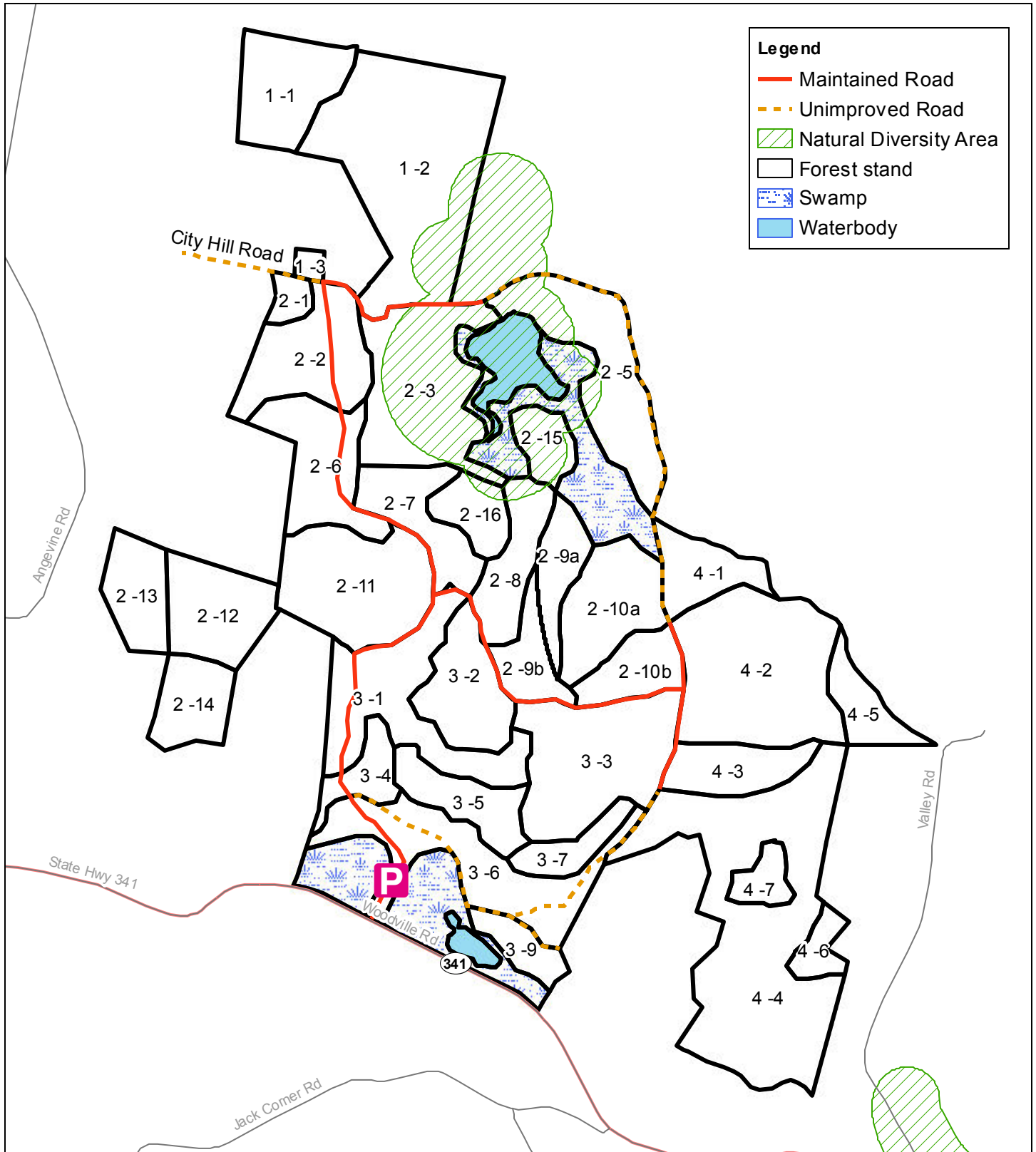
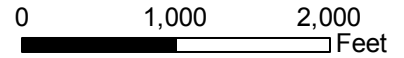
Map E - Special Features Wyantenock State Forest, Woodville Block

