STATE OF CONNECTICUT

DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION

Bureau of Natural Resources
Division of Forestry

FOREST RESOURCE MANAGEMENT PLAN
2016 through 2025

Nehantic State Forest

North, Power Lake, Roger Lake and Taneyhill Blocks

4,429 acres

East Lyme, Lyme, Old Lyme and Salem

Approvals:

May 6, 2016		5/20/16	
Christopher Martin, Director Division of Forestry	Date	William Hyatt, Chief Bureau of Natural Resources	Date

June 14, 2016

Susan Whalen, Deputy Commissioner Date
Outdoor Recreation and Natural Resources

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Contents

A. Executive Summary

- Nehantic State Forest is a substantial component of the heavily forested landscape in SW New London County.
- The plan provides a landscape approach to forest management that takes into consideration the extent, condition, and management of adjoining private, municipal, and land trust forest land.
- A collaborative effort with River COG (Council of Governments) Regional Planning Agency, UConn Extension Forester, and DEEP Private Lands Forester to present a landscape approach to forest stewardship to local Conservation Commissions. Input from the Commissions will be solicited.
- **Assessment -** The forest analysis indicates that most of Nehantic's individual forest stands are in a crowded but healthy condition though exotic invasive plants have gained a foothold in several stands and a stranglehold in a few stands. The overall forest has modest structural and habitat diversity due to modest amounts of very young forest stands and very old stands.
- **Key Challenges**
    - Several disturbance dependent ecosystems and individual species (pitch pine, oak, aspen, New England cottontail, etc.) are under-represented and are not sustaining themselves under current natural conditions. Only one pitch pine is known to be present in the forest even though it was more common in previous eras.
    - Aquatic environment may be impacted by sediment being displaced off some forest roads.
    - Invasive plants are expanding causing disruptions to the forest.
    - Public outreach to solicit public input into plan.
- **Opportunities**
    - A natural disturbance model of management that includes heavy harvests and occasionally prescribed burns on a relatively small portion of the forest during each management period could help halt the downward trajectory of some under-represented upland ecosystems and fauna populations.
    - Plan includes a proposed project to reduce sediment loading in aquatic environment with road upgrades.
    - The Plan provided an opportunity for public outreach and comments using the methods listed below. The comments have been included in the final plan :
        - Informing towns that draft plan will be on Forestry Division's Website for public comment.
        - Offering presentations to Conservation Commissions of area towns of Forest Resource Plan's goals and proposed bio-indicators and soliciting Commissions' input and any alternative indicators.
        - Survey monkey was used as a tool to collect public input.
- **Vision** – The desired future condition is a forest with healthy, diverse, and sustainable ecosystems.

- **Goals**
    - To promote biological diversity, especially under-represented upland ecosystems and plant populations that are not adequately sustaining themselves under current natural conditions.
    - To maintain or improve aquatic system integrity.
    - To promote healthy and sustainable forests.
- **Indicators** (attributes monitored to determine whether the plan's goals are being met).
    - **Sustain oak forests** - Release 50 oak or hickory saplings per acre 5 years after regeneration harvests.
    - **Sustain Pitch pine ecosystem** – Re-introduce and release pitch pine regeneration after regeneration harvests and/ or fires.
    - **Provide Early Successional habitat** – Regenerate 10% of active and inactive forest.
    - **Retain Late Successional (LS) structure** – Retain an average two to four large (>16" in diameter) legacy, den or rotten trees/acre throughout the forest. Retain snags, coarse woody materials and provide heterogeneity by creating variable sized gaps in the forest canopy and retain uncut patches in harvest areas.
    - **Provide for LS Forest** – Maintain 20% of forest for old forest values with passive management.
    - **Healthy Forest Stands**– Thin 50% of the crowded forest stands increasing the average overstory tree size after harvest.
    - **Minimize Stream Sedimentation** – Improve forest roads that can be stabilized and bridge crossings to minimize erosion.

B. History

1. **Reason for acquisition** Nehantic became the 11th state forest. The State started purchasing its land in 1926. It was deemed "a suitable to establish a forest in New London County because of the large area owned by Yale University" according to the 1926 biennium Report of the State Forester Austin F. Hawes. In the report he stated that "the chief purpose of state ownership of forests is to raise large timber which private owners cannot be expected to raise in any considerable amounts because of the time element."
2. **Development of the resource prior to and after acquisition** -The forest takes its name from Nehantick or Nayantick Indians who occupied the local area before the Pequots or Mohegans moved into their area. The native development of the resource was probably limited to applying fire to the forest to improve the habitat for their game animals and possibly clearing land with frequent repeat application of fire in Lyme. The land appears to have been originally used primarily as a source of wood and for pastures since European settlement. Trees with large low branches or stubs indicate that the tree once grew out in the open probably when the land was pasture. Numerous stonewalls provide evidence that at least part of the forest was cleared for agriculture. The few cellars holes and abandoned wells in the forest suggest that a few farmers lived in part of Nehantic State Forest. As agriculture declined and pastures were abandoned, the forest reclaimed the cleared land. Charcoal was produced from wood throughout part of the

forest as witnessed by remnants of charcoal mounds. Several old stone dams are located in the state forest. There were probably a few small mill sites below some of these dams. A small cemetery for those who died from pestilence is also located in the forest.

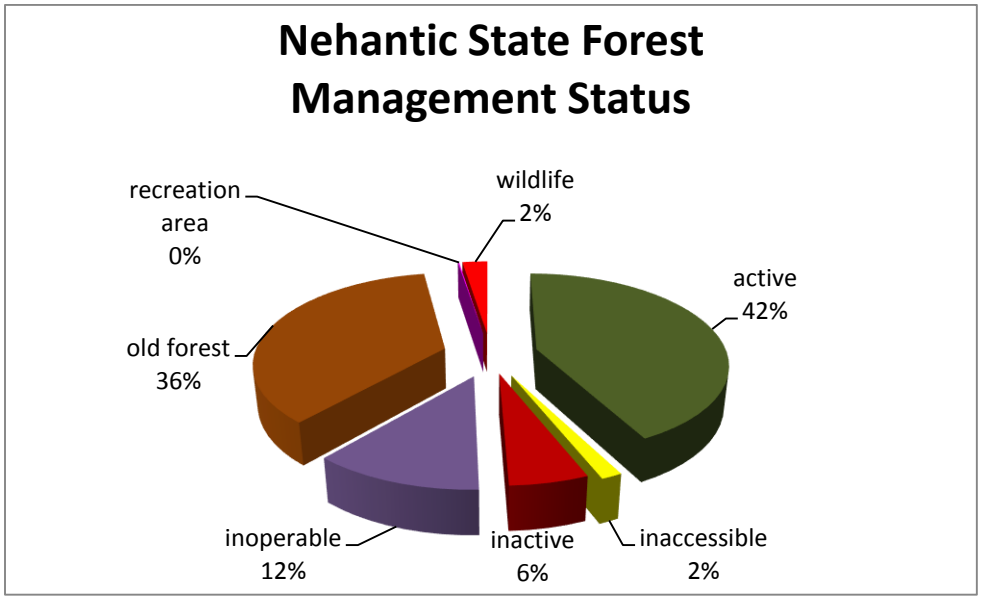
The 1934 biennium Report of the State Forester stated that, "In Nehantic Forest a road two mile long in a north and south direction was nearly completed by Camp Chapman" (The Civilian Conservation Corps camp located at Military Reservation in East Lyme). A Transient Workmen's Camp with 250 men was operated off Holmes Road in the East Lyme part of Nehantic State Forest. Construction was completed in May of 1934. It provided work for non-resident unemployed men during the Great Depression to work on conservation projects. The 1936 biennium Report of the State Forester stated that at the Nehantic Camp, "a main forest road one mile long made south from the camp to a town road. Improvement cutting were made on 300 acres; 31 acres were cut clear and planted to evergreens. In these operations, 1611 cords of wood, 6,400 board feet of logs and 450 fence posts were removed. Men from the camp works on three fires, two of which were in the northern part of the forest."

3. **Changes in the last ten years –** Forestry operations in the last 10 years included completion of 76 acres of irregular shelterwood harvests, the application of prescribed fire on 57 acres and releasing oak saplings with timber stand improvement on approximately 63 acres.

C. Acres and Access

1. **Acres**

Nehantic State Forest consists of 4,429 acres of which 1,866 are classified for active management. In addition, 1,594 acres are classified as old forest land management site which is passively managed. The 110-acre Wildlife Management status is assigned to a combination of impounded marshes, early successional forests under transmission lines and in Wildlife Division maintained openings, beaver impoundments, and ponds.



2. Access

Public access to the Taney Hill Block in Lyme is from the main entrance off Route 156 in Lyme and Keeny Road from the north. Park Road is the main public access road in North Block and accessed from the end of Holmes Road and from Grassy Hill Road. Park Road will be scheduled for upgrading to minimize erosion and improve public access.

There are 16 gates throughout the forest that restrict access to the wood roads. ATV and off road vehicles get around most of the gates. The gate to the transmission lines and Transient Workmen's Camp needs replacement. The gate to the Power Lake Block is not locked due to complaints received in DEEP's Hartford office about providing access for hunters. The Park and Recreation supervisor has requested a spare gate for the forest.

3. Inaccessible areas

The section of forest near the boundary of East Lyme, Lyme, and Salem is inaccessible due to its remoteness, rough terrain, and inadequate road system. Power Lake Block's road is too eroded and too steep to upgrade and maintain. Most of these areas have been designated old forest land management site in order to maintain their forest interior habitat value and remote nature.

4. Right-of-Way

CL&P has a utility ROW across state forest in Lyme. DEEP has an access ROW to Sterling City Road over a woods road on the now or former Tisdale Property.

5. Boundary Condition

The boundary (39.7 miles) is in good condition. It was re-marked between 2011 and 2014.

6. Known boundary problems

There are lost boundary lines on the east side of the interior parcel owned by CL&P north of the transmission lines and on the east side of the forest on the Salem and East Lyme town line. Assistance will be requested from Land Acquisition and Management Division to find the boundaries.

D. Special Use Areas

1. Lakes and Ponds

Uncas Pond, Norwich Pond, Horse Pond and the Shingle Mill Ponds are the only significant water bodies in or adjoining the forest. Beaver have created numerous marshes and open ponds throughout the forest by damming outflows to streams in strategic places.

Upper Shingle Mill Pond, Salem

2. Rivers and streams

The forest harbors part of the headwaters to Beaver Brook, Falls River, Cranberry Brook, the Eight Mile River and Shingle Mill Brook.

3. Cultural sites

There are stone foundations and wells off several of the roads and on the top of Brown Hill in Lyme. The Sawmill Ponds in Salem have significant stone dams. Smaller dam are located on beaver ponds in remote sections of southwest Salem and a drained pond south of the transmission lines off Park Road. A cemetery for pestilence victims is located off Park Road. The chimneys of cottages near the Shingle Mill Ponds and Transient Workmen's Camp are still visible.

