

Department of Conservation and Recreation Division of State Parks and Recreation

Central Berkshire District Forest Resource Management Plan

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Executive Summary

The Central Berkshire (CBK) District Forest Resource Management Plan (FRMP) is developed in consideration of, and consistent with, the *Landscape Assessment and Forest Management Framework for the Berkshire Eco-regions*, April 2006, which contains important information on the physical and natural resources, relevant natural resource public issues, and natural resources recommendations for the Berkshire region's public and private forestlands. The FRMP provides strategic forestry management direction for 18 Division of State Parks and Recreation (DSPR) properties on approximately 31,251 acres in an ecological, economic, and socially sustainable manner. The FRMP uses the following key guiding principles:

- Provides clear strategic implementation and monitoring direction
- Is predicated on adaptive management principles in which adjustments and changes to the plan will be made as new information is available
- Provides a long-term sustainable strategy (105 years) and short-term (next 15 years) implementation schedule
- Meets all pertinent legal mandates and Forest Stewardship Council green certification standards
- Integrates all forest resources, activities, and uses, into a comprehensive sustainable forest resource management, activity, and use strategy
- Was developed with the best information and data available

This FRMP was prepared in part to meet all pertinent legal mandates and Forest Stewardship Council green certification standards. The Forest Stewardship Council (FSC) shall promote environmentally appropriate, socially beneficial, and economically viable management of the world's forests.

- Environmentally appropriate forest management ensures that the harvest of timber and non-timber products maintains the forest's biodiversity, productivity and ecological processes.
- Socially beneficial forest management helps both local people and society to enjoy long-term benefits, and provides strong incentives to local people to sustain the forest resources and adhere to long-term management plans.
- Economically viable forest management means that forest operations are structured and managed as to be sufficiently profitable, without generating financial profit at the expense of the forest resources, the ecosystem or affected communities. The tension between the need to generate adequate financial returns and the principles of responsible forest operations can be reduced through efforts to market forest products for their best value.

Forest management planning and FRMPs are an important component of the overall framework of DCR's Resource Management Planning (RMP) Program. The RMP Program is located within the Division of Planning and Engineering, and works across agency divisions, bureaus and programs to develop the RMP Program and to coordinate with the DCR Stewardship Council regarding program development and the adoption of RMPs. FRMPs prepared by the Bureau of

Forest Fire Control and Forestry will be integrated into Baseline RMPs prepared by the RMP Program.

The following summarizes the key strategic points in this FRMP:

Biological Diversity:

Biological diversity is provided for by:

- Protecting rare species through proper management and maintenance of rare species habitat including mandatory consultation with the Natural Heritage and Endangered Species Program on all vegetation and/or ground disturbing projects within known priority or estimated habitat for rare species
- Rare species Conservation Management Practices guidelines will be followed within known priority or estimated habitat for rare species
- Establishing approximately 4,666 acres of large-scale Forest Reserves in the Gilbert Bliss and Middlefield State Forests and approximately 3,287 acres of small-scale Forest Reserves distributed throughout the rest of the district
- Forest Reserves will provide a late-successional native forest structure where forest succession and natural disturbances are allowed to proceed relatively free of human intervention
- Allowing human use provided that uses and activities are consistent with providing a natural relatively undisturbed landscape
- Establishing approximately 2,200 acres of extended rotation forest vegetation that is managed according to uneven aged silvicultural principles to promote healthy, multi-age, large stand areas with complex structure that complement Forest Reserves, trail and road corridors, aquatic corridors and buffers, and rare species habitat, where possible
- Protecting aquatic resources such as lakes, rivers, streams, riparian areas, wetlands, and vernal pools, by establishing and properly managing these areas and their associated buffer or filter strips
- Establishing approximately 2,500 acres of early successional habitat in each 15 year planning period
- Managing all CBK lands for appropriate native species by inventorying and scheduling for the removal of non-native vegetation
- Providing direction for the retention and maintenance of complex forest structures such as legacy, wildlife, and den trees, and the retention of coarse woody debris where vegetation management activities occur

Recreation Activities and Uses:

The FRMP does not directly address recreational uses and policies. It does take into consideration the recreational facilities and uses that occur within the CBK State Forest and Park system lands such as camping, hiking, fishing, cross-country skiing, picnicking, snowmobiling, driving for pleasure, etc. The following are highlights of the forest management direction as it relates to recreational uses:

- Forest management objectives are sensitive to the DSPR trail system and uses by managing the vegetation in the trail corridors ensuring that they are maintained to DSPR standards consistent with FRMP objectives
- Unauthorized trails should be evaluated for potential removal or inclusion into the DSPR trail system
- The Appalachian National Scenic Trail will be managed according to established agreements and management plans
- Snowmobile use is allowed on designated trails when there is snow cover
- ORV use is allowed on designated trails in October Mountain State Forest pending results of a statewide study. ORV use is prohibited on all other DSPR system lands pending the results of the study.
- Special uses must follow the DSPR Special Use process, and be reviewed for their compatibility with DSPR Forest Resource Management Plan direction, including the consideration of environmental values, economic feasibility, and determination of social and economic benefits

Cultural Resources:

Cultural resources are identified and evaluated for significance. Appropriate site plans are developed to protect and maintain significant cultural resources. In some cases, cultural resources may be enhanced through specific management activities or presented to the visiting public through interpretative, educational, and programmatic formats.

Roads and Boundaries:

There are approximately 196 miles of DSPR system property boundaries. Approximately 160 miles of boundaries were maintained mainly in FY 2004 and FY 2005. There are approximately 37 miles of boundary that need professional surveys.

- All boundaries will be located and posted
- Boundaries will be maintained on a 10-year cycle

There are approximately 1,328 miles of road within the CBK properties. Generally, roads are in poor to fair condition and minimally maintained, resulting in unsafe access and degradation of water quality due to soil erosion and sedimentation. Some road maintenance and re-construction is occurring through forest management activities, volunteers, and occasionally as part of DSPR projects.

- The DSPR transportation network will be safe and environmentally sound
- The network should have a minimum impact on the natural resources of our forest and park system while serving public safety needs and allowing visitors to enjoy and experience these resources

Vegetation:

The CBK State Forest and Parks are heavily vegetated and are primarily composed of approximately 22,000 acres (70% of total area) of 60 plus year old forests. The forest in general is presently in relatively good health; however, tree mortality is occurring at an increasing rate due to composition, age, and density of the forests. Presently, the forest is composed predominately of northern hardwoods, red oak, hemlock, and Norway spruce. There are approximately 341 million board feet of standing timber and a net growth of approximately 6.9 million board feet per year. The mortality is approximately 3.3 million board feet per year.

According to the Massachusetts Climate Protection Plan (See Appendix G): "Climate change could have serious impacts on the state's diverse ecosystems, native species and may encourage the spread of non-native species. It would also likely alter the natural range of many different plants and animals. Over the long term, warming could intensify droughts and damage forest ecosystems". The CBK FRMP aims to provide a long-term sustainable strategy (105 years) and short term (next 15 years) implementation schedule. While the extent of the effects of climate change are not fully knowable, the likely focus of many effects, in terms of non native species, damage to forest ecosystems or more droughts, are well known. This Plan has been designed to be anticipatory in the following ways:

- Recognizing the carbon sequestration benefits of young vigorously growing forests, the plan provides for a more balance structure of age classes
- Without being able to predict the change in native forest ecosystems brought about by climate change, the plan focuses on sustainability and ecosystem function rather than species distribution.
- The plan focused attention on the problem of non-native species, which will likely increase with continued climatic change.

The vegetation management within the Active Forest Resource Management Areas shall be prioritized as follows:

- Meet rare species habitat and biodiversity goals
- Reduce the risks of catastrophic disturbances such as wildfires
- Restore and maintain native ecosystems
- Restore and maintain forest health
- Provide a sustainable flow of forest products and appropriate native biodiversity by balancing the age classes for each forest type

Areas selected for vegetation management to meet the above goals will be further prioritized by:

- Completing regeneration harvests in stands that have had previous work to establish or release existing regeneration
- Regenerating stands that are at imminent risk of mortality from insects, disease, fire, etc
- Establishing regeneration in poorly stocked stands or in stands that are currently stocked with species that are ill suited to the site
- Improving low quality stands

- Regenerating mature stands
- Thinning overstocked stands

Approximately 1 percent per year of the entire CBK State Forest and Park system lands (representing approximately 330) would be scheduled for regeneration and preparatory regeneration treatment. It is also estimated that approximately 0.9 percent per year (representing approximately 290 acres per year) would be scheduled for thinning to maintain the present forest health, capture imminent mortality, improve the composition and quality of the forest vegetation, and prolong the biological capability. The FRMP calls for approximately 7.2% of the lands in the CBK District to be managed under an extended rotation system.

Inventory, Monitoring, and Evaluation:

The FRMP was developed in consideration of future inventory, monitoring, and evaluation, and is designed to improve the FRMP over time.

The following summarizes the key inventory, monitoring, and evaluation requirements dependant on the availability of funding:

- Vegetation, cultural resources, rare species, invasive species, boundaries, roads, recreation and uses, etc. data should continue to be collected over time
- All projects upon completion and after 5 years of completion should be sampled for meeting FRMP requirements, effectiveness, and impacts
- Landscape ecological monitoring, in cooperation with the University of Massachusetts and other partners, designed to evaluate and compare Forest Reserve and active management should be established to assess management techniques at the ecological landscape, site and species level

Outputs and Costs:

The FRMP was developed in consideration of potential multiple public benefits while maintaining affordable costs for the first implementation phase (next 15 years). The following summarizes the major public outputs and associated costs:

Expected Annual Forest Product Outputs:

Treatment	Acres	MBF	Cds
Hardwood Extended Rotation	39	84	159
Softwood Extended Rotation	25	77	144
Hardwood Final Removal of Overstory	100	713	1346
Softwood Final Removal of Overstory	64	650	1221
Hardwood Establish Regeneration	100	356	1346
Softwood Establish Regeneration	64	325	1221
Hardwood Thinning*	179	289	1537
Softwood Thinning*	114	264	1090
Hardwood Total	419	1442	4387
Softwood Total	266	1315	3676
Restricted Acres (Buffers and Corridors) **	114	0	0
Grand Total	799	2757	8063

Volumes calculated from CFI inventory data.

* - Figures for thinning are based on thinning given current age distribution and stocking levels of the CBK forests of approximately 2,256 acres currently in need of thinning. The feasibility of thinning many of these acres is dependent upon economic market conditions.

** - Restricted Acres include those acres in streamside and vernal pool filter strips, wetland, lake, and pond buffer areas, roadside buffers, and trail corridors. The volumes removed from these areas will depend on site characteristics and environmental values.

Annual Revenue \$454,000*

*Based on an average for a all species of \$150 per thousand board feet and \$5 per cord

Annual Costs (based on FY 05):

<u>Annual Operating Costs</u>	\$233,000
<u>Backlog Annual Boundary Surveying</u>	\$25,000
<u>Backlog Road Maintenance Needs</u>	\$150,000
<u>10-year CFI Inventory (2008)</u>	\$30,000

I. Forest Resource Management Plan Process:

This section summarizes the Forest Resource Management Planning process, the Forest Resource Management Plan (FRMP) format, and gives the reader guidance on how to use the plan effectively.

Planning Process and Outline

The Forest Resource Management Planning process is based on the concept of stepping down in scales: from the regional landscape to the Central Berkshire (CBK) District to the individual forest and park or reservation. Overall, the plan is based on meeting Massachusetts' statutes, enabling legislation and regulations that establish the Department of Conservation (DCR), the State Forest and Parks system, and the Bureau of Forestry management forestry program. "Green Certification" sustainability conditions and requirements further guide the planning process to ensure the sustainability and adequate management of the Commonwealth's natural resources, activities, and uses for the long-term.

The plan is prepared in consideration with the baseline natural resource information, public issues, and recommendations contained within the "*Landscape Assessment and Forest Management Framework for the Berkshire Ecoregions*".

The planning process identified public issues and opportunities for the Central Berkshire Highland Ecoregion and the Central Berkshire District. This plan contributes towards meeting the public needs, wants, and expectations of the State Forest and Park system.

The District Section, which follows the public issues, introduces the DCR-DSPR lands contained within the Central Berkshire. This section contains the present resource and use conditions, desired conditions, and management guidelines designed to guide recreation and natural resource managers.

There is more detailed information on the District section below. After the District Section, there is information on measurable outputs (public expectations), inventory, monitoring and evaluation direction, and public involvement documentation. Finally, the appendices include detailed information and supporting documentation.

District Section

The district section uses a filtering approach to identify three (3) management areas (Reserves, Intensive Use Areas, and the Active Forest Management Areas).

The Reserve areas consist of small and large-scale reserves where passive management will occur. The Intensive Use Areas consist of developed facilities and structures such as administration sites, campgrounds, play grounds, parking lots, etc. The Active Forest Management Areas are

places where vegetation management will be applied to meet the biodiversity and forest structural goals of this plan.

Each section provides information on the **present condition**, the **desired condition**, and the **management guidelines** designed to reach the desired condition.

Present Condition

The present condition information provides baseline information on the resource in text and/or table form. It is also where map references for the resource may be found. These present conditions are intentionally broad as they apply to all the DCR-DSPR lands in the district.

Desired Condition

The desired condition is a general goal statement describing the resource condition that can be achieved by full implementation of this plan.

Management Guidelines

One of the most important outputs of the planning process is the establishment of management guidelines. Management guidelines are the means by which the desired conditions can be achieved. The management guidelines are what the natural resource managers will use to prioritize, guide, and implement management activities. By following the management guidelines, the managers can base their daily work on the planning framework, in consideration of the larger landscape and regional and local issues, and with DSPR-wide consistency. Although the plan provides flexibility for on-the-ground decisions, the management guidelines serve as a check to meet the specific goals and standards set forth in this plan. The management guidelines in the main body of this plan apply to all DSPR lands in the Central Berkshire District.

Maps & Tables

Most of the plan sections have maps and tables that support the text information. District level maps display information on a landscape or district level. These maps are located in Appendix A. Property level maps display information on a State Park, Forest, or Reservation level. Property level maps are located in Appendix B.

Additional Appendices

Following the map appendices are additional appendices containing the public comments and response, glossary, statutory policies, references, and other supporting materials.

Intended Users

This plan is designed for use by a variety of audiences. Decision makers may be interested in the planning process, public involvement, land and resource allocation, expected outcomes, and

costs and benefits. The public might be most interested in the personally important public issues, zoning and management area land allocation, where uses and activities may or may not occur, and management guidelines. The public can consider the Forest Resource Management Plan to be a social contract and commitment on how the State Forest and Parks system lands will be managed.

While this is a public document developed in consideration of public comment, its ultimate purpose is to implement sustainable land and use management carried out by DCR staff. Managers will use this plan to identify priorities and activities. The value of this plan will ultimately be judged by the careful and responsible implementation by the recreation and natural resource managers who are the stewards of the Commonwealth's valuable public resources that are held and managed in the public's trust.

II. Purpose, Need, and Guiding Principles:

The Department of Conservation and Recreation (DCR) Division of State Parks and Recreation (DSPR), is responsible for the stewardship and management of over 285,000 acres of state forests, parks, and reservations. As stated in MGL Chapter 21, Section 1:

It shall be the duty of said department to exercise general care and oversight of the natural resources of the commonwealth and of its adjacent waters; to make investigations and to carry on research relative thereto; and to propose and carry out measures for the protection, conservation, control, use, increase, and development thereof.

General care and oversight will be the result of a coordinated management guidelines for sustainable forestry as described in MGL Chapter 21: Section 2F:

The directors of the divisions of state parks and recreation and urban parks and recreation shall work in cooperation with the director of the division of fisheries and wildlife within the department of fish and game to establish coordinated management guidelines for sustainable forestry practices on public forest lands within the departments of conservation and recreation and on private forest lands.

These lands are managed using the principles of ecosystem management to meet the Department's responsibilities and the public's expectations under MGL Chapter 132, which states that:

the public welfare requires the rehabilitation, maintenance, and protection of forest lands for the purpose of conserving water, preventing floods and soil erosion, improving the conditions for wildlife and recreation, protecting and improving air and water quality, and providing a continuing and increasing supply of forest products for public consumption, farm use, and for the wood-using industries of the commonwealth.

This plan partially meets the intent of MGL Chapter 21 Section 2F regarding the preparation of management plans. This Forest Resource Management Plan (FRMP) provides strategic

sustainable forest management direction for 18 DSPR system properties on 31,251 acres¹ in the Central Berkshire (CBK) District. The purpose of this FRMP is to:

- Develop a long-term strategy (105 years) for the sustainable management of the CBK lands
- Develop a short-term (next 15 years) implementation schedule to meet the desired conditions of this plan
- Provide resource management implementation and monitoring guidance
- Meet Forest Stewardship Council green certification standards

On May 11th 2004, the State of Massachusetts (MA) received Forest Stewardship Council (FSC) endorsed forest certification for the State lands managed by the principal agencies of the Massachusetts Executive Office of Environmental Affairs (EOEA):

- Department of Recreation and Conservation (DCR), Division of State Parks and Recreation (DSPR) – 285,000 acres
- Department of Fish and Game (DFG) – 110,000 acres
- Department of Recreation and Conservation (DCR), Division of Water Supply Protection (DWSP) – 45,000 acres
- Re-Certification of the Quabbin Reservoir (DCR–DWSP) – 59,000 acres

Under the sponsorship of the FSC, Scientific Certification Systems (SCS) promotes responsible forest management by certifying environmentally appropriate, socially beneficial, and economically viable forest management. Consumers purchasing products bearing the FSC and SCS labels can be assured that their wood products come from forests that have been responsibly managed to FSC standards.

The goals of certification are:

- a) Improve forest management practices on state forestlands*
- b) Identify opportunities for coordination of forest management among the three state forest management agencies*
- c) Encourage improvements in private forestland practices, by providing examples and building toward market incentives for verified sustainable management practices*
- d) Improve public understanding and confidence of active forest management practices on state forestlands, by providing an independent, FSC-accredited audit of those*
- e) Increase timber revenues through increasing sustainable forestry and access to Green Certification*

The Forest Stewardship Council is an international organization that evaluates, accredits, and monitors independent forest product certifiers. Scientific Certification

¹ Acres used in this report were the best available at the time of this writing

Systems (SCS) is accredited as a certifier by the Forest Stewardship Council and uses an accredited set of standards based on the FSC principals and criteria in its evaluation activities.

The FRMP is needed to:

- Meet the Commonwealth of Massachusetts' forest management legal mandates and strategic goals and objectives (See Appendix F)
- Address the forest resource management issues identified by the public
- Inform the public on how the forest resources in the CBK district shall be managed
- Provide comprehensive long-term sustainable forest management guidance and specific short-term implementation and monitoring direction to land managers
- Provide a framework for a variety of sustainable forest uses and activities and integrate within that framework the sustainable management of wildlife, rare plants and animals, soils, water, and cultural resources

The CBK FRMP was prepared based on the following planning principles:

- The Plan will consider the larger landscape scale patterns and surrounding activities
- The Plan will be adaptable and change over time as new biological and social conditions and information become available
- The Plan will equally consider ecological, social, and economic factors to determine how best to manage the natural resources and uses
- Resource management will be biologically and economically sustainable and environmentally sensitive
- The Plan will be focused on providing clear strategic, implementation, and monitoring direction
- The Plan will describe key present conditions, desired conditions, goals, and objectives
- The Plan shall prescribe forest management according to sound silvicultural practices and in consideration of ecological principles
- The Plan will be coordinated with recreational planning that will be safe, sustainable, environmentally sound, and balanced with resource protection
- The Plan was developed with the best information and data available

Forest management planning and FRMPs are an important component of the overall framework of DSPR's Resource Management Planning (RMP) Program. DSPR's RMP Program is based upon M.G.L. Chapter 21: Section 2F, which requires DSPR to develop resource management plans for all agency reservations, parks and forests. The legislation states that resource management plans shall include guidelines for operations and land stewardship, shall provide for the protection of natural and cultural resources, and shall ensure consistency between recreation, resource protection, and sustainable forest management. The RMP Program is located within the Division of Planning and Engineering and works across agency divisions, bureaus and programs to develop the RMP Program and to coordinate with the DCR Stewardship Council regarding program development and the adoption of RMPs. In June of 2005 the Commissioner of DCR and the Stewardship Council prepared and supported a \$2.5M RMP Implementation Plan. The centerpiece of the plan is the preparation of Baseline Resource Management Plans (Baseline

RMPs) for all DCR reservations, parks and forests over a two-year period. This plan establishes the overall framework and direction for the RMP Program. FRMPs prepared by the Bureau of Forest Fire Control and Forestry will be integrated into Baseline RMPs, once RMP funding and staff are in place.

III. The CBK Regional Landscape

The Central Berkshire District is located in four ecoregions (as fully described in the “*Landscape Assessment and Forest Management Framework for the Berkshire Ecoregions*”). The higher elevations and corresponding cooler climate of the Berkshires lead to vegetation patterns more typical of northern New England with spruce-fir and northern hardwood forests dominating the landscape. Lakes and ponds are relatively abundant in the area. The CBK district drains into four different watersheds. The percentage of the district landscape draining into each is as follows: 53% Westfield, 29% Housatonic, 17% Connecticut and 1% drains into the Farmington watershed. The Westfield and Farmington Rivers drain east and south through the rugged terrain of the Berkshire Highlands into the flatter Connecticut Valley while the Housatonic drains south. These watersheds are sparsely populated and have large areas of unfragmented forests.

Approximately 39% (137,458 acres) of the land in the CBK Berkshire District Landscape is protected (fee ownership or conservation restrictions held by state, federal, municipal government, or non-governmental conservation organizations). The present landscape is characterized by forests with dispersed, sparse residential development. Population is concentrated in the cities of Pittsfield, Northampton, Easthampton and Westfield. These population centers are all on the edge of the CBK district, but like the rest of the state, modern social issues are resulting in an increasingly more dispersed development pattern throughout the district.

The structure and composition of today’s forest in this region, on a landscape scale, is heavily influenced by past land use, particularly agricultural use dating from colonial times, subsequent farm abandonment, and past logging practices. Soil cation depletion and a number of insect and disease disturbances also affect the forest in this area.

The estimated population (based on the 2000 U.S. Census) of the Berkshire Ecoregions is ~300,000. Population estimates for the 70 communities in the Berkshire Ecoregions range from 93 to 45,793. Many of these communities are small towns. Half (35) of all communities in the Berkshire Ecoregions have populations of less than 1,500. The cities in the district with the largest population are: Pittsfield (45,793), Westfield (40,072), Northampton (28,978), and North Adams (14,681). The highest population densities are in Pittsfield (1,194/sq. mi.) and Easthampton (1,159/sq. mi.), followed by Greenfield (859/sq. mi.), Northampton (850/sq. mi.), Westfield (824/sq. mi), and North Adams (822/sq. mi.). As is typical of small rural communities, residential development is often dispersed across the landscape, meaning that many residents live in close proximity to (and often surrounded by) the forest. This results in a different relationship to and understanding of the natural world than is typical of more urban dwellers. Communities in the Berkshire Ecoregions grew by an average of just under 12% from 1980 to 2000 (versus a statewide average of 18%).

The amount of developed land in the 70 communities in the Berkshire Ecoregions increased by approximately 50% from 1971 to 1999, with 19 communities experiencing greater than 70% increases. Build-out analyses conducted by EOEa several years ago indicates that the population in the 70 communities could more than triple if all available buildable land was developed.

One result of the recent population growth and development trends is the further subdivision of large forested tracts into smaller units. Approximately 28% of the forestland in the Berkshire Ecoregion is publicly-owned. While this is somewhat higher than the state as a whole (in which about 24% is publicly-owned) (Petersen, 2000), the majority of the forest land is still privately owned.

It is estimated that the number of landowners with fewer than 50 acres of timberland has more than doubled since 1973 (USDA/FS, 2002) in Massachusetts.. This can have a strong influence on how our forestland is managed since owners of relatively small blocks of forest are less likely to manage their land for forest products. They may also be more reluctant to allow others on their land for hunting, fishing and other recreational activities, thereby increasing the pressure on the public owned lands to meet these demands.

Massachusetts is the third most densely populated state yet it has the eighth highest percentage of forest cover. Massachusetts has long recognized that the state's extensive forests furnish a broad array of benefits that support our quality of life. The state's forest ecosystems provide habitat for wildlife, a resource base for timber production, a wide range of opportunities for recreation, a natural filter to purify the air and water, and a vital source of aesthetic pleasure. As development rates have outpaced population growth over the past four decades, the state has sought ways to ensure that forest resources are used in a sustainable manner. Today, however, an important ecosystem function waits to be fully integrated into this planning process – the beneficial role forests play in sequestering, storing, and emitting carbon dioxide. Carbon is a key component of soil, the atmosphere, the ocean, plants, and animals, and constantly moves among and between these reservoirs through natural and human-caused processes. This network of flows is called the global carbon cycle. For example, when forests grow, or wood decays, or soils are tilled, carbon is exchanged between land and the atmosphere. Before the industrial revolution, levels of carbon dioxide and other greenhouse gases in the atmosphere were fairly constant: about the same amount of carbon was released to the atmosphere from the land or ocean as was returned to the land and ocean by other processes. However, human activities, including large-scale fossil fuel use and deforestation, have since perturbed this balance, causing carbon to accumulate in the atmosphere faster than it can be removed. A process that causes a net transfer of carbon to the atmosphere, such as burning coal, is called a carbon source. A process that causes a net removal of carbon from the atmosphere, such as when forests grow, is called a sink. Carbon resource conservation strives to encourage activities that remove or keep more carbon out of the atmosphere and discourage activities that release carbon into the atmosphere. Massachusetts is studying the role of forests in climate change. Specifically, the state is promoting strategies to conserve and maintain working forests and their safe storage of carbon. Massachusetts will also seek to use forest carbon markets to encourage the retention of higher value-added products in the local timber industry, which currently exports much unfinished product out of state. Other strategies include the use of sustainably harvested biofuels to offset fossil fuel consumption, planting trees in urban areas to reduce the heating and cooling load of buildings, and the use of wood products instead of more emission intensive materials like concrete, plastics, and steel. The state's goal is to fully incorporate net greenhouse gas emissions impacts when making forest management and land use decisions.

Supporting Map(s) CBK Regional Landscape

CBK Protected Open Space

The CBK landscape consists of 350,920 acres. There are 137,458 acres (approximately 39%) that have some type of long-term protection. The table below shows the ownership of these protected lands.

Ownership (long term protection)	Acres	Percent of Total Protected Land
Federal	4,893	3.56%
State Agencies		
DCR State Parks and Forests	31,251	22.73%
DFG Wildlife Management Areas	18,599	13.53%
Dept. of Agriculture	151	0.11%
Other Commonwealth	293	0.21%
Private – Non-61	14,654	10.66%
Municipal	36,679	26.68%
Non-Profit	9,399	6.84%
Conservation Trust	41	0.03%
Land Trust	781	0.57%
Other	293	0.21%
Unknown	1,653	1.20%
Private – Chapter 61,61A, and 61B	18,771	13.66%
Total	137,458	100.00%

IV. Public Issues and Opportunities

Public issues and opportunities for the DCR-DSPR system lands in the CBK District were identified at two levels. An ecoregional assessment with corresponding public meetings was conducted for the five ecoregions that make up the Berkshires. These meetings and the public comment periods generated a list of public issues and concerns that were considered when preparing this plan. Another series of public meetings and comment periods were then held specifically for the DSPR lands in the CBK district. See Appendix G for details on the issues and opportunities from the CBK District planning process.

