



# Connecticut Statewide Forest Resource Plan

2004-2013

prepared by


**Helene T. Flounders**

Forest Resource Planning Coordinator  
Masters Student  
Rensselaer Polytechnic Institute  
Connecticut DEP Forester 1



# Contents

- 1** Executive Summary
- 3** Introduction
- 6** Visions of Connecticut
- 9** Program of Action
- 10** Key to Organizations
- 11** Priority Areas
- 12** Plan Implementation
- 13** Forest Ecosystem Health
- 15** Public Forest Stewardship
- 17** Private Forest Stewardship
- 20** Recreation
- 23** Sustainable Forest Based Economy
- 26** Education and Outreach
- 29** Planning and Policy
- 32** Research
- 34** History of Connecticut's Forestlands
- 37** Trends in Connecticut's Forests:  
A Half-Century of Change
- 43** Wildlife and Forest Health
- 46** Fisheries and Forest Health
- 49** A Resource for Everyone:  
Forests and the Connecticut Economy
- 53** Acknowledgments
- 54** Appendices
  - Appendix A. Planning Process
  - Appendix B. Definitions/Glossary
  - Appendix C. Public Comments
  - Appendix D. Advisory Committee Members
- 64** Satellite Derived Forest Cover Map



# Executive Summary

**THE CONNECTICUT STATEWIDE FOREST RESOURCE PLAN IS DESIGNED TO SERVE AS AN OVERVIEW FOR PLANNING FUTURE ACTIVITIES WITHIN THE FOREST COMMUNITY OF CONNECTICUT.** The plan identifies issues as perceived by various stakeholders regarding the State's forestlands, and provides the basis for putting limited available state and federal funds, as well as participating groups and individuals time, to the best and most urgent uses through a series of action steps. The Connecticut Statewide Forest Resource Plan's action steps can be incorporated into stakeholder's programs and goals where appropriate.

Stakeholder participation was gained through a series of ten focus group meetings, in which perceived issues were discussed and possible action steps compiled based on overall "visions" for the state. After the initial gathering of information, an Advisory Committee was formed to condense the thoughts and ideas into a workable document. A first draft of the plan was sent out for peer review to 221 individuals and organizations for comments. At the same time, the opportunity was given for participants to volunteer to partner for plan implementation. Participants were also given the chance to identify and prioritize what they felt were the top action steps listed in the plan.

Comments were reviewed and worked into a second draft, along with partnering organizations. To provide a more thorough understanding of Connecticut's forest resources, informational sections were added to the second draft of the plan. These sections included a history of Connecticut's forests, trends in Connecticut's forests over the last 50 years, wildlife and fisheries information as pertaining to the forests of Connecticut, and a section explaining the relationship between forests and the Connecticut economy.

An Advisory Committee meeting was called to evaluate the second draft and address any remaining issues. At this time, the initial stages of plan implementation and creation of the Connecticut Forestlands Committee was outlined. The draft was then sent out to all respondents of the first draft for review. Comments on the plan were analyzed one final time and finishing touches were added before the document was sent out for publication.

Priority action areas are summarized in the plan. Means of implementing all action steps are addressed under the Program of Action section of this plan.

In order to most accurately represent the different characteristics that make up the forests of Connecticut, all aspects and action steps were thought to fall under any of eight different subject areas. They are as follows:

- Forest Ecosystem Health
- Public Forest Stewardship
- Private Forest Stewardship
- Recreation
- Sustainable Forest Based Economy
- Education and Outreach
- Planning and Policy
- Research



For each of these subject areas, a vision statement was created describing what the IDEAL conditions should be regarding that topic area. These statements were crafted by over 30 forestry professionals in Connecticut, and reviewed by over 200 interested stakeholders for relevancy to the perceived goals in regards to Connecticut's forestlands.

The DEP Division of Forestry along with several partnering organizations and individuals will determine strategies to implement the Connecticut Statewide Forest Resource Plan. The success of this plan lies in the partnerships formed between the various forestry organizations in the state and the numerous stakeholder and user groups.

One of the most anticipated outcomes of this planning process is the formation of a Connecticut Forestlands Committee representing the various stakeholder groups. A highly influential committee will include the many types of forest users that depend on the forests of Connecticut. The primary responsibility of this committee will be to monitor the progress of plan implementation through a series of semi-annual meetings over the ten-year life span of the plan.

Eleven members will be invited to serve on this committee. Eight of the members will each act as a liaison for one of the eight subcommittees formed to address the above listed subject areas and the related action steps. There will also be a designated leader to preside over the meetings, a scribe, and a DEP liaison. The DEP Division of Forestry will provide this liaison. This person will spearhead initial efforts of organizing potential partners and coordinating early committee meetings. The DEP contact will not be responsible for executing actions steps. Committees implementing individual action steps will decide the best means of implementation.

The Connecticut Forestlands Committee will host a five-year review of the plan in 2008, and also work to determine a system for a ten-year retrofit to assure continuation of a Forest Resource Plan into the next decade (2013). Funding requests will be submitted in years four (2007) and nine (2012).

The eight subcommittees will be comprised of individuals and representatives of organizations that have volunteered to partner with this plan, as determined through an August 2003 questionnaire. Additional partners will be sought throughout plan implementation to expand the reach and scope of this plan of action. These subcommittees will each be directly associated with a vision and the related action steps.

It is recommended that these subcommittees meet at least four times a year. Each group will be able to use the summary of priority areas to help guide their own plans of action. Each subcommittee will organize themselves with the help of the DEP liaison, educate themselves on the present status of issues and foreseeable roadblocks to success, and determine and carry out the best means of implementing listed action steps.





# Introduction<sup>1</sup>

In the year 2003 the State of Connecticut celebrated the 100th anniversary of Connecticut's State Forests. This occasion was commemorated by a series of yearlong events including a poster contest for Connecticut schoolchildren, an educational letterbox series, television specials, a family oriented forestry field day, and updates to educational brochures and presentations concerning forestry. Some of you might ask, "Why was this such a special occasion?"

The answer lies in the fact that just a short hundred years ago Connecticut did not have the forested landscapes that we now take for granted. Instead, trees were barely able to reach a commercial size before they were cut for charcoal, firewood, or lumber. Trees that were not cut down were susceptible to large wildfires that ravaged the landscape, sometimes burning thousands of acres a year. Together, these factors left Connecticut's forests in a terrible shape. Not much thought was given to the future of the forests.

It took a group of concerned citizens, and an act of the Legislature to change things. The position of State Forester was created in 1901, followed shortly by the creation of State Forests in 1903. The State Forests were meant to serve as demonstration areas to educate landowners in forest management techniques and to encourage landowners to practice these techniques on their own land. Much time was spent reforesting these public areas and protecting them from wildfires. Over the last hundred years, the State Forests have grown to include over 150,000 acres, and have provided Connecticut's population with recreational opportunities, economic products, fish and wildlife habitat, watershed

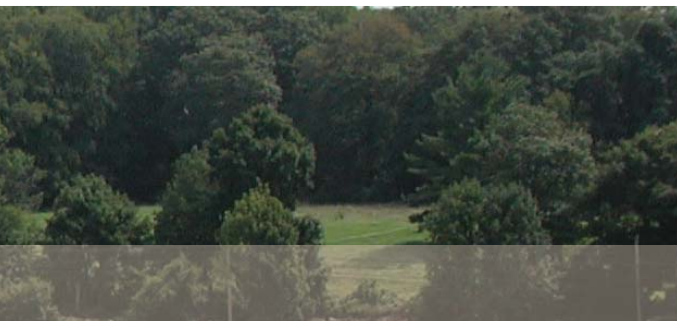
protection, and aesthetics. The model provided by the protection of State Forest lands has most definitely contributed to the astounding fact that Connecticut is currently over 60% forested.

Statewide, these last hundred years have not been easy ones for Connecticut's forests. Introduced and natural elements have often threatened the valuable forestlands of Connecticut, in some cases permanently affecting the landscape. American Chestnut, which made up 25% of Connecticut's forests at the turn of the century and was prized for its decay-resistant wood, nuts, and wildlife value, was lost from our forestlands over a few short decades to an introduced chestnut blight. In more recent years, gypsy moth, hemlock adelgid, red pine scale, and hemlock scale have all contributed to major losses of important forest trees.

Weather events have also affected the health of the forests. The hurricane of 1938 hit southern New England with a fury, and toppled trees of all sizes in Connecticut. An estimated one-fifth of Connecticut's timber was lost, with the eastern part of the state being hardest hit. In fact, our present mature forests in Connecticut are the seedlings and saplings that survived that hurricane. Other hurricanes, tornadoes, ice storms, and droughts, coupled with the wildfires that typically follow these events have also negatively impacted the land throughout the years.

Despite past catastrophic events and chronic problems, our resilient forests continue to grow from young seedlings into mature forests. This has not always been accomplished by nature alone. Conservation efforts by government, organizations, and individuals have often played a major role in protecting Connecticut's forest resources and shaping management goals

<sup>1</sup>Summarized from an article provided by Huber Hurlock, District Forester, Connecticut Department of Environmental Protection, February 12, 2004.



and activities. These efforts have resulted in many beneficial programs that we now take for granted.

For instance, there are ample resources available to private landowners for forest management advice and education through both state programs and private consultants. There are state tax programs that exist to assist the private landowner in retaining forestlands. Various research projects continue to expand our knowledge of the forests that surround us, and are used to study possible solutions to current forestland issues. Voluntary “Best Management Practices” now exist for logging activities conducted in the state. A state run certification program is in place for foresters and loggers participating in harvesting activities on Connecticut’s forestlands. The DEP fire control program provides direct support to local fire departments in terms of suppression assistance, training, and equipment purchases, which in turn has greatly diminished forest fire as an issue in Connecticut.

These are all noteworthy accomplishments, but the work can not stop here. Progress has been made in some areas of forest management and protection, and ground has been lost in others. Respondents of an August 2003 questionnaire were asked to identify the five highest priorities of this plan. Topping off the list is the need for education and outreach regarding the forestlands of Connecticut. This need is due to a disconnect between an increasingly urbanized society and the forested landscape we live in. Next mentioned is the need for a baseline in forest ecosystem health to monitor both positive and negative changes in forest health. A further concern is that the current lack of staffing and funding in state government is preventing our public lands in Connecticut from acting as a showcase for qual-

ity land use and management. Issues regarding private lands revolve around that fact that the average landowner in Connecticut is aging, and land ownership sales and transfers are increasing. Something needs to be done to assure the incentives remain to continue management of private forestlands, so that prime forestland does not always fall into development or be degraded through indiscriminate harvesting. Related to this issue is whether the role of the DEP service forester needs to be clarified or staffing increased to help private landowners with these decisions.

The issues in this plan do not stand alone. According to Ward and Worthley, (2003) there are currently five major challenges to forest management identified in Connecticut at the landscape level. These include invasive species, coping with deer, fragmentation and parcelization, maintaining habitat diversity, and the stewardship of private lands.<sup>2</sup> In regards to the future, it is apparent that there will always be room for improvement for protection and management of our forest resources, especially as pressure from development and demands from user groups increase.

The Department of Environmental Protection’s Division of Forestry has often been considered the leader of forestry issues in Connecticut. The Division has many types of programs including the Forest Protection Program, the Forest Practices Act Program, the Forest Land Taxation Program, the Private and Municipal Lands Program, and the State Lands Program. Over the last several years, cuts in funding and staff have affected the focus and quality of service provided by the Division of Forestry to lead and assist in forestland management. In just the past three years the Division of Forestry has lost 9 positions and experienced the closure of the State Forest Nursery after 95 years

<sup>2</sup>Jeffrey S. Ward and Thomas E. Worthley. Forest Regeneration Handbook. 2003. page 9.

of service. The Division of Forestry no longer has the personnel to fulfill existing programs and must have others both lead and support to make changes in our forest resource.

For too long now, organizations working towards forestland protection and management have lacked cohesiveness. The DEP Division of Forestry has often worked on it's own. Many other organizations, forest interest groups, and individuals have also been working alone to improve various facets of the forest ecosystem. The time has come for these different entities to join forces. If efforts were combined, the forestry community could work to improve our forests in ways that are desired by all stakeholders. Together these groups can find ways to increase both professional and interest group involvement in forest management decisions. This could result in long term ecological gains to the growing and dynamic forest resource, as well as increased benefits to the wildlife, landowners, forest practitioners, and recreational users.

This Connecticut Statewide Forest Resource Plan has been an opportunity for all interest groups to share thoughts and ideas, and to create goals to strive towards. By working in both small groups and as a unified team, common forestland protection and management objectives can be planned and met for the next ten years, with benefits carrying into the next 100 years. While there will be committees formed to help implement listed action steps, these actions steps can also be incorporated into the goals of stakeholder organizations where appropriate.

As users of the forestlands we have a responsibility to our children, our community, and the world to implement a strong environ-

mental ethic here in Connecticut. We have a responsibility to soundly use and manage the forests we live in, to reduce pressure in third world countries that often bear the burden of our demands, and to provide a clean, healthy environment for future generations. Therefore, a challenge is being issued for all interested stakeholders to work with this plan: to form a unified environmental voice, to create a growing and moving force under different flags, and to leave a better forestland for those that follow.





# Visions of Connecticut

In order to most accurately represent the different characteristics that make up the forests of Connecticut, all aspects and action steps were thought to fall under any of eight different subject areas. They are as follows:

- Forest Ecosystem Health
- Public Forest Stewardship
- Private Forest Stewardship
- Recreation
- Sustainable Forest Based Economy
- Education and Outreach
- Planning and Policy
- Research

For each of these subject areas, a vision statement was created describing what the ideal conditions should be regarding that topic. These statements were crafted by over 30 forestry professionals in Connecticut, and reviewed by over 200 interested stakeholders for relevancy to the perceived goals in regards to Connecticut's forestlands.

These visions are broad goal statements, meant to be the guiding force behind the actions listed in this plan. These visions should be viewed as a whole. They are not mutually exclusive, nor is each one intended to apply to every forest landowner or situation.

This said, it is important to note that for the purposes of this plan, it is understood that improving forest ecosystem health is the overarching issue. Maintaining large unfragmented forest blocks is critical to all of the other goals of this plan, such as sustaining a forest-based economy, maintaining wildlife diversity, promoting forest-based recreation, and providing clean drinking water. Ideally stated, healthy forests provide a stable

ecosystem in which other activities may take place with predictable results. In conjunction with that, education is to either: 1) change peoples' attitudes regarding forest ecosystem health, or 2) change peoples' actions to improve overall future forest ecosystem health.

## FOREST ECOSYSTEM HEALTH

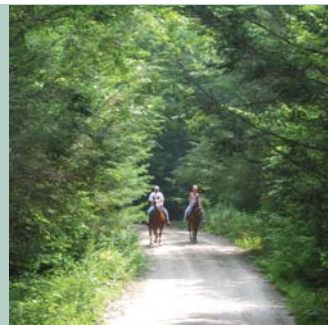
### *Vision:*

Connecticut's forests contain healthy and sustainable populations of native plants and animals. Biological diversity is exhibited through a full range of native plant communities and age classes, and diverse, stable animal populations on both public and private land. Forests are dynamic and resilient, and the processes of a healthy ecosystem overcome the damaging effects of adverse weather, wildfire, erosion, invasive exotic species, and outbreaks of insects and disease. A healthy forest promotes clean air, clean water, and a better-regulated climate. Forest management is a recognized tool for improving forest ecosystem health, while continued forest fragmentation, as defined in this plan, is recognized as one of the most detrimental factors currently affecting forest ecosystem health.

## PUBLIC FOREST STEWARDSHIP

### *Vision:*

Publicly owned forestlands are managed to promote clean air, water, and sustainable ecosystems, protect unique and fragile areas, model sound forest management techniques, provide a variety of forest products, and offer many types of recreational activities.



Urban forests are managed to enhance the quality of life in Connecticut communities. Retention of large tracts of forestlands is ensured through supportive public and private programs and policies.

## **PRIVATE FOREST STEWARDSHIP**

### *Vision:*

Connecticut landowners value forestlands for all their uses: aesthetic, recreational, economic, and environmental. Programs and policies are in place and sufficiently funded to promote a continual flow of public benefits including clean air and water, productive habitat, wood products, and other essential public benefits derived from privately owned forests. Connecticut landowners understand the impacts of forest fragmentation and land parcelization, and actively participate in programs that curtail development of existing forestlands.

## **RECREATION**

### *Vision:*

Connecticut's forests provide recreational activities for both residents and visitors. Examples include hiking, fishing, hunting, camping, horseback riding, and mountain biking. More passive opportunities exist in the ability to enjoy the scenery, and observe wildlife. These opportunities allow individuals to experience the forests in a personal way. Opportunities also exist for public recreation on private property, allowing quality outdoor recreation to be available to everyone close to home.