4. Recreation

Norwich and Uncas Ponds have boat launches. Horse Pond has a fishing deck. The forest provides opportunities for hunting (small game, waterfowl, deer and turkey), trapping, fishing, and wildlife viewing (refer to Connecticut's Hunting and Trapping Guide and Angler's Guide for season dates, licensing requirements and other regulations). The majority of the forest is open to firearms hunting; a few areas in Salem, Lyme and Old Lyme are designated for archery only. Maps for Nehantic State Forest showing the areas open to hunting are available for viewing or printing on the DEEP's website (Public Hunting Maps for Nehantic State Forest), or may be obtained by contacting the Eastern District Headquarters in Marlborough). The Nayantaquit Trail summits Nickerson and Brown Hill in Lyme; it is part of the Connecticut Forest and Park Association Blue Trail System and is maintained by volunteers. The Niantic-Eight Mile River Watershed trail is a new trail, established on existing woods roads that traverses the East Lyme

section of Nehantic State Forest in a north/south direction and then heads west in Salem before it exits the forest at Hartman Park in Lyme.

5. Critical Habitat

Numerous NDDB sites are located in the forest (see Special Feature Map F). A Natural Diversity Database (NDDB) review letter for Nehantic State Forest was received on May 4, 2015 (see page 26). It identifies by forest block, all known extant populations of state-listed species known to occur within or in close proximity to the boundaries of Nehantic State Forest. Resource protection guidelines and opportunities for habitat enhancement for state-listed and other Greatest Conservation Need species will be discussed with Wildlife and Fisheries staff as individual timber harvest and project plans are developed.

6. Natural Areas

The forest does not contain any designated Natural Area Preserves.

7. Old Forest Management Sites

Old Forest Management Sites are designated to recognize the intrinsic value of having some sizable remote areas of unmanaged forest. Though the sites are not necessarily older than much of the forest, it is expected that they will eventually accumulate old growth attributes such as canopy gaps created from the death of individual or groups of tree , snags, and deadfall. Although forest fires are very infrequent, suppression tactics such as burning out to natural fire breaks will be encouraged in Old Forestland Management sites. This may increase the area affected by fire and may increase ecological diversity. Tree cutting will be limited to forester or designee removing hazardous trees. The existing percentage of Old Forest exceeds the 20% established as an indicator of success. The excess acreage classified as Old Forest will not impend other management goals as the acreage consists of poorly accessible land that is either marginal for timber growth or restricted by deed.

8. Research Areas

Researchers from the Connecticut Agricultural Experiment Station have been monitoring the vegetation response to the Forestry Division's prescribed fires off Holmes Road and Keeny Road.

9. Miscellaneous

The Connecticut National Guard has set up a series of navigation markers (orange with white stripe metal placards on metal posts) throughout the Taneyhill and Power Lake Blocks for a navigation and orienteering training course for their service personnel. They have been issued a special use license for training activities on the forest.

Parcel #41, which straddles the Lyme/ East Lyme town line, was donated by the Sturges family and has deed restrictions to be left in its natural state. The parcel is within designated Old Forest Management Sites.

The Boy Scouts have deeded use of a donated property behind a gate in Lyme.

E. Resource Management Concerns

1. Trails

Volunteers from the Connecticut Forest and Park Association (CFPA) maintain the Nayantaquit Trail, part of their blue-blazed trail system. The Niantic- Eight Mille River Watershed Trail is a

new trail that is also marked by volunteers from the East Lyme Conservation Commission. They have applied for a grant that will fund the construction of a parking area at an existing opening on Grassy Hill Road by the trail.

2. **Threats**

The potential introduction of the exotic invasive Asian Long-horned Beetle could create substantial mortality with the death of the substantial maple component of the forest. The introduction of Emerald Ash Borer, another exotic invasive pest, should have less impact as it only affects ash which only comprises a very minor component of the forest.

The impact of climate change is expected to have negative impacts such as increased native and exotic vines growth. Some vines can strangle trees, induce tree crown breakage, and smother or prohibit tree regeneration.

The combination of high deer densities, invasive plants and lack of fire threatens the long term sustainability of oak ecosystems. Deer heavily browse the more palatable oak regeneration while leaving the birch and only modestly browsing the maple. Invasive growth and insufficient fire have led to the development of previously uncommon dense understories where browsed shade-sensitive oaks rarely graduate to the overstory. The lack of sustainable oak ecosystems has been called “an impeding ecological crises”.

The continual loss of some of the last vestiges of shade intolerant trees such as aspen, Atlantic white cedar, gray birch, white birch, butternut, and red cedar due to old age or shade from overtopping trees is a concern. Special efforts will be made on releasing and regenerating these species by creating favorable environmental conditions with severe harvests and/ or controlled burns in the vicinity where remnants of under-represented trees species are found

3. **Unauthorized or illegal activity**

The unauthorized uses of trails by four wheelers and dirt bikes have created varying degrees of erosion. A Northeast Utilities (now Eversource) representative agreed to block off access to the transmission lines from Park Road when they have equipment in the area. DEEP Forestry will work with Eversource to block ROW access points.

F. Wildlife Habitat

1. **Investment in habitat improvement**

Wildlife Division assistance is needed to:

- Create temporary young forest habitat near the confirmed New England Cottontail (NEC) site in Salem and Lyme in cooperation with the Forestry Division; treat invasive plants in wildlife openings and forest near proposed young forest habitat site in Lyme; and create shrubby cover by masticating older mountain laurel (particularly in in-active areas) in order to enable the Forestry Division to subsequently create additional young forest habitat. Re-sprouting mountain laurel should create good NEC habitat.
- Nehantic State Forest is within the lower Connecticut River focus area for habitat restoration for the NEC (see Appendix G and Cottontail Fact Sheet), which along with numerous at risk shrubland birds, utilizes dense shrubby young forest habitat. The survival of NEC populations depends upon the availability of early successional stage

habitats, particularly young trees and shrubs less than three inches diameter at breast height and under 20 feet tall. The decline of such habitats has led to the species decline on a regional basis. It was designated by the U.S. Fish and Wildlife Service as a "candidate species" for potential listing as Federally Threatened or Endangered but on September 11, 2015, they announced that the NEC would not be listed based on an increase in suitable habitat and future commitments by state and federal agencies to continue conservation and monitoring efforts.

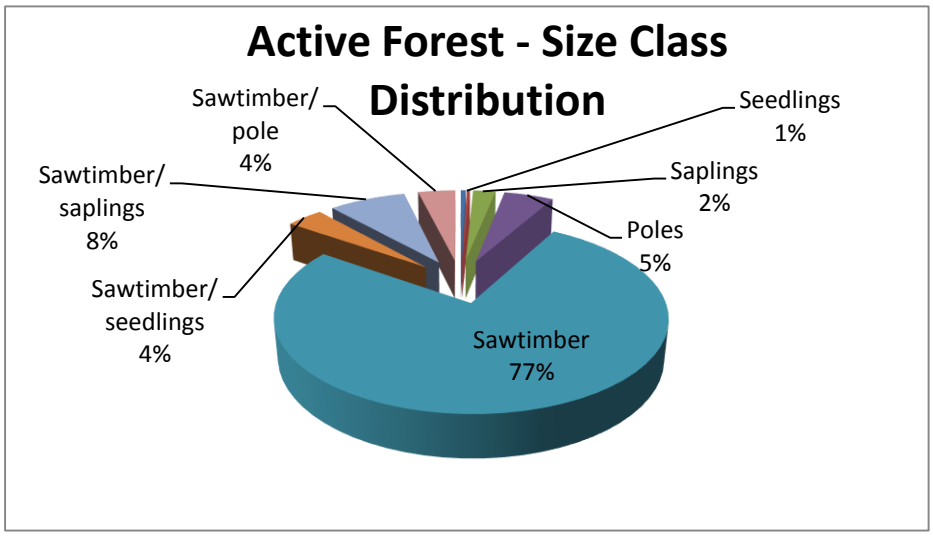
- Maintain and repair wildlife impoundments as needed.

  The Wildlife Division is responsible for the management of three wetland impoundments/wildlife marshes located in Nehantic State Forest (i.e., Keeny, Pine and Dodge marshes). The impoundments were built to create habitat for wetland-dependent wildlife, with a focus on providing high quality breeding sites for waterfowl. The impoundments were constructed using Federal Aid in Wildlife Restoration Program funds and have been maintained and repaired with funding provided by the Federal Aid Program, Connecticut Duck Stamp Program, and Ducks Unlimited. Wood duck nest boxes have been installed, monitored and maintained by DEEP staff and volunteers at all impoundments since the 1960's. Beaver activity and a lack of manpower have impacted the Wildlife Division's ability to properly manage these impoundments for maximum wildlife benefits. In 2012 and 2013, the Wildlife Division conducted an assessment of all wildlife impoundments throughout the state to document their condition and maintenance needs. This information is being used to develop a long-term management strategy for dam repair and maintenance, water control structure replacement, and water level management, at priority wetland sites.

  Maintain and enhance traditionally managed linear openings south of the gravel pit in Lyme if staff and equipment are available.

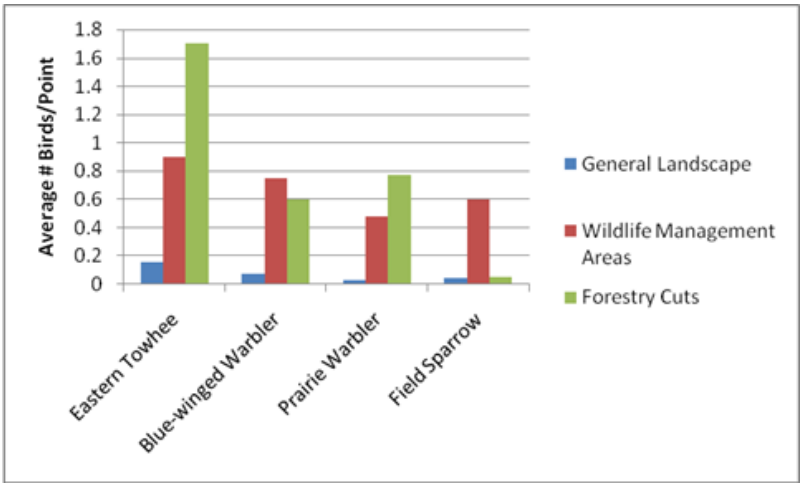
2. **Existing Forest Diversity**

   Nehantic's forests are dominated by maturing sawtimber forest habitat (see pie chart below) that owes its origins to the widespread fires, clear-cutting, and farm abandonment that occurred around a century ago.