Warren, Connecticut
721 Acres



February 6, 2015

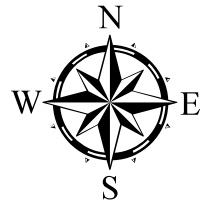
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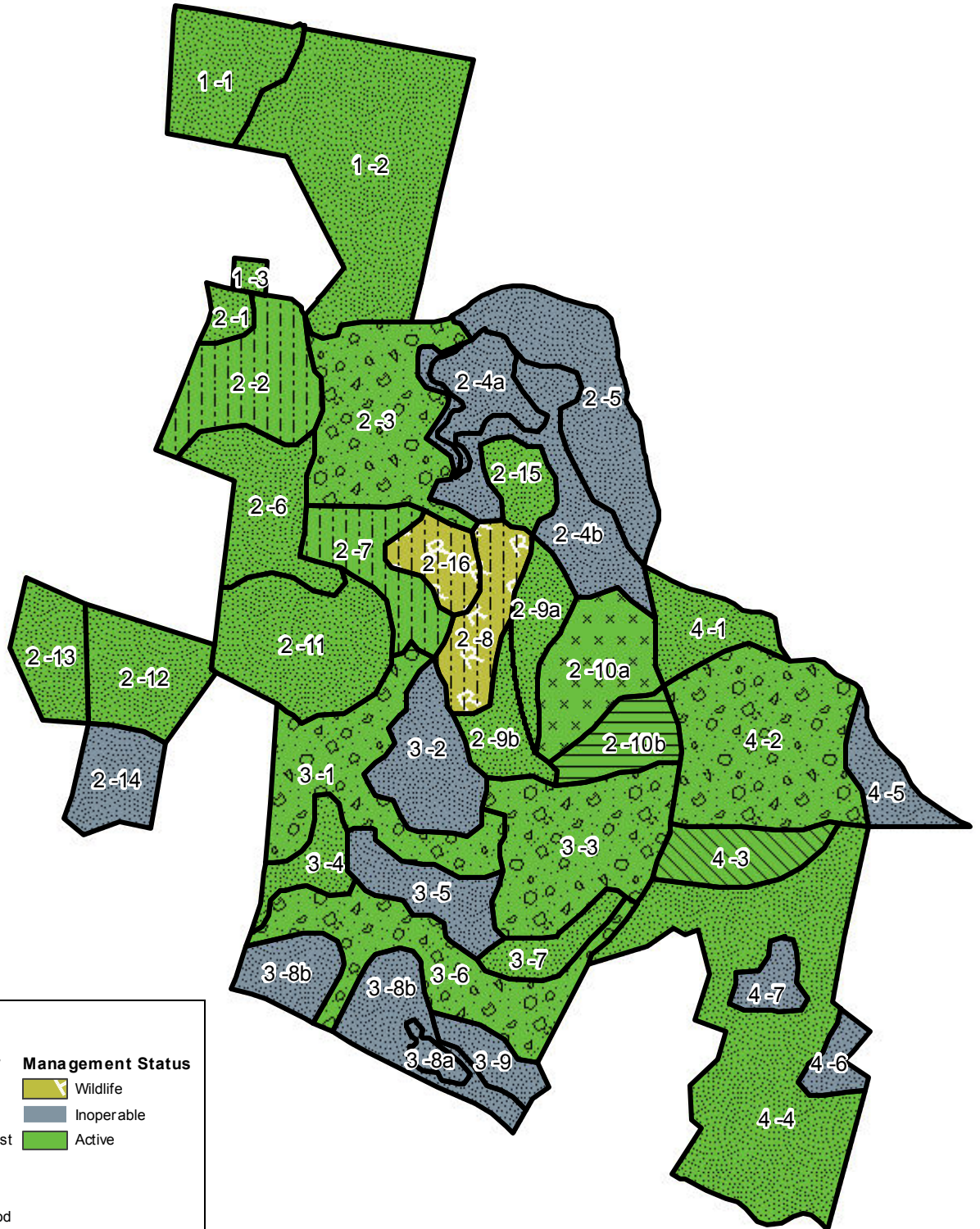
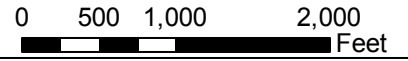
Map F: Work Plan Wyantenock State Forest, Woodville Block

Warren, Connecticut
Total Area - 721 Acres



February 6, 2015

Map Scale: 1:15,000 or 1 inch = 1,250 feet



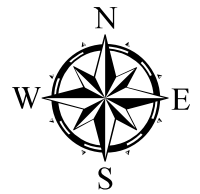
Legend

Stand Boundary	Management Status
Workplan	Wildlife
Thin	Inoperable
Selection Harvest	Active
Growing	
Clearcut	
First Shelterwood	
Final Shelterwood	