These factors foster a conservation ethic among Connecticut residents from all walks of life.

## **SUSTAINABLE FOREST BASED ECONOMY**

### *Vision:*

Connecticut's forests are able to provide quality forest products from sustainable and diverse forest resources. Connecticut's forests will contribute to our nation's supply of forest products, while locally ensuring employment for those involved with these activities. Proper management and use of forest resources locally will reduce worldwide pressures in more sensitive and less sustainable habitats. Sustainable forest based economy allows the landowner to offset the cost of owning land, while also providing other benefits including protection of land from development and as a means of increasing diversity within forests. Recreation and tourism suppliers will benefit from well-planned forest management.

## **EDUCATION AND OUTREACH**

### *Vision:*

Opportunities exist for all sectors of Connecticut's population to understand Connecticut's natural resources. Education in both schools and public settings promotes awareness and appreciation of Connecticut's working forests. This includes the historical aspects, the role of management and harvesting activities, biological diversity, and recreational values of forests. Private forest landowners, who



control 85% of Connecticut's forests and the public benefits those forests provide, have adequate access to advice and technical assistance on both forest stewardship and family estate planning.

## **PLANNING AND POLICY**

### *Vision:*

Cooperation between different sectors including the government, forest users, and forest landowners results in participation by all of society in developing and implementing public policy. Long term comprehensive planning for state owned land occurs in collaboration with Connecticut's citizens and local government. Connecticut municipalities have the knowledge and resources to build forest sustainability into their community growth plans and patterns. Regional plans of conservation and development build on these local plans, and in turn become the foundations of the state plan of conservation and development.

## **RESEARCH**

### *Vision:*

Continuation of ongoing research, along with implementation of new research by both public and private entities provides a better understanding of Connecticut's forests, and our relationship with them. Findings of such research are disseminated to the general public and interested parties in a way that the public can understand and use.



# Program of Action 2004-2013

**THE ACTIONS TO BE CARRIED OUT IN THE UPCOMING DECADE ARE THE KEY COMPONENTS OF THIS PLAN.** They are responses to issues brought up in Phase I of the planning process. The implementation of these actions will allow progress towards the desired “visions” for the state of Connecticut.

The actions are listed under the different “Vision” headings. If many different possibilities exist, the actions have been divided into related categories. Some action steps contain more details than others do.

Following the Key to Organizations page is a list of the Priority Areas as established through questionnaire responses from planning participants. These Priority Areas can be used as a guide in determining individual subcommittee’s action steps during plan implementation. Subsequent pages list all action steps in more detail as determined by the Advisory Committee.

This Program of Action is ambitious. The key to the success of this plan is the development of partnerships between the Department of Environmental Protection and various stakeholder groups to achieve goals that benefit all. Following each series of actions is a list of partnering organizations that may be responsible for carrying out identified actions. Partners are not obligated to work on all action steps in a category under which they are listed. A key to the partnering organizations follows.



# Key to Organizations

<b>AC</b>	Audubon Connecticut
<b>AMC</b>	Appalachian Mountain Club
<b>AWC</b>	Aquarion Water Company
<b>CAES</b>	Connecticut Agricultural Experiment Station
<b>CCC</b>	Central Cycle Club Inc.
<b>CFB</b>	Connecticut Farm Bureau
<b>CFI</b>	Connwood Foresters Inc.
<b>CFPA</b>	Connecticut Forest and Park Association
<b>CFSC</b>	Connecticut Forest Stewardship Council
<b>CHC</b>	Connecticut Horse Council, Inc.
<b>CRMC</b>	Connecticut Ramblers Motorcycle Club
<b>CTF</b>	Connecticut Tree Farm
<b>CTNEMBA</b>	Connecticut Chapter of the New England Mountain Bike Assoc.
<b>CTSAF</b>	Connecticut Division of the Society of American Foresters
<b>CWC</b>	Connecticut Water Company
<b>DEP</b>	Department of Environmental Protection
<b>DOF</b>	DEP Division of Forestry
<b>DOFI</b>	DEP Inland Fisheries Division
<b>DOSP</b>	DEP Division of State Parks
<b>DOW</b>	DEP Division of Wildlife
<b>EGIC</b>	DEP Environmental and Geographic Information Center
<b>FW</b>	Ferrucci & Walicki LLC
<b>HFP</b>	Hull Forest Products
<b>LLT</b>	Lyme Land Trust
<b>MDC</b>	Metropolitan District Commission
<b>NEOC</b>	New England Orienteering Club-Connecticut Section
<b>NETRA</b>	New England Trail Rider Association
<b>NTSC</b>	Nipmuck Trailriders Snowmobile Club Inc.
<b>NWSC</b>	Northwest Connecticut Sportsman's Council
<b>RF</b>	Rockfall Foundation
<b>RGS</b>	Ruffed Grouse Society
<b>TNC</b>	The Nature Conservancy
<b>TOC</b>	Town of Colchester
<b>UCONNCES</b>	University of Connecticut Cooperative Extension System
<b>USFS</b>	United States Forest Service
<b>YSAF</b>	Yankee Division of the Society of American Foresters
<b>YU</b>	Yale University, School of Forestry and Environmental Studies



# Priority Areas

The following summary of action steps is listed in order of priority as determined through planning participant's responses to a questionnaire distributed in August 2003:

The plan's top five priority action steps are as follows:

1. Education and Outreach-Includes creating a basic uniform message to disseminate to all audiences regarding the general value of forests, definitions and benefits of active forest management, the definition of a healthy forest (as listed in this plan), respect for all forestlands, and the threats to Connecticut's forestlands.
2. Forest Ecosystem Health-Establish measurable goals to monitor forest health
3. Public Forest Stewardship-Increase management on State forestlands
4. Private Forest Stewardship-Investigate and reestablish the balance of incentives versus disincentives to manage private forestlands
5. Private Forest Stewardship-Clarify the role of the DEP Service Forester and determine if more are needed

Other issues that were listed by individuals and organizations as high priorities include:

6. Address recreational needs on state lands including club recognition and user fees
7. Fully utilize the Forest Practices Act
8. Expand on and distribute the existing Best Management Practices guides
9. Reword language in easements to allow harvesting activities where appropriate
10. Increase funding for open space purchases
11. Determine forest integrity, implement evaluation, utilize a landscape approach to land acquisition and management
12. Create a Circuit Rider networking organization to disseminate information
13. Assist private landowners with liability issues for recreational opportunities and access
14. Continue ongoing research on forestlands and implement new research possibilities from stated list (especially on uses for low quality products)
15. Revise DEP plan for land acquisition



# Plan Implementation

The DEP Division of Forestry along with several partnering organizations and individuals will determine strategies to implement the Connecticut Statewide Forest Resource Plan. The success of this plan lies in the partnerships formed between the various forestry organizations in the state and the numerous stakeholder and user groups.

One of the most anticipated outcomes of this planning process is the formation of a Connecticut Forestlands Committee representing the various stakeholder groups. A highly influential Committee will include the many types of forest users that depend on the forests of Connecticut. The primary responsibility of this Committee will be to monitor the progress of plan implementation through a series of semi-annual meetings over the ten-year life span of the plan.

Eleven members will be invited to serve on this Committee. Eight of the members will each act as a liaison for one of the eight subcommittees formed to address subject areas and related action steps. There will also be a designated leader to preside over the meetings, a scribe, and a DEP liaison. The DEP Division of Forestry will provide this liaison. This person will spearhead initial efforts of organizing potential partners and coordinating early committee meetings. The DEP contact will not be responsible for executing action steps. Committees implementing individual action steps will decide the best means of implementation.

The Connecticut Forestlands Committee will host a five-year review of the plan in 2008, and also work to determine a system for a ten-year retrofit to assure continuation of a Forest Resource Plan into the next decade (2013). Funding requests will be submitted in years four (2007) and nine (2012).

The eight subcommittees will be comprised of individuals and representatives of organizations that have volunteered to partner with this plan, as determined through an August 2003 questionnaire. Additional partners will be sought throughout plan implementation to expand the reach and scope of this plan of action. These subcommittees will each be directly associated with a vision and the related action steps.

It is recommended that these subcommittees meet at least four times a year. Each group will be able to use the summary of priority action steps to help guide their own plans of action. Each subcommittee will organize themselves with the help of the DEP liaison, educate themselves on the present status of issues and foreseeable roadblocks to success, and determine and carry out the best means of implementing listed action steps.



# Forest Ecosystem Health

## Vision

**CONNECTICUT'S FORESTS CONTAIN HEALTHY AND SUSTAINABLE POPULATIONS OF NATIVE PLANTS AND ANIMALS.** Biological diversity is exhibited through a full range of native plant communities and age classes, and diverse, stable animal populations on both public and private land. Forests are dynamic and resilient, and the processes of a healthy ecosystem overcome the damaging effects of adverse weather, wildfire, erosion, invasive exotic species, and outbreaks of insects and disease. A healthy forest promotes clean air, clean water, and a better-regulated climate. Forest management is a recognized tool for improving forest ecosystem health, while continued forest fragmentation, as defined in this plan, is recognized as one of the most detrimental factors currently affecting forest ecosystem health.

In defining a healthy forest, the above mentioned vision statement will be used as the basis on which to measure forest ecosystem health for the purposes of this plan. It will provide a baseline for the differing viewpoints that forest ecosystem health is “about what I want.”

Through the 10 focus groups meetings, the following issues were compiled as impediments to Connecticut’s forests ecosystem health. These factors need to be addressed and monitored to assess overall forest ecosystem health, since each impediment acts against forest ecosystem health. It is understood that over time these impediments may change, and that amendments and adjustments in future Forest Resource Plans might have to be made.

### **CONCERNS EXISTING ACROSS THE STATE:**

#### **Biological Impediments to a Healthy Forest Ecosystem**

- Increased forest fragmentation
- Lack of age diversity within forests
- Declining species diversity/composition
- Limited success of seedling regeneration for some tree species
- Invasive species (both plant and animal)
  - Exotics
  - Out-of-Control Natives
  - Diseases and Pests
- Erosion





### **Human Impediments to a Healthy Forest Ecosystem**

- Lack of forest management and habitat maintenance to maintain overall forest health
- Lack of understanding of forest management and silviculture treatments (from all user and non-user groups)
- Lack of a unified and active constituency of forest users to lobby for more resources/tools to ensure healthy forest habitats

Forest ecosystem health will be the baseline against which action steps throughout the plan will be measured during plan implementation. It is important to determine at the completion of this plan whether or not ground has been gained or lost in the improvement of forest ecosystem health. For that reason, the following action steps will be used to monitor progress. At the completion of the 10-year mark, an overall assessment will be made of progress.

### **ACTION STEPS**

1. Establish baselines based on the current status of Connecticut's forests from which future conditions can be measured against
  - a. Use existing Forest Inventory and Analysis Data (FIA)
  - b. Conduct comprehensive analysis to assess current status in areas where needed (see also Planning and Policy action steps for Land Management Practices a-g)
  - c. Determine proactive conservation plans to maintain large healthy forest ecosystems in Connecticut
2. Establish measurable goals for the following topics to monitor gains or losses in forest health (effects of biological and human impediments)
  - a. Forest fragmentation
  - b. Age diversity within forests
  - c. Species diversity/composition within forest
  - d. Seedling regeneration
  - e. Wildlife diversity and stability of populations
  - f. Invasive species (both plant and animal)
  - g. Erosion
  - h. Forest and habitat maintenance on public and private lands
  - i. Education on forest management and silviculture treatments
  - j. Rare and endangered species populations
3. Using above information, develop site specific plans to outline the steps necessary for an effective and proactive approach to minimizing forest fragmentation
4. Utilize action steps within the Connecticut Statewide Forest Resource Plan to strive towards these goals
5. Monitor and track changes in the above listed forest ecosystem health indicators

(Implementation: AC, AMC, AWC, CAES, CFI, CFPA, CHC, DOF, DOFI, DOW, EGIC, NWSC, RGS, TNC, TOC, UCONNCS, USFS, YU)



# Public Forest Stewardship

## Vision

PUBLICLY OWNED FORESTLANDS ARE VARIOUSLY MANAGED TO PROMOTE CLEAN AIR, WATER, AND SUSTAINABLE ECOSYSTEMS, PROTECT UNIQUE AND FRAGILE AREAS, MODEL SOUND FOREST MANAGEMENT TECHNIQUES, PROVIDE A VARIETY OF FOREST PRODUCTS, AND OFFER MANY TYPES OF RECREATIONAL ACTIVITIES. Urban forests are managed to enhance the quality of life in Connecticut communities. Retention of large tracts of forestlands is ensured through supportive public and private programs and policies.

Two different categories of public lands exist for the purposes of this plan. The primary definition of public lands pertains to state-owned forestlands, which includes state forests, parks, wildlife management areas, and Natural Areas. Other public lands considered include municipal lands. Municipalities often do not have the expertise to manage their lands, and may also have different criteria they have to abide by regarding use of lands (i.e. liability). Water companies generally have their own expertise for land management and can be treated as both public and private lands during the implementation of the listed action steps.

## ISSUES

### *Impediments to Public Forest Stewardship*

#### ***State-owned lands***

- Lack of sufficient state field personnel to manage state forestlands
- State funding to accomplish management goals has decreased over the years

#### ***Municipal-owned lands***

- Lack of towns practicing forest management

## ACTION STEPS

#### ***State-owned lands***

1. Increase forest and habitat management on state forestlands
  - a. Increase personnel and/or resources to provide management
    - i. Inform legislators and DEP staff of state forest management issues and needs
      1. Allocate more funds

2. Pass legislation to authorize user fees on state forestlands that could be used to generate funding for associated state forestlands
3. Create a dedicated fund for revenues associated with forestlands to be returned for forest management purposes
- ii. Create partnerships (both externally and internally) to implement management goals
  1. Encourage closer cooperation among DEP Divisions including Forestry, Wildlife, Fisheries, Parks and EGIC to achieve management goals
  2. Partner with consulting foresters to implement certified management activities
  3. Partner with recreational user groups to work on aspects of recreation management
  4. Partner with TNC and other private conservation organizations to continue to update and complete existing forest management plans, maintain boundaries, and conduct forest operations so that management quality and quantity will be eligible for either Sustainable Forestry Initiative or Forest Stewardship Council green certification.
- iii. Pursue private and federal grants
- b. Increase biological and habitat diversity through management
  - i. Create partnerships with interest groups to access funding, equipment, and in-kind services to help with managing their interests
- c. Continue to update and complete existing forest management plans, maintain boundaries, and conduct forest operations

***Municipal-owned lands***

1. Increase Best Management Practice (BMP) models of management to educate conservation commissions, municipalities, land trusts, and private landowners
2. Promote models of management for all interested stakeholders
3. Increase funding to municipalities for management purposes
4. Provide technical assistance to towns who would like to implement management plans

(Implementation: AC, AMC, CAES, CFI, CFPA, CHC, DOF, DOFI, DOSP, DOW, FW, NWSC, MDC, RGS, TNC, TOC, YU)



# Private Forest Stewardship

## Vision

### CONNECTICUT LANDOWNERS VALUE FORESTLANDS FOR ALL THEIR USES:

**AESTHETIC, RECREATIONAL, ECONOMIC, AND ENVIRONMENTAL.** Programs and policies are in place and sufficiently funded to promote a continual flow of public benefits including clean air and water, productive habitat, wood products, and other essential public benefits derived from privately owned forests. Connecticut landowners understand the impacts of forest fragmentation and land parcelization, and actively participate in programs that curtail development of existing forestlands.

Private landowners control 85% of Connecticut's forestlands. In addition to individual private landowners, the following landowner groups are also included within this section: land trusts, sportsmen's clubs, large organizational landowners, environmental groups owning land, and water companies.