V. District Overview

The Central Berkshire (CBK) District contains approximately 31,251 acres in the state forest and parks system. These lands range from the 16,323 acre October Mountain State Forest to the 0.3 acre Laurel Lake Boat Ramp. It should be noted that there are different administrative boundaries for forest fire control, forest management, service forestry, and recreation programs. All information in this plan is based on the Central Berkshire's Forest Management District. Since information is being collected by the forest management district, properties have been arranged by this district. This plan is in a loose-leaf folder format so that information can be interchanged and arranged as needed. The properties in the CBK District have been grouped into four management units for administration of the forest management program. The following table shows the groupings as well as the forest numbers, property names, and acres:

MANAGEMENT UNIT #	FOREST #	SITE_NAME	Acres
8A	85	BRYANT MOUNTAIN STATE FOREST	617
8A	86	GILBERT A. BLISS STATE FOREST	2,341
8A	88	KRUG SUGARBUSH/DEAD BRANCH STATE FOREST	156
Unit 8A Total			3,114
9A	90	BECKET STATE FOREST	611
9A	91	CHESTER-BLANDFORD STATE FOREST	2,777
9A	92	HUNTINGTON STATE FOREST	732
9A	93	C.M. GARDNER STATE FOREST	85
Unit 9A Total			4,205
10	100	PERU STATE FOREST	2,760
10	101	MIDDLEFIELD STATE FOREST	3,677
10	102	ASHMERE LAKE STATE PARK	203
10	103	WORTHINGTON STATE FOREST	183
Unit 10 Total			6,823
11	110	OCTOBER MOUNTAIN STATE FOREST	16,323
11	111	PITTSFIELD STATE FOREST	80
11	112	REGION V HEADQUARTERS	70
11	113	LAUREL LAKE BOAT RAMP	0.33
11	114	APPALACHIAN NATIONAL SCENIC TRAIL	591
11	115	WAHCONAH FALLS STATE PARK	45
Unit 11 Total			17,109
Grand Total			31,251

Other (non-DSPR system) protected lands in the Central Berkshire landscape provide complementary natural resource values, protection of BioMap core areas, and opportunities for

cooperative resource management. See Appendix D for a list of protected lands within 1 mile of a DCR-DSPR property by ownership.

Although current use properties (privately owned properties managed under the Chapter 61 and 61A programs) are not permanently protected, they do provide and support a large matrix of 18,771 actively managed forested acres representing 13.66% of the CBK landscape.

VI. Forest Resource Management Area Direction

1. General Standards and Guidelines

The following standards and guidelines apply to all DSPR system lands:

- A. **Policies:** DSPR must follow all applicable Commonwealth laws, regulations, executive orders, policy, and documented direction.
- B. **Standards, Guidelines and Management Area Delineations:** In general, standards, guidelines and management area delineations should be followed according to the district forest management plan. Minor, site-specific adjustments to the standards, guidelines and management area delineation may occur with documented rationale and approval by the Forest Management Program Supervisor and Chief Forester. It should be noted that management area delineations were determined primarily through the application of GIS forest and resource data. Field reconnaissance may result in the need to make adjustments according to the natural and physical features of the site.
- C. **Education:** Education efforts should emphasize and encourage the DSPR mission and management, natural resource protection, safety, responsible use, and personal responsibility.
- D. **Firewood:**
 - A permit is required for cutting trees or vegetation for firewood.
 - Where campfires are allowed, firewood collection is limited to dead and down wood in the immediate camping area.
- E. **Openings:**
 - Existing fields, vistas, and wildlife openings if consistent with wildlife habitat requirements, cultural needs, and scenery management objectives, may be maintained.
 - New fields, vistas, and wildlife openings if consistent with wildlife habitat requirements, cultural needs, and scenery management objectives, may be created and maintained except in Forest Reserve Areas
- F. **Water and Soil:** All projects and activities shall comply with Forest Best Management Practices.
- G. **Commercial Minerals:** Mining, oil and gas development, etc. are not allowed within DSPR system lands as per 304 CMR 12.11.
- H. **Common Variety Minerals:** Development of common variety minerals (sand, gravel, top soil, etc.) is not allowed within DSPR system lands as per 304 CMR 12.11.

- I. **Rock and Mineral Collection:** The collection of mineral specimens is not allowed within DSPR system lands without a special use permit as per 304 CMR 12.11.
- L. **Air Quality:** Air quality related values within DSPR system lands should be protected from adverse impacts associated with management and use.
- M. **Boundaries:**
- All DSPR system land boundaries should be surveyed, marked and posted.
 - Boundaries will be marked and posted prior to any land disturbing activity adjacent to private lands.
 - Boundaries should be maintained on a 10-year schedule.
 - Property boundaries on newly acquired tracts should be marked within a two-year period after the acquisition date.
- N. **Roads:** Facilities associated with roads designed as part of the National Scenic Byway system must be managed in accordance with Federal Highway Administration direction in the “National Scenic Byways Program-Program Information.”
- O. **Land Protection:** In-holdings and land adjacent to existing DSPR system lands may be protected through fee acquisition or conservation restrictions based on DSPR land protection priorities, dependent upon available funds.
- P. **Appalachian National Scenic Trail (AT):** Management of the AT must follow the National Trails Systems Act, as amended (P.L. 90-543). This Act is implemented according to:
- The Comprehensive Plan for the Protection, Management, Development, and Use of the Appalachian National Scenic Trail
 - Memorandum of Understanding Guidance Document for The Appalachian National Scenic Trail in the Commonwealth of Massachusetts, MOU 2490-01-003 dated April 3, 2003 between the Commonwealth, the National Park Service, the Appalachian Trail Conference, and the Appalachian Mountain Club.

Consistent with the existing agreement, DSPR will consult with the Appalachian Trail Conference and the Appalachian Mountain Club on management actions that may affect AT values.

Management will be guided by the following documents as amended:

- Appalachian Trail Conference. *Appalachian Trail Design, Construction, and Maintenance (ATC Stewardship Manual, second edition, 2000)*

- Local DSPR approved AT Management Plans.
- Where the AT follows a DSPR road system or road within DSPR system lands, road maintenance may be done as needed on drainage structures, closure devices, road bed and management of vegetation for safe vehicle access.

2. Forest Reserves

There are approximately 7,953 acres in Forest Reserve Areas.

Biodiversity conservation has increasingly recognized the shortcomings in simply using the single species (fine filter) approach to conservation, and is accordingly emphasizing the conservation of ecological communities and ecosystems. Coupled with this emphasis has been an increased appreciation for natural processes and landscape-level factors that sustain these communities and ecosystems. One of the goals of ecoregional and district wide planning is to identify viable examples of all types of ecosystems at appropriate scale to conserve their component species and processes. They are important as “coarse filters” for the conservation of most common species, wide-ranging fauna such as large herbivores, predators, and forest interior birds. The size and natural condition of the matrix forest allow for the maintenance of dynamic ecological processes and meet the breeding requirements of species that utilize late successional forest habitat.

The Forest Reserve (passive management) areas are those areas that are “set-aside” from the traditional land management base. These areas protect important habitat or landscape features, provide habitat for species that utilize older and complex forest structure, serve as controls for research, and as places where natural systems and disturbance regimes can function relatively free of human interference.

There are both large and small-scale Forest Reserves on DSPR system lands. Large-scale Forest Reserves use a coarse filter approach to protect relatively complete ecological communities and ecosystems, while small-scale Forest Reserves apply a fine filter approach to protect specific landform and habitat features. The CBK contains two large-scale Forest Reserves (the Middlefield and Gilbert A. Bliss Forest Reserves) and numerous dispersed small-scale Forest Reserves.

A. Large-scale Forest Reserves

There are approximately 4,666 acres in large-scale Forest Reserve Areas.

Identifying large-scale Forest Reserves is a process that takes into account landscape features, past land use, ownership patterns, and social costs and benefits. The EOEA working group that recommends large-scale reserve candidates worked under the following assumptions when determining potential large-scale reserve locations:

1. Large-scale Forest Reserves are designed to:

- Represent late successional habitat and baseline control data and information for each ecoregion
 - Withstand and recover from large-scale disturbance processes
 - Provide viable and adequate breeding habitat for characteristic and area-sensitive species
 - Although anchored in large state-owned lands, large Forest Reserves can be supplemented by federal, municipal, non-profit, and private holdings
2. Twenty-one (21) relatively unfragmented “forest blocks” were identified through a statewide Forest Reserve planning process. These forest blocks represent some of the best opportunities for conserving large-scale Forest Reserve systems in the Commonwealth. These areas are the least fragmented by roads and have the largest patches and greatest percentage of interior forest, key components of successful Forest Reserves.
 3. Representation of Massachusetts’ forest types is best achieved by stratifying large Forest Reserves by ecoregion.
 4. Approximately 20% of EOE system lands in total may be in a large (approximately 10%) or small (approximately 10%) scale reserve status (result of analysis and public involvement).

Beginning with these assumptions, the working group developed nine criteria with which to evaluate the original 21 forest blocks. EOE then convened a stakeholder workshop to evaluate, revise and weight these criteria. The resulting 11 criteria were weighted according to the relative importance assigned by the stakeholders:

Characteristic	Weighting
<u>Acreage of Old Growth</u>	<u>.268</u>
<u>Acreage of Valley Bottom Land</u>	<u>.188</u>
<u>% Protected Land in Surrounding area</u>	<u>.115</u>
<u>% 1830s Forest</u>	<u>.114</u>
<u>Number of Viable Rare Communities</u>	<u>.108</u>
<u>% Forest Cover in Surrounding</u>	<u>.051</u>
<u>% Biomap Ambystomid Habitat</u>	<u>.047</u>
<u>% Riparian and Wetland Forest</u>	<u>.035</u>
<u>Acreage of Largest Interior Forest</u>	<u>.025</u>
<u>% Forest Interior</u>	<u>.025</u>
<u>% Living Waters CSW</u>	<u>.023</u>

Following this analysis, feasibility criteria (road density, ORV use, infrastructure density, adjacent land use, utility use, past land use, etc) were used to evaluate potential Forest Reserves. A field review was conducted to evaluate all large-scale Forest Reserves. Following both biodiversity evaluation and feasibility review, a working list of large-scale Forest Reserves was created.

(1) Present Condition of Large-scale Reserves

The Middlefield Reserve and the Gilbert A Bliss Reserve are the two large-scale Forest Reserves designated in this district. These Forest Reserves consist of single properties owned and managed by the Division of State Parks and Recreation in combination with additional properties managed by the Department of Fish and Game. The state forest and parklands in the Forest Reserves are mostly forested with beech, birch, maple, hemlock, white pine and spruce fir cover types. None of the properties in the proposed Forest Reserves currently allow off road vehicle use. Recreational uses that are allowed include hunting, hiking, fishing, bird watching, mountain biking, snowmobiling, and horseback riding.

Forest Types and Acres on DSPR system lands in the Middlefield Reserve

Forest Type	Acres
Beech, Birch, Maple	1550.69
Black Cherry	21.44
Black Spruce, Balsam Fir	20.57
Cropland – Hay	0
Hemlock Hardwood	535.4
Norway/White Spruce Plantation	0
Oak Hardwood	13.10
Poplar Aspen	0
Red Maple	4.69
Red Spruce	196.48
Shallow Marsh Meadow or Fen	46.01
Shrub Swamp	43.93
Spruce Fir	25.28
Sugar Maple	82.27
White Pine	4.18
White Pine Hardwood	94.07
White Pine Hemlock	0
No Data	90.46
Middlefield Reserve Total Acres	2728.57

Forest Types and Acres on DSPR system lands in the Gilbert A. Bliss Reserve

Forest Type	Acres
Beech, Birch, Maple	1089.17
Hemlock	33.31
Hemlock Hardwood	569.17
Norway Spruce	19.27
Oak Hardwood	25.89
Open Water	23.05
Red Pine	1.11
Shallow Marsh Meadow or Fen	12.27
Shrub Swamp	0.76
Sugar Maple	6.21
White Pine Hardwood	25.03
White Pine Hemlock	66.40
No Data	66.05
Gilbert A. Bliss Reserve Total Acres	1937.69

(2) Desired Condition of Forest Reserves

The desired condition for the Forest Reserves are late-successional native forests where forest succession and natural disturbances are allowed to proceed relatively free of human intervention. Human use is allowed, however, uses and activities must be consistent with providing a natural relatively undisturbed landscape. The following table shows the predicted age class distribution of the Forest Reserve Areas minus regeneration level natural disturbance.

	0-14 years old Regenerating- Sapling 0-45" DBH	15-59 years old Poles 4.6-10.9" DBH	60-89 years old Sawlogs 11-14.9" DBH	90+ years old Large Sawlogs 15"+ DBH	Uneven aged All size classes	Non Forest	Not Mapped
Present Distribution Acres	0.74% 59	24.36% 1,937	51.97% 4,133	13.45% 1,070	3.36% 267	4.01% 319	2.11% 168
2020 Distribution Acres	0.00% 0	16.98% 1,350	34.10% 2,712	39.44% 3,137	3.36% 267	4.01% 319	2.11% 168
2035 Distribution Acres	0.00% 0	8.86% 705	16.24% 1,291	65.42% 5,203	3.36% 267	4.01% 319	2.11% 168
2050 Distribution Acres	0.00% 0	0.74% 59	16.24% 1,291	73.54% 5,849	3.36% 267	4.01% 319	2.11% 168
2065 Distribution Acres	0.00% 0	0.00% 0	8.86% 705	81.66% 6,494	3.36% 267	4.01% 319	2.11% 168

2080 Distribution Acres	0.00% 0	0.00% 0	0.74% 59	89.78% 7,140	3.36% 267	4.01% 319	2.11% 168
2095 Distribution Acres	0.00% 0	0.00% 0	0.00% 0	90.52% 7,199	3.36% 267	4.01% 319	2.11% 168
2110 Distribution Acres	0.00% 0	0.00% 0	0.00% 0	90.52% 7,199	3.36% 267	4.01% 319	2.11% 168
Total Sustainable Distribution Acres	0.00% 0	0.00% 0	0.00% 0	90.52% 7,199	3.36% 267	4.01% 319	2.11% 168

(3) Management Guidelines for Large-scale Reserves

Recreation, Public Access, and Visual Resources within Forest Reserves

- A. Only low impact recreational activities may be permitted in this area such as hiking, hunting, fishing, etc.
- B. ORV use is prohibited
- C. When there is snow cover (4+ packed inches), snowmobile use is allowed on designated trails and unplowed roads
- D. Intensive, development-dependent recreation and administrative sites are not permitted
- E. New trail construction is permitted only if limited to stable areas and located to avoid adverse impacts to late-successional forest habitat, rare species, water quality, and to known or potential archaeological sites
- F. Minimal cutting of vegetation to maintain DSPR identified public vistas and trails is permitted
- G. Hazardous trees directly adjacent to the trail, of imminent, substantial risk to public safety may be cut.

Silviculture and Vegetation Management within Forest Reserves

- A. Habitat manipulation and traditional silvicultural treatments and operations are not permitted with the following exceptions:
 - a. Natural Heritage & Endangered Species Program recommendations used to restore, maintain or enhance habitat for rare and endangered species, and exemplary rare communities
 - b. Restore native vegetation by removing non-native vegetation and plantations
 - c. Control of non-native invasive species will be permitted
 - d. Vegetation management will be permitted to control erosion or stabilize soils, close roads, or close unauthorized trails
 - e. Limited cutting of vegetation allowed for maintenance of trails and existing roads
- B. Acreage in the reserve is excluded from the annual sustainable harvest calculation

- C. Research that causes no adverse impact to the Forest Reserve will be permitted through a formal written proposal process, approved in advance by the Commissioner or their designee
- D. New fields, vistas, and wildlife openings are prohibited

Water and Soil Resources within Forest Reserves

- A. Wetland resource areas and associated buffers will be managed to protect and enhance habitat and water quality
- B. Management will be permitted to control erosion or stabilize soils, close roads, or close unauthorized trails

Forest Health and Protection within Forest Reserves

- A. Spread of major significant forest pathogens may be controlled if there is a major threat to forest health or risk to private or public interests as determined by the State Forester
- B. Non destructive, low impact research for monitoring forest conditions may be established
- C. Wildfires will be contained, controlled, and suppressed unless there is an approved site specific controlled fire plan and conditions are within prescription
- D. Fire breaks may be maintained in fire prone types of vegetation
- E. Prescribed fire may be used when it is compatible with protection of the Forest Reserve, restoration of native communities and ecological processes, and the protection of life and property in the reserve or the surrounding landscape

Facilities, Transportation, and Boundaries within Forest Reserves

- A. No new roads will be constructed
- B. Existing roads not needed for recreational or administrative use may be closed
- C. Passage through the area is allowed on existing stable roadbeds or trails
- D. Existing roads will be managed and maintained according to DSPR road standards to assure continued access
- E. Construction of new facilities is prohibited. Exceptions may include small-scale, low impact, natural appearing informational kiosks, universal access structures for trails trailheads and parking, and carefully designed boardwalks

Special Uses within Forest Reserves

- A. Special uses such as events and activities will be evaluated and may be allowed. Uses that are not compatible with the intent of Forest Reserves will be evaluated to determine if they can be relocated to another area
- B. New communications sites are prohibited
- C. Wind towers are prohibited

B. Small-Scale Forest Reserves

There are approximately 3,287 acres in small-scale Forest Reserves.

(1) Present Condition

There are a number of areas in the CBK district that traditionally have not been managed for forest products due to their inaccessibility or recognized natural resource values. In the past, the Department's Land Zoning system designated research, natural and wildland areas that were also set aside from vegetation management. The process to identify and designate small-scale forest reserves used selection criteria similar to the large-scale Forest Reserve process, including physical and biological conditions, and past land use history (previous zoning and DCR policy). The table below shows the acreage in small-scale Forest Reserve Areas by facility.

Acres in small-scale Forest Reserves by facility

Facility	Acres
BECKET STATE FOREST	61.51
BRYANT MOUNTAIN STATE FOREST	217.00
C.M. GARDNER STATE PARK	40.19
CHESTER-BLANDFORD STATE FOREST	751.45
HUNTINGTON STATE FOREST	21.72
KRUG SUGARBUSH/DEAD BRANCH STATE FOREST	46.23
OCTOBER MOUNTAIN STATE FOREST	1615.84
PERU STATE FOREST	436.27
PITTSFIELD STATE FOREST	17.03
REGION V HEADQUARTERS	57.06
WAHCONAH FALLS STATE PARK	28.67
Total	3,287.97

(2) Desired Condition

The desired conditions for the small-scale Forest Reserves are the same as the desired conditions for the large-scale Forest Reserves.

(3) Management Guidelines for Small-Scale Reserves

The management guidelines for small-scale Forest Reserves are the same as those for large-scale Forest Reserves.

3. Intensive Use Areas

There are approximately 258 acres of Intensive Use Areas in the CBK district.

General Description: The Intensive Use Areas include constructed or developed administrative, maintenance and recreation sites, structures and resilient landscapes that accommodate concentrated use by recreational visitors and require intensive maintenance by DSPR staff. Examples include park headquarters and maintenance areas, parking lots, swimming beaches, campgrounds, picnic areas and pavilions, open fields designed for high recreation use, and attractions such as waterfalls.

(1) Present Conditions of Intensive Use Areas

The following table lists the Recreational Assets found in the Central Berkshires District. Not all of these resources are in the Intensive Use Areas, but they must be considered in the forest and vegetation resource management activities.

The following table lists facility assets on DSPR system properties in the CBK district.

State Forest or Park	Facility Assets
Ashmere Lake	Dams: Smith Road Dam Boat Launches: Smith Road Access and Parking Cottages: 11 leased cottages
Becket	None
Bryant Mtn.	None
C.M. Gardner	Campgrounds/Day Use Area: Westfield River Day Use Area Parking Areas: 50 Cars
Caulkers Pond	Trails: Trail – 1 mile Other:

	Emergency Helicopter Pad
Chester – Blandford	<p>Trails: Newman Marsh Trail - 1 mile Ski Trail - .75 mile Boulder Trail - .25 mile</p> <p>Campgrounds/Day Use Areas: 15-site campground</p> <p>Parking: Sanderson Brook Fall and Parking Area - 25 cars Boulder Parking Area - 50 cars</p> <p>Other: Chester CCC Structures Vistas 5-sites</p>
Dead Branch – Krug	<p>Other: Sugar Maple Demo Area Parking and Access</p>
Gilbert Bliss	<p>Trails: River Road Trail - 2.5 miles</p> <p>Parking: 5-cars</p>
Grange Hall – Dalton	<p>Trails: Appalachian Trail</p> <p>Parking: 3 cars</p>
Huntington	<p>Trails: 1-mile</p>
October Mountain	<p>Trails: Appalachian Trail 9-miles Multi-Use Trail Area – 42+ miles (including designated ORV trails)</p> <p>Campgrounds/Day Use: 46 site campground Day Use Area</p> <p>Boat Launches: Buckley-Dunton Laurel Lake</p> <p>Parking Areas: AT Becket – 10 cars AT Washington – 4 cars WA Mt Meadow – 6 cars Felton Pond ORV – 5 cars Spruce Trailhead - 5 cars Finerty Pond – 6 cars</p> <p>Dams: Felton Pond</p> <p>Other: Schermerhorn Road Vista</p>
Middlefield	<p>Trails:</p>

	Trail - .5 miles
Peru	Other: Garnet Hill Vista WW II Crash Site Monument
So. Mountain Regional Office	Trails: Trail - 1 mile Other: Western Region Headquarters Complex
Wahconah Falls	Campgrounds/Day Use Areas: Day Use Area Parking: 50 cars Other: Waterfall and Associated Trail – 1 mile
Worthington	Trails: Trail - .5 miles

(2) Desired Conditions of Intensive Use Areas

Visitors should expect quality recreational services that are balanced with resource conservation goals.

(3) Management Guidelines for Intensive Use Areas

Recreation, Public Access and Visual Resources in Intensive Use Areas

- A. Vegetation management will be conducted to promote and maintain native vegetation of low maintenance, long-term durability, and low hazardous risk
- B. Annually, a hazardous tree and vegetation survey should be conducted prior to opening the facility
- C. Trees and vegetation identified as high hazards should be safely removed as soon as possible
- D. Intensive Use Areas with high levels of high hazardous trees and vegetation should be closed and rehabilitated until risks are acceptable

Silviculture and Vegetation Management in Intensive Use Areas

- A. Acreage in the Intensive Use Areas is excluded from the annual sustainable harvest calculations

- B. Vegetation treatments may be conducted to improve public safety related to hazard trees, forest health, wildfire fuel reduction, fire suppression, and improve access for recreation and environmental education programs
- C. Vegetation may be managed by removing invasive/exotic species wherever possible, and maintaining native trees and shrubs when their presence does not adversely affect public safety or access
- D. Emphasis will be on maintaining native vegetation with value to non-game wildlife species
- E. Small-scale wildlife habitat improvements may be conducted
- F. Landscape plantings will consist of native materials in natural resource areas and historically compatible species in cultural resource areas

Water and Soil Resources in Intensive Use Areas

- A. Surface water resources may be used for recreation within the constraints of maintaining public safety and water quality
- B. Surface water and associated wetland vegetation will be managed following the guidelines established in the Wetlands Protection Act
- C. Ground water resources may be utilized for day use and camping facilities

Forest Health and Protection in Intensive Use Areas

- A. Spread of major forest pathogens may be controlled through environmentally sound programs
- B. Wildfires will be contained, confined and controlled in a safe and aggressive manner

Facilities, Transportation and Boundaries in Intensive Use Areas

- A. All main roads and bridges will be constructed or maintained to support vehicular traffic to meet administrative, recreation and natural resource management access needs with public safety considerations as the primary management objective
- B. Use of roads by logging trucks or other commercial traffic may be restricted during periods of high visitor use

4. Active Forest Resource Management Area

There are approximately 23,040 acres in the Active Forest Resource Management Areas. Active Forest Resource Management Areas include the full range of sustainable forest management, recreation activities and natural resource uses. These areas are suitable and available for active vegetation management to achieve the desired conditions. However, not all lands within this

active management area will be managed due to physical and feasibility limitations. It should also be noted that management and use occur in a sustainable manner with temporal and spatial considerations. For example, forest management may occur in a variety of locations over time on a very small percentage of land on an annual basis. All proposed projects including forest management, wildlife, recreation, trails, etc. must be designed to achieve the desired conditions and meet management guidelines.

A. Recreation, Public Access, and Visual Resources within Active Forest Resource Management Areas

(1) Present Condition of Recreation, Public Access and Visual Resources within Forest Resource Management Areas

Recreational opportunities and aesthetic quality are important to all visitors to DSPR system lands. The CBK lands are used for many types of recreation. Uses include camping, hiking, horseback riding, off-road vehicle use (in October Mountain State Forest), birding, nature study, mountain biking, sightseeing, swimming, hunting, and fishing.

The following table shows the acres in road and trail corridors (areas along trails where vegetation management is modified to meet safety and aesthetic concerns) by facility. More specific trail and road information for each property can be found in the management unit appendices.

Facility	Acres in Corridors
APPALACHIAN NATIONAL SCENIC TRAIL	242.3
BECKET STATE FOREST	8.6
BRYANT MOUNTAIN STATE FOREST	4.7
C.M. GARDNER STATE PARK	4.2
CHESTER-BLANDFORD STATE FOREST	155.5
GILBERT A. BLISS STATE FOREST	43.0
HUNTINGTON STATE FOREST	0.9
KRUG SUGARBUSH/DEAD BRANCH STATE FOREST	2.7
MIDDLEFIELD STATE FOREST	21.3
OCTOBER MOUNTAIN STATE FOREST	1812.2
PERU STATE FOREST	52.1
PITTSFIELD STATE FOREST	4.1
REGION V HEADQUARTERS	3.1
WAHCONAH FALLS STATE PARK	0.9
WORTHINGTON STATE FOREST	0.4
Total	2356.0

Supporting Map(s) 11’ Hydrology and 50’ Road and Trail Buffers (Property Level)

(2) Desired Condition for trails and roads in Active Forest Resource Management Areas

The desired condition is a state forest or park where a variety of passive and active natural resource based recreational opportunities and uses occur in a safe and sustainable manner that is consistent and compatible with natural resource management goals. The ORV study is completed and the results are incorporated in the CBK Forest Resource Management Plan.

(3) Management Guidelines for roads and trails in Active Forest Resource Management Areas:

- A. Forest management practices in trail corridors shall be designed to promote native vegetation, species diversity, large-diameter trees, multiple age classes, a healthy forest, a safe recreation experience, and aesthetics.
- B. Special attention and care should be made to provide for long-term quality scenery within DSPR system lands.
- C. In general, management should promote native, diverse, healthy forests and habitats. Adjacent to recreation areas, emphasis should be given to vegetation that is safe and healthy, with multiple age classes to provide long-term quality scenery management.
- D. Scenery management should be planned according to the following road and trail corridor guidance:

Appalachian National Scenic Trail

Primary Corridor: 200 foot width each side of trail

Secondary Corridor: 300 foot width each side of primary trail corridor

- A. Commercial timber management and salvage are allowed so long as they are consistent with AT local management plan and the MOU. Forest management practices shall be planned to meet the objectives of the AT primary and secondary corridors and limited to those practices that directly benefit the trail.
- B. Should forest management take place within the primary or secondary corridors, skid trails should not cross the AT unless there are no feasible alternatives.
- C. Forest management within the AT primary and secondary corridors will be designed to promote native diverse vegetation, large diameter trees, multiple age classes and forest structures, forest health, a safe recreation experience, and quality scenery.
- D. No slash should remain within 50 feet of the AT.