Fields, shrub-lands, and young forest habitat (seedlings, saplings, sawtimber/ seedlings, and sawtimber / saplings forest stand size classes) are among the under-represented habitats in Nehantic and the rest of Connecticut. They have been identified in CONNECTICUT'S COMPREHENSIVE WILDLIFE CONSERVATION STRATEGY as key habitat types. Over 80% of avian species dependent upon early successional habitat or young forest habitat are declining. Fields, shrublands, and young forest habitat are not stable ecosystems. They succeed over time to maturing forests without appropriate disturbance or, in the case of fields, mowing or burning. The young forest habitat stands (saplings, sawtimber/seedlings, sawtimber/ saplings) in Nehantic have been produced by recent forest management. But many of the sawtimber/sapling and sapling stands have already outgrown their usefulness for this type of habitat. A relatively continuous influx of young forest habitat is needed to replenish a sufficient amount of this habitat. This is not adequately occurring in the landscape.

This habitat is threatened by decreased natural disturbance (especially fire), a decrease in recently abandoned agricultural land, and a decrease in the frequency and size of forest regeneration cuts. There is an opportunity in this plan to conduct additional forestry regeneration cuts to create replacement young forest habitat. The results of 2012 bird surveys illustrated below, demonstrate the value of the cuts to shrubland birds.



Provided by Shannon Kearney, Wildlife Division

"In general, Forestry managed young forest habitat has very good occupancy and abundance of early successional birds. The graphic illustrates the relative abundance of 4 of our target species in each of the management types. For eastern towhee, blue-winged warbler, and prairie warbler, forest cuts are very important and support a significant number of birds compared to the general landscape. Field sparrow are more partial to wildlife areas because they like grass." (Kearney, S., 2015, personal communication)

Forest management in Nehantic State Forest will strive to promote biological diversity by emphasizing under-represented upland ecosystems and populations that are not adequately sustaining themselves under current natural conditions. The most positive influence forest management can have on habitat is to provide an array of the different size classes within the upland forest as different wildlife guilds utilize different forest size classes for their primary habitat. A continuum of the forest size classes will be provided by generally managing on a 100-year rotation regenerating at least 10% of the active forest during the Ten Year Management Plan. Promoting a forest landscape with 10 - 20% regenerating forests and permanent openings (power lines, brushy post-agriculture set aside acreage and scrub-shrub wetlands) should help optimize early successional species diversity (Options for managing early successional forests p. 9). If the plan accomplishes its targets, Nehantic would help meet the NEC habitat goal of 1,500 acres for the Lower CT River Focus Area. The Wildlife Division's Connecticut's Young Forest and Shrubland Initiative is promoting this type of under-represented habitat.

The regeneration harvests will typically promote ecological complexity by retaining den trees and legacy trees as well as snags, coarse woody material and retention patches. A strategy of concentrating harvest areas (when possible) will provide for larger tracts of contiguous high quality young forest habitat. Regeneration cuts have benefits for some forest interior birds as they use these areas for post fledgling habitat. Thinnings also provide potential habitat for interior birds that are found in partially open canopy forests such as Cerulean warblers (Cerulean management guide). Nehantic State Forest is one of the few places in the state that continues to harbor cerulean warblers (CT DEEP 2012).

Partially open canopies provide better foraging opportunities for bats.

The Northern long-eared bat (federally threatened listed species), Eastern small-footed bat, Little brown bat, and the Tri-colored bat have all been listed as state endangered species in 2015 due to the white nose syndrome. Forestry will incorporate habitat guidelines for these species when as they are developed.

G. Vegetative Condition

1. Silviculture

The active forest will be managed with even-aged management on a 100 year rotation (area management with 10% of the active forest regenerated during the 10 year plan). The desired future condition of the managed forest after one rotation would have a size class distribution of approximately 10% seedling; 10% saplings; 30% poles and 50% sawtimber on the active forest. A minor amount of sawtimber will be retained in most regeneration harvests. Most of the sawtimber/ seedlings and sawtimber/ sapling stands will be dominated by the younger age class and will be counted as such for purposes of the size class distribution.

Additional acres will be scheduled for management if the Wildlife Division can masticate the mountain laurel in inactive designated areas.

Half the crowded but healthy saw timber forest stands will be scheduled to be thinned in this management plan period.

2. **Forest type, size Class and Condition on areas to be managed**

Active Forest Type Group by Size Class (Current Acres)

Type Group Size Class	Oak Hickory	Birch Beech Maple	Oak Pine	White pine	Exotic Softwoods	Pinyin–Juniper	Aspen birch	Total
Seedling	29							**29**
Sapling	25		4				4	**33**
Sawtimber/seedling	68							**68**
Sawtimber/sapling	146							**146**
Pole	12		13			12		**37**
Sawtimber/pole/sap	23							**23**
Sawtimber/pole	42	13	25					**80**
Sawtimber	1420			24	6			**1450**
Total	**1765**	**13**	**42**	**24**	**6**	**12**	**4**	**1866**

3. **Forest Health**

There are several sites in the forest that contain well established populations of exotic invasive plant species which will become more problematic over time. The wildlife strips and openings that were cleared in the 1970's in Lyme and an old clearing and former red pine plantation at the end of Holmes Road have the greatest problems with invasives. The plants noted during the last inventory included tree of heaven, Japanese barberry, multi-flora rose, autumn olive, and oriental bittersweet. The latter appears to be the most disruptive and have the most potential to grow exponentially, especially if a class 3 or greater hurricane were to create large and widespread canopy gaps throughout the forest. Invasive species threaten the health of the forest because they form monocultures and smother or preclude the regeneration of native species. This can drastically impact sustainability of the forest. They also provide poor bird habitat as they replace native understory vegetation that attracted a source of high protein (insects) for their offspring with plants that do not attract insects. The goal is to contain established invasive populations and eradicate new populations before they become entrenched

H. Landscape Level Management -

The forest and landscape is within the Southern New England Coastal Hills and Plain Section and Southern New England Coastal Lowlands as delineated by the U.S. Forest Service's National Hierarchical Framework of Ecological Units. The landscape, which contains low density housing and a modest amount of farmland, is fairly rugged with and characterized by relatively continuous forest cover. Small town centers and denser development on the peripheries account for some forest fragmentation. The forest landscape in the vicinity of the state forest and the other larger land holdings has

substantial amounts of valuable core forest. Core forest is defined, for the purposes of this plan, as continuous forest that is at least 300' from other land uses including residences, farm land and paved roads.

A substantial amount of the forest landscape is owned by Lyme Land Trust, Salem Land Trust, The Nature Conservancy, the towns, Stones Ranch Military Reservation and Yale University. Though the latter two are not protected open space, they currently extend a protective buffer to the forest (and vice versa). Much of Nehantic State Forest is within the watershed of the Eightmile River, a National Wild and Scenic River. The 62 square mile watershed is 80% forest and at least 28% of the land has permanent protection.

The Eightmile River Wild and Scenic Coordinating Committee, comprised in part of some of the above-named stakeholders, was established to provide oversight and guidance in implementing a non-regulatory management plan developed for the Eightmile River Watershed. Their main goal is the long term protection of the watershed. They have identified threats, implemented research, monitored environmental indicators, and conducted other watershed management activities. The Nehantic Forest Resource Management Plan will try to build upon that stakeholder cooperation. One area of cooperation is a planned aggregating habitat management on State Forest and adjacent private land.

Management strategies for Nehantic State Forest will take into account the trend and current condition of the rest of the landscape. The landscape appears to be dominated by maturing hardwood forests. The 2013 U.S. Forest Service Forest Inventory Analysis indicates that young seedling/ sapling forests are under-represented, occupying just over 5% of the State's forest. Habitat management for the New England cottontail on local private lands has created a small amount of young forest habitat nearby. Additional severe disturbances will be continuously needed to provide adequate habitat for animals utilizing young brushy forests as their habitat. Forestry regeneration operations in Nehantic State Forest are planned in the vicinity of those on private land to obtain a critical mass of the desired habitat.

Young forest are under-represented because they are not sustaining themselves under current conditions. Native Americans had once helped sustain several disturbance-dependent ecosystems for ages with the relatively frequent and widespread application of fire. These ecosystems will be promoted by providing similar disturbances that have historically sustained them as part of a natural disturbance model of management. Some ecologists view aboriginal management activities (including their use of fire) as part of the historic natural disturbance regime of an area. Since reintroducing widespread fire is not practical in this landscape, forest management will be tailored to sustain these ecosystems by tending the forest with judicious cutting of trees and limited application of controlled fire. Pitch pine ecosystems are prime example of ecosystems that have historically been perpetuated by fire and are not sustaining themselves under current conditions. It is estimated that 95% of Connecticut's pitch

pine/scrub oak sand plains, one of Connecticut's 13 imperiled ecosystems, have been lost to development (Metzler, K.J.et al.) and the rest is threatened by succession. Only one pitch pine (also known as Candlewood) has been located in Nehantic. It is sparsely scattered on other land in the Lymes and apparently once populated Candlewood Ledges. Forest management in Nehantic State Forest will emphasizes sustaining the upland ecosystems that are under-represented in the forest landscape.

I. Specific Acquisition Desires

The McNamara, (formerly Larson Property) would be the highest priority for acquisition if it come onto the market. It is over 100 acres, abuts the northern boundary of the state forest in Lyme, Beaver Brook flows through it, and is near a New England Cottontail Site. If the State acquires ownership during this management period, the State will begin active management of the additional acreage to enhance work scheduled in the current work plan.

J. Public Involvement

Public involvement in the Nehantic Management Plan is based upon the Montreal Process, which is the Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests. The United States is a signatory of the Montreal Process. Its view is that forest sustainability cannot be achieved without the support and understanding of its public. Key public involvement components of the Montreal Process include Criterion 7.1c. Provide opportunities for public participation in public policy and decision making and Criterion 7.2 a. Provide for public involvement activities and public education, awareness and extension programs and make available forest-related information.

Previous state-wide public involvement included the opportunity for various stakeholders groups to provide input into the state-wide Forest Resource Plan. Stakeholders were then invited to join The Forest Land Council. This group and the interested public participated in the roundtable-style Forest Forum, which provided input for the Connecticut Forest Resource Assessment.

Local public involvement for the Nehantic Forest Resource Management Plan included contacting town planners, conservation commissions, wetland commissions, or local land trusts and offering to present to them the plan's goals and seek input or comments on the proposed indicators (see I. Ten Year Goals below). The intention was that any public input would be reviewed and alternative indicators will be used if they can be economically monitored with the current resources and have been determined to have more scientific merit in reaching the goals state below than the proposed indicators. Presentations have been made to the East Lyme Conservation Commission (February 11, 2015), Lyme Conservation Land Trust (February 26, 2015), Old Lyme Land Trust and Open Space Commission (March 18, 2015), and Salem Conservation/ Inland Commission for April 13, 2015. The towns' first selectman offices were notified by email (Lyme and Old Lyme April 9,

East Lyme April 10, and Salem April 14, 2015) when the Draft Management Plan was posted on the DEEP Forestry Division's website so they could notify their citizens and have the opportunity to give comment. A survey monkey website was set up at https://www.surveymonkey.com/s/NehanticStateForest to gather feedback and public input until May 1, 2015. The Draft management plan was put on the DEEP Forestry Division's State land Management website on April 7, 2015.