## ISSUES

### *Impediments to Private Forest Stewardship*

#### ***State's role***

- Lack of sufficient forestry services available to assist the public in forest management advice
- Competition is perceived to exist between private consulting foresters, DEP service foresters, and extension educators because of overlap of responsibilities

#### ***Education***

- Not all private landowners understand the importance of their forestlands to the quality of life in Connecticut
- Lack of understanding by private landowners of forest management techniques and effects of fragmentation

#### ***Incentives***

- Positive incentives are needed to outweigh disincentives for retaining and managing private forestlands, thus minimizing fragmentation

## **ACTION STEPS**

### ***State's role***

1. Clarify the role of the DEP service forester and the extension educator in promoting sound forestry to private landowners
  - a. Help private landowners understand the costs and benefits of management
  - b. Advise private landowners to speak to private forestry consultants for specific management plans and advice
  - c. Provide more technical advice and assistance to municipalities
  - d. Establish better working relationships between DEP foresters, extension educators, and private forestry consultants
  
2. After clarification of the role of DEP service foresters and extension educators, determine whether additional DEP service foresters or extension educators are needed to fulfill established roles, and determine best means of acquiring them.
  - a. If needed, inform legislators, DEP staff, and UCONN Extension of needs of private landowners for additional forestry services
  - b. Create dedicated fund to support forest stewardship objectives
  
3. Utilize other public/private partnerships to achieve management goals

(Implementation: AC, CAES, CFI, CFSC, DOF, FW, UNCONNCGES, YU)

### ***Education***

1. Expand on promotion of open space protection and sustained forest stewardship
  - a. Promote estate planning
  - b. Start conservation planning for children who have no interest in forest management
  - c. Teach economic incentives of ownership and management to landowners
  - d. Develop programs to educate private landowners about the value of their land as open space
  - e. Implement conservation easements that contain provisions for sustained forest management (May look at Land Trust Alliance for examples of proper language for easements)

2. Increase communication between stakeholders in the interest of better private forest stewardship

(Implementation: AC, AMC, CAES, CFB, CFPA, CFSC, CHC, DOF, DOFI, NWSC, TOC, UCONNCS, YU)

### ***Incentives***

1. Reestablish the balance of incentives versus disincentives to manage private forestlands (See Research 2b.)
  - a. Do a systematic study of cost of forestland ownership in Connecticut for various sized parcels of land (include aesthetics, open space, recreation, forest management)
  - b. Research why more landowners do not manage their forestland
    - i. What are the disincentives
    - ii. What does it take to overcome them
  - c. Analyze different tax incentives to see what works best in today's society for long term sustainable management (whether it be for a forest preserve or for timber management)
    - i. Public Act 490 (section 12-107)
    - ii. 1913 Tax Law/10 Mill (section 12-96 through 12-103)
    - iii. Investigate models from other states to see if there are other appropriate tax incentive programs
  - d. Lobby for reduced inheritance tax on forests and open space

(Implementation: AC, AWC, CAES, CFSC, CTF, CWC, TNC, UCONNCS, YU)



# Recreation

## Vision

**CONNECTICUT'S FORESTS PROVIDE RECREATIONAL ACTIVITIES FOR BOTH RESIDENTS AND VISITORS.** Examples include hiking, fishing, hunting, camping, horseback riding, and mountain biking. More passive opportunities exist in the ability to enjoy the scenery, and observe wildlife. These opportunities allow individuals to experience the forests in a personal way. Opportunities also exist for public recreation on private property, allowing quality outdoor recreation to be available to everyone close to home. These factors foster a conservation ethic among Connecticut residents from all walks of life.

### **ISSUES**

#### **Impediments to Positive Recreational Experiences in the Forestlands of Connecticut**

##### ***Access on state lands***

- When appropriate, public lands should be multiple use for all user groups
- Not enough parking (including maintenance of areas, winter access, room for horse trailers)
- Difficult emergency medical access
- Desire from all terrain vehicle (ATV) user groups for access where appropriate (no legal place to ride in Connecticut)
- Official trail rerouting process on state lands is a slow and tedious process
- Increasing competition for use of trails by different user groups

##### ***Access on private lands***

- Public access to private lands is diminishing
- Recreational access problems with people who don't respect private boundaries
- Desire from ATV user groups for access where appropriate (no legal place to ride in Connecticut)
- Liability issues for private landowners who may be otherwise willing to let public access their property

##### ***Liability***

- Municipalities, land trusts, private landowners, and user groups are having difficulty obtaining or maintaining liability insurance coverage



### ***User fees***

- Registration/permit fees do not go directly to help associated management programs

### ***Club recognition***

- Recreational club members invest a lot in public and private lands (time, money, equipment, and labor), but feel they do not receive adequate benefits or recognition that they are making a positive contribution

## **ACTION STEPS**

### ***Access on state lands***

1. Expand parking areas in state forests and wildlife management areas
  - a. Include linear parking spaces for horse trailers
  - b. Increase wintertime maintenance
2. Use gates to block roadways and trails instead of permanent structures to improve emergency access
3. Expand access or open old existing access roads for recreational use
4. Expedite procedure through DEP for rerouting trails
5. Investigate options to facilitate purchase of new land or use of existing land for ATV use, where appropriate
6. Increase input and oversight by user groups for allocation of recreational funds (ISTEA) and fees that occur on public lands
7. Repeal clause against motorized vehicles in the small states exclusion of ISTEA.
8. Evaluate impacts and effects of implementing any of the above mentioned steps on forest ecosystem health
9. Coordinate through a comprehensive management planning process

(Implementation: CCC, CFB, CHC, CRMC, CTNEMBA, DOF, DOFI, DOSP, DOW, EGIC, NEOC, NETRA, NTSC, TNC)

### ***Access on private lands and liability***

1. Create a statewide clearinghouse for group liability insurance policies
2. Use recreational opportunities on private land to reestablish the balance of incentives versus disincentives to manage private forestlands





3. Assist landowners with implementation of formal agreements for public recreational access on their lands
  - a. Increase economic incentives
  - b. Provide protection from liability issues
  - c. Promote easements for public access
4. Investigate options to facilitate private sector dedication of lands for ATV use, where appropriate

(Implementation: CFPA, CHC, CTNEMBA, CWC, DOW, NEOC, NETRA, NWC, TNC)

#### ***User fees***

1. Earmark user fees at state facilities to a dedicated fund to assist in providing recreational opportunities and facilities

(Implementation: DEP, DOF, DOFI, DOSP, DOW)

#### ***Club recognition***

1. Implement an annual "State Forest Day" where user groups are given a chance to give back to the forests that they use, while networking with other user groups
2. Increase goodwill/public relations on the part of the State by acknowledging forest stewardship work that user groups perform
  - a. Greater use of Green Circle Awards
  - b. Increase grants to assist clubs
  - c. Acknowledge background people with stewardship awards
3. Document work done on state forestlands by user groups
4. Work more closely with user groups to utilize their resources to achieve management goals and educational outreach
  - a. Trail development and maintenance
  - b. Equipment purchases
  - c. Cartography (map making)
  - d. Education
  - e. Forest inventory and monitoring

(Implementation: CCC, CHC, CTNEMBA, DOF, DOFI, DOSP, DOW, NEOC)



# Sustainable Forest Based Economy

## Vision

**CONNECTICUT'S FORESTS ARE ABLE TO PROVIDE QUALITY FOREST PRODUCTS FROM SUSTAINABLE AND DIVERSE FOREST RESOURCES.** Connecticut's forests will contribute to our nation's supply of forest products, while locally ensuring employment for those involved with these activities. Proper management and use of forest resources locally will reduce worldwide pressures in more sensitive and less sustainable habitats. Sustainable forest based economy allows the landowner to offset the cost of owning land, while also providing other benefits including protection of land from development and as a means of increasing diversity within forests. Recreation and tourism suppliers will benefit from well-planned forest management.

## ISSUES

### **Impediments to a Sustainable Forest Based Economy**

#### ***Fragmentation/Parcelization***

- Economy of scale issue (smaller parcels of land mean smaller woodlots, which cost the same to harvest as large lots)

#### ***Sustainability of Connecticut's forests***

- Connecticut's forests are predominantly the same age (not economically sustainable over years)
- Limited markets for low grade material
- Gradual loss of most economic species, with no future age classes taking over
- Negative public opinion of harvesting limits types of harvesting activities performed

#### ***Long term trend of current values (Public lack of understanding of forest management)***

- Information reaching the public concerning management and harvesting activities is confusing, which is affecting the degree of trust between landowners and industry
- Young people are not entering the logging or forestry business
- Inconsistent application of town controlled regulations between towns
- Training for town officials regarding practices is not adequate

- Inability of towns, foresters, and loggers to communicate and understand each other's responsibilities

### ***State lands***

- Number of state lands forest product sales has decreased
- Base land management on state lands will likely decrease due to budget and staff constraints

### **ACTION STEPS**

#### ***Fragmentation/Parcelization***

1. Work with land trusts, TNC, other non-profit organizations, and lawyers to get proper language in easements so that land remains available for sustained forestry management activities
2. Work with legislative lobbying organizations to put political programs in place to halt forest fragmentation
3. Work towards legislation to enact appropriate changes to increase funding for open space acquisitions to maintain forest integrity

(Implementation: CAES, DOF, NWSC, RGS, TNC, TOC, UCONNCS, YU)

#### ***Sustainability of Connecticut's forests***

1. Monitor forest ecosystem health using measurable goals listed in forest ecosystem health action steps
2. Make disease resistant chestnut and other tree species of concern widely available for reforestation efforts
3. Educate landowners, foresters, and loggers about the detriments of regressive harvesting techniques

(Implementation: CHC, DOF, NWSC, TNC, UCONNCS, YU)

#### ***Long term trend of current values***

1. Expand and distribute the Connecticut Resource Conservation and Development Program's "A Practical Guide for Protecting Water Quality While Harvesting Forest Products" to include additional Best Management Practices.

2. Create uniformity in existing Forest Practices Act regulations for eventual enforcement
3. Re-evaluate tax incentives for landowners for keeping land forested (ties into Incentives action under Private Forest Stewardship)
4. Create innovative ways to maintain large forest blocks (both landowner and habitat based) (Ties into Planning and Policy action steps)
5. Administer forest practitioner certification exams more frequently to assist people entering the business

(Implementation: AMC, CAES, CFP, CWC, DOF, NWSC, UCONNCS)

### ***State lands***

1. Increase timber sales on state forestlands
  - a. Use as a model of good management practices
  - b. Keep local economy going
  - c. Encourage use of low grade material
  - d. Partner with consulting foresters to implement certified management activities on state land
  - e. Where appropriate, use forest management practices to increase diversity of habitats for wildlife

(Implementation: CAES, DOF, DOW, NWSC, RGS, UCONNCS)



# Education and Outreach

## Vision

**OPPORTUNITIES EXIST FOR ALL SECTORS OF CONNECTICUT'S POPULATION TO UNDERSTAND CONNECTICUT'S NATURAL RESOURCES.** Education in both schools and public settings promotes awareness and appreciation of Connecticut's working forests. This includes the historical aspects, role of management and harvesting activities, biological diversity, and recreational values of forests. Private forest landowners, who control 85% of Connecticut's forests and the public benefits those forests provide, have adequate access to advice and technical assistance on both forest stewardship and family estate planning.

For the purposes of this plan it is understood that improving forest health is the overarching issue dictating all other areas. Maintaining large unfragmented forest blocks is critical to all of the other goals of this plan, such as sustaining a forest based economy, maintaining wildlife diversity, promoting forest based recreation, and providing clean drinking water. Ideally stated, healthy forests provide a stable ecosystem in which other activities may take place with predictable results. In this context, the purpose of associated education is to either 1) change peoples' attitudes regarding forest ecosystem health, or 2) change peoples' actions to improve overall future forest ecosystem health. In addition to education issues listed in other sections of this plan, the following issues were identified.

## **ISSUES**

### **Impediments to Successful Education and Outreach Programs**

- Education material regarding Connecticut's forestlands is not standardized or readily available
- Limited monitoring of educational programs exist to validate performance
- Teachers and funding sources have become more limited for educational outreach



- Teachers can not introduce new material into classrooms to educate about forestry unless it falls under pre-approved criteria

## **ACTION STEPS**

1. Create basic uniform messages to disseminate to all audiences. Make it easily applicable to all audiences.
  - a. General value of forest (and the relation to quality of life in Connecticut)
  - b. Active forest management (definitions and benefits of)
  - c. Definition of a healthy forest (as listed under Forest Ecosystem Health section of this plan)
  - d. Respect for all forestlands (both public and private)
  - e. Threats to Connecticut's forestlands, and what individuals can do to help protect Connecticut's forestlands
2. Monitor educational programs-Identify which educational programs are working and which programs have not succeeded. Determine what went wrong and how it can be fixed. Solicit teacher input.
3. Pursue alternate sources of funding for educational purposes
4. Facilitate user group meetings to disseminate information and make it readily available
5. Expand and distribute the Connecticut Resource Conservation and Development Program's "A Practical Guide for Protecting Water Quality While Harvesting Forest Products" to include additional Best Management Practices (as listed under Planning and Policy action step)
6. Compile a public, accessible, and comprehensive natural resources map database both at state and regional levels utilizing user group and DEP maps
7. Set up a well organized and maintained information/education website with a comprehensive inventory of resources
8. Implement a "Call Before You Harvest" phone number that landowners can easily use to verify information and have questions answered when considering harvesting activities on their land

## **Audiences**

1. Private landowners (who can manage their land-both hands on and off)
  - a. Short and long term management (including estate planning)
  - b. Alternative forest products to help offset cost of owning forests



- c. Tax incentives, economic benefits of ownership
- d. Effects of fragmentation and parcelization
- e. Ways to minimize liability for access to private lands
- 2. Municipal officials and volunteers
  - a. Policy (growth plans, open space subdivisions)
  - b. Train to interact with loggers/timber harvesters/foresters
  - c. Urban forestry issues (funding, planning and implementation)
  - d. Economic worth of open space (preservation versus development)
  - e. Teach sustainable forest based economy, and how to manage town lands
  - f. Educate town officials on landscape-scale issues that may not be readily apparent by only looking within town boundaries
  - g. Assist with development of municipal, local, and regional programs to conserve forest lands
- 3. Forest practitioners
  - a. Increase offerings of Continuing Education Units (CEU's) inexpensively and locally
  - b. Educate on the negative impacts of regressive harvesting techniques
- 4. Policy makers (government officials both at state and municipal levels)
- 5. Children
  - a. Expand Project Learning Tree for K-12 (made for integration into classroom)
  - b. Expand scope and reach of Envirothon
  - c. State Department of Education-work on changing curriculum
  - d. Future Forest Practitioners-increase technical/vo-ag programs
  - e. Use clubs (K.O.R.P.-kids off road programs or NETRA Youth programs)
- 6. Land trusts
  - a. Help educate about management possibilities
  - b. Benefits of easements
- 7. Media
- 8. Recreational user groups
- 9. General public (primarily non-users and non-landowners who demand benefits)
  - a. Help them understand the issues

(Implementation: AC, CAES, CFB, CFPA, CHC, DOF, LLT, MDC, NEOC, NWSC, RGS, TOC, TNC, UCONNCS, USFS, YU)



# Planning and Policy

## Vision

COOPERATION AMONG DIFFERENT SECTORS INCLUDING THE GOVERNMENT, FOREST USERS, AND FOREST LANDOWNERS RESULTS IN PARTICIPATION BY ALL OF SOCIETY IN DEVELOPING AND IMPLEMENTING PUBLIC POLICY. Long term comprehensive planning for state owned land occurs in collaboration with Connecticut's citizens and local government. Connecticut municipalities have the knowledge and resources to build forest sustainability into their community growth plans and patterns. Regional plans of conservation and development build on these local plans, and in turn become the foundations of the State plan of conservation and development.

### **ISSUES**

#### **Impediments to Effective Planning and Policy**

##### ***Land management practices***

- Forest Practices Act authorized regulations are not in place
- No comprehensive land use plans comparable to other states (disconnect between state, regional, local plans including planning and zoning and building regulations)
- Questionable use of open space lands designation within towns
- Town land use regulations are often misguided or not followed
- Ecosystem and habitat issues cross town boundaries because they share some of the same resources (e.g. riverways, unfragmented habitat blocks)

##### ***Open space protection***

- Lack of financial resources readily available for agencies or organizations who want to purchase land for protection
- Lack of proactive, planned and coordinated approach to forestland protection by DEP

##### ***Dissemination of information***

- Lack of coordination across public and private groups for education purposes and for commonality (overlapping, fragmented)

##### ***Implementation of Forest Resource Plan***

- Concern over whether this plan will ever be implemented



## **ACTION STEPS**

### ***Land management practices***

1. Determine forest integrity (decide what is wanted)
  - a. Determine size and continuity of forest (what is desirable)
    - i. Identify ecological attributes of different regions in Connecticut to determine workable forest blocks (allows you to better focus on issues)
  - b. Determine desired composition (condition and forest health) (garden or not?)
  - c. What is the desired landscape context (islands of individual forests or connectivity)
  - d. What are the threats to the forests?
  - e. How to address threats
2. Implement evaluation of the current status of forests
  - a. Identify and delineate habitat age classes and types
  - b. Create management plans on a regional basis, complete with maps
  - c. Create site specific conservation and management plans
  - d. Identify which habitats are lacking
  - e. Identify contiguous public and private forestlands (where they abut)
  - f. Take existing plans and layer them (FIA, TNC Matrix)
  - g. Set goals of sustainable yield
3. Greater utilization of a "Landscape Approach" to identify key parcels for acquisition.  
Use existing objective and qualified data to facilitate process:
  - a. Forest Legacy Program "Assessment of Need"
  - b. The Nature Conservancy's Matrix Forests data
  - c. Connecticut Resource Protection Project Maps
  - d. DEP information (including ECO)
  - e. Audubon Connecticut Important Bird Area (IBA) Program
  - f. DEP Environmental GIS Data for Connecticut (Seven CD map set)
4. Expand on the Connecticut Resource Conservation and Development Program's "A Practical Guide for Protecting Water Quality While Harvesting Forest Products" to include additional Best Management Practices
5. Fully utilize Forest Practices Act
6. Propose a bill that would lead local planning and zoning regulations
  - a. Encourage conservation subdivisions
  - b. Town moratoriums on development can be dovetailed by the State DEP
7. Evaluate and record specific goals and strategies for controlling invasive species on public and private forestlands
8. Expansion of Natural Area Preserve Lands
9. Incorporate maintenance of forest block integrity into state and local plans of conservation and development.