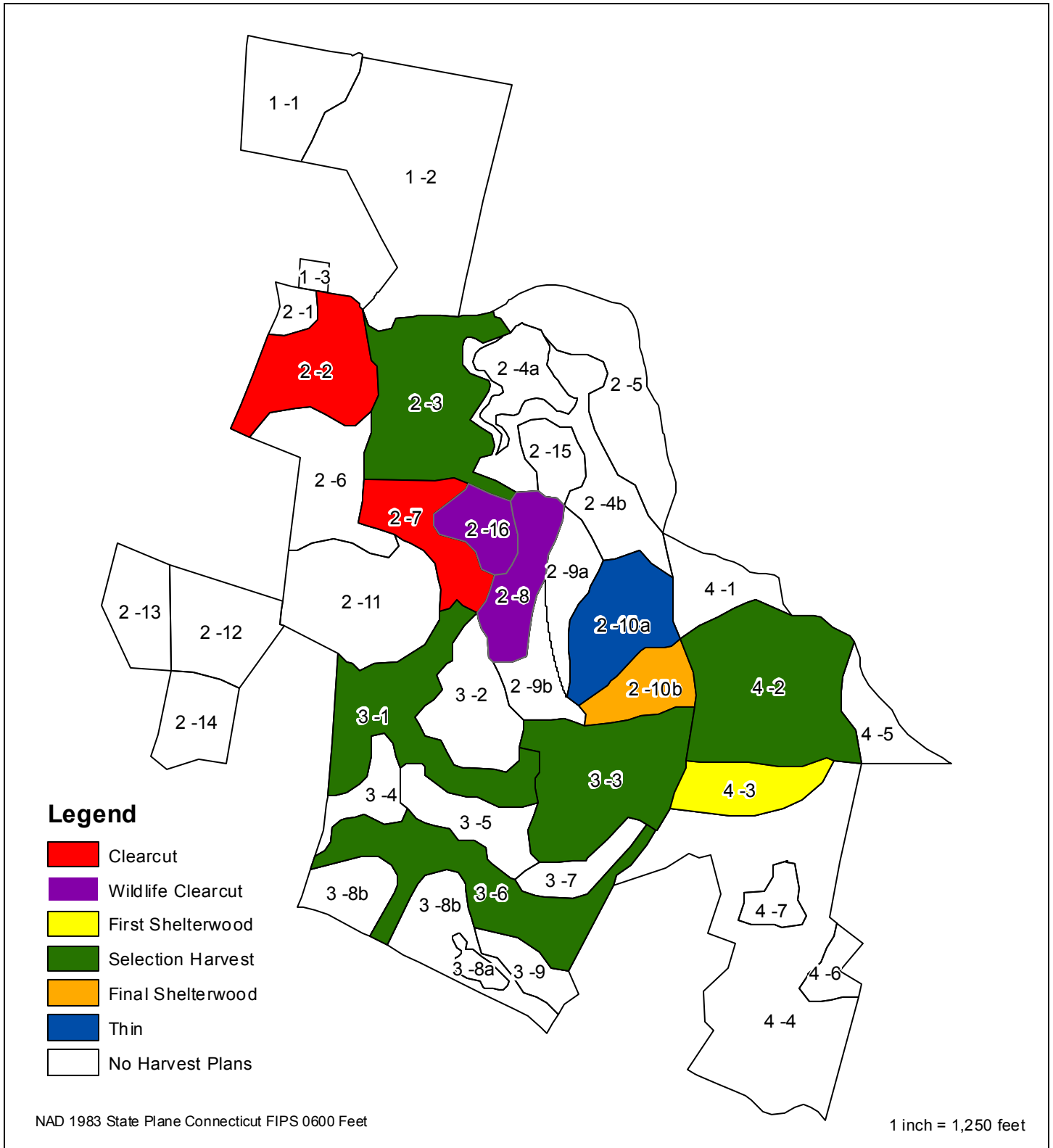
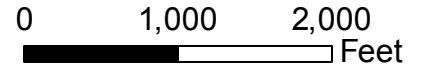
Map G: Commercial Work Plan Wyantenock State Forest, Woodville Block

Warren, Connecticut
Total Area - 721 Acres



February 6, 2015

Map Scale: 1:15,000 or 1 inch = 1,250 feet





Map H: Management System Plan Wyantenock State Forest, Woodville Block

Warren, Connecticut
Total Area - 721 Acres



February 6, 2015

Map Scale: 1:15,000 or 1 inch = 1,250 feet