Interstate, Intrastate and Local Roads and Trails:

Interstate and Intrastate Road and Trail Corridors: 100 foot width each side of road or trail

Local Road and Trail Corridors: the DSPR trail system consists of trails identified in the DSPR trail database (maps and officially designated trails), 50 foot width each side of road or trail

- A. Commercial timber management including salvage is allowed within road and trail corridors.
- B. Forest management within the trail corridors will be designed to promote native diverse vegetation, large-diameter trees, multiple age classes and forest structures, healthy forest, safe recreation experience, and quality scenery.
- C. No slash should remain within 25 feet of roads, interstate, intrastate, and local trails.
- D. Natural resource managers will coordinate with park supervisors and user groups when vegetation management is planned.
- E. Natural resource managers will coordinate with park supervisors and user groups to determine if “field identified” roads and trails (not mapped or signed) should have corridor vegetation guidelines applied, have no special treatment, or should be closed and rehabilitated.

B. Silviculture and Vegetation Management within Active Forest Resource Management Areas

The maintenance of appropriate native biodiversity is the underlying silvicultural and vegetation management goal on all state forest and parks lands. Biological diversity is, in part, a measure of the variety of plants and animals, the communities they form, and the ecological processes (soil, climate, water, nutrient cycling, disturbance, etc.) that sustain them. With the recognition that each species has value, individually and as part of its natural community, maintaining appropriate native biodiversity has become one of the most important natural resource management goals.

This is accomplished by applying both coarse and fine filter approaches. A coarse filter approach to conserving appropriate native biodiversity involves maintaining a variety of ecosystems; it assumes that a representative array of ecosystems (types and ages) will contain the vast majority of the species in the region. The fine filtered approach is directed towards individual species known to be rare and strives to catches them even if they “passed through” the coarse filter.

These filters are applied on DSPR system lands by first creating large and small-scale Forest Reserves to promote natural relatively undisturbed forest conditions and provide late successional habitat. The overlying goal on the remaining lands will be to promote appropriate native biodiversity through the protection, restoration, and maintenance of rare species and their habitat, rare natural communities and related species, and an effort to balance the forest age classes. The species composition and structure of the forests are equally important biodiversity elements and will be taken into consideration.

The Sivicultural and Vegetation Management Section is organized in the following subsections: conservation of rare species, restoration and maintenance of native ecosystems, and the establishment and maintenance of a diversity of forest types, age classes, and forest structures.

Rare Species

(1) Present Condition of Rare Species

The Massachusetts Endangered Species Act, M.G.L. Ch. 131A, and its regulations (321 CMR 10.00) prohibit the taking of any state-listed rare plant or animal species. MassWildlife’s Natural Heritage and Endangered Species Program regularly updates and publishes *The Natural Heritage Atlas* that shows the Estimated Habitats of rare wetlands wildlife and the Priority Habitats of all state listed rare species. Rare species include those that are of Endangered, Threatened, or of Special Concern as defined in the Massachusetts Endangered Species Act.

“Endangered” means any species of plant or animal in danger of extinction throughout all or a significant portion of its range, and species of plants or animals in danger of extirpation as documented by biological research and inventory.

"Threatened," means any species of plant or animal likely to become an endangered species within the near future throughout all or a significant portion of its range, and any species declining or rare as determined by biological research and inventory and likely to become endangered in the foreseeable future.

"Special Concern" means any species of plant or animal which has been documented by biological research and inventory to have suffered a decline that could threaten the species if allowed to continue unchecked or that occurs in such small numbers or with such restricted distribution or specialized habitat requirements that it could easily become threatened within Massachusetts.

The following table lists the 116 rare species that are currently known to occur in the CBK District area (not just DSPR land).

Scientific Name	Common Name	DFW Rank
Accipiter striatus	Sharp-shinned Hawk	SC
Acer nigrum	Black Maple	SC
Adlumia fungosa	Climbing Fumitory	T
Aeshna mutata	Spatterdock Darner	SC
Alasmidonta undulate	Triangle Floater	SC
Ambystoma jeffersonianum	Jefferson Salamander	SC
Ambystoma laterale	Blue-spotted Salamander	SC
Amelanchier bartramiana	Bartram's Shadbush	T
Amelanchier sanguinea	Roundleaf Shadbush	SC
Ammodramus savannarum	Grasshopper Sparrow	T
Arabidopsis lyrata	Lyre-leaved Rock-cress	E
Arabis laevigata	Smooth Rock-cress	T

<i>Arceuthobium pusillum</i>	Dwarf Mistletoe	SC
<i>Arethusa bulbosa</i>	Arethusa	T
<i>Botaurus lentiginosus</i>	American Bittern	E
<i>Boyeria grafiana</i>	Ocellated Darner	SC
<i>Calystegia spithamea</i>	Low Bindweed	E
<i>Cardamine pratensis</i> var. <i>palustris</i>	Fen Cuckoo Flower	T
<i>Carex alopecoidea</i>	Foxtail Sedge	T
<i>Carex baileyi</i>	Bailey's Sedge	E
<i>Carex bushii</i>	Bush's Sedge	E
<i>Carex castanea</i>	Chestnut-colored Sedge	E
<i>Carex chordorrhiza</i>	Creeping Sedge	E
<i>Carex Formosa</i>	Handsome Sedge	T
<i>Carex grayi</i>	Gray's Sedge	T
<i>Carex hitchcockiana</i>	Hitchcock's Sedge	SC
<i>Carex lenticularis</i>	Shore Sedge	T
<i>Carex pauciflora</i>	Few-flowered Sedge	E
<i>Carex sterilis</i>	Dioecious Sedge	T
<i>Carex tetanica</i>	Fen Sedge	SC
<i>Catostomus catostomus</i>	Longnose Sucker	SC
<i>Cicindela duodecimguttata</i>	Twelve-spotted Tiger Beetle	SC
<i>Cistothorus platensis</i>	Sedge Wren	E
<i>Claytonia virginica</i>	Narrow-leaved Spring Beauty	E
<i>Clemmys guttata</i>	Spotted Turtle	SC
<i>Clemmys insculpta</i>	Wood Turtle	SC
<i>Clemmys muhlenbergii</i>	Bog Turtle	E
<i>Conioselinum chinense</i>	Hemlock Parsley	SC
<i>Couesius plumbeus</i>	Lake Chub	E
<i>Crotalus horridus</i>	Timber Rattlesnake	E
<i>Cypripedium parviflorum</i> var. <i>makasin</i>	Small Yellow Lady's-slipper	E
<i>Cypripedium reginae</i>	Showy Lady's-slipper	SC
<i>Desmocerus palliatus</i>	Elderberry Long-horned Beetle	SC
<i>Elaphe obsoleta</i>	Rat Snake	E
<i>Eleocharis intermedia</i>	Intermediate Spike-sedge	T
<i>Elymus villosus</i>	Hairy Wild Rye	E
<i>Enallagma carunculatum</i>	Tule Bluet	SC
<i>Equisetum scirpoides</i>	Dwarf Scouring-rush	SC
<i>Eragrostis frankii</i>	Frank's Lovegrass	SC
<i>Eriophorum gracile</i>	Slender Cottongrass	T
<i>Erora laeta</i>	Early Hairstreak	T
<i>Eubbranchipus intricatus</i>	Intricate Fairy Shrimp	SC
<i>Euphyes dion</i>	Dion Skipper	T
<i>Falco peregrinus</i>	Peregrine Falcon	E
<i>Ferrissia walkeri</i>	Walker's Limpet	SC
<i>Galium boreale</i>	Northern Bedstraw	E
<i>Galium labradoricum</i>	Labrador Bedstraw	T
<i>Gallinula chloropus</i>	Common Moorhen	SC
<i>Gomphus borealis</i>	Beaverpond Clubtail	SC
<i>Gomphus descriptus</i>	Harpoon Clubtail	E
<i>Gomphus quadricolor</i>	A Clubtail Dragonfly	T

<i>Halenia deflexa</i>	Spurred Gentian	E
<i>Hemidactylium scutatum</i>	Four-toed Salamander	SC
<i>Houstonia longifolia</i> var. <i>longifolia</i>	Long-leaved Bluet	E
<i>Ixobrychus exilis</i>	Least Bittern	E
<i>Juncus filiformis</i>	Thread Rush	E
<i>Lobelia siphilitica</i>	Great Blue Lobelia	E
<i>Lonicera hirsute</i>	Hairy Honeysuckle	E
<i>Malaxis monophyllos</i> var. <i>brachypoda</i>	White Adder's-mouth	E
<i>Milium effusum</i>	Woodland Millet	T
<i>Mimulus moschatus</i>	Muskflower	E
<i>Moehringia macrophylla</i>	Large-leaved Sandwort	E
<i>Myotis leibii</i>	Eastern Small-footed Bat	SC
<i>Myotis sodalist</i>	Indiana Myotis	E
<i>Notropis bifrenatus</i>	Bridle Shiner	SC
<i>Ophioglossum pusillum</i>	Adder's-tongue Fern	T
<i>Ophiogomphus asperses</i>	Brook Snaketail	SC
<i>Ophiogomphus carolus</i>	Riffle Snaketail	T
<i>Oporornis Philadelphia</i>	Mourning Warbler	SC
<i>Orontium aquaticum</i>	Golden Club	E
<i>Panax quinquefolius</i>	Ginseng	SC
<i>Papaipema</i> sp. 2 near <i>pterisii</i>	Ostrich Fern Borer Moth	SC
<i>Petasites frigidus</i> var. <i>palmatus</i>	Sweet Coltsfoot	E
<i>Pieris oleracea</i>	Eastern Veined White	T
<i>Platanthera flava</i> var. <i>herbiola</i>	Pale Green Orchis	T
<i>Podilymbus podiceps</i>	Pied-billed Grebe	E
<i>Podostemum ceratophyllum</i>	Threadfoot	SC
<i>Polystichum braunii</i>	Braun's Holly-fern	E
<i>Potamogeton friesii</i>	Fries' Pondweed	E
<i>Potamogeton hillii</i>	Hill's Pondweed	SC
<i>Pyrgulopsis lustrica</i>	Pilsbry's Spire Snail	E
<i>Pyrola asarifolia</i> var. <i>purpurea</i>	Pink Pyrola	E
<i>Quercus macrocarpa</i>	Mossy-cup Oak	SC
<i>Ranunculus pensylvanicus</i>	Bristly Buttercup	T
<i>Rhododendron maximum</i>	Great Laurel	T
<i>Rhynchospora capillacea</i>	Capillary Beak-sedge	E
<i>Ribes lacustre</i>	Bristly Black Currant	SC
<i>Sagittaria cuneata</i>	Wapato	T
<i>Senna hebecarpa</i>	Wild Senna	E
<i>Sisyrinchium mucronatum</i>	Slender Blue-eyed Grass	E
<i>Somatochlora elongate</i>	Ski-tailed Emerald	SC
<i>Somatochlora forcipata</i>	Forcipate Emerald	SC
<i>Sorbus decora</i>	Northern Mountain-ash	E
<i>Sorex palustris</i>	Water Shrew	SC
<i>Spiranthes romanzoffiana</i>	Hooded Ladies'-tresses	E
<i>Strophitus undulates</i>	Creeper	SC
<i>Stylurus scudderii</i>	Zebra Clubtail	E
<i>Symphyotrichum prenanthoides</i>	Crooked-stem Aster	T
<i>Terrapene Carolina</i>	Eastern Box Turtle	SC
<i>Trisetum triflorum</i> ssp. <i>Molle</i>	Spiked False Oats	E

Valvata sincera	Boreal Turret Snail	E
Veronica catenata	Sessile Water-speedwell	E
Veronicastrum virginicum	Culver's-root	T
Viburnum rafinesquianum	Downy Arrowwood	E
Viola nephrophylla	Northern Bog Violet	E
Waldsteinia fragarioides	Barren Strawberry	SC

T = Threatened
E = Endangered
SC = Special Concern

The following table lists rare species found on DSPR system lands in the CBK District.

Scientific Name	Common Name	Category	State Listing Status	Last Observed
Acidic graminoid fen	Acidic Graminoid Fen	Freshwater Community		1998
Arceuthobium pusillum	Dwarf Mistletoe	Vascular Plant	SC	1904
Black ash-red maple-tamarack calcareous seepage swamp	Black Ash-red Maple-tamarack Calcareous Seepage Swamp	Freshwater Community		1983
Boyeria grafiana	Ocellated Darner	Invertebrate Animal	SC	2003
Cistothorus platensis	Sedge Wren	Vertebrate Animal	E	1934
Couesius plumbeus	Lake Chub	Vertebrate Animal	E	2001
Enallagma carunculatum	Tule Bluet	Invertebrate Animal	SC	1998
Forest seep community	Forest Seep Community	Terrestrial Community		2000
Gomphus borealis	Beaverpond Clubtail	Invertebrate Animal	SC	1996
Halenia deflexa	Spurred Gentian	Vascular Plant	E	1984
High-energy riverbank	High-energy Riverbank	Freshwater Community		2000
Level bog	Level Bog	Freshwater Community		1998
Ophiogomphus carolus	Riffle Snaketail	Invertebrate Animal	T	1997
Oporornis philadelphia	Mourning Warbler	Vertebrate Animal	SC	1997
Pieris oleracea	Eastern Veined White	Invertebrate Animal	T	1986
Platanthera flava var. herbiola	Pale Green Orchis	Vascular Plant	T	1984
Ribes triste	Swamp Red Currant	Vascular Plant	WL	1995
Rich, mesic forest community	Rich, Mesic Forest Community	Terrestrial Community		1998
Waldsteinia fragarioides	Barren Strawberry	Vascular Plant	SC	2003

Priority Habitats delineate habitats for rare plant and animal populations protected under the Massachusetts Endangered Species Act Regulations (321 CMR 10.00). They are comprised of polygons indicating the approximate extent of rare species habitat based on records in the National Heritage and Endangered Species Program. The following table shows the priority habitat for the CBK District:

Priority Habitat

2005 Data	Acres
NHESP Priority Habitat polygons on non-DSPR lands in the Central Berkshires District	30,048
NHESP Priority Habitat polygons on DSPR lands in the Central Berkshires District	1,947
<i>Appalachian National Scenic Trail Corridor</i>	23
<i>Bryant Mountain State Forest</i>	52
<i>C.M. Gardner State Park</i>	10
<i>Gilbert A. Bliss State Forest</i>	954
<i>October Mountain State Forest</i>	763
<i>Peru State Forest</i>	47
<i>Region V Headquarters</i>	55
<i>Wahconah Falls State Park</i>	43
Total	31,995

Estimated Habitats delineate the approximate geographical extent of habitats of state-protected rare wildlife (not plants) and indicate approximate locations of certified vernal pools for use with the Wetlands Protection Act Regulations (310 CMR 10.00). The following table shows the Estimated Habitat for the CBK District:

Estimated Habitat

2005 Data	Acres
NHESP Estimated Habitat polygons on non-DSPR lands in the Central Berkshire District	17,025
NHESP Estimated Habitat polygons on DSPR lands in the Central Berkshires District	1,166
<i>Bryant Mountain State Forest</i>	49
<i>C.M. Gardner State Park</i>	4
<i>Gilbert A. Bliss State Forest</i>	487
<i>October Mountain State Forest</i>	579
<i>Peru State Forest</i>	47
Total	18,191

Supporting Map(s) Rare Species (Property Level)

(2) Desired Condition of Rare Species

The desired condition is a forested landscape where rare species and their habitats are appropriately valued, protected, and conserved. In addition, DSPR staff will work cooperatively with the Natural Heritage and Endangered Species Program to conduct periodic rare species and habitat inventories and surveys for the conservation, restoration and maintenance of rare species.

(3) Management Guidelines for Rare Species

- A. Consult with Massachusetts Natural Heritage and Endangered Species Program (NHESP) Atlas for known occurrences or habitats of rare species during all project planning
- B. Survey for rare species and habitats during all field operations. Training and protocols will be developed in cooperation with the NHESP
- C. Submit to NHESP for review and recommendations the silvicultural prescription or project report with species and habitat considerations when rare species and/or their habitats are located
- D. Meet intent and standards of rare species Conservation Management Practices as they are approved by NHESP for all species currently listed or delisted since the preparation of this plan.
- E. Continue to cooperatively develop with NHESP Conservation Management Practices for the protection of rare species and their habitats

Native Vegetation

(1) Present Condition of Native Vegetation

For over 5,000 years, people have moved plants with commercial value all over the globe. In Massachusetts, the Civilian Conservation Corp was very active in establishing plantations on areas that were previously cleared for agriculture, cut over, and/or burned. Many of these planted species were non-natives such as Norway spruce and Scots pine, or native trees that were planted out of their historic ranges such as red pine and larch. The DSPR system lands in the CBK district contain approximately 2,087 acres of non-native plantations, and 121 acres of native plantations. Although these plantations are not usually invasive (invasive non-native species are discussed in the forest health section) and may contain valuable wood products, they support markedly lower diversity of native flora and fauna when compared to native forest types. The benefits (wood production) do not outweigh the negative ecological effects and potential threats of these plantations.

(2) Desired Condition of Native Vegetation

The desired condition is a forest where appropriate native biodiversity is supported through the maintenance and restoration of native ecosystems and species components. Non-native species will be actively removed and replaced (restored to native conditions) where possible through the application of active vegetation management including silvicultural treatments and prescribed fire.

(3) Management Guidelines for Native Vegetation

- A. Restore non-native forest conditions to native and natural conditions
- B. Maintain a diversity of native forest types and age classes

- C. Provide for an appropriate diversity of native species including herbs, forbs, and woody vegetation
- D. Maintain non-native plantations only where their removal would have severe environmental consequences or in areas where they provide other societal benefits, such as high use recreational areas or historical context.

Forest Type and Age Class Diversity

A major factor influencing forest biodiversity in Massachusetts is the composition, age structure and distribution of forest types and their forest successional stages. This is important from a biological diversity perspective because each forest successional stages provides different components of species life cycle needs and each stage may have a different, although not usually unique, set of species. Because various plant and animal species are associated with different stages of succession, balancing the age structure of a forest provides the widest range of habitats and therefore biological diversity. Thus, when viewed on the time scale of forest succession and the spatial scale of landscapes, active vegetation management provides for and enhances biological diversity.

(1) Present Condition of Forest Type and Age Class Diversity

The CBK district's forest vegetation is currently composed of approximately 1% early successional forest habitat (0 to 14 years old), 76% mid successional forest habitat (15 to 104 years old), 5% uneven aged forest, 11% late successional forest habitat (114+ years old), and 7% non-forested. These are distributed over nine general forest types. The following table displays the breakdown of total acreage in the CBK district by age class and forest type.

CBK District Forest Vegetation by forest type and size class (All CBK Lands)

	0-14 years old Regenerating- Sapling 0-1.4" DBH	15-59 years old Poles 1.5-10.9" DBH	60-104 years old Sawlogs 11-17.9" DBH	105+ years old Large Sawlogs 18"+ DBH	Uneven aged All size classes	Non- Forest	Not Mapped	Intensive Use
Total Approximate Sustainable Distribution	7.91%	23.72%	15.81%	37.25%	8.02%	4.30%	2.16%	0.83%
Total Current Distribution	1.25%	23.23%	52.33%	10.77%	5.12%	4.30%	2.16%	0.83%
Current Total Acres	392	7261	16354	3366	1601	1344	675	258
Forest Type								
White-Red Pine	63	210	849	348	30	NA	NA	NA
Hemlock	0	2311	2530	58	123	NA	NA	NA
Spruce-Fir	49	1174	1205	0	0	NA	NA	NA
Pitch Pine	0	0	0	0	0	NA	NA	NA

Northern Hardwoods	78	3022	11182	2853	1458	NA	NA	NA
Birch	147	194	21	0	0	NA	NA	NA
Oak	0	218	641	139	0	NA	NA	NA
Swamp Softwoods	39	57	0	0	0	NA	NA	NA
Swamp Hardwoods	17	116	37	0	0	NA	NA	NA

Due to rounding and multiple data sources total acres by size classes are slightly different than the sum of acres by forest types in the table above. More detailed tables of forest types and age classes may be found in the appendices.

Supporting Map(s)

Vegetation (Property Level)

Vegetation with Resource Overlays (Property Level)

(2) Desired Condition of Forest Type and Age Class Diversity

The desired condition is a forest where appropriate native biodiversity is provided through the maintenance of habitats where all successional stages are represented for each forest type. Biodiversity is further provided through a planned range of species composition and structural components and a well functioning forest ecosystem.

The following table shows the desired age and size class distribution of the Active Forest Resource Management Areas over the next 105 years.

	0-14 years old Regenerating- Sapling	15-59 years old Poles	60-89 years old Sawlogs	90+ years old Large Sawlogs	Uneven aged All size classes	Non Forest	Not Mapped
	0-45" DBH	4.6-10.9" DBH	11-14.9" DBH	15"+ DBH			
Present Distribution Acres	1.45% 333	23.11% 5,324	53.04% 12,221	9.97% 2,296	5.79% 1,334	4.45% 1,025	2.20% 507
2020 Distribution Acres	10.72% 2,471	16.85% 3,882	34.22% 7,885	21.83% 5,030	9.72% 2,240	4.45% 1,025	2.20% 507
2035 Distribution Acres	10.72% 2,471	19.87% 4,579	15.41% 3,549	37.63% 8,669	9.72% 2,240	4.45% 1,025	2.20% 507
2050 Distribution Acres	10.72% 2,471	22.89% 5,275	15.41% 3,549	34.61% 7,973	9.72% 2,240	4.45% 1,025	2.20% 507
2065 Distribution	10.72%	32.17%	9.15%	31.58%	9.72%	4.45%	2.20%

Acres	2,471	7,413	2,108	7,277	2,240	1,025	507
2080 Distribution	10.72%	32.17%	12.17%	28.56%	9.72%	4.45%	2.20%
Acres	2,471	7,413	2,804	6,581	2,240	1,025	507
2095 Distribution	10.72%	32.17%	21.45%	19.28%	9.72%	4.45%	2.20%
Acres	2,471	7,413	4,942	4,443	2,240	1,025	507
2110 Distribution	10.72%	32.17%	21.45%	19.28%	9.72%	4.45%	2.20%
Acres	2,471	7,413	4,942	4,443	2,240	1,025	507
Total Sustainable Distribution	10.72%	32.17%	21.45%	19.28%	9.72%	4.45%	2.20%
Acres	2,471	7,413	4,942	4,443	2,240	1,025	507

When combined with Forest Reserve Areas, the age class and structure for all DSPR lands in the Central Berkshire District will be distributed as follows:

	0-14 years old	15-59 years old	60-89 years old	90+ years old	Uneven aged All size classes	Non Forest	Not Mapped	Intensive Use
	Regenerating-Sapling	Poles	Sawlogs	Large Sawlogs				
	0-45" DBH	4.6-10.9" DBH	11-14.9" DBH	15"+ DBH				
Present Distribution	1.25%	23.23%	52.33%	10.77%	5.12%	4.30%	2.16%	0.83%
Acres	392	7,261	16,354	3,366	1,601	1,344	675	258

2020 Distribution Acres	7.91% 2,471	16.74% 5,233	33.91% 10,597	26.13% 8,166	8.02% 2,507	4.30% 1,344	2.16% 675	0.83% 258
2035 Distribution Acres	7.91% 2,471	16.91% 5,283	15.49% 4,841	44.39% 13,872	8.02% 2,507	4.30% 1,344	2.16% 675	0.83% 258
2050 Distribution Acres	7.91% 2,471	17.07% 5,334	15.49% 4,841	44.23% 13,822	8.02% 2,507	4.30% 1,344	2.16% 675	0.83% 258
2065 Distribution Acres	7.91% 2,471	23.72% 7,413	9.00% 2,812	44.07% 13,771	8.02% 2,507	4.30% 1,344	2.16% 675	0.83% 258
2080 Distribution Acres	7.91% 2,471	23.72% 7,413	9.16% 2,863	43.90% 13,721	8.02% 2,507	4.30% 1,344	2.16% 675	0.83% 258
2095 Distribution Acres	7.91% 2,471	23.72% 7,413	15.81% 4,942	37.25% 11,642	8.02% 2,507	4.30% 1,344	2.16% 675	0.83% 258
2110 Distribution Acres	7.91% 2,471	23.72% 7,413	15.81% 4,942	37.25% 11,642	8.02% 2,507	4.30% 1,344	2.16% 675	0.83% 258
Total Sustainable Distribution Acres	7.91% 2,471	23.72% 7,413	15.81% 4,942	37.25% 11,642	8.02% 2,507	4.30% 1,344	2.16% 675	0.83% 258

(3) Management Guidelines for Silviculture and Vegetation Management in Active Forest Resource Management Areas:

- A. Consolidate vegetation management activities where possible for emulating some natural disturbance processes, maximizing treatment effectiveness and efficiencies, and if applicable, decreasing the edge effect from harvesting
- B. Conduct vegetation management activities in accordance with accepted silvicultural practices and guidelines
- C. Coordinate vegetation management activities where practicable, desirable and feasible with adjacent lands. Consider the surrounding local landscape patterns during the development of project level plans.
- D. Annually manage on a 105-year rotation by establishing regeneration on approximately 0.7 % of the active forest resource management areas (approximately 0.5% of total DSPR land base) and releasing existing regeneration (final removal of overstory) on approximately an equal amount of acreage with previously established regeneration
- E. Implement vegetation management on a 15-year planning cycle
- F. Prioritize vegetation management to meet the following natural resource objectives :
 - 1. Meet rare species habitat and biodiversity goals
 - 2. Reduce the risks of catastrophic disturbances such as wildfires
 - 3. Restore and maintain native ecosystems
 - 4. Restore and maintain forest health
 - 5. Provide a sustainable flow of forest products and appropriate native biodiversity by balancing the age classes for each forest type
- G. Select stands for meeting the above vegetation management objectives by further prioritization based on the following goals:
 - 1. Completing regeneration harvests in stands that have had previous work to establish or release existing regeneration
 - 2. Regenerating stands that are at imminent risk of mortality from insects, disease, fire, etc.
 - 3. Establishing regeneration in poorly stocked stands or in stands that are currently stocked with species that are ill suited to the site

4. Improving low quality stands
 5. Regenerating mature stands
 6. Thinning immature stands
- H. Manage approximately 10% of the forest vegetation in the active forest resource management areas (approximately 7% of all DSPR lands) in an extended rotation (approximately 150 years).
1. Select stands for extended rotation in areas that complement Forest Reserves, trail and road corridors, aquatic buffers, and/or rare species habitats where possible
 2. Manage extended rotation stands according to uneven aged silvicultural principles to promote healthy, multi-age, large stand areas with complex structure
- I. Thin overstocked forest stands to maintain forest health and tree vigor in stands that have a high percentage of acceptable growing stock. The most productive sites should be given the highest priority for treatment. Thinning should be scheduled early in the rotation.

Wildlife and Structural Guidelines:

Where forest vegetation management occurs, the following guidelines apply:

- A. Retain on average at least one live, large diameter (where possible >18" dbh) cavity or den tree per 5 acres up to a maximum of three trees per acre either as individuals, or 1/4 to 1/3 acre groups or islands for cavity nesting species. A greater number of trees should be left in riparian areas. Retain 2-5 smaller diameter cavity trees where possible.
- B. Retain as many snags and stubs as possible in harvested areas in compliance and consideration of O.S.H.A. "Danger Tree" regulations
- C. Retain on average one of the oldest, largest diameter, well formed, dominant trees (where possible > 18" dbh) per acre in harvested areas to serve as legacy trees
- D. Maintain at least one cord (85 cubic feet) per acre of down coarse woody debris (material 5" or greater at the tip and at least 4' long) for ground dwelling amphibians, mammals, insects, and nutrient recycling. When available, highest priority will be given to leaving large, cull logs that will remain for long periods of time.
- E. Provide a diversity of horizontal and vertical forest structures by retaining both individuals and groups of trees during final release regeneration harvests and by protecting desirable advanced regeneration

C. Water and Soil Resources in Active Forest Resource Management Areas

(1) Present Condition of Water and Soil Resources in Active Forest Resource Management Areas

The lands in the CBK have a variety of water related features such as streams, rivers, ponds, lakes, marshes, wetlands, and vernal pools. Rare mussels live in some of the moderately flowing portions of streams where there are firm sands and cobbles. In steeper, more rapid streams, ledge outcrops and cobble-bottoms provide specialized habitat for rare aquatic plants. Here the fast-flowing cold water supports diverse communities of invertebrates, which in turn support coldwater fish communities.