(Implementation: AC, CAES, CFB, CWC, DOF, DOFI, DOW, MDC, RGS, TNC, UCONNCS, USFS, YU)



## ***Open space protection***

1. Revise DEP's plan for land acquisition-Recreation and Natural Heritage Trust Program (make it more streamlined and proactive).
2. Make funding more readily available for land acquisitions-go after development rights
3. Explore avenues of incentives
  - a. Real estate conveyance tax
  - b. Increase open space incentives
  - c. Upper Housatonic Valley Natural Heritage Area Act of 2003 (H.R. 1798)
  - d. Municipalities encouraging conservation subdivisions
  - e. Improve open space grant process
  - f. Fully utilize and support federal resources for land acquisitions
  - g. State bonds

(Implementation: AC, CFP, DOF, DOFI, TNC, TOC)

## ***Dissemination of information***

1. Create a "Circuit Rider" networking organization to work with town commissions, land trusts, conservation commissions, recreationalists and private consulting foresters.
  - a. Facilitate education and land acquisitions
  - b. Distribute information between towns (especially key parcels)
  - c. Expand on existing sources of information (newspapers)
  - d. Generate funding other than state funding
  - e. Coordinate volunteers/equipment/in-kind services
  - f. Utilize Internet to disseminate information

(Implementation: CAES, DOF, NWSC, RGS, TNC, UCONNCS)

## ***Implementation of this plan***

1. Implement advisory committee of people (Connecticut Forestlands Committee) who have genuine interest and influence to address forestry issues and to make sure Forest Resource Plan is implemented
  - a. Semi-annual review of plan
  - b. Five year midpoint review of plan
  - c. 10 year retrofit of plan
  - d. Funding requests made for 4<sup>th</sup> and 9<sup>th</sup> years of plan
2. Implement task force sub committees to address different action steps of the plan

(Implementation: AC, DOF, RGS, TNC, UCONNCS)



# Research

## Vision

CONTINUATION OF ONGOING RESEARCH, ALONG WITH IMPLEMENTATION OF NEW RESEARCH BY BOTH PUBLIC AND PRIVATE ENTITIES PROVIDES A BETTER UNDERSTANDING OF CONNECTICUT'S FORESTS, AND OUR RELATIONSHIP WITH THEM. Findings of such research are disseminated to the general public and interested parties in a way that the public can understand and use.

### **ISSUES**

#### ***Impediments to Comprehensive Forest Research***

- Not enough well planned targeted research and monitoring of biological issues associated with forest ecosystem health
- Lack of well planned targeted social research associated with forest ecosystem health to determine how social behavior impacts land management actions
- Need for effective dissemination/extension of research information

### **ACTION STEPS**

1. Continue ongoing research programs at the state level on forest health and management, critical habitat, wildlife issues, and recreation including:
  - a. Beech bark disease
  - b. Chestnut blight/reintroduction of chestnut
  - c. Hemlock wooly adelgid
  - d. Oak regeneration
  - e. Continuous Forest Inventory Plots (CFI)
2. Develop new applied research programs on the following topics:
  - a. Liability issues for municipalities, land trusts, private landowners, and user groups
  - b. Comparative analysis of economic incentives for landowners for land retention and management opportunities (see Private Forest Stewardship Incentives 1a and 1b)
  - c. Research models of recreational uses (Especially for appropriate and ecologically sustainable ATV uses)

- d. Uses for low-grade woody material
  - e. Increase social research on various audiences to determine attitudes about forestry and forestlands of Connecticut to implement successful communication channels with them for educational purposes
  - f. Atmospheric deposition of pollutants and climate change on forest health in Connecticut
  - g. Research why more landowners do not manage their forestlands
    - i. What are the disincentives
    - ii. What does it take to overcome them
  - h. Analyze different tax incentives to see what works best in today's society for long term sustainable management (whether it be for a forest preserve or for timber management)
    - i. Public Act 490 (section 12-107)
    - ii. 1913 Tax Law/10 Mill (section 12-96 through 12-103)
    - iii. investigate models from other states to see if there are other appropriate tax incentive programs
3. Develop partnerships with universities and private forestry associations to promote research on key issues
  4. Monitor research programs to make sure that they are achieving goals
  5. Gather existing information (assemble both published information, and gray literature) to make available in one location and in a useable, easy to understand format
  6. Disseminate new and ongoing research results to various audiences (determine whom it is useful to)

(Implementation: AC, CAES, CFPA, CHC, DOF, EGIC, MDC, TNC, UCONNCS, USFS, YU)

# The History of Connecticut's Forestlands<sup>3</sup>

FORESTS PROVIDE WOOD AND OTHER FOREST PRODUCTS, WATERSHED PROTECTION, WILDLIFE HABITAT, DIVERSITY, A SETTING FOR RECREATION, AND MUCH MORE. They play a major role in both the history and culture of Connecticut. The state is one of the most densely populated in the nation, yet its forests remain as much a part of the landscape as its cities and towns. As the function of the forests become more understood, their importance to the well being of Connecticut's inhabitants will increase.

Early settlers found nearly all of Connecticut covered by forests – in open, park-like conditions. For more than a thousand years before European settlement, the Native Americans of the region burned the forest in spring and fall to eliminate tangled underbrush. The forests that resulted provided a more suitable habitat for the game species on which they subsisted. Native populations were small, and had little impact on the forest ecosystems in which they lived. Once Europeans arrived, however, the landscape changed dramatically.

Clearing land for agriculture began slowly, as colonists built small subsistence farms. But, by the early 1800's, the establishment of farms spread rapidly as Connecticut's farmers began to supply food and wool to a rapidly growing nation. Extensive forestlands were cleared, towns were built, and wood was harvested for homes and barns, furniture and fuel. Thousands of small farms formed the basis for a strong, agriculturally based economy.

By 1820, only 25 percent of Connecticut remained forested. Substantial environmental changes to the forest followed, as black bear, elk, mountain lion, white-tailed deer, quail, grouse, and timber wolves disappeared from much of state. Both the loss of habitat and extensive harvesting of certain wildlife species – such as beaver and wild turkey – contributed to alter Connecticut's previously extensive woodlands.

Once thought to be unlimited, forests disappeared, and the state faced declining wildlife populations and timber shortages. Soil erosion from farms increased, and silt muddied the water in creeks that once ran clear. Because of the rapid



<sup>3</sup>The majority of this section was taken verbatim, with permission from Donald Smith, State Forester for CT DEP, from the publication "The Forests of Connecticut." Other contributions were taken verbatim from "Connecticut's Changing Forests" by Jeffrey S. Ward and J.P. Barsky, "Connecticut's Forests", by J.P. Barsky, and individual work done by David Irvin.



runoff of storm water, springs that previously flowed all year began to dry during the summer.

In spite of these negative environmental impacts, farming continued to flourish. In the end, it would largely be economic rather than environmental reasons that would alter the landscape once again. In 1830, the Erie Canal opened and Connecticut's agricultural zenith passed. Within two decades, the small stony farms of Connecticut were unable to compete with the larger, more mechanized farms of western New York and the Ohio River Valley.

Much of the farmland became exhausted and unsuitable for continuous agricultural crops, and was soon abandoned. Farmers left marginal hillside farms to take jobs created in the cities by the industrial revolution. Finally, the opening of the West after the Civil War, and the added incentive of free land, hastened the pace of farm abandonment across New England. Before long, land went out of farming and forests began to return to much of Connecticut.

Without human interference, the vegetation of abandoned fields underwent a series of changes. Plants with seeds distributed by wind or birds were the first to germinate. These included many of the more common wildflowers – golden rod, New England aster, Queen Anne's lace, Joe-Pye weed, butterfly weed, and blackberries, for example. Trees more suited to open, grassy patches followed, primarily white pine at first. Other species also established themselves on recently abandoned cropland, such as birch and red maple, the latter particularly in bottomlands. Then, as the pines grew and formed a protective canopy, the more climax deciduous types of oak, sugar maple, and hickory became established in the understory.

During the early 1900's, the mature pine stands became the raw materials that began to feed a wood-hungry nation and world. Containers, shipping crates, boxes, pails and barrels were manufactured from the raw wood material supplied by Connecticut's "Second Forest." These were used primarily to ship fish products inland and overseas, an avenue of trade enhanced by the opening of the Panama Canal.

Up until about 1920, the harvesting of pine flourished. After this, much of the pine had been cut and the industry declined. But in the process, the understory of hardwoods had been released, contributing to today's modern deciduous forest.

The late Nineteenth and early Twentieth Centuries also provided many other landscape-altering disturbances that had a major influence on modern forest composition. From the late 1800s to about 1920, entire hillsides were repeatedly clearcut to produce charcoal for the brick, brass, and iron industries. Stands were typically cut every 20-40 years when the trees were still small enough to be handled manually. Charcoal production fell dramatically with the advent of cheap coal and petroleum. Most of the forest in parts of Connecticut today had its origin in the charcoal production era and consists of even-aged stands approximately 100 years of age.

During the early 1900s, immense fires covering thousands of acres regularly roared over the countryside. Some of these fires were accidental, caused by sparks from railroads and industry. Others were deliberately set to clear underbrush in the forest and provide better pasture for livestock. Records from the early 1900s indicate 15,000 to over 100,000 acres (in 1915) of forest fires could occur



annually in Connecticut. This destruction of resources spurred the legislature to create the position of State Forest Fire Warden in 1905 to coordinate control of fighting forest fires. Through the efforts of state and local fire fighters, the annual amount of forest damaged by wildfires was dramatically cut.

Major impacts during this period were not limited to cutting and burning. Prior to importation of the chestnut blight fungus, upwards of 25% of our forest was comprised of American chestnut trees. This extensive component of the forest vanished within just a few years. Disturbances to the forest floor and canopy from a combination of charcoal cuts, fires, and chestnut blight are largely responsible for the dominance of oak species in Connecticut forests during the rest of the Twentieth Century.

Insects and disease have also affected other species in the past century. Dutch elm disease has largely removed American and slippery elm from Connecticut streets and woods. Butternut has mostly disappeared as a result of a canker disease, red pine by insect attack, and now eastern hemlock is threatened by two exotic insect species. In the latter half of the Twentieth Century, gypsy moth outbreaks defoliated large areas of the state.

Historical records suggest that severe hurricanes strike Connecticut every 100-150 years. It was estimated that the 1938 hurricane destroyed over 100,000 public shade trees, every mature white pine stand east of the Connecticut River, and almost one-fifth of the timber in the state. Nearly 55,000 acres of forest were flattened and salt damage was observed 45 miles inland. Other weather events that have caused widespread forest destruction include ice storms, microbursts, and tornadoes such as the one that destroyed Cathedral

Pines in 1988.

Amidst a period of destructive influences on the forest, the turn of the Twentieth Century also marked the beginning of the conservation era in Connecticut. The very early Twentieth Century saw the creation of a state forestry agency, the first state forests, and the first real movements to protect and conserve natural resources. Enjoyment of the forest for active and passive recreation became a part of the state and national culture. In the 1930s, President Roosevelt created the Civilian Conservation Corps (CCC), which recruited thousands of young men to plant trees, suppress forest fires, and build a forest infrastructure legacy through our forests that includes many of the same state forest roads used in Connecticut today.

Despite the apparent dramatic changes the Connecticut landscape has undergone since European settlement, including repeated harvesting, large-scale land clearing, wildfire, hurricane, and introduced pests, the forest has shown its resiliency. Human attitudes toward the forest have also not been static. The history of Connecticut forests and the forests present today are a product of constant change and disturbance, both large and small, and ever-changing uses and interests in the forest. The forest of the Twenty-First Century will continue to change, as oak forests gradually diminish in favor of a conversion to maple, birch, and beech. Also changing will be Connecticut's population and attitudes about forests, which at 60% of the state's landscape, is diminishing in favor of suburban sprawl. This century will see all new impacts and pressures on the forest, as increasing populations place greater demands on a decreasing natural resource base growing on the only variable that is truly static: The land area.



# Trends in Connecticut's Forests: *A Half-Century of Change*<sup>4</sup>

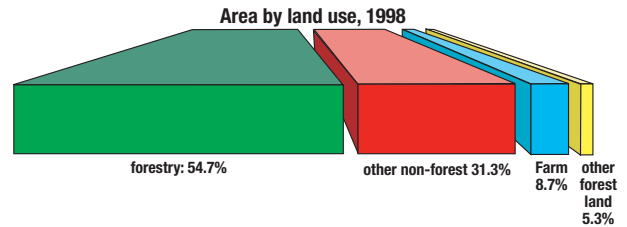
## CONNECTICUT'S FORESTS

Forests provide wood and other products, watershed protection, wildlife habitat, biodiversity, a setting for recreation, and much more. Highlighted here are significant trends in Connecticut's forests over the last half-century. Data are summarized from forest inventories conducted by the USDA Forest Service, which periodically inventories the Nation's forest resources. In cooperation with the Connecticut Department of Environmental Protection Division of Forestry, the Forest Service completed the fourth statewide inventory of Connecticut's forests, in 1998.

## THE EXTENT OF CONNECTICUT'S REGROWN FOREST

Forests are the predominant type of natural vegetation in Connecticut, covering 1.9 million acres or 60 percent of the State. Connecticut was not always this heavily forested. Early settlers here cleared nearly three-fourths of the original forest for agriculture. Acreage farmed peaked around the middle of the 19<sup>th</sup> century, and then began a long decline that still continues. Forests have reclaimed much of the abandoned farmland through natural regeneration. The upward trend in forest area peaked during the 1950s. Since 1972, the amount of new forest land coming from abandoned farms has roughly equaled losses of forest land to

development, with the total amount of forest land remaining stable. It is unlikely this trend will continue because there are no longer large amounts of marginal farm land to revert to forest, and development pressures are increasing on both farm and forest land.



*In view of its long history and advanced state of economic development, the amount of forest in Connecticut is remarkable. Litchfield County is the most heavily forested (75 percent) and Fairfield County the least (37 percent).*

Forest land is categorized by the USDA Forest Service as either timberland or noncommercial forest land. Categorizing forest land is helpful in understanding resource availability and planning forest management. Timberland is capable of growing timber crops and is potentially available for harvesting. Ninety-seven percent of Connecticut's forest land (1.7 million acres) is classified as timberland. Noncommercial forest land includes reserved forest lands, unproductive forests, and urban forests. Harvesting for timber products on these lands is administratively restricted or economically

<sup>4</sup>This section of the plan was taken verbatim, with permission from Donald Smith, State Forester for Connecticut, from the publication "Trends in Connecticut's Forest: A Half-Century of Change"



impractical. Examples include parks, wildlife preserves, and mountaintops and wet lands with poor growing conditions. Noncommercial forest land has increased steadily from 17,000 acres in 1953 to 163,200 acres in 1998. Nearly all of this increase is due to the reclassification of timberland into the noncommercial category. Most noncommercial forest land is in public ownership.

#### Trends in Forest-Land Area

Inventory Date	Thousands of Acres at Each Inventory			
	1953	1972	1985	1998
Timberland	1,973.0	1,805.6	1,784.5	1,696.1
Noncommercial Forest Land	17.0	55.2	65.7	163.2
Total Forest Land	1,999.0	1,860.8	1,850.3	1,859.3
Percent Forested	63.5%	59.7%	59.7%	60.0
Estimated Total Land Area	3,135.0	3,116.8	3,101.0	3,101.0

Estimates of the total land area have changed because of new measurement techniques and refinements in the classification of small bodies of water.

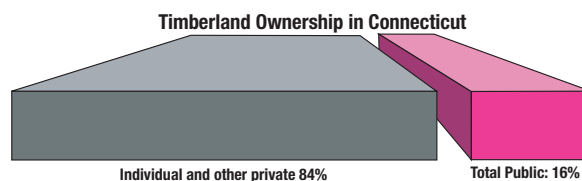
## PEOPLE AND FORESTS

*The size of the population and how people live on the land are significant forces in shaping the forest. The population grew by 51 percent to 3.3 million people between 1953 and 1998, making Connecticut the fourth most densely populated state. Yet it ranks 13<sup>th</sup> in percentage of forest cover. Few places on earth have as many people living among so much forest.*

Most of Connecticut's forest land is owned by an estimated 102,000 private individuals and enterprises, which hold 84 percent of the state's timberland. State, federal, and other

public owners hold the remaining 16 percent. The numbers of acres owned strongly influence landowners' motives and management activities. Owners of large tracts of forest are more likely to manage their forests for timber products. Private and public water utilities, own some of the largest forested tracts. Although many in number, owners with small holdings account for a small portion of the timberland. Three-fourths of the private forest landowners have fewer than 10 acres and they collectively own about 9 percent of the timberland. These small tracts are primarily home sites.