K. Adaptive Management

This plan is based on an adaptive management format as there are many variables and uncertainties that will affect outcomes. With the unknowns of climate change and invasive pests, outcomes will be more uncertain so the flexibility of adaptive management is especially valuable. Outcomes of management actions will be monitored and provide feedback as to whether the plan is moving the forest toward the management goals. Adaptive management will allow changes to the plan if conditions change, there are undesirable outcomes, or new information becomes available. The adaptive management format follows the steps listed below:

- Problem assessment.
- Designing a management plan and monitoring program (biodiversity indicators) that will provide reliable feedback about the effectiveness of the chosen action.
- Implementation of the plan.
- Monitor indicators to determine how effectively actions are meeting management objectives.
- Evaluate the outcomes and compare to below stated Bio-indicators or "Desired future condition".
- Adjust implementation.
- Repeat process for adjustments.

Climate Change adaptation strategies incorporate adaptive management principles. They also use similar approaches that are utilized when managing for a healthy and diverse forest. These can be found at Climate Change Adaptation Strategies and Approaches.

L. Goals

1) To promote biological diversity or viable populations of forest species of plants and animals native to the area. Efforts will concentrate on upland ecosystems and populations that are not adequately sustaining themselves under current conditions.
2) To maintain or improve aquatic system integrity.
3) To promote healthy and sustainable forests.

Bio- indicators (quantitative or qualitative biological variables which can be measured and provide reliable feedback about the effectiveness of reaching stated management goals. Indicators are requisite for adaptive management).

- **Sustain oak forests**- Promote 50 free to grow oak or hickory saplings per acre by time inventory for next forest ten year management plan. This will yield a new forest with a 50% oak/hickory component and sustain ecologically valuable oak forests that would eventually succeed to other hardwoods without intervention.
- **Sustain/re-establish pitch pine ecosystem** – Promote pitch pine regeneration in appropriate harvests by introducing pitch pine seeds.
- **Provide Early Successional (ES) habitat** – Regenerate 10% of active forest area to provide seedling or sawtimber/seedlings* size class by end of management period.
  *Stands with a minor sawtimber component (generally < 5 trees/ac) that don't significantly inhibit ES habitat.
- **Retain Late Successional (LS) structure** – Retain an average 2 to 4 large (>16" in diameter) legacy, den or rotten trees/acre throughout the forest. Retain snags, coarse woody materials and provide heterogeneity by creating variable sized gaps and retention patches.
- **Provide for LS Forest** – Maintain 20% of forest for old forest values with passive management (see map B, Management Status). Salvage or clean-up of natural disturbances will not take place except where it is a public safety issue. Uncommon trees such as pitch pine maybe promoted in these forests by felling but not harvesting a limited number of overtopping trees.
- **Healthy Forest Stands**– Thin 50% of the crowded forest stands increasing average overstory tree size after harvest.
- **Minimize Stream Sedimentation** – Gate more roads unsuitable for public vehicle traffic, stabilize more stream fords on woods roads and have more bridges at stream crossings on trails at end of plan period

M. Work Plan

1. Road Maintenance – Forestry project plan with Agency Support Services
   Gravel, crown, and improve drainage on Park Road from the end of Holmes Road to Grassy Hill Road (approximately 1.6 miles). Divert runoff at the bottom of the steep eroded hill on the main access road in Power Lake Block from going into stream.

2. Gates – Forestry project plan with Agency Support Services
   Replace gate to transmission line off Park Road and purchase a spare gate.

3. Recreational or Scenic Work – Parks
   Trail head signs and kiosk as determined by Park and Recreation Supervisor.

4. Boundaries Maintenance – Forestry
   Once in plan duration.

5. Stream Improvement - Forestry, Fisheries, volunteers and/ or Agency Support Services

Construct bridge for existing path to minimize sediment going into intermittent stream from next to Park Road.

6. Upland wildlife opening work – Wildlife
   Maintain/enhance traditional linear wildlife openings south of the gravel pit (two openings within Stand 1-88; approx. 7 acres in total).

7. Wildlife habitat improvement – Wildlife partnering with Forestry
   Temporary young forest habitat will be created near the confirmed New England cottontail site in Salem and Lyme (adjacent to linear wildlife openings) in cooperation with the Forestry Division. If possible, the Wildlife Division will bid out the non-commercial understory felling or masticating as funding is available and the Forestry Division would then bid out a commercial harvest of the firewood size and larger trees. The Wildlife Division will create shrubby cover by masticating older mountain laurel in order to enable the Forestry Division to subsequently create additional young forest habitat (see Work Plan Map).

Wildlife Division Non-Commercial Tree Felling or masticating in partial or complete stands.

Block	Compartment	Stand	Acres (approximate)	
Taneyhill	1	13a	10	
Taneyhill	1	13	3	
Taneyhill	1	11	4	*Not to be kept in Early Successional Habitat
North	13	1	28	
Total			45	

Wildlife Division Mountain Laurel mowing

Block	Compartment	Stand	Acres (approximate)
North	5	1	3
North	11	3	17
Total			20

The Wildlife Division will continue to maintain wood duck nest boxes and a 50:50 mix of open water and emergent vegetation in Keeny Marsh to benefit waterfowl and other wetland-dependent wildlife. Management activities will include maintenance of the dam and water control structure (i.e., annual mowing, removal of beaver debris, beaver population management and water level manipulation). The State Lands Habitat Management Program will continue to provide assistance in monitoring beaver activity within the property and addressing problems where public health and safety and/or important habitats are being threatened. Assistance from Agency Support Services, Parks and the Wetlands Habitat and Mosquito Management Program in providing equipment and personnel may be requested.

8. Forest Stand Treatments – Forestry partnering with Wildlife
   a. **Commercial Forest Treatment**

      Regeneration harvests*

Block	Compartment	Stand	Acres (approximate)
North	15	3	20
North	13	1	10
North	5	1	6
Taneyhill	1	5	45
Taneyhill	1	3	100
Total			181

      * Additional acreages from other active or inactive forest stands may be added to make up for any shortfalls. Other stands may be substituted for any listed above if they become more conducive to regenerate during the plan period. Additional stands may be regenerated if mountain laurel is in identified stands is mowed and exotic invasive plants are treated as needed in previous stands.

      Thinning harvests

Block	Compartment	Stand	Acres (approximate)
North	10	4	4
North	2	2	50
Taneyhill	1	7	100
Taneyhill	1	36	15
Power Lake	8	4	12
North	13	3	6
Total			187

   b. Brush Mowing and Herbicide Treatment

      Brush mowing and herbicide treatments will be used by the Wildlife Division to control invasive plants present in Stand 1-88 (traditional linear wildlife openings) and forestry patch openings along the northern forest access road in Lyme. Any significant invasive plant populations found in stands where young forest habitat will be created, also will be controlled (pre and/or post-treatment). They will mow and/or spray additional locations if significant populations are found in pre or post–harvest areas.

      Parks Division and Central Support Services Division staff will mow brush alongside of Keeny and Park Road.

Appendix A - References

Askins, R. A., B. Zuckerberg, and L. Novak. 2007. Do the size and landscape context of forest openings influence the abundance and breeding success of shrubland songbirds in southern New England? Forest Ecology and Management 250:137-147.

Metzler, K. J. and D. L. Wagner. 1998. Thirteen of Connecticut's most imperiled ecosystems. Internal report (draft) of the State Geological and Natural History Survey of Connecticut Department of Environmental Protection, 79 Elm Street, Hartford, Connecticut.

Appendix B - Definitions

This glossary contains a list of commonly used forestry terms.

- **acre** A unit of measure describing surface area. One acre contains 43,560 square feet. A football field (without the end zones) is 45,000 square feet -- slightly larger than an acre. The inside of a professional baseball diamond is about 1/4 of an acre.
- **advance regeneration** Young trees that have become established naturally in a forest before regeneration methods are applied. In other words, the regeneration is present in advance of any treatment.
- **age class** The trees in a stand that became established at, or about, the same time. The range of tree ages in a single age class is usually less than 20 percent of the expected age of that class.
- **basal area** The area of the cross section of a tree's stem at 4 1/2 feet above ground, or breast height, in square feet. Basal area of a forest stand is the sum of the basal areas of the individual trees in the stand. It is usually reported in square feet of BA per acre and is used as a measure of stand stocking, stand density, and stand volume.
- **board-foot volume** The amount of wood products expressed as the number of boards 1 foot wide by 1 foot long and 1 inch thick that are sawn from logs.
- **biological diversity** The variety and abundance of species, their genetic composition, and the communities, ecosystems, and landscapes in which they occur. Also, the variety of ecological structures and functions at any one of these levels.
- **Best Management Practices** Procedures and treatments that lessen soil erosion, sedimentation, stream warming, movement of nutrients, and visual quality during or following activities that alter the land.
- **buffer strip** An area of land that is left relatively undisturbed to lessen impacts of treatments next to it. Common examples include visual buffers used to screen the view from roads, and stream side buffers used to protect water quality.
- **canopy** The continuous cover of branches and foliage formed collectively by the crowns of trees.
- **Clearcutting** An even-aged silvicultural technique involving the removal of all stems in the stand. Strip cutting is a form of clearcutting.
- **crop tree** Any tree selected to provide a specific benefit such as mast, dens, veneer, or sawtimber. Crop trees are usually selected when they are young.
- **cutting cycle** The planned interval between treatments in forest stands.
- **damaging agent** Any one of various factors that injure trees. They include some insects, diseases, wildlife, abiotic factors, and human activities.
- **dbh** Diameter at breast height; the diameter of the trunk of a tree measured at 41/2 feet above ground level. It is measured on the uphill side of the tree.