Forests provide a very effective natural buffer that holds soil in place and protects the purity of our water. The trees, understory vegetation, and the organic material on the forest floor reduce the impact of falling rain and help to insure that soil will not be carried into streams and waterways.

The following table shows the acreage of lands within 100 feet of a stream, wetland, lake, pond, or other aquatic feature by facility.

Facility Name	Acres within 100' of aquatic feature
APPALACHIAN NATIONAL SCENIC TRAIL	20.8
ASHMERE LAKE STATE PARK	163.5
BECKET STATE FOREST	55.3
BRYANT MOUNTAIN STATE FOREST	19.4
C.M. GARDNER STATE PARK	20.5
CHESTER-BLANDFORD STATE FOREST	270.4
KRUG SUGARBUSH/DEAD BRANCH STATE FOREST	75.0
GILBERT A. BLISS STATE FOREST	482.9
HUNTINGTON STATE FOREST	39.7
LAUREL LAKE BOAT RAMP	0.3
MIDDLEFIELD STATE FOREST	535.9
OCTOBER MOUNTAIN STATE FOREST	2598.3
PERU STATE FOREST	199.9
WAHCONAH FALLS STATE PARK	9.4
WORTHINGTON STATE FOREST	5.8
Total	4510.1

The soils on the CBK lands have been grouped into nine productivity classes, based on the soil texture, drainage rate, available moisture and slope position. Productivity classes relate to the amount of forest biomass that can be grown on the soils. All class 1, 2, and 3 soils are considered highly productive. Although productivity classes are based on biomass production, studies have also shown that more productive soils also support a higher level of biodiversity. Soil productivity classes are further modified by a wetland or poorly drained “wet” modifier. These resulting nine classes are defined in the table below:

Class	Name	White Pine ft ³ /ac/year	White Pine Site Index	Red Oak ft ³ /ac/year	Red Oak Site Index	Acres in District
0	Non-forested	0	0	0	0	1684
1	Prime 1	>155	>70	>55	>65	3641
2	Prime 2	120-154	60-69	45-54	60-64	5999
3	Prime 3	85-119	50-59	40-44	55-59	4384
3W	Prime 3 – Wet	85-119	50-59	40-44	55-59	413
S	Statewide Importance	65-84	45-49	35-39	50-54	14160
SW	State Importance - Wet	65-84	45-49	35-39	50-54	95
L	Local Importance	<65	<45	<35	<50	718
LW	Local Importance - Wet	<65	<45	<35	<50	131
U	Unique	N/A	N/A	N/A	N/A	0

Supporting Map(s) 100' Hydrology and 50' Road and Trail Buffers (Property Level)
Prime Soils (Property Level)

(2) Desired Condition of Water and Soil Resources in Active Forest Resource Management Areas

The desired condition is a forest that promotes and maintains the integrity of healthy, functioning aquatic ecosystems, vertebrate and invertebrate populations, water chemistry, nutrient input, and instream structure.

The desired condition is a forest where soils are conserved and managed for long term productivity. Practices will be designed to keep as much forested land as possible in a productive status, minimize erosion, displacement, compaction, and rutting, and provide for nutrient recycling. The loss of calcium and other limiting nutrients will be monitored and, when necessary, mitigation measures are taken to increase these nutrients.

(3) Management Guidelines for Water and Soil Resources in Active Forest Resource Management Areas:

- A. Meet rare species habitat needs and MA Forestry Best Management Practices requirements
- B. Manage areas around all vernal pools (certified and non-certified) according to the “Guidelines for Timber Harvesting near Vernal Pools”. In addition apply the following restrictions:
 - 1. Pool Depression: Keep tops and slash out of the pool depression.
 - 2. From zero to 50 feet from the edge of the pool: No equipment is allowed to operate in this area. Logs should be winched or felled from this area.
 - 3. From zero to 100 feet: Only partial cuts are allowed. Maintain shading and acceptable microclimates for amphibians. The vegetative composition within the buffer should favor older mature hardwood species.

4. From zero to 200 feet from the pool edge: Avoid operating in conditions that would create ruts deeper than 6 inches, and minimize disturbance of the leaf litter and forest floor.
- C. Promote and provide for the present and future recruitment of large diameter coarse woody debris in filter strips
 - D. Maintain soil processes by providing for the recruitment of organic inputs and minimizing erosion
 - E. Minimize the number of roads, skid trails, and landings
 - F. Require that landings and main skid roads be stabilized and graded at the end of any operation
 - G. Require that all petroleum products, industrial chemicals, and hazardous materials be stored in accordance with manufactures specifications, and at a minimum in durable sealed containers
 - H. Prohibit the use of harvesting machinery during the typical mud season (March 15 to May 15) or wet periods unless waived by the forester
 - I. Protect highly sensitive or wet soils by limiting activities to period when the ground is frozen or dry to prevent a reduction in site productivity and/or requiring equipment that minimizes impacts to these soils
 - J. Manage soils on a sustainable basis. Consider application of nutrients to soils when they have become a limiting factor to forest growth and sustainability

D. Cultural Resources in Active Forest Resource Management Areas

(1) Present Condition of Cultural Resources in Active Forest Resource Management Areas

Cultural resources are important artifacts of past human behavior and a wide variety of State and Federal legislation has been passed to provide for their protection. Cultural resources include historic buildings (homesteads, mills, churches etc), structures (dams, roads, stone walls, etc.), and archaeological sites (prehistoric and historic).

DSPR's Cultural Resource Management program is designed to ensure that future generations will have the opportunity to understand, appreciate, and learn about the past. The Department is determined to implement the existing preservation laws in a timely manner in order to properly manage the cultural resources within its State and Urban Parks system.

The Central Berkshire District (CBK) contains numerous examples of the full range of cultural resources. To assist property managers and foresters a Cultural Resource Sensitivity Map has

been produced for each property within the CBK. Each map is based on what is known as Archaeological Site Location Criteria, which in turn is based on soil drainage characteristics, a location's proximity to a fresh water source, and the degree of slope of the location, as well as other variables such as micro-topography, aspect and past land-uses. The resulting maps show archeological sensitivity "bubbles" where further review and limitations may be necessary before a project can proceed. Specific information on the cultural resources for each property may be found in Appendix E on Cultural Resource Protection and its accompanying tables.

Supporting Map(s) Archeologically Sensitive Buffer (Property Level)

(2) Desired Condition of Cultural Resources in Active Forest Resource Management Areas

The desired condition is to identify, and evaluate the condition and significance of cultural resources within the properties for which DSPR provides stewardship. Based on this initial set of findings, plans to protect and maintain significant cultural resources within the CBK state forest and parks lands will be formulated. In some cases, cultural resources may be enhanced through specific management activities or presented to the visiting public through interpretative, educational, and programmatic formats.

(3) Management Guidelines of Cultural Resources in Active Forest Resource Management Areas

- A. Identify projects that could have potential impacts to cultural resources should they exist within the limits of the proposed projects
- B. Prepare and submit the silvicultural prescription or project scope to DCR's staff Archaeologist for review during the proposed silvicultural or project planning stages if all or a part of the project falls within an archeological sensitivity "bubble". The Archaeologist will determine whether known, or potential, cultural resources may exist and what management enhancements, limitations and/or restrictions may be necessary to implement the proposed project and protect the cultural resources at the same time.
- C. Protect cultural resources on all projects by:
 1. Incorporating the DCR Archaeologist's recommendations for managing (protecting, restoring, maintaining and interpreting) potential and existing cultural resources into the stand's harvest prescriptions or project scope
 2. Prohibiting activities that disturb the integrity of known cultural resources or which could have an adverse affect to if they did exist (i.e., potential sites)
 3. Minimizing soil disturbance (compaction, displacement, rutting) inside the archeological sensitivity "bubbles". Typically this will include limitations/restrictions on the season of the year during which the harvest or project can occur and/or the types of equipment/machinery that can be employed

4. Minimizing creation of new openings in stone walls. Repair any necessary opening(s) following the completion of the operation or stockpile removed stones if the opening will be used in the future
5. Avoiding the placement of landings within 25 feet of cellar holes where possible
6. Capping abandoned open wells in a manner that maintains the integrity of the historic feature
7. Interpret cultural resources for programmatic and educational purposes dependant upon significance, feasibility and funding
8. Maintain or enhance cultural resources through careful vegetation management and the removal of woody debris when recommended by DSPR's staff Archaeologist

E. Forest Health and Protection in Active Forest Resource Management Areas

(1) Present Condition of Forest Health and Protection in Active Forest Resource Management Areas

Forests contain a variety of natural and human influenced damaging agents that may affect long-term forest health such as insects, diseases, fire, wind, snow, ice, and non-native invasive species.

The current major forest health issues in the CBK are:

- Hemlock woolly adelgid (HWA)
- Ash Decline
- Beech Bark Disease
- Armillaria Fungus
- Diplodia Fungus
- Gypsy Moth and Tent Caterpillar Outbreaks
- Emerald ash borer (potential future threat)
- Sudden oak death (potential future threat)
- Asian long-horned beetle (potential future threat)
- Non-native invasive species

An inventory of invasive exotic plants currently does not exist for the CBK District but most common invasive plants are present including:

Trees

Black Locust

Norway maple

Shrubs and Vines

Oriental bittersweet
Japanese barberry
Black Shallow-wort
Shining and Common Buckthorn
Japanese Honeysuckle
Morrow's Honeysuckle and other shrub honeysuckles
Autumn Olive
Multiflora Rose

Herbaceous Plants and Perennials

Goutweed or Bishop's Weed
Yellow Iris
Japanese Knotweed
Purple Loosestrife
Garlic Mustard

Most forests including those in the CBK District are relatively resistant to catastrophic fire and of low fire risk. Historically, Native Americans burned certain forests to improve early successional habitat for hunting. In modern times, fires most often result from careless human actions.

Although not a prime influence in these forests, the risk of unintentional and damaging forest fires can increase as a result of accumulation of naturally dying vegetation in periods of drought and logging activity if the slash (tree tops, branches, and debris) is not treated correctly. Adherence to the Massachusetts slash law minimizes this risk. Under the law, slash is to be removed or modified in buffer areas near roads, boundaries, and critical areas and lopped close to the ground to speed decay.

Depending on the fuel types, fire risk and habitat goals for the site-specific area, fire can be considered as a management tool to favor certain species of plants such as oak, provide habitat for wildlife such as ruffed grouse or reduce the risks of hazardous fuel accumulation.

According to the Massachusetts Climate Protection Plan (See Appendix G): "Climate change could have serious impacts on the state's diverse ecosystems, native species and may encourage the spread of non-native species. It would also likely alter the natural range of many different plants and animals. Over the long term, warming could intensify droughts and damage forest ecosystems". The CBK FRMP aims to provide a long-term sustainable strategy (105 years) and short term (next 15 years) implementation schedule. While the extent of the effects of climate change are not fully understood, the likely focus of many effects, in terms of non native species, damage to forest ecosystems or more droughts, are well known. This Plan has been designed to be anticipatory in the following ways:

- Recognizing the carbon sequestration benefits of young vigorously growing forests, the plan provides for a more balance structure of age classes
- Without being able to predict the change in native forest ecosystems brought about by climate change, the plan focuses on sustainability and ecosystem function rather than species distribution.

- The plan focuses attention on the problem of non-native species, which will likely increase with continued climatic change.

The state will continue its efforts to maintain existing forests, increase land conservation areas, and give incentives for native (non-invasive) reforestation of previously forested area. The amount of carbon stored or sequestered by these activities will be measured and monitored over time to ensure that real carbon benefits accrue, and to better understand the long-term benefits of such programs.

(2) Desired Condition of Forest Health and Protection in Active Forest Resource Management Areas

The desired condition is a healthy, diverse, native forest with a reduced occurrence of undesirable, non-native, invasive species.

The desired condition is a forest with a low threat of catastrophic fire and with the infrastructure to allow efficient response to wildfire and for the application of prescribed fire.

(3) Management Guidelines for Forest Health and Protection in Active Forest Resource Management Areas

Forest Insects and Diseases:

- A. Conduct periodic surveys to identify and quantify forest insect and disease impacts
- B. Prescribe integrated pest management approaches that treat high-risk stands - including the development of an Invasive Species Response Plan for invasive species of significant risk to forest resources
- C. Address hemlock woolly adelgid risk by:
 1. Surveying hemlock stands with greater than 50% stocking of hemlock for the presence of HWA
 2. Considering hemlock stands for treatment (regeneration, thinning, or salvage) when the majority of the hemlock trees (greater than 50%) are infected with HWA

Non-native Invasive Species:

- A. Conduct periodic surveys to identify, map, and quantify impacts of non-native invasive species
- B. Prescribe integrated and interdisciplinary approaches that treat existing populations while maintaining desirable native species

- C. Take reasonable preventative measures during projects to limit the spread of existing populations and the introduction of new populations including inspection of all equipment prior to unloading at the job sites. If the management forester feels there is a threat of introduction of plant parts or seed the operator will be required to thoroughly clean the exterior, undercarriage, and tires/tracks of his/her equipment with a high-pressure washer at a maintenance facility prior to bringing the equipment on site. Cleaning will substantially reduce the chance of spreading invasive exotic plant seeds/roots from a previous work site.

Carbon sequestration:

- A. Manage for native vigorous vegetative growth that will both increase carbon storage and shepherd adaptation to climate change over time.
- B. Consider carbon resource management including age class representation as one criterion in the management plan of state forests and other public lands.
- C. Support research on the role of controlled and uncontrolled forest fires in returning carbon to the soil rather than emitting it into the atmosphere.

Use of Pesticides:

- A. Use pesticides only when there are no other effective alternatives
- B. Apply pesticides according to product labels and by a licensed applicator
- C. Monitor treatments for effectiveness and impacts on non-target species and areas

Salvage of Dead and Dying Forest:

- A. Use salvage operations to reduce risk to human health and safety, fire risks or to reduce continued forest health threats when necessary
- B. Consider pre-salvage operations to reduce risk to human health and safety, or address forest health threats

Fire

- A. Inventory and maintain desirable fire roads and water drafting sites
- B. Meet MA slash law requirements
- C. Suppress wildfires to meet the following objectives:
 - 1. Provide for the safety and well being of fire fighters and the public

2. Protect natural resource investments and private property
 3. Use “Light Hand On The Land” prevention and suppression tactics
 4. Coordinate suppression tactics with the natural resource desired conditions
- D. Use mechanical treatments and prescribed fire to maintain natural communities; reduce the buildup of hazardous fuels; enhance conditions favorable to rare species or communities; establish desirable regeneration; and create habitat for early successional species
- E. Maintain forest health to reduce forest mortality and subsequent build-up of fuels

F. Facilities, Transportation, and Boundaries in Active Forest Resource Management Areas

(1) Present Condition of Facilities, Transportation, and Boundaries in Active Forest Resource Management Areas

There are approximately 132 miles of road and trails within the DSPR properties in the CBK district. Generally, roads and trails are poor to fair condition and minimally maintained through forest management activities, volunteers, and occasionally as part of a DSPR project. Specific transportation information for each property may be found in the property appendices.

SITE NAME	Length (miles)
Ashmere Lake State Park	0.4
Becket State Forest	2.6
Bryant Mountain State Forest	0.7
C.M. Gardner State Park	0.3
Chester-Blandford State Forest	16.5
Gilbert A. Bliss State Forest	11.6
Huntington State Forest	4.4
Krug Sugarbush/Dead Branch State Forest	0.9
Laurel Lake Boat Ramp	0.0
Middlefield State Forest	12.3
October Mountain State Forest	64.4
Peru State Forest	15.2
Region V Headquarters	0.6
Pittsfield State Forest	0.4
Wahconah Falls State Park	0.8

Worthington State Forest	0.9
Total	132.0

There are approximately 196 miles of DSPR property boundaries. Approximately 159 miles of boundaries were recently maintained mainly in FY 2004 and FY 2005. There are approximately 37 miles of boundary that need professional surveys. The following table displays boundary information by property.

SITE NAME	Perimeter (miles)
Appalachian National Scenic Trail	15.0
Ashmere Lake State Park	4.4
Becket State Forest	7.0
Bryant Mountain State Forest	5.8
C.M. Gardner State Park	2.9
Chester-Blandford State Forest	22.0
Gilbert A. Bliss State Forest	28.9
Huntington State Forest	6.3
Krug Sugarbush/Dead Branch State Forest	3.8
Laurel Lake Boat Ramp	0.2
Middlefield State Forest	22.2
October Mountain State Forest	53.0
Peru State Forest	16.7
Region V Headquarters	1.8
Pittsfield State Forest	2.3
Wahconah Falls State Park	1.2
Worthington State Forest	2.6
Total	196.4

(2) Desired Condition of Facilities, Transportation, and Boundaries in Active Forest Resource Management Areas

The desired condition of DSPR properties is that they are surveyed and properly maintained to protect the Commonwealth's natural resources and minimize private and public timber trespassing and encroachments by adjacent landowners.

The desired condition is a transportation network that is safe, effective, efficient and environmentally sound. The network should have the minimum impact necessary on the natural resources of our forest and park system while serving public safety needs and allowing visitors to enjoy and experience these same resources.

(3) Management Guidelines for Facilities, Transportation, and Boundaries in Active Forest Resource Management Areas:

Roads:

- A. Minimize the number of roads, skid trails and landings
- B. Require that staging areas, landings and main skid roads be stabilized and graded at the end of any operation
- C. Require that all petroleum products, industrial chemicals, and hazardous materials be stored in accordance with manufactures specifications, and at a minimum in durable sealed containers
- D. Prohibit the use of harvesting machinery during the typical mud season (March 15 to May 15) or wet periods unless waived by the forester
- E. Protect highly sensitive or wet soils by limiting activities to period when the ground is frozen or dry to prevent a reduction in site productivity and/or requiring equipment that minimizes impacts to these soils
- F. New road construction permitted in stable areas only when necessary
- G. Commercial timber management including salvage is allowed within road corridors.
- H. Forest management within the road corridors will be designed to promote native diverse vegetation, large-diameter trees, multiple age classes and forest structures, healthy forest, safe recreation experience, and quality scenery.
- I. No slash should remain within 25 feet of roads.
- J. Natural resource managers will coordinate with park supervisors and user groups when vegetation management is planned.
- K. Skid roads and truck roads will be carefully laid out by the forester considering grades, drainage and stream integrity
- L. Inventory and maintain desirable fire roads and water drafting sites
- M. Minimize road width to only what is necessary
- N. Encourage canopy cover over roads
- O. Minimize road shoulder clearing width for safe passage and provide minimal necessary fire breaks

- P. Minimize adverse migratory effects on wildlife through properly designed and maintained roads and structures (cut and fill banks, culverts, and ditches)
- Q. Maintain roads in accordance to the Departments road classification system and maintenance policy
- R. Consider the use of in-kind services to provide for road maintenance during project planning and implementation
- S. Coordinate and cooperate with municipal officials on the management of roads and ownership of timber within road right-of-ways

Boundaries:

- A. Identify all boundaries needing formal surveys
- B. Survey boundaries needed for project implementation, trespass, or where there are disputes; other boundaries needing to be surveyed will be done upon the availability of funding
- C. Locate and maintain all boundaries on a 10 year cycle or when needed for project implementation
- D. Identify and maintain all boundaries clearly and in a way that is sensitive to adjacent private lands
- E. All newly acquired DSPR properties should have their boundaries surveyed and marked and previous DSPR boundaries should be obliterated

5. Special Features and Natural Communities

A special feature is a broad term to cover all those areas that contain unique ecological, aesthetic, or historic features, but are not covered under any of the previously sections. Examples include large rock ledges, research areas, historic agricultural landscapes, gorges, cliffs, and rich mesic forests.

The variety of these areas requires that management options be adaptable to protect, conserve, or promote their values

The following special features exist in the CBK district:

- Natural Communities
- Ledges and cliffs
- Gorges
- Open fields
- Agricultural landscapes

- Research areas
- Waterfalls

CBK Natural Communities:

Natural communities are assemblages of species that occur together in space and time. These groups of plants and animals are found in recurring patterns that can be classified and described by their dominant biological and physical features, as done in NHESP's *Classification of Natural Communities of Massachusetts*. Natural communities tend to be more finely described than are the broad forest types, and include non-forested assemblages. Natural communities may be restricted or widespread in their distribution across the state, and they may be naturally large or small. NHESP has a ranking system that reflects statewide abundance of the types of natural communities. An additional system sets criteria for ranking quality of each type of natural community. NHESP uses the combined ranking systems to track different types of natural communities for conservation prioritization. Most occurrences of the least common types and the best of the most common types are of interest.

A large, heterogeneous, matrix forest usually contains a mix of natural community types, with multiple occurrences of small patch communities, examples of larger patch types, and examples of the surrounding, prevailing, matrix forest. However, the dynamic nature of communities is such that those in individual areas are expected to change over time. In reserves, there should be space for change and movement of community types so that over the long term, all types can continue to occur. Large animals often make use of multiple communities in mosaics as parts of their habitats. This report's section on Biodiversity addresses the idea of the coarse filter approach to protecting appropriate native biodiversity, and the sections on Water and Soil Resources focus on the physical features that provide diversity of habitat. These sections compliment the ideas of identifying and managing natural communities that in turn supplement the larger view of forest resource management to maintain the state's appropriate native biodiversity.

(1) Present Condition

The lands in the CBK support a variety of types of natural communities occurring in the varied conditions of the hills, slopes, valleys, wetlands and waters of the district. While all areas of the district have not been not fully inventoried for uncommon natural communities, several types of particular interest are known in the CBK, including on DCR lands. Calcium rich wetlands of the Berkshire Marble Valleys are particularly important statewide and support very uncommon natural communities and rare species. Other natural communities that develop on ridge tops, ledges, cliffs, talus slopes, seeps, floodplains, riparian zones, wetlands, and in gorges (some mentioned in the special features section of this report) are often uncommon types of natural communities that NHESP considers priority for conservation. Rich Mesic forests, a particularly species rich type of forest community, are best developed in the Marble Valleys and have good examples in CBK.

The following tables list the NHESP natural communities currently known (2005) from DCR lands in the CBK, and those known from the entire district, any of which might also occur on

DCR lands. S ranks refer to approximate abundance within Massachusetts, with S1 being least common (generally fewer than 20 occurrences) and S5 being most common, “demonstrably secure.” NHESP tracks all types of natural communities ranked S1, S2, and S3, as well as exemplary (best) occurrences of S4 and S5 types. Types are defined in the *Classification of the Natural Communities of Massachusetts*, version 1.3, each with its S-rank, and the S-ranks are defined there in detail.

NHESP Natural Communities known from DCR lands in Central Berkshires:

Sub unit	Natural Community	NC Type	Rank	Last report
11	Acidic graminoid fen	Freshwater Community	S3	1998
11	Black ash-red maple-tamarack calcareous seepage swamp	Freshwater Community	S2	1983
8A	High-energy riverbank	Freshwater Community	S3	2000
11	Level bog	Freshwater Community	S3	1998
8A	Forest seep community	Terrestrial Community	S4	2000
11	Rich, mesic forest community	Terrestrial Community	S3	1998

NHESP Natural Communities known from Central Berkshires generally:

8A	Level bog	Freshwater Community	S3	1998
11	Acidic graminoid fen	Freshwater Community	S3	1998
10	Black ash-red maple-tamarack calcareous seepage swamp	Freshwater Community	S2	1997
11	Black ash-red maple-tamarack calcareous seepage swamp	Freshwater Community	S2	1997
11	Calcareous sloping fen	Freshwater Community	S2	1991
8A	High-energy riverbank	Freshwater Community	S3	2000
9A	High-energy riverbank	Freshwater Community	S3	2000
8A	High-terrace floodplain forest	Freshwater Community	S2	1997
11	Level bog	Freshwater Community	S3	1998
10	Shrub swamp	Freshwater Community	S5	2000
11	Shrub swamp	Freshwater Community	S5	2000
10	Spruce-fir boreal swamp	Freshwater Community	S3	2000
8A	Certified vernal pool	Other (Ecological)	S3	2002
9A	Certified vernal pool	Other (Ecological)	S3	2002
11	Certified vernal pool	Other (Ecological)	S3	2000
8A	Forest seep community	Terrestrial Community	S4	2000
9A	Forest seep community	Terrestrial Community	S4	2000
9A	Hickory - hop hornbeam forest/woodland	Terrestrial Community	S2	2000
8A	Northern hardwoods - hemlock - white pine forest	Terrestrial Community	S5	1997
9A	Northern hardwoods - hemlock - white pine forest	Terrestrial Community	S5	1999
9A	Pitch pine - oak forest/woodland	Terrestrial Community	S5	1991
9A	Pitch pine - scrub oak community	Terrestrial Community	S2	1991
11	Red oak - sugar maple transition forest	Terrestrial Community	S4	1987
8A	Rich, mesic forest community	Terrestrial Community	S3	1997
9A	Rich, mesic forest community	Terrestrial Community	S3	2000
11	Rich, mesic forest community	Terrestrial Community	S3	1999
9A	Ridgetop chestnut oak forest/woodland	Terrestrial Community	S4	1999

9A	Ridgetop pitch pine - scrub oak community	Terrestrial Community	S2	1997
9A	Riverside rock outcrop community	Terrestrial Community	S3	2000

(2) Desired Condition

The desired condition is a landscape where special features and natural communities are appropriately valued, protected, conserved, and managed where necessary. In addition, DCR staff will work cooperatively with the Natural Heritage and Endangered Species Program to identify areas with possible priority natural community occurrences (for example from aerial photo interpretation, CFI data, or ongoing forestry surveys). In addition, restoration and/or maintenance of known priority natural community occurrences will be jointly undertaken where feasible (for example, removing exotic invasive species, or conducting prescribed fires in appropriate community types and locations). Removing plantations, as discussed in the Native Vegetation section, will generally enhance native communities.

(3) Management Guidelines

Natural Communities

- A. Inventory, record, map, evaluate, and monitor uncommon or priority natural communities.
- B. Management of priority natural communities will be with ecosystem function in mind, for example, downed wood and old snags will remain, and streams that naturally flood will be allowed to do so where possible. Prescribed fire and fire management plans should be instituted to maintain fire controlled natural communities where appropriate and possible.
- C. Rich mesic forests and other nutrient rich communities are highly sensitive to disturbance and the possible introduction of non-native invasives. Management will be restricted to the removal of non-native species and silvicultural will be restricted to techniques to promote multi-age, native forests with minimal disturbance.
- D. Management of the non-forested and low productive natural communities within the generally forested landscape will recognize their special habitat values and susceptibility to human mediated disturbance.
- E. In general small patch communities will be managed with measures necessary to protect the values of the special features that support the natural communities.

Agricultural landscapes include old fields, pastures, and fencerows.. These landscapes will be recognized and promoted through management such as regular mowing and field restoration where possible. In general:

- A. Larger fields are more valuable than smaller fields

- B. Mowing should be restricted until after July 15 to allow ground nesting birds time to fledge
- C. Trees encroaching on fields should be removed or pruned to maintain the historical landscape and field values
- D. Fence rows provide valuable habitat but can also be a source of invasive exotics
- E. Historic fields should only be cleared and restored when they are large and the value of the new habitat outweighs possible fragmentation

Ledges and cliffs provide unique habitat and aesthetic values. Many species use these areas for nesting, feeding or basking sites, and people are attracted to these areas for recreational activities or the views they provide. In general:

- A. Management in these areas should promote multi-age native forests
- B. Ground skidding or other activities that could alter the hydrology or physical structure of these areas should be avoided
- C. Clearing of vegetation for views will be allowed where ecological function is not impacted
- D. In some cases vegetation may be cleared if it promotes habitat values such as basking sites for reptiles

Research areas are managed under special use permits and cooperative partnerships are encouraged to further our collective knowledge of ecosystem functions and processes.