The number of owners with fewer than 50 acres of timberland has increased by 68 percent since 1975. Wildlife biologists have found that breaking up large tracts of unbroken forest into many smaller forests by roads, home building and other land development has been detrimental to many species of birds and other wildlife.



Private Timberland By Size Class of Owner, 1993		
Acres Owned	Numbers of Owners	Total Acres in Class
1-9	77,200	126,700
10-49	18,400	404,600
50-99	3,200	202,300
100-499	3,000	379,300
500-999	200	126,700
1000+	<50	176,800
all size class	102,000	1,416,400

## MORE LARGE SIZE STANDS

Timberland is classified by the size of trees growing on it for both timber resource and wildlife habitat purposes. Sawtimber stands, which have the majority of their stocking in large trees suitable for sawlogs, have increased in acreage. These stands have more of the attributes that are beneficial to wildlife: an understory with herbaceous plants and shrubs that provide wildlife food and cover habitat; bole cavities for nesting; bark flaps for feeding sites; and large dead trees, both standing and on the forest floor.

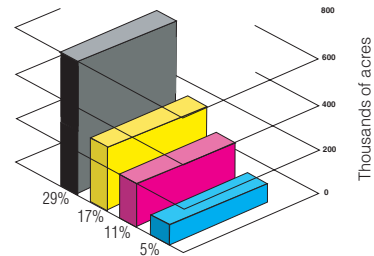
Poletimber-size stands declined in acreage. Trees in these stands are not yet mature enough to produce large amounts of nuts and seeds, and often form dense overstories that inhibit the growth of understory vegetation.

The area categorized as sapling/seedling and nonstocked stands has decreased from 29 percent of timberland in 1953 to 5 percent in 1998. Typically, early-successional pioneer tree species, along with many shrub and herbaceous plants that need full sun to grow, are found here. These stands provide unique nesting and feeding habitats for wildlife.

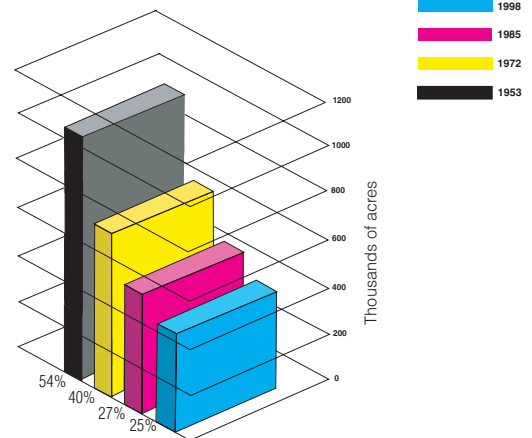
The shift to the more mature sawtimber-size class shows that forest habitats are changing. This is good news not only for the lumber industry but also for many wildlife species. However, the decline in wildlife species that need early-successional stands, such as blue birds and chestnut-sided warblers, is of concern to many wildlife biologists. Forests containing all stand-size classes provide diverse habitats for wildlife, and an even flow of forest products, and might be more resistant to insect and disease outbreaks.

## Timberland Area by Stand-Sized Class and Percent of Total By Inventory Year:

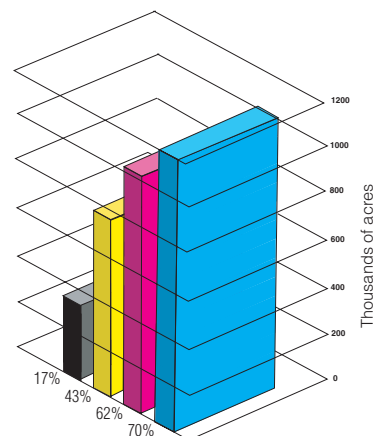
### Sapling-Seedling Nonstock Percentages



### Poletimber Percentages



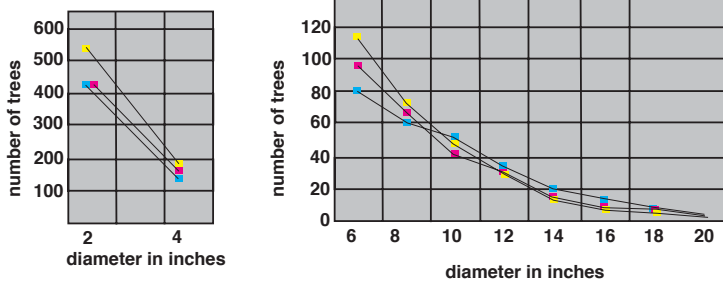
### Sawtimber Percentages



## TREES HAVE INCREASED IN SIZE AND NUMBER

How well forests are populated with trees is determined by measures of tree size and number. Foresters measure tree diameters at 4½ feet above the ground and refer to this as diameter at breast height (d.b.h.). Since 1972, the average d.b.h. of trees 5 inches in diameter or greater has increased from 8.7 to 9.8 inches. During this period, the average

### Numbers of Trees by Diameter Class



number of trees per acre, 5 inches d.b.h. or greater, has increased from 157 to 161.

Changes in the numbers of trees were not distributed evenly across diameter classes. Since 1972, most of the increase in the number of trees occurred in diameter classes above 8 inches. Numbers of trees in the 2-, 4-, 6-, and 8-inch classes have decreased.

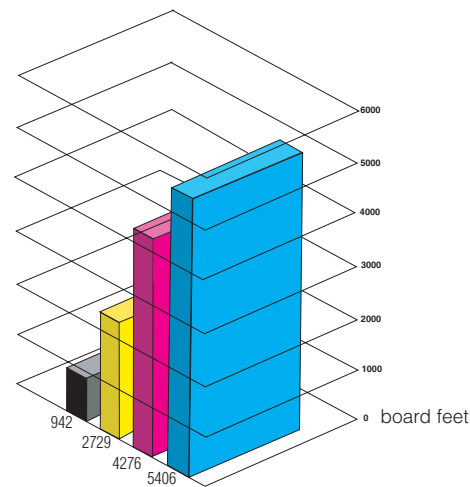
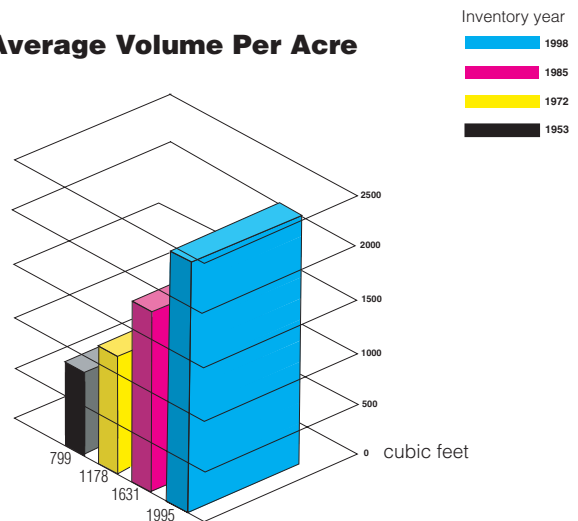
## THE VOLUME OF TREES HAS INCREASED

This increase in size and number of trees has resulted in an increase in the average volume of trees per acre of timberland. Volume per acre increased from 799 cubic feet in 1953 to 1,995 cubic feet in 1998.

### AVERAGE VOLUME PER ACRE

Despite a decrease in timberland area since 1985, the total cubic volume of trees increased by 16 percent. The portion of these trees that is large enough to produce sawlogs has increased by 20 percent to now total 9.2 billion board feet.

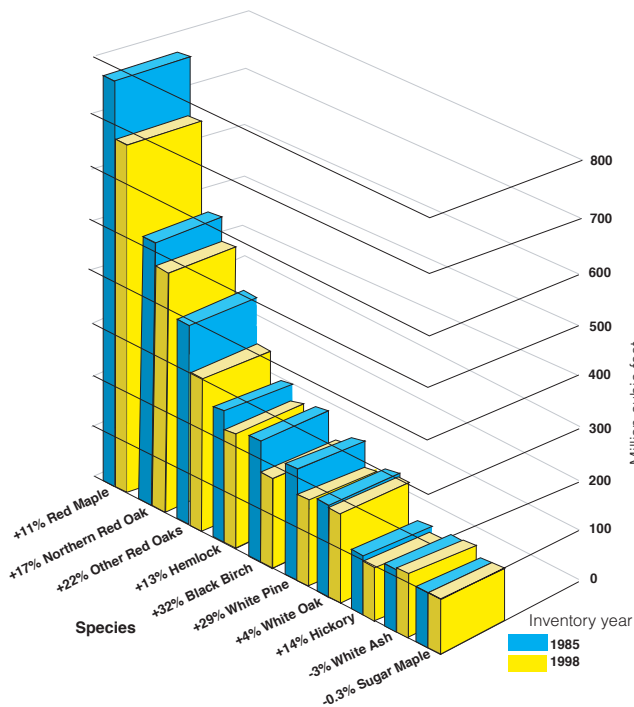
## Average Volume Per Acre



## RED MAPLE LEADS IN VOLUME

Connecticut's forests contain a diverse mix of species. The 1998 inventory identified 64 tree species, though many of these are uncommon. The 10 most common species (listed in the chart below) account for 88 percent of the cubic-foot volume. When ranked by volume, red maple is the leading species followed by northern red oak, which was the leading species in the 1953 and 1972 inventories. Ongoing high-grading of oak stands during harvesting on private land, high oak mortality following gypsy moth caterpillar outbreaks, and lack of oak regeneration are significant factors in this change.

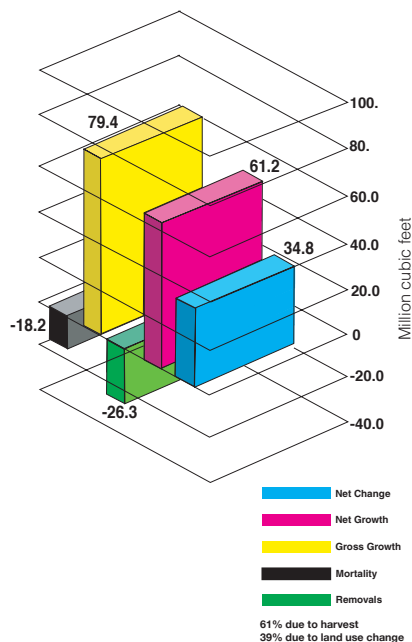
**Change in Volume of Top 10 Species**



## THE VOLUME OF GROWTH IS TWICE REMOVALS

Forests have increased in volume during the last 50-years, and also have produced timber products. The 1998 forest inventory revealed that on an annual basis since 1985, the net growth of trees averaged 55.7 million cubic feet and removals averaged 25.5 million cubic feet. The net growth of wood, which includes losses due to natural mortality, was about 2.3 times as much as was being cut or otherwise removed. Sixty-one percent of removals are attributed to harvesting, and 38 percent to the reclassification of timberland to noncommercial forest land or conversion to a nonforest use. Oak species accounted for nearly half of the volume harvested. The surplus growth over removals yields an annual net increase of 34.8 million cubic feet -- an annual increase of 1 percent. The growth of trees has exceeded harvesting since the first inventory in 1953 and today's well-stocked stands are the result of these steady gains accumulating in the forest.

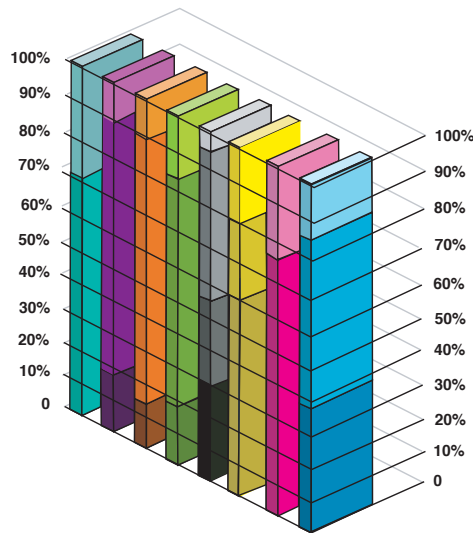
**Components of Change in Live Volume on Timberland**



## FOREST HEALTH

The USDA Forest Service Forest Health Monitoring (FHM) Program looks at a wide set of indicators that reflect forest conditions. One of these measures is crown dieback, or the percentage of branch tips that are dead. Dieback can be a sign that the tree is being attacked by an insect or disease or has other health problems. Few trees in Connecticut measured by FHM scientists had significant amounts of crown dieback. Eighty-five percent of the trees measured had little (1 to 5 percent) or no dieback; only 1 percent of the trees had dieback greater than 20 percent. Hemlock trees accounted for the heaviest dieback, most likely attributable to damage by the hemlock wooly adelgid. Differences in dieback among species may indicate differences in tree vigor, though some variations should be expected due to differences in growth characteristics. Over time, observations of dieback and other attributes will allow researchers to identify trends and better evaluate forest conditions.

### Dieback of Trees Measured in 1996-99 Important Species and All Species Combined



- All Species: 38% No dieback, 47% at 1-5% dieback, 15% at 6-20%, .6% at 20% or more dieback
- Black Birch: 66% No dieback, 34% at 1-5% dieback
- White Ash: 60% No dieback, 20% at 1-5% dieback, 20% at 6-20% dieback
- Hemlock: 29% No dieback, 26% at 1-5% dieback, 40% at 6-20% dieback, 5.7% at 20% or more dieback
- White Oak: 18% No dieback, 65% at 1-5% dieback, 18% at 6-20% dieback
- Black Oak: 14% No dieback, 75% at 1-5% dieback, 11% at 6-20% dieback
- Red Maple: 17% No dieback, 72% at 1-5% dieback, 11% at 6-20% dieback
- Northern Red Oak: 71% at 1-5% dieback, 29% at 6-20% dieback

### CONCERNS AND OBSERVATIONS

From the mid-1800s to the early 1950s, the widescale return of Connecticut's forests was remarkable. For the past 50 years, new forest land has been offset by losses to land development, with the total amount of forest land stable. Forests are maturing, as shown by increases in tree size and number and volume per acre. Most trees are in good condition according to

forest health monitoring surveys. The challenge for the future is how to sustain the delivery of goods and services people expect from Connecticut's forest resource while addressing problems associated with increasing land development; introduced pests, diseases, and invasive exotic plants; and lack of regeneration of desirable tree species due to heavy browsing by deer.



## Wildlife and Forest Health<sup>5</sup>

THE CONNECTICUT STATEWIDE FOREST RESOURCE PLAN IS ALSO IMPORTANT FOR WILDLIFE MANAGEMENT AND CONSERVATION EFFORTS. As Connecticut has become more forested, populations of species such as the wild turkey and black bear have increased significantly and are continuing to expand. Moose, an animal often associated with large forest blocks, has also begun reappearing in Connecticut's forests. Some woodland raptors such as the Cooper's hawk have steadily increased in the changing landscape. Unfortunately the same is not true for wildlife species that prefer early successional habitat.

Thicket and shrubland specialists like the yellow-breasted chat are disappearing rapidly and have become state endangered and threatened species. The loss of agricultural lands through development and changing land-use practices has caused a dramatic decline in upland sandpipers and other grassland birds.

Habitat conservation and management are key components for maintaining wildlife diversity in Connecticut. There remains much we do not know about the specific needs, requirements and threats for many wildlife species. Until baseline data can be collected on these species, addressing the habitat needs of a suite of species is the best way conservation can be accomplished. This requires a forest resource plan that is broad-based, addressing a variety of habitat types, and the ecological, cultural and social factors that shape management efforts.

A parallel Comprehensive Wildlife Conservation Strategy is being developed to help guide wildlife conservation efforts. The Connecticut Statewide Forest Resource Plan is an integral part of this effort. The dovetailing of these two efforts will provide an ideal way for Connecticut to begin to address long-term, landscape-level conservation of wildlife and their habitats.

Numerous initiatives are underway in the State of Connecticut to address the needs of wildlife, both on a state and regional basis. Some of the programs included are listed below:

**U.S. Fish & Wildlife Service Partners for Fish and Wildlife Program-** offers technical and financial assistance to private (non-federal) landowners to voluntarily restore wetlands and other fish and wildlife habitats on

<sup>5</sup>First section written by Jenny Dickson, Supervising Wildlife Biologist 2, DEP March 22, 2004.

their land. Money is given directly to the Wildlife Division through a Memorandum of Understanding to complete wetland or early successional habitat restoration projects on private land. A 50% match is required.<sup>6</sup>

**U.S. Fish & Wildlife Service Private Stewardship Grant Program-**

Provides grants and other assistance on a competitive basis to individuals and groups engaged in local, private, and voluntary conservation efforts that benefit federally listed, proposed, or candidate species, or other at-risk species.<sup>7</sup> Match requirements are 10%. Land acquisitions, including purchase of conservation easements, are NOT eligible. The DEP Wildlife Division can assist landowners in completing grant applications.

**Wildlife Habitat Management Program-** A program of the DEP Wildlife Division which provides habitat diversity for maintaining stable, healthy and diverse wildlife populations throughout Connecticut. To meet this goal, various techniques are employed which influence such habitat types as agricultural lands, grasslands, old fields, forests, and wetlands. The DEP Wildlife Division has direct management responsibility for 90 wildlife management areas, totaling 26,393 acres.<sup>8</sup>

**Recreation Management Program-** A program within the DEP Wildlife Division that administers the pheasant liberation program, administers the sporting dog field trial program, and improves hunter access to private lands through the permit-required hunting program and the cooperative wildlife management area program.<sup>9</sup>

**Deer Management Program-** A program within the DEP Wildlife Division that inventories deer populations, establishes season lengths and bag limits, determines harvest totals and impacts of harvest on the deer population. In addition, this program quantifies crop damage and vehicle collision data to assess social tolerance for deer populations, administers controlled hunts to manage deer population in areas that are not hunted during traditional seasons, and assesses deer herd health using biological data collected from harvested deer.<sup>10</sup>

**Wildlife Habitat Incentives Program (WHIP)-** The purpose of this

<sup>6</sup>Obtained from <http://partners.fws.gov/> on 1/13/04.

<sup>7</sup>Obtained from [http://endangered.fws.gov/grants/private\\_stewardship/index.html](http://endangered.fws.gov/grants/private_stewardship/index.html) on 3/30/04.

<sup>8</sup>Taken directly from the February 2000 DEP Wildlife Division brochure "Connecticut State Lands Wildlife Habitat Management Program."

<sup>9</sup>Obtained from [www.dep.state.ct.us/burnatr/prgactiv.htm](http://www.dep.state.ct.us/burnatr/prgactiv.htm) on 3/25/04.

<sup>10</sup>Obtained from [www.canr.uconn.edu/ces/forest/coverts.htm](http://www.canr.uconn.edu/ces/forest/coverts.htm) on 1/13/04.



program is to create, restore and maintain upland wildlife habitat, wetland wildlife habitat, aquatic habitat and habitats of threatened and endangered wildlife species. Priorities in Connecticut include riparian buffers, tidal and non-tidal marshes, control of non-native invasive plants and early successional stage habitats, such as grasslands and old fields.<sup>11</sup>

**Landowner Incentives Program (LIP)**- A program designed to assist States by providing grants to establish or supplement landowner incentive programs that protect and restore habitats on private lands, to benefit Federally listed, proposed or candidate species or other species determined to be at-risk, and provide technical and financial assistance to private landowners for habitat protection and restoration.<sup>12</sup>

**The Coverts Project**-A special educational program of the UCONNCS, the RGS, the DEP, and the CFPA Since 1983, The Coverts Project has been reaching out to Connecticut's individual woodland owners and teaching them how sound management practices can make wildlife healthier, more diverse, and more abundant.<sup>13</sup>

<sup>11</sup>Rothbart, Paul. "USDA Farm Bill Programs Hard at Work in CT", *Connecticut Wildlife*, March/April 2000.

<sup>12</sup>Obtained from <http://federallaid.fws.gov/lip/lip.html> on 3/30/04

<sup>13</sup>Obtained from [www.canr.uconn.edu/ces/forest/coverts.htm](http://www.canr.uconn.edu/ces/forest/coverts.htm) on 1/13/04.

<sup>14</sup>Obtained from Ann Kilpatrick, DEP Wildlife Biologist on March 30, 2004.





# Fisheries and Forest Health<sup>5</sup>

**CONNECTICUT FORESTS CONTAIN NUMEROUS PONDS, LAKES, RIVERS AND STREAMS THAT SUPPORT A VARIETY OF FISH SPECIES.** As Connecticut continues to develop, forestlands serve a vital role in the protection of fish and their habitats as these lands remain as undeveloped open space. The following narrative contains some basic information about the relationships between fish resources and forest health.

## **Fish Communities and Forests**

Along a stream continuum, stream flow, hydrology, physical habitat and water quality are all factors that help determine which fish species are present in a watershed and the abundance and diversity of those species. For example, many small headwater brooks are located in forests. These brooks, small enough in width that a person can jump across, very often support only one species of fish, native brook trout. The survival of this coldwater fish species is dependent upon thick overhead forest canopies that shade the brook and prevent increases in water temperatures. As we move downstream in a watershed, fish species diversity and abundance will increase. A good example is the Salmon River that flows through the Salmon River State Forest. The Salmon River is one of the most diverse and utilized fishery resources in Connecticut containing some 18 species of freshwater, anadromous and catadromous fishes. Anadromous fish spend most of their life cycle in the ocean and enter freshwaters as adults to spawn whereas catadromous fish spend most of their life cycle in freshwater and return to saltwater to spawn as adults. In addition, the Salmon River is a valuable recreational resource being considered a major trout stream in Connecticut and the New England region.

## **Riparian Corridor Protection**

Lands adjacent to streams and rivers, often referred to as the riparian corridor, serve several vital functions in the maintenance of biologically healthy and diverse stream and riparian ecosystems. Vegetated riparian corridors: (1) naturally filter sediments, nutrients, fertilizers, and other non-point source pollutants from overland runoff, (2) maintain stream water temperatures suitable for spawning, egg and fry incubation, and rearing of resident finfish, (3) stabilize streambanks and stream channels thereby

<sup>15</sup>Written by Brian Murphy, Senior Fisheries Biologist, DEP March 18, 2004



reducing instream erosion and aquatic habitat degradation, (4) supply large woody debris to streams providing critical instream habitat features for aquatic organisms, (5) provide a substantial food source for aquatic insects, which represent a significant proportion of food for resident finfish, and (6) serve as a reservoir, storing surplus runoff for gradual release into streams during summer and early fall base flow periods.

Of the above mentioned functions, research on forestlands has shown a definitive positive relationship between trees that naturally fall into streams, called large woody debris and their value in creating and enhancing fish habitats. Accumulations of large woody debris in a stream creates gradual steps, gravel bars and pools. These are important structural elements, which both disperse stream energy and create fish habitat. Therefore, the protection of trees in riparian areas is necessary for future recruitment of wood to streams to help maintain quality fish habitat.

Because of the value of large woody debris and other important functions of riparian ecosystems, the DEP Inland Fisheries Division developed a policy that recommended that riparian corridors be protected with an undisturbed 100 ft. wide vegetated riparian buffer zone. A riparian buffer is one of the most natural mitigation measures to protect the water quality and fisheries resources of watercourses. Copies of the policy are available upon request from the DEP Inland Fisheries Division by calling 860-295-9523 (Eastern District Headquarters), 860-567-8998 (Litchfield Field Office), or 860-424-3474 (Central Office).

### **Erosion and Sedimentation Concerns**

Removing or altering vegetation, which exposes bare ground, can increase the potential for soil erosion. Runoff over bare ground carries more soil to a stream, degrading water quality by increasing sedimentation. Incidents of erosion and sedimentation are more likely to occur as forested lands are converted to other land uses and due to improper timber harvest practices such as skidding beside or within a stream channel. If sediment runoff does occur, the following damage to stream ecosystems could be expected: (1) Sediment reduces the survival of resident fish eggs and hinders the emergence of newly hatched fry. Adequate water flow, free of excess sediment particles is required for fish egg respiration



and successful hatching, (2) Sediment reduces the survival of aquatic macroinvertebrates. Since aquatic insects are important food items in fish diets, reduced insect population levels in turn will adversely affect fish growth and survival. Fish require an excessive output of energy to locate preferred prey when aquatic insect levels decrease, (3) Sediment reduces the amount of usable habitat required for spawning purposes. Excessive fines can clog and even cement gravels and other desirable substrates together. Fish may be forced to disperse to other areas not impacted by siltation, (4) Sediment reduces stream pool depth. Pools are invaluable stream components since they provide necessary cover, shelter, and resting areas for fish. Reductions of usable fish habitat can effectively limit fish population levels, (5) Turbid waters impair gill functions of fish and normal feeding activities of fish. High concentrations of sediment can cause mortality in adult fish by clogging the opercular cavity and gill filaments, (6) Sediment encourages the growth of filamentous algae and nuisance proportions of aquatic macrophytes. Eroded soils contain plant nutrients such as phosphorous and nitrogen. Once introduced into aquatic habitats, these nutrients function as fertilizers resulting in accelerated plant growth and nutrient enrichment of waters, (7) Sediment contributes to the depletion of dissolved oxygen. Microorganisms readily decompose organic matter associated with soil particles thereby effectively reducing oxygen levels.

### **SUMMARY**

*Protection of forestlands in Connecticut plays an important role in the protection of water quality and fish habitats. Forestland management must ensure that sound timber harvest management practices are followed to ensure that water quality and habitats of fish are maintained. The use of undisturbed, vegetated riparian buffers along streams in concert with the implementation of best management practices regarding erosion and sediment control will help ensure the ultimate health of fisheries resources on forestlands.*



# A Resource for Everyone:

## *Forests and the Connecticut Economy*<sup>16</sup>

**CONNECTICUT IS ONE OF THE NATION'S MOST HEAVILY FORESTED STATES.** This is a surprise to many people, in part because we are also the nation's fifth most densely populated state. Simply put, there are few places on earth where so many people live among so much forest. Despite over 380 years of settlement, the twenty-first century finds Connecticut nearly 60% forested. Today's forests remain a vital resource contributing much to our economy, our environment and the quality of our daily lives.

### **A World Class Timber Industry**

Connecticut's forests produce between 60 and 80 million board feet of timber annually, providing over \$14 million in direct income to forest landowners and raw material for some 350 Connecticut processing and manufacturing firms. These firms convert timber into a wide range of products including framing and finish lumber; custom cabinets and furniture; architectural millwork; flooring; doors; and windows. In doing so, they contribute over \$500 million dollars to our annual economy while employing some 3,600 people. And because trees are a renewable natural resource, this industry can be sustained indefinitely without altering the rural character of our countryside.

Connecticut's forests produce world-class timber products that are exported around the globe, including Canada, Europe, Japan and Malaysia. Worldwide, demand is increasing while supplies are shrinking. As a state where the annual growth of both softwood and hardwood timber exceeds the annual harvest, Connecticut's timber industry has excellent potential for growth in the years ahead.

### **The Beauty and Bounty of Wildlife**

Because forests are our natural vegetative cover, most of our native wildlife species need healthy forests to reproduce and thrive. Connecticut's resident wildlife populations include some 60 species of mammals, 135 species of birds and 82 species of freshwater fish.

Connecticut and its municipalities collect some \$4 million in fees each year from the sale of hunting and fishing licenses, permits and tags. In addition, \$3.8 million worth of meat and fur are harvested from our state's forests each

<sup>16</sup>Taken Directly from the 2001 Forestry brochure "A Resource for Everyone: Forests and the Connecticut Economy"

year. Deer hunting alone produces \$5.9 million of directly related annual economic expenditures in our state.

Tens of thousands of residents and visitors to our state also enjoy viewing and photographing wildlife. These photographers, bird watchers and wildlife enthusiasts contribute much to the state's economy, although their exact impact is yet to be fully quantified.

#### **Holiday Trees and Greens**

Pick up any Christmas card, and chances are there will be a snow-covered tree on it somewhere. Trees, forests and the holiday season have been fully intertwined since the first Christmas tree was brought in to stand by the hearth. Over 350 Connecticut growers plant, tend and harvest over 6,000 acres of Christmas trees. They sell at least 400,000 trees each winter, earning over \$10 million. In addition, 12.5 tons of mountain laurel greens are sold from our Connecticut State Forests each year, and the manufacture and sale of wreaths, laurel ropes and a variety of other holiday decorations earns growers and others considerable additional holiday income.

#### **The Sweet Sugar Maple**

Connecticut residents have enjoyed the sweet, natural flavor of pure maple syrup and candy since colonial times. Who wouldn't enjoy a good old-fashioned sugar-on-snow party on a crisp, sunny March day? The opportunity awaits us all, because Connecticut's maple industry is alive, healthy and growing.

Connecticut today has over 300 maple producers who boil the sweet sap into an average of 12,000 gallons of maple syrup per year, with a retail value of almost \$1/2 million. Best of all, the "supply and demand" picture offers great promise for the future: demand for Connecticut's maple syrup typically exceeds our production, while our forests contain tens of thousands of acres of sugar maple that go untapped every year. Anyone who's visited a sugarhouse at boiling time has fond memories of the experience, and today a growing number of Connecticut sugarhouses are open to the public. Innovative marketing strategies to promote maple products and the opportunity for a close-to-home "sugarhouse experience" can play a key role in the growth of Connecticut tourism.

## **Recreation and Tourism: Enjoyment for Residents and Dollars for Local Economies**

Connecticut's forests form the essential backdrop for our state's \$4.9 billion tourism industry. Surveys repeatedly show that the state's appeal as a tourist destination is largely attributed to its scenic qualities, of which Connecticut's forests are an integral part. Tourism annually supports an estimated 114,500 state jobs (7.7% of the state labor force), which pay over two billion dollars in wages and generate \$1/2 billion in state and local taxes.

Residents and out-of-state visitors enjoy some 8 million recreation days each year in Connecticut's 171,479 acres of state parks and state forests, generating \$2.4 million in day-use fees. Our state's public and private campgrounds attract over 900,000 visitors each year, generating \$16 million in user fees. Campground travelers (about 38% are out-of-state visitors) spend some \$296 million in our state each year.

One key component of the many recreational uses in Connecticut forests is a network of hundreds of miles of hiking trails, used by tens of thousands of visitors each year. Our state's Blue Blazed Hiking Trail System, maintained by Connecticut Forest and Park Association volunteers, has over 700 miles of trails on both public and private forestland. These forests also provide countless opportunities for cross-country skiing, snow-mobiling, mountain biking, picnicking, bird watching, horseback riding and many other activities. The demand for quality outdoor recreation experiences continues to grow, creating increasing income opportunities for private forest owners who offer these activities in their forests on a fee basis.

## **Protecting Our Water**

The people of Connecticut use more than 3 billion gallons of water each year. Over 2 million state residents obtain their water from surface reservoirs, while another one million use wells to pump ground water. Connecticut's forests play a vital role in the cleansing and protection of both these water supplies, providing what amounts to a free service that could cost untold millions to replace or rectify in their absence. In New York, for example, studies showed that spending \$1.5 billion to safeguard forested reservoirs would save \$6 to 8 billion in treatment costs for New York City's water system.

Forests have long been used as buffers around reservoirs, cleansing and regulating the flow of surface runoff and protecting the watershed from contamination. Research has shown that forests are the best possible land use for protecting ground water quality as well. As our population grows, healthy forests that help keep our water clean will become an increasingly important investment in our children's' future.

## **Keeping Warm With Wood**

Some 500,000 cords of firewood are harvested from Connecticut's forests each year, displacing 108 million gallons of fuel oil which would otherwise costs our residents over \$130 million annually (average winter 2000-2001 retail prices). Best of all, firewood is very often a byproduct of environmentally sound timber and wildlife improvement practices. Properly

done, removing fuelwood from a working forest can actually increase the value growth rate of the remaining timber and/or enhance the habitat for wildlife.

### **Witch Hazel: A Connecticut Yankee Product**

Witch hazel, a forest shrub unique to the northeastern United States, reaches its greatest concentrations in southern New England. Over 100 years ago, the Reverend E.E. Dickinson of Essex learned that it could be distilled into an astringent with numerous medicinal qualities, and a uniquely Connecticut industry was born. Today, witch hazel enjoys a global market and is sold as an astringent for home use, an ingredient in specialized over-the-counter drugs, and as a base for many cosmetics. Connecticut produces over two million gallons of processed witch hazel each year, with a wholesale value of over \$9 million, representing virtually 100 percent of the world's supply. Better yet, for the past decade demand for witch hazel has grown 10-12% annually and is projected to continue to increase at that rate in the future.

### **FORESTS for the Future**

When a Connecticut landowner grows and nurtures a seedling into a Christmas tree, or a veneer log, or a tree to be harvested for firewood, new capital is created: new wealth that did not previously exist in our economy.

Economically speaking, it's the same as pumping oil out of the ground, with one BIG difference: forests are a renewable resource. You can always grow another seedling into another veneer log, and another and another.

Connecticut's forests contribute hundreds of millions of dollars annually to our state's economy, protect our environment and keep our state a beautiful and desirable place to live. Better still, they have the potential to contribute much more. But will they? We cannot forget that almost 90% of our forests belong not to the state or federal government, but to tens of thousands of private individuals. As a result, thousands of acres of forestland are lost each year through conversion to residences and other uses. The future of what remains lies squarely in these owners' hands.

Studies show that most owners want to be good forest stewards. Many want to ensure that their land remains forest at least into the next generation. But forest management and estate planning issues are complex, and few owners have the expertise to reach these goals on their own.

If we can provide our forest owners with the education and professional advice they need, Connecticut can lead the nation in demonstrating how lots of people and lots of forests can happily co-exist, and how healthy forests contribute to a healthy economy.

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# Appendix A. Planning Process

## 1. Background

The Connecticut Statewide Forest Resource Plan is designed to serve as an overview for planning future activities within the forest community of Connecticut. The plan will identify priorities and issues regarding the state's forests, and provide the basis for putting limited available state and federal funds, as well as participating groups and individual's time, to the best and most urgent uses. It is intended to provide government, industry, and private citizens an overview of existing conditions and key issues affecting Connecticut's forests as well as to promote a model management plan for landowners to follow. The plan contains several recommended action steps to be implemented. In an effort to include as many perspectives as possible, the participatory process that was used in the creation of the plan ensured that stakeholders and professionals from a wide range of forest-related interests had direct input.

## 2. Managing the Plan's Development

The plan was structured around the following:

- "Visions" for the forestlands of the state
- "Current conditions" of the forestlands, as a basis to judge future conditions
- Recommended actions that would help address and achieve the "visions"

The beginning stages of this planning process included examining other state's models for their relevancy to Connecticut's situation. Vermont's plan was used as the primary model since many of the same issues exist, and Vermont contains similar forest types. The "visions" were developed with input from the DEP Forestry Division and various other forestry professionals. Consultations with the University of Connecticut Cooperative Extension System and the Center for Social Research at Central Connecticut State University were used to determine the

most applicable method of data collection. Stakeholder groups were identified, and representative individuals and organizations were chosen to participate in the planning process. A schedule was developed to maintain the flow of project activities and tasks over the entire planning period. This timeline was divided into phases and was revised as needed during the planning process.

## 3. Phases of the Forest Resource Planning Effort

### PHASE I

A series of ten focus group sessions with the various stakeholder groups met during January and February of 2003 (See Table 1 for list). Using the "visions" of Connecticut as a basis, discussions were generated at each of the sessions regarding current issues related to the state's forestlands that are considered hindrances of achieving the statewide "visions". After each focus group compiled a list of relevant issues, time was allotted to discuss possible action steps. All information was compiled into one condensed document that was used in Phase II of the planning process.

### PHASE II

At least one representative of each of the focus groups was asked to participate in Phase II of the planning process. This ensured continued participation from the various stakeholder groups. Eleven participants agreed, and an Advisory Committee was formed to evaluate the results of Phase I data. Over a series of four meetings held during March and April of 2003, the Advisory Committee compressed, reworded and reorganized the ideas. Issues were more clearly defined, wording was crafted to be more generally applicable, and action steps were refined and simplified.

### PHASE III

During August of 2003, the first draft of the issues and action steps was sent out to

all Phase I and II participants. In addition, individuals and organizations that had been unable to actively participate, but had shown interest in the planning process also received a copy. Furthermore, this mailing included all DEP Division of Forestry personnel and other various forestry professionals in Connecticut. The first draft was mailed to a total of 221 participants. Accompanying the draft plan was a questionnaire used for both feedback and for determining potential partners for plan implementation. Comments were accepted for a limited period of four weeks. Over 30% of the participants responded, representing almost 50% of the people contacted.

After comments were received, a final draft was compiled. A meeting was called of the Advisory Committee to evaluate the plan. The plan was then sent out for a last stakeholder review in May 2004. The final draft included additional sections on Connecticut's forest history, the forest and the Connecticut economy, the current conditions of Connecticut's forests, an executive summary, partnering organizations, and other miscellaneous items.

#### **PHASE IV**

Once comments were received, final changes to the Connecticut Statewide Forest Resource Plan were made and partners were named throughout the plan. The plan was submitted for publication in July 2004.

#### **4. People Who Participated in the Plan's Development**

People from many walks of life participated directly in formulating the Connecticut Statewide Forest Resource Plan. Among those who participated were professional foresters within the Department of Environmental Protection, stakeholders from various user groups of the forest

(see Table 1 for list), and members of an Advisory Committee whose participation was meant to represent a wide range of forest-related interests. The Advisory Committee also served as a forum for recommending actions steps and partners within the plan.

#### **A. Department of Environmental Protection Involvement**

Under the leadership of Donald Smith, State Forester, the Department of Environmental Protection's Division of Forestry assisted in many ways with this planning process. In the initial steps of planning, the Division was used as a sounding board for determining "vision" statements for Connecticut's forestlands. These vision statements became the basis for the plan.

In addition, several people from the Division assisted in the organization and administration of the 10 focus group sessions along with the five Advisory Committee meetings.

Representatives of other DEP Divisions were also included in the planning process. Members of the Wildlife, Inland Fisheries, and Parks Division, along with EGIC, were invited to participate in focus group meetings, and all were asked to provide comments during Phase III of the planning process.

It is assumed that over the course of plan implementation, members of the Department of Environmental Protection will continue to play an important role.

#### **B. University of Connecticut Cooperative Extension System**

The UCONN Cooperative Extension System provided valuable assistance in advising about different means of collecting data, acting as a sounding board for determining the "visions" of Connecticut and also helping to provide research data

and maps for the plan. Two members of the UCONN team attended focus group meetings, one of who also sat in on an Advisory Committee meeting. The UCONN Cooperative Extension System will be included in future aspects of the planning process, and will be listed as a partnering organization for plan implementation.

**C. Partners Providing Funding or Administrative Assistance**

This plan is strongly supported by various facets of the forestry community through both funding and planning assistance. Contributing organizations include: The United States Forest Service, The Connecticut Tree Farm Executive Committee, the Connecticut Chapter and the Yankee Division of the Society of American Foresters, The Nature Conservancy, the Connecticut Forest Stewardship Council, the Connecticut Farm Bureau, The Rockfall Foundation, the Connecticut Forest and Park Association, and the Department of Environmental Protection.

**D. Focus Group Involvement**

After the “visions” of Connecticut’s forestlands were determined, 10 focus group sessions with various stakeholders were organized to identify issues and discuss possible action steps to address these issues. The focus group participants were picked to represent various types of user groups of the forests. These meetings involved over 120 stakeholders. The stakeholders represented are shown below in the order of focus group meetings:

Table 1. Focus Group Stakeholder Participants
1. Private Consulting Foresters
2. Loggers and Sawmills
3. Large Landowners
4. Sportsmen’s Organization Landowners
5. Connecticut Forest and Park Association Members
6. Private Landowners
7. Multi-use Recreation User Groups
8. Municipalities
9. Nature Conservancy Members
10. Forestry Professionals

The Director of the Center for Social Research at Central Connecticut State University acted as moderator for both the focus groups and Advisory Committee meetings, helped streamline the planning process, and provided important guidance and advice throughout.

**E. Advisory Committee Involvement**

After completion of the focus group meetings, an Advisory Committee was formed to review the data collected. Volunteers from the various focus groups staffed the committee. During March and April of 2003, the Advisory Committee met four times to narrow the focus of the compiled information, further address the action steps, and organize the information into a format that represented the various stakeholder groups. During April 2004 the Advisory Committee was called upon to review the final draft, and outline initial plans for plan implementation and creation of the Connecticut Forestlands Committee.

**F. Public Involvement**

Informative presentations were made at various times during the fall and winter of 2002/2003 to introduce and explain to the public what was occurring in regards to the Connecticut Statewide Forest Resource Plan. Requests for funding often accompanied these talks. Opportunities were given to sign up to receive information on the plan, or to be considered for active participation. Over 200 people attended the sessions, and those who signed up for information were put on a list to receive copies of the draft Forest Resource Plan for review and comment.

The list of those who signed up for information was combined with the list of Phase I and Phase II participants, as well as various DEP personnel during Phase III. A total of 221 individuals received the draft plan and questionnaire to complete. Over 30% responded, representing close to 50% of those contacted. In actuality, the number of people represented during this process numbered in the thousands, as many important organizations in Connecticut responded as partners.

# Appendix B. Definitions/Glossary

## **Connecticut Important Bird Area**

**(IBA) Program** - The Connecticut Important Bird Area (IBA) Program was started in 1997 by Audubon Connecticut, and is part of a global initiative to identify sites that are important to birds in all seasons. The goals of the program are to identify a network of sites throughout the state that are essential for sustaining wild bird populations, and to protect or manage these sites for the long-term conservation of birds, other wildlife, and their habitats. For an IBA to be identified it must be evaluated by a Technical Committee, made up of ornithological experts from throughout the state, to ensure that it meets certain scientific criteria. The IBA Program has no regulatory authority, but rather has been a useful tool to increase the resources that are available to protect and manage these sites so that they remain important to birds, increase the efficiency of conservation planning at these sites, and to raise awareness about the importance of these site to birds. There are currently 15 publicly announced IBAs in Connecticut and Audubon is working to announce 75 sites within three years.<sup>17</sup>

## **Connecticut's Inheritance Tax**

- A levy imposed on the transfer of a deceased person's property. The most common method of transfer is by a will. When someone dies without a will, i.e., interstate, state law determines how property is distributed. The three types of property recognized for purposes of this tax are real property, tangible property, and intangible personal property.<sup>18</sup>

## **Connecticut Resource Conservation and Development Program's "A Practical Guide for Protecting Water Quality While Harvesting Forest Products"**

- A 1998 guide intended for professional foresters, loggers and land managers who plan and conduct forest harvesting activities. It is a reference of practices and procedures, (Best Management Practices [BMP's]) to protect and in some cases improve water quality.<sup>19</sup>

## **Connecticut Resource Protection Project Maps (CTRPP "Resource Maps")**

- A project funded by the Environmental Protection Agency that ran roughly between 1995 and 2000. It's purpose was to identify and protect the highest value resource areas in the state using an ecosystem approach that views resources as integrated systems requiring collaborative management strategies. This project as a whole was strictly planning oriented, there was never a regulatory component to the project. Sets of six standard statewide maps were produced as part of the project. Five of the maps focus on a particular resource or resource use: Habitat, Public Water Supply, Agriculture, Forestry, and Recreation. The sixth map was for Threats (to resources). The maps are no longer sold to the public because some of the data was considered significantly out of date.<sup>20</sup>

**DEP Service Forester** – Under the Division of Forestry, this forester position provides technical advice and assistance to owners of forestland throughout the state. This service is available to private citizens, municipalities,

<sup>17</sup>Definition received from Patrick Comins, Director of Bird Conservation, Audubon Connecticut 3.10.04.

<sup>18</sup>Obtained from [www.ct.gov/drs/cwp/view.asp?a=1475&q=268962](http://www.ct.gov/drs/cwp/view.asp?a=1475&q=268962) on 4.1.04

<sup>19</sup>Taken from the 1998 Connecticut Resource Conservation and Development Programs "Timber Harvesting and Water Quality in Connecticut" brochure

<sup>20</sup>Personal contact with Jonathan Scull, Environmental and Geographic Information Center, DEP on 2.13.04

conservation groups or other private or public organizations. Currently, there are 3 such positions in the state.<sup>21</sup>

**Environmental Conditions Online (ECO)**

- An online mapping tool and environmental data resource developed by the Connecticut Department of Environmental Protection. It allows the user to view, and interactively prepare customized maps for display and printing in an online setting.<sup>22</sup>

**Environmental and Geographic Information Center**

- (EGIC) Conducts, promotes, and coordinates natural resource inventories; monitors and researches natural resource conditions; identifies and explains the interrelationships and processes among resources; publishes and disseminates its information in appropriate forms and provides technical support in the use of its information.<sup>23</sup>

**Environmental GIS Data for Connecticut**

- A set of seven (7) CDs that contain environmental geospatial data for the State of Connecticut. The data originates from the Connecticut DEP, Office of Policy and Management, University of Connecticut, University of Connecticut Center for Geographic Information and Analysis, Federal Emergency Management Agency, U.S. Census Bureau, U.S. Department of Agriculture, and U.S. Geological Survey.<sup>24</sup>

**Envirothon** - An annual problem solving natural resource education competition for high school students put on by Canon U.S.A. It is meant to bring environmental education to the youth of North America. It offers both in-class curriculum and hands-on field experience focused around ecology, natural resource management, and current environmental issues.<sup>25</sup>

**Forest Fragmentation** - An interspersion of developed, non-forested inclusions within a forested landscape.

**Forest Inventory and Analysis (FIA) Data**

- Periodic inventory data collected by the United States Forest Service in all states to provide up-to-date information on the forest resources of the nation. The last inventory completed in Connecticut was in 1998.

**Forest Legacy Program – Assessment of Need**

- Completed in 1994, this document “provides a comprehensive, long range process to identify and protect privately owned woodlands that are under threat of fragmentation and conversion to non-forest uses.”<sup>26</sup>

**Forest Practices Act** - (Chapter 451a of the Connecticut General Statutes) In 1991, the Connecticut legislature overwhelmingly approved Connecticut's first Forest Practices legislation. The legislation is designed to protect and conserve Connecticut's forest resources by encouraging its wise and careful use. Forest practices such as commercial timber harvesting for logs or firewood are key examples of operations that are covered by the law. An important component of the FPA is the requirement of forest practitioners to be certified by the DEP prior to conducting any commercial forest practices in Connecticut. Forest Practitioners (people who design, supervise or participate in forest practices such as timber harvesting for logs or firewood) must now be certified to conduct commercial forest practices within the State of Connecticut.<sup>27</sup>

**Forest Stewardship Council (FSC)**

- A non-profit organization devoted to encouraging the responsible management of the world's forests. FSC sets high

<sup>21</sup>Obtained from [www.dep.state.ct.us/burnatr/forestry/boutfrst.htm](http://www.dep.state.ct.us/burnatr/forestry/boutfrst.htm) 3.17.04

<sup>22</sup>Obtained from the internal CT DEP website 3.17.04

<sup>23</sup>Mission statement obtained from [www.dep.state.ct.us/cgnhs/AboutEGIC.htm](http://www.dep.state.ct.us/cgnhs/AboutEGIC.htm) 3.17.04

<sup>24</sup>Obtained from [www.dep.state.us/gis/CDs/cds.htm](http://www.dep.state.us/gis/CDs/cds.htm) 3.18.04

<sup>25</sup>Obtained from [www.envirothon.org](http://www.envirothon.org) 3.17.04

<sup>26</sup>Taken from the Statement of Purpose page of the Connecticut Forest Legacy Assessment of Need. 1994.

<sup>27</sup>Obtained from State of Connecticut Directory of Certified Forest Practitioners, February 2004 Edition.

standards that ensure forestry is practiced in an environmentally responsible, socially beneficial, and economically viable way. FSC accredited, independent, “third party” certification bodies certify forests. They assess forest management using the FSC principles, criteria, and standards, with each certifier using their own evaluative process.<sup>28</sup>

**Green Circle Awards** – A DEP program that recognizes businesses, institutions, individuals, and civic organizations who have undertaken pollution prevention, waste reduction or other projects promoting natural resource conservation and environmental awareness.<sup>29</sup>

**ISTEA (Intermodal Surface Transportation Efficiency Act)** - Also known as TEA-21, this grant program is for “transportation” activities, including multi-use trails, paved bike paths, etc. The Connecticut Department of Transportation administers the program.<sup>30</sup>

**Landscape approach** – An ecosystem approach to land conservation and management in which one property is a small component in a much larger ecosystem complex in where property boundaries play little or no role for habitat or wildlife. Often, this means looking beyond individual boundaries to see the positive or negative impacts of actions on any one parcel to the surrounding ecosystem.

**National Recreation Trails Program (RTP)** - An assistance program of the U.S. Department of Transportation’s Federal Highway Administration. It is administered through the DEP. Funds may be used for construction of new motorized and nonmotorized trails, maintenance and restoration of existing recreational trails, access to trails by persons with disabilities, purchase and lease of trail

construction and maintenance equipment, acquisition of land or easements for a trail or trail corridor, and trail promotion, education and environmental/historical trail interpretation.<sup>31</sup>

**Natural Area Preserve Lands** – As designated by the Governor, a designated area must be an area of land or water containing or potentially containing plant or animal life or features of biological, scientific, educational, geological, paleontological or scenic value worthy of preservation in their natural condition.<sup>32</sup>

**Open Space** – Connecticut General Statutes, Chapter 203, section 12-107b: The term “open space land” means any area of land, including forest land, land designated as wetland under section 22a-30 and not excluding farm land, the preservation or restriction of the use of which would (1) maintain and enhance the conservation of natural or scenic resources, (2) protect natural streams or water supply, (3) promote conservation of soils, wetlands, beaches or tidal marshes, (4) enhance the value to the public of abutting or neighboring parks, forests, wildlife preserves, nature reservations or sanctuaries or other open spaces, (5) enhance public recreation opportunities, (6) preserve historic sites or (7) promote orderly urban or suburban development.<sup>33</sup>

**Project Learning Tree** – An environmental education program which uses the forest as a “window” into natural and built environments, helping people gain an awareness and knowledge of the world around them and their place in it.<sup>34</sup>

**Public Act 490** – Passed in 1963, this act states that “(a) it is in the public interest to encourage the preservation of farm land,

<sup>28</sup>Obtained from [www.fscus.org/faqs/what\\_is\\_certification.php](http://www.fscus.org/faqs/what_is_certification.php) on 5.20.04

<sup>29</sup>Obtained from [www.dep.state.ct.us/pao/grncrc/greencircle.htm](http://www.dep.state.ct.us/pao/grncrc/greencircle.htm) on 3.17.04

<sup>30</sup>According to Leslie Lewis, Administrator of the DEP Trails Grant Program 3.19.04

<sup>31</sup>Obtained from [www.dep.state.us/stateparks/greenways/rectrail.htm](http://www.dep.state.us/stateparks/greenways/rectrail.htm) on 3.30.04

<sup>32</sup>Obtained from [www.dep.state.us/whathap/press/2000mf1204.htm](http://www.dep.state.us/whathap/press/2000mf1204.htm) on 3.30.04

<sup>33</sup>Obtained from [www.cga.state.ct.us/2003/pub/Chap203.htm](http://www.cga.state.ct.us/2003/pub/Chap203.htm) on 3.18.04

<sup>33</sup>Obtained from [www.cga.state.ct.us/2003/pub/Chap203.htm](http://www.cga.state.ct.us/2003/pub/Chap203.htm) on 3.18.04

<sup>34</sup>Obtained from [www.dep.state.us/educ/workshops.htm](http://www.dep.state.us/educ/workshops.htm) on 3.17.04

forest land, and open space land and (b) that it is in the public interest to prevent the forced conversion of farm land, forest land, and open space land to more intensive uses as the result of economic pressures caused by the assessment thereof for purposes of property taxation at values incompatible with their preservation as such farm land, forest land, and open space land.” A landowner with twenty –five acres of more of forest land may file an application for designation as “forest land” to receive the reduce tax rates.<sup>35</sup>

**Real Estate Conveyance Tax** – Connecticut General Statutes, Chapter 223, section 12-504a: Any land which has been classified by the record owner thereof as open space land pursuant to section 12-107e, if sold by him within a period of ten years from the time he first caused such land to be so classified, shall be subject to a conveyance tax applicable to the total sales price of such land, which tax shall be in addition to the tax imposed under sections 12-494 to 12-504, inclusive.<sup>36</sup>

**Recreation and Natural Heritage Trust Program** - The primary means of land acquisition by the Department of Environmental Protection. It is meant to: (1) Acquire land that represents the ecological diversity of Connecticut, including natural features such as riverine, montane, coastal and geologic systems or other natural areas, on behalf of the state, in order to ensure the preservation and conservation of such land for recreational, scientific, educational, cultural and aesthetic purposes, (2) acquire land of unusual natural interest as additions to the system of parks, forests, wildlife and fishery management areas, natural areas and dedicated natural area preserves in the state for the beneficial use and enjoyment of the public, (3) acquire land identified as essential

habitat for endangered and threatened species pursuant to the program established under section 26-305, (4) offset carbon dioxide produced through combustion of fossil fuels by preserving lands that naturally absorb it, and (5) establish a stewardship account to provide for the maintenance, protection and management of lands acquired pursuant to the provisions of sections 23-73 to 23-79, inclusive, and of the species that inhabit them.<sup>37</sup>

**Sustainable Forestry Initiative Program (SFI)** - A comprehensive system of principles, objectives and performance measures developed by foresters, conservationists, and scientists, that combines the perpetual growing and harvesting of trees with the protection of wildlife, plants, soil and water quality. There are currently over 136 million acres of forestland in North America enrolled in the SFI program, making it the world's largest sustainable forestry program.<sup>38</sup>

**The Coverts Project** - A special educational program of the UCONNCEs, and the RGS, the DEP and the CFP. Since 1983, The Coverts Project has been reaching out to Connecticut's individual woodland owners and teaching them how sound management practices can make wildlife healthier, more diverse, and more abundant.<sup>39</sup>

**The Nature Conservancy's Matrix Forests**- A system used to identify areas where forest protection is most critical, or where ecosystem restoration would most likely be successful. To qualify, a viable forest ecosystem must exhibit the qualities of resistance (to small disturbances) and resilience (ability to rebound after a catastrophic disturbance) which lead to a dynamic persistence over centuries. To

<sup>35</sup>Obtained from [www.dep.state.us/burnatr/forestry/pa490/pa490htm](http://www.dep.state.us/burnatr/forestry/pa490/pa490htm) on 3.18.04

<sup>36</sup>Obtained from [www.cga.state.ct.us/2003/pub/Chap223.htm](http://www.cga.state.ct.us/2003/pub/Chap223.htm) on 3.18.04

<sup>37</sup>Obtained from [www.cga.state.ct.us/2003/pub/Chap453.htm](http://www.cga.state.ct.us/2003/pub/Chap453.htm) on 4.1.04

<sup>38</sup>Obtained from [www.afandpa.org](http://www.afandpa.org) on 5.20.04

<sup>39</sup>Obtained from [www.canr.uconn.edu/ces/forest/coverts.htm](http://www.canr.uconn.edu/ces/forest/coverts.htm) on 1.30.04

determine these areas in Connecticut, specific criteria are used. Areas have to be of a minimum size of 15,000 acres, conditions have to include low density of roads, confirmed evidence of forest breeding species and the presence of mid-sized carnivores, and a landscape context of continuous forest, natural cover surrounding the area. There are seven matrix forest blocks identified to date in Connecticut, which are considered preferred habitat to protect. For every preferred block there is at least one alternate block that is highly threatened and deserves attention.<sup>40</sup>

**UCONN Extension Educators** - Designs and implements educational programs in the areas of forest and wildlife stewardship, land protection tools and techniques and conservation inventories and analyses for private landowners, municipal land use decision makers and professional foresters.<sup>41</sup>

**Upper Housatonic Valley Natural Heritage Area Act of 2003 (H.R. 1798)**

- Creates a Natural Heritage Area covering nine towns in northwestern Connecticut and 20 others in southwestern Massachusetts. The area has been proposed as a means of heightening appreciation for the culture and history of the region, preserving its natural and historic resources, boosting its unique local economy, protecting the Housatonic River, and controlling sprawl.<sup>42</sup>

**1913 Tax Law/10 Mill Law** - (Connecticut General Statutes section 12-96 through 12-103). This law concerning the taxation of forested land was first passed in 1913 and subsequently amended several times to its present form. The law is a functioning anachronism in that there remain 75 landowners in Connecticut (14,050 acres) with active classifications of their land under

this law, but it is no longer possible for new land to qualify for classification under this law. The law requires a minimum of 25 acres and that the land, exclusive of the timber thereon, have a value of not more than \$100 per acre. Since there is no longer any forested land in Connecticut having a value anywhere near \$100 per acre, the law remains valid, but no new land may be classified under it. Land classified under this law is taxed, based on 100 percent of the true valuation as established by the assessors at the time of classification. That the valuation is frozen for a 50-year period, providing the land use does not change. Law establishes the tax rate at no more than 10 mills. At the end of the 50-year period, a revaluation is made and the land is again taxed at a rate not to exceed 10 mills for another 50 years. The 10-mill classification does not terminate upon sale or transfer of the land. It is tied to the land and is not personal to the owner. The owner of the land must pay a yield tax to the town on any timber cut, with the exception that timber cut for domestic use is exempt from the yield tax. There is also a substantial penalty to be paid upon cancellation of the classification. Any use of forest land classified under the 10-mill law is permissible as long as the use does not cause a change in the basic character of the land as forest land. Any conversion of the land from its growth, management and use as a forest is a change of use. It should be noted that the classification of land under the 10-mill law is binding upon the entire tract of land and, when any portion of that tract must be removed from classification, the classification for the entire tract must be cancelled.<sup>43</sup>

<sup>40</sup>Anderson, M.G. and S.L. Berstein (editors). 2003. "Planning Methods for Ecoregional Targets: Matrix Forming Ecosystems." The Nature Conservancy, Boston, MA. Additional information gathered from person conversations with Kevin Essington, Pawcatuck Borderland Project Director, The Nature Conservancy. 3.17.04

<sup>41</sup>Obtained from [www.clear.uconn.edu/cesdata/default.asp](http://www.clear.uconn.edu/cesdata/default.asp) on 3.30.04

<sup>42</sup>Obtained from [www.house.gov/nancyjohnson/pr\\_heritagepassage.htm](http://www.house.gov/nancyjohnson/pr_heritagepassage.htm) on 2.6.04

<sup>38</sup>Definition as described by Don Smith, State Forester, Connecticut DEP, April 1, 2004.



## Appendix C. Public Comments

In the Final Draft Review of the Connecticut Statewide Forest Resource Plan, participants were given the opportunity to accept the final draft as satisfactory, or to declare it unsatisfactory. If not otherwise addressed in the plan, comments not in favor of this plan were to be included in this appendix. The following comments were received with the return questionnaire:

“There are many positive proposals in the Forest Plan that will enhance the health of Connecticut’s forests. However, the plan has its roots firmly planted in the 19<sup>th</sup> century, when wood products were a major economic commodity. Our world is a far different place now than it was in 1903. Forest products are now a small part of our economy, a romantic vestige of the past. With growing urbanization, our forests now have a much higher use: maintaining our quality of life as well as helping to keep our air and water pure. Forests add to our history, by reminding us, in a small way, what the first European settlers encountered.

The major fault with the draft plan is the continuing emphasis on “sustainable forest based economy.” Today, it is much more important to nurture our forests for what they bring to our quality of life; places where, for a few hours, we can escape the frantic world in which we live. We do need to address forest health, but with an eye on promoting diverse forests. Diverse in species and in species age. Let’s allow some forests to mature, to reach biological, rather than economic old age. We can’t experience an old growth forest in Connecticut. Of course, this is a very long term plan. It may take a generation to phase out the “sustainable yield” mentality, and rebuild diverse forests with chestnut trees and white pines as well as oaks.

In addition to these general criticisms, I would single out one additional criticism: the draft leaves the impression that ATV use in state forests is inevitable. My problem is that nothing is said about the responsibility of ATV riders, to ride legally. If we are to allow ATV’s in our forests, then the riders should be required, as a precondition to register their vehicles and display their registration numbers. Without such a concession, I am categorically opposed to the use of our state forests by ATV’s.”

Respectfully,

Frank A. Junga

# Appendix D. Advisory Committee Members

Mike Bartlett-Hull Forest Products

Peter Bergan-Peaceful Hill Tree Farm

Patrick Comins-Audubon Connecticut

Helene Flounders-Coordinator and Author

Mike Fotos-The Nature Conservancy

Fred Gliesing-Aquarion Water Company

Huber Hurlock-DEP District Forester

John Majewski-Central Cycle Club Inc.

Chris Marino-Northwest Connecticut Sportsman's Council

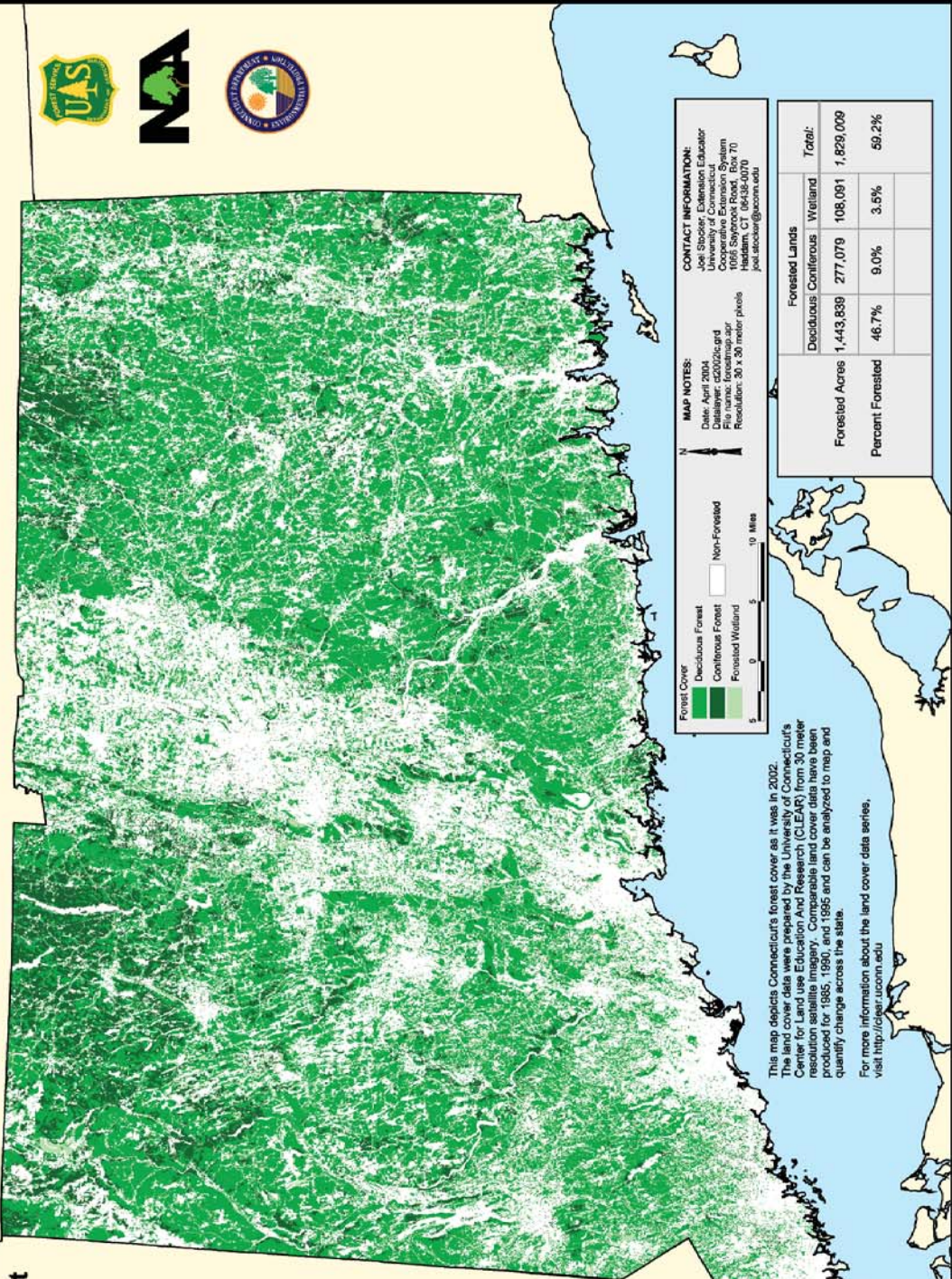
Adam Moore-Connecticut Forest and Park Association

Curtis Rand-Private Consulting Forester

Bill Toomey-The Nature Conservancy

# Satellite Derived Forest Cover - 2002

## Connecticut



**MAP NOTES:**  
 Date: April 2004  
 Datafile: c2002c.gd  
 Projection: UTM  
 Resolution: 30 x 30 meter pixels

**CONTACT INFORMATION:**  
 Joe Stoeber, Extension Educator  
 Cooperative Extension System  
 1055 Saybrook Road, Box 70  
 Healden, CT 06438-0070  
 joe.stoeber@uconn.edu

Forested Lands		Total:	
Deciduous	1,443,839	108,091	1,829,009
Coniferous	277,079	108,091	1,829,009
Forested Wetland			
Percent Forested		46.7%	59.2%

This map depicts Connecticut's forest cover as it was in 2002. The land cover data were prepared by the University of Connecticut's Center for Land Use Education and Research (CLEAR) from 30 meter resolution satellite data produced for 1985, 1990, and 1995 and can be analyzed to map and quantify change across the state. For more information about the land cover data series, visit <http://clear.uconn.edu>

State of Connecticut  
 Joe G. Blundell, Governor  
 M. Todd Riv, Lt. Governor  
 Department of Environmental Protection  
 Arthur J. Rozga, Jr., Commissioner  
 University of Connecticut  
 Philip E. Austin, President  
 College of Agriculture and Natural Resources  
 Kristyn M. Kerr, Dean & Director