- **den tree** A living tree that has holes in the trunk, or stem, from broken branches and decay, or hollow trunks; a cavity tree.
- **even-aged stand** A stand containing trees in the main canopy that are within 20 years of being the same age. Even-aged stands sometimes are designated by age-class (10-year-old stand, 40-year-old stand) or broad size-class: seedling stand (most trees are <1 inch dbh); sapling stand (trees 1-4 inches dbh); poletimber stand (trees 5-10 inches dbh); and sawtimber stand (trees > 10 inches dbh).
- **even-aged system** A planned sequence of treatments designed to maintain and regenerate a stand with one age class.
- **forest condition** Generally, the current characteristics of forested land including but not limited to cover type, age arrangement, stand density, understory density, canopy density, and forest health.
- **forest cover type** A category of forests based on the kind of trees growing there, particularly the composition of tree species. Forest cover types are often referred to as forest types, cover types, stand types, or types.
- **group selection** An uneven-aged silvicultural technique involving the removal of trees in groups usually 1/10 to 2/3 acre in size, but sometimes up to 1 to 2 acres on large properties. Group selection can be applied in combination with single-tree selection between groups.
- **horizontal diversity** The degree of complexity of the arrangement of plant and animal communities, and other habitats across a large area of land.
- **inactive forest –** Management category designated for forests on marginal growing sites often with dense mountain laurel in the understory. May be activated if beneficial to biodiversity.
- **interior species** Species found only or primarily away from the perimeter of a landscape element. Species commonly requiring or associated with interior habitat conditions.
- **intermediate cuttings** Silvicultural cuttings applied in the culture of even-aged stands and are normally noncommercial (no products sold) or commercial thinnings (timber sold), designed to favor certain species, sizes, and qualities of trees by removal of competitors. Thinnings designed to grown quality timber commonly maintain a closed canopy; however, low-density thinning (50-70% residual crown cover) can be used to hasten diameter growth and stimulate understory development for wildlife purposes. At rotation age, the stand in considered to be mature and a regeneration cutting is applied to produce a new stand.
- **intermediate treatment** Any treatment or "tending" designed to enhance growth, quality, vigor, and composition of the stand after seedlings are established and before mature trees are regenerated. For example, thinning is an intermediate treatment.

- **mast tree** A tree that produces nutlike fruits such as acorns, beechnuts, hickory nuts, seeds of certain pines, cherries, apples, samaras. Hard mast includes acorns, beechnuts, and hickory nuts. Soft mast includes cherries, apples, and samaras (on maple and ash trees).
- **matrix** The matrix is the dominant landscape element on a landscape in which smaller differentiated elements (patches) are embedded. It is commonly highly connected throughout the landscape.
- **native plant** A species that naturally occurs in a given location where its requirement for light, warmth, moisture, shelter, and nutrients are met.
- **non-commercial treatment** Any activity that does not produce at least enough value to cover the direct costs of that treatments.
- **overtopped** A condition or position where a tree's crown is completely covered by the crowns of one or more of its neighboring trees. An overtopped tree's crown is entirely below the general level of the canopy and does not receive any direct sunlight either from above or from the sides.
- **patch** A patch is a relatively homogeneous area that differs in some way from its surroundings (e.g., woodlot in a corn field, conifer plantation in a mixed-deciduous forest).
- **plantation** A forest stand in which most trees are planted or established from seed sown by people. Typically, planted trees are in rows, with equal spacing between each tree in a row and between rows.
- **pole** A tree, usually young, that is larger than 4 inches dbh and smaller than 8 to 11 inches dbh.
- **prescribed burn** The application of fire in forested or other areas, usually under specific conditions of weather and fuel moisture, to control vegetation for silvicultural purposes or to reduce hazards.
- **regeneration** The seedlings and/or saplings in a new forest stand or age class. Natural regeneration originated from seeds, sprouts, or root suckers.
- **Regeneration method** A cutting method by which a new age class is created. These methods include clearcutting, seed tree, shelterwood, single-tree selection, and group selection; also called reproduction method.
- **Regeneration cuttings** Silvicultural cuttings designed to naturally regenerate the stand by providing for seedling (or vegetative stems) establishment or development, or both. Two even-aged techniques; clearcutting and shelterwood, and two uneven-aged techniques; single-tree selection and group selection.
- **rotation** The planned interval of time between treatments that regenerate a stand.
- **runoff** Surface streamflow leaving a watershed. Sources of runoff are precipitation falling in the channel, overland flow (rare in forested areas), and subsurface water exiting from soils and bedrock. In this Guide, runoff is synonymous with streamflow.

- **sapling** A tree, usually young, that is larger than a seedling but smaller than a pole-sized tree. Size varies by region, but a sapling is usually taller than 6 feet and between 1 and 4 inches in dbh..
- **sawtimber** Trees greater than 11” in diameter
- **sedimentation** The accumulation of organic and mineral soil particles and rocks in streams and water bodies due to erosion. Sedimentation often accompanies flooding. The application of Best Management Practices will usually protect against sedimentation during and after treatments.
- **seed tree** A tree that produces seed. Seed trees are usually mature and high in quality.
- **seedling** A tree grown from a seed. Usually the term is restricted to trees smaller than saplings, or less than 6 feet tall or smaller than 1 inch dbh.
- **shade intolerance** The relative inability of a plant to become established and grow in the shade.
- **shade tolerance** The relative capacity of a plant to become established and grow in the shade.
- **shelterwood** An even-aged silvicultural technique involving the removal of the understory and lower crown canopy trees to allow the new stand to regenerate under shade. Subsequent removal of the overstory in one or several cuts.
- **silvicultural system** A planned process whereby a stand is tended, and re-established. The system's name is based on the number of age classes (for example even-aged or two-aged), and/or the regeneration method used (for example, shelterwood, crop-tree, or selection).
- **silvicultural treatment** A process or action that can be applied in a controlled manor according to the requirements of a prescription or plan to a forest community to improve real or potential benefits.
- **silviculture** The art, science, and practice of establishing, tending, and reproducing forest stands with desired characteristics.
- **single-tree selection** An uneven-aged silvicultural technique involving the removal of trees singly or in groups of 2 or 3, which maintains a continuous canopy and an uneven-aged or uneven-sized mixture.
- **site** The combination of biotic, climatic, topographic, and soil conditions of an area; the environment at a location.
- **snag** A standing dead tree without branches, or the standing portion of a broken-off tree. Snags may provide feeding and/or nesting sites for wildlife.
- **softwoods** A term describing both the wood and the trees themselves that in most cases have needles or scale-like leaves (the conifers); gymnosperms.

- **species composition** The collection of plant species found in an area. Composition is expressed as a cover type, or a percentage of either the total number, the density, or volume of all species in that area.
- **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. The trees are sufficiently uniform in spacing, condition, age arrangement and/or forest type to be distinguished from neighboring stands. The conditions of the site are relatively uniform, including soil properties, water drainage, slope, exposure to weather, and productivity. Stands of 5 acres and larger commonly are recognized, though minimum stand size depends upon size of ownership and intensity of management.
- **stand composition** The collection of plants, particularly trees, that are found in a stand.
- **stand condition** The number, size, species, quality, and vigor of trees in a forest stand.
- **stand density** A quantitative measure of the proportion of area in a stand actually occupied by trees. This is an absolute measure rather than a relative measure, or percentage.
- **stand structure** The arrangement of trees of different sizes and ages in a stand.
- **succession** A gradual and continuous replacement of one kind of plant and animal community by a more complex community. The environment is modified by the life activities of the plants and animals present thereby making it unfavorable for themselves. They are gradually replaced by a different group of plants and animals better adapted to the new environment.
- **thinning** The removal of some trees to improve and enhance the vigor and growth of other trees. Thinning enhances forest health and allows you to recover any excess of potential mortality.
- **understory** The small trees, shrubs, and other vegetation growing beneath the canopy of forest trees and above the herbaceous plants on the forest floor.
- **uneven-aged stand** A stand with trees in three or more distinct age classes, either intermixed or in small groups, growing on a uniform site; a stand containing trees of several 20-year age-classes. These stands generally contain trees of many sizes (seedling through sawtimber) due to the range in age as well as differences in growth rate among species.
- **vertical diversity** The extent to which plants are layered within an area. The degree of layering is determined by three factors: 1. the arrangement of different growth forms (trees, shrubs, vines, herbs, mosses and lichens); 2. the distribution of different tree and shrub species having different heights and crown characteristics; and 3. the number of trees of different ages.

Appendix C. Staff Project Review

To be reviewed by: Assistant Commissioner ( ) Parks & Rec. ( ) Planning & Development ( ) Property Management ( ) Division Services ( ) Law Enforcement ( ) Wildlife ( )

DISTRICT	**HARTFORD**
Discipline: Discipline: Inland Fisheries Division. The Inland Fisheries Division will continue to provide specific guidance during reviews of individual timber harvest plans. received Initials: BDM Date: 6/23/2015	Discipline: The Wildlife Division will continue to provide specific guidance during reviews of individual timber harvest plans received. Click here to enter text. Initials: AMK Date: 6/23/2015
Discipline: Eng & Support ServicesKeeney Road is scheduled for grading in summer or fall 2015. One section of road is particularly narrow and needs to be opened up for grading received Initials: DC Date: 6/2/2015	Discipline: Forestry Division Well-developed plan promoting sustainable forestry while working to meet habitat needs for state listed and GCN species. Initials: WEH Date:
Discipline: Parks Due to reduction in staff, selling cordwood lots along road edges would help open up roadways, allowing for equipment passage and improved grading conditions. Initials: AS Date: 6/2/2015	Discipline: Click here to enter text. . Initials: Initial Here Date:

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

May 4, 2015

Mr. Emery Gluck
State of Connecticut
DEEP-Forestry Division
18 Ranger Road
Haddam, CT 06438

Project: Ten Year Management Plan for Plan for Nehantic State Forest in East Lyme, Lyme, Old Lyme and Salem, Connecticut
NDDB Preliminary Assessment No.: 201501233

Dear Emery,

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map provided for the preliminary assessment for a 10 year management plan for Nehantic State Forest in East Lyme, Lyme, Old Lyme and Salem, Connecticut. According to our records there are known extant populations of state-listed species that occur within or very close to the boundaries of this property. I have attached the lists to this letter. I made separate lists for each forest block within Nehantic State Forest. The first list is North Block, the second list is for Powers Lake Block, the third is Rogers Lake Block and the Fourth page is for Tannery Hill Block. Please be advised that this is a preliminary review. This preliminary assessment is good for one year.

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,

Dawn M. McKay

Dawn M. McKay
Environmental Analyst 3

79 Elm Street, Hartford, CT 06106-5127
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Affirmative Action/Equal Opportunity Employer

Appendix D. Public Comment

The results of the Nehantic Plan Survey Monkey are below:

1. Did you attend a Nehantic State Forest Management Plan meeting in 2015 (Lyme, Old Lyme, East Lyme or Salem)?

answered question	**6**
skipped question	**0**

	Response Percent	Response Count
Yes	**66.7%**	**4**
No	33.3%	2

2. How useful was the information presented at the meeting?

answered question	**6**

2. How useful was the information presented at the meeting?

skipped question	**0**

	Response Percent	Response Count
Extremely useful	16.7%	1
Quite useful	16.7%	1
Moderately useful	**33.3%**	**2**
Slightly useful	0.0%	0
Not at all useful	0.0%	0
Not applicable (I did not attend a meeting)	**33.3%**	**2**

3. Please rank the importance of the following management goals.

answered question	**6**
skipped question	**0**

2. How useful was the information presented at the meeting?

	Most Important	Somewhat Important	Least Important	Rating Average	Rating Count
To promote bio-diversity by promoting upland ecosystems and populations that are not adequately sustaining themselves under current conditions.	**66.7% (4)**	16.7% (1)	16.7% (1)	2.50	6
To maintain or improve aquatic ecosystems integrity.	16.7% (1)	**66.7% (4)**	16.7% (1)	2.00	6
To promote healthy and sustainable forests.	20.0% (1)	20.0% (1)	**60.0% (3)**	1.60	5

4. Indicators monitor progress towards our forest management goals. The proposed indicators include:

(1) Provide for Late Successional forest - Maintain 20% of forest in old forest land management status.

(2) Provide for Early Successional habitat - Regenerate 10% of active and inactive forest management status.

(3) Retain Late Successional structure - Retain an average of 2 to 4 legacy, den, rotten or dead trees/acre and retain uncut patches in harvest areas.

(4) Sustain oak forests - Release 50 oaks and hickories per acre by the time the forest inventory for the next forest management plan is conducted.

(5) Increase pitch pines - Re-introduce and release pitch pine regenerations after harvests.

(6) Healthy Forest Stands - Thin 50% of the crowded forest stands increasing the average overstory tree size after the harvest.

(7) Minimize Stream Sedimentation - Improve forest roads that can be stabilized and bridge crossings to minimize erosion.

2. How useful was the information presented at the meeting?

Are there alternative indicators that should be considered?

answered question	**3**
skipped question	**3**

		Response Count
	Hide replies	3
1.	No. This looks very comprehensive. Thank you for your effort!	Tue, Apr 7, 2015 3:54 PM
2.	Threatened wildlife species, especially birds that are listed on the State's revised Wildlife Management Plan.	Mon, Apr 6, 2015 11:43 AM
3.	Estimate impact of emerald ash tree borer on current forest. Develop a strategy to minimize destruction from emerald ash tree borer.	Thu, Mar 26, 2015 1:13 PM

5. Do you have any other comments, questions, or concerns?

answered question	**6**

2. How useful was the information presented at the meeting?

	skipped question	**0**
		Response Count
	Hide replies	6
1.	I would like to see the roads in the state forest maintained as dirt roads and not paved.	Mon, Apr 13, 2015 5:03 PM
2.	The State would do well to open up portions of state land for responsible off-road vehicle use. Much like hunting and fishing licenses, registration fees for off-road vehicles would provide a revenue stream to cover the costs of forest maintenance. The vast majority of ORV users respect the forest and do tread lightly. It is a great family activity, and most states provide legal places to ride.	Fri, Apr 10, 2015 2:05 PM
3.	The Nehantic State Forest is an amazing place to hike and relax. Keep up the good work of maintaining a beautiful area.	Thu, Apr 9, 2015 3:20 PM
4.	Effective measures need to be developed and implemented to stop ATV-snowmobile-dirt bike use of forest trails. In addition to the damage done to trails, these vehicles are loud and offensive to those of us who enjoy the peace and serenity of our forests (including those of us who live adjacent to forest land who chose to live here to enjoy nature). Such unauthorized use seems especially prevalent in the Rogers Lake, Powers Lake and North tracts.	Tue, Apr 7, 2015 3:54 PM
5.	Ranking the management goals is tough. Connecticut is so heavily forested, but the forests are not necessarily protected or managed for purposes other than healthy forests. Therefore, the responsibility of the	Mon, Apr 6, 2015

2. How useful was the information presented at the meeting?		
	state should be to manage the forests for more reasons than "just" to sustain a healthy forest. Forests must work for us to clean the air, filter the water and provide the unique habitats that so many of Connecticut's threatened species need.	11:43 AM
6.	Is your goal for birds and animal habitat development to favor a particular species such as pheasant, wild turkey, woodpecker, fisher cat, rabbit? If yes, how do you plan to do it?	Thu, Mar 26, 2015 1:13 PM

Wed 3/4/2015 2:16 PM
Elizabeth Robinson erobinson@TNC.ORG
Forest Management Plan
Hi Emery,
It's been great to work on the public hearings for the Nehantic Forest Management plan with you. The only two cents Dave Gumbart and I feel we can really provide is from our own experience with invasives and that is to ensure that the harvesting equipment you use to maintain the early successional habitats and young growth forests stands are cleaned before leaving the site. On our own properties we've found some of our worst troubles with invasives are in log landing areas and old woods roads where equipment was entering and exiting, bringing invasive seeds along with it. Just something to keep in mind!
I'll be excited to see the final draft of the management plan once it's all said and done!
Take care,
Liz Robinson

Elizabeth Robinson
Eightmile River Watershed Land Steward

erobinson@tnc.org
(203) 568-6270 x6409
(203) 568-6271 (fax)

The Nature Conservancy Connecticut Field Office

55 Church Street, 3rd floor
New Haven, CT 06510

The Nature Conservancy
Protecting nature. Preserving life.™

nature.org

Thu 4/23/2015 1:04 PM
Clare Cain ccain@ctwoodlands.org
RE: Input for the draft Nehantic SF management plan

Hi Emery,
I have no issues with this plan. Thanks for the opportunity to review.

Please send me an email before the harvest/ thinning is underway so I can post a notice on our website for hikers. If you need any help posting trail closure signs during the work, just let us know.

Thanks,
Clare

Clare Cain, Trail Stewardship Director
Connecticut Forest & Park Association
16 Meriden Road
Rockfall, Connecticut 06481
860.346.TREE
www.ctwoodlands.org

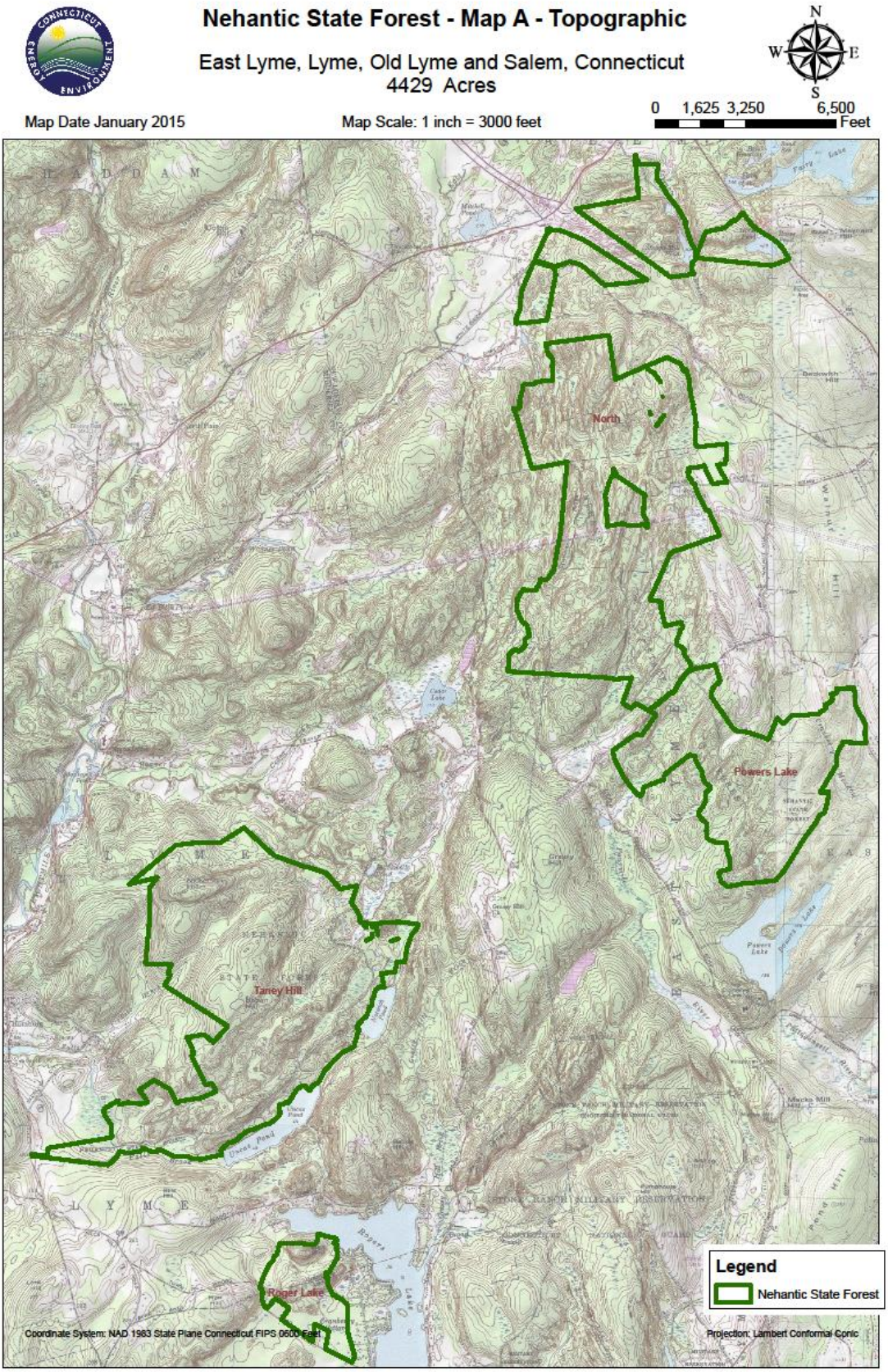
Appendix E. Distribution

First selectman's office notified that management plan on DEEP website.
DEEP District Staff
DEEP Hartford Forestry

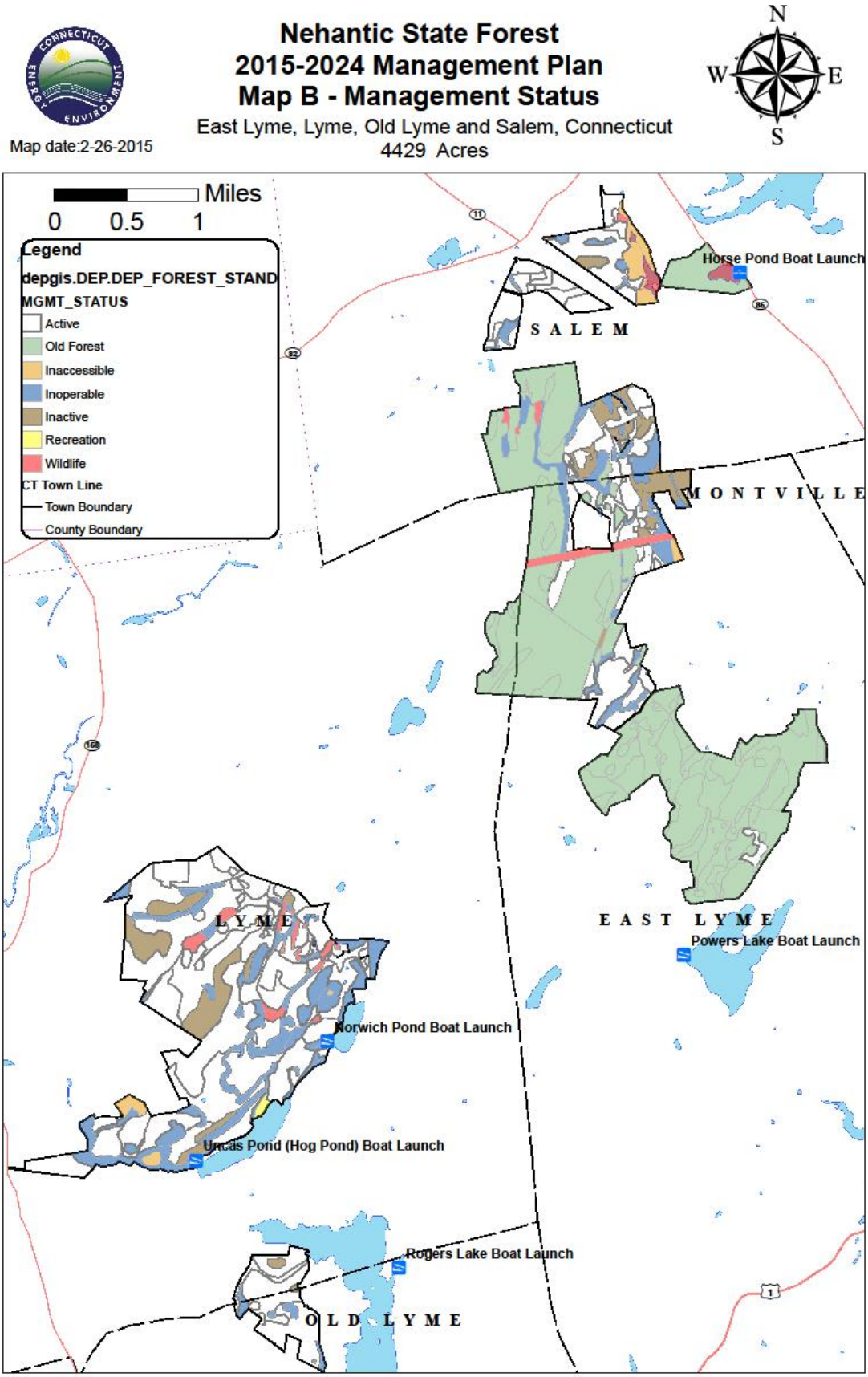
Appendix F. Rights of Ways and Deed Restriction

Parcel #	Town	Road	Block	Comp	Details
	East Lyme	Off Holmes Road	North	3&6	CL & P owns an interior parcel that they have
41	E. Lyme and Lyme		North		Grantor(Mr. Sturges) retained life use (he passed) and land maintained in natural state

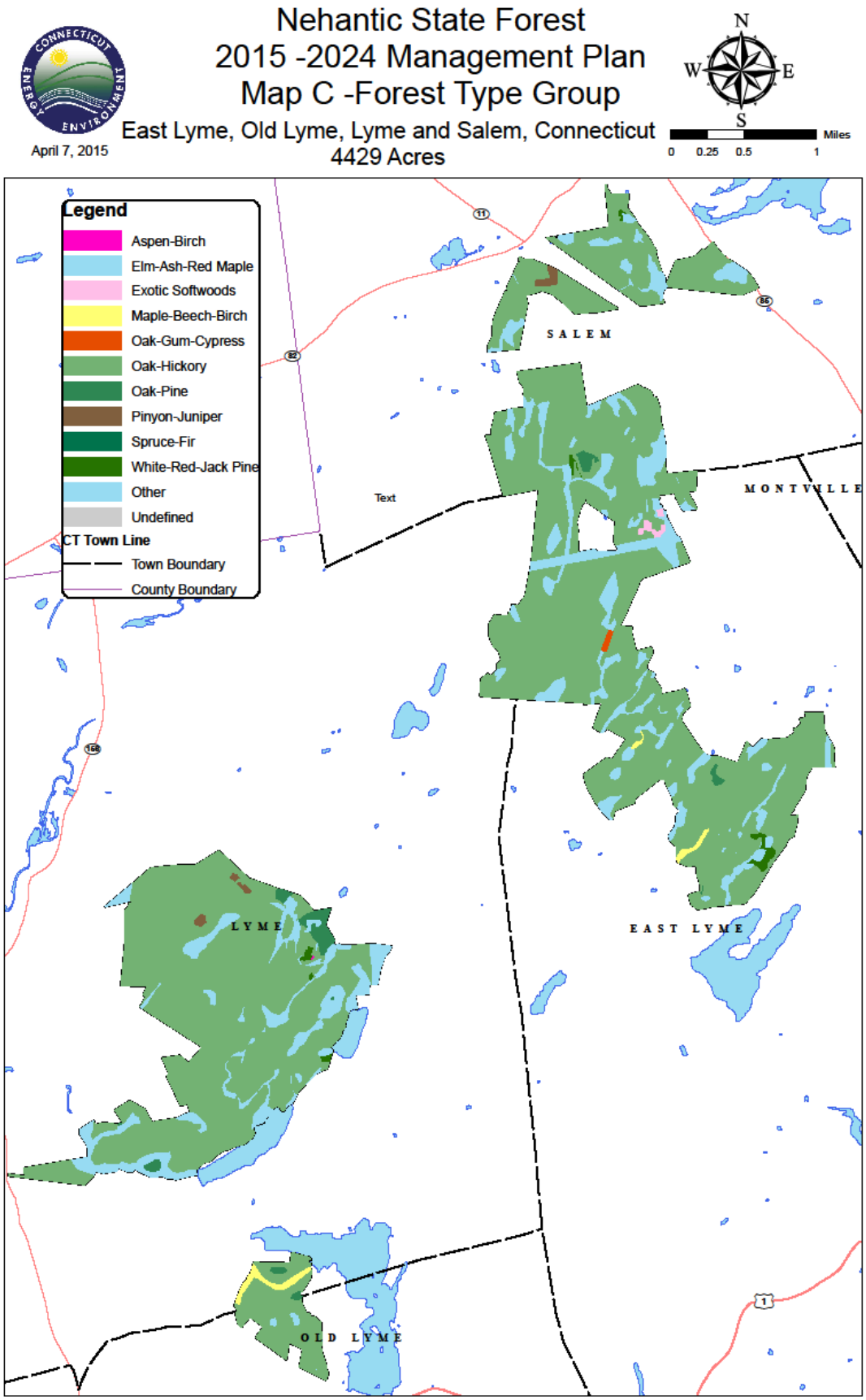
Map A - Topographic



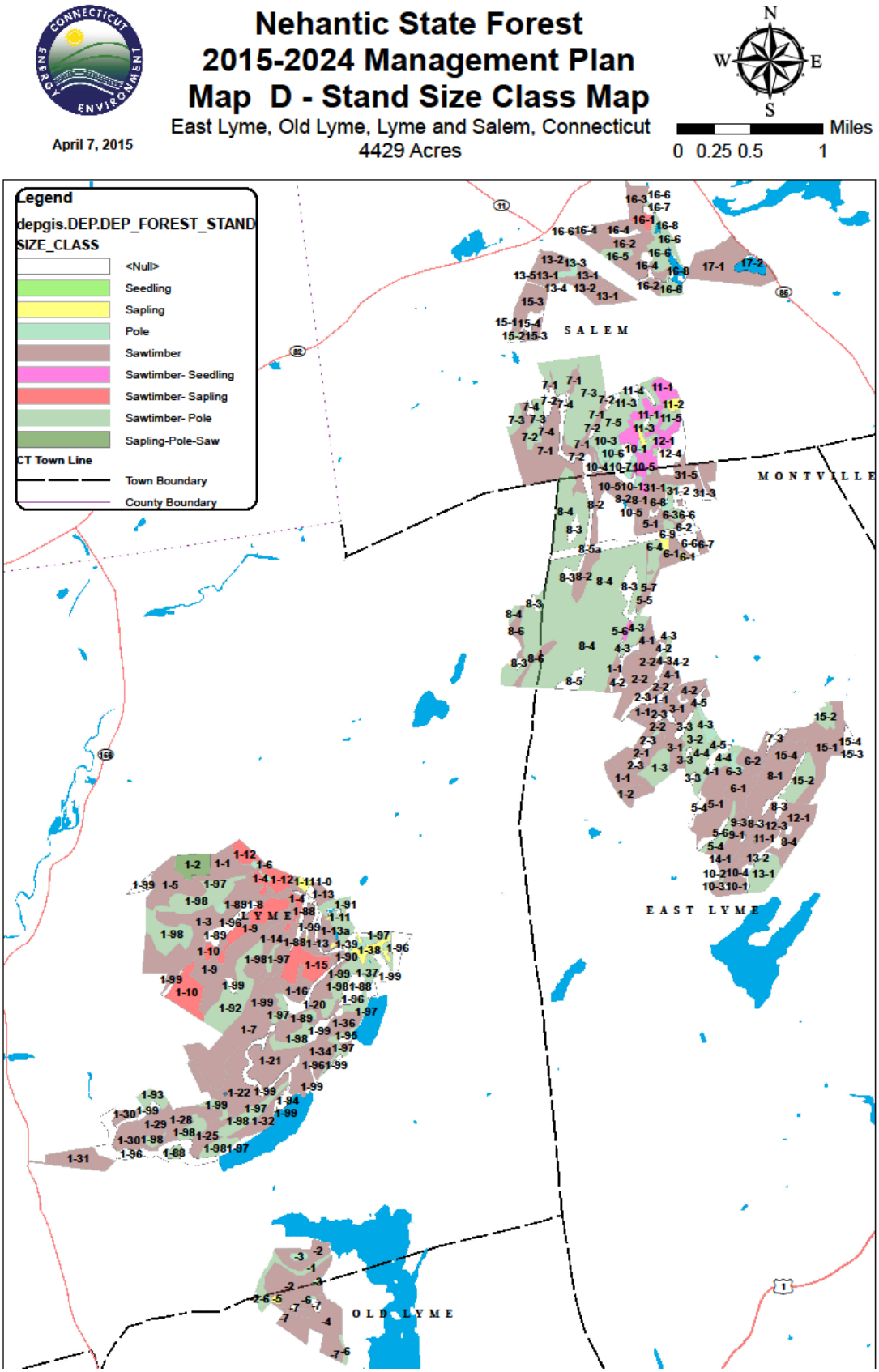
Map B – Management Status



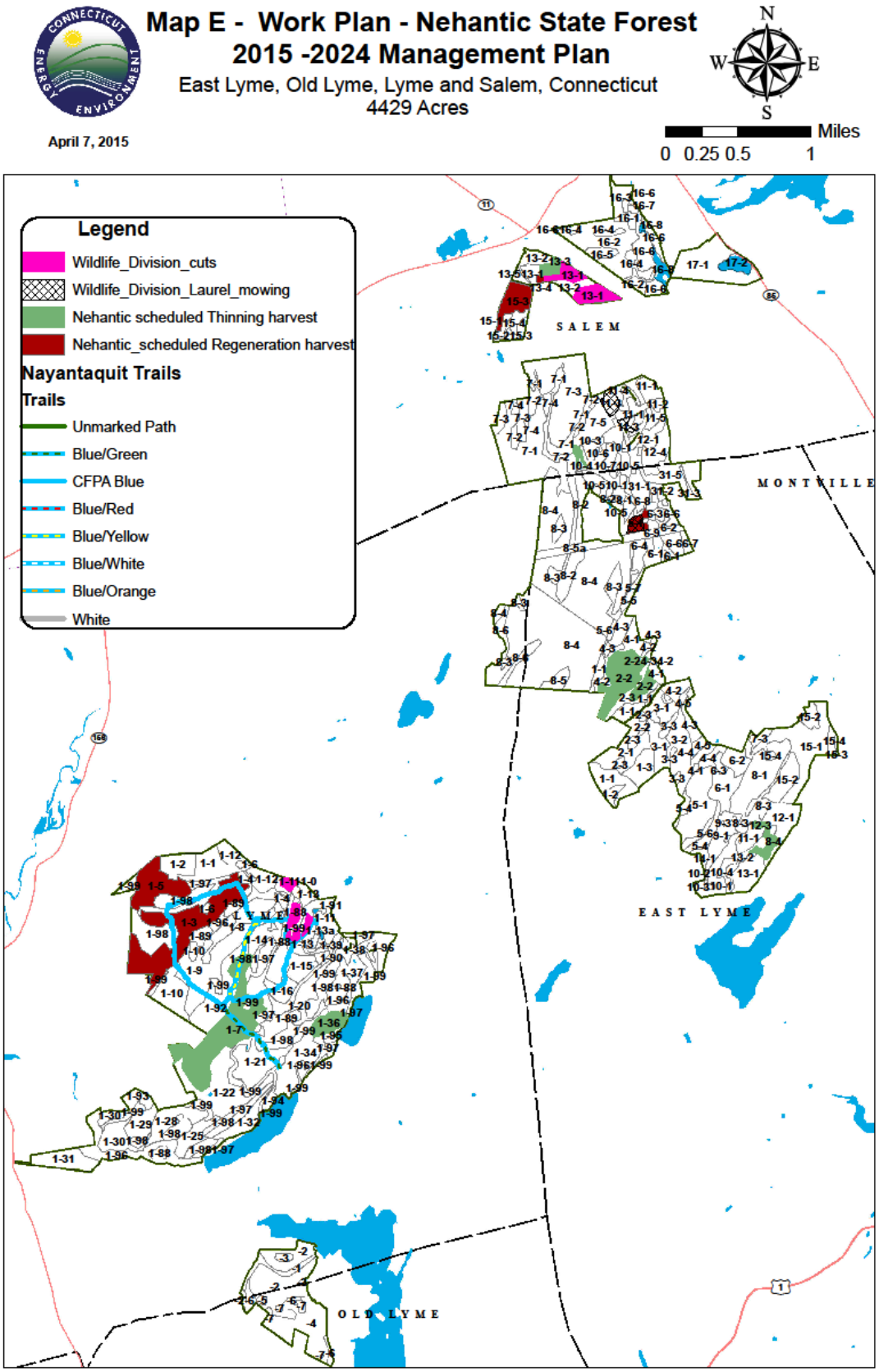
Map C – Forest Type Group



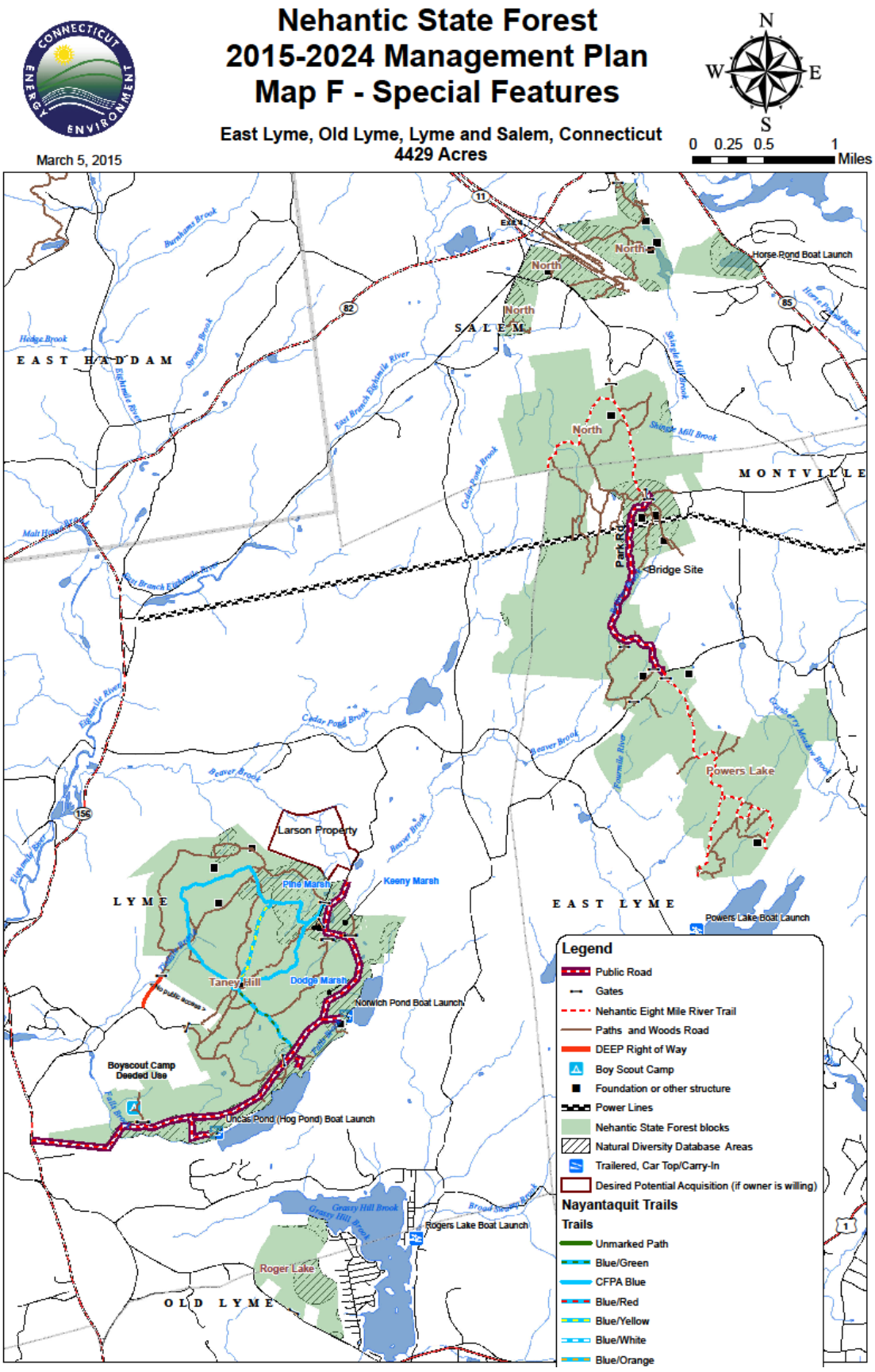
Map D – Stand Size Class



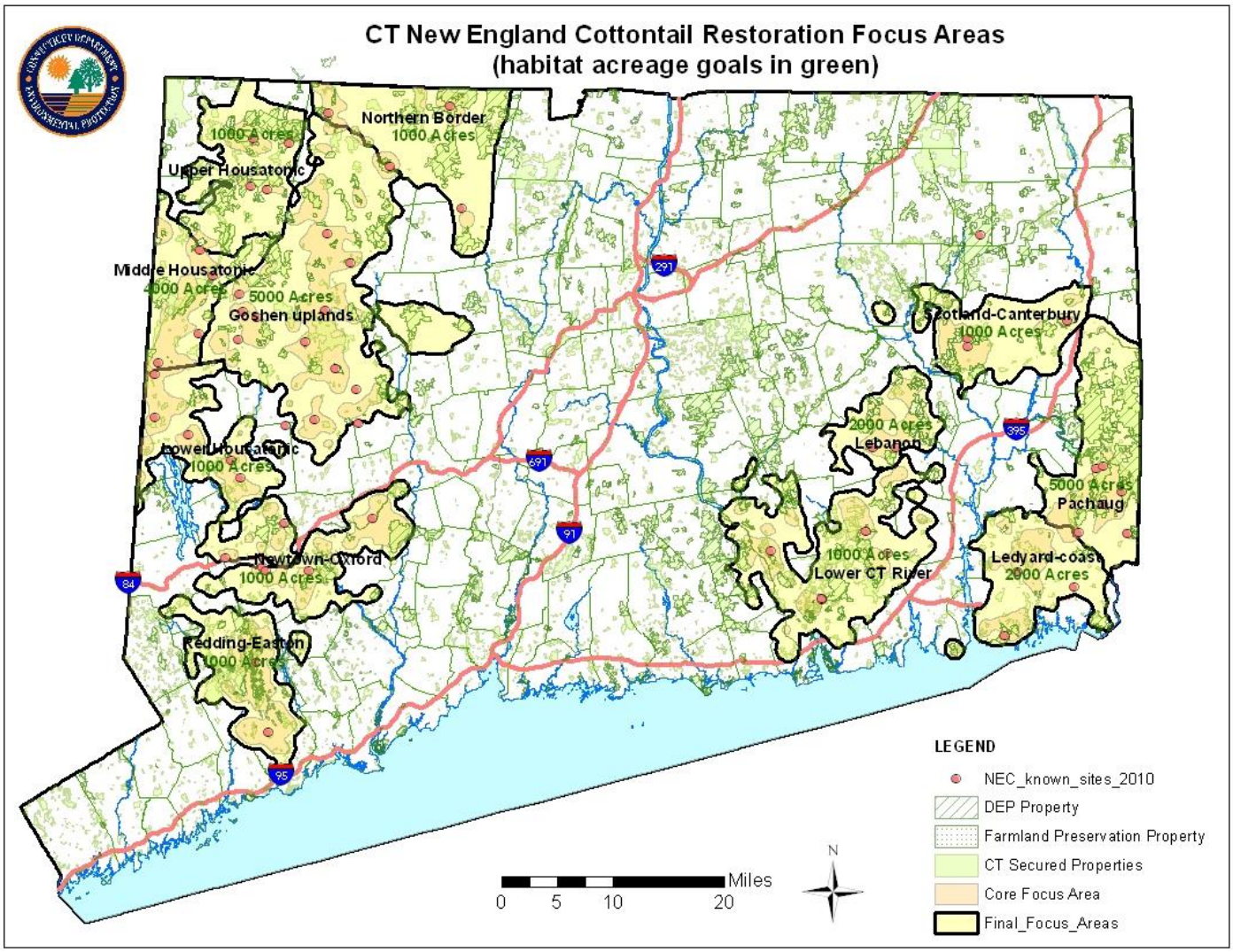
Map E – Work Plan



Map F – Special Features



Map G. New England Cottontail Restoration Focus Areas



Map H – Open Space