Gorges and special water features such as waterfalls provide unique habitat and recreational values. In general, these areas will be managed in accordance with streamside BMPs. There may be cases where more restrictive measures are necessary to protect the values of these special features.

VII. Measurable Outputs and Costs

The Department of Recreation and Conservation, Bureau of Forestry partially fulfills its mission of providing income from the sale of forest products through the use of silvicultural practices designed to balance ecological, social and economic considerations. The enabling legislation that created the Bureau of Forestry states that the State Forests shall be “in perpetuity income producing”. This legislation goes on to say that the Bureau shall manage to “improve” these forests. It is this balance that is at the heart of the Bureau’s mandate and its social responsibility. Under M.G.L. Chapter 132, the Commonwealth’s Bureau of Forestry exists to protect the public’s interest in the both the private and public forestlands of Massachusetts. These public interests include water conservation, flood and soil loss prevention, wildlife habitat, recreation, protection of water and air quality, and a continued and increasing supply of forest products. The Department provides for forest products in an ecologically and socially responsible and environmentally sensitive manner.

The Department meets its responsibility by focusing on desired conditions for all resources. A desired condition is simply a statement describing the desired biological, physical and/or social condition or context. The Department will consider silvicultural options to modify existing stand conditions in order to meet desired vegetative conditions.

The Department fulfills its mission to provide forest products by designing silvicultural operations in which timber products are offered for sale to private contractors. Not only does this provide direct income to the Commonwealth, but the “value added” results of processing these products also benefits many sectors of the Massachusetts economy. All harvesting is done in a manner that meets appropriate native biodiversity needs, is socially responsible and can occur in a long-term sustained manner. The CBK is part of the state lands system that has been “green certified” as sustainable forest management based on the Forest Stewardship Council principles and verified by an independent audit team - Scientific Certification Systems.

(1) Outputs:

Historical Forest Product Outputs:

Total Acres in CBK:	31,251
Active Forest Resource Management Area Acres:	23,040
Number of Forest Products Sales 1990-2005:	62
Total Acres Treated 1990-2005:	2,224
Average Annual Acres Treated 1990-2005	148
Total Volume Harvested 1990-2005:	8,948 Mbf, 6,579 Cords
Average Annual Volume Harvested 1990-2005	597 Mbf, 439 Cords

Expected Forest Product Outputs:

Annual Outputs:

Treatment	Acres	MBF	Cds
Hardwood Extended Rotation	39	84	159
Softwood Extended Rotation	25	77	144
Hardwood Final Removal of Overstory	100	713	1346
Softwood Final Removal of Overstory	64	650	1221
Hardwood Establish Regeneration	100	356	1346
Softwood Establish Regeneration	64	325	1221
Hardwood Thinning*	179	289	1537
Softwood Thinning*	114	264	1090
Hardwood Total	419	1442	4387
Softwood Total	266	1315	3676
Restricted Acres (Buffers and Corridors) **	114	0	0
Grand Total	799	2757	8063
15 Year Planning Cycle Outputs (2007-2021)			
Treatment	Acres	MBF	Cds
Hardwood Extended Rotation	586	1259	2378
Softwood Extended Rotation	372	1148	2158
Hardwood Final Removal of Overstory	1507	10689	20189
Softwood Final Removal of Overstory	956	9745	18315
Hardwood Establish Regeneration	1507	5345	20189
Softwood Establish Regeneration	956	4872	18315
Hardwood Thinning*	2691	4338	23051
Softwood Thinning*	1706	3954	16351
Hardwood Total	6292	21630	65808
Softwood Total	3989	19720	55139
Restricted Acres (Buffers and Corridors) **	1707	0	0
Grand Total	11989	41350	120947

Volumes calculated from CFI inventory data.

* - Figures for thinning are based on thinning given current age distribution and stocking levels of the CBK forests of approximately 2,256 acres currently in need of thinning. The feasibility of thinning many of these acres is dependent upon economic market conditions.

** - Restricted Acres include those acres in streamside and vernal pool filter strips, wetland, lake, and pond buffer areas, roadside buffers, and trail corridors. The volumes removed from these areas will depend on site characteristics and environmental values.

Annual Revenue **\$454,000***

*Based on an average for a all species of \$150 per thousand board feet and \$5 per cord

(2) Costs

	Number	Annual Operation Costs
Forester(s)	2	\$150,000
Contract Forester(s)	2	\$20,000
Vehicles	2	\$8,000
Supplies and Equipment		\$5,000
Road Maintenance		\$20,000
Boundary Maintenance		\$10,000
Annual Monitoring		\$5,000
Invasive Species Control		\$15,000
Total Annual Operating Costs		\$233,000
Backlog Annual Boundary Surveying		\$25,000
Backlog Road Maintenance Needs		\$150,000
10-year CFI Inventory (2008)		\$30,000

VIII. Inventory, Monitoring, and Evaluation:

The Department is committed to the principles of adaptive management. Adaptive management uses the best information available to make decisions on the management of the DSPR system lands, monitors the results for effectiveness, and uses new information as it becomes available. The following is a summary of adaptive management inventory procedures for the CBK District:

A. Project Level

1. Inventory:

- a. Initiate all management projects with a general walk through of areas most likely to meet objectives (see individual property appendices – Management Practices)
- b. Collect data on vegetation when needed to quantify stocking level, species composition and quality of overstory and regeneration to include in project and silvicultural prescriptions
- c. Inventory selected area for cultural resources
- d. Inventory selected area for rare landforms, habitats, and species
- e. Inventory selected area for invasive species

2. Monitoring:

- a. During treatment monitor for:
 - i. Best Management Practices compliance
 - ii. Road and Infrastructure Condition
 - iii. Natural Heritage Requirements
 - iv. Cultural Resource Protection
 - v. Silvicultural Prescription
 - vi. Forest Product Accountability
 - vii. Other Contractual Requirements
- b. Post Treatment (approximately 5 years after treatment) for:
 - i. Forest health

- ii. Regeneration success and composition
- iii. Best Management Practices
- iv. Invasive species
- v. Unauthorized ORV, Forest Reserves
- vi. Road and boundary conditions

3. Evaluate:

- a. Contractor performance
- b. Departmental personnel performance
- c. Fulfillment of FRMP and silvicultural objectives
- d. Effectiveness of the treatment

B. Management Forestry District Level

1. Inventory (By 2020 and every 15 year planning cycle):

- a. Re-measure Bureau's Continuous Forest Inventory plots
- b. Road conditions
- c. Boundary Condition

2. Monitor (By 2020 and every 15 year planning cycle):

- a. Forest health
- b. Biodiversity
- c. Regeneration
- d. Best Management Practices
- e. Invasive species
- f. Unauthorized ORV, Forest Reserves
- g. Road and boundary conditions

- h. Forest Reserves
 - i. New information
 - j. New public issues
 - k. Unauthorized digging collecting around historic archaeological sites and features
 - l. Soil productivity including the loss of nutrients such as calcium
 - m. Ecological monitoring at the landscape, stand and species level to compare biodiversity in Forest Reserves and active management areas
3. General Program Management Review (at District level every 4 years)
- a. Plan implementation
 - b. Monitoring and Evaluation Efforts
 - c. Currency of FRMP
 - d. Public Involvement
 - e. Relationships with others
4. Evaluation: Information will be evaluated against the desired condition of the FRMP to determine the effectiveness of the Plan and the need to update it. A report will be prepared summarizing the results. This report will consider if:
- a. Additional treatments are needed to meet the desired conditions
 - b. Desired conditions need to be modified because of survey, inventory, or new information
 - c. Existing management guidelines are effective and complete
 - d. Any new information, research or new issues need to be considered.

IX. Public Involvement:

The State Forests and Parks are public resources and must be responsive to societal needs while using the best available science and maintaining options for future generations. Public involvement is critical to Forest Resource Management Planning and implementation. Public involvement is an ongoing process that consists of gathering input, analyzing, evaluating and responding to input and sharing information. The Bureau will be responsible to stakeholders through the public involvement process, implementation, evaluation, and reporting.

A. Project Level

1. Meet all regulations for review of projects. This will include review of all projects by conservation commission, select boards.
2. Consider public comments (Appendix G) as they relate to project level prescriptions

B. Property Level

Berkshire Ecoregional meeting: 11/22/2004

Number attending: 55

CBK Forest Resource Management Plan meeting: 2/24/2005

Number attending: 30

CBK Draft Forest Resource Management Plan meeting: 9/29/2005

Number attending: 50

Notify the public through the Environmental Monitor if there is a need to update the CBK plan. The notice will include specific FRMP proposed changes with rationale.

Develop and publish for review a CBK Stakeholders Report within 10 years from the approval of the CBK plan to track implementation efforts and share the results of monitoring and evaluation.

Appendix A – District Maps

Appendix B – Property Maps

Appendix C – Forest Structure Table

Forest Type	Size Class	Acres	Stocking	Trees/Acre	Basal Area/Acre	Cubic Foot Volume /Acre	Board Foot Volume /Acre
Open	NA	992	NA	NA	NA	NA	NA
White Pine	Seeding / Sapling	0	NA	NA	NA	NA	NA
	Pole	662	C	295	136	2663	8054
	Saw Log	992	B	162	183	4392	25607
Hemlock	Seeding / Sapling	0	NA	NA	NA	NA	NA
	Pole	2646	A	283	158	3198	11258
	Saw	3473	A	226	183	3941	18738
Spruce/Fir	Seeding / Sapling	0	NA	NA	NA	NA	NA
	Pole	2481	B	276	121	2526	6532
	Saw	992	B	287	228	6118	27370
	Saw	496	D	120	95	2438	9734
Northern Hardwood	Seeding / Sapling	0	NA	NA	NA	NA	NA
	Pole	2811	A	266	136	2872	9416
	Pole	6615	B	189	98	1967	6272
	Pole	331	C	108	55	1007	3586
	Saw	4630	A	176	143	3258	16374
Oak / Hardwood	Seeding / Sapling	0	NA	NA	NA	NA	NA
	Pole	496	B	212	108	2043	6541
	Saw	662	B	191	160	3932	23755
Total		31256					

Stocking A - Over Stocked B – Adequately Stocked C – Moderately Stocked D – Under Stocked

Forest Age Class Distribution for All Types

Age	0	1 – 15	16-25	26-35	36-45	46-55	56-65	66-75	76-85	86 -95	96 Plus
Acres	1158	0	0	496	331	331	4961	5126	5953	6614	6284

Trees per acre by diameter class (over 5" dbh) over all species within each type

	WP/P/B	WP/S/B	HK/P/A	HK/S/A	SF/P/B	SF/S/B	SF/S/D	NH/P/A	NH/P/B	NH/P/C	NH/S/A	NH/S/B	OM/P/B	OM/S/B
6	118	42	73	40	103	22	8	87	64	53	39	28	62	48
8	73	21	75	44	70	54	20	62	44	23	27	21	68	34
10	40	18	50	36	46	60	30	50	32	5	27	20	32	26
12	31	20	38	33	25	63	23	33	20	3	23	19	22	19
14	19	13	20	30	15	41	17	19	14	10	23	16	12	13
16	10	14	12	17	5	21	8	7	8	10	15	12	10	19
18	4	7	6	11	2	20	7	4	4	5	11	7	5	9
20	1		2	8	2	3	2	1	1		6	3	2	16
22			1	2		1	3		1		2	2		4
24			1	2	1	2		2			1	1		1
26			1	1							1	1		3
28				1							1			
30				1							1			
32														
34							1	1	1					
36				1		1			1		1			
Total	296	135	279	227	269	288	118	266	190	109	178	130	213	192

Number of Wildlife Trees per Acre by Type

Class	WP/P/B	WP/S/B	HK/P/A	HK/S/A	SF/P/B	SF/S/B	SF/S/D	NH/P/A	NH/P/B	NH/P/C	NH/S/A	NH/S/B	OM/P/B	OM/S/B
6	118	42	73	40	103	22	8	87	64	53	39	28	62	48
8	73	21	75	44	70	54	20	62	44	23	27	21	68	34
10	40	18	50	36	46	60	30	50	32	5	27	20	32	26
12	31	20	38	33	25	63	23	33	20	3	23	19	22	19
14	19	13	20	30	15	41	17	19	14	10	23	16	12	13
16	10	14	12	17	5	21	8	7	8	10	15	12	10	19
18	4	7	6	11	2	20	7	4	4	5	11	7	5	9
20	1		2	8	2	3	2	1	1		6	3	2	16
22			1	2		1	3		1		2	2		4
24			1	2	1	2		2			1	1		1
26			1	1							1	1		3
28				1							1			
30				1							1			
32														
34								1	1					
36				1		1			1		1			
Total	296	135	279	227	269	288	118	266	190	109	178	130	213	192

Woody Debris: Total Trees (Alive and Dead) Over All Types by Status and Diameter Class

Class	All Live Trees	Dead Sound Trees	Dead Partially Decayed Trees	Dead Decayed Trees	Dead Down Sound Trees	Dead Down Partially Decayed Trees	Dead Down Decayed Trees	Total Dead
6	1745434	35554	167847	95912	4134	43822	53744	401012
8	1375842	16537	128159	67800	3307	33900	45475	295178
10	1061647	9095	65320	45475	4134	29766	27285	181075
12	806158	4961	49610	27285	1654	24805	17363	125678
14	585394	2480	42168	16537	3307	14883	10749	90124
16	341480	2480	14056	6615	2480	7442	8268	41341
18	207534		7441	2480	827	4961	3307	19017
20	102527		4134	2480	827	1654	1654	10749
22	45476		3307	827			827	4961
24	24805		1654		827	827		3307
26	19017			827				827
28	7441					1654		3307
30	4134		827					827
32	3307							
34	1654						827	827
36	5788							1654
Total	6337638	71107	484523	266238	21497	163714	169499	1179884

Number of Trees with Special Wildlife Characteristics per Acre by Class within Forest Type

Type	Small Cavity	Larger Cavity	Small Dead Limbs	Large Dead Limbs	Broken Tops	But Rot	Upper Rot	Any Two Proceeding	Any Three Proceeding	Total
WP/P/B	3		3	1	5		4	1		16
WP/S/B	2	3	4	8	1			8	3	27
HK/P/A	5	1	3	2	2		3	4		21
HK/P/A	5	1	3	2	2		3	4		21
HK/S/A	2	1	8	2	4		3	4	1	24
SF/P/B	3	1	10	2				2		18
SF/S/B			2				2	3		6
SF/S/D			2		2		3	2		8
NH/P/A	1	1	4	3	3		1	6	1	21
NH/P/B	3	2	5	2	6	1	3	4	1	26
NH/P/C			10					10		20
NH/S/A	3	3	4	4	6		3	9	2	33
NH/S/B	2	3	2	2	6			8	3	25
OM/P/B	7	3	8	2	2	5		2	3	32
OM/S/B	3		3	9	8	3		1	5	30

Average Forest Growth and Mortality Per Acre per Year by Forest Type

Forest Type	Repeat Growth			Ingrowth			Mortality			Net Growth		
	Basal Area	Cubic Feet (hundreds)	Board Feet (thousands)	Basal Area	Cubic Feet (hundreds)	Board Feet (thousands)	Basal Area	Cubic Feet (hundreds)	Board Feet (thousands)	Basal Area	Cubic Feet (hundreds)	Board Feet (thousands)
WP/P/B	2.190	0.520	0.3292	1.209	0.195	0.0237	1.942	0.384	0.1332	1.457	0.331	0.2196
WP/S/B	2.470	0.665	0.7094	0.729	0.114	0.0091	0.890	0.180	0.0571	2.309	0.599	0.6614
HK/P/A	1.978	0.462	0.2943	0.452	0.060	0.0000	1.797	0.350	0.1084	0.634	0.173	0.1859
HK/S/A	2.244	0.504	0.4674	0.276	0.035	0.0032	1.076	0.218	0.0791	1.443	0.321	0.3915
SF/P/B	1.497	0.419	0.2149	0.765	0.120	0.0112	1.516	0.307	0.1020	0.746	0.231	0.1242
SF/S/B	3.208	1.161	0.9077	0.157	0.036	-0.0010	2.417	0.457	0.0947	0.948	0.740	0.8120
SF/S/D	1.533	0.479	0.3564	0.129	0.015	0.0000	4.497	1.079	0.3597	-2.835	-0.584	-0.0033
NH/P/A	1.937	0.445	0.2820	0.649	0.103	0.0005	1.470	0.315	0.1451	1.115	0.233	0.1374
NH/P/B	1.313	0.272	0.1904	0.604	0.087	0.0010	1.599	0.349	0.1282	0.318	0.011	0.0631
NH/P/C	0.464	0.098	0.0453	0.181	0.014	0.0000	1.923	0.399	0.2000	-1.278	-0.287	-0.1546
NH/S/A	1.692	0.390	0.3854	0.348	0.051	0.0015	1.112	0.226	0.0668	0.928	0.214	0.3201
NH/S/B	1.173	0.243	0.2279	0.362	0.055	0.0012	1.665	0.362	0.0917	-0.129	-0.063	0.1374
OM/P/B	1.882	0.469	0.2287	0.310	0.044	0.0000	0.922	0.120	0.0126	1.269	0.393	0.2161
OM/S/B	2.229	0.587	0.7063	0.187	0.022	0.0000	1.432	0.349	0.1462	0.983	0.261	0.5602
Average	1.721	0.448	0.3564	0.424	0.063	0.0034	1.724	0.356	0.1156	0.244	0.155	0.2441

Standing Inventory and Total Growth per Year

Total Acres All Forest Types	31,251
Current Total Volume Thousands of Board Feet	341,427
Current Total Volume Hundreds of Cubic Feet	881,702
Net Growth per Year (Thousands of Board Feet)	6,877 (2% increase/year)
Net Growth Per Year (Hundreds of Cubic Feet)	4,965 (0.5% increase/year)

Standard Error of the Means (90% sure of being within 10% of the true mean value)

Board Foot Volume	3.67%
Cubic Foot Volume	1.93%

Appendix D – Nearby Protected Lands

DSPR Facility Buffered	Non-DSPR property within 1 mile	Ownership	Total acres of property
Appalachian National Scenic Trail	Appalachian National Scenic Trail	Federal	0.12
	Chalet WMA	Private	536
	Day Mountain WMA	Dept. of Fish & Game	338
	Marchisio Park	Municipal	20
	Pittsfield Watershed	Municipal	9,523
	Western District H.Q.	Dept. of Fish & Game	3
	Total:		
Ashmere Lake State Park	Dalton Fire District WCE	Municipal	1,754
	Hinsdale Flats WMA	Dept. of Fish & Game	698
	Peru WMA	Dept. of Fish & Game	650
	Total:		
Becket State Forest	Conservation Land	Municipal	721
	Total:		
Bryant Mountain State Forest	Bryant Homestead	Land Trust	43
	Mfclt/Bryant	Other	256
	Mfclt/Streeler	Other	80
	Powell Brook WMA	Dept. of Fish & Game	260
	West Mountain	Land Trust	1,389
	Westfield River Access	Dept. of Fish & Game	43
	(Blank)	Non-Profit	20
	Total:		
C.M. Gardner State Park	Knightville Dam & Reservation	Federal	2,390
	Littleville Dam & Rec. Area	Federal	115
	Littleville Lake Flood Control	Federal	1,403
	Total:		
Chester-Blandford State Forest	Arms Acres	Conservation Organization	72
	Blandford/Huntington WCE (Stanton-Cook, Tomkins & Beesaw Lots)	Private	515
	Chicoyne Parcel	Private	217
	Cummings Parcel	Private	160
	John J. Kelly WMA	Dept. of Fish & Game	325
	Russell Water Supply Land	Municipal	2,456
	Springfield Water Supply Land	Municipal	9,404
	Town Wellfields	Municipal	28
	Wright / Mica Mill WCE	Private	1,675
	Total:		

Gilbert A. Bliss State Forest	Chesterfield Gorge Reservation	Land Trust	210
	Chesterfield WCE	Private	306
	Cummington WMA	Dept. of Fish & Game	189
	Dawes Cemetery	Municipal	1
		Private	2
	Hiram H. Fox WMA	Dept. of Fish & Game	1,019
	Indian Hollow	Federal	240
	Knightville Dam & Reservation	Federal	4,779
	Lilly Pond WMA	Dept. of Fish & Game	209
		Private	140
	Westfield River Access	Dept. of Fish & Game	265
	Westfield River Wilderness Area	Comm of MA	1,364
	(Blank)	Private	741
	Total:		
Huntington State Forest	Holyoke Watershed Land	Municipal	112
	Holyoke Watershed Lands	Municipal	2,128
	Huntington WCE (Stanton-Clapp Lot)	Private	90
	Joy Hill	Private	81
	Westfield Watershed	Municipal	836
	White Reservoir Watershed	Municipal	1,166
Total:			4,412
Krug Sugarbush/Dead State Forest	Gilbert A. Bliss State Forest	Private	0.48
	(Blank)	Private	319
	Indian Hollow	Federal	22
	Knightville Dam & Reservation	Federal	4,779
	Tilloston Park	Municipal	5
	Town Beach	Municipal	9
	Town Forest	Municipal	70
Total:			5,204.48
Middlefield State Forest	Cr #1	Private	36
	Cr #2	Private	109
	Fox Den WMA	Dept. of Fish & Game	381
	Hinsdale Flats WMA	Dept. of Fish & Game	1,323
	Mcelwain-Olsen Property	Land Trust	34
	Peru WMA	Dept. of Fish & Game	1,326
	Walnut Hill WMA	Dept. of Fish & Game	752
Total:			3,961
October Mountain State Forest	Appalachian Trail	Federal	93
	Appalachian National Scenic Trail	Federal	666
	Canoe Meadows	Land Trust	248

	Cemetery	Municipal	27
	Conservation Land	Municipal	3
	George L. Darey Housatonic Valley WMA	Dept. of Fish & Game	888
	Golden Hill	Municipal	68
	Goose Pond Reservation	Land Trust	106
	H. W. Davis	Private	604
	H. W. Davis CBKs Lot 3	Private	103
	Kirvin Park	Municipal	250
	October Mtn Wildlife Corridor	Land Trust	54
	Pittsfield Watershed	Municipal	8,903
	Post Farm	Municipal	24
	Tilloston Park	Municipal	11
	Water Department Land	Municipal	652
	Willow Creek	Municipal	9
	(Blank)	Land Trust	66
		Municipal	207
		Private	800
	Total:		13,784
Peru State Forest	Fox Den WMA	Dept. of Fish & Game	2,902
	Miller	Private	342
	Peru WMA	Dept. of Fish & Game	675
	Westfield River Access	Dept. of Fish & Game	46
	(Blank)	Conservation Organization	373
	Total:		4,338
Pittsfield State Forest	(Blank)	Private	215
	Total:		215
Region V Headquarters	George L. Darey Housatonic Valley WMA	Dept. of Fish & Game	450
	Wild Acres Park	Municipal	71
	(Blank)	Land Trust	155
		Private	128
	Total:		803
Wahconah Falls State Park	Bardin	Private	209
	Chalet WMA	Dept. of Fish & Game	856
	Dalton Fire District WCE	Municipal	850
	Pittsfield Watershed	Municipal	680
	(Blank)	Private	414
	Total:		3,009
Worthington State Forest	Fox Den WMA	Dept. of Fish & Game	709
	Glen Cove Wildlife Sanctuary	Municipal	67
	Mfclt/Paul	Other	46
	Total:		822

Appendix E – Cultural Resource Protection

The Commonwealth of Massachusetts is heir to a rich legacy of cultural resources; its historic buildings, structures, archaeological sites and landscapes are reminders of the important role that the State has played since long before the Pilgrims landed at Plymouth. These resources are milestones in the course of history and teach us about how people lived during prehistoric, pre- and post-Colonial times. They inform us about the industrial and technological changes of the 19th and 20th centuries and even give us a glimpse of life during the Great Depression and two World Wars.

Combined, these diverse historic resources document the human experience in Massachusetts. Scattered across the landscape, this ensemble of buildings, structures and sites tell the story of our common heritage – our Commonwealth – and their protection and preservation has become a vital component of DSPR’s mission and policy for resource stewardship.

At the time of writing, DSPR’s Office of Historic Resource’s staff has had the opportunity to make only a cursory inspection of the archaeological record of the nineteen Parks and Forests that comprise the Central Berkshire District. It was known from the outset that the DSPR’s Site Inventory that was performed in 1985 was in need of updating. It was also known that western Massachusetts is the only part of the State that was not studied as part of the Massachusetts Historical Commission’s (MHC) Statewide Survey, which culminated in 1984 with the completion of the Connecticut River Valley. Therefore, it was known from the beginning that the information available for developing cultural resource preservation strategies was incomplete and only preliminary in nature. The following section is offered with these shortcomings in mind.

The western portion of Massachusetts consists of rough, hilly terrain and low river valleys. Although archaeological information on Native American activities in the Berkshires is limited, it is likely that the region was occupied throughout prehistory i.e., from Paleo Indian times 12,000 years ago to early historic times only 450 years ago.

While it is doubtful that Native American populations in the hills of the Berkshires ever approached the numbers of those in the eastern part of the state, particularly in the coastal and estuarine zones, or the nearby Connecticut River Valley, the existing archaeological record must be considered artificially low. This bias has been induced by a number of factors and, as suggested below, actually creates great promise and opportunity for resource preservation and protection. A principal cause of bias, other than the lack of comprehensive research, is the relative lack of amateur collecting activities due to limited development and farming which the region has experienced.

A site inventory based on the archaeological site files of the MHC was performed in preparation of this section and reviewed recorded sites on sixteen U.S.G.S. Topographic maps that cover the Central Berkshire District. Even at this basic level of inquiry, a total of 103 prehistoric archaeological sites are recorded within the Central Berkshire District (Table 1). Interestingly, in some places there are thousands of acres where not a single prehistoric site is recorded (e.g., the two contiguous USGS Quadrangle Maps of Otis, and Blanford are completely void of recorded

prehistoric archaeological sites). At the same time, thirty sites are recorded on the West Pittsfield Quadrangle and twenty-four on the Woronoco Quadrangle. Note: these numbers refer to the entire quadrangles and not necessarily sites that exist within lands that may be under the jurisdiction of DSPR's Bureau of Forestry.

The Central Berkshire District includes a diverse landscape that contains some very important ecological differences throughout. However, these differences cannot explain the presence of Native American occupation in one area and the lack of occupation in another. To the contrary, some of the ecological characteristics of the areas where there are no sites are very favorable, even if within limited areas. One must surmise from this that archaeological sites exist but they simply haven't been found. Over the years, archaeologists have developed a model for identifying locations where sites are likely to occur. By evaluating *Site Location Criteria*, which takes into account several geographical and ecological characteristics, areas of *high archaeological sensitivity* can be identified. By employing this model we can make reasonable predictions about the presence or absence of sites within the Central Berkshire District and this will become an invaluable tool in the in-house evaluation of impacts to archaeological resources from the implementation of the Bureau's silviculture program.

A. Prehistoric Overview & Archaeological Resources

Existing archaeological data combined with historic records and oral tradition indicates that the Native inhabitants of western Massachusetts, particularly the Berkshires, but also including the middle Connecticut River Valley, had strong ties and cultural affinities to the peoples of the Hudson Valley, more so than to their eastern relatives. It also appears that these ties extend far back into antiquity, and did not just develop in late prehistoric or early historic times.

Presumably the first humans to occupy this region would have been Paleo Indian hunters and gatherers (ca. 12,000 – 9,000 B.P.) While no Paleo sites are known specifically in the Central Berkshire District, a number have been identified a short distance west on the Hudson River, to the north in Vermont, New Hampshire and Maine, in Connecticut, and several in central, eastern, and southern Massachusetts. Significantly, the Deerfield Economic Development and Industrial Corporation site in Deerfield, which is between 9,000 to 12,000 years old, is located a short distance east of Goshen and northeast of Williamsburg.

From approximately 12,000 years ago to the present, warming climatic trends have resulted in marked landscape changes i.e., forests evolved from tundra-like conditions to Spruce Woodland, to Mixed Spruce and Hardwood Forests, and finally to the Eastern Deciduous Forest of today. These changes included a broad spectrum of commensurate adjustments in associated flora and fauna as well -- with each presenting its own challenges and opportunities to the local human populations. Indeed, the current archaeological record reveals that the topographical and geographical area that comprises the Central Berkshire District was occupied through the ensuing Early, Middle, and Late Archaic periods (ca. 9,000 – 3,000 B.P.), as well as Early Middle and Late Woodland periods (ca. 3,000 – 500 B.P.)

In order to place the Central Berkshire District within a broader temporal and spatial context, a model of settlement in the Western Highlands of the Commonwealth has tentatively been

formulated based on research in New York (Funk and Ritchie 1973) and Connecticut (Wadleigh 1983). When applied to the Central Berkshire District, this model predicts that sites located within the highland and upland portions of the region would often be special purpose sites such as quarries, kill sites, and rock shelters. Such sites would tend to be small in area because they were occupied only briefly during the seasonal rounds of small foraging groups or nuclear families. In this model, the Berkshire highlands or uplands are viewed as marginal hinterlands, only used seasonally by peoples who otherwise spent most of the year elsewhere, presumably at lower elevations adjacent to rivers and streams, lakes, ponds and wetlands.

Conversely, the alluvial plains associated with the region's many major rivers such as the Housatonic, Deerfield and Westfield rivers and their tributary streams, would generally be expected to contain larger sites because they would have been occupied by more people for longer periods of time than those of the upland/highland regime. Similarly, elevated well-drained locations around naturally occurring lakes, ponds, and wetlands may also tend to be larger because they attracted diverse animal and plant species, which in turn were capable of supporting larger and more diverse human populations.

Two important changes that occurred in New England may also have important implications for Native American occupation of the Berkshires in general from at least 8,000 to 2,500 years ago: one of these was natural and the other was cultural. First, approximately 8,000 years ago, scientists believe that the spawning behavior of anadromous fish became reestablished after having been disrupted by the Wisconsin Glacial (Dincauze 1975). From that time on, throughout New England, locations situated adjacent to falls and rapids along the region's major rivers became important for the seasonal harvest of this fishery. Indeed, this fishing activity may have become critical to group survival throughout the rest of prehistory. Therefore, those rivers which retain, or at least before historic damming, had outlets to the sea (Long Island Sound) may be expected to yield higher site densities than those that did not. Secondly, by at least 2,500 years ago, alluvial terraces became particularly attractive to local horticulturalists who had just learned to domesticate corn, beans and squash. Thus, it is predicted that riparian zones in general and particularly those with well developed floodplains, will contain late archaeological sites (i.e., Early, Middle, and Late Woodlands sites ca. 3,000 to 500 years ago).

B. Historic Overview & Archaeological Resources

Town histories written in the 19th century provide reasonably good documentation of Native American activities and sites throughout the Berkshires, although by the time they were written they were already second hand accounts. Perhaps the most obvious remnant of the Early Historic Period is a system of trails, which are believed to be derived from trails create during prehistoric times.

The Mohawk Trail, which roughly corresponds to portions of present Route 2, was a major east-west corridor between the Hudson and Connecticut valleys. From Deerfield, this important trail went over King Arthur's Seat and crossed the uplands to Shelburne Falls and then it proceeded along the north bank of the Deerfield from the North River Ford in Colrain through Charlemont and over the Hoosac Range. Another important east-west trail connected the Connecticut and Housatonic rivers via the Mill River from Northampton through Williamsburg and up into the

Goshen uplands. From there it continued west paralleling the Swift River gorge through Cummington, toward Plainfield Pond and eventually to Pittsfield (MHC 1984). The most southerly of the major east-west trails followed the north bank of the Westfield from the Connecticut River to the Woronoc ford in Westfield and along Munn Brook to the Berkshire foothills. From here the trail climbed over Westfield Mountain to Russell Pond, where it looped across the Blandford highlands to Big Pond in Otis and continued west to the Housatonic Valley (MHC 1984).

It isn't easy, or perhaps even not possible, to make broad generalizations about the history of an area as diverse and large as the Berkshires, as almost by definition the diversity precludes generalizations. Nevertheless, in the interest of brevity, certain salient or underlying characteristics do stand out that make the Berkshire's history distinct, if not unique, within the state.

Due largely to its rugged topography characterized by high elevations dissected by a maze of steep stream and river valleys; much of the land within the Berkshires was not settled until the mid 18th century. Ecological conditions created a formidable barrier to Colonial settlement, which first focused on the broad river basins of the Connecticut and Hudson rivers. Only after these areas were filled in did settler's attentions turn to the highlands and here too, the bottomlands surrounding the larger rivers tended to be settled first. National and inter-colonial friction also hampered settlement of this frontier region. The disruption of traditional Native American cultural systems brought about by the fur trade and being drawn into colonial wars, resulted in unrest and antagonism between the indigenous people and the aspiring settlers. Further complicating matters was the fact that New York, Connecticut and Massachusetts each held claim to the land between the Hudson and the Connecticut rivers.

Slowly, as population pressures increased even the highlands began to fill-in as "hill towns" increasingly took root in the most advantageous locations. In these early years, the Native American trail system proved vital to the colonial development of the Berkshires because of its dependency on available transportation routes. The Greenfield, Westfield and Hoosic rivers played an important role in the establishment of early European settlements. This role was enhanced as the Industrial Revolution found its way to the Berkshires and small family owned and operated industrial and commercial businesses were transformed into large highly competitive corporate entities such as the woolen mills in North Adams.

While farming was a primary activity in the early years of historic settlement throughout most of the region, in the highlands this provided a marginal subsistence at best and its occupants often supplemented their livelihood by undertaking a wide range of endeavors. Sawmills and gristmills sprang up along the riverbanks in many communities in the early years of each community's settlement. Railroad construction was to have a profound impact to the landscape of the western region, when in 1876 a major engineering feat was completed; the construction of the Hoosac Tunnel.

Besides its impact on industry, the development of rail lines throughout Berkshire County opened up the region for a new industry – tourism. Writers and artists began to flock to the Berkshire hills for summer respite, and the late 1800s saw development of tourist related industries such as grand hotels, sumptuous inns, and summit houses. In the early 19th century,

wilderness and the natural beauty of the new United States was a romantic ideal. Outdoor recreation became a popular tourist activity, and the ridges and mountaintops of Berkshire County enjoyed increasing visitation. This was also the era of the “rustic cabin” or lodge which were becoming popular with the wealthy from the northeast’s urban centers. This helped New York’s Catskills and Adirondack Mountains, and the forests of Maine become the center of the summer’s social circuit. In the Berkshires, this era is represented by the former mountain retreat of Alfred C. Douglas (Bash Bish Falls) and the grand Whitney estate (October Mountain).

Thus, as an accident of the development of the Commonwealth’s Forest and Parks system, virtually every type of historic archaeological site imaginable has been preserved in one form or another within the Central Berkshire District. Over the years, as park and forest lands were acquired, the buildings and structures that formerly occupied those lands were often removed, creating a series of historic archaeological sites scattered across the landscape. In some cases these sites are isolated occurrences, such as the remains of a small self-sufficient farmstead. While in other cases, a cluster of sites such as several mills along a stream may represent a former mill village, each individual site of which is related to the other in time and space. In addition, the loss of population and the abandonment of entire “hill towns” have resulted in the creation of a series of related historic archaeological sites that were once churches and meetinghouses, schools, stores, banks, hotels, cemeteries and homesteads.

The existing historic site inventory for the Central Berkshires District is outlined below:

Domestic sites:

Remains of farmhouses together with their associated barns, chicken coops, ice and milk houses, granaries and fenced in fields and pastures may be informative regarding regional land-use and farming practices. The stone foundations and cellar holes of this class of historic sites are found in virtually every property within the Berkshires, with the possible exception of Bryant Mountain SF, Gilbert Bliss, Krug Sugarbush, C.M. Gardener, Pittsfield, Worthington and Rowe SF, for there are no cultural resources inventoried at this time.

Industrial sites:

Among the industrial sites recorded within the Central Berkshire District are the remains of saw-mills and gristmills (Huntington, Wahconah, Chester/Blandford), textile mills and shoe manufacturing shops (Western Gateway Heritage State Park), brick and charcoal kilns (Pittsfield), marble quarrying (Natural Bridge), mica mining (Chesterfield/Blandford), blacksmith (Mohawk Trail).

Commercial sites:

Less common, or at least less easily identified than industrial sites are those classified as commercial sites. Typically, such sites were small rather obtuse buildings and operations that can not easily be differentiated from many domestic sites. Indeed, these were often small shops or stores (general provisions, tools and hardware, post offices were often within general stores etc.), which were either within a house or were otherwise identical to it in appearance.

Civic sites:

Because of the manner in which the Forest and Park system was created, often with land takings, sometimes abandoned land, but other times viable and operational land, it is not surprising that the remains of many civic sites have survived in the archaeological record. Recorded civic sites in the Central Berkshire District include schools (October Mountain), a number of cemeteries (Otis, October Mountain, and Pittsfield). Perhaps the most ubiquitous civic sites are old roads, which, like homesteads, exist within most of the State Forests and Parks of the Berkshires.

e. The Civilian Conservation Corps (CCC) sites:

Since many of the early parks were cutover forest or isolated natural features, the citizens of the Commonwealth had limited access to outdoor recreation. It was not until the 1930s that the parks of the Berkshire County region were transformed into premier recreational facilities under the direction of the Civilian Conservation Corps (CCC). From 1933 through 1938, the CCC worked in over one dozen forests and reservations in Berkshire County, expanding roads, trails, campgrounds, swimming areas and scenic areas in the state forests. Many of these improvements remain the cornerstones of the DCR facilities within the Berkshire region.

Between 1995 and 1999 DCR compiled a comprehensive inventory of the CCC resources remaining in the Forests and Parks of Massachusetts. Prepared by Shary Berg, *The Civilian Conservation Corps: Shaping the Forests and Parks of Massachusetts* provides information on all of the 22 facilities in Region V that benefited from the work of the CCC. Some of the resources in these parks – ranging from bridges and dams to lodges and landscapes - have been noted for their exemplary design and construction, and many areas are eligible for listing on the National Register of Historic Places. Of note are:

- ❖ Boulder Park, Chester-Blandford State Forest – A well preserved collection of CCC resources including a picnic ground and pavilion, a rustic log gazebo, a swimming area and bathhouse as well as paths, stone steps and landscaping.
- ❖ Felton Lake Bridge, October Mountain State Forest – Although the CCC developed shelters, bridges and trails at Felton Lake, remaining CCC resources are limited to a dam and a stone arch bridge. Featured in Albert Good’s *Park and Recreation Structures*, the bridge is typical of CCC design.
- ❖ Ski Lodge and Comfort Station, Pittsfield State Forest – The Ski Lodge is a well-preserved example of a multi-use building constructed by the CCC.
- ❖ Berry Pond Circuit Road, Pittsfield State Forest – This intact CCC roadway provides access to the CCC campground at Berry Pond while also creating a scenic route past an azalea field, a pond and dramatic mountaintop vistas.

- ❖ Administration Building, Pittsfield State Forest – This small CCC building was rehabilitated for use as an interpretive center and retains interior chestnut paneling from the 1930s.
- ❖ Steep Bank Brook Area with Dam, Windsor State Forest – There is a good collection of recreation resources including a swimming area, log bathhouse and a steel truss bridge. One of the most dramatic features of the area is a drop log dam with stone-faced piers.
- ❖ Peru State Forest – extensive archaeological remains of CCC Camp S-74 (Company 111) far more numerous and complex than suggested in the Berg report.

The 1999 statewide CCC survey identified the above resources as significant cultural resources of the Commonwealth. As the extant remains of the legacy of the CCC in Massachusetts, these buildings and landscapes should be protected as part of the Cultural Resource Management of the region as a whole.

HISTORIC BUILDINGS, STRUCTURES & LANDSCAPES

The current level of information on historic buildings, structures and landscapes within the Commonwealth's Forests and Parks system is limited. The primary source for information on these types of resources is the Baseline Cultural Resource Inventory (1984) which identifies known sites and potential sites for historic properties. While some sites are listed on the National Register of Historic Places or documented in other ways, many sites included on the baseline inventory have been predicted based on old atlases, town and county maps and other primary sources. The inventory identified almost 2,000 known and predicted sites across the state with a high concentration in the Berkshire County area. At this time, the 1985 Baseline Inventory is outdated and most predicted sites have not been verified in the field. Another major downfall is that the inventory does not include property acquired by DSPR since 1985 that either expands existing facilities or that establishes new parks.

C. National Register of Historic Places Resources

There are thirty communities within the Central Berkshire District. Within these communities, there are about 890 listings on the State Register of Historic Places (Table 2). Listings include single buildings and structures as well as historic districts that may contain multiple resources such as buildings, landscapes and structures. Each listing reflects a valuable part of the Commonwealth's history and can range from a single 18th century milepost and individual farmsteads to mill and factory buildings, worker tenements and public buildings. The listing inventory does not directly correspond to lands for which DSPR provides stewardship; instead, it includes all of those properties within each of the communities that comprise the Central Berkshire District.

The National Register of Historic Places is the nation's list of significant buildings, districts and sites which are worthy of preservation. Serving as the State Historic Preservation Office (SHPO), the Massachusetts Historical Commission administers the National Register program for the state and maintains the State Register of Historic Places. The State Register includes National Register

properties and properties included in local historic districts, local landmarks and properties protected by preservation easements. Some of the DSPR properties in the Berkshire Ecoregions, which are listed on the National Register, are:

- Jacob's Pillow
- Middlefield-Becket Stone Arch R.R. Bridge
- Hancock Shaker Village (part of Pittsfield SF)
- Mohawk Trail
- Freight Yard Historic District (Western Gateway Heritage SP, North Adams)

Other properties of historical significance have been determined eligible for listing on the National Register. In most cases, properties eligible for listing should be managed as though they were listed, providing for a consistently high level of preservation. Some examples of resources that have been determined eligible for listing are:

- CCC resources (individual buildings, thematic resources)

The repair, rehabilitation and stabilization of National Register properties should be consistent with *The Secretary of the Interior's Standards for the Treatment of Historic Properties*.

Historic Landscapes

A number of specific areas within the five Berkshire Ecoregions have been identified by the Massachusetts *Landscape Inventory* (DEM 1982). This study recognized two principal areas: the Berkshire Hills and the Taconic sections. The Berkshire Hills contains the Deerfield Valley Unit (USGS Colrain, Ashfield, Shelbourne Falls, Greenfield, Williamsburg) and the Cummington Unit (USGS Worthington, Goshen). The Deerfield Valley Unit is described as including "probably the finest hill country scenery in the Berkshires with many small working farms, fine vistas and a pleasing mix of agricultural land and woodland." The Cummington Unit contains the Chesterfield Gorge "one of the most dramatic in the state" and the many hillside farms, historic structures and small villages in Worthington and Cummington.

The Taconic Section is comprised of the Mt. Greylock Unit (USGS Berlin NY, Williamstown, Hancock, Cheshire, Windsor). Combined, these two landscape units contain the most spectacular vistas and picturesque mountaintop and ridge scenery in the Commonwealth.

Small town centers and agricultural landscapes are abundant in this region. Most of the region remained rural and featured a dispersed settlement pattern throughout most of historic times. Abandoned hills towns create a remarkable ensemble of archaeological remains and attest the difficulties that many 18th, 19th and 20th century farmers faced in trying to eek out a living in the rugged Berkshire and Taconic hills. These remains - stone walls that partitioned off land for pasture and tillage, the archaeological vestiges of many former farms and mills, together with those still in operation - create significant *vernacular landscapes* for the Berkshire Ecoregions and to the Commonwealth in general. Likewise, the combination of these vernacular landscapes and the varied topography create a collection of significant *Scenic Landscapes* that are critical to preserve.

TABLE 1

**Prehistoric Archaeological Sites
Per USGS Quadrangle
Bureau of Forestry
Central Berkshire District**

USGS Quad	# Sites
Becket	3
Blandford	0
Chester	2
Easthampton	4
East Lee	1
Goshen	0
Northampton	9
Otis	0
Peru	1
Pittsfield East	10
Pittsfield West	30
Southampton	8
Westhampton	9
Williamsburg	1
Windsor	1
Woronoco	24
Worthington	0
Total Sites	103

TABLE 2

**National & State Register of Historic Places
Per Community
Bureau of Forestry
Central Berkshire District**

Community	# Properties
Becket	115
Blanford	1
Chester	226
Chesterfield	0
Dalton	11
Hancock	28
Hinsdale	0
Huntington	149
Lee	106
Middlefield	9
Otis	0
Peru	0
Pittsfield	151
Worthington	94
Total Sites	890

SUMMARY/CONCLUSION

The relatively low archaeological visibility of the Central Berkshire District has extremely important implications for property managers, foresters and students of archaeology and history alike. Because of limited modern population and development pressures, less open and tilled land and fewer artifact collectors, there is potential that relatively intact archaeological sites remain to be discovered here. Thus, sites with good integrity, -- that is, sites with limited disturbance and which have a high degree of scientific research value -- are likely to exist in the Berkshires. These potential conditions make the preservation of archaeological sites within Central Berkshire District of paramount importance and places an additional burden on the property manager and forester.

Appendix F - Statutory Policy and Guiding Principles

STATUTORY POLICY

CHAPTER 21. DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

ARTICLE OF FORESTS AND PARKS.

Chapter 21:Section 2F

Chapter 21: Section 4F Bureau of forestry

[Text of section effective until July 1, 2003. Repealed by 2003, 26, Sec. 86. See 2003, 26, Sec. 715]

Section 4F. The bureau of forestry shall, under the supervision of the director, with the approval of the commissioner perform such duties as respects forest management practices, reforestation, development of forest or wooded areas under the control of the department, making them in perpetuity income producing and improving such wooded areas. It shall be responsible for such other duties as are now vested in the division of forestry by the general laws or any special laws and shall be responsible for shade tree management, arboricultural service and insect suppression of public nuisances as defined in section eleven of chapter one hundred and thirty-two, subject to the approval of the director and, notwithstanding the provisions of any general or special law to the contrary, the bureau may require all tree spraying or other treatment performed by other departments, agencies or political subdivisions to be carried out under its direction. The bureau may promulgate rules and regulations to carry out its duties and powers. It shall assume the responsibilities of section one A of chapter one hundred and thirty-two and shall be responsible for such other duties as are not otherwise vested in the division of forestry; provided, however, that all personnel of the forest, fire, shade tree and pest control units in their respective collective bargaining units at the time of this consolidation to the bureau of forestry shall remain in their respective collective bargaining units.

Chapter 132, Section 40, provides a framework within which the Bureau of Forestry operates and defines its mission.

*It is hereby declared that the **public welfare requires the rehabilitation, maintenance, and protection of forest lands** for the purpose of conserving water, preventing floods and soil erosion, improving the conditions for wildlife and recreation, protecting and improving air and water quality, and providing a continuing and increasing supply of forest products for public consumption, farm use and for the wood-using industries of the commonwealth,*

Therefore, it is hereby declared to be the policy of the Commonwealth that all lands devoted to forest growth shall be kept in such condition as shall not jeopardize the public interests, and that the policy of the Commonwealth shall further be one of cooperation with the landowners and other agencies interested in forestry practices for the proper and profitable management of all forest lands in the interest of the owner, the public and the users of forest products.

GUIDING PRINCIPLES

Ecosystem Management: The principles of Ecosystem Management (EM) guide the Bureau of Forestry in carrying out its mission. In contrast with traditional, production-oriented resource management, ecosystem management is "...a philosophical concept for dealing with larger spatial scales; longer time frames; and in which management decisions must be socially acceptable, economically feasible and ecologically sustainable". Rather than setting commodity-based targets, EM defines desired conditions and develops strategies that lead to achieving them. Although some have put forth more complex definitions, EM can be considered to have three main elements: biodiversity, a social component and adaptive management.

Conserving Biodiversity: Biodiversity is the variety of life and its processes; and includes the variety of living organisms, the genetic differences among them, and the communities and ecosystems in which they occur. Biodiversity may be sought on any scale: an entire landscape, an urban neighborhood or an aggregation of microscopic organisms. Generally speaking, the more diverse an ecosystem is, the more stable and resilient it is in the face of disturbance. In EM, three types of diversity are considered. Structural diversity can occur within a small group of trees (stands) where multiple age and/or size classes may be present. The term can also relate to a landscape with an aggregation of even-aged stands or a mixture of forest and other types of open space such as farmland and water. Compositional diversity relates to a mix of organisms, across a variety of scales, from the landscape to the stand level. Functional diversity relates to the genetic diversity within a population and also to the ability of an ecosystem to support processes necessary for its functioning and perpetuation.

Social Component: EM considers humans to be an integral component of the ecosystem, with the ability to meet many of their needs through the thoughtful application of EM principles. EM is collaborative and public participation is a part of the decision-making process. Like all democratic processes, effective EM requires that participants be well-informed and willing to compromise to achieve consensus. When ownerships are complex, some issues can only be brought to resolution by involving all of the stakeholders and creating partnerships through which desired conditions can be achieved.

Adaptive Management: Learning by this process occurs from the results of past actions. It is circular in nature and its components are: plan, act, monitor and evaluate. If the desired results of an action have not been achieved, the actions are modified when the process begins anew. Monitoring and evaluation are accomplished through: resource inventories and their analyses and deliberate and efficient record keeping.

The Role of Working Forests: To achieve its mission of balancing social needs with ecosystem health, the Bureau uses silviculture and other management tools to create a desired condition. Because the removal of trees is an extremely labor-intensive activity, current markets for wood products have a significant impact on the cost-effectiveness of creating desired conditions; some objectives will generate revenue and others will require an investment of revenue.

Action through Programs: The Bureau carries out its mission by managing the state forest and park system and by providing education, technical assistance, technology transfer, resource assessment, monitoring, regulatory oversight and outreach. It organizes and conducts this business through five program areas: Service Forestry (private lands), Management Forestry (state lands), Urban Forestry, Forest Health, and Marketing & Utilization. In the delivery of these programs, it cooperates with federal and other state agencies, municipalities, the business community, non-governmental organizations, academia and individual landowners.

Appendix G – Green Certification Information

On May 11th 2004, the State of Massachusetts (MA) received Forest Stewardship Council (FSC) endorsed forest certification for the State lands managed by the principal agencies of the Massachusetts Executive Office of Environmental Affairs (EOEA):

- Department of Recreation and Conservation (DCR), Division of State Parks and Recreation (DSPR) – 285,000 acres
- Department of Fish and Game (DFG) – 110,000 acres
- Department of Recreation and Conservation (DCR), Division of Water Supply Protection (DWSP) – 45,000 acres
- Re-Certification of the Quabbin Reservoir (DCR–DWSP) – 59,000 acres

1. What is Forest Certification?

Under the sponsorship of the FSC, Scientific Certification Systems (SCS) promotes responsible forest management by certifying environmentally appropriate, socially beneficial, and economically viable forest management. Consumers purchasing products bearing the FSC and SCS labels can be assured that their wood products come from forests that have been responsibly managed to FSC standards.

2. Why is this significant?

FSC Green Certification evolved from the certified organic grown agricultural programs and has expanded to millions of acres of the best-managed forests in the world. The certification being awarded to EOEA agencies is one of less than a dozen such certifications awarded to states and is the first comprehensive award because it involves all of the managed forestland under environmental agencies in Massachusetts. Other state designations were for only a subset of state lands (for example, only forest department and not fish and wildlife land or only a portion of the state). This award builds on the certification award received in 1998 by the DCR for the Quabbin Reservoir holding – the first FSC Green Certified public forestland award in the U.S.

3. What were EOEA’s Goals in undergoing Green Certification and are they being met?

a) *Improve forest management practices on state forestlands* – the requirements for management improvements for EOEA agencies over the first 5 year period of Green Certification are literally a “blueprint” to further improving our forest management program.

b) *Identify opportunities for coordination of forest management among the three state forest management agencies* – in undergoing Green Certification the agencies have already begun significant coordination efforts on areas such as designation of “forest reserves”, rare and endangered species and archaeological site policy, forest road inventories, and forest type mapping. The agencies have also begun coordinating management of nearby properties to enhance landscape-scale natural resource and ecosystem management.

c) *Encourage improvements in private forestland practices, by providing*

examples and building toward market incentives for verified sustainable management practices – since EOEА began undergoing Green Certification, a landowner cooperative of more than 25 owners, a large mill’s forestland and two saw mills have undergone and received Green Certification. Green Certification at Quabbin has helped in the ability of DCR to sell its forest products at good prices – DCR has averaged \$1 million in timber sale revenues over the past few years. DCR also set aside about 20% of the forests at Quabbin in reserves where no commercial forestry occurs.

d) *Improve public understanding and confidence of active forest management practices on state forestlands, by providing an independent, FSC-accredited audit of those practices* – in beginning to implement requirements of Green Certification, EOEА received positive feedback on initial management plan documents from several environmental organizations and the general public.

e) *Increase timber revenues through increasing sustainable forestry and access to Green Certification markets* - Green Certification has helped put the DWSP on a sustainable forestry program that averages \$1M per year. Once management plans and other requirements are in place – DSPR and DFG will also increase the sustainable timber revenues to proportionate levels while setting aside significant areas in forest reserves where commercial forestry will not be permitted.

4. Who determines the Standard for Certification?

The Forest Stewardship Council is an international organization that evaluates, accredits, and monitors independent forest product certifiers. Scientific Certification Systems (SCS) is accredited as a certifier by the Forest Stewardship Council and uses an accredited set of standards based on the FSC principals and criteria in its evaluation activities.

5. What are the steps required in the SCS Certification Evaluation Process?

A full evaluation of the land under consideration is conducted following the steps below:

- a) Assemble evaluation team of natural resource professionals;
- b) Publicize upcoming evaluation and standards to be used;
- c) Determine evaluation scope, collect and analyze data;
- d) Consult with stakeholders;
- e) Score the operations performance relative to the standard;
- f) Specify pre-conditions, conditions, and recommendations; and
- g) Write report and have results peer reviewed.

6. What are the Evaluation Criteria used by SCS?

a) The generic certification criteria of the SCS Forest Conservation Program, accredited by the Forest Stewardship Council (FSC). The criteria are organized into three program elements: **Timber Resource Sustainability, Ecosystem Maintenance, and Financial, Socio-Economic, and Legal Considerations**. The generic criteria are contained in the SCS Forest Conservation Program Operations Manual, available upon request from SCS.

b) The FSC Principles & Criteria, specifically the Northeast Regional Standard, to which the SCS generic criteria have been harmonized. These criteria are available at www.fscoax.org.

7. What is Timber Resource Sustainability?

The timber resource sustainability program element is concerned with the manner in which the timber inventories of an ownership are managed for continuous production over the long run. The evaluation considers the degree to which:

- a) Forest stands are maintained or restored to fully stocked, vigorous growing condition, occupied by high-valued tree species;
- b) Steady, significant progress is made, over time, in "regulating" the age and/or size class distribution of stands (even-aged management) or trees or groups of trees (uneven-aged management);
- c) Standing timber inventory is built up to levels associated with optimal stocking;
- d) Temporal harvest patterns at the ownership level (or the working circle level, for larger ownerships) generally exhibit stability and absence of wide fluctuations; and
- e) Management is oriented towards yielding high-valued timber products.

8. What is Forest Ecosystem Maintenance?

This program element is concerned with the extent to which the natural forest ecosystems indigenous to the ownership are adversely impacted during the process of managing, harvesting, and extracting timber products. The evaluation considers:

- a) Forest community structure and composition;
- b) Long-Term ecological productivity;
- c) Wildlife management actions, strategies, and programs;
- d) Watercourse management policies and programs;
- e) Pesticide use – practices and policies; and
- f) Ecosystem reserve policies.

9. What are the Financial, Socio-Economic, and Legal Considerations?

This program element is concerned with three non-biophysical issues. First, it addresses the financial viability of the ownership structure and management program. Second, this program element addresses the socio-economic dimension of sustainable forest management – the human dimension of forestland use and the goods and services yielded from the forest. Special emphasis is placed upon sustaining the historical patterns of benefit, particularly to local and regional populations (including employees, contractors, neighbors, and local communities). Lastly, this program element addresses the legal and regulatory context in which forest management operations are conducted. The evaluation considers:

- a) Financial stability;
- b) Community and public involvement;
- c) Public use management;
- d) Investment of capital and personnel;
- e) Employee and contractor relations; and
- f) Compliance with relevant laws, regulations, treaties and conventions.

10. Where can I obtain additional information?

More information about FSC and SCS can be obtained at www.fscoax.org and www.scs1.com.

Information about State of Massachusetts forestlands can be found on the EOEAs website at www.state.ma.us/envir/.

SCS Contact Person: Dave Wager, Director of Forest Management Certification

Mailing Address: SCS, 1939 Harrison Street, Suite 400, Oakland, CA 94612

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Appendix H – NATURAL RESOURCE PROTECTION AS A CLIMATE STRATEGY

Massachusetts is extraordinarily rich in coastal and inland natural resources, and a number of economic sectors – including tourism, farming, fishing, and forestry – rely on their continued health. Climate change threatens these resources directly, and the state can take actions to protect and enhance them against future potential impacts of climate change. Furthermore these resources – particularly forests and farmland – can be key components in an overall strategy to reduce our net statewide carbon emissions and conserve our carbon resource.

GOAL

Scientific research has shown that climate change poses a significant risk to our already stressed natural resources. Climate change can be significantly lessened by reducing greenhouse gas emissions through changes in agricultural and forestry management. Natural resource managers and land conservation advocates need to integrate these latest scientific findings into their planning processes and day-to-day management techniques. The state will nurture awareness of the connection between climate change, greenhouse gas pollution, and our forests, oceans, fisheries, and farms. The state will actively foster new ways to protect these resources while conserving carbon and reducing greenhouse gas emissions.

ACTIONS

HOST WORKSHOPS ON THE POTENTIAL IMPACTS OF CLIMATE CHANGE ON NATURAL RESOURCES AND LAND MANAGEMENT

In March 2004, the state convened an interdisciplinary workshop to disseminate scientific information on the potential impacts of climate change on the natural resources of Massachusetts and the New England region, and the implications for resource management. The workshop drew upon the talents of traditional conservation organizations, land managers, universities and colleges, science centers and museums, oceanographers, natural resource-based industries, recreation industries, other non-governmental organizations and interested citizens. Follow-up workshops will continue to connect sound science with public and private managers and practitioners, to shape feasible, cost-effective solutions.

PROMOTE COASTAL PLANNING PROGRAMS THAT RESPOND TO CLIMATE CHANGE AND HELP PRESERVE WETLANDS

The Massachusetts Coastal Zone Management Office (CZM) will integrate climate change considerations into their policy-making and their planning and management of state-owned coastal areas. They will encourage coastal municipalities to institute adaptation measures to reduce climate impacts, assist state open space preservation programs in the identification of coastal lands in need of protection, and encourage coastal municipalities to consider

development strategies that include protection measures such as bulkheads, dikes, and seawalls in critical areas.

PROMOTE A NEW FOREST VISION THAT INTEGRATES CARBON RESOURCE MANAGEMENT WITH OTHER NATURAL RESOURCE GOALS

The state will continue its efforts to maintain existing forests, increase land conservation areas, and give incentives for native (non-invasive) reforestation of previously forested area. The amount of carbon stored or sequestered by these activities will be measured and monitored over time to ensure that real carbon benefits accrue, and to better understand the long-term benefits of such programs. The state will focus on measures including:

Tree selection that will both increase carbon storage and shepherd adaptation to climate change over time.

Continued support for urban tree planting programs. Additional shade in certain urban areas mitigates the “heat island effect,” and an urban tree-planting program can help lower energy demand by diminishing the need for air-conditioning. Reducing the size of the heat island has the additional benefit of reducing the formation of ground-level ozone smog in our cities.

Including carbon resource management as one criterion in the management plan of state forests and other public lands. The state will encourage similar practices on private lands affected by conservation restrictions.

Renewed research on the role of controlled and uncontrolled forest fires in returning carbon to the soil rather than emitting it into the atmosphere.

The state will encourage land and building development practices that preserve existing trees during construction, encourage the planting of native replacement trees, and emphasize reforestation of cleared land in and around developments. The state will meet its obligation to replace trees affected by state projects

PROTECTING OUR FORESTS: A NATURAL DEFENSE AGAINST CLIMATE CHANGE

Massachusetts is the third most densely populated state yet it has the eighth highest percentage of forest cover. Massachusetts has long recognized that the state’s extensive forests furnish a broad array of benefits that support our quality of life. The state’s forest ecosystems provide habitat for wildlife, a resource base for timber production, a wide range of opportunities for recreation, a natural filter to purify the air and water, and a vital source of aesthetic pleasure. As development rates have outpaced population growth over the past four decades, the state has sought ways to ensure that forest resources are used in a sustainable manner. Today, however, an important ecosystem function waits to be fully integrated into this planning process – the beneficial role forests play in sequestering, storing, and emitting carbon dioxide. Carbon is a key component of soil, the atmosphere, the ocean, plants, and animals, and constantly moves among and between these reservoirs through natural and human-caused processes. This network of flows is called the

global carbon cycle. For example, when forests grow, or wood decays, or soils are tilled, carbon is exchanged between land and the atmosphere.

Before the industrial revolution, levels of carbon dioxide and other greenhouse gases in the atmosphere were fairly constant: about the same amount of carbon was released to the atmosphere from the land or ocean as was returned to the land and ocean by other processes. However, human activities, including large-scale fossil fuel use and deforestation, have since perturbed this balance, causing carbon to accumulate in the atmosphere faster than it can be removed. A process that causes a net transfer of carbon to the atmosphere, such as burning coal, is called a carbon source. A process that causes a net removal of carbon from the atmosphere, such as when forests grow, is called a sink. Carbon resource conservation strives to encourage activities that remove or keep more carbon out of the atmosphere and discourage activities that release carbon into the atmosphere.

Massachusetts is studying the role of forests in climate change. Specifically, the state is promoting strategies to conserve and maintain working forests and their safe storage of carbon. Massachusetts will also seek to use forest carbon markets to encourage the retention of higher value-added products in the local timber industry, which currently exports much unfinished product out of state. Other strategies include the use of sustainably harvested biofuels to offset fossil fuel consumption, planting trees in urban areas to reduce the heating and cooling load of buildings, and the use of wood products instead of more emission intensive materials like concrete, plastics, and steel. The state's goal is to fully incorporate net greenhouse gas emissions impacts when making forest management and land use decisions.

Appendix I – Public Comments

1. Reserve Areas:

- 1.1. No cutting should be done in reserve areas
- 1.2. Question the concept that a large-scale reserve is necessary in order to “absorb” a natural disturbance
- 1.3. Managed forests surrounding a medium sized reserve (1,000 acres maximum size) are less susceptible to disturbances that may be severe within the reserve. This managed forest “buffer” is also considered interior forest for the species that require large areas of interior forest.
- 1.4. A 5,000-acre reserve could suffer greatly from a single large disturbance. Two (2) separate 1,000-acre Forest Reserves far apart could be less susceptible to the same disturbance and would be more valuable.
- 1.5. Identified Forest Reserves need public input on the social and economic considerations must be discussed with town official, citizens, and private landowners
- 1.6. Support large-scale Forest Reserves
- 1.7. DSPR and DFW should work together and put private lands in Forest Reserves that are adjoining to make the largest Forest Reserves as possible and not just to meet a percentage needed for each department
- 1.8. Areas that have been identified as containing especially rich biodiversity and proper historical species distribution should be designated as large-scale reserve areas. Other areas that can be improved by active management should be managed as such.
- 1.9. Areas that are currently not logged should be identified and perhaps should not count towards the 20% reserve ceiling
- 1.10. Concerned about what will happen to existing (mapped and unmapped) trails within Forest Reserves
- 1.11. Forest Reserves are a small fraction of the approximately 600,000 acres of public lands. 15,000-acre Forest Reserves are necessary because they can withstand large-scale natural disturbances.
- 1.12. Concerned about the impact of Forest Reserves on “payment of lieu of taxes” and “forest trust fund” payments to towns

- 1.13. Understand need for Forest Reserves, however, most productive lands should be in Forest Reserves while lands with good access should not be in Forest Reserves. Specifically, October Mountain and Middlefield State Forests should not be in large-scale Forest Reserves.
 - 1.14. Old growth with buffers should be included in the reserve system
 - 1.15. More baseline information needs to be gathered before Forest Reserves are mapped
 - 1.16. Identification of Forest Reserves should be biologically driven
 - 1.17. Private lands will serve as reserve buffers and be actively managed lands. Concerned about how state lands surrounding Forest Reserves will be actively managed.
 - 1.18. Concerned about how private lands, adjacent to Forest Reserves will be encouraged to be actively managed
 - 1.19. Support Forest Reserves because: the state has the only capacity and capability, except non-governmental organizations such as The Nature Conservancy, to establish large-scale Forest Reserves; have seen a lot of bad logging in the Berkshires; and there is no lack of disturbance for edge species.
 - 1.20. October Mountain and Middlefield State Forests need to be reconsidered as large-scale Forest Reserves due to the opportunity for tranquility-inspiration values
 - 1.21. Need unique area to be set aside as large and small-scale Forest Reserves
 - 1.22. In some planning areas, it may be necessary to set aside greater than 20% as Forest Reserves due to less opportunity to establish Forest Reserves in other parts of the state
2. Recreation:
- 2.1. The State needs to prioritize safety for hikers, birders, etc. from motorized recreation
 - 2.2. Concerned about motorized vehicle damage to infrastructure (trails, riparian areas, forest values, wetlands, etc.)
 - 2.3. Want to see some areas for motorized use (but not all) and zoning for non-motorized use as well
 - 2.4. Snowmobiles should be regarded as different from other motorized vehicles due to winter vs. summer use and less environmental damage because use is over the snow
 - 2.5. Snowmobile users give back more to the forest than it takes due to volunteer efforts
 - 2.6. Many forest roads that are not maintained should be maintained for recreational use and fire prevention. Erosion control needs to be a priority on these old roads.

- 2.7. How will motorized recreation be enforced?
- 2.8. How will any use including Forest Reserves be enforced?
- 2.9. How will funding be provided for enforcement?
- 2.10. Require-raise motorized recreation license fees to fund enforcement and environmental education
- 2.11. Need more interpretation resources (displays, talks, nature hikes, etc.)
- 2.12. Consider prohibition of summer motorized vehicle use on state lands
- 2.13. Unauthorized trails should not be automatically grandfathered into the trail system
- 2.14. Funding is inadequate to put Forest Management Plans into practice
- 2.15. State could train volunteers to establish and maintain trails to approved standards
- 2.16. Enforce existing regulations that limit use on specific trails
- 2.17. Education to make people aware of damage by unauthorized trail uses
- 2.18. Consider limiting motorized recreation use to in-state users
- 2.19. Appalachian National Scenic Trail transects many regions and ecosystems. The AT corridor existing protection should be continued and expanded.
- 2.20. Motorized activities should not occur on public lands
- 2.21. On state lands where motorized use is prohibited, the land has improved. Damage to public natural resources is occurring on state lands where motorized used is allowed or unauthorized use is occurring.
- 2.22. Excluding motorized recreation use is counter productive because it will place more pressure on private lands
- 2.23. Need to control motorized use on state lands through zoning and limit trail use to where it is appropriate
- 2.24. The Appalachian National Scenic Trail of 1,000 feet should be maintained as it has been regardless of whether the trail is in a reserve or Active Management Areas
- 2.25. Maintain roads and trails to prevent environmental degradation and eliminate user created trail bypasses when there are wet areas

- 2.26. Educate motorized users who are not part of official clubs because they are not aware that they need permission to use private landowner lands to ride their ATVs
- 2.27. Law enforcement and users need to be educated to understand the state ATV/ORV laws and regulations
- 2.28. Need to address the many official trails that were built by organizations and the public
- 2.29. Will there be new trails planned?
- 2.30. Reduction in existing trails that may be unauthorized may lead to more conflicts between user groups because there will be less trails
- 2.31. There needs to be trails set aside for hiking only especially to remote precipitous areas
- 2.32. Need funding for signage and enforcement for the existing condition and regulations and any new ones
- 2.33. DSPR need staff on the ground to manage-educate-regulate-and police
- 2.34. More out-of-state ATV/ORV use state lands. Need to have outreach educational programs to educate these users.
- 2.35. Implement a tiered fee system for in-state and out-of state users

3. Biodiversity

- 3.1. DSPR/DFW should work with Friends groups to conduct studies of natural resources
- 3.2. Fund raising should occur to support research
- 3.3. State should manage their lands and be supported by the timber sale revenues
- 3.4. Do management to sustain habitats through prescribed burning and harvesting
- 3.5. Determine if silviculture can benefit rare species
- 3.6. State should take a strong stance on controlling/eradicating invasive exotic species
- 3.7. What will plantations be converted to and how will conversions be done?
- 3.8. Have a Forest Management Plan and follow it
- 3.9. Consider increasing the percentage of uneven-aged management to cover a larger component of forestland appropriate with tree species composition

- 3.10. Remember that the best use may not be human management. All land that is not reserve should not necessarily go into active management.
- 3.11. State lands are definitely a place for even-aged management to produce high quantities of quality timber
- 3.12. Snags, woody debris, den trees, etc. should be considered during management
- 3.13. Aesthetics should be balanced with the goals of securing high quality regeneration (which often requires soil disturbance)
- 3.14. Focus aesthetic values along roads and trails
- 3.15. More emphasis on the return to or protection of forests of pre-manipulated state of tree species diversity, including aggressive elimination of invasive exotic species such as Japanese barberry, bittersweet and treatment of stressed species such as White ash, American beech, eastern hemlock
- 3.16. Create “heritage” areas
- 3.17. Make “fire” prescribed burns part of some of the silvicultural prescriptions
- 3.18. Forest Management Plans need to be real and funded
- 3.19. A lot more timber may be harvested from DSPR lands. The receipts-revenues need to be dedicated for implementation of the management plans.
- 3.20. Active Management Areas should be managed as a good example for private landowners demonstrating stewardship for all resources and social benefits that one could receive for forestlands including profit
- 3.21. Managed forests should be demonstration areas with interpretation relating the What, Where, Why, When... for educational purposes
- 3.22. Timber sales need to be above cost (take in more revenue and benefit than the cost of preparation)
- 3.23. Make timber sales that are economically viable
- 3.24. Do not be afraid to use prescribed fire in the Berkshires if done well and appropriately
- 3.25. Would like to walk through some red pine, Norway spruce plantations so do not eradicate all especially if they were planted by the CCC
- 3.26. Need to explain what you are managing the forest for in terms of desired conditions such as increasing species viability

- 3.27. Hunting on public lands is important and the use should be allowed on public lands especially to deal with the increasing deer populations that are cause forest regeneration and successional problems
- 3.28. When balanced age classes aesthetic should be considered
- 3.29. No need to manage all lands within the Active Management Areas because there will be lands that have poor access, steep slopes, wetlands, etc.
- 3.30. Need to keep flexibility in the plan
- 3.31. Clearcut silvicultural methods should not be eliminated from state lands tools. Perhaps, guidance on the size limits should be established.
- 3.32. Need large course woody debris in Active Management Areas. Maybe management can establish additional down woody debris.
- 3.33. Too heavy salvage may be eliminating insect or disease resistant trees
- 3.34. Pesticide use should be used for species such as Japanese barberry where appropriate
- 3.35. Salvage needs to be thoughtful and if used, need to take into consideration site characteristics, regeneration opportunities and difficulties, site potential, etc.
- 3.36. Herbicides should be used according to labels as well as mechanical means to treat unwanted vegetation
- 3.37. In some places within public lands, herbicides can be used. The public needs to be informed by public meetings for educational purposes.
- 3.38. DSPR has buildings that are collapsing. The public becomes discouraged when they see this. The state needs to properly maintain their infrastructure especially culturally or historic sites and create a lot of antipathy.
- 3.39. Boundaries need to be maintained
- 3.40. Old fields should be maintained
- 3.41. Need to have better fire interagency cooperation and develop fire fighting and the use of prescribed fire policies
- 3.42. Make this planning effort an opportunity to make the state lands centers of excellence due to the thoughtful planning and diligent implementation. This should serve as a model or demonstration for others landowners and subsequent planning efforts.

Responses To Public Comments

The Draft Central Berkshire District Forest Management Plan (CBDFMP) was presented to the public on September 29, 2005 at the DCR Western Region, Regional Office in Pittsfield, MA. Thirty-eight (38) individuals attended the meeting, which was designed to present the key findings and results of the proposed forest management plan and solicit comments. Notices were posted in the *Environmental Monitor* and the Department of Conservation and Recreation (DCR) Forestry Program web pages encouraging the public to comment on the draft plan. It should be noted that the general feedback by the public at the September 29th meeting and personal contact by others is one of general agreement with the proposed plan.

The Bureau of Forestry received comments from the Towns of Peru and Middlefield, Mass Audubon, The Nature Conservancy, and The Sierra Club. A “content analysis” was conducted to identify areas of support, concerns, and suggestions. Each respondent’s specific comments were coded and combined where there was commonality. The results of the “content analysis” were further sorted by Forest Management Plan topics. All comments were assessed for change and incorporation into the plan. The following are the support, suggestions, concerns of the public and their disposition.

A. Forest Management Planning Principles:

1. Suggest that DCR and Division of Fish and Wildlife (DFW) forest management plans be consistent in approach, format, presentation, public participation process, be as similar and transparent as possible including publishing meetings and comment periods in the *Environmental Monitor*.

Disposition of Comment:

Green certification has led to greatly increased coordination between DCR and DFW. This includes sharing staff time, working on standard contracting policies, and working on a coordinated reserve system. There will always be a need for flexibility to craft plans that reflect their different agency’s mandates and missions. We will continue to work closely with DFW to hold coordinated public meetings and more importantly work cooperatively on management when opportunities arise.

2. Supports long-term planning (105 years), rare species habitat, biodiversity, native eco-systems, and forest health approaches to forest management of state forests as proposed in the forest management plan.

Disposition of Comment:

DCR will continue to commit itself to adaptive management at the project, property, and landscape level that is based on sound long-term management planning.

3. Concerned about maintaining a landscape level forest management approach. Suggest including a map of the Central Berkshire District in the final plan that includes all lands, their current protection status, and state forest active and passive management.

Disposition of Comment:

The CBDFMP is developed in consideration of and consistent with the landscape assessment and forest management framework for the Berkshire Ecoregions . The Department will coordinate vegetation management with adjacent landowners and consider the local landscape patterns during development of project level plans (see Silviculture and Vegetation section). See Appendix A and B for maps showing Department properties as well as landscape level maps.

4. Concerned that the Central Berkshire District lacks detailed information about the forest.

Disposition of Comment:

The CBDFMP contains a summary of forest and natural resource data (see Forest Plan). The Department has collected and processed forest data from the Continuous Forest Inventory as well as 2003 aerial photo-interpretation which included ground verifications. The complete set of data may be viewed at the Western or Central Regional Offices.

5. Supports the application of Adaptive Management principles.

Disposition of Comment:

The Department agrees with this comment. As science, information, and public demands change, DCR will continue to respond by improving its planning, management, and stewardship of our public lands. Forests ecosystems are not static and we will always work to apply the best knowledge and information in our adaptive management approach.

B. Forest Reserves Areas:

1. The towns of Peru and Middlefield selectman support active management of the Middlefield and Peru State Forests.

Disposition of Comment:

The Executive Office of Environmental Affairs and DCR are committed to Commonwealth public lands designated as Forest Reserves (Forest Management Plan Section VI, section 2. Forest Reserves). The Middlefield and Peru State Forests consists of approximately 6,437 acres (Middlefield 3,677 and Peru 2,760 acres). Approximately 2,729 acres have been designated as Forest Reserves. It

was determined after careful review and evaluation of the Forest Reserve evaluation criteria, that Forest Reserves in the Middlefield best serves the ecological and social values that are needed to represent the eco-region. The Department understands and values the towns of Peru and Middlefield's desire to have active management within the towns' state forests. The Department will work with the towns to develop and maintain recreational opportunities consistent with the values of the Forest Reserves as well as opportunities for active management in those remaining lands under multiple-use designation.

2. Suggest that October Mountain State Forest should be a large-scale Forest Reserve to complement and enhance the more intensive management and recreation on adjacent green certified land (state forest).

Disposition of Comment:

October Mountain State Forest was considered as a large-scale Forest Reserve. The Department evaluated this forest using the Forest Reserve evaluation criteria as well as a series of on-the-ground Forest Reserve field reviews. While approximately 1,616 acres were identified as small-scale Forest Reserves, October Mountain was not selected as a large-scale Forest Reserve for the following reasons: 1) there are large amounts of state and town developed roads; 2) the existence of utility lines within the forest; 3) the existence of a high number of ORV/ATV trails and use which is inconsistent with the values and uses associated with the Forest Reserve system; and 4) the high amount of non-native forest vegetation such as Norway Spruce and Red Pine plantations. The Department's analysis and evaluation determined that other candidate large-scale reserves within the respective eco-region better met the Forest Reserve evaluation criteria.

3. Supports the designation of approximately 7,953 acres of Forest Reserves including approximately 4,666 acres of large-scale reserves in Middlefield and Gilbert Bliss State Forests; Forest Reserves management guidelines; and Long-Term Ecological Monitoring as proposed in the forest management plan.

Disposition of Comment:

The Department is in agreement with this comment. As discussed in this forest plan, a system of large scale Forest Reserves are needed to protect the long-term range of forest biodiversity. The Middlefield and Gilbert Bliss reserves are proposed as part of this system. As the state wide planning progresses, their value will be evaluated against other state-wide candidates to insure the strongest large scale Forest Reserve system is chosen.

4. Suggest that the installation and management of cellular towers and wind farms and their associated infrastructure should be prohibited in Forest Reserves and green certified state lands that buffer Forest Reserves.

Disposition of Comment:

Within the Forest Reserve system, new communication sites are prohibited and wind towers are prohibited. On lands within the active management zone, new communication sites and wind towers will be reviewed on a site-by-site and project-by-project basis.

5. Suggest that primary forests should be included in Forest Reserves.

Disposition of Comment:

The Department interprets primary forests as forests which have been mapped as “primary and secondary old growth” areas identified by Robert Leverett as well as forests mapped as lands not in agriculture in 1830. Mr. Leverett participated with the Department in the identification and delineation of Forest Reserves in this planning area. The Department also included many 1830 lands not in agriculture in the Forest Reserve system. It should be noted that there are Central Berkshire District system lands that fall within Forest Reserves where the 1830 information is not available. It is estimated that there is a considerable portion of Forest Reserves that are of 1830 lands however they are not mapped and not included in the estimated amount.

6. Concerned about absence of “reference areas” within Forest Reserves where all management would be prohibited under all circumstances.

Disposition of Comment:

The CBDFMP Forest Reserve guidance was prepared in a manner that set forest management direction and allowed for Department discretionary flexibility due to unforeseen, significant, future situations and circumstances within Forest Reserves. Keeping this in mind, the Department fully recognizes and is committed to Forest Reserves serving as reference area for a number of reasons. The public can expect that management will not occur in Forest Reserves unless lands fall under the exception standards and guidelines. It should be noted that the Department will be implementing a Long-Term Ecological Monitoring program in cooperation with the University of Massachusetts and other partners with the intent of having Forest Reserves serve as unmanaged “reference areas”.

C. Active Management Areas:

1. Suggest that where active management is allowed, the amount of uneven-aged management should be increased.

Disposition of Comment:

The Department will continue to monitor uneven age management and the management of state forests and parks. As discussed in the current plan, the

percentage of actively managed land that will be in uneven-aged management at the end of the first cycle will be between 9 and 10%. This will be an increase of approximately 4% over current conditions.

2. Suggest that early successional habitat should not exceed 25% of the state forest planning area.

Disposition of Comment:

The current plan provides for approximately 12% of the state lands to be in the critical early successional habitat types. Approximately 7% of the forest will be in an early successional stage during each 15 year planning period.

3. Supports allocation of approximately 10% of active management areas to be managed in extended rotation systems. Suggests that location and designation of extended rotation be adjacent to Forest Reserves and be documented in the final forest management plan.

Disposition of Comment:

DCR is committed to using extended rotations on approximately 10% of the active forest resource management areas. Extended rotation areas were chosen in support of Forest Reserves, wetlands, riparian areas and recreational trails and road systems.

4. Concerned about primary forest lands, 1830 mapped forest areas that were not cleared for agriculture which were never mapped or missing from the analysis. Suggest that all 1830 primary forest lands be excluded from commercial harvest unless a site specific review shows that certain proposed practices would enhance the ecological function or value of the site.

Disposition of Comment:

The Department understands and values lands mapped as primary forest lands that were mapped in 1830 as forests. The Plan included all available 1830 lands mapping and the Forest Reserves system included many of the 1830 lands into the Forest Reserve system design. Since the Department has adopted an ecosystem forest management approach to all of our forestlands and 1830 lands have been managed throughout time, it has been determined that when a commercial harvest is planned, forest field data at the stand level has been recorded and silvicultural prescription applied. These prescriptions are consistent with forest ecological and silvicultural principles that the Department is meeting with the intent of enhancing the ecological function and value of the site.

5. Suggest that active management be focused primarily on forests 90 years or younger, and that any management in old forests be restricted and highly selective, with the goal of enhancing late successional forest characteristics.

Disposition of Comment:

The Department has developed forest management planning principles and vegetation management objectives. The Department recognizes the importance of late as well as early successional forest habitats. The Central Berkshire District, beginning in 2035, will have over 35% of the forest in an age class of older than 90 years of age. This is over three times the existing amount. The Department has determined that this forest management strategy adequately provides for the multiple goals and objectives and future forest health conditions. The Department has determined that having a diversity of species and age classes over times together with a planned older forest (some with multiple-age classes) provides a forest that may be resilient to natural and human caused changes. Dependence on a forest of one or few age classes may not provide for species diversity and resilience to disturbances.

6. Suggest that species like oak and cherry be selectively harvested due to disproportionately being harvested on private lands.

Disposition of Comment:

The Department will follow standard silvicultural methods for harvesting and regeneration of these species. The Department will continue to keep abreast of the latest research and treatment methods to insure regeneration of these species.

7. Suggest that forest harvesting be carefully planned to ensure that there are adequate resources to prohibit unauthorized ATV and ORV use and develop best management practices to help minimize the use of temporary logging roads by ATV and ORV use.

Disposition of Comment:

Unauthorized ATV and ORV use is a serious threat and concern to well planned forest management. The Bureau of Forestry will continue to work with other agencies within EOE to use a multi pronged approach to address this problem. This will include careful consideration when working on the access system for forest management. The Department is also working cooperatively with others to determine where ATVs and ORVs can be used safely, under what conditions and to define what constitutes an environmentally sound manner of use.

D. Rare Species, Communities, and Landforms:

1. Suggest that the forest plan includes specific plans for Rich Mesic Forests.

Disposition of Comment:

The Department agrees with this comment. This forest plan includes specific information and management goals and strategies for conserving rich mesic forests.

2. Supports vernal pool forest management guidelines.

Disposition of Comment:

The Department agrees with this comment. This forest plan includes specific information and management goals and strategies for conserving vernal pools.

3. Suggest that rare species and natural communities be thoroughly inventoried by qualified individuals and “potential” rare species habitat or rare community types be excluded from timber harvest unless certified by Natural Heritage and Endangered Species Program (NHESP).

Disposition of Comment:

The Department has emphasized and prioritized rare species habitat protection and the protection of rare natural communities during project planning, implementation, and monitoring. The Department has determined that the management objectives, guidelines, and standards in conjunction with adaptive management and monitoring and our commitment to coordinate and cooperate with NHESP adequately provides for rare species and natural communities. It should be noted that NHESP reviews the Departments vegetation projects, coordinates on multiple projects and mutual training pertaining to this subject.

E. Invasive Species:

1. Suggest providing more specificity for invasive species in terms of pre-harvest review, harvesting procedures, and post harvest monitoring and research.

Disposition of Comment:

The Department has provided for pre-harvesting, harvesting and post-harvesting monitoring and treatment. The Department believes that the invasive species approach is integrated and provides for the long term management of native species.

2. Concerned about giving priority to harvesting of stands threatened by insects and diseases resulting in a wholesale effort to remove hemlock trees based on the Hemlock Woolly Adelgid (HWA) threat.

Disposition of Comment:

The Department will address HWA by monitoring stands dominated by hemlock for the presence of HWA. If any infestation is found, stands will be considered on a case-by-case basis for treatment (no treatment, regeneration, thinning or salvage). Each solution will consider risk to human health and safety, forest health and fire risks. The Plan does not call for the wholesale removal of hemlock trees.

F. Wildlife Habitat:

1. Supports the maintenance of most existing fields and other “wildlife openings” in an open condition for wildlife.

Disposition of Comment:

The Department agrees that fields and other wildlife openings are productive habitat for many species. Existing fields will be restored and/or maintained through various means including agricultural permits, activities by Department staff, and forest product sale revenue. The Department will pursue opportunities where they exist for wildlife opening of other types including brush fields, patch cuts and poplar regeneration.

2. Supports creating and rotating patch cuts of various sizes to maintain habitat diversity by qualified individuals.

Disposition of Comment:

The Department agrees with this comment. Patch cuts when properly planned and applied can be critical to creating early successional habitat. Patch cuts will continue to be used as a management tool to fulfill the habitat requirements of the species that rely upon these conditions.

G. Implementation and Funding:

1. Concerned about DCR’s ability to fund the implementation and monitoring of the Forest Management Plan.

Disposition of Comment:

The Department at this time may not have the capacity and capability to implement and monitor the CBDFMP. The Plan was prepared with the intention that it could be implemented and monitored because it is realistic and could be readily implemented. All attempts will be made to fully implement the plan as prepared and meet the stated natural resource desired conditions, objectives, and guidelines.

2. Suggest providing ongoing training in the latest developments in sustainable forestry protection for protecting biodiversity.

Disposition of Comment:

The Department agrees with this comment. Each DCR Forester is required to be licensed in the State of Massachusetts. To maintain this license, each forester must undergo a minimum of twenty hours of continuing education each year. In addition to this, the Bureau of Forestry provides in house training on many topics including rare and endangered species, invasive species and cultural resources.

Appendix J – Glossary

Acceptable Growing Stock (AGS) - See **Management Potential**.

Aesthetics - forest value, rooted in beauty and visual appreciation, affording inspiration, contributing to the arts, and providing a special quality of life.

Allowable Harvest - the calculation of the amount of forest products that may be harvested, annually or periodically, from a specified area over a stated period, in accordance with the objectives of management.

Aspect - the orientation of a slope with respect to the compass; the direction toward which a slope faces; north facing slopes are generally cooler than south facing slopes.

Basal area - a measurement of the cross-sectional area of a tree trunk, in square feet, at breast height. Basal area (BA) of a forest stand is the sum of the basal areas of the individual trees, and is reported as BA per acre.

Biological diversity - the variety of plants and animals, the communities they form, and the ecological functions they perform at the genetic, stand, landscape, and regional levels.

Biological legacy - an organism, a reproductive portion of an organism, or a biologically derived structure or pattern inherited from a previous ecosystem—Note: biological legacies often include large trees, snags, and down logs left after harvesting to provide refuge and to structurally enrich the new stand.

Biological maturity - the point in the life cycle of a tree at which there is no net biomass accumulation; the stage before decline when annual growth is offset by breakage and decay. See **Financial Maturity**

Biomass - the total weight of all organisms in a particular population, sample, or area; biomass production may be used as an expression of site quality.

BMP - Abbrev. *Best Management Practices*.

Board foot - See **Volume, tree**

Bole - the main trunk of a tree.

Broad-based dip - an erosion control structure similar to and having the same purpose as a waterbar. Structurally, broad-based dips differ in that they are generally longer, less abrupt, often are paved with stone and are more appropriately used on truck roads. See **Waterbar**.

Browse - portions of woody plants including twigs, shoots, and leaves used as food by such animals as deer.

Buffer Strip - a forest area of light cutting where 50% or less of the basal area is removed at any one time (Ch. 132 regs.).

Canopy - the upper level of a forest, consisting of branches and leaves of taller trees. A canopy is complete (or has 100 percent cover) if the ground is completely hidden when viewed from above the trees.

Catastrophic Risk - high health and safety risk factors to people, high damage to human structures, or high destruction of forest conditions.

CCF - Hundreds of cubic feet. See **Volume, tree**.

CFI - Abbrev. *Continuous Forest Inventory*; a sampling method using permanent plots that are visited periodically to inventory large forest properties. Its purpose is to ascertain the condition of the forest as regards health, growth, and other ecosystem dynamics. With this information, long-term forest management policy is formulated to serve the needs of its owners.

Cleaning - See **Intermediate Cuttings**.

Coarse Woody Debris (CWD) - Dead and down woody material that is generally greater than 3” in diameter. See **Biological Legacy**

Cord - See **Volume, tree.**

Compartment - a subdivision of a forest property for administrative convenience and record keeping purposes

Community - a collection of living organisms in a defined area that function together in an organized system through which energy, nutrients, and water cycle.

Conservation - the wise use and management of natural resources.

Coppice Cutting - See **Regeneration Cutting.**

Corridor - a strip of wildlife habitat, unique from the landscape on either side of it, that links one isolated ecosystem “island” (e.g., forest fragment) to another. Corridors allow certain species access to isolated habitat areas, which consequently contributes to the genetic health of the populations involved.

Critical habitat - Uncommon habitat of great value to wildlife such as abandoned fields, orchards, aspen stands, blueberry barrens, cliffs, talus, caves, etc.

Crop tree - a term traditionally reserved to describe a tree of a commercially desirable species, with the potential to grow straight, tall, and vigorously. However, a crop tree can be one selected for non-timber purposes (varying with landowner objectives), such as mast production or den tree potential. See **Management Potential**

Crown class - an evaluation of an individual tree’s crown in relation to its position in the canopy and the amount of full sunlight it receives. The four recognized categories are: dominant (D), codominant (C), intermediate (I), and overtopped or suppressed (S).

Cull Tree - a live tree of commercial species that contains less than 50% usable material.

Rough cull: a tree whose primary cause of cull is crook, sweep, etc.

Rotten cull: a tree whose primary cause of cull is rot.

Danger tree - A standing tree that presents a hazard to employees due to conditions such as, but not limited to, deterioration or physical damage to the root system, trunk, stems or limbs, and the direction and lean of the tree. OSHA 1910.266, Logging Operations

Daylight - verb; to cut vegetation adjacent to a road or other open area to increase solar insulation to its surface.

DBH - abbrev. *diameter at breast height*; the diameter at breast height of a standing tree measured at 4.5’ above the ground.

Den Tree-living hollow trees that are used for shelter by mammals or birds. Syn.; cavity tree.

Diameter-limit cut - a timber harvesting treatment in which all trees over a specified diameter may be cut. See **High Grading.**

Disturbance - a natural or human-induced environmental change that alters one or more of the floral, faunal, and microbial communities within an ecosystem. Timber harvesting is the most common human disturbance. Windstorms and fire are examples of natural disturbance.

Ecology - the study of interactions between living organisms and their environment.

Economic Maturity - See **Financial Maturity**

Ecosystem - a natural unit comprised of living organisms and their interactions with their environment, including the circulation, transformation, and accumulation of energy and matter.

Ecosystem management - Forest management that is applied with emphases on 1.) maintaining biodiversity, 2.) addressing societal or social needs, and 3.) being adaptive. See **Forest Management.**

Ecotype - a genetic subdivision of a species resulting from the selective action of a particular environment and showing adaptation to that environment. Ecotypes may be geographic, climatic, elevational, or soil-related.

Edge - the boundary between open land and woodland or between any two distinct ecological communities. This transition area between environments provides valuable wildlife habitat for some species, but can be problematic for some species, due to increased predation and parasitism. Syn.: ecotone

Endangered species - See **Rare Species**

Even-aged stand - See **Stand Structure**.

Featured Resource - the resource that is the primary focus of management activities.

Financial maturity - the point in the life cycle of a tree or stand when harvesting can be most profitable, i.e., when the rate of value increase of an individual tree or stand falls below a desired alternative rate of return. Syn.: Economic Maturity

Forest land - Land that is at least 10% stocked with trees.

Forest interior dependent species - animal species that depend upon extensive areas of continuous, unbroken forest habitat to live and reproduce, and are susceptible to higher rates of predation and population decline when interior forest habitat is fragmented or disturbed. See **Fragmentation**.

Forest management - the practical application of biological, physical, quantitative, managerial, economic, social and policy principles to the regeneration, management, utilization and conservation of forests to meet specified goals and objectives while maintaining the productivity of the forest.

Forest Road - A road owned by and under the jurisdiction of the Department of Conservation and Recreation, Division of Parks and Recreation.

Forest type - aggregations of tree species that commonly occur because of similar ecological requirements. Four major forest types in Massachusetts are northern hardwoods, oak/hickory, white pine and oak/pine. Syn. forest association.

Filter Strip - an area of forest land, adjoining the bank of a water body, where no more than 50% of the basal area is harvested at any one time (Ch. 132 regs.).

Fragmentation, forest - the segmentation of a large tract or contiguous tracts of forest to smaller patches, often isolated from each other by non-forest habitat. Results from the collective impact of residential and commercial development, highway and utility construction, and other piecemeal land use changes.

Ford - a stream crossing using a stable stream bottom as the roadbed.

Fuel management - the act or practice of controlling flammability and resistance to control of wildland fuels through mechanical, chemical, biological or manual means, or by fire in support of land management objectives.

Girdling - a method of killing unwanted trees by cutting through the living tissues around the bole. Can be used instead of cutting to prevent felling damage to nearby trees. Girdled trees can provide cavities and dead wood for wildlife and insects.

GIS - Geographic Information System. A computer-based system for collecting, storing, updating, manipulating, displaying and analyzing geographically referenced data.

GPS - Global Positioning System. A satellite-based navigation system.

Grade - the angle of an inclined surface as expressed in terms of percent slope: vertical rise per 100' of horizontal run.

Grade, tree - A classification system for standing trees that is based on their potential for yielding high value lumber.

Growing Stock - For inventory purposes, all live trees that are between 5.0" dbh to 10.9" dbh and are greater than 50% sound. See **Management Potential**

Growth, net - The average annual net increase in the volume of trees expressed either as a per acre value or total value for a given unit of land. Mathematically it is expressed as follows: {[growth of the existing trees at the beginning of the period]+ [ingrowth the volume of trees that have reached merchantability during the period]} - {(the volume of trees that have died during the period) + (the volume of trees that have become cull during the period).

Habitat - the geographically defined area where environmental conditions (e.g., climate, topography, etc.) meet the life needs (e.g., food, shelter, etc.) of an organism, population, or community.

High-grading - a type of timber harvesting in which larger trees of commercially valuable species are removed with little regard for the quality, quantity, or distribution of trees and regeneration left on the site; often results when a diameter limit harvest is imposed. See **Diameter Limit Cutting**.

Herbaceous - A class of vegetation dominated by non-woody plants known as herbs; [graminoids (grass), forbs and ferns].

Incidental taking - the taking of a rare species that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.

Intermediate Cuttings - Operations conducted in a stand during its development from regeneration stage to maturity. These are carried out to improve the quality of the existing stand, increase its growth and provide for earlier financial returns, without any effort directed at regeneration.

Cleaning: a cutting made in a stand, not past the sapling stage, to free the best trees from undesirable individuals of the same age that overtop them or are likely to do so. See *weeding*.

Thinning: a cutting whose purpose is to control the growth of stands by adjusting stand density.

Salvage Cutting: a harvest whose primary purpose is to remove trees that have been or are in imminent danger of being killed or damaged by injurious agencies.

Weeding: a cutting made in a stand not past the sapling stage that eliminates or suppresses undesirable vegetation regardless of crown position. See *Cleaning*.

Landing - any place where round timber is assembled for further transport, commonly with a change in method. Generally, a cleared area where log trucks are loaded.

Legacy tree - a tree, usually mature or old-growth, that is retained on a site after harvesting or naturally disturbance to provide a biological legacy. . See **Biological Legacy**

Management plan - a document prepared by natural resource professionals to guide and direct the use and management of a forest property. It consists of inventory data and prescribed activities designed to meet ownership objectives.

Management potential - For forest inventory purposes, a classification method in which a tree is rated based on the likelihood that it will develop into a tree that will be structurally sound, vigorous and yield products of high value. The three classes are as follows:

Preferred Crop Tree: the highest class; a tree with a dominant crown and no or minimal sweep or crook and no or few limbs in the butt 16' log.

Acceptable Growing Stock: a tree of codominant or greater crown class with moderate sweep or crook and a moderate number of limbs in the butt 16' log.

Unacceptable Growing Stock: Any tree not meeting the above criteria.

Also, see **Growing stock**

Mast - Seed produced by woody-stemmed, perennial plants, generally referring to soft (fruit) or hard (nut) mast.

Matrix, forest - The most extensive and connected landscape element that plays the dominant role in landscape functioning.

MBF - Abbrev. Thousands of board feet. See **Tree Volume**

Merchantable - of trees, crops or stands, of a size, quality and condition suitable for marketing under given economic conditions even if so situated as not to be immediately accessible for logging. See **Operable**.

Multiple use and value - a conceptual basis for managing a forest area to yield more than one use or value simultaneously. Common uses and values include aesthetics, water, wildlife, recreation, and timber.

Niche - the physical and functional location of an organism within an ecosystem; where a living thing is found and what it does there.

Old growth stand - A stand that has been formally designated as an old growth stand. These areas must meet a preponderance of the following four criteria: 1.) Be of a size that is large enough to be self sustaining. 2.) Show no evidence of significant post-European disturbance. 3.) Should have a component of trees that are greater than 50% of the maximum longevity for that species. 4.) Shall be a makeup that is self-perpetuating.

Old growth attributes - attributes often associated with old growth forests such as large amounts of coarse woody debris, large trees, etc. that are achieved through deliberate actions in a managed forest. See **Biological legacy**

Operable - trees, crops or stands that are both merchantable and accessible for harvesting. See **Merchantable**.

Patch - a small area of a particular ecological community surrounded by distinctly different ecological communities, such as a forest stand surrounded by agricultural lands or a small opening surrounded by forestland.

Poletimber - See **Size Class**.

Population - a group of individuals of one plant or animal taxon (species, subspecies, or variety).

Preservation - a management philosophy or goal which seeks to protect indigenous ecosystem structure, function, and integrity from human impacts. Management activities are generally excluded from “preserved” forests.

Raptor - A bird of prey.

Rare species - A collective term used to describe species listed under the MA Endangered Species Act as *endangered*, *threatened*, or of *special concern*.

Endangered: native species which are in danger of extinction throughout all or part of their range, or which are in danger of extirpation from Massachusetts, as documented by biological research and inventory.

Threatened: native species which are likely to become endangered in the foreseeable future, or which are declining or rare as determined by biological research and inventory.

Special concern: native species which have been documented by biological research or inventory to have suffered a decline that could threaten the species if allowed to continue unchecked, or which occur in such small numbers or with such restricted distribution or specialized habitat requirements that they could easily become threatened within Massachusetts.

Recreation, outdoor - Outdoor recreation is generally considered to be of two types. *Extensive recreation* is that which occurs throughout a large area and is not confined to a specific place or developed facility e.g., hunting, fishing, hiking, horseback riding, snowmobiling, cross-country skiing, etc. Syn, dispersed. *Intensive recreation* includes high density recreational activities that take place at a developed facility e.g., camp and picnic grounds and swimming beaches.

Regeneration - the renewal of a tree crop, whether by natural or artificial means - may be broken down into those treatments that produce stands originating from seed (high forest) or from vegetative regeneration (coppice or sprouts) and create even-aged or uneven-aged stands. Syn. reproduction.

Regeneration Cutting - Any removal of trees intended to assist regeneration already present or to make regeneration possible. The operation creates either an even-aged stand or an uneven-aged stand. See **Even-aged stand** and **Uneven-aged stand**

Clearcutting: (even-aged) removal of the entire stand in one cutting with reproduction obtained artificially or by natural seeding from adjacent stands or from trees cut in the clearing operation.

Seed-tree: (even-aged) removal of the old stand in one cutting, except for a small number of seed trees left singly or in groups.

Shelterwood: (even-aged) removal of the old stand in a series of cuttings, which extend over a relatively short portion of the rotation, by means of which the establishment of essentially even-aged reproduction under the partial shelter of seed trees is encouraged.

Selection: (uneven-aged) removal of trees, throughout all size classes, either as single scattered individuals or in small groups at relatively short intervals, repeated indefinitely, by means of which the continuous establishment of reproduction is encouraged and an uneven-aged stand is maintained.

Coppice: (even-aged or uneven-aged) any type of cutting in which dependence is placed mainly on vegetative reproduction.

Regeneration interference - an impediment to regeneration due to competing vegetation, or soil/site limitations.

Release - removal of overtopping trees to allow understory or overtopped trees to grow in response to increased light.

Reproduction - Syn; Regeneration.

Reserve tree - a tree, pole-sized or larger, retained in either a dispersed or aggregated manner after the regeneration period under the clearcutting, seed tree, shelterwood, group selection or coppice methods. Syn. Standard, legacy tree

Residual stand - trees remaining following any silvicultural operation.

Riparian Area - an area in close proximity to a watercourse, lake, swamp or spring.

Rotation - the planned number of years between the formation or regeneration of a crop or stand and its final harvest at a specified stage of maturity.

Rotation, extended - a rotation longer than necessary to grown timber crops to financial maturity or size and generally used to provide habitat or nontimber values.

Salvage Cutting - See **Intermediate cutting**

Sapling - See **Size Class**

Sawtimber - See **Size Class**.

Seed Tree Cutting - See **Regeneration Cutting**.

Seedling - See **Size Class**.

Seep (Seepage) - Groundwater (as opposed to surface flow) escaping through or emerging from the ground along an extensive line or surface, as contrasted with a spring where water emerges from a localized spot..

Selection cutting - See **Regeneration Cutting**.

Selective cutting - a cutting that removes only a portion of trees in a stand. Note: selective cutting is a loose term that should not be confused with cutting done in accordance with the selection method, is not a recognized silvicultural system and is often synonymous with or associated with High Grading.

Shelterwood Cutting - See **Regeneration Cutting**.

Silviculture - the theory and practice of controlling forest establishment, composition, structure and growth.

Silvicultural prescription - a detailed, quantitative plan, at the stand level of resolution, for conducting a silvicultural operation.

Silvicultural System - a program for the treatment of a stand throughout a rotation. An even-aged system deals with stands in which the trees have no or relatively little difference in age. An uneven-aged system deals with stands in which the trees differ markedly in age.

Site - the combination of biotic, climatic, topographic, and soil conditions of an area; the environment at a location.

Site index – See **Site Quality**.

Site preparation - Hand or mechanized manipulation of a site designed to enhance the success of regeneration.

Site quality - the inherent productive capacity of a specific location (site) in the forest affected by available growth factors (light, heat, water, nutrients, anchorage); often expressed as site index – the height of the average tree in an even-aged stand at a given age. In New England 50 years is generally used as the base age.

Size Class:

Seedling: a young tree, less than sapling size of seed origin.

Sapling: a tree greater than 1" dbh and less than 4.9" dbh.

Poletimber: a tree greater than 4.9" dbh and less than sawtimber size.

Sawtimber: a tree greater than 11.0" dbh having at least 8' of usable length and less than 50% cull.

Slash - tops, branches, slabs, sawdust or debris resulting from logging or land clearing operations.

Slope, steep - An area where the average, sustained slope is greater than 50%. See **Grade**.

Snag - a standing dead tree, greater than 20' tall, which has decayed to the point where most of its limbs have fallen; if less than 20' tall it is referred to as a *stub*. A hard snag is composed primarily of sound wood, generally merchantable and a soft snag is composed primarily of wood in advanced stages of decay and deterioration. See **Biological legacy**.

Special concern, Species of - see **Rare species**

Species - a subordinate classification to a genus; reproductively isolated organisms that have common characteristics, such as eastern white pine or white-tailed deer.

Stand - a community of trees possessing sufficient uniformity as regards composition, constitution, age, spatial arrangement or condition to be distinguishable from adjacent communities, so forming a silvicultural or management entity.

Standard - a tree (or trees), which remain after the harvest in the coppice with standards regeneration method to attain goals other than regeneration. See **Reserve trees**.

Stand Condition - Stand condition is based on species age, size, quality, and stocking of the trees making up the main stand.

Non-stocked: Those stands less than 10% stocked with commercial tree species.

High Risk: Those stands which will not survive the next ten years, or in which, due to decay, insects, disease, mortality or other factors will have a net volume loss in the next ten years.

Sparse: Those stands that are not high risk, but which have less than 40 sq. ft. of basal area/acre.

Low Quality: Stands which are not sparse or high risk, but have less than 40 sq. ft. of basal area/acre in poletimber or sawlog trees that are classified as either acceptable or preferred growing stock..

Mature: An even-aged stand within 5 years of rotation age or beyond rotation age which does not fit into any of the above categories or an uneven-aged stand that exceeds the stocking and size criteria for that type.

Immature: Any stand more than 5 years from rotation age which does not fit into any of the above categories.

In Process of Regeneration: A stand in which work has been done to establish regeneration; site preparation, planting, seeding, shelterwood cutting, etc.

Stand Structure - A description of the distribution and representation of tree age and size classes within a stand.

Even-aged, single-storied: Theoretically, stands in which all trees are one age. In actual practice, these stands are marked by an even canopy of uniform height characterized by intimate competition between trees of approximately the same size. The greatest number of stems are in a diameter class represented by the average of the stand.

The ages of the trees usually do not differ by more than 20 years.

Even-aged, two-storied: Stands composed of two distinct canopy layers, such as, an overstory and understory sapling layer possibly from seed tree and shelterwood operations. This may also be true in older plantations where tolerant hardwoods may become established as management intensity decreases (burning and other means of understory control).

Two relatively even canopy levels can be recognized in the stand. Both canopy levels tend to be uniformly distributed across the stand. The average age of each level differs significantly from the other.

Uneven-aged (sized): Theoretically, these stands contain trees of every age on a continuum from seedlings to mature canopy trees. In practice, uneven-aged stands are characterized by a broken or uneven canopy layer. The largest number of trees is in the smaller diameter classes. As trees increase in diameter, their numbers diminish throughout the stand. Generally, a stand with 3 or more structural layers may be considered as uneven-aged.

Mosaic: At least two distinct size classes are represented and these are not uniformly distributed, but are grouped in small repeating aggregations, or occur as stringers less than 120 feet wide, throughout the stand. Each size class aggregation is too small to be recognized and mapped as an individual stand. The aggregations may or may not be even-aged.

Stewardship - the wise management and use of forest resources to ensure their health and productivity for the future with regard for generations to come.

Stocking - the degree of occupancy of an area by trees. In even-aged stands, stocking levels are expressed as different levels (A, B and C) based upon stocking guides that use tree diameter, basal area and number of trees per acre. The A level represents the density of undisturbed even-aged stands. The B level represents the minimum density for maximum basal area and cubic foot growth. The C level represents both the minimum stocking of acceptable growing stock to make a stand suitable for management for timber products and represents 10 years growth below the B level.

Overstocked: stands above the "A" level of stocking for their forest type, tree density and size class.

Fully stocked: stands between the "A" and "C" levels of stocking for their forest type, tree density and size class.

Understocked: stands below the "C" level of stocking for their forest type, tree density and size class.

In uneven-aged stands, stocking is based on residual basal area, maximum tree size and a ratio known as "Q" which is a mathematical expression of the desired diameter distribution.

Structure, horizontal - the spatial arrangement of plant communities; a complex horizontal structure is characterized by diverse plant communities within a given geographic unit.

Structure, vertical - the arrangement of plants in a given community from the ground (herbaceous and woody shrubs) into the main forest canopy; a complex vertical structure is characterized by lush undergrowth and successive layers of woody vegetation extending into the crowns of dominant and co-dominant trees. (See *crown class*.)

Stumpage value - the commercial value of standing trees.

Succession - the natural series of replacements of one plant community (and the associated fauna) by another over time and in the absence of disturbance.

Sustained yield - historically, a timber management concept in which the volume of wood removed is equal to growth within the total forest. The concept is applicable to nontimber forest values as well.

Thinning - See **Intermediate cuttings**.

Threatened species - See **Rare species**.

Tolerance - a characteristic of trees that describes the relative ability to thrive with respect to the growth factors (light, heat, water nutrients, anchorage). Usually used to describe shade tolerance: the ability of a species to thrive at low light levels.

T.S.I. - timber stand improvement; a loose term comprising all intermediate cuttings made to improve the composition, constitution, condition and increment of a timber stand. The practice may be commercial; yielding net revenues or precommercial or noncommercial; where the cost of accomplishing the work exceeds the value of the products removed.

Unacceptable Growing Stock (UGS) - See **Management Potential**.

Understory - the smaller vegetation (shrubs, seedlings, saplings, small trees) within a forest stand, occupying the vertical area between the overstory and the herbaceous plants of the forest floor.

Uneven-aged stand - See **Stand Structure**

Vernal or autumnal ponds - a class of wetland characterized by small, shallow, temporary pools of fresh water present in spring and fall, which typically do not support fish but are very important breeding grounds for many species of amphibians. Some species are totally dependent upon such ponds; examples are spring peepers and mole salamanders.

Volume, tree - the contents of the merchantable portion of a tree, expressed either as 1.) Board foot volume, where a board foot is equivalent to a piece of wood 12" x 12" x 1" thick, excluding the waste inherent in processing; 2.) Cubic foot volume with no waste attributed to processing; 3.) Cord volume, where 80 cubic feet of solid wood are equivalent to one cord. One cord of wood contains 128 cubic feet of air, bark and wood or 4.) Tons of oven-dry wood.

Water Bar - a shallow depression, 12" to 36" wide, cut across a dirt road or skid trail at approximately a 30 degree angle to its alignment, for the purpose of diverting the overland flow of water from the surface of the road. See **Broad-based dip**.

Wetland - an area meeting the criteria for a wetland under Massachusetts General Laws, Chapter 131, the Wetlands Protection Act.

Wildlife tree - a live or dead tree designated for wildlife habitat or retained to become future wildlife habitat.

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