State Guide Plan Element 161 Report 108

RHODE ISLAND

FOREST RESOURCES MANAGEMENT PLAN

March 10, 2005

Prepared by the
Rhode Island Department of Administration
Statewide Planning Program
http://www.planning.ri.gov

and the

Rhode Island Department of Environmental Management
Division of Forest Environment and
Office of Sustainable Watersheds
http://www.state.ri.us/dem/

The **Rhode Island Statewide Planning Program**, Department of Administration, is established by Chapter 42-11 of the Rhode Island General Laws as the central planning agency for state government. The State Planning Council comprised of state, local, and public representatives, and federal and other advisors, guides the work of the Program. The objectives of the Program are:

(1) to prepare strategic and systems plans for the state

(2) to coordinate activities of the public and private sectors within this framework of policies and programs

(3) to assist local governments in management, and

(4) to advise the Governor and others concerned on physical, social, and economic topics.

ABSTRACT

TITLE: Rhode Island Forest Resources Management Plan

SUBJECT: Management of forest resources in the State of Rhode Island

DATE: Mach 10, 2005

AGENCY/ SOURCE OF COPIES: Statewide Planning Program, Rhode Island Department of Administration
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ABSTRACT:

The R.I. Department of Environmental Management Division of Forest Environment and Office of Sustainable Watersheds developed the plan in cooperation with the Rhode Island Statewide Planning Program. The *Rhode Island Forest Resources Management Plan* establishes a vision, goals, and policies and provides recommendations focused on the management of tree resources within the State of Rhode Island. When construed and applied in conjunction with the *Rhode Island Urban and Community Forest Plan*, (State Guide Plan Element 156, 1999) this guidance is intended to advance the effectiveness of public and private stewardship of the state's tree and forest resources towards the twin goals of a healthy, sustainable economy and environment. As an element of the State Guide Plan, the *Rhode Island Forest Resources Management Plan* sets forth goals and policies that must, under state law, be reflected in future updates of local comprehensive plans.

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PREFACE

In his first annual report to the Rhode Island General Assembly in 1907, Jesse B. Mowry, Rhode Island's first State Forester, penned the following:

> *It is a fact well known to most of you that the timber which once covered our hillsides, ameliorating our climate, beautifying the landscape, protecting the watersheds, and constituting one of the most valuable natural resources of the state, has now nearly all disappeared before the woodsman's axe. It follows, therefore, that the protection and rapid growth of the succession of sprout and seedlings is a problem of interest and importance to the people.*

Now, 100 years later, Rhode Island's forests cover nearly 60% of the landscape and have matured beyond a point thought possible by the early foresters. At the turn of the 21st century, forest dwelling animals that disappeared long ago can now be found throughout the state. Deer, coyote, fisher, beaver, wild turkey, and even bears now reside in the state. It's clear that citizens enjoy our forests and all of the associated amenities. In order to focus attention on the importance of this critical resource, this plan has been developed to create a path to the future.

This document is an update of the *Rhode Island Forest Resources Management Plan*, State Guide Plan Element 161, which was developed by the Department of Environmental Management, Division of Forest Environment and the Statewide Planning Program, and adopted by the State Planning Council in 1984. This plan does not create a radical change of direction from past policy premises but is based on its predecessor. The plan carries forward many of the relevant policies and themes of the 1984 plan, adding new policies or emphasis as the changing scale and dimension of issues surrounding forest management have evolved.

The *Rhode Island Forest Resources Management Plan* is adopted by the State Planning Council as an element of the State Guide Plan. This plan, along with other elements, including the *Rhode Island Urban and Community Forest Plan,* State Guide Plan Element 156, provide guidance to state government, to local governments (whose local comprehensive plans must be consistent with the goals and policies outlined herein), and to private sector entities and individuals whose actions affect the state's forests.

A meeting was convened of the Forest Resources Management Plan Advisory Committee on July 2, 2003 to identify relevant issues and set up a framework to guide the process of updating this plan. Key issues were identified and the Committee recommended conducting a new landowner survey and a series of focus groups to clarify public opinion on these issues. Results of this activity are presented in the Appendix.

This plan moves us in the direction of Jesse B. Mowry's vision, which he stated so clearly in 1913:

> *The beauty and the glory of the earth as the home of man depend upon the forest. It is the business of forestry to develop and perpetuate the forest that it shall serve forever in the highest degree the manifold interests of humanity.*

Our forests are our future; our green hope for all

ACKNOWLEDGEMENTS

The development of this plan was accomplished through a cooperative agreement between the Department of Environmental Management's (DEM) Division of Forest Environment, and the Statewide Planning Program of the Department of Administration. Gregg Cassidy, Senior Environmental Planner and Bruce Payton, Supervising Forester, both with DEM, researched and drafted the plan in cooperation with Nancy Hess, Principal Environmental Planner, and George W. Johnson, Assistant Chief, of the Statewide Planning Program staff in editing and finalizing the plan. Special thanks are given to Bryan McMillan and Kate Montieth, interns with DEM's Office of Strategic Planning, who assisted in research for the plan. Others who contributed ideas and insights, or otherwise aided development of the plan included:

- Members of the Forest Resources Management Plan Advisory Council
- Thomas Dupree, Chief, Division of Forest Environment
- Marc Tremblay, Rhode Island Forest Conservators Organization
- Chris Modisette, Executive Director, Southern New England Forest Consortium, Inc.

Funding for this plan was provided by a grant from the U.S. Forest Service and by state appropriations to the Statewide Planning Program. This plan was produced pursuant to a Cooperative Agreement between the Rhode Island Statewide Planning Program and the R.I. Department of Environmental Management, Division of Forest Environment, and in fulfillment of Task 1808 of the Statewide Planning Program's *2005 Work Program*.

ADOPTION

The State Planning Council adopted this Rhode Island Forest Resources Management Plan as State Guide Plan Element 161 on March 10, 2005, following a public hearing conducted on March 2, 2005.

COMMENTS

Comments on this plan are welcomed. Contact Nancy Hess, Principal Environmental Planner via email at nhess@planning.state.ri.us, by phone at (401) 222-6480 or write to the R.I. Statewide Planning Program, Department of Administration, One Capitol Hill, Providence, RI 02908-5872.

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161-01 Part 1: Introduction

The Rhode Island Statewide Planning Program, in cooperation with other agencies, prepares a long-range forest resources management plan that is part of the State Guide Plan. The State Guide Plan is a collection of plans and policy documents adopted by the State Planning Council that addresses the social, economic and physical development of the state. The last forest resources management plan was adopted in 1984. Federal regulations for receipt of Cooperative Forest Management consolidated payments require a State Forest Stewardship Program.

Organization for Forest Resources Management Planning

The State Planning Council, the Statewide Planning Program's policy body, serves to coordinate planning and development activities in the state. The Council adopts all statements of goals and policies and all elements of the State Guide Plan. The Council has a permanent advisory committee, the Technical Committee, and a Forest Resources Management Plan Advisory Committee was formed in 2003. The purpose of the Advisory Committee was to encourage public involvement in the forest resources management planning process and to develop, with the staff, the forest resources management planning documents that are adopted by the Council. The planning staff, as part of a state-planning agency, integrates forest resources management with other planning issues, such as land use and economic development. Additionally, advanced planning tools are housed within Statewide Planning, namely RI Geographic Information Systems (RIGIS). The staff works cooperatively with the Rhode Island Department of Environmental Management (DEM), other state agencies, officials in 39 cities and towns and one Indian tribe, neighboring states and federal agencies on forest resources management planning.

Scope of the Plan

This plan establishes a vision for the management of the forest resources of the state. It provides goals and policies and strategies focused on the management of tree resources within the state. It is intended to advance local stewardship of the state's trees and forest resources towards the twin goals of a healthy, sustainable economy and environment in conjunction with the Rhode Island Urban and Community Forest Plan (State Guide Plan Element 156, 1999)

The following State Guide Plan Elements also address forest resources management topics:

- Element 121: Land Use and Policy Plan
- Element 131: Cultural Heritage and Land Management Plan
- Element 152: Ocean State Outdoors: RI's Comprehensive Outdoor Recreation Plan
- Element 155: Greenspace and Greenways Plan
- Element 211: Economic Development Policies & Plan
- Element 731: Nonpoint Source Pollution Management Plan
- Element 811: Transportation 2025 – Ground Transportation Plan

Plan Update

The staff of the DEM Division of Forest Environment (DFE) and Office of Sustainable Watersheds together with the Forest Resources Management Plan Advisory Committee prepared and recommended a preliminary draft plan to the Statewide Planning Program. The Advisory Committee was appointed by the State Planning Council and represented approximately 30 various stakeholders related to forest resources of the state. After a series of facilitated meetings the Committee reviewed the forest resource issues of the 1984 Plan and discussed relevant issues facing the management concerns twenty years later. The Committee developed the following issues for the preliminary draft plan.

1. Forest Resource Management (changed name, formerly forest resource planning in 1984)
2. Sustainability (new issue)
3. Information and Education (continued from 1984)
4. Forest Health (changed name, previously was forest fire in 1984)
5. Commercial Forest Products (changed name, previously was marketing in 1984)
6. Water Resources (changed name, previously was soils management in 1984)
7. Recreation and Tourism (new issue)
8. Fragmentation (new issue)

Purposes of the Plan

The Forest Resources Management Plan has several purposes.

- It sets state policy, to guide public and private decisions involving the use of trees and forestlands.

- As a State Guide Plan element, it is a basis for determining consistency of local comprehensive plans and other plans, programs, and projects with state policies. As an element of the State Guide Plan, this plan requires the comprehensive plans prepared by the state's municipalities be consistent with its goals and policies. All (39) Rhode Island municipalities have locally-adopted comprehensive community plans, and, as of 2005, most (36) have received State Certification. State Certification is becoming increasingly important criteria for competitive state project approvals and grant funding in the era of dwindling fiscal resources.

- Publicly supported projects of several specified state agencies are also required to be consistent with the Guide Plan. Other elements of the State Guide Plan are integrated with and support this plan, in particular *A Greener Path...Greenspace and Greenways for Rhode Island's Future, State Guide Plan Element 155* and the *Rhode Island Urban and Community Forest Plan, State Guide Plan Element 156*. Inclusion of forest resources management goals and policies in the Guide Plan also helps insure that these concerns are properly coordinated with other functional areas covered by the Guide Plan; elements covering land use, transportation, economic development, water supply and other functions.

- It provides a long-range framework for advancing projects in annual work programs for the Division of Forest Environment of the DEM.

- Performance measures have also been established in Part 4. These measures will be used to monitor performance and may be used in the state budgetary process.

This update was based upon the following inputs:

- A Forest Resources Management Plan Advisory Committee comprised of representatives of state agencies, local governments, regional organizations, private forest organizations and user groups, and citizens having an interest or expertise in forest resource matters.

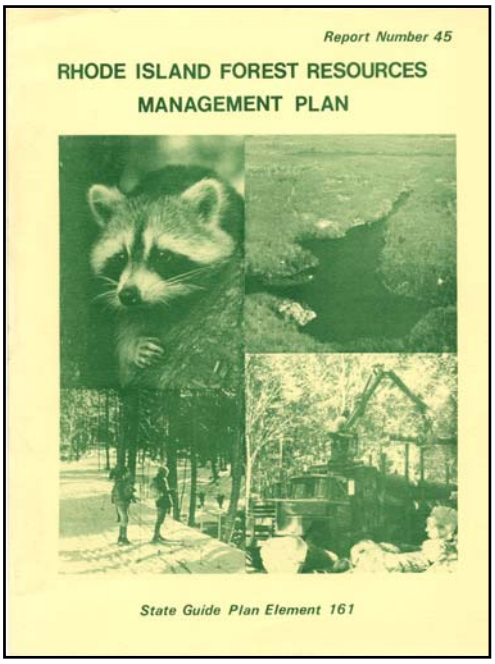
- Focus groups comprised of advisory committee members, invited agencies, private sector representatives, landowners and public members. These groups allowed for public discussion of the goals, policies, and recommendations of the current plan, as well as defining new issues. A total of 47 individuals participated in the five group meetings. The groups were:

    - Environmentalists
    - Private Forestland Owners
    - Resource Professionals
    - Commercial Forest Users
    - Recreational Forest Users

- Updated statistics on forest cover, species diversity and uses provided by the United States Department of Agriculture Forest Service.

- A 50-question survey[1] administered by the DEM's Division of Forest Environment and Office of Sustainable Watersheds and mailed to over 2,000 Rhode Island forestland owners. The survey included questions regarding current and future usage and management of private and state owned forestlands. Over 600 completed questionnaires were returned.

- An assessment of the conformity of the plan's recommendations with the *Rhode Island Urban and Community Forest Plan* (State Guide Plan Element 156, 1999)



1984 Plan

Accomplishments Since the 1984 Plan

A number of recommendations made in the prior plan have been acted upon:

1. Continued implementation of comprehensive statewide Forest Resources Management Plan, State Guide Plan Element 161, 1984 by the DFE.

2. Continued implementation of Forest Stewardship Plans for Arcadia and George Washington Management Areas, adopted in 1980 and 1992 respectively.

[1] See Appendix B

3. Established and continued coordination of State Management Areas through multi- disciplinary management councils.

4. Established of Statewide Forest Stewardship Committee, 1990.

5. Maintained statewide forest inventory statistics—surveys by USDA Forest Service in 1985 and 1998, changed to annual, continuous basis beginning in 2003.

6. Developed the Forest Legacy Program, 1993. This program is a partnership between participating states and the USDA Forest Service to identify and protect environmentally important forests from conversion to nonforest uses.

7. Provided funding and continued support to non-profit organizations for establishment of informational and educational organizations. Specific organizations assisted were:

    - RI Forest Fire Advisory Council 1985
    - Yankee Forest 1985
    - Southern New England Forest Consortium 1991
    - RI Forest Conservators Organization, 1990
    - RI Tree Council, 1992
    - Envirothon, 2004

8. Continued the Statewide Forest Health Program as established by the transfer of Plant Industry personnel to Division of Forest Environment in 1982, and conducted annual statewide Forest Health Inventory in cooperation with USDA Forest Service in 1990.

9. Updated Best Management Practices Handbook for reduction of soil erosion problems during timber harvesting, 1996 and 2003.

10. Developed and continue to implement comprehensive statewide Urban and Community Forest Plan, State Guide Plan Element 156, 1999.

161-02 Part 2: Assessment of Rhode Island's Forest Resources

Historical perspective

Rhode Island's first inhabitants interacted with the forest to provide for their basic needs. Native American groups like the Narragansett, Nipmuc, and Wampanaug periodically burned the forest to improve habitat for game animals. Small areas were cleared for agriculture and "hunting grounds" maintained by using frequent light fires to remove underbrush and stimulate the growth of grass. This resulted in a forest dominated by large trees with an open understory. William Cronin surmised the landscape was a patchwork of forests in many different stages of ecological succession, providing habitat for deer, grouse, and other game species.[2]

Rhode Island was probably 95 percent forested when Roger Williams founded a settlement in Providence in 1636.[3] As the state became settled, more of the forest was cleared for agriculture; the earliest estimate of forest area was 31 percent in 1767.[4] This trend continued as the population increased until, by the end of the nineteenth century, almost 80 percent of the land had been cleared. Forests were limited to untillable land or wetland. The remaining forest was harvested heavily to supply building material and fuel.

By the end of the nineteenth century, Rhode Island forests had reached their lowest point in both land area and forest condition. Forests were viewed as wasteland waiting to be cleared for agriculture or simply as a source of fuel. The introduction of portable steam-powered sawmills in the early 1870s coupled with Rhode Island's prominent role in the Industrial Revolution meant unprecedented harvesting of the remaining forest. In 1887, Bernard Fernow, Chief of the United States Department of Agriculture (USDA) Forestry Bureau, advised,

> "*forests in the strict sense of the word can hardly be said to exist in [Rhode Island]. Although 24 percent is reported covered with wood, it is mostly coppice and white pine or pitch pine, which here and there may be said to rise to the dignity of forests, especially on the western borders*."[5]

Availability of more productive land in the western United States and improved transportation that brought western products to eastern markets led to the abandonment of many farms in Rhode Island. The industrial revolution also led to a shift in economic opportunities and many farmers moved into urban areas for work. This idle land quickly reverted to forest. The trend of increasing forest cover continued until after World War II. The land area covered by this "second growth" forest peaked in 1963, at 67 percent.[6] Since then, forestland in Rhode Island has declined as land is cleared for development. The USDA, Forest Service reports a decrease in forestland area of 4.6 percent (16,500 acres) from 1985 to 1998.[7] According to a Grow Smart Rhode Island report, this is not due to increasing population but a changing development pattern; "...while Rhode Island's total population increased by only 16 percent during [the 34 year period from 1961 to 1995] the state's land consumption for residential, commercial, and industrial uses increased by 147 percent, nine times faster than the population growth rate."[8] The forest resources of Rhode Island have been periodically assessed since the 1950's but estimates of acreage are available from as far back as 1630. (See Figure 1.)

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[2] Changes in the Land: Indians, Colonists, and the Ecology of New England, William Cronin, Hill and Wang Publishers. 1983.
[3] *The Forests of Rhode Island,* USDA, United States Forest Service, Northeast Research Station, NE-INF-155-02, September 2002, preface.
[4] Ibid.
[5] Ibid.
[6] *RI Land Use Trends and Analysis*, Technical Paper 149, Rhode Island Statewide Planning Program, July, 2000.
[7] Forest Statistics for Rhode Island: 1985 and 1998, USDA Forest Service Research Bulletin NE-149, November 2000.
[8] The Costs of Suburban Sprawl and Urban Decay in Rhode Island, Grow Smart Rhode Island, December 1999.

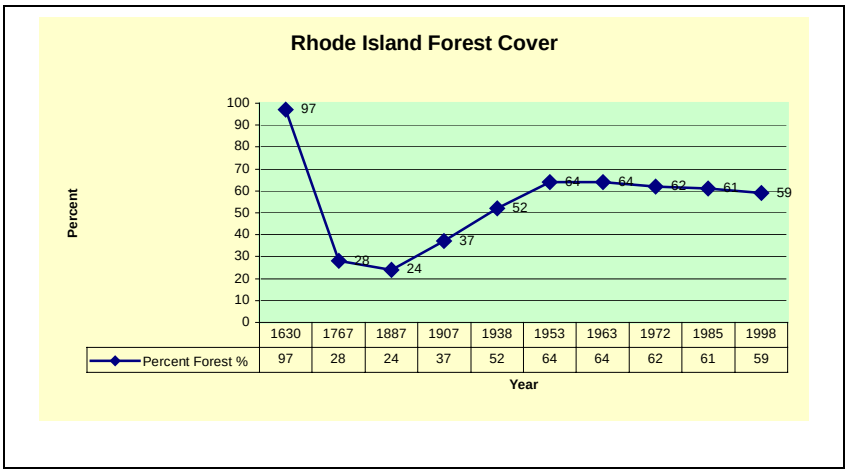

Figure 1
Changes in Rhode Island Forestland Area[9]

Although the overall amount of forestland in Rhode Island has decreased since the first assessment by the Forest Service in 1952, the ownership of forest by public agencies and non-profit organizations has increased. The acreage owned by state and local municipalities increased 13.7 percent, from 69,700 to 80,800 acres. Figure 2 shows trends in land acquisition by DEM. Private organizations, water suppliers, municipalities and land trusts have preserved an additional 77,400 acres.[10] Funding for many of these purchases has come from bond issues approved by voters showing an increased public awareness about the importance of forestland and the danger of fragmentation. In addition, the Forest Legacy Program, which is funded by the USDA Forest Service, has acquired development rights to nine properties totaling 1,458 acres.[11]

Rhode Island developed more residential, commercial, and industrial land in the last 34 years than in the previous 325 years according to Grow Smart Rhode Island.

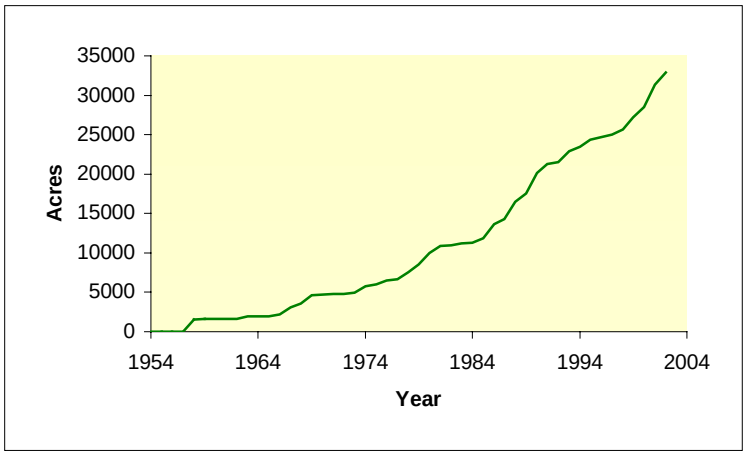

Figure 2
Land Acquired by DEM 1954-2002[12]

[9] United States Department of Agriculture, Forest Service Resource Bulletins NE-149 and NE-INF-155-03, *Rhode Island Forest Facts: 1959 – 60*, edition November 2000, p23, *Forest Statistics for Rhode Island: 1985 and 1998*, Table 1)
[10] Southern New England Forest Consortium, report by Yellow Wood Associates, Inc., 2002.
[11] Personal communication. Paul Ricard, DEM/Division of Forest Environment.

There has also been a dramatic increase in enrollment in Rhode Island's Farm, Forest, and Open Space (FFOS) Program, which offers lower tax assessment (based on the land's use as forest) in return for a conservation restriction that insures the property cannot be developed for 15 years without paying a penalty. Interest in this Program has increased as higher tax assessments have made the cost of maintaining forestland prohibitive. Figure 3 shows the amount of forestland enrolled in this Program since 1985. A survey of forest landowners found 51 percent of eligible landowners in 13 rural communities participate in the Program.[13] Of all properties enrolled in this program, 58 eight percent of the properties are enrolled under open space, 29 percent as forest, and 12 percent in the farm classification. This Program has been an effective means of slowing the change of forestland in both rural and suburban communities to other uses. The Rhode Island State Conservation Committee reports 3,600 properties enrolled in the Program statewide (28,614 acres in farmland and 29,345 acres as forest classification).[14]

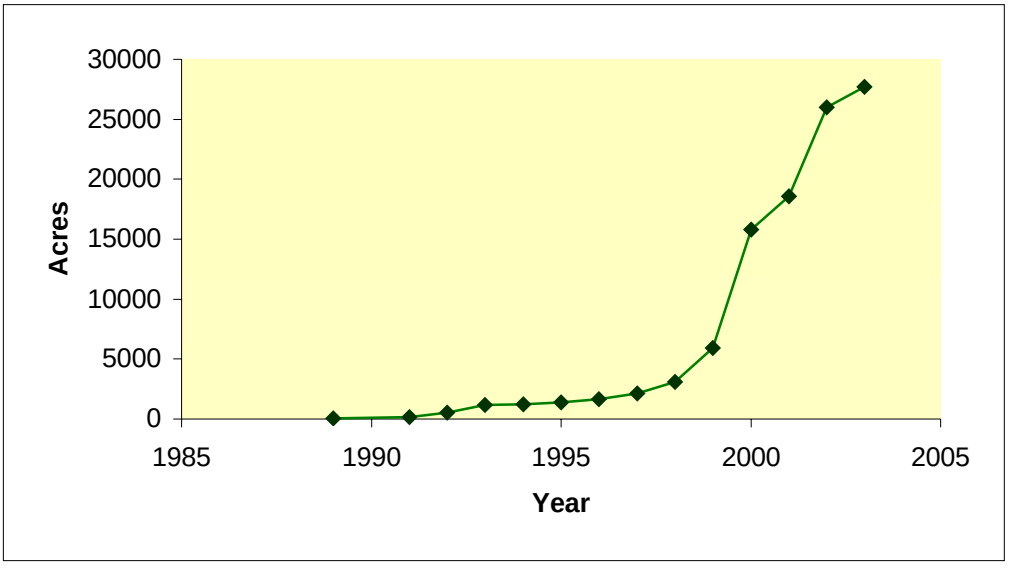

Figure 3
Acreage of Forest Classified Properties in FFOS Program[15]

Despite conversion of forestland for development, the most recent USDA Forest Service Survey reports there are 393,000 acres of forestland in Rhode Island, and that almost 59 percent of Rhode Island is covered with forest[16] (See Figure 4). The Forest Service inventory reports the Oak-Hickory forest type, is the predominant forest type found in Rhode Island, comprising 212,000 acres. White Pine forests cover 33,000 acres and Oak-Pine forests another 25,500 acres. The Elm-Ash-Red Maple forest types make up the remainder.

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[12] From DEM land acquisition data.
[13] Rhode Island Forestland Owners Survey, DEM, 2003.
[14] *Rhode Island State Conservation Committee Annual Report*, fiscal year 2002-2003.
[15] Personal Communication. Thomas Abbott, DEM/Division of Forest Environment.
[16] *Forest Statistics for Rhode Island: 1985 and 1998*, United States Department of Agriculture, Forest Service, Research Bulletin NE-149, November 2000.

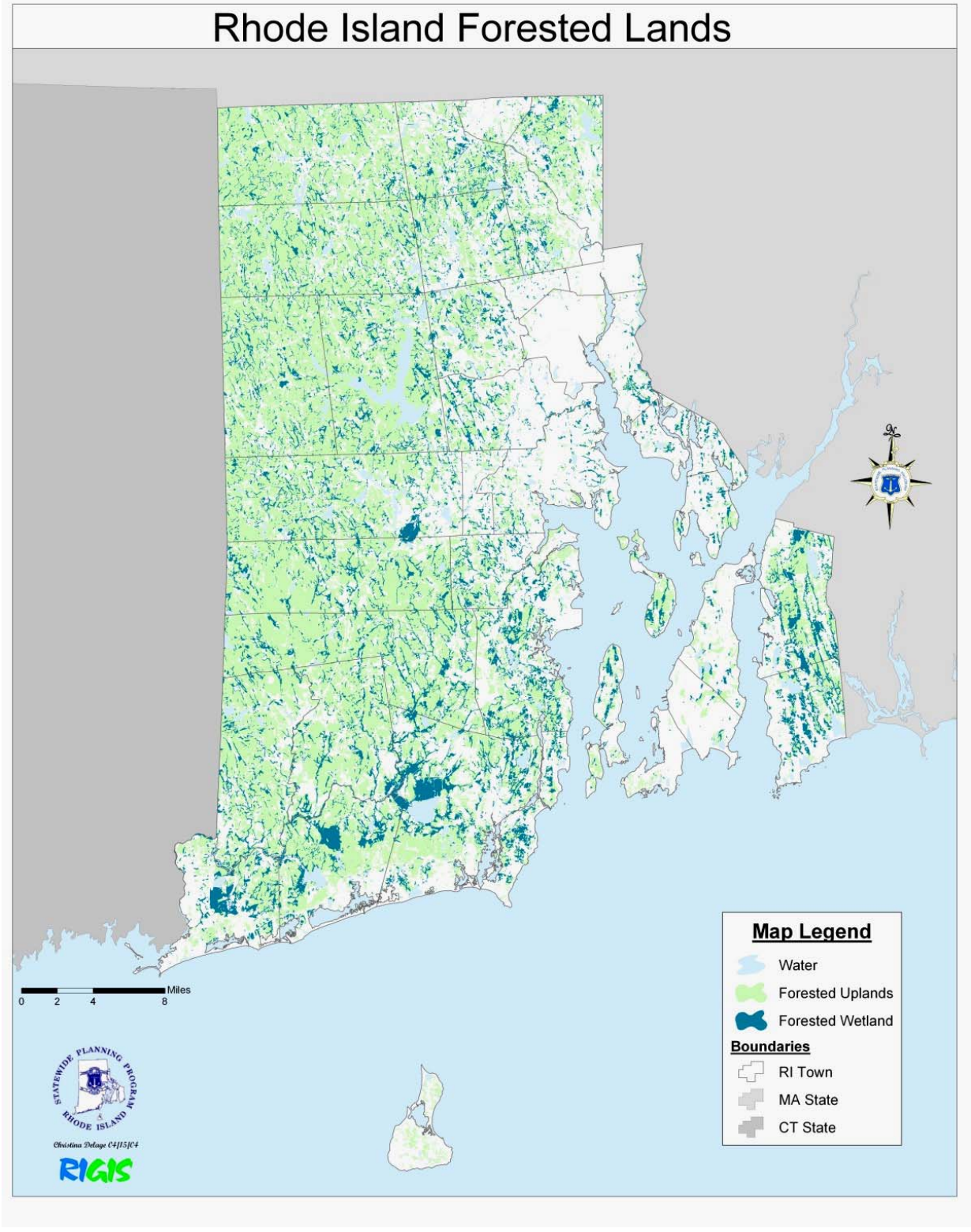


Figure 4
Rhode Island Forested Lands
Source: Rhode Island Statewide Planning Program, 1995 RIGIS Land Use Land Cover Data

Rhode Island Forest Types 1985 and 1998 (NE-149)

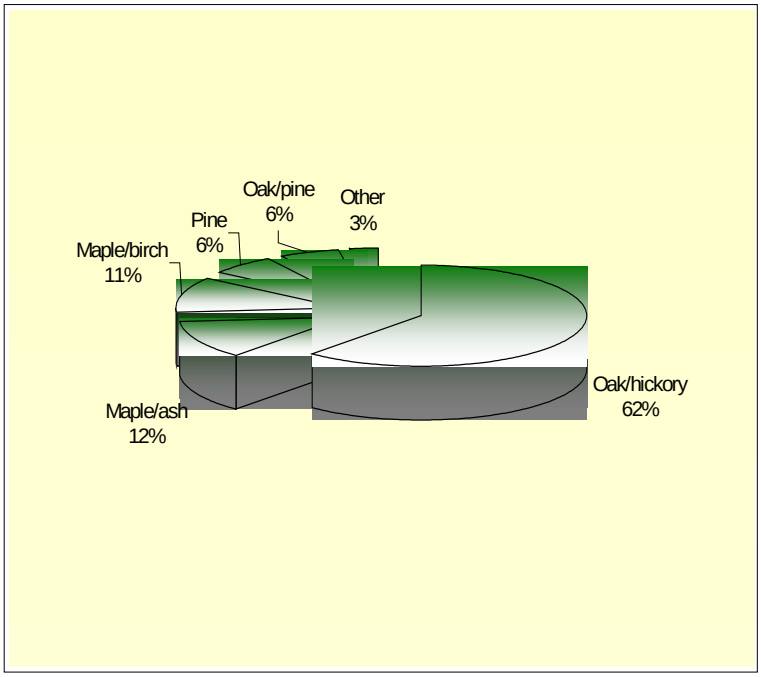
White/red pine: Forests in which eastern white pine, red pine, or eastern hemlock, singly or in combination, make up the plurality of the stocking; common associates include red maple, oak, sugar maple and aspen.

Oak/pine: Forests in which hardwoods (usually hickory or oaks) make up a plurality of the stocking and in which pines and or eastern red cedar contribute 25 to 50 percent of the stocking.

Oak/hickory: Forests in which upland oaks, hickory, yellow poplar, black locust, sweet gum, or red maple (when associated with central hardwoods), singly or in combination, make up a plurality of the stocking and in which pines or eastern red cedar make up less than 25 percent of the stocking; common associates include white ash, sugar maple, and hemlock.

Elm/ash/red maple (also called elm/ash/cottonwood): Forests in which elm, willow, cottonwood, or red maple (when growing on wet sites), singly or in combination, make up a plurality of the stocking; common associates include white ash, sugar maple, aspens, and oaks.

Figure 5 shows the classification of forest, by forest type, based on the USDA Forest Service inventory. The inventory identified 51 different tree species with eastern white pine the most common softwood tree species and red maple the most common hardwood species in Rhode Island forests.[17]



[17] Ibid.

Figure 5
Forestlands by Forest-Type Group[18]

Although the forest in Rhode Island is growing on land that was cleared at one time for agriculture, more than half of the forest is over 60 years old with dynamic rolling cohorts of maturing trees. Figure 6 shows trends in the size of trees in the forest since the first USDA, Forest Service Inventory in the 1950's**.**

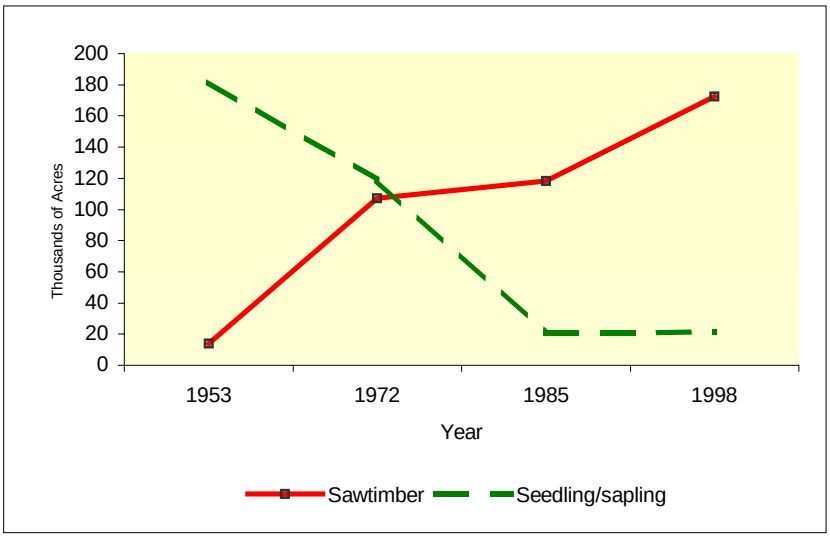


Figure 6
Changes in Area by Forest Size Class [19]

Although ownership of forest by public agencies and conservation groups has increased in recent times, private individuals still own most of Rhode Island's forestland. Figure 7 depicts ownership of forestland.[20]

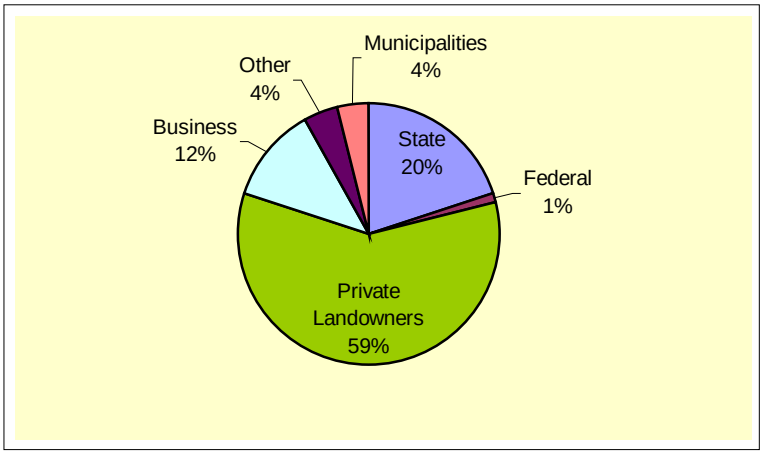


Figure 7

[18] Forest Statistics for Rhode Island: 1985 and 1998, NE-149, August 2000.
[19] *Trends in Rhode Island Forests: A Half- Century of Change*, United States Department of Agriculture, Forest Service, Northeastern Research Station, NE-INF-144-02, 2002.
[20] *The Forests of Rhode Island*, United States Department of Agriculture, Forest Service, Northeastern Research Station, NE-INF-155-02, September 2002.

Distribution of Forest Ownership in Rhode Island[21]

As part of the update of the Forest Resources Management Plan, a mail survey of forest landowners who own more than ten acres of forestland in rural communities was conducted. As expected, parcel size was small, with 37 percent of respondents owning less than 20 acres and an additional 22 percent owning less than 30 acres. Most people who own forestland are of retirement age, with 30 percent more than 65 years old; less than 5 percent of the respondents were younger than 30 years old (See Figure 8). For the most part, respondents have maintained their property for a long time with 47 percent owning their land more than 20 years and only 19 percent less than 10 years (See Figure 9).

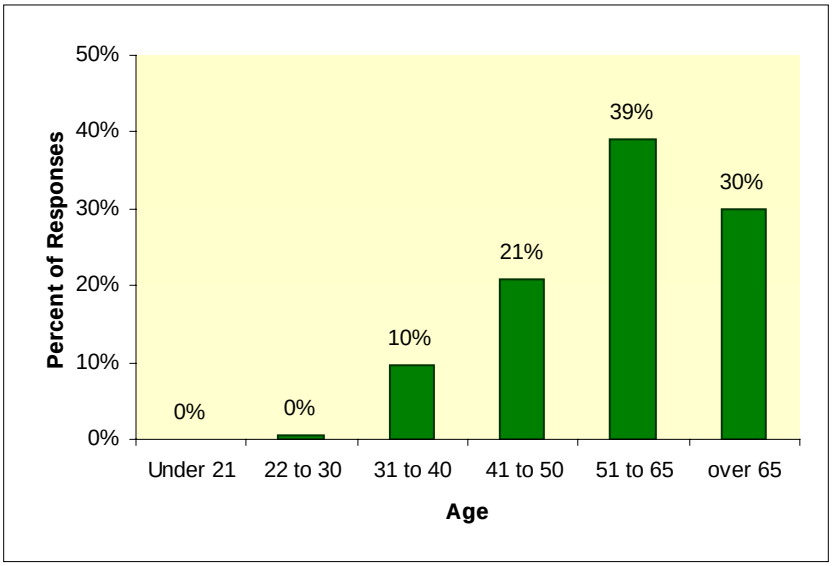
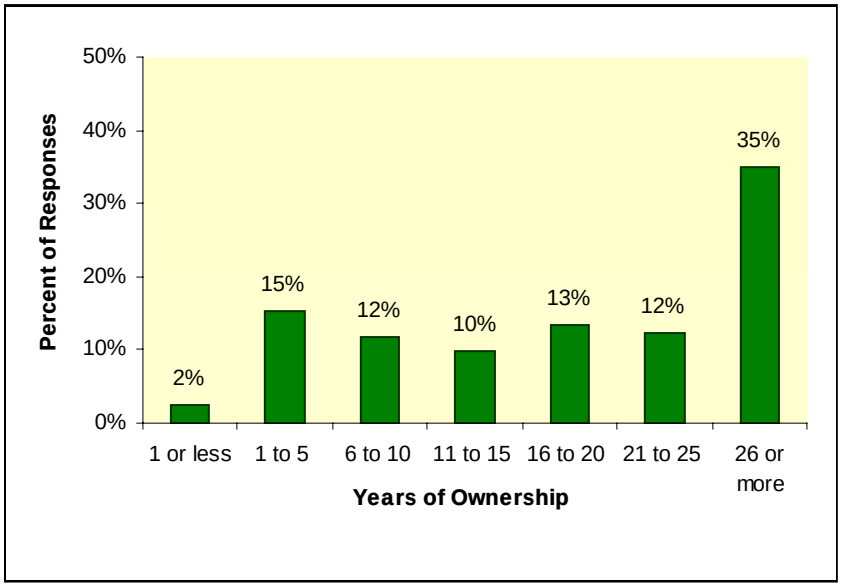


Figure 8
Age Distribution of Forest Landowners 2003[22]



[21] Ibid
[22] Rhode Island Forestland Owners Survey, DEM/DFE, 2003.

Figure 9
Length of Ownership of Forestland 2003[23]

Most forest owners in Rhode Island live on their land, with 22 percent of survey respondents giving a place of residence as the most important reason for owning forestland. The survey revealed investment (13 percent) and forest products (12 percent) were the other important reason for owning forest. Recreational use (10 percent) and for hunting and fishing (6 percent) are other common reasons respondents gave for owning forestland.

Forest Resource Values

The forests of Rhode Island are valuable for numerous environmental, economic, aesthetic, and quality of life reasons. Some of the more important resources values are discussed in this section.

Water Resources

Issues affecting water quality are at the forefront of public concern; 84 percent of respondents to a survey done as part of the update of the State Comprehensive Outdoor Recreation Plan (SCORP) said watershed protection was a very important function for DEM.[24] Specifically, protecting sources of drinking water was identified as the highest concern of respondents to a survey conducted in the year 2000 concerning growth and land use issues by the RI Statewide Planning Program[25]. Drinking water needs in Rhode Island are supplied by a combination of surface water, and groundwater but 75 percent of Rhode Islanders depend on surface water supplies.[26]

A watershed, the surface basin that drains into a surface water body, surrounds and feeds every surface drinking water supply source. Within a watershed, the quality and quantity of groundwater and surface water is directly related to land use activities. As development increases, threats to water quality also increase due to the loss of the filtering capacity of forests (and other undeveloped land), the potential for failed septic systems and other pollution sources, and degradation of riparian buffers. Impacts can also include loss of storage capacity, and increased runoff volumes leading to downstream flooding and reductions in available water during dry seasons. Development that increases impervious surfaces, and out-of-basin transfers of water can affect the quantity of water available within a watershed.

It has long been recognized that maintaining forests is the key to insuring high quality water. Forests affect the flow and quality of water in the streams in the surface basin that contribute to reservoirs and which interact with groundwater. Maintaining healthy forests in watersheds is the most effective means to insure high water quality; it is also cheaper than water treatment.

Since a major threat to the Rhode Island water supply sources can be improperly sited development, a key strategy over the years has been to protect, through public or water supplier control, as much of the land immediately adjacent to water supply reservoirs as feasible. The RI Public Drinking Water-Watershed Protection Program, established by the Public Drinking Water Supply System Protection Act of 1997, funds the purchase of land to protect water supplies. This program, which is administered by the Rhode Island Water Resources Board, has funded the acquisition or purchase of development rights of 8,600 acres since its inception in 1964.[27] Figure 10 shows watersheds for public surface water supplies and protected forestlands within those areas.

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[23] Ibid

[24] *Ocean State Outdoors: Rhode Island's Comprehensive Outdoor Recreation Plan*. Report Number 105, State Guide Plan Element 152. Statewide Planning Program, March 2003.

[25] Rhode Island Growth Priorities for 2000 and Beyond, Survey Report, Rhode Island Statewide Planning Program, February 2000.

[26] *Public Water Supplies in Massachusetts and Rhode Island: Investigations of Processes Affecting Source-Water Quality*, United States Department of the Interior, United States Geological Survey, April 1997.

[27] Personnel Communication Elaine McGuire. Water Resources Board.

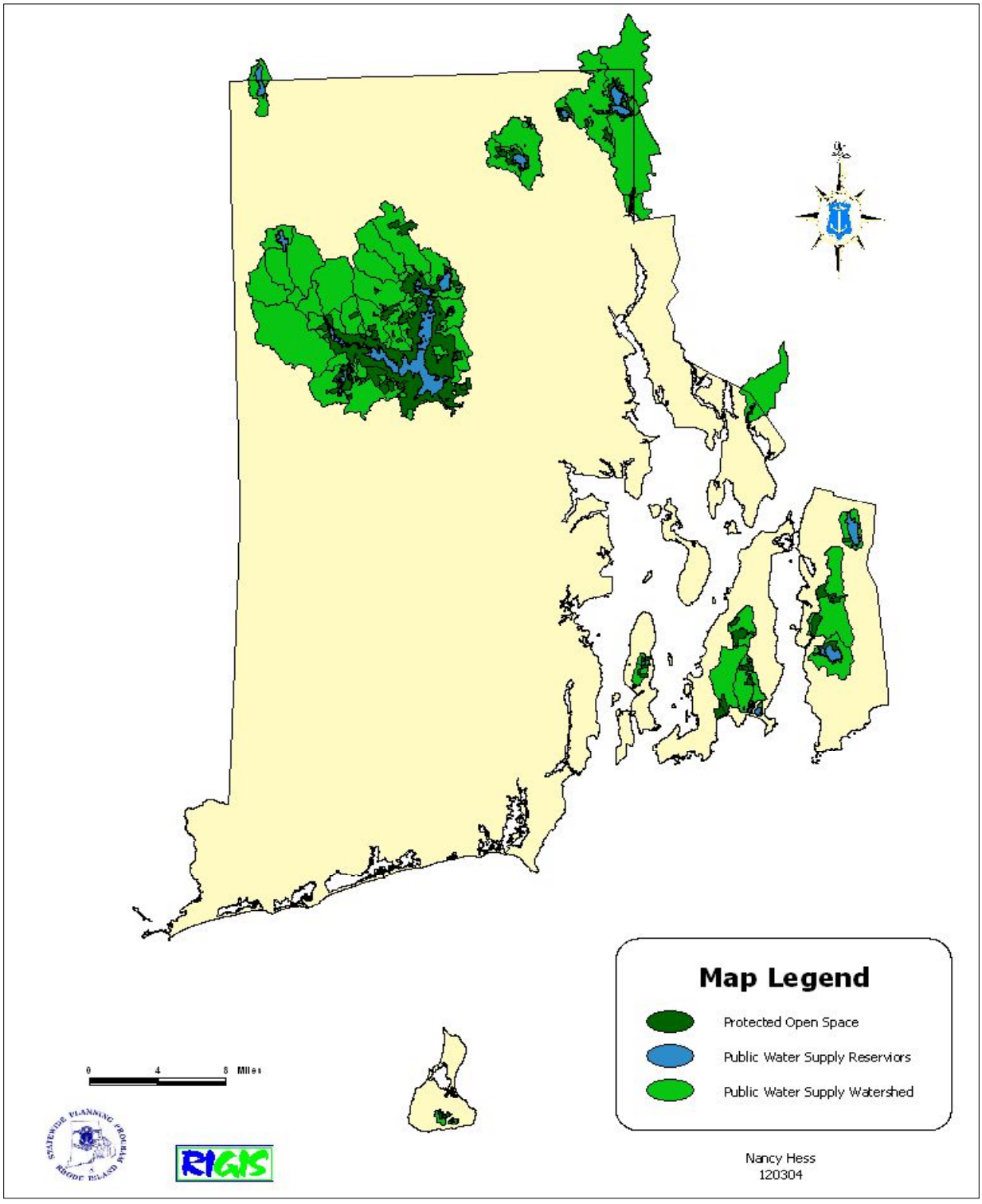


Figure 10
Protected Lands in Public Surface Water Supply Watersheds

Since it is impractical to purchase the entire watershed, most of the forestland surrounding key surface (and groundwater) resources will remain privately owned. Since this land is subject to development and therefore, some threat of contamination, it is essential that water quality protection concerns be a prime consideration in the control of land use activities by cities and towns through their zoning and development regulations. A key strategy outlined in Scituate Reservoir Management Plan, (State Guide Plan 125), is for watershed communities to accommodate future development by using innovative land management techniques to minimize the threat of water quality impacts. Examples of strategies outlined in the Plan include: overlay zoning which distinguishes an area of town that is considered of particular significance for conservation, and revised zoning and subdivision regulations to incorporate flexible land use regulations to minimize the impact of development.[28]

Recreation

Leisure activities that take place (entirely or partially) in forests can be described as forest-based recreation. Forests offer a preferred setting for solitude or passive activities such as walking or nature watching, as well as more strenuous exercise. A recent survey of Rhode Islanders done for the *Ocean State Outdoors, Rhode Island's Comprehensive Outdoor Recreation Plan* (SCORP), State Guide Plan 152, reported that many had participated in outdoor recreational activities that use forest-based resources: nature watching (31 %), hiking (14 %), overnight camping (17 %), hunting (3 %), off-road vehicle driving (4 %) and equestrian trails (5 %).[29] For detailed goals, policies and a 5-year action agenda for all the uses listed above and other outdoor recreation uses see Part 152-4 of the SCORP entitled Rhode Island's Plan for Recreation, Conservation and Open Space.

Numerous recreational opportunities are available at State management areas, which provide passive recreation in a more natural outdoor setting than the (more developed) State parks. The State owns and manages twenty-three management areas that encompass 45,000 acres that are predominantly forest.[30] These areas are managed for multiple uses including hunting and fishing, nature study, and passive recreation.

The 2003 DEM/DFE survey of forest landowners found recreation was a very important reason for owning forestland. Six 6 percent reported hunting/fishing as an important reason for owning forestland, 2 percent cited motorized recreation, and 11 percent of respondents noted other recreation use as a reason for forestland ownership. Of respondents, 59 percent owing forestland allowed recreational use by others on their property; hunting (44 percent), hiking and nature study (both 19 percent), and horseback riding (17 percent) were the most common uses. Trespassing for recreational use was also cited as a common occurrence -- with hunting, motor biking and /or off road vehicle use occurring on roughly 30 percent of parcels.[31]

Wood Resources

As Rhode Island's forest matures, the number of trees large enough to be valuable for forest products is also increasing. Saw timber volume averaged 3,875 board feet per acre, an increase of 29 percent since

[28] Scituate Reservoir Zoning Project, DEM, April 1998.
[29] Outdoor Recreation Demand Survey. DEM, Leisure Vision, Inc. 2002.
[30] *Ocean State Outdoors: Rhode Island's Comprehensive Outdoor Recreation Plan*, State Guide Plan Element 152. Statewide Planning Program, March 2003.
[31] Rhode Island Forestland Owners Survey Report, DEM/Division of Forest Environment, 2004.

1985.[32] White pine is the top species making up 28 percent of the saw timber volume. Oaks comprise 18 percent and red maple 15 percent of the saw timber volume.

The USDA Forest Service reports 1.3 billion board feet of saw timber in Rhode Island, an increase of almost 23 percent since the previous forest inventory.[33] Since the last forest inventory the annual growth of timber in trees exceeds that harvested (or lost to mortality) by 2.4 to 1. Average net annual growth of saw timber is 26 million board feet statewide (76 board feet per acre per year) while removals are 10.6 million board feet per year (31.2 board feet per acre per year average). The ratio varies by species with white pine growth exceeding removal by 16.6 to 1, red maple 5.8 to 1, while red oaks 1.4 to 1.9.

Oaks (including red, black, and white) are the most valuable (for timber) tree species in Rhode Island forests. White pine is the most valuable softwood species. The Southern New England Stumpage Price Survey showed demand for the most valuable tree species remained strong providing an economic incentive for forest landowners to manage their land (See Figure 11). The ancillary benefits of harvesting include improved forest health, enhanced wildlife habitat, and improved access for recreation. Based on the USDA Forest Service Inventory data and the Southern New England Stumpage Price Survey, the value of stumpage (trees in the woods) at the time of the last USDA Forest Service Inventory (1998) was 120 million dollars. This most certainly has increased due to improved market conditions and growth of the forest since the inventory.

The 2003 DEM/DFE survey of forest landowners found 31 percent have had commercial harvesting activity on their land, with 6 percent of these harvesting within the last five years. Saw timber and firewood are the most common products, each comprising about 32 percent of the harvest activities. Alternative products such as floral greens, mushrooms, maple syrup, and witch hazel involve one to five percent of the commercial harvests.

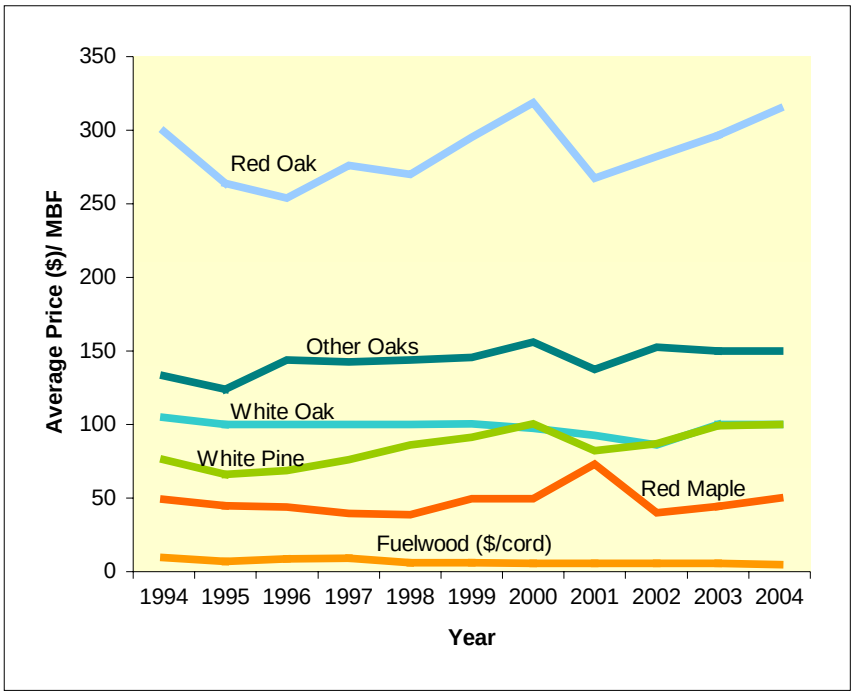


Figure 11

[32] Forest Statistics for Rhode Island: 1985 and 1998, NE-149, August 2000.
[33] Ibid, table 37.

Tree Species Price Trends 2004[34]
(MBF = thousands of board feet)

Wood-Using Industries

The forest products industry in Rhode Island is small in relation to other business sectors but is an important component of the economy, representing approximately 3.3 percent of all manufacturing jobs in the state. The annual payroll income of the lumber and wood products industry totals over 22 million dollars.[35] Employment in the forest related sector includes three categories: harvesting trees, processing lumber and wood products, and secondary processing.

Since 1932, commercial woodcutters have been required to register and report on their harvesting activities with the DFE. There are currently 88 individuals registered with the DFE. In the period from 1993 through 2003, these individuals were involved in harvesting 20,495 acres of forestland.

Lumber production in Rhode Island peaked in the early 1900's with 33 sawmills operating.[36] In 1956 this had decreased to 30, some of these being portable sawmills. By 1984, there were 33 sawmills employing approximately 200 people with an additional 200 persons employed in related jobs like transporting wood products or equipment repair.[37] Rhode Island's forest provides raw materials for the State's 6 sawmills that process an average of 5.5 million cubic feet of lumber per year.[38] Figure 12 shows the lumber production in Rhode Island. Although the number of local sawmills has decreased in recent times, sawmills in neighboring states and shipment to northern New England and Canada provide additional markets for Rhode Island forest products.

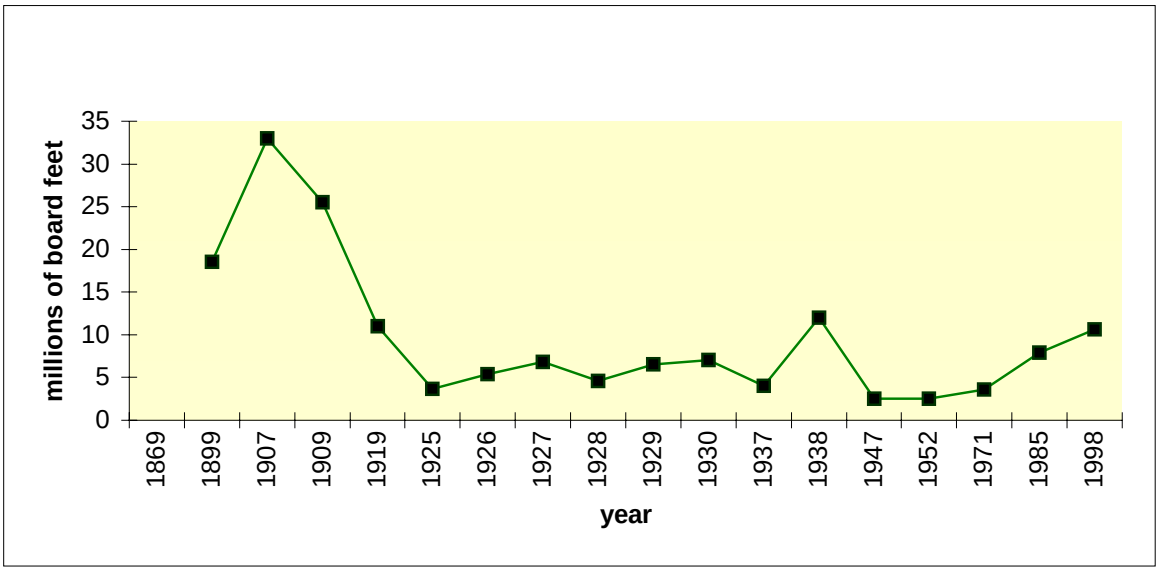


Figure 12
Tree Harvest Volumes 1869 – 1998
Note: Data is not continuous

[34] *Southern New England Stumpage, University of Connecticut, Cooperative Extension, Quarterly Price Survey, March 2004.*
[35] *Rhode Island Forest and Paper Industry at a Glance*, American Forest and Paper Association, 2001.
[36] *The Forests of Rhode Island,* United States Department of Agriculture, Forest Service, Northeastern Research Station, NE-INF-155-02. September 2002.
[37] *Rhode Island Forest Resources Management Plan*. State Guide Plan Element 161. Statewide Planning Program,1984.
[38] Understanding your Forest Economy: Rhode Island, See The Forest- Module Two, Yellow Wood Associates, 2001.

Secondary Wood Processing Industries

Secondary processing involves creating finished products from raw materials. The Southern New England Forest Consortium reports that 156 companies in Rhode Island are involved in the manufacture of wood furniture, millwork, cabinets, ornamental woodwork, and other products from wood.[39]

In addition to wood products, Rhode Island's forests produce many commercially valuable products including edible and medicinal plants, floral greens, fee-based recreation, and specialty wood products. These specialty crops, which can be produced on the small acreage parcels typical for Rhode Island and sold to nearby markets, provide viable business opportunities for forest landowners. According to the 2003 DEM/DFE survey of forest landowners, one to five percent of landowners have commercially harvested an alternative forest product.

Suburbanization and the small size of most parcels of forestland make management for traditional wood products difficult for the typical Rhode Island landowner. DEM and the Rural Lands Coalition have cooperated to investigate and promote alternative forest products, such as edible and medicinal plants, specialty wood products, floral greens, or forest based recreation as an option for landowners who wish to actively manage their property and generate income to offset ownership expenses. It is the hope that such natural resource based economic development in rural areas will help prevent forest fragmentation. As part of this effort, using a grant from the USDA Forest Service, a website has been created:

http://www.state.ri.us/dem/programs/bpoladm/stratpp/forprod/forstprd.htm

Brochures have also been developed and workshops co-sponsored with other organizations to educate landowners about the alternative forest products concept. Challenge grants were awarded to facilitate the startup of 28 alternative forest based businesses.

Fish and Wildlife Resources

Forests are the most common land cover type in the state and provide habitat for hundreds of species of wildlife. This includes 48 species of mammals, 130 species of birds, 48 species of freshwater fish, 19 amphibians and 20 species of reptiles. Some species, such as warblers, are dependant on large tracts of unbroken forest while others use a mixture of land uses or depend on forests for only part of their life cycle. Many species of fish and amphibians depend on forest cover adjacent to their primary habitat to maintain optimal conditions in their habitat. Changes in Rhode Island's forest cover impact wildlife species that rely on it as habitat. The loss of forest through land conversion or subdivision of land into smaller parcels fragments habitat, limiting dispersal and threatens biodiversity.[40]

Other than conversion to other land uses and fragmentation into smaller parcels, the age and tree composition of the forest has the greatest impact on wildlife. In Rhode Island forests are maturing with saw timber-size stands, comprised predominately of trees more than 10 inches in diameter (measured at breast height (DBH) -– a standard measure), now making up more than 51 percent of the state's forests. Generally, mature forests are beneficial for the most species of wildlife by virtue of their large, mast-producing trees, shrubs for food and cover, dead trees for feeding and nesting sites, and coarse woody debris on the forest floor.

Mast (acorns and nuts) comprises an important food source for many species of wildlife. Oaks are the most abundant trees found in Rhode Island forests, with mature oaks comprising 44 % of all trees. Other

[39] *Promoting Wood Industries*-,Secondary Directory, Southern New England Forest Consortium, 2000.
[40] Written communication from Richard Enser, RI Natural Heritage Program Coordinator, March 2005.

mast-producing trees, including beech and hickories, make up about 2 % of Rhode Island forests. Fruit bearing trees, like cherry, black gum, and sassafras, comprises over 7 % of the trees in Rhode Island's forest[41]. The size and species of a tree influence its value for mast production. As the forest matures, more mast is produced since larger trees are capable of producing more mast. White oak is the preferred food source for most species of wildlife. Due to naturally occurring events, the amount of white oaks in Rhode Island's forest is decreasing. This is balanced by the increase in other mast-producing trees like red oak, beech, and hickories. Figure 14 shows the trend in mast producing species in Rhode Island's forest.

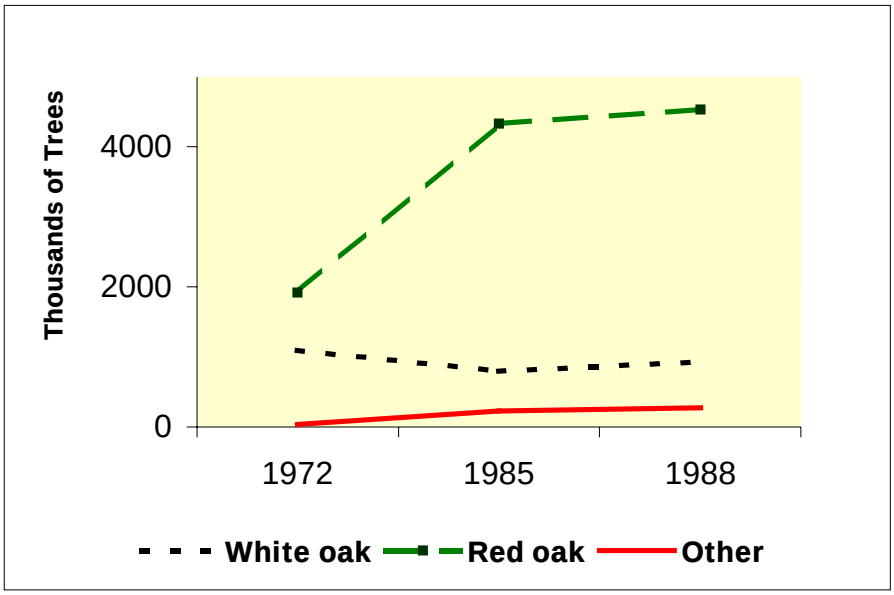


Figure 13
Number of Mast Producing Trees in RI Forests

Over 85 species of birds in Rhode Island use snags (standing dead trees) for nesting, shelter and feeding sites. This includes common birds such as chickadee, nuthatch, creepers or woodpeckers. Snags also provide essential habitat requirements for cavity-using amphibians, reptiles and mammals. Mature forests, especially those not intensively managed, usually have snags of various sizes and stages of decay to provide habitat. The number of snags in Rhode Island's forest is decreasing but, as shown in a USDA Forest Service Survey, there are still abundant snags to provide habitat for wildlife.[42]

As previously stated, forest cover in Rhode Island increased starting in the early 1800's as abandoned farms reverted to forest. Continued farm abandonment, repeated clearing of forests for fuel, as well as forest fires kept a variety of age classes dispersed through Rhode Island's landscape through the 1950's. Since then, Rhode Island's forest has matured, with 51 percent now in saw timber size class according to the most recent forest survey. The lack of young forest impacts species that need the unique nesting and feeding habitat that these early successional areas provide, such as those shown in Table 1-1.[43] Table 1-1 shows species of nesting birds in Rhode Island of conservation concern in New England that are

[41] United States Department of Agriculture, Forest Service Resource Bulletins NE-149 and NE-INF-155-03, *Rhode Island Forest Facts: 1959 – 60,Forest Statistics for Rhode Island: 1985 and 1998*, November 2000.s
[42] Ibid.
[43] Written Communication from Richard Enser, RI Natural Heritage Program Coordinator, March 2005.

dependent on forest and early successional habitats as based upon analysis by *Partners in Flight (*a regional bird conservation collective).

Table 1-1
Species Associated with
Early Successional Habitat[44]

Common Name	Scientific Name
Cerulean Warbler	***Dendroica cerulean***
Wood Thrush	***Hylocichla mustelina***
Worm-eating warbler	***Helmitheros vermivorus***
Black-throated Blue Warbler	***Dendroica caerulescens***
Louisiana Waterthrush	***Seiurus motacilla***
Baltimore Oriole	*Icterus galbula*
Black-billed Cuckoo	*Coccyzus erythropthalmus*
Scarlet Tanager	*Piranga olivacea*
Rose-breasted Grosbeak	*Pheucticus ludovicianus*
Blackburnian Warbler	*Dendroica fusca*
Canada Warbler	*Wilsonia canadensis*
Eastern Wood-Pewee	*Contopus virens*
Black-and-white Warbler	*Mniotilta varia*
Northern Parula	*Parula americana*
Hairy Woodpecker	*Picoides villosus*
Purple Finch	*Carpodacus purpureus*
Northern Goshawk	*Accipiter gentilis*
Red-shouldered Hawk	*Buteo lineatus*
Long-eared Owl	*Asio otus*
Sharp-shinned Hawk	*Accipiter striatus*
Cooper's Hawk	*Accipiter cooperii*
Barred Owl	*Strix varia*
Early Successional Shrub / Pitch Pine Barrens	
Blue-winged Warbler	***Vermivora pinus***
American Woodcock	***Scolopax minor***
Eastern Towhee	***Pipilo erythrophthalmus***
Whip-poor-will	*Caprimulgus vociferus*
Yellow-breasted Chat	*Icteria virens*
Prairie Warbler	*Dendroica discolor*

(Bolded species = highest priority)

Maintaining healthy and diverse wildlife populations requires that a range of forest types and age classes be well distributed across the landscape to insure habitat needs of a variety of species are met. Priority upland wildlife habitats that are of conservation concern include early successional forest, shrub-scrub dominated habitats, old fields and grass-herbaceous dominated areas.

Interest in hunting and fishing has remained strong as shown through license purchases (See Figure 15). The focus of wildlife habitat management on State owned property has been directed toward game

[44] Ibid

species, such as ring necked pheasant, ruffed grouse, and white tailed deer. Interest in hunting on private property has increased -- with 18 percent of landowners responding to the 2003 DEM/DFE Survey allowing hunting, but a large number also reporting hunting as an unauthorized use.

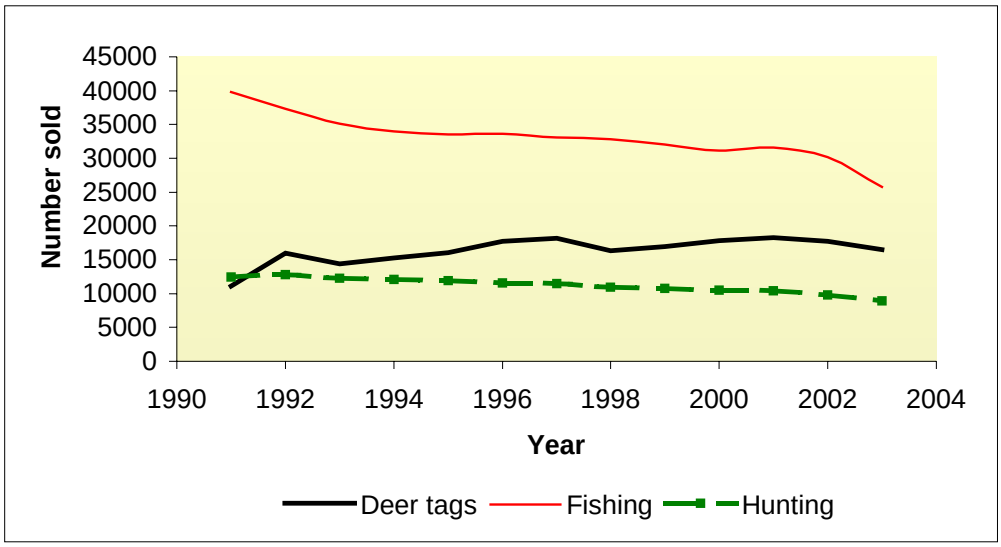


Figure 14
RI Hunting and Fishing License Sales

Nearly 20 percent of respondents to the forest landowner survey used their land for recreational purposes including wildlife observation. Non-game species play an integral role in the ecological integrity and diversity of an area, in addition to providing immeasurable values to those who study and enjoy observing wildlife.

In Rhode Island, the DEM designates species in danger of extinction throughout all or a significant portion of their ranges as "endangered", while those likely to become endangered in the foreseeable future are considered "threatened". In Rhode Island there are six endangered and eight threatened species identified by the State. Of these, six depend exclusively on the forest for survival.

Forest management for wildlife on a statewide level consists of acquisition of habitat and management of parcels controlled by DEM for game species. A comprehensive state wildlife conservation plan is under development by DEM to focus and coordinate conservation planning efforts. The goals of the plan are to assess the status and needs of wildlife, including identification of species of greatest concern and habitat of greatest need, and to develop and prioritize conservation actions.

Other Values

Since forests cover a large part of Rhode Island their extent and condition obviously have a major influence on the character of the state. Forests, and the trees comprising them, provide a wide range of amenities described both in this plan and in the *Rhode Island Urban and Community Forest Plan*, State Guide Plan Element 156 (1999). The Urban Forest Plan provides information, assesses issues and presents strategies for improving and expanding the state's tree resources. Adopted by the State Planning Council, the Plan must now be used by cities and towns in developing and implementing their own local comprehensive plans. It is both the *Rhode Island Urban & Community Forestry Plan* and this Forest Resources Management Plan that when applied in conjunction with one another are "intended to

advance the effectiveness of local stewardship of the state's resources towards the twin goals of a healthy, sustainable economy and environment."

Some attributes such as the aesthetic, social or cultural value of forests are difficult to measure but obviously have a positive impact on Rhode Island's quality of life. DEM/DFE's 2003 survey of forest landowners found the most important reason people own forest of Rhode Island is that they want to live in a forest setting. Home sites in a forested setting may be more attractive to potential buyers. A study on Aquidneck Island found property values 3 to 12 percent higher associated with properties closer to open space. The impact differed with the type of open space, size of the open space parcel, and distance between the home and open space parcel.[45]

Forest Carbon Dynamics

Forests store carbon, atmospheric carbon dioxide (CO_2), by converting it to woody biomass. Therefore one potential mechanism to reduce carbon emissions is by increasing carbon sequestration in forests. The forest is a complex and ever changing ecosystem and is being studied to evaluate its role in reducing greenhouse gases. In the forest, carbon is stored as biomass in vegetation; in trees this is the woody biomass. This biomass is stored in several carbon sinks, standing woody vegetation, and in the soil; in the root mass, debris and in very small amounts the mineral soil itself. Proper forest management, which includes the use of Best Management Practices, soil disturbance can be minimized. Managing Rhode Island's forests to produce higher quality trees, which will be utilized as high value commercial wood products, could increase carbon sequestration.

In a managed forest where timber is extracted and another sink is added, wood products. Although this carbon initially removed from the forest, long-term, high value carbon storage can be obtained in commercial products, i.e.; dimensional lumber stock, furniture stock and timber framing materials. This is an important sink and management strategy.

The DEM and the State Energy Office have convened stakeholders from business, industry, citizen groups, environmental organizations, and other government agencies to address what the state and citizens can do to address the challenge of global climate change in a report entitled "*The Forestry, Agriculture and Land Use Change Strategies for Reducing Greenhouse Gas Emissions in Rhode Island, A Report to the Working Group of the Rhode Island Greenhouse Gas Process*".[46] The report is presently available on the DEM website at http://www.state.ri.us/dem/programs/bpoladm/stratpp/greenhos.htm.

[45] *Aquidneck Island and Open Space: An Economic Perspective*, Aquidneck Island Partnership. Coastal Resources Center, University of Rhode Island. Rhode Island Sea Grant Publication P1461.
[46] Michael Lazarus, Tellus Institute and Gordon Smith, Ecofor, Final Report, July 23, 2004

161-03 Part 3: Forest Resource Management Entities in Rhode Island

Although Rhode Island's forests are often times overshadowed by Narragansett Bay, our forested ecosystem is a valuable natural resource offering a wide variety of opportunities and benefits to the state, its residents and visitors. Our forests help clean the air and water, provide a renewable natural resource for building materials and other products, fuel for heating and electric power, and provide recreational and educational opportunities. With all these benefits and resources, and given the complexities of governmental interests and forest ownership patterns; it is not surprising that a partnership of federal, state, and local agencies, as well as private for-profit and non-profit organizations are needed in order to maintain the diverse forest resource. It is through the coordinated efforts of this multitude of jurisdictions, agencies, organizations and personnel involved in aspects of forest management and conservation that future generations will be able to continue to enjoy the benefits that our forested lands provide.

Federal Agencies and Programs

Federal involvement in forest resource management occurs principally through several agencies and programs of the U.S. Department of Agriculture:

United States Department of Agriculture (USDA)
Forest Service
http://www.fs.fed.us/spf/

The State and Private Forestry (S&PF) organization of the USDA Forest Service reaches across the boundaries of National Forests to states, tribes, communities and non-industrial private landowners. S&PF is the federal leader in providing technical and financial assistance to the State, landowners and resource managers to help sustain the nation's forests and to protect communities and the environment from wildland fires. S&PF programs bring forest management assistance and expertise to a diversity of landowners, including, tribal, state, and federal, through cost-effective, non-regulatory partnerships.

The 1990 Farm Bill granted expanded authority and provided resources for the U.S. Forest Service to work with states on urban and community forestry. A 15-member Urban and Community Forestry Advisory Council was established and $25 million in annual funding authorized for community programs. The Urban and Community Forestry Assistance Program offers technical assistance, education, and partnerships to communities and organizations. The America the Beautiful Act, also passed in 1990, seeks to stimulate planting and improving trees in every rural area, town, and city across the country. Funding is provided for each state to create an urban forestry coordinator and to establish state urban forestry councils. Grants for tree planting programs are authorized.

In addition to providing state and local grants, the U.S. Forest Service has also taken a leadership role in region-wide planning for urban forestry resources. The Northeastern Area office of the Forest Service has developed and is implementing an Urban Forestry Five Year Plan 1995-1999, including objectives for awareness, outreach and environmental equity, partnerships, and comprehensive natural resource management.

The Forest Legacy Program helps private forest landowners, state and local governments preserve environmentally important forest lands by providing funds to state governments for the acquisition of land or conservation easements over the forested lands offered by willing sellers. Eligible lands must provide aesthetic, recreational, water quality protection, and habitat benefits and must be within identified Forest Legacy areas established as priorities by the State. Funding for the program by the Congress has been on an annual basis since the Program's creation in 1990.

USDA - Natural Resource Conservation Service (NRCS)
http://www.ri.nrcs.usda.gov/

The Natural Resources Conservation Service, (NRCS), formerly known as the Soil Conservation Service, works hand-in-hand with the people of Rhode Island to improve and protect their soil, water and other natural resources. For decades, private landowners have voluntarily worked with NRCS specialists. NRCS employs soil conservationists, soil scientists, agronomists, biologists, engineers, geologists and resource planners. These experts help landowners develop conservation plans, create and restore wetlands, restore and manage other natural ecosystems as well as advise on storm water remediation, nutrient and animal waste management and watershed planning.

State Agencies and Programs

Several Rhode Island state agencies have designated responsibilities for management of forest resources or programs that support forest resources management. These include:

Department of Environmental Management (DEM)
http://www.state.ri.us/dem/

This is the web page address for locating information on the DEM. Each division that is described below has a web URL or link that can be located on this home page. The individual URL for the Division of Forest Environment is included specifically due to its main responsibility of implementation of this Plan.

DEM Overall Mission:

- Enhance the quality of life for current and future generations by protecting, restoring and managing the natural resources of the state; enhancing outdoor recreational opportunities; protecting public health; and preventing environmental degradation.
- Achieve a sustainable balance between economic activity and natural resource protection.
- Motivate citizens of the state to take responsibility for environmental protection and management, based on an understanding of their environment, their dependence on it, and the ways their actions affect it.

Within DEM, the principal entity for forest resource is the Division of Forest Environment (DFE), but several of the Department's Divisions and Offices have direct or indirect roles or administer programs affecting the state's forests:

Division of Forest Environment (DFE)
http://www.state.ri.us/dem/programs/bnatres/forest/index.htm

DFE Mission

- Working to ensure healthy sustainable forests for Rhode Island's future.

The Forest Environment Program manages approximately 27,750 acres of state-owned rural forestland. It coordinates a statewide forest fire protection plan, provides forest fire protection on state lands, assists rural volunteer fire departments, and develops forest and wildlife management plans for private

landowners who choose to manage their property in ways that will protect these resources on their land. The Program promotes public understanding of environmental conservation, enforces Department rules and regulations on DEM lands, and assists the federal government in providing landowner assistance programs.

Additional Program mandates are: to monitor and recommend controls for insects and disease, to work with communities promoting urban tree health, to license arborists, and to certify forest land under the state's Farm, Forest and Open Space Act. Major functions carried out by the Program include: Operation and maintenance of 27,750 acres of state land under DEM/DFE jurisdiction, Forest Fire Control, Law Enforcement, Forest Management, Insect & Disease Management, Forest Health Monitoring, Landowner Assistance Programs, Urban and Community Forestry Program, Conservation Education Program, Forest Legacy Acquisition Program, Timber Sales, Arborist Licensing - Tree Warden, and Recreation Management.

The Program manages George Washington Campground, as well as four intensively used beaches, a horseman's campground and a cross-country skiing area. Additional staff is required (as part of the federal grant programs) to assist in programs including stewardship, forestry cost share incentives, urban and community forestry, insect and disease control, forest health monitoring, forest legacy, and arborist licensing programs.

Office of Strategic Planning & Policy

The Office of Strategic Planning and Policy is responsible for developing policies and plans to meet the goals of the Department; working with constituents and stakeholders to develop and implement strategies to meet the goals; conducting research on environmental and natural resource stewardship issues as well as departmental functions; developing environmental indicators and performance measures; developing and maintaining systems to track progress; analyzing and reporting on progress and results; and making recommendations for continuous improvement.

Sustainable Watersheds Office

The Office assists communities to plan for sustainable development that minimizes negative impacts to the environment and preserves community character and meaningful open space. The Office also helps communities identify and protect their important natural, cultural and recreational resources. The Office coordinates activities in watersheds, assisting to prepare and implement watershed action plans.

A current project in this office is the Alternative Forest Products Business Challenge Grant. Alternative forest uses may be an option for landowners who wish to actively manage their property and may provide an additional incentive for large landowners to retain their land. Managing for alternative forest uses may provide new ways for landowners to generate income (at least enough to pay property taxes) and may have the potential to develop into a small business.

Division of Law Enforcement

The Division enforces Rhode Island's laws and regulations governing the recreational take of fish and wildlife. Over 12,000 hunting licenses, 39,000 fishing licenses, and 15,000 deer hunting permits are sold each year. These recreational activities support a healthy sporting goods industry in Rhode Island. The fish and wildlife laws are designed to ensure the long-term viability of these resources and thereby provide for the long-term viability of the sporting goods industry. Game regulations enforced by the Division also facilitate hunter safety. Enforcement of game regulations takes on additional importance as suburban development encroaches on woodlands and increases the possibility of interactions between hunters and homeowners.

Division of Fish and Wildlife

The Division of Fish and Wildlife protects, restores, and manages the fish and wildlife resources of the state. The Division is responsible for operating and managing approximately 21,180 acres of state-owned land. The Division is responsible for setting seasons, size limits, methods of taking, and daily limits for the harvest of all wildlife as well as all recreational and commercial fisheries in the state. It is divided into three separate sections: Marine Fisheries, Freshwater Fisheries, and Wildlife Management. Each section is responsible for specific program activities. These activities include fisheries and wildlife research and management, freshwater fish hatcheries and fish stocking programs, habitat restoration, public access, land acquisition, education and information, public angling and hunting programs, and commercial fisheries management.

Division of Planning and Development

The Division of Planning and Development is responsible for several related and wide ranging Departmental functions. The functions of this division related to the management of forest resources include:

- Land Acquisition and Real Estate: the Division administers four programs designed to accommodate land acquisitions. The programs are the Agricultural Land Preservation Program, State Land Acquisition, Forest Legacy, and the North American Wetland Conservation Act.

- Local Open Space and Recreation Development Grants: awards and administers grants from state and federal funds to communities, land trusts and non-profit environmental groups for development of recreation facilities and acquisition of open space.

- Natural Heritage Preservation Program: conducts an inventory of the state's rare and endangered species and maintains a database of rare species and habitats that is used for land conservation planning and environmental review.

- Capital Development Projects: plans, designs and supervises construction of new state park and beach facilities, commercial fishing pier improvements, boat ramps, fish hatcheries and other DEM-managed facilities.

- Geographic Information System (GIS): to coordinate the mapping and analysis of spatial environmental data, provide technical support to GIS users in the Department, and to maintain the GIS database.

- Bikeway and Trail Development: to administer and coordinate with the Department of Transportation, bikeway and multi use trail programs through grants to state agencies, communities and non-profits.

Department of Administration (DOA)

Rhode Island Statewide Planning Program (RISPP)
http://www.planning.ri.gov

RISPP Mission

To prepare and maintain plans for the physical, economic, and social development of the State; to encourage their implementation; and to coordinate the actions of state, local, and federal agencies and private individuals within the framework of the state's development goals and policies.

It is the responsibility of the RISPP staff to relate this Forest Resources Management Plan to other relevant Guide Plan Elements and to work cooperatively with the DEM/DFE and others for its implementation.

Water Resources Board
http://www.wrb.state.ri.us/

Big River Management Area

The primary role of the Water Resources Board (WRB) is to oversee the proper development, protection, conservation and use of the state's water supply resources. The WRB is included in this Section as it has authority over the second largest forested parcel owned by the state. This area is the Big River Management Area. It consists of approximately 8600 acres of open space. Its borders extend through portions of the towns of West Greenwich, East Greenwich, Coventry, and Exeter. Largely undeveloped, the land was originally acquired for water supply purposes. The forest resources of the property are managed by the DEM DFE for the WRB under contract, and in accordance with the 1996 Big River Management Area Land Use Study. This study established guidelines for uses that would not impact future water supply including wildlife management, sustainable forestry, historic preservation, environmental education, and passive recreation. See page 24 for the DEM/DFE responsibilities related to the Big River Area. The management policies can be viewed at:
http://www.wrb.state.ri.us/programs/pm/brma-policy.pdf.

Municipal Entities

Several municipal government entities have important functions relating to the management of Rhode Island's forest resources. Comprehensive plans and municipal land management regulations adopted to implement their provisions can support the principles of forest resource management and conservation. Municipal tax administration can support the retention of land in forests via promotion and support of enrollment of appropriate properties in the Farm, Forest, and Open Space Act. State law authorizes the appointment of municipal conservation commissions and municipal tree wardens; both of these entities can assist in resource inventories and in developing and promoting conservation and effective management of forestland. Several communities have municipal land trusts, which actively pursue the acquisition of land as public open space, others have town forests and a few have their own tree boards to work on local tree issues.

Non-Profit Organizations

R.I. Forest Conservators' Organization (RIFCO)
http://www.rifco.org

The Rhode Island Forest Conservators' Organization is a non-profit organization dedicated to the protection and wise use of Rhode Island's woodland resources. RIFCO works to promote the stewardship of Rhode Island's wooded lands and watersheds and better awareness of the role of a healthy forest in improving environmental conditions. It works with its members, many of whom own and manage significant forestlands, to provide information and educate the public on issues affecting Rhode Island's forests. In addition to forest landowners, RIFCO members include natural resource professionals, land trust and forest product industry representatives, and citizens concerned with forest conservation issues.

Southern New England Forest Consortium (SNEFCI)
http://www.snefci.org

The Southern New England Forest Consortium, Inc. is a nonprofit forest conservation organization that promotes forest conservation ethics and the productive use of the region's forests and natural resources. SNEFCI's mission is to promote programs, policies, and partnerships within southern New England that work to ensure the future of the region's forest resources and improve the quality of life for its citizens. The diverse membership includes natural resource professionals, private enterprise and citizens from Massachusetts, Connecticut and Rhode Island. Established in 1985, SNEFCI works to conserve the forests of southern New England through a variety of programs aimed at reducing fragmentation of forest land and open space, promoting the stewardship of forest resources, and enhancing urban and community forests.

Rhode Island Tree Farm
http://www.treefarmsystem.org

The American Tree Farm System® (ATFS), a program of the American Forest Foundation, is committed to sustaining forests, watershed and healthy habitats through the power of private stewardship. Since 1941, ATFS has educated and recognized the commitment of private forest owners in the United States. Currently, ATFS has 33 million acres of privately owned forestland and 51,000 family forest owners who are committed to excellence in forest stewardship, in 46 states. Tree Farmers share a unique commitment to protect wildlife habitat and watersheds, to conserve soil and to provide recreation for their communities while producing wood for America. These individuals hold the key to the kinds of forests, forest activities and forest resources future generations of Americans will enjoy. For local information contact the DEM DFE.

Society of American Foresters (Rhode Island Chapter)
http://www.safnet.org

The Society of American Foresters (SAF) is the nonprofit national scientific and educational organization representing the forestry profession in the United States. Founded in 1900 by Gifford Pinchot, it is the largest professional society for foresters in the world. The mission of the Society of American Foresters is to advance the science, education, technology, and practice of forestry; to enhance the competency of its members; to establish professional excellence; and, to use the knowledge, skills, and conservation ethic of the profession to ensure the continued health and use of forest ecosystems and the present and future availability of forest resources to benefit society. SAF members include natural resource professionals in public and private settings, researchers, CEOs, administrators, educators, and students. For local information contact the DEM DFE.

The Nature Conservancy (Rhode Island Chapter)
http://nature.org/wherewework/northamerica/states/rhodeisland

Mission: To preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive.

The Nature Conservancy works closely with government organizations, communities, businesses and people in a non-confrontational approach to achieve their mission using a science-based plan that achieves tangible results. The Nature Conservancy preserves the white pine forests, rivers, wetlands and habitats that make Rhode Island unique. Thanks to the support of The Nature Conservancy members and volunteers, TNC has protected 24,000 acres of critical land and waters throughout the state.

Audubon Society of Rhode Island, (ASRI)
http://www.asri.org/index.html

The mission of the Audubon Society of Rhode Island is:

- To carry out a broad program of public environmental education,
- To foster conservation of wild birds and other animal and plant life,
- To conserve wildlife habitat and unique areas through acquisition or other means,
- To focus public attention on natural resource problems,
- To provide leadership when action on natural resource problems is necessary, and
- To do all other things necessary to foster better management of the natural environment for the benefit of people and all other life.

ASRI continues to devote its energies to improving the use, management and protection of all natural resources and the environment for the benefit of humans and all other forms of life. The ASRI has 9,500 acres of land protected for wildlife habitat and public recreation. It also advocates, monitors and speaks out for a clean and healthy environment.

Rhode Island Tree Council
http://www.ritree.com/

The Rhode Island Tree Council was established in 1991 as a non-profit citizens' group dedicated to sustaining, improving, and expanding tree resources. The Council's vision is "A Flourishing Forest Ecosystem" accomplished through increased public awareness, good planning, knowledgeable volunteers, and proper tree planting. In March 1997, to assist the public in identifying our organization, the Rhode Island Urban and Community Forest Council simplified its name to the Rhode Island Tree Council. A Board of Directors representing a diverse range of interests and organizations guides the Council.

The Council conducts educational and professional workshops, disseminates technical information, sponsors awareness campaigns, and in conjunction with the state Division of Forest Environment and the United States Forest Service, distributes competitive grants to communities and non-profit groups for tree planting and care. The Council also strives to encourage elected officials, business leaders, and private citizens to form partnerships leading to the development and implementation of planting and stewardship programs at the local level. The assistance from the Council has led communities to create outreach efforts to broaden public involvement in the many dimensions of urban forestry.

The Rhode Island Land Trust Council
http://www.rilandtrust.org/

The Rhode Island Land Trust Council is a coalition of land trusts - community organizations with a mission of protecting land to preserve open spaces, natural areas, scenic character, farmlands, forests, historic sites, watersheds, and drinking water areas that uniquely define Rhode Island and its communities. Established in 1999 by the leadership of the state's land trusts, it seeks to foster a sustainable land conservation movement in the State of Rhode Island by supporting the missions and operations of land trusts and providing a forum for their effective cooperation. The Council strives to increase land trusts' capacity to protect land, coordinate efforts, exchange ideas and information, share technical expertise, and to affect state policy and initiatives. Collectively, we are preserving the heritage of our communities so that it remains a legacy for future generations.

One-third of the 45+ land trusts in Rhode Island are "municipal land trusts" formed by municipal charter, municipal ordinance or state enabling legislation. The remaining two-thirds are 501(c) 3 non-profit organizations. Only 3 of Rhode Island's land trusts have staff; the other 43 are volunteer organizations. Through their involvement with local land trusts, dozens of people across the state are directly involved in protecting and managing their community's special places, natural areas, farmland, scenic areas, watersheds, and drinking water supplies.

161-04 Part 4: The Vision, Issues, Goals, Policies, Objectives and Strategies

In July 2003, the Division of Forest Environment held it's first meeting in the process of updating the Forest Resources Management Plan, (FRMP), State Guide Plan Element 161. At that meeting 30 people representing various stakeholder groups were invited to discuss the FRMP and it's direction. It has been twenty years since the original plan was completed. The group developed issues to be explored in the updated plan. The issues decided upon were (not in any priority order):

1. Forest Resource Management Statewide
2. Sustainability
3. Information & Education
4. Forest Health
5. Forest Products Marketing
6. Water Resources
7. Recreation and Tourism
8. Fragmentation
9. Wildfire Control
10. State Land Forest Management

In September 2003, the State Planning Council appointed a State Forest Resources Management Plan Advisory Committee (FRMPAC) to advise in the preparation of this plan update. In December of 2003, a 50-question survey, (see Appendix B), was mailed to 2,819 forest landowners owning 10 or more acres of land in 13 communities identified as rural by the RI Statewide Planning Program[47]. 645 questionnaires were returned and tabulated by March 2004 – a 24% response rate. The major objective of the survey was to solicit the opinions and concerns of forestland owners on major forestry issues and to compare those to the opinions of similar surveys conducted in 1979 and 1981. Detailed results of the 2003 survey are included as Appendix B.

Mission and Vision

The earlier (1984) edition of the Rhode Island Forest Resources Management Plan created a single, all-encompassing goal. This goal has continuing validity, and is adopted in this update as an overall Mission Statement for stewardship of the state's forest resources:

> **Mission: Protect and manage the forest resources of Rhode Island to meet the demands for recreation, water supply, wildlife habitat, forest products, and a high-quality environment.**

The FRMPAC developed a Vision for Rhode Island's forests to supplement the 1984 Goal:

Rhode Island's Forest -- a Green Hope for All

[47] Rural: less than 500 persons per square mile or a developed land area of less than 25%. 14 communities are identified but the Town of Tiverton did not supply the requested information for the survey.

Goals, Policies, Objectives and Strategies

A new format for the Plan was developed around each policy issue described above as follows:

Goal(s)

Policy(ies)

1. Objective(s)

A. Strategy (ies) for each objective

a. Performance Measure(s) for each strategy where applicable

From this framework a matrix was developed for this plan, which shows the objectives, strategies, and performance measures. It was developed for future reference in the comprehensive community planning review process and use in Plan implementation. (See Table 4-1, Implementation Matrix) The Advisory Committee reviewed and considered issues of the 1984 Forest Resources Management Plan during the plan updating. Previous issues were reviewed and updated, consolidated, or removed – depending upon the Committee's judgment as to whether they were a continuing concern, or had been acted upon. Several new issues, considered critical at this point in time, were added. Specific goals, policies, objectives and strategies proposed to obtain the desired future conditions were developed from current issue concerns and solutions suggested by Rhode Island's forest landowners, environmental groups, forest resource professionals, commercial forest users and forest recreational users (e.g., ideas from the survey and focus groups). These concepts were then refined by staff and through meetings of the Advisory Committee. The resulting list of Forest Resource Management Issues addressed in the updated plan follows, together with a listing of issues considered in the 1984 version of the plan, for comparison:

1984 Policy Area Issues	2004 Policy Area Issues
Forest Resource Planning	Forest Resource Management
Forest Resources Management	Sustainability
Forest Resources Education	Information & Education
Wildfire Control	Forest Health
Insect and Disease Protection	Forest Health
Legislation	(issue not identified by FRMPAC for 2003)
Forest Products Marketing	Commercial Forest Products
Soil Management	Water Resources
	Recreation and Tourism
	Fragmentation

The photographs in this section were provided from the DEM/DFE collection of archival photos except where otherwise noted.

Forest Resource Management (FRM)

Over the past forty years, forestlands have been decreasing in Rhode Island[48]. In 1984, this was identified as a critical issue. Nothing has changed concerning this issue, in the sense that we continue to lose forests every day. "Forests are being lost to urban, suburban, and commercial land uses at an average rate of 6 acres per day"[49]. Forest resource management on a statewide basis of the total resource and resource management on state owned properties were both rated as very important/critical concerns in the landowner survey and in the focus groups (69%) sixth, and (67%) seventh, respectively. (Detailed responses for individual focus groups and the complete landowner survey results are provided in Appendix B.) Effective management of Rhode Island's forest resources affects many factors considered critical to a high quality environment and is, therefore, central to the continued well-being of all Rhode Islanders. A consistent course of comprehensive planning, identifying and implementing management priorities, is crucial to the sustainability of the forests and their continued ability to meet the many demands placed upon them, and to provide the benefits we derive from them.

State-owned Management Areas constitute over 40,000 acres and include sizable areas of forest. The management of State-owned forests should provide a leadership example of effective stewardship. However, declining State resources relative to needs is a particular concern in terms of effective forest management on State lands. Over the last twenty years, DEM figures indicate a reduction of 65% of the manpower and 60% reduction of budget[50] within the DFE. In the same period the Division's land management responsibilities have increased by 4,755 acres, and several new (programmatic) forestry initiatives have been added. The Division, caught in the bind of more responsibilities and fewer resources to carry out programs and projects, has necessarily become less proactive in management and planning for the care of the resource base and infrastructure – and more reactive to issues and problems – addressing some only on an as-needed basis.

FRM Goal: **To manage State-owned forestlands in order to provide a safe environment and reduce conflicts between users while maintaining the health, vigor and sustainability of the forest resources.**

FRM Policies:

FRMP 1. State owned forestlands will be managed to provide sustainable forest resources for a variety of uses while working to insure the health of the forest and promote the safety of its users.

FRMP 2. Develop and maintain a comprehensive planning process to evaluate and manage the forest resources of the state.

FRM Objectives & Strategies: See Table 4-1

[48] Trends in Rhode Island Forests: A Half-Century of Change, USDA Forest Service, NE-INF-144-02
[49] The Forests of Rhode Island, USDA Forest Service, NE-INF-155-02
[50] Budget calculation based on 1984 budget figures to 2003 budget using S. Morgan Friedman, Inflation Calculations.

Forest Sustainability (S)

The World Commission on Environment and Development defines sustainability as meeting "the needs of the present without compromising the ability of future generations to meet their own needs" (1987). This definition of sustainability recognizes human actions and inputs; it includes wood fiber supply, recreation, water yield and quality, abundance and diversity of flora and fauna, and other forest resources. What does the future hold for our forests? Will they remain? Will they be green, healthy, and continue to protect the water, clean the air and supply other valuable benefits and resources for future generations? Will we lose more forestland to development? Are we managing forests sustainably, that is, are forestlands currently used in ways that meet today's needs without sacrificing the needs of future generations? The effectiveness of the implementation of this plan, the implementation of the *Rhode Island Urban and Community Forest Plan*, State Guide Plan 156, and future forest resource management plans of this State and other states will determine if we are good stewards of the land.

The responses from the Rhode Island forestland owners survey and the focus groups conducted for this plan update demonstrated an amazing concern for sustainability of our forest resources, with 85% in the survey rating it as "very important/critical", and second in the hierarchy of issues considered in the focus groups.

S Goals: **To create, conserve, and maintain sustainable forest resources**.

S Policy: S 1. Promote sustainable management of forests that provides a wide range of benefits to fulfill current needs without compromising the ability of these forests to provide for future generations.

S Objectives & Strategies: See Table 4-1.

Information and Education (IE)

The 1984 Plan identified Information and Education, as an important issue: "An increase of forestry information and education programs could be extremely beneficial in assisting to resolve many issues addressed in this plan". This has not changed in the intervening 20 years: 72% of the forestland owners surveyed considered education to be critical or very important. The focus groups respondents reflected this by placing seven out of ten of top key issues as educational programs. One major change relative to this issue is that University of Rhode Island's (URI) Cooperative Extension has almost completely disappeared from the educational role it formerly played in forestry issues. That a need for forest-related information and education continues to exist, perhaps more now than ever, is shown in both the survey and focus groups results, and is reinforced by responses to another question in the landowner survey, that indicated that 22 cents of every additional dollar made available for forest resource management would be placed by respondents into educational programs.

To fill in the gap left by the declining role of URI's Cooperative Extension Service in forest information and education, the Division of Forest Environment has helped to establish several organizations having education as one of their primary responsibilities. The R.I. Forest Conservators Organization (RIFCO) has taking on the role of educating private forestland owners through fact sheets, brochures and workshops. The Southern New England Forest Consortium, Inc. (SNEFCI) works with state governments and community leaders providing up-to-date information on various forestry issues. Other organizations that also address public education and the DFE works with are:

Smokey Bear

Smokey Bear, http://www.smokeybear.com/
FireWise, http://www.firewise.org/
Envirothon
Project Learning Tree, http://www.plt.org/
RI Forest Conservators Organization, http://www.rifco.org/
Southern New England Forest Consortium Inc., http://www.snefci.org/
RI Tree Council, "Tree Stewards", www.ritree.com

IE Goal: To educate public officials and the general public to gain an understanding and appreciation of the state's forest resources, so they might better utilize, conserve and protect these resources for future generations.

IE Policy: Promote increased awareness and appreciation of Rhode Island's forest resources through education and information.

IE Objectives and Strategies: See Table 4-1.

Forest Health (FH)

This section combines the Insect & Disease and Wildland Fire issues from the previous (1984) version of the Forest Resources Management Plan. Though both of these issues concern the health of the forest, the threat vectors involved as well as control mechanisms, are very different. Relative to insects and disease control, many treatment methods and chemicals used in the past have been replaced with newer, safer and more effective methods. Despite progress made in this realm with newer control methods, 79% of the forestland owners surveyed continue to believe that forest health is very important or critical as a forest resource issue. A major concern today comes from introduced or exotic pests from imported goods exchanged in the modern global economy. The use of chemicals has become the last in a line of defense against insects and disease. Preferred methods include education, Integrated Pest Management, silvicultural and biological controls. Present day threats to our forests include[51]:

- Ramorum Blight: is a recently recognized disease that is killing oaks and other plant species in the western United States. First noticed in 1995, the disease has been confirmed in the coastal areas north and south of San Francisco, and in a relatively remote location in southwestern Oregon. The pathogen responsible for the disease, a fungus-like organism called *Phytophthora ramorum*, is also found in Germany and Denmark, where it is causing a recently identified disease on Rhododendron and Viburnum. Although in the U.S. the disease has been found only in California and Oregon, it is of great concern to land managers in the Eastern U.S. as well, because at least two eastern oak species, northern pin oak *(Quercus palustris)* and northern red oak *(Quercus rubra)*, are highly susceptible to the disease when inoculated with the pathogen.

- Asian Longhorned Beetle *Anoplophora glabripennis* (Motschulsky), (ALB): Although not presently found in Rhode Island, ALB is a major forest pest in China. In New York and Illinois ALB has demonstrated formidable potential for harming many important commercial tree species in the forests of North America. ALB has potential to alter North American ecosystems, due to its tree killing and polyphagous habits and potential for widespread distribution on the continent.

- Emerald Ash Borer, *Agrilus planipennis* Fairmaire (EAB): Emerald ash borers are not presently found in Rhode Island, but have killed trees of various size and condition in Michigan. Larvae have developed in trees and branches ranging from 1 inch to 55 inches in diameter. Stress likely contributes to the vulnerability and rapid decline of infested ash trees. However, emerald ash borer has killed apparently vigorous trees in woodlots and urban trees under regular irrigation and fertilization regimes, making this pest capable of infesting ash trees in any environment.

- The gypsy moth (GM), *Lymantria dispar*, is one of North America's most devastating forest pests. The species originally evolved in Europe and Asia and has existed there for thousands of years. In either 1868 or 1869, the gypsy moth was accidentally introduced near Boston. About 10 years after this introduction, the first outbreaks occurred and in 1890 the first state and federal attempts to eradicate the pest began. These attempts ultimately failed, and since that time, the range of gypsy moth has continued to spread. Presently, gypsy moth is at a low population stage in Rhode Island, but the Division of Forest Environment continues to survey for the pest on an annual basis.

[51] Adapted from: http://www.fs.fed.us/foresthealth/programs/invasive-species-mgmt.shtml

- The hemlock woolly adelgid, *Adelges tsugae,* (HWA), has been in the United States since 1924. This introduced insect, believed to be a native of Asia, is a serious pest of eastern hemlock and Carolina hemlock. In the eastern United States, it is present from northeastern Georgia to southeastern Maine and west to eastern Tennessee. HWA continues to kill hemlock trees in the forest and urban and suburban landscapes throughout RI. A pilot project to determine the extent and impact of the HWA has been underway by the Division of Forest Environment since 2003. Timber harvests on state properties are carried out to remove dying trees before the timber value of the trees is lost. This reduces hazards and liability in recreational areas while providing revenue. The Connecticut Agricultural Experiment Station provided this photo.

The above-described insect pests are all introduced to the United States -- imported from other countries, either for attempts of commercial ventures or from packing material used in the shipping of imported products. As Rhode Island's role as both a consumer and producer in the global economy increases, it is important to retain vigorous surveillance and response capabilities to control incipient outbreaks of these, or other, currently unknown, threats to the health of the state's forests.

Many of the recommendations outlined in the Wildland Fire issue in the prior (1984) edition of this Plan have been implemented through the lead of the Division of Forest Environment. Perhaps as a result of the actions taken on this issue, forestland owners surveyed ranked wildfire as a lesser concern compared to other forest management issues: 38% of those landowners responding identified wildfire as a very important or critical concern. Some of this change in attitude since the 1984 Plan may also be due to the change in infrastructure and development within the State and changes within the forest itself. Roads and developments have fragmented the forested area, lessening the extent of large, unbroken forested tracts. The forests themselves have aged -- changing fuel load behavior within the forest. Greater numbers of people living in and traversing forested areas and communication advances, such as the cellular telephone, have made reporting of fires more common through this media than the previous surveillance system of manned fire towers. Many fire stations have upgraded facilities and several new fire stations have appeared in rural, forested areas to handle increases in residential homes. The increase in residences permeating the forest, however, has also brought new concerns. One such concern is the wildland/urban interface; any area where wildland fires threaten to ignite combustible homes or structures.

FH Goal: **To protect and improve the health of Rhode Island's forests.**

FH Policies:

FH 1. Monitor and respond to forest health threats to avoid unacceptable loses to the state's forest resources.

FH 2. Maintain a forest fire defense plan to protect against the possible loss of lives, homes and forest resources.

FH Objectives and Strategies: See Table 4-1.

Commercial Forest Products (CFP)

Although the Farm, Forest and Open Space Act Program offers a vehicle for reducing their impact, local property taxes remain a significant cost of forestland ownership. Other costs include forest management activities to conserve and improve forest productivity. The sale of commercial forest products can help forestland owners offset the costs of retaining their land in forest and provide revenue to support effective management.

Timber harvesting contributes to the forest products industry in Rhode Island. The value of the annual timber payroll and the value of timber and allied products in the state increased from $69.9 million in 1985 to $118.8 million in 2000. The industry represents 2.7 percent of the state's manufacturing workforce and employs 2,100 workers, with a payroll of $60 million.[52] While the number of primary wood product processors—sawmills--has dropped; secondary wood processors continue to be a strong source of generated income for Rhode Island forest landowners. The recent survey of forest landowners found 31 percent have had commercial harvesting activity on their land; 6 percent of these within the last five years. Sawtimber and firewood were cited as the most common products, each comprising about 32 percent of the harvest activities. Future Strategies to manage the forests of Rhode Island to produce larger and higher quality trees, to promote higher-value, commercial wood products instead of harvesting smaller diameter good quality trees for firewood, could also increase carbon sequestration.

The small size of most parcels of forestland makes management for traditional wood products difficult for the typical Rhode Island landowner. DEM and the R.I. Rural Lands Coalition have cooperated to investigate and promote *alternative* forest products. These include products such as edible and medicinal plants, specialty wood products, floral greens, or forest-based recreation, and offer an option for landowners who wish to actively manage their property to generate income to offset ownership expenses. It is hoped that encouragement of such natural resource-based economic development in rural areas will encourage retention of land in forests and limit the impetus for further forest fragmentation.

CFP Goal: **To maintain a viable forest products industry in Rhode Island.**

CFP Policy: To optimize the economic values of forest products from Rhode Island forestlands.

CFP Objectives and Strategies: See Table 4-1.

[52] (a) S.B. Remmington, P.E. Sendak, D.R. Schuman, "Rhode Island's Timber Economy: A Review of Statistics", USDA Forest Service, NE Forest Experiment Station 1985. (b) American Forest and paper Association, Why the Forest and Paper Industry is Important to Rhode Island", 1997.

Water Resources (WR)

Good water quality is one of the many benefits derived from forestland. Eighty-four percent of the surveyed forestland owners believe forest resources are very important or critical for water. While timber harvesting can contribute to water quality degradation, the utilization of best management practices and wetland protection, and generally small scale of activities limit such impacts in Rhode Island to negligible levels.

The protection, conservation, and restoration of forested riparian areas along rivers and streams offers a wide range of environmental and social benefits including improved water quality, greater wildlife diversity, educational opportunities, enhanced aesthetics, reduced flooding, and a higher quality of life for residents, and increased civic pride. Presently the DEM Sustainable Watersheds Office is conducting several projects for watershed conservation action plans.

WR Goal: **To protect and manage the state's forestlands in support of water resource goals and objectives and the needs of Rhode Islanders for plentiful and healthy water supplies.**

WR Policy: Promote the development, protection and maintenance of forested landscapes to protect water quality.

WR Objectives and Strategies: See Table 4-1.

Forestland Recreation and Tourism (FRT)

Recreation and tourism are important industries in Rhode Island. Tourism is the second largest and fastest growing industry in Rhode Island[53]. Rhode Island's forests provide numerous recreational opportunities, including hiking, hunting, fishing, camping, bird watching, picnicking. 60% of respondents to the 2003 Landowners' Survey strongly agreed or agreed that DEM should focus resource management on state-owned forestland to enhance recreation and tourism.

DEM, through the DFE and Fish and Wildlife Division, manages extensive forested tracts that provide recreational opportunities and support the state's tourism sector. These include the DFE-managed George Washington and Arcadia Management Areas, consisting of approximately 27,800 acres, and an additional 21,200 acres managed by the DFW.

The importance of forests to Rhode Island's quality of life is increasing as development continues. In just seven years -- between 1988 and 1995, Rhode Island developed farm and forestland acreage that almost equaled the total land area of the City of Providence (12,029 acres). This loss of resource land has been taking place in spite of relatively slow population growth. As a result of sprawl, an additional 24,000 acres of forestland could be converted to developed land by 2020[54].

Forests within management areas and other protected open space properties will, by and large, remain in their forested state, and by virtue of their ownership and management, they are generally accessible to the public. As such, these forests will become increasing important in providing recreational opportunities as other forested areas are converted to other uses, or restrict access. The National Recreation and Park Association has documented a number of benefits provided by parks and other outdoor recreation facilities:

- Visits to national, regional and local parks exceed 1 billion annually.
- $59 billion is spent every year on wildlife tourism.
- Americans spend over 500 million days per year fishing.
- 66,000 deaths annually could be prevented through regular physical exercise.

Adding to these quantifiable benefits, are studies of less tangible benefits of parks and the recreational and exercise opportunities they afford. These range from the favorable impact that investments in waterfront open spaces have on attracting new business to reports that families that share recreation together report greater stability and satisfaction.

FRT Goal: **To provide statewide recreational activities and promote tourism in forested recreation areas.**

FRT Policy: To include diverse recreational opportunities in the state's forestlands consistent with objectives for sustainable and healthy forest resources and the promotion of recreational user safety.

FRT Objectives and Strategies: See Table 4-1.

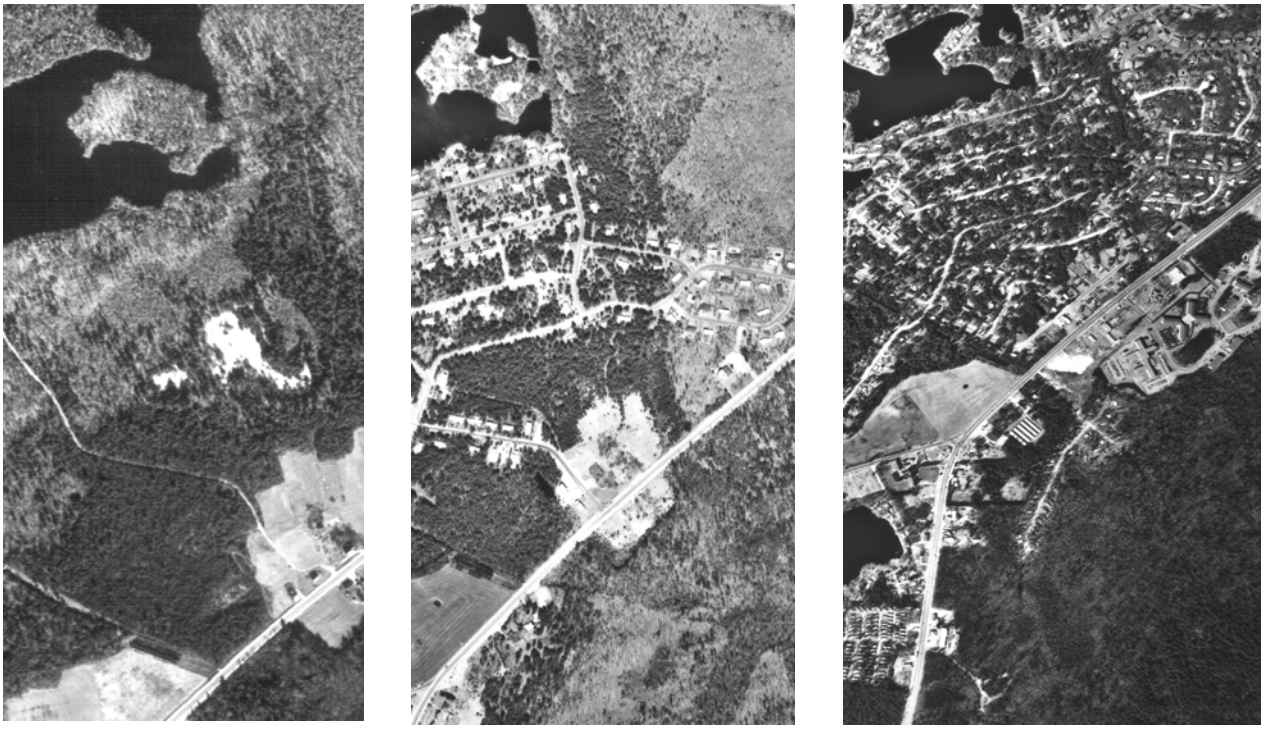
Fragmentation (F)

[53] Rhode Island Travel and Tourism Report, Volume 18, Number 1 May, 2001 by Timothy J. Tyrell, URI
[54] The costs of Suburban Sprawl and Urban Decay in Rhode Island, Executive Summary, H.C. Planning Consultants, Inc. and Planimetrics, LLP, December, 1999.

Rhode Islanders greatly value their forests and the amenities they provide. A partnership of environmental organizations involved in the updating of the Rhode Island Forest Resources Management Plan identified subdivision of forestland into small parcels (fragmentation) and/or conversion of forestland to other uses as a major issue affecting Rhode Island's forests. This was consistent with the findings of the forestland owners survey in which 83% of respondents rated development as a critical issue and 11% felt it was a very important issue. Participants in focus groups also identified preventing and offsetting the effects of fragmentation and development as the number one issue.

It was the consensus of all parties involved in the planning process that to insure healthy forests that provide a variety of benefits we need to take immediate and decisive action to protect forestland from loss and degradation due to development pressure. When asked in the survey if the state should allocate funds to acquire important forestlands and/or development rights 49% strongly agreed and an additional 33% agreed. On the question of allocation of forest resource funding for each additional dollar made available, 26 cents would go to acquisition of the forestland and 19 cents more to the purchase of development rights.

Development in Rhode Island tends to reduce the number of large contiguous forests with the remaining forests composed of smaller forests owned by many landowners and often times are comprised of backyard woodlots. Many of the landowners' objectives for their forests differ with the change of ownership and parcel size. Owners of forestlands larger than 100 acres actively manage their forestland; those owning forested tracts less than 30 acres in size report their primary reason for owning forestland is that it is part of their residence [55]. The aerial photographs below demonstrate how development can change the forest over time.



1954 1972 1992

Forest Fragmentation in Coventry, RI (1954 – 1992)

[55] Private Forestland Owners of the Northern United States, Birch, Thomas W. 1996. USDA, Forest Service, Northeastern Forest Experiment Station. NE–136.

Fragmentation has many negative impacts. As large, contiguous tracts of forest are broken into fragments, its value as wildlife habitat is reduced. Development brings with it the creation of roads, commercial support development, and other infrastructure. Residential development brings the introduction of plant cultivars species that often escape into the forest replacing native plant species, negatively impacting habitats and food supplies for native insects and animals. New residents in rural areas bring expectations regarding noise and aesthetics that may lead them to challenge forestry and agricultural practices that were generally accepted by long-time rural residents who have an understanding of the role and necessity of such practices. Such changes brought about through fragmentation and development impact upon both economic and ecological viability of our forests.

F Goal: **To conserve and restore Rhode Island's forests so as to minimize forest fragmentation.**

F Policy: To maintain forestland area and minimize further fragmentation of forest resources through innovative land conservation and management techniques**.**

F Objectives and Strategies: See Table 4-1.

TABLE 4-1, IMPLEMENTATION MATRIX

Table 4-1, Implementation Matrix, contains the objectives, strategies and performance measures, where applicable for the eight policy areas outlined above. The table is laid out according to the eight policy area narratives as presented in this Section. All policies are referenced by the policy abbreviations cited in the text and page numbers are provided to enable cross-referencing with the narratives, goals and policies. The objective and strategies are followed by performance measures, where applicable, along with the primary responsible implementing party or partners for each. A listing of acronyms used within the Table precedes the Table. The following time frames are used in Table 4-1:

- OG = On Going projects or programs
- ST = Short projects or programs to be acted on in 1-5 years, and
- LT = Long projects or programs to be acted on in 5 + years

See also the relevant policies of the following State Guide Plan Elements concerning forestlands in the State Guide Plan Overview document at: http://www.planning.state.ri.us/sgp/sgp.htm.

- Element 121: Land Use and Policy Plan
- Element 131: Cultural Heritage and Land Management Plan
- Element 152: Ocean State Outdoors: RI's Comprehensive Outdoor Recreation Plan
- Element 155: Greenspace and Greenways Plan
- Element 211: Economic Development Policies & Plan
- Element 731: Nonpoint Source Pollution Management Plan
- Element 811: Transportation 2025 – Ground Transportation Plan

Acronyms for Table 4-1	
ACP	Agricultural Conservation Program
APHIS	Animal and Plant Health Inspection Service
ASRI	Audubon Society of Rhode Island
ATV	all terrain vehicle
BMP	Best Management Practices
DEM	Department of Environmental Management
DFE	Division of Forest Environment
DOT	Department of Transportation
ENF	Division of Enforcement
EPA	Environmental Protection Agency
EQUIP	Environmental Quality Improvement Program
F&W	Division of Fish and Wildlife
FFAC	Forest Fire Advisory Committee
FFOS	Farm, Forest and Open Space Program
FRMP	Forest Resource Management Plan
FRMPAC	Forest Resource Management Plan Advisory Committee
FSC	Forest Stewardship Committee
GIS	geographic information system
IPM	Integrated Pest Management
Legal	Division of Legal Services
MS	Division of Management Services
NRCS	Natural Resource Conservation Service
OWR	Office of Water Resources
OIC	Office of Inspection and Compliance
P&D	Division of Planning and Development
P&R	Division of Parks and Recreation
PLT	Project Learning Tree
RC&D	Resource Conservation & Development
RI	Rhode Island
RIFCO	Rhode Island Forest Conservators Organization
RILTC	Rhode Island Land Trust Council
RIRC	Rhode Island Rivers Council
RIRDC	Rhode Island Rural Development Council
RISPP	Rhode Island Statewide Planning Program
RITC	Rhode Island Tree Council
RITF	Rhode Island Tree Farm
S&PF	State and Private Forestry
SAF	Society of American Foresters
SCORP	State Comprehensive Outdoor Recreation Plan
SIP	Stewardship Incentive Program
SNEFCI	Southern New England Forest Consortium Incorporation
SWO	Sustainable Watersheds Office
TAC	Trail Advisory Committee
TNC	The Nature Conservancy
URI	University of Rhode Island
USDA	United States Department of Agriculture
USFS	USDA Forest Service
WHIP	Wildlife Habitat Improvement Program
WRB	Water Resources Board

Table 4-1 Implementation Matrix

Issue	Policy	Page #	Objectives & Strategies	Primary Responsibility / Partners	Time Frame
Forest Resources Management (FRM)	**FRMP1**	**32**	**1.** Seek increased and sustainable funding for management and improvements to access in state management areas.		
			A. Continue to implement Capital Improvement Program.	DEM/DFE, DEM/P&D, and DEM/MS	OG
			B. Use income from timber sales to increase resources for state lands management	DEM/DFE and DEM/MS	OG
			Performance Measures **A.** N.A. **B.** Timber income to State Forestry Fund		
			2. Map, inventory, analyze, and classify state owned forestlands to insure sustainable uses on state forestlands.		
			A. Inventory and document existing conditions, growth, harvest and reforestation levels.	DEM/DFE	OG
			B. Continue to Use DFE personnel to maintain property bounds.	DEM/DFE	OG
			C. Strengthen process to document and report boundary trespass and property damage for litigation.	DEM/Enf. and DEM/Legal	OG
			D. Use DEM enforcement and Legal Services to resolve boundary trespass and property damages.	DEM/Enf.and DEM/Legal	OG
			E. Document existing recreational impacts on forest resources for management planning	DEM/DFE and DEM/P&R	OG
			Performance Measures **A.** # of acres inventoried **B.** Location and # of feet of bounds maintained **C.** Development of policy for actions on encroachment issues **D.** N.A. **E.** See Performance Measures FRM OBJ 2 A		
			3. Continue to demonstrate sustainable, best forest management practices on state forestlands. (aesthetics, integrated pest management, inventory & map Heritage Program indicators including threatened and endangered species, crucial and diverse wildlife habitat.		
			A. Inventory and document existing conditions, growth, harvest and reforestation levels to insure sustainable harvest practices on state forestlands.	DEM/DFE	ST
			B. Seek Sustainable Forest Initiative Program certification.	DEM/DFE	ST
			C. Identify and sign forest management practices for educational purposes.	DEM/DFE, RISAF, RIFCO, and SNEFCI	ST
			Performance Measures **A.** # of acres inventoried. **B.** Complete evaluation of DFE forestland properties and Division to Sustainable Certification Programs. **C.** # of educational forestry plots		
			4. Promote and strengthen partnerships and continue to work with a variety of stakeholders through a coordinated effort to maintain diversity of user groups and activities on state owned forestlands.		
			A. Continue to use Management Councils for planning implementation on state management areas.	DEM/DFE	OG
			B. Use State Trail Advisory Committee as an advisor for recreational issues and policies affecting State forestlands.	DEM/DFE and DEM/P&D	OG
			Performance Measures **A.** # of Management Council meetings **B.** # of State Trail Advisory Committee meetings attended		
			5. Evaluate roads and trails to improve management and emergency access.		
			A. Seek increased funding for improvements to roads and trails within state management areas	DEM/DFE	OG
			B. Improve state management areas through a program of trail maintenance, road repair and infrastructure improvements.	DEM/DFE	ST
			C. Replace permanent structures blocking access points: boulders, logs and fences with gates.	DEM/DFE	ST
			D. Continue to use Trail Grants to improve roads and create access in publicly owned forestlands	DEM, LAND TRUSTS, and municipalities.	OG
			Performance Measures **A.& D.** # of grants and value obtained **B.** # of feet of trails improved **C.** # of gates installed at blocked access points		

Table 4-1 Implementation Matrix

Issue	Policy	Page #	Objectives & Strategies	Primary Responsibility / Partners	Time Frame
Forest Resources Management continued	**FRMP1**	**32**	**6.** Protect the forest resources while providing a variety of services within state management areas.		
			Performance Measures		
			A. Use DEM personnel to enforce Rules and Regulations within Management Areas. (See also objectives under Forest Health Section.)	DEM/DFE and DEM/ENF	OG
			7. Obtain new properties to expand existing management areas.		
			A. Use DEM's Land Acquisitions Committee process to purchase land, development rights, or conservation easements to expand natural areas within the State and buffer the existing State-owned management areas from development.	DEM/DFE and DEM/P&D	OG
			Performance Measures		
			A. # of acres obtained		
	FRMP2	**32**	**8.** Develop and maintain comprehensive statewide forest planning.		
			A. Maintain and periodically update the RI Forest Resource Management Plan. (SGP 161)	DEM/DFE AND RISPP	LT
			B. Develop comprehensive, diverse and sustainable management strategies for state management areas.	DEM/DFE	LT
			C. Continue to use Management Councils for planning implementation on state management areas.	DEM/DFE	OG
			D. Use the forest resource plan to establish priorities for forest resource management and coordinate planning efforts with all entities that have an impact on forest resources.	DEM/DFE	OG
			E. Determine priority areas where forest management could be undertaken on a regional or watershed level rather then the parcel level basis.	DEM/DFE, DEM/P&D,TNC and ASRI	OG
			F. DFE shall maintain legislative authority to use revenue generated from the State Forestry Fund to implement the Rhode Island Forest Resources Management Plan.	DEM/DFE	OG
			Performance Measures		
			B. & C. # of Management Council meetings attended		
			E. # of meetings and projects with non-profit organizations		
			9. Protect sufficient forestland to meet present and future resource needs.		
			A. Use of cooperative approach between state and local government and private organizations to identify, plan for and protect valuable and ecologically sensitive forestland from development in critical areas.	DEM, TNC, ASRI, RI Foundation, PWS, RIWRB,Champlin Foundation and municipalities	OG
			B. Continue to promote the current tax provisions of the FFOS Act as a tool to conserve forestland and work with municipal tax assessors to reach eligible land owners.	DEM,RIFCO, SNEFCI and municipalities	OG
			C. Seek legislation to modify the FFOS program so municipalities have a right of first refusal when land is to be converted out of program classification.	DEM / RICTC and municipalities	ST
			D. Use the State Guide Plan process to insure communities address forest resources objectives and strategies within local comprehensive plans.	DEM/DFE, RISPP and FSC	OG
			E. Continue the statewide program to purchase conservation easements on forestland based on the framework established by the Forest Legacy Program.	DEM/DFE, DEM/P&D,TNC and ASRI	OG
			Performance Measures		
			B. # of acres in FFOS program		
			C. # of acres obtained		
			D. # of community comprehensive plans approved		
			10. Coordinate planning and management of Rhode Island's forest resources.		
			A. Broaden the role of the Stewardship Committee to oversee (coordinate) the implementation of the Forest Resources Management Plan.	DEM/DFE, FSC AND RISPP	ST
			11. Evaluate the status of Rhode Island's forest resources on a statewide level.		
			Performance Measures		
			A. # of acres and classification of forestlands	DEM/DFE and USDA Forest Service	OG
			12. Continue to partner with federal agencies to maintain a statewide forest inventory process to track forest conditions and trends.	DEM/DFE and USDA Forest Service	OG
			Performance Measures		
			A. # of acres and conditions of forestlands		

Table 4-1 Implmentation Matrix

Issue	Policy	Page #	Objectives & Strategies	Primary Responsibility / Partners	Time Frame
Forest Sustainability (S)	**S**	**33**			
			1. Maintain diverse forests.		
			A. Maintain and enforce the requirement of active management for forestland classified under the FFOS Act.	DEM/DFE and municipalities	OG
			B. Actively manage state forestland to provide a wide range of benefits.	DEM/DFE, F&W and P&R	OG
			C. Publicly owned forest should provide demonstration areas to promote sustainable forest management.	Municipalities, Landtrusts, and PWS	OG
			Performance Measures **A.** # of properties in FFOS, Forestland classification **B.** See FRM3 **C.** # of publicly owned, (non-state) forestry demonstration areas		
			2. Encourage good forest practices on private owned forest.		
			A. DEM should provide "on the ground" technical assistance offering advice on forestry, wetlands, fish and wildlife advice to assist land owners to refine their objectives and provide guidance toward sustainable forest resource management.	DEM/DFE and F&W	OG
			B. Encourage landowners to seek assistance from qualified natural resource professionals.	DEM/DFE and F&W	OG
			C. Inform landowners about the value of their forest resources and encourage sustainable forestry practices and certification on private lands.	DEM/DFE, RIFCO, RI Tree Farm	OG
			D. Continue to identify, protect, and maintain natural areas of concern that support rare and endangered plant and animal habitats, geological features and other special natural resources in forested areas.	DEM/P&D, DFE, F&W and P&R	OG
			Performance Measures **A.** # of assists to private landowners **B.** # of referrals to consultants **C**. # of workshops		
			3. Conserve sufficient forestland in Rhode Island to meet the present and future needs of citizens.		
			A. Use all available means to conserve Rhode Island's remaining forestland (including purchase of development rights, promotion of the FFOS program, innovative zoning techniques and outright purchase.	DEM/P&D, DFE, TNC, ASRI, RIFCO municipalities and landtrusts	OG
			B. Use innovative land use techniques, incentives and partnerships to conserve large forested areas and associated wetlands.	DEM, TNC, ASRI, NRCS, Corporations municipalities and landtrusts	OG
			C. Research and develop maintenance levels and types of forestlands to be used as carbon sinks for carbon sequestration.	Forestry Working Group of the RI Greenhouse Gas Process	ST
			Performance Measures **A.** # of acres permanently conserved as forest **B**. See above **C.** N.A.		
			4. Encourage forest management actions to promote and conserve wildlife habitats that will meet the needs f the state's wildlife in order to encourage a diversity of species.		
			A. Recognize the need to manage and conserve priority forest habitats for conservation.	DEM/F&W, DFE, P&D, TNC, ASRI, RIFCO RIFCO, municipalities and landtrusts	ST
			B. Promote forest management actions and activities that consider landscape level needs and/or deficiencies for specific habitat types.	DEM/F&W, DFE, P&D, TNC, ASRI, RIFCO, municipalities and Landtrusts	OG
			C. Promote forest management activities on state and private lands that will diversify forest age class to meet the needs for priority wildlife species and habitats.	DEM/F&W, DFE, P&D, TNC, ASRI, RIFCO, municipalities and landtrusts	OG
			D. Develop statewide landscape level prescriptions for the forested habitats of RI as a goal for management (using UFS inventory as a baseline) to achieve renewable forests and habitats.	DEM/F&W	ST
			Performance Measures **A.** N.A. **B.** N.A. **C.** N.A. **D.** Developed statewide landscape level prescriptions		

Table 4-1 Implementation Matrix

Issue	Policy	Page #	Objectives & Strategies	Primary Responsibility / Partners	Time Frame
Information & Education (I&E)	**IE**	**34**			
			1. Expand educational opportunities and use electronic media to provide more information about forest resources.		
			A. Maintain and expand the Division of Forest Environment website to include links to information on educational opportunities available.	DEM/DFE	ST
			B. Expand the Division of Forest Environment website to include web sites for teachers.	DEM/DFE and PLT	ST
			C. Provide resources and partner with other organizations to educate the general public on the value of forest resources and forest management.	DEM, TNC, ASRI, RIFCO, RISAF, RITF,SNEFCI, RITC, USFS and NRCS	OG
			D. Use web site links to existing programs to educate persons of all ages about forest resources.	DEM, TNC, ASRI, RIFCO, RISAF, RITF,SNEFCI, RITC, USFS and NRCS	ST OG
			E. Promote partnerships with traditional and non-traditional organizations.	DEM, TNC, ASRI, RIFCO, RISAF, RITF,SNEFCI, RITC, USFS and NRCS	OG
			Performance Measures **A.** N.A. **B.** N.A. **C. & D.** # of workshops held and statistics on diversity of partners reported.		
			2. Continue to provide pamphlets to the general public with information on current techniques of forest management.		
			A. Develop, update and distribute information pamphlets on Forestry.	DEM/DFE,SNEFCI, RIFCO, and RITF	ST
			B. Use the DEM Offices and municipal buildings throughout the State to make publications available to the public.	DEM/DFE,SNEFCI, RIFCO, and RITF	OG
			Performance Measures **A.** # of informational pamphlets developed and distributed **B.** # of locations pamphlets made available		
			3. Use public lands, state forestland, town forests, and private lands to educate forest landowners.	DEM,SNEFCI, RIFCO, and RITF	ST
			Performance Measures # of workshops held, location and # of attendees		
			4. Educate the general public and Legislators regarding the role of forest resources in maintaining water quality of public water supplies.		
			A. Provide resources (assistance) and work with a large diversity of partners to educate legislators on the function of the forest.	SAF, SNEFCI, RIFCO, and RITF	OG
			B. Inform and educate state and local government officials, as well as the general public of the need to provide sound policies for the protection enhancement of community forest resources.	SAF, SNEFCI, RIFCO, and RITF	OG
			C. Build and strengthen partnerships with municipalities, local land trusts and conservation organizations.	DEM, TNC, ASRI, RIFCO, RISAF, RITF,SNEFCI, RITC, USFS and NRCS	OG
			Performance Measures **A.** # and type of partners utilized, number of projects **B.** # of programs presented **C.** # and type of partners utilized, number of programs		

Table 4-1 Implementation Matrix

Issue	Policy	Page #	Objectives & Strategies	Primary Responsibility / Partners	Time Frame
Forest Health	FH1 & FH2	35	**1.** Continue to evaluate aspects of forest health conditions in Rhode Island's forests.		
			A. Monitor and report on the aspects of forest health conditions- insects pathogens, invasive plants, air pollution, weather, manmade, fire, etc.	USFS, APHIS and DEM/DFE	OG
			Performance Measures		
			A. # of acres surveyed (aerial & ground) & # of forest health plots surveyed		
			2. Increase partnerships with traditional and non-traditional organizations to obtain the best management techniques and proper technical practices to protect and improve the health of. Rhode Island's forests.		
			A. Attend and invite cooperators/ partners to training sessions and meetings.	USFS, APHIS and DEM/DFE/URI	OG
			Performance Measures		
			A. # of training sessions, meetings and attendees		
			3. Cooperate locally and nationally on forest health issues.		
			A. Attend and invite cooperators/ partners to training sessions and meetings.	USFS, APHIS and DEM/DFE	OG
			Performance Measures		
			A. # of training sessions, meetings and partners attending		
			4. Develop, revise and implement policies to limit the spread of forest health threats (insects & pathogens) without endangering non-target species.		
			A. Evaluate current policies and develop, revise and/or implement as needed.	USFS, APHIS and DEM/DFE	ST
			B. Communicate revisions and changes to partners.	USFS, APHIS and DEM/DFE/URI	ST
			C. Use Integrated Pest Management (IMP) and biological controls where applicable.	USFS, APHIS and DEM/DFE	OG
			Performance Measures		
			A. # of policies evaluated and action taken **B.** N.A. **C.** # of alternative controls used in place of chemicals		
			5. Strengthen communication mechanisms with partners in forest health to maintain clear responsibilities for forest health control and evaluation.		
			A. Evaluate current policies and develop, revise and/or implement as needed.	USFS, APHIS and DEM/DFE/URI	ST
			B. Develop, obtain and distribute information to stakeholders on forest health threats.	USFS, APHIS and DEM/DFE/URI	OG
			Performance Measures		
			A. # of policies evaluated and action taken **B.** # of pamphlets developed and distributed		
			6. Update DEM DFE website to include links to current forest health threats.		
			Performance Measures		
			Updated website	DEM/DFE	ST
			7. Reduce impacts of wildlife and manmade influences to minimize threats to forest health.		
			A. Promote and continue whitetail deer hunting as a valuable and necessary management tool to prevent deer overpopulation from impacting forest generation of desirable hardwood species.	DEM/DFE and F&W	OG
			B. Strengthen and continue to enforce all-terrain (ATV) regulations on private and public property to prevent damage to valuable tree species regeneration and prevent soil and water quality degradation.	DEM/DFE, Enf., F&W, State Police and municipalities	ST/OG
			Performance Measures		
			A. # of meetings attended & pamphlets developed and distributed **B.** # of ATV violations issued		
			8. Continue to aggressively fight forest fires through coordinated efforts with local fire departments.		
			A. Strengthen and encourage interagency cooperative agreements.	USFS, DEM/DFE, Fire Districts, and municipalities	ST/OG
			Performance Measures		
			A. # of cooperative agreements evaluated and utilized		
			9. Contain the average forest fire to minimal acreage.		
			A. Maintain records to track individual fire statistics.	DEM/DFE	OG
			B. Use fuel reduction measures on state lands in high-hazard areas.	DEM/DFE, P&R and F&W	LT/OG

Table 4-1 Implementation Matrix

Issue	Policy	Page #	Objectives & Strategies	Primary Responsibility / Partners	Time Frame
Forest Health continued	FH1 & FH2 cont'd	35	**Performance Measures**		
			A. # of fires, acres burned, number and type of buildings burned **B.** # of acres surveyed, # of acres of prescribed burns or other control		
			10. Strengthen communication mechanisms with local fire departments to maintain clear responsibilities for forest fire control and management		
			A. Hold regular meetings with Forest Fire Advisory Committee.	DEM/DFE	OG
			B. Use the FFAC to promote the use of prescribed burns for wildlife habitat enhancement through demonstration and training burns	DEM/DFE, Fire Districts, FFAC and municipalities	ST
			Performance Measures		
			A. # of meetings attended **B.** # of training exercises and # of people trained		
			11. Continue a process of hazard analysis for the state that will identify critical areas and times of extreme fire conditions		
			A. Evaluate forest fuel conditions and weather conditions on an ongoing basis.	DEM/DFE	OG
			B. Supply local planning departments with hazard fuel analysis information for community development planning.	DEM/DFE	OG
			Performance Measures		
			A. # of fire days evaluated **B.** # of reports distributed		
			12. Encourage rural fire departments to install dry hydrants.		
			A. Work to install dry hydrants in local fire districts.	USFS, DEM/DFE, RC&D and NRCS	ST/OG
			Performance Measures		
			A. # of dry hydrants sites evaluated & # of dry hydrants installed		
			13. Continue efforts with various federal, state, and local partners to train and provide funds, personnel and equipment, especially during fire emergencies.		
			A. Maintain Forestry hose records on inventory supplied, serviced and loaned to municipal departments.	DEM/DFE, Fire Departments, and FFAC	ST/OG
			B. Hold fire-training exercises with local fire departments and communicate training sessions to local fire departments.	DEM/DFE, Fire Departments, and FFAC	ST/OG
			C. Use Incident Command System (ICS) for all incidents; train other agencies in its use.	DEM/DFE, Fire Districts, FFAC, FEMA RIEMA and Municipalities	ST/OG
			Performance Measures		
			A. # of feet of forestry hose loaned and/or serviced **B.** # of training exercises and number of people trained **C.** # of incidents using ICS, number of agencies trained		
			14. Develop interdepartmental and statewide database of emergency equipment and use the Federal Excess Personal Property (FEPP) program.		
			A. Maintain records of the federal equipment loans to fire departments.	DEM/DFE	OG
			B. Work with Emergency Management Agencies to maintain an inventory of fire apparatus and public heavy equipment statewide.	DEM/DFE, Fire Districts, FFAC, FEMA RIEMA and municipalities	ST/OG
			Performance Measures		
			A. # of departments with FEPP & # of departments inventoried **B.** N.A.		
			15. Use DEM /DFE personnel in non-fire seasons to take a more active role in fire prevention activities and general public educational programs.		
			A. Use Smokey Bear Educational program to educate school children about fire safety.	DEM/DFE	OG
			B. Develop and distribute Firewise packets in local fire district tax bills & insurance bills in suburban and rural communities.	DEM/DFE, Fire Districts, FFAC and municipalities	ST
			C. Work with communities to promote awareness of forest fire/fuel reduction measures reduction measures applicable to their respective communities.	DEM/DFE, Fire Districts, FFAC and municipalities	OG
			Performance Measures		
			A. # and length of programs and # of students attending **B.** # of packets developed and distributed. **C.** # of communities promotion programs presented		
			16. Use prescribed burns for forest health and wildlife habitat enhancement.		
			A. Use prescribed burns to reduce hazardous levels of fuel build up in forests.	DEM/DFE, P&R and F&W	OG
			B. Use prescribed burns for wildlife habitat enhancement.	DEM/DFE and F&W	OG
			Performance Measures		
			A. & B. # of prescribed burns and acres burned		

Table 4-1 Implementation Matrix

Issue	Policy	Page #	Objectives & Strategies	Primary Responsibility / Partners	Time Frame
Commercial Forest Products (CFP)	**CFP**	**37**			
			1. Promote the wood and paper industry as a significant economic resource to the state, using forest products that focus on renewable resources and promote carbon sequestration.		
			Performance Measures		
			# of promotional articles and projects	DEM/DFE, SNEFCI, RIRDC, RIRC&D RIFCO and SWO	OG
			2. Obtain accurate information on the economic viability of the state's forest products industry.		
			Performance Measures	DEM/DFE, SNEFCI and RIRDC	OG
			N.A.		
			3. Use data sources such as intent to cut forms and forest land classification to track the economic status of forest resources on a statewide level.		
			Performance Measures		
			# of intent to cut forms filed and reviewed	DEM/DFE, SNEFCI and RIRDC	OG
			4. Use the State review process to insure that local comprehensive plans support opportunities for sustainable harvest of forest products in an appropriate manner.		
			Performance Measures		
			# of municipal comprehensive plans reviewed	RISPP and DEM/DFE	OG
			5. Continue participation in the southern New England stumpage price survey as a means of assessing market conditions.		
			Performance Measures		
			N.A.	DEM/DFE, SNEFCI and RIRDC	OG
			6. Promote timber harvesting as enhancing forest diversity and creating beneficial wildlife habitat.		
			Performance Measures		
			# of Stewardship Program acres	USFS, DEM/DFE and F&W and SNEFCI	OG
			7. Work with the RIRDC to promote forest products markets by encouraging value-added industries and activities.		
			Performance Measures		
			# of promotional articles and projects	RIRDC and DEM/DFE	OG
			8. Insure that forest management plans and BMPs are used during commercial harvesting of forest products.		
			Performance Measures		
			# of Stewardship Program acres	DEM/DFE	OG
			9. Develop and implement forest management plans using BMPs for state owned forestland.		
			Performance Measures		
			# of acres with forest management plans	DEM/DFE, F&W and P&R	LT
			10. Provide technical assistance to facilitate management of forestlands.		
			Performance Measures		
			# of assists with forest landowners	DEM/DFE	OG
			11. Promote alternative wood products as viable forest products to sustain uses of RI forestlands.		
			Performance Measures		
			# of grants and dollar value of alternative wood product grants # of pamphlets developed and distributed	DEM/DFE and SWO, SNEFCI, RIFCO and RITF	ST/OG
			12. Promote alternative wood products through distribution of success stories from DEM challenge grants.		
			Performance Measures		
			# of pamphlets developed and distributed # of workshops held	DEM/DFE and SWO, SNEFCI, RIFCO and RITF	ST/OG
			13. Promote secondary wood product production to increase forest resources uses in RI.		
			Performance Measures		
			# of pamphlets developed and distributed	DEM/DFE, SNEFCI, RIFCO and RIRDC	ST
			14. Promote the use of locally grown wood products to help insure viable outlets for forest resources within the state.		
			Performance Measures		
			# of pamphlets developed and distributed # of workshops held	DEM/DFE, SNEFCI, RIFCO and RIRDC	ST

Table 4-1 Implementation Matrix

Issue	Policy	Page #	Objectives & Strategies	Primary Responsibility / Partners	Time Frame
Water Resources (WR)	**(WR)**	**38**			
			1. Increase public awareness about the role forests play in protecting water quanity & quality.		
			A. Provide information to communities about the condition and value of their watershed resources (Inventory & GIS maps)	DEM/SWO, OWR and DFE, RIRC WRB	OG
			Performance Measures		
			A. # of meetings and workshops		
			2. Integrate forestland protection into community planning to provide water quality benefits.		
			A. Manage forestlands within watersheds, especially adjacent to public water supplies and aquifers, to protect water quality as well as wildlife habitat, and maintaining aesthetics.	DEM/DFE WRB	OG
			B. Plan watershed wide greenway systems to identify and protect key riparian resources.	DEM/SWO, OWR and DFE, and RIRC Land Trusts and municipalities	ST
			C. Promote the adoption of land development standards that require consideration of and the protection of key forest-related water resources.	RISPP and Municipalities	ST/OG
			Performance Measures		
			A. # of acres within forested riparian areas with stewardship plans		
			B. # of watersheds with action plans		
			C. # of communities with innovative land development protection standards		
			3. Guard against loss or unnecessary degradation of forested riparian areas.		
			A. Encourage retention of forested riparian buffers and use of standards that provide for the retention and/or restoration of forested buffers in all development projects.	municipalities	OG
			B. Use innovative land use ordinances that direct development to less sensitive land to conserve/protect existing forested areas.	municipalities	ST/OG
			C. Promote greater use of the FFOS Act to protect forested lands designed as open space in local comprehensive plans to protect riparian buffers.	DEM/DFE and municipalities	OG
			Performance Measures		
			A. # of communities with innovative land development protection standards		
			B. # of communities with innovative ordinances for riparian protection		
			C. # of communities that have received information on methods to protect riparian areas		
			4. Encourage stewardship of forested riparian resources.		
			A. Eduate private forest landowners to protect and manage forested riparian buffers by providing information, and technical assistance.	DEM/SWO, OWR, DFE, RIRC, RITF SNEFCI, RITF and RIFCO	OG
			B. Develop and distribute guidelines for buffer restoration to encourage establishment of forested riparian buffers.	DEM/SWO, OWR, DFE and RIRC	ST
			C. Support municipal funding for projects to restore and/or create forested riparian buffers where appropriate on public lands.	municipalities	ST
			Performance Measures		
			A. # of assists		
			B. # of pamphlets developed and distributed		
			C. # of communities with publicly-owned riparian buffer restoration as capital expense		
			5. Protect water quality during forest harvesting operations.		
			A. Continue to require the use of BMPs for all timber-harvesting operations.	DEM/DFE, WRB and OIC	OG
			B. Continue to provide training to foresters and loggers on the use of BMP's.	DEM/DFE, SNEFCI, and RIFCO	OG
			C. Continue to provide a coordinated review of timber-harvesting operations involving wetlands.	DEM/DFE, WRB and OIC	OG
			D. Continue to work with other groups to educate landowners on land management practices.	DEM/DFE, SNEFCI, RITF and RIFCO	OG
			E. Strengthen and continue to enforce ATV regulations on private and public property to prevent damage and soil and water degradation.	DEM/DFE, WRB and OIC and ENF	ST
			F. Strengthen compliance with the DEM *Intent to Cut* Rules and Regulations and increase fines for violations to insure protection of forested riparian buffers during logging operations.	DEM, WRB	ST
			Performance Measures		
			A. # of *Intent to Cut* filed in wetland areas		
			B. # of workshops and attendees		
			C. # of *Intent to Cut* filed in wetland areas		
			D. # of workshops and attendees		
			E. # of violations written		
			F. # of violations acted upon		

Table 4-1 Implementaion Matrix

Issue	Policy	Page #	Objectives & Strategies	Primary Responsibility / Partners	Time Frame
Forestland Recreation and Tourism (FRT)	**(FRT)**	**39**			
			1. Inventory, map, and classify forested recreation areas		
			A. Inventory and document existing conditions, allowed recreational activities and insure sustainable practices on the state forestlands.	DEM/DFE, F&W, and P&R	LT
			B. Use the inventory data to develop brochures promoting forested recreation areas for recreation and tourism.	DEM/DFE, F&W, and P&R	ST
			C. Protect, and maintain natural areas of concern that support rare and endangered plant and anima habitats, geological features, and other special natural resources in the forested recreation area	DEM/DFE, F&W, P&R,TNC,ASRI, Land Trusts, and Municipalities	OG
			D. Use the Rhode Island's Natural Heritage Program in planning recreational and tourist projects and uses in forested areas.	DEM/DFE, F&W, P&R,P&D, TNC, ASRI, Land Trusts, and Municipalities	OG
			Performance Measures **A.** # of acres inventoried and documented **B.** # of brochures developed and distributed **C.** # of natural areas of concern protected **D.** # of assists		
			2. Provide adequate funding for forestland recreational projects		
			A. Create and maintain a fee system to adequately support capital and operating expenses.	DEM	ST
			B. Use generated funds to help support recreational areas.	DEM	OG
			C. Improve state forest recreation areas through a program of trail maintenance, road repair and infrastructure improvements.	DEM/DFE, F&W, and P&R DEM/DFE, F&W, P&R,P&D, TNC, TAC,	OG
			D. Continue to use the Trail Advisory Committee to allocate National Recreational Trails Program funds to improve facilities and create access.	ASRI, Land Trusts, and Municipalities	OG
			Performance Measures **A.** Amount of reduction in requested dollars for capital and operating expenses **B.** # of dollars reinvested **C .**# of feet of roads and trails improved **D.** # of grants and dollar value awarded to successful projects		
			3. Protect the forest resources and users while providing a variety of services within forestland recreation areas.		
			A. Use DEM personnel to enforce State Rules and Regulations.	DEM	OG
			Performance Measures **A.** # of immediate compliance reports, warnings & # of violations filed		
			4. Coordinate the policies affecting the recreational use of State management areas with recreational groups through the Trail Advisory Committee in support of the objectives of the SGP 155, the State Comprehensive Outdoor Recreation Plan *"the SCORP"*.	DEM/DFE, F&W, P&R,P&D, TNC, TAC, Land Trusts, Municipalities and RISPP	OG
			Performance Measures N.A.		

Table 4-1 Implementation Matrix

Issue	Policy	Page #	Objectives & Strategies	Primary Responsibility / Partners	Time Frame
Fragmentation (F)	**(F)**	**40**			
			1. Track the status of forest resources on a statewide level.		
			A. Develop information management systems to track and analyze forest conversion data	USFS, DEM/DFE, and TNC	ST
			B. Identify critical areas of rapid forest conversion and fragmentation.	DFE/DFE, and TNC	ST
			C. Develop cooperative agreements with the USFS to inventory and assess forest conversion data and trends	USFS, and DEM/DFE	
			D. Develop cooperative agreements with URI to coordinate research regarding the impact of forest conversion and fragmentation on resource values.	URI, USFS, and DEM/DFE	ST
			Performance Measures		
			A. information management systems developed **B.** # of critical areas identified **C. & D**. # of cooperative agreements developed		
			2. Identify forest resources as a significant natural resource.		
			A. Update State standards for local comprehensive plans for community forest resources, including inventorying, mapping and policies.	DEM/DFE, SWO and RISPP	ST
			Performance Measures		
			A. # of standards developed and in comprehensive community plans		
			3. Promote forest conservation and management in priority areas where significant development pressure exists and land conversion is occurring.		
			A. Work with partners to promote and implement land use ordinances that minimize forest cover and fragmentation.	DEM/DFE, SWO, TNC, RISPP and municipalities	OG
			B. Promote the use of property tax incentive programs that minimize the loss of of forestland.	DEM/DFE, SWO, TNC, RISPP and municipalities	OG
			Performance Measures		
			A. # of working ordinances developed & # of acres protected		
			B. Provide information on property tax reduction incentive programs, alternative development design standards, and other techniques that minimize the loss of forestland.	DEM/DFE, SWO, TNC, RISPP and municipalities	OG
			4. Promote land use and "smart growth" policies on the local and watershed levels.	DEM/DFE, SWO, RISPP and municipalities	ST
			Performance Measures		
			# of working partnerships		
			5. Use innovative land development techniques to conserve forests.		
			A. Encourage the adoption of innovative land use ordinances and incentives to protect forests during site planning.	DEM/DFE, SWO, TNC, RISPP and municipalities	ST /OG
			B. Encourage programs such as "growth centers" to guide development towards established areas where infrastructur exists to reduce fragmentation	municipalities and RISPP	OG
			Performance Measures		
			A. # of communities with innovative land development ordinances. **B.** # of developments on reclaimed land		
			6. Encourage voluntary preservation and stewardship of open space by landowners.		
			A. Continue to recognize and promote the FFOS Act as a tool to conserve forestland.	DEM/DFE and municipalities	OG
			B. Maintain a clearinghouse of information about land conservation.	TNC and RILTC	ST
			Performance Measures		
			A. increased acres or conservation easements in FFOS Program **B.** information program established		
			7. Support sustainable forest product industry to retent of land and to prevent fragmentation.		
			A. Eduate private forest landowners how to manage their forest sustainably and prevent fragmentation	DEM/DFE, RC&D and RIRDC	OG
			Performance Measures		
			# of forest product industries		

Appendices

Appendix A, Related Forestry Laws in Rhode Island

Appendix B, Focus Group Report & Forestland Owners Survey

Related Forestry Laws of Rhode Island

Rhode Island Constitution

Article 1, §17 of the Rhode Island Constitution secures the right of the public to "the use and enjoyment of the natural resources of the state," and directs the General Assembly to "provide for the conservation of the air, land, water, plant, animal, mineral and other natural resources of the state…and to adopt all means necessary and proper by law to protect the natural environment…." Tree and forest resources clearly fall within the Constitutionally directed protection of the natural resources of the state.

State Statutes

The Rhode Island General Assembly has enacted a number of statutes directly and indirectly governing the management of the state's trees and forest resources. Elements establishing the legal framework for forestry in Rhode Island include:

Department of Environmental Management R.I. General Laws § 42-17.1 et seq. establishes a state Department of Environmental Management and authorizes it to "supervise and control the protection, development, planning, and utilization of the natural resources of the state….including…. plants, trees….."

Within the R.I.DEM, the Division of Forest Environment is assigned responsibility for forest management, including "assisting other agencies and local governments in urban programs relating to trees, forests, green belts, and environment."

Pursuant to this responsibility, the Division operates the state's Forestry Program, provides cooperative forest management, wildfire prevention and suppression, insect and disease control, and management of state owned forests. The Division works closely with the U.S. Department of Agriculture's Forest Service, other units of DEM, municipalities, and private groups in pursuit of its forest management responsibilities.

Forested Wetlands

R.I. General Laws § 2-14-1 et seq., the Rhode Island Freshwater Wetlands Act, offers regulatory protection to approximately 75,000 acres of forest land that meet the statutory definition of a freshwater wetland. Alterations to wetland areas require permission from Rhode Island's DEM's Director. In general, the Freshwater Wetlands Program seeks to avoid or minimize permanent changes that negatively impact wetland values.

Activities may be permitted, permitted with stipulations, or denied, depending on their impacts upon the wildlife habitat, recreational, water supply, and other values of the wetland affected. Permit restrictions on cutting and clearing of vegetation, draining, watercourse alterations, and requirements for maintenance of vegetated buffers surrounding wetlands all help to protect the state's forest resources.

Municipal Tree Wardens

R.I. General Laws § 2-14-1 et seq., requires municipalities to appoint a tree warden and charges the appointed official with responsibility for the "care and control" of trees and shrubs within public land and rights-of-way controlled by the municipality, and of portions of private trees that extend into or over public roads or grounds. Tree wardens must be licensed arborists, are authorized to prune or remove hazardous trees at public expense, cooperate with the R.I.DEM in the suppression of pests and diseases, and propose regulations governing the care and preservation of suitable trees. Several municipalities have adopted tree ordinances that further detail the responsibilities of the local tree warden.

Criminal and Civil Penalties for Unlawful Cutting or Vandalism to Trees

R.I. General Laws § 11-44-2 et seq., prohibits persons from uprooting, cutting down, or otherwise injuring or damaging trees or underwood on land of another, without permission of the owner, and establishes a penalty of up to one year's imprisonment or a fine of (the lesser of) triple the monetary damage or $1,000 plus compensation of triple damages to the wronged property owner. R.I. General Laws § 34-20-1 creates liability for civil damages for the unauthorized cutting of trees or wood on the land of other persons.

Licensing of Arborists

R.I. General Laws § 2-19-1 et seq., establishes definitions, standards, examination, and licensing requirements for individuals and business entities engaging in the practices of "pruning, trimming, spraying or repairing fruit, shade and ornamental trees." The R.I.DEM is authorized to establish rules and regulations governing the practice of arborists.

Protection of Trees and Plants Generally; Replacement of Trees Removed on Public Land

R.I. General Laws § 2-15-8 et seq., requires that permits be obtained from the local tree warden, park commission, or state department having jurisdiction prior to the cutting or removal of any tree or shrub, or the burning of rubbish or debris on public lands. Any person, firm, or governmental entity that removes or substantially damages any tree on public land must replace the tree with substantially equivalent tree or trees, having the sum of the diameters equal to twice that of the tree removed or damaged. Public utility work in accordance with a properly approved trimming and replacement program is exempt from the requirement.

Right-of-Way Tree Planting

R.I. General Laws § 45-2-43 authorizes cities and towns to appropriate resources under the direction of the tree warden for planting shade trees upon (private) land adjoining a public right-of-way at a distance of up to 20 feet. This section allows municipalities the discretion to spend public funds to plant street trees on private land provided that the tree will function as a public tree by improving, protecting, shading, or beautifying the public way. This option allows municipalities to involve private landowners in the stewardship of what remain essentially street trees and gives flexibility to site new trees away from utility corridors, avoiding the need for severe pruning and improving their vitality and beauty. The City of Newport has utilized this authority in its tree planting and replacement programs and anticipates significant maintenance cost savings over the long term.

Right To Farm

R.I. General Laws § 2-23-1 et seq., finds that agricultural operations are valuable to the state's economy and general welfare and that they are being adversely affected by the random encroachment of urban land uses throughout rural areas of the state. The Act declares it to be policy of the state to promote an environment in which agricultural operations may be safeguarded against nuisance actions arising from conflicts between agricultural operations and urban land uses. The statute defines agricultural operations to include "forestry", and provides (generally) that no agricultural operation shall be found to be a public or private nuisance due to alleged objectionable odors, noise, dust, or use of agri-chemicals associated with generally-accepted agricultural practices. The Act further provides that no city or town may enforce any ordinance pertaining to the construction, location or maintenance of places for the keeping of animals, against any agricultural operation as defined in the Act.

Registration of Wood Cutting Operations

R.I. General Laws § 2-15-1 et seq., requires that any persons, firms, and corporations cutting standing or growing trees for commercial forest products must be registered as a woods operator with the R.I. Department of Environmental Management, and, further, such persons must file with the R.I.DEM a notice of intent to cut or saw at least five days prior to the cutting or sawing, and must utilize best management practices while harvesting trees.

State Guide Plan

R.I. General Laws Chapter 42-11 establishes a Statewide Planning Program, and requires the preparation and maintenance of a State Guide Plan for the physical, economic, and social development of the state. In addition to this Urban and Community Forestry Element, the State Guide Plan includes related elements that establish a policy framework for management of the state's forest resources: Forest Resources Management Plan (1984), Greenspace and Greenways Plan (1994), Outdoor Recreation Plan (2004), and State Land Use Policies and Plan (1989). Local comprehensive plans must be consistent with the State Guide Plan's policies.

Local Comprehensive Planning

R.I. General Laws Chapter 45-22.2 requires all municipalities to prepare, adopt, and periodically update local comprehensive plans providing a rational basis for decisions regarding the long-term physical development of the municipality. A Natural Resources Element, which inventories and sets policies "for the protection and management of significant natural resources, including natural vegetation systems" is a required part of the comprehensive plan. Comprehensive plans must be based upon citizen input, must be internally consistent in their goals and policies, and must be consistent with the State Guide Plan. Local zoning decisions must be consistent with the approved local comprehensive plan's land use element.

Municipal Zoning Authority

R.I. General Laws § 45-24-27 et seq. requires, and establishes minimum standards for, all municipal governments to enact zoning ordinances. Ordinances are intended to regulate "the nature and the extent of the use of land for residential, commercial, industrial, recreational, agricultural, open space or other use....as the need for land for those purposes is determined by the city or town comprehensive plan." A complete update of the state's zoning enabling act was adopted in 1991. In addition to establishing permitted future uses of land that accord with adopted plans, the act authorizes communities to have "...requirements for: the density and intensity of use, ...landscaping, ...open space, ... and buffers, ...and, permitting, prohibiting, limiting, and restricting development in ...designated significant natural areas." Municipalities may also adopt special provisions including incentive zoning, transfer of development rights, and regulation of "development adjacent to ...public greenspaces...or valuable natural resources." As the principal governmental control over future usage of land, local zoning ordinances have great impact on Rhode Island's forests.

Subdivision and Land Development Project Review

R.I. General Laws § 45-23-25 et seq., completely updated in 1992, requires all municipalities to develop and adopt regulations controlling the process of land subdivision and land development within their boundaries. Among the purposes of municipal subdivision/land development project review is "promoting the protection of the existing natural and built environment and the mitigation of all significant negative impacts of any proposed development ... ." Municipalities are authorized to enact a master planning review process for approval of new development and subdivision projects and to adopt requirements for physical design, including: "...open space, landscaping,... and the relationship of proposed developments

to natural and man-made features of the surrounding neighborhood." Ordinances may also include public design and improvement standards for "landscaping, and ...soil and erosion control." Standards for dedication of private land, or payment of a fee in lieu thereof, in connection with new development are also authorized. Communities may utilize the powers and authorities conferred by the Land Development and Subdivision Review Act to require protection of existing tree resources and to specify requirements for replacement or new tree resources in connection with new development.

Watershed / Forestland Acquisition

R.I. General Laws § 46-15-3 et seq., entitled the Public Drinking Water Supply System Protection Act of 1997, is primarily a drinking water protection statue that also benefits the forest resources of the state. It requires that each public drinking water supplier add a charge to be known as a "water quality protection charge" to every water bill issued. The Act requires that not less than 55% of the funds shall be spent for acquisition of land or rights in land or physical improvements to acquired land to protect the quality of raw water of the water supply system. The acquisition of land often involves the acquisition of forestlands that become protected lands as described in Part 2, through the Watershed Land Acquisition Program, administered by the Rhode Island Water Resources Board.

Appendix B

Rhode Island Department of Environmental Management
Division of Forest Environment

Report On Five Focus Groups
of
Rhode Island Forest Stakeholder Groups

in preparation for the development of the
Rhode Island Forest Resources Management Plan 2004

Prepared by
Greenwich Marketing, Ltd.
Spring 2004

Overview

In November and December 2003 the Division of Forest Environment issued a 50-question mail survey to over 2,000 Rhode Island forestland owners regarding current and future usage and management of private and State owned forestlands. Over 600 completed questionnaires were returned. The questionnaire was similar to the one developed and issued by DFE and the Audubon Society in 1984 in preparation of that year's long range Rhode Island Forest Resources Management Plan. In preparation for the focus groups, Greenwich Marketing, Ltd. analyzed the first 249 responses.

In April and May 2004, Greenwich Marketing, Ltd. conducted focus groups with five forestland stakeholder groups, in preparation for the writing of the 2004 edition of the long range, Rhode Island Forest Resources Management Plan. The groups were Environmentalists, Resource Professionals, Commercial Forest Users, Private Forestland Owners (RIFCO), and Recreational Forestland Users (RI Trailways Advisory Council). A total of 47 individuals participated in the 90-minute discussion groups. The following represents the key findings of the focus groups:

Key Observations:

1. DFE is under-funded to accomplish its missions. Although respondents have great respect for the Division of Forest Environment for its expertise, professionalism, hard-work, objectivity, integrity, and as the trusted arbiter between user groups, most believe that the division is under-funded and does not have sufficient manpower, money, and resources to carry out the many missions that fall within its areas of responsibility, in an optimal way. Legislator education and public education are seen as the cures for this situation.

2. Stakeholder groups have differing priorities. As expected, each of the stakeholder groups had different mission priority rankings according to their special interests.

A. **Environmentalists** were most concerned with preserving existing forests in their natural States and acquiring more forestland to prevent its development.

B. **Forest resource professionals** were most concerned about protecting forestlands to protect both the freshwater and ultimately the saltwater resources of the State and to protect forestlands against fire and disease catastrophes.

C. **Private landowners** were most interested in getting the State to provide them with on-the-ground forest management assistance, tax-relief for their forestlands, and guidance on the best ways to transfer the ownership, development rights, or conservation rights of their properties.

D. **Commercial forest users** were most interested in having the State open up more State forestlands to commercial timbering, which they thought would provide employment and fund more State forest management through shared sale revenues, lease fees, and sales taxes. The commercial group seemed to be one of the most scientifically informed groups about forest management and sincerely committed to maintaining, long-term, healthy forests as an environmental and economic resource.

E. **Recreational users** wanted the State to maintain its forestland recreational facilities, open up and manage more recreational areas, and manage user conflict, most notably between, off-road motorized vehicle users, hunters, and other forest recreational users.

F. **All agreed** that children, citizen-taxpayers, town officials, business leaders, State legislators, the media, and the governor, all needed to be educated about Rhode Island's forests, and their environmental, recreational, and economic importance to the State in order to obtain the public and financial support necessary to preserve and optimize forest resources. Education should take

place through literature distribution, forest demonstration areas, forest education tours, school programs, adult speakers programs, extension services, lobbying, PR, and mass media.

3. Key issues are forestland acquisition, broader management of State lands, and public education.
The mail survey showed the following hierarchy of funds allocation to DFE missions, if additional funds were to be made available, as a good indicator of forestland owner priorities:

Allocation Of Additional Funds To DFE Missions

Acquire key parcels *	26%
Broaden management on State lands	11%
Purchase development rights *	19%
Provide on ground technical assistance	9%
Increase public education	7%
Publish to educate landowners	6%
Promote forest recreation & tourism	5%
Survey forest health **	5%
Strengthen fire control ***	5%
Enhance recreational opportunities	5%
Promote forest product industry	2%

* There was a general consensus that funds to acquire key parcels of forestlands or development/conservation rights should be separate and above funds for DFE operations.

** There seemed to be a general consensus that, with "globalization", preventing forest infestation and disease may be impossible and in many cases only nature will be able to heal itself. Limited resources are focused on real problems occurring today rather than only possible future problems, no matter how potentially disastrous.

*** There seemed to be a general consensus that a major forest fire in Rhode Island was improbable because of fragmentation, people traveling with cell phones, the nature of dominant hardwood forests, and adequate mutual aid resources. Once again, limited resources are focused on real problems occurring today rather than possible future problems, no matter how potentially disastrous.

4. The State should acquire key forestland if it is going toward residential/commercial development. There was a general consensus that the State should only acquire the amount of forestlands that it could effectively manage. But, if the choice had to be made to purchase land or have it go to residential development, the choice would be to have the State acquire the land or development/conservation rights. The thought was that the State could always re-sell the land later with development restrictions.

5. The key issues of acquisition, current resource management and education reflect the broader mail survey. Respondents within the various focus groups generally reflected the levels of concern about issues that were expressed in the private forestland owner mail survey. Within the focus groups, when asked what should be done about the concerns on a priority basis with limited resources the general consensus was: Accrue funds to buy key land or rights. Resource manage State forestlands. Educate all citizens about the benefits and needs of Rhode Island's forests.

RI Landowner Concerns

Issue	% Very Important or Critical
Protecting forestland from development	94%
Forest sustainability	85%
Water resources	84%
Forest health (disease & infestation)	79%
Education	72%
Forest resource management	69%
State forestland management	67%
Forest products marketing	66%
Recreation and tourism	52%
Forest fire prevention / control	38%

6. Respondents within the various focus groups generally reflected the levels of agreement about issues that were expressed in the private forestland owner mail survey.

RI Landowner Agreement On Issues

Issue	% Agree or Strongly Agree
DFE should distribute more forest management literature	89%
DFE and others should provide more landowner workshops	85%
DFE should acquire key forestland or development rights	82%
DFE should manage State forestlands as demonstration areas	79%
DFE should promote incentives for active forest management	77%
DFE should use media to promote sound forest laws and regs.	76%
DFE and Extension Service should coordinate forest PR efforts	76%
DFE and towns should use more conservation easements	75%
DFE should provide on ground technical assistance	75%
DFE should limit tech assistance and seek forestry consultants	74%
Towns should promote innovative development	73%
Towns should promote mutual aid agreements	71%
DFE and towns should recruit more volunteer firefighters	70%
DFE should use media to communicate forest benefits & threats	66%
DFE should provide local fire control training and support	63%
DFE should use mass media to prevent forest fires	60%
DFE should focus on State lands to enhance recreation/tourism	60%
There should be a single Statewide FF&OS assessment	53%
DFE should provide more forest marketing information	50%
DFE should focus on State lands to promote economic benefits	39%
DFE should focus on State lands not private	23%

7. RIDEM/DFE is seen as the primary educational source on forest issues. Seven of the top ten key issues involve communication or education. A general consensus was the RIDEM/DFE is a primary source and a funnel for federal information regarding forest issues and provides on ground technical assistance and demonstration areas. Private consultants in the focus groups stated that they provide a great deal of education to private and commercial landowners. RIFCO was seen as an excellent owner-to-owner forum for the exchange of forest management information and the operation of its workshops and demonstration areas. (DFE is a member of RIFCO and financial supporter.) There is a great deal of self-education through books, Internet and television. A general consensus was that the URI Extension Service could play a much greater role in forestry education and service. This correlates with the findings of the mail survey.

Where do you get information about forest management?

RIDEM Forester	204
Private Consultant	91
Books	90
Neighbor, landowner, friend	72
Brochures, fact sheets	55
Workshops	32
Internet	28
Other government agencies	27
Television, video	27
Procurement Forester	26
Other	18
Non-profit group	9

Informational Programs DFE Should Develop....

Farm, Forest & Open Space Program	16%
Wildlife	12%
Water quality	11%
Forest health	11%
Invasive Species	9%
Estate Planning	8%
Forest fire control	6%
Wood products	6%
Alternative forest products	6%
Forest Legacy	6%
Aesthetic benefits	6%
Recreation	3%

8. All activities should be allowed on State forestlands that can be managed. There was a general consensus that the State should allow all of the activities on its public forestlands that appeared on the list provided, to the extent that the State could manage and police the activities.

9. Private landowners are restrictive in the activities they allow, but there is much unauthorized use. Private landowners, as reflected in the mail survey, were much more discriminating in terms of allowing any activities at all, or in the activities that were allowed by individual and special permission. Most private landowners experienced frequent trespassing and unauthorized activity on their properties, but most did not post their properties.

Allowed Public Use Activities On Private Forestlands

No activities allowed	39%
Hunting	18%
Horseback riding	7%
Natural history education	7%
Hiking	7%
Fishing	4%
Cross-country skiing	4%
Firewood cutting	3%
Cross-country running	2%
Picnicking	2%
Camping	2%
Snowmobiling	2%
Motorbiking	2%
Trapping	1%

10. Off-road motor vehicles and hunting are the primary user conflicts. The greatest user conflicts were between off-road motorized vehicle users and hunters versus all other users. The Rhody Rovers motorized vehicle organization cited the number (1,900) of new off-road vehicles that are sold in the state each year, multiplied that number by a factor of two, for used vehicles and vehicles purchased out of state, and argued that the sales tax revenue and tourist revenue that the State could collect justifies the State providing large forestland areas for off-road use. Proponents pointed to other larger states that have designated motorized vehicle areas. Some suggested that off-road vehicles could be permitted and licensed so that they could be identified, policed, and revenues could support designated areas. Other recreational users argued that motorized vehicles are dangerous to riders; dangerous to other forestland users; they are noise polluting; air polluting and, destructive of trails and forest habitat. Many thought that Rhode Island just has too few acres of forestland to designate the large acreage that an off-roading area would take. They also felt that such an area would still not stop the hundreds of kids and irresponsible adults with motor vehicles who live abutting forestlands and trespass daily. Although some private landowners and the State allow hunting in designated areas at designated times, the major concern is for the number of hunters who hunt unsafely, against the rules, beyond designated areas, and beyond designated times.

11. Timbering on State forestlands was a key issue in the focus groups. Commercial forestland operators made a compelling case stating that for every dollar Connecticut invests in a State Forester to supervise commercial timbering on State forestlands, the State earns back three dollars in revenues. They also suggested that supervised, selective, timbering increases state employment, enhances long term forest health, clears out combustible buildups, improves species distribution, and opens up interior forest access trails. Commercial users displayed excellent, scientific forest management knowledge and a sincere interest in maintaining the long-term ecological health of forests. Commercial foresters said they would be willing to work under DEM supervision and meet with environmental groups to discuss mutual interests.

12. The Farm, Forest and Open Space Program is good and necessary, but not used by all. All agree that more information about this program must be communicated to forestland owners and to local town officials. Many private landowners said they don't participate because of "inertia", the fact that they need to have an active forest management plan, a feeling that they would lose money because expenses to manage their land would be too high, or they "just want to leave the land in its natural State". Some respondents were concerned about lost property tax revenues to towns if single FF&OS tax ceilings were mandated statewide. (This is also a concern if the State acquires forestlands and takes them off the tax rolls.) Proponents pointed out that residential property is much more expensive to support by a town than forestland. The general consensus was that the FF&OS program is a good and necessary program for preserving forestlands in Rhode Island.

THE FOLLOWING ARE OBSERVATIONS REGARDING SPECIFIC QUESTIONS

13. Does RI have sufficient manpower, money, and resources to prevent or cope with a major forest fire?

The general consensus is that RI does not have the manpower, money, or resources to prevent or cope with a major forest fire.

Some observed problems are:

A. There is not enough manpower and it is perhaps not young enough for forest fire fighting within the rural volunteer fire companies.
B. There is insufficient training.
C. There are not enough vehicles and equipment.
D. Access roads into forests have been gated and allowed to become overgrown and inaccessible.

E. Due to insufficient manpower and funds, fire towers are no longer maintained and manned, except the very few remaining, during the most extreme fire danger periods.
F. There are more homes in or near forestlands and that increases the danger of fire and presents a higher risk of residential property damage, human injury, and loss of life.
G. There is a buildup of fuels on the ground and not all deep woods areas have water holes to supplement tanker trucks.

Some recommended solutions are:

A. More financial, technical, and material support, recruiting, training and equipping of rural volunteer fire companies from town, State, and federal governments.
B. Development and distribution of a Comprehensive Mutual Aid Plan between volunteer and full-time fire departments, between towns, the State, including the RI National Guard, other states, and federal agencies. Chief David Shaw, of the Pascoag Fire Department, believes that the State Fire Chiefs Association is developing such a statewide plan that, in addition to fire, covers Emergency Medical Services and Hazardous Materials Response.
C. Providing manpower and resources for adequate resource management of private and State forestlands, and perhaps supervised, selective, timbering that could provide funds for forest management, clear fuel buildups, maintain water holes, and clear fire access roads into forests.
D. Creative ideas to keep fire towers open are to lease space on them to cell phone companies to hang their antennas and maintain them, or to rent the towers as overnight camp sights to hikers/campers.
E. Promote the passage of strict forest fire prevention laws, post them throughout forests, and enforce them.
F. Provide major forest fire prevention education, as in the "Smokey Bear" program in schools, through literature distribution, as part of general forestry education seminars, and through the media.
G. Encourage all persons, when traveling near or through forestlands, to carry cell phones and report any evidence of forest fires immediately.

14. Does RI have sufficient manpower, money, and resources to prevent or cope with a major forest infestation or disease?

The general consensus is that RI does not have the manpower, money, or resources to prevent or cope with a major forest infestation or disease. However, there is also a general consensus that there is not much that humans can do to prevent or cope with forest infestations and disease.

Some observed problems are:

A. In a globalized world, plant diseases and infestations are being spread all over the planet.
B. The State's land grant college, URI, does not have a certified forester education program and does not maintain an active Forest Extension Service.
C. The State alone does not have the manpower and resources it had in the past to detect or cope with a major problem, such as the capability to "cut out" infested areas, or spray areas, if those actions were deemed necessary and practicable – less damaging than the infestation.

Some recommended solutions are:

A. Reliance on mutual aid from other states and federal government agencies
B. Promotion of a more active Forester Education and Extension Service at URI

15. What are the major issues facing Rhode Island's forestlands?

The general consensus throughout all of the groups was that forestland acquisition, forest resource management by the State, on both State and private forestlands, and education were the key issues. To most respondents, this very broadly meant that the State should have sufficient manpower, money, and resources to positively affect all the other major issues by its operations and acquisitions of land or development rights, its supervision of forestland commercial operations and its cooperative education programs.

Effective Forest Resource Management by the State on State and private lands means...

A. Preventing and offsetting the effects of fragmentation and development (acquisition)
B. Protecting the State's freshwater supplies and the Bay
C. Promoting the sustainability of forests
D. Preventing and coping with forest fires
E. Preventing and coping with forest disease
F. Promoting forest commercial use in an environmentally positive manner
G. Managing recreational use and user conflict
H. Educating the public and legislators about forest benefits and needs

After all the above Forest Resource Management activities, the respondents generally assigned to the Division of Forest Environment and other government and non-government agencies, the responsibility to educate a wide range of audiences about forest issues to promote forest stewardship and political and financial support to acquire forestlands and/or conservation rights and to conduct forest management operations.

1. Children
2. Citizens
3. Taxpayers
4. Landowners
5. Commercial users
6. Recreational users
7. Towns
8. State Legislators
9. Governor
10. Congressional delegation
11. Federal agencies
12. Business community
13. Media

16. What activities should be allowed on State forestlands?

The general consensus of all groups was that all activities listed should be allowed on State forestlands, to the extent that they can be managed, supervised, and policed by the State.
Some observed problems:

The activity of most concern to all groups was unauthorized, uncontrolled, off-road motorcycling. Respondents objected on several bases:

A. Dangerous to riders, especially juvenile riders
B. Dangerous to other forest users
C. Environmentally destructive of forestlands
D. Environmentally destructive of air quality
E. Promotes general trespassing
F. Difficult to police because of offenders' high-speed mobility.

The activity of second most concern, especially to environmentalists, was commercial timbering of State lands. Respondents objected on the following bases:

A. Fear of clear-cutting and non-replenishment
B. Fear of collateral damage from skidders and equipment
C. Fear of selective species distribution
D. Conflict with other forest users

The activity of third most concern was unauthorized hunting and/or trapping.

Some recommended solutions

Off-Road Vehicles

A. Several respondents, especially members of the Rhody Rovers, an off-road riding organization, suggested designating large areas of forestland for off-roading, and charging admission. They cited the fact that over 1,900 new, major-manufacturer, off-road vehicles are sold in the state each year. They suggested that that number could be multiplied by two or three due to the number of used vehicles bought and sold, and out-of-state purchases. The income from charging fees to use State forestland could be used to manage the program and yield additional income to the State. Private clubs would also contribute to the maintenance and management of the course. Two problems foreseen are that it would take miles of forestland from a small state and this would do little to prevent people, especially youth who live near forestlands, from daily using both private and State forestlands.

B. The Rhody Rovers recommended more stringent training for off-roaders as recommended by motorcycle manufacturers, prior to delivery of a vehicle.

C. Others recommended that all off-road vehicles would have to be permitted and carry large-letter registration tags, so that they could be identified.

Timbering on State Forestlands

A. Commercial forestland users made a strong economic and environmental case for commercial timbering by State employees or by contractors, under the supervision of State foresters, on State forestland. They noted that Connecticut funds the salaries of several State foresters with the money it earns from commercial timbering on State forestlands. It also provides funds for other forest management activities, and provides contract revenue and sales-tax revenue for the general treasury. It also produces several dozen jobs. Commercial users generally said that they would be happy to work under the direct supervision of State foresters or contract foresters; would not clear-cut; would use best management practices, would prevent and reduce forest damage; and, would replace all varieties and species in a sensible distribution.

B. Most agreed that mutual understanding and agreement could be achieved if there were more meetings and direct communications, especially on-site, in forestland locations and demonstration areas. Most also agreed, that RIDEM/DFE is the expert and mutually trusted arbiter between groups.

Unauthorized Hunting and Trapping

A. Most private and commercial landowners said that they had at least occasional unauthorized hunting on their properties, ever year.

B. Some private landowners said that they allowed hunting and trapping on their lands but only to a select few and by verbal or written approval each time.

C. Most agreed that posting their lands against hunting and trapping is a good idea, at least from a legal liability perspective, but most do not post their lands out of "inertia" or belief that it will do little good.

17. Does the State own too much, too little, or just the right amount of forestland?

There was just about even distribution on the three responses to this question. Most respondents agree that the best option is that forestlands ought to stay in the hands of private landowners, if they are going to remain forestlands, and hopefully be managed with the help of the State. This allows for more "invested" management and keeps properties on town tax rolls. However, if there is a near possibility of forestlands being sold for residential or commercial development, especially in an area that would fragment a large forest parcel, then most feel that the State and/or towns and NGOs should first attempt to buy development or conservation rights. If that fails, most feel the State and/or towns and NGOs should move to buy the property outright.

The general feeling was that "once property is sold for residential development it's gone forever". "If the State buys the property, it can at least re-sell it later, with restrictions on its development." The final answer is ambiguous. There was a general consensus that the State currently owns more land that it can adequately manage with current resources, but most respondents would rather see the State acquire more forestland rather than lose it permanently to development.

18. Does the State adequately manage its forestlands from a stand perspective and from a recreational facilities perspective?

The general consensus, on a no-fault basis to the Division of Forest Environment, is that the State is investing only enough manpower, money, and resources to minimally maintain its forestlands from both a stand and a facilities perspective. This minimalist approach creates a huge potential for catastrophe in the form of forest fire damage, injury, and loss of life; a major threat to fresh water quality and the water quality of Narragansett Bay; a major threat to air quality; a major threat to wildlife habitat; a major threat to the outdoor recreation economy; and a major threat to the economically important "quality of life" in Rhode Island. In addition, the State is passing on a significant source of revenues and jobs, in not scientifically harvesting and marketing a major, renewable, natural resource.

There was another general consensus that the State spends an inordinate amount of its resources directly on Narragansett Bay while neglecting the forest uplands that have a direct effect on the health of the Bay. Two respondents said it best, "Rhode Island's forestlands are its lungs" and "Water quality in streams, ponds, aquifers, and the Bay is a by-product of good management in Rhode Island's forests." At very least, the bottom line is that there is a huge opportunity for improvement and to optimize the environmental and economic potential of Rhode Island's forest resources.

19. How would you divide the State's forest management dollar?

Given a list of twelve possible activities that DFE could fund, most respondents had a difficult time determining priorities and setting allocations across all the categories of expenditure. They also admitted that their choices were biased by their specific interests in forestlands. Some general consensus points were:

A. Most agreed that DFE is the expert and trusted agency to make funding allocations for the overall benefit of Rhode Island's State-owned and privately owned forestlands.

B. The State should separate funds for acquisition of development / conservation rights and/or outright purchase of forestlands from the division's operating budget. Funds for rights or land acquisition should come from sources separate from RIDEM/DFE operating funds. However, all agreed that DFE should have funds to purchase rights or forestlands and be the final authority on deciding which rights or lands should be acquired by the State.

C. The majority of operating funds should be spent on forest resource management of existing State forestlands. A general consensus was that, if the State could manage its own forestlands well it would yield:

    a. A majority of the State's forestland being managed well,
    b. Perhaps, enough income could be earned from DFE supervised timbering to yield funds to afford more foresters and to better manage stands and recreational facilities
    c. State forestland management would be a model for private landowners.

D. The third area of priority expenditure was public education. It was generally felt, that Rhode Island citizens, town, and State legislators, would support forest resource management with their votes and tax dollars if they were educated about the importance of forestlands to the total land, water, and air-quality of the State, and to the economy of the State.

E. Another general consensus was that funds earned from permitting and licensing forestlands activities should be dedicated to forestland resource management and not placed in the State's general treasury.

20. Where do you get the greatest quantity and quality of information about forestland management?

There was a general consensus that there is a great quantity and quality of forest management information available from a wide-range of sources – but the sources are fragmented and information availability is not publicized. There was also a consensus that the State and other agencies should publish as much information as possible on as many forest topics as possible. One respondent put it this way, " 80% to 90% of citizens have no connection to forestlands and don't know where their water comes from."

Some sources noted were RIDEM / DFE, RIFCO (landowner-to-landowner, highly trusted information/experience exchange), federal agencies, non-government agencies such as the Audubon Society and the Nature Conservancy, private forester-consultants, commercial forestry companies, television programming, and the Internet.

Most respondents felt that the Co-operative Extension Service through the University of Rhode Island provided little or no support for forest management services in the State, although it is the State's land grant college.

Many respondents felt that Connecticut represented a model of State government and State University involvement in forestland resource management.

Some respondents thought that pooling the resources of several organizations that are doing fragmented communications might be utilized to afford a mass-media campaign. RIDEM / DFE would be the most logical organization to coordinate such a campaign.

21. Are you aware of the State's Forest, Farm and Open Space Program? (FF&OS Program)

Most respondents were aware for the FF&OS Program. Most also agreed that it is a topic that needs to be communicated to more forest, farm, and open space landowners. Some small landowners did not participate because they did not want to resource-manage their forestlands and/or develop a management plan. Most thought it was the only way that forestland owners could afford to hold onto their properties. Most thought that most towns are not rushing to make it a rule across all FF&OS properties, but would rather handle it on a case-by-case basis.

22. Should the FF&OS Program be made "mandatory" for all cities and towns in Rhode Island?

Most respondents agreed in principle that statewide tax limits on each category of land – forest, farm, and open space, would be a good thing, but most acknowledged that the type of land and it's location had an effect on its intrinsic value and taxable value. One respondent noted, " There is a big difference between a five acre turf lot in Charlestown and a five acre, scrub-pine lot, over a rock bed in Foster." Most were concerned about the lost revenues to towns and how they would be made up. Several respondents, however, pointed out how much more expensive single-family house lots, with children in them, are to towns, as opposed to maintaining forest, farm and open spaces. Most thought it would be difficult to get through the General Assembly.

23. Should the State allow timbering on its properties?

Most respondents would consider limited timbering on State forestlands if it were planned and closely supervised by State foresters. Commercial forest operators were the biggest proponents, obviously.

The benefits they promoted were: Untapped sources of State income from contracts, leases and sales taxes on forest products; Job creation; Better long-term forest health; Scientific replenishment and re-distribution of profitable species; Clearance of forest fire fuels; Clearing of fire access trails deep into forests.There was an obvious concern about over-cutting, clear-cutting collateral forest damage, increased fire potential, and proper species re-distribution, but commercial forest users said that all of those concerns could be accommodated. They made it clear that accommodating all those issues were in their long-term best interests and the long-term best interests of forests.

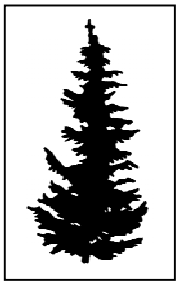
Once again, commercial forest users referred to Connecticut as a model of effective forest resource management and noted that the income earned from timbering of State forestlands in Connecticut paid for additional State foresters and other forest management programs. Given the consistent complaint of not enough manpower, money, and resources to manage State forestlands, the commercial users' arguments were compelling.

24. Is the State adequately planning for the future of its forests?

The general consensus was that "there has been more planning in the past few years, than in the past twenty years." But, there is a general concern that if the State does not fund the manpower and resources to implement the planning, the planning will be wasted.

25. What would you do with RI's forests, if they were totally your responsibility? (Environmentalists)

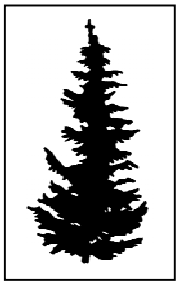
Environmentalists put the highest priority on public education about the importance of forests in terms of the ecology and the economy of the whole state, in order to create awareness and support for forest issues. They would partner with other agencies to develop contingency plans in case of fire, major infestations, or threats to water supplies. And, they would accrue funds to purchase development/conservation rights or purchase key forestland parcels outright.



Rhode Island Forestland Owners

Survey 2003

Please complete and return this survey by December 18, 2003. Thank You.



PLEASE CIRCLE THE APPROPRIATE LETTER OR ANSWER IN THE SPACE PROVIDED.

1. In what town is the majority of your land located?
   _____

2. How much land do you own in RI?
   _____ Acres

3. How many properties do you own? _____

4. How long have you owned forestland in RI?
   ___ Years

5. Has the size of your parcel(s) decreased or increased in the last ten years?
   a) Increased
   b) Decreased
   c) Stayed the same

6. Are you:
   a) The owner of the land
   b) The owner's son or daughter
   c) An attorney, trustee, or manager
   d) Other (please specify)
      _____

7. How old were you on your last birthday?
   _____ Years

8. What is your principal occupation? (If retired, what was your former occupation?)
   _____

9. The major portion of your forestland is owned by:
   a) Self and/or spouse
   b) Partnership or corporation
   c) Land trust
   d) Club or association

10. Is your forest enrolled under the Farm, Forest and Open Space Current Use Tax Program?
    a) Yes b) No

    If yes, how long has it been in the program?
    _____ Years

    If yes, which category of the program is your property enrolled?
    _____ Farmland _____ Forest
    _____ Open Space _____Do not know

11. If you have not applied for classification under the Rhode Island law for taxation of Farm, Forest, or Open Space Lands, what is the most important reason?
    a) Don't know enough about the law
    b) My town doesn't participate in the program
    c) Not interested in active management
    d) Not able to fulfill management requirements
    e) Other (please specify)
    _____

12. How far do you live from your forest?
    _____ Miles N/A

13. If you do not live on the major portion of your forestland year round, how often do you normally visit that land each year?
    _____ Times a year. (Write "0" if none)

14. Why do you own forestland?
(Please circle the appropriate letter to indicate how important the following reasons are to you. Use this scale: 1) very important,
2) somewhat important, or 3) not important.)

- As investment (1) (2) (3)
- As part of residence/ farm (1) (2) (3)
- For hunting/ fishing (1) (2) (3)
- For motorized recreation (i.e. ATVs)(1) (2) (3)
- For other recreation (1) (2) (3)
- For firewood/ timber products (1) (2) (3)
- Other (please specify)

_____

15. What are your long range plans for your forest?
    a) Protect from development with a conservation easement
    b) Will be left to heirs
    c) Will be donated to land trust or other conservation organization
    d) Sell for development
    e) Undecided
    f) Other (please specify)

    _____

16. Have you sold any of the following products from your forest during your ownership?
    a) Firewood
    b) Sawtimber
    c) Pulpwood
    d) Witch hazel
    e) Floral greens
    f) Maple syrup
    g) Wild mushrooms
    h) Cultivated mushrooms
    i) Medicinal plants
    j) Other (please specify)

    _____

17. While you have owned property, how many times have forest products (listed above) been sold? _____ Times

18. Do you have a current (less than ten years old) written forest management plan?
a) Yes b) No

19. Do you actively manage your forestland?
    a) Yes b) No

20. In the last 5 years, have any of the following activities occurred on your forestland in RI?
    a) Site preparation for planting
    b) Planted trees
    c) Commercial timber sale
    d) Harvest for own use
    e) Timber stand improvement (crop tree release, cull tree removal, pruning)
    f) Applied herbicides/ pesticides/ fertilizers
    g) Built or improved roads or trails
    h) Wildlife habitat/ fisheries improvement projects
    i) Alternative forest products harvested
    j) Other (please specify)

    _____

21. Do you have any unauthorized recreational use of your property?
    a) Yes b) No

22. If yes, what unauthorized recreation is impacting your property? (Circle all those that apply and rate severity of impact please use: 1) least impact, 2) moderate impact,
    3) severe impact)
    a) Motorbiking ____
    b) Snowmobiling ____
    c) Hunting ____
    d) Trapping ____
    e) Fishing ____
    f) Horseback riding ____
    g) Hiking ____
    h) Cross-country skiing ____
    i) Cross-country running ____
    j) Cutting firewood ____
    k) Off-road vehicles ____
    l) Picnicking ____
    m) Camping ____
    n) Mountain biking ____
    o) Other (please specify) _____

23. If you do not actively manage your forestland, what is the most important reason?
    a) Trees not large enough or the quality is too poor for a commercial harvest
    b) Not enough profit to make it worthwhile
    c) Need more information on forest management
    d) Opposed to management
    e) Not enough time
    f) Other (please specify)

    _____

24. Where do you get your information about forest management?
    a) Rhode Island DEM, Division of Forest Environment forester
    b) Other government agency
    c) Private consultant (forester, wildlife biologist, etc.)
    d) A forester from a company that produces forest products
    e) Employee of a non-profit group
    f) Other forest landowner/ neighbor/ friend
    f) Television/ video/ internet
    g) Books
    h) Brochures / Fact sheets
    i) Workshops
    j) Internet
    k) Other (please specify)

    _____

25. Do you allow the public use of your forestland for any of the following?
    a) Motorbiking
    b) Snowmobiling
    c) Hunting
    d) Trapping
    e) Fishing
    f) Horseback riding
    g) Study natural history of environmental education
    h) Hiking
    i) Cross-country running
    j) Cross-country skiing
    k) Cutting firewood
    l) Picnicking
    m) Camping

26. What are the key issues affecting the forest resources of Rhode Island. (Use this scale: 1) critical, 2) very important, 3) somewhat important, or 4) not important)

a)	Development	(1) (2) (3) (4)
b)	Sustainability	(1) (2) (3) (4)
c)	Wildfire	(1) (2) (3) (4)
d)	State land management	(1) (2) (3) (4)
e)	Recreation and tourism	(1) (2) (3) (4)
f)	Forest Resource Management	(1) (2) (3) (4)
g)	Forest health (insect & disease)	(1) (2) (3) (4)
h)	Education	(1) (2) (3) (4)
i)	Forest Products Marketing	(1) (2) (3) (4)
j)	Water resources (watersheds)	(1) (2) (3) (4)
k)	Other (please specify below)	(1) (2) (3) (4)

_____

27. What topics do think the Division of Forest Environment should develop informational programs, brochures/fact sheets about?
    a) Wood products
    b) Alternative (non wood) forest products
    c) Wildlife
    d) Aesthetic benefits
    e) Water quality
    f) Forest health (insect and disease)
    g) Recreation
    h) Estate planning
    i) Farm, Forest, and Open Space program
    j) Forest Legacy Program
    k) Forest fire control
    l) Invasive species
    m) Other (please specify)

    _____

Below are possible solutions to the issues that impact RI's forest resources. Please rate your opinion of each using the following key and mark your choice beside each number:

1. Strongly agree
2. Agree
3. Uncertain
4. Disagree
5. Strongly disagree

___ 28. Local government should allow innovative and creative development techniques, such as family compounds, to conserve forest.

___ 29. Property enrolled in the Farm, Forest, and Open space program should be assessed at a single rate statewide.

___ 30. State and local government should make greater use of conservation easements as a tool to protect forest from development.

___ 31. DEM, in partnership with other environmental organizations, should offer workshops and field demonstrations to educate landowners about forest management.

___ 32. DEM, in partnership with other environmental organizations, should prepare and distribute pamphlets and booklets explaining forest management techniques to landowners.

___ 33. Publicly owned forest should be managed as demonstration areas to promote sustainable forest management.

___ 34. DEM should provide "on the ground" forestry advice to landowners to help refine their objectives and provide guidance toward sustainable forest management.

___ 35. DEM should limit technical forestry assistance provided and actively seek forestry consultants to expand their services to more forest landowners in Rhode Island.

___ 36. DEM should provide market information to keep landowners aware of market conditions for forest products.

___ 37. RI DEM should promote incentive programs for landowners to increase the benefits for actively managing their forests.

___ 38. DEM should provide training and support services to municipalities for wildfire control.

___ 39. DEM should use mass media to educate rural homeowners about ways to reduce the risk of wildfire.

___ 40. Communities should promote the use of fire leagues and mutual aid agreements to insure adequate manpower for larger wild land fires.

___ 41. State and local governments should actively recruit additional volunteer firefighters in rural communities.

___ 42. RI DEM should concentrate its efforts towards managing state-owned lands rather than working with private landowners.

___ 43. DEM should focus management on state owned forestland to promote economic benefits.

___ 44. DEM should focus resource management on state owned forestland to enhance recreation and tourism.

___ 45. State Agencies should increase the use of mass media to reach larger audiences with information about the benefits (tourism, recreation) and threats (suburban sprawl and forest health issues) to Rhode Island's forest resources.

___ 46. DEM, in partnership with other environmental organizations, should inform and educate state and local government officials, as well as the general public, of the need to provide sound laws and ordinances for future forestry needs.

___ 47. RI DEM and the Cooperative Extension Service should coordinate public information efforts relating to the State's forest resources.

___ 48. The State should allocate funds to acquire important forestland or the development rights to important forestland in RI on an ongoing basis?

49. If an additional 100 dollars were made available for forest resource management in Rhode Island, how would you allocate funds among the categories listed below? (Indicate an amount in the space provided)

_____ Acquire key parcels of forest
_____ Broaden management of existing state and municipal forests
_____ Purchase development rights to forestland
_____ Provide on the ground technical assistance to landowners
_____ Develop publications to educate forest landowners
_____ Increase public education about the benefits of forests
_____ Promote state forests for recreation and tourism
_____ Promote expansion of the State's forest product industry
_____ Survey forest health
_____ Strengthen forest fire control
_____ Enhance recreational opportunities on public forestland

50. What do you feel are other important issues facing forest resources in Rhode Island? (Please use a separate sheet if necessary.)

_____

_____

_____

_____

Forest Landowner Survey Report- September 2004

Purpose of the Survey

As part of the process to update the State Forest Resource Plan, the Department of Environmental Management conducted a survey of forest landowners. This information was used in developing guidelines and policies as part of the Rhode Island Forest Resource Plan. This plan is an update of a previous plan developed in 1984.

Private individuals own almost 75 percent of the forestland in Rhode Island[1]. Since they own most of the forest, this group of stakeholders must be incorporated into the planning process since factors that impact them have the biggest impact on the future forests of Rhode Island.

Methodology

A stakeholder meeting was held to identify key issues and provide input on the scope of the plan's revision. It was agreed that both a mail survey of landowners and focus groups would be used to collect information to refine and focus the planning effort. The survey was an attempt to replicate the survey done for the previous edition of the Forest Resource Plan. The goal was to track changes since the last Plan and identify new issues.

The target group was landowners with more than ten acres in rural communities of Rhode Island [2]. Tax Assessors were contacted for a mailing list. Some provided paper copies and others digital copies of their tax rolls. Tiverton didn't supply a list despite being contacted three times, so only 13 of the 14 rural communities were surveyed.

The survey was mailed to all landowners that could be identified to increase the response rate. The mailing list contained almost 3000 addresses. The survey (copy in the Appendix) was mailed in late November 2003 with responses requested by mid December. Some surveys were returned as undeliverable, but if possible a survey was forwarded to the new address. The corrected mailing list (with undeliverable removed) contains 2774 names.

One important point that should be noted, this was not a survey of all the forestland in the state just owners of larger (more than 10 acre) parcels in the 13 municipalities that supplied requested information for mailing of the survey.

- The target of the survey replicates a survey done as part of the previous plan so the results can be compared.
- Owners of larger parcels are more likely to manage their land.
- Larger parcels can be managed on a sustainable basis.

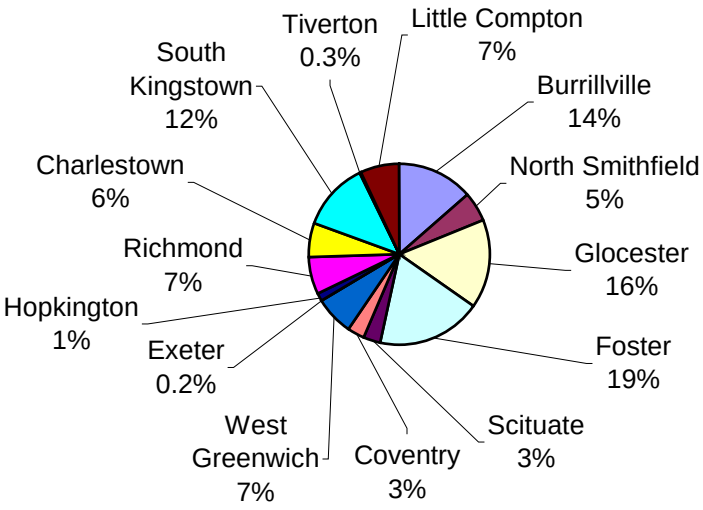
Selected Results

The question numbers correspond to selected survey questions. The percentages may not equal 100% due to rounding or more than one answer per question was given.

[1] *The Forests of Rhode Island,* USDA, US Forest Service, Northeast Research Station, NE-INF-155-02, September 2002, preface. (eds. Brett J Butler and Eric H. Warton)

[2] RI Statewide Planning defines rural communities as those with less than 500 people per square mile or a developed area of less than 25%. RI Land Use Trends and Analysis. Tech. Paper 149.

1. In what town is the majority of your land located?



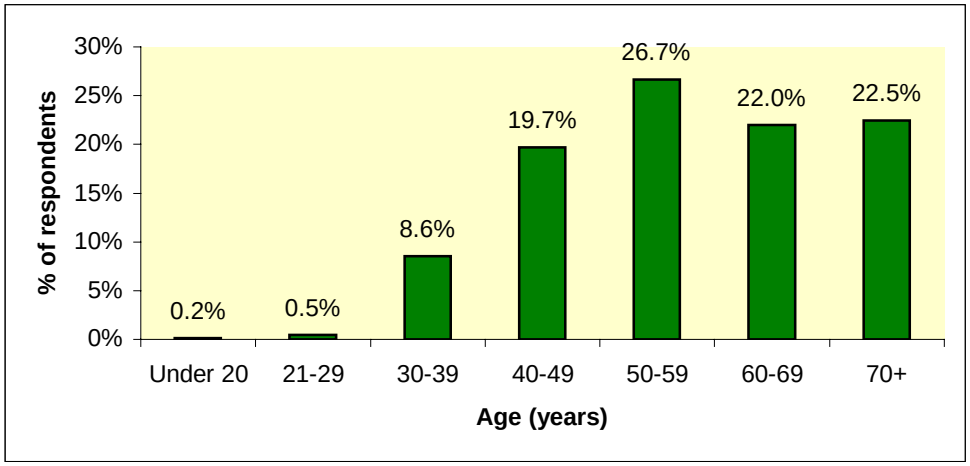
2. How much land do you own in Rhode Island (acres)?

Category	Number of Respondents	% of total respondents
10-24 acres	279	44.1%
24-49 acres	165	26.1%
50-99 acres	116	18.4%
100 or more acres	72	11.4%
Total	632	100%

4. How long have you owned forestland in Rhode Island (years)?

Number of Years Owned	Number of Respondents	% of total respondents
Less than 5 years	95	15%
5-9 years	64	10%
10-24 years	196	31%
25-49 years	206	32%
50 years or more	68	11%
No response	5	1%
Total	634	100.0%

7. Age of owner (years)?



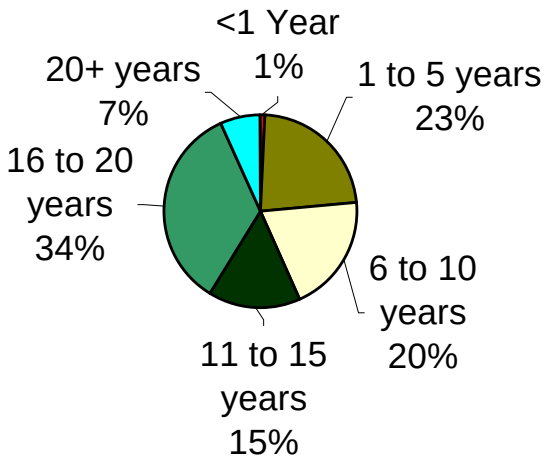
8. Land owner occupations:

Job Category	Percent of Respondents
Skilled trades	18%
Office	10%
Education	10%
Life sciences - health and medicine	7%
Engineer	6%
Construction/inspector/contractor	5%
Self employed	5%
Marine/environmental	5%
Farming	5%
Defense/homeland security	4%
Other	4%
Business	4%
Financial services	3%
Public service	3%
Sales/retail	3%
Creative/advertising/media	3%
Law	2%
It/telecom	1%

9. Is your forest enrolled under the Farm, Forest, and Open Space Current Use Tax Program?

Yes	No	Do not know	Percent of properties enrolled
320	305	3	51%

If yes, how long has it been in the program?



If yes, in which category of the program is your property enrolled?

Farm	Forest	Open Space
12%	29%	59%

11. If you have not applied for classification under the Rhode Island law for taxation of Farm, Forest, and Open Space Lands, what is the most important reason?

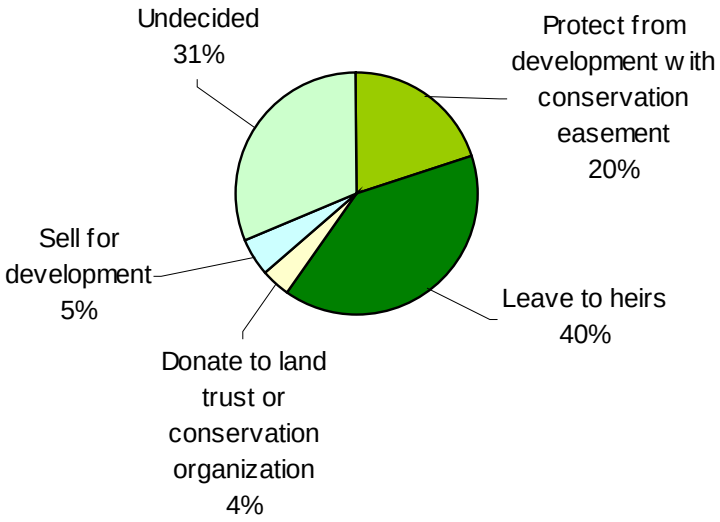
Reason	Percent of respondents
Don't know enough about law	88%
Not interested in active management	5%
Not able to fulfill management requirements	4%
My town does not participate in the program	3%

14. Why do you own forestland? Please rank the following. (1 = very important, 2 = somewhat important, 3 = not important)

Reason	Very Important (1)	Somewhat Important (2)	Not Important (3)
As part or residence/farm	90%	7%	2%
As investment	42%	34%	24%
For other recreation	41%	31%	28%
For firewood/timber products	33%	40%	27%
For hunting/fishing	19%	21%	61%
For motorized recreation (I.e. ATVs)	8%	6%	87%

Other Reasons:
1. Preserve Open Space
2. Privacy
3. Inherited the property

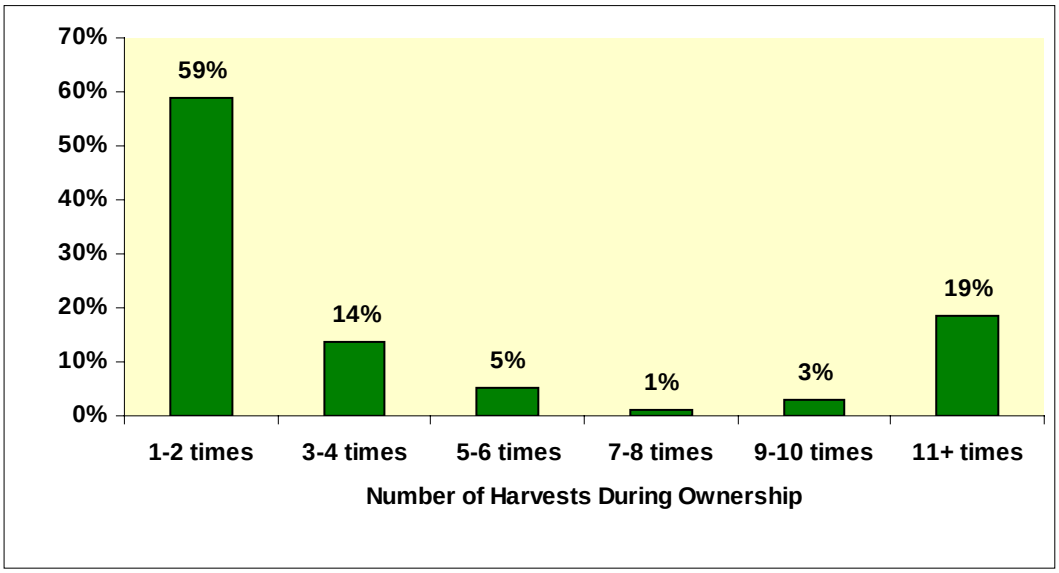
15. What are your long-range plans for your forest?



16. Have you sold any of the following products from your forest during your ownership?

Product	Percent of respondents
Firewood	16%
Sawtimber	17%
Pulpwood	1%
Witch hazel	2%
Floral greens	1%
Maple syrup	1%
Wild mushrooms	0%
Cultivated mushrooms	0%
Medical plants	0%
No harvesting	61%

17. While you have owned your property, how many times have forest products (listed above) been sold?



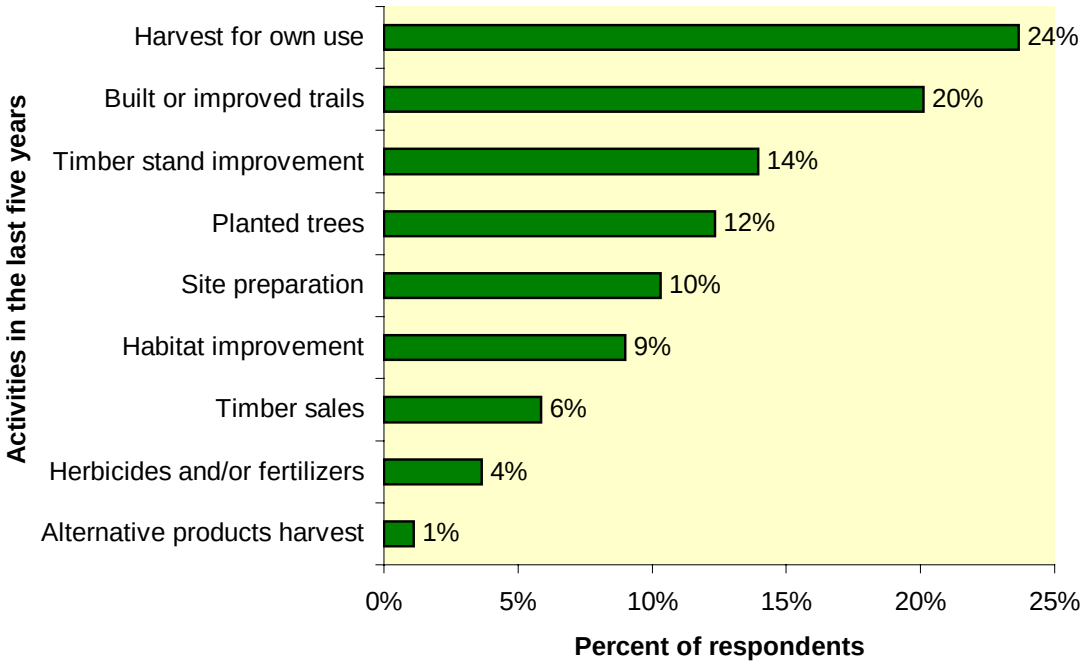
18. Do you have a current (less than 10 years old) written forest management plan?

Yes – 14%, No – 86%

19. Do you actively manage your forest?

Yes – 34%, No – 66%

20. In the last five years, have any of the following activities occurred on your forestland in Rhode Island?



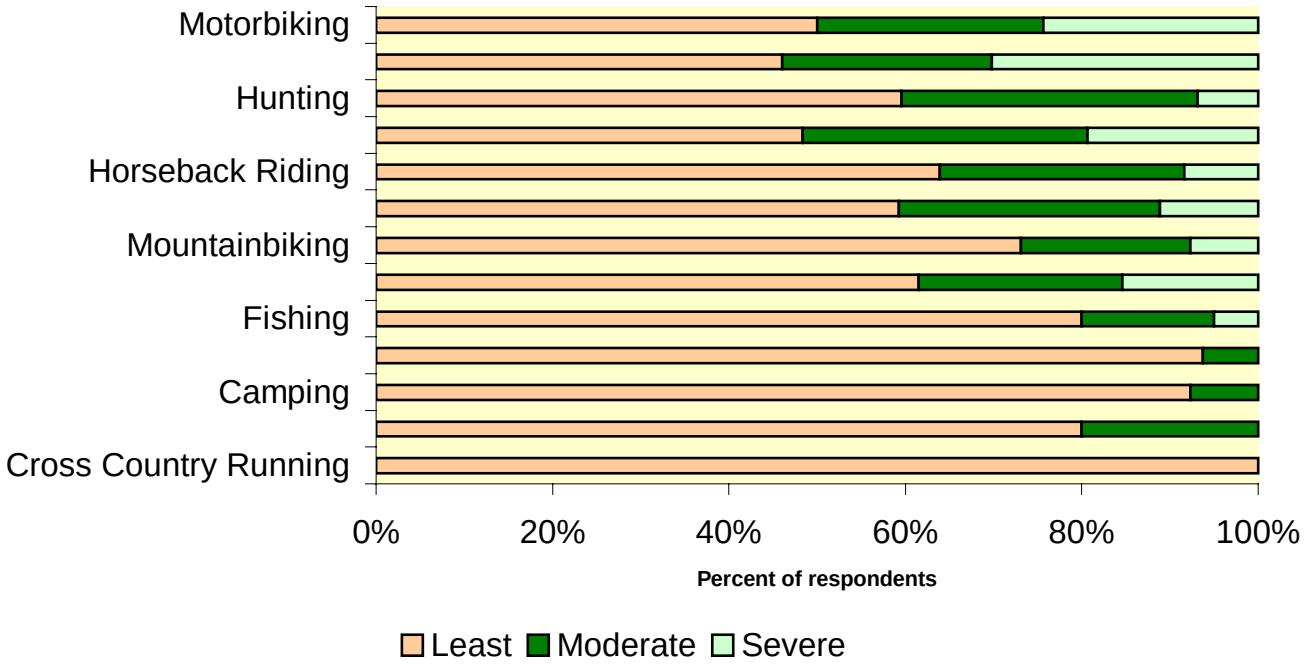
21. Do you have any unauthorized recreational use of your property?

Yes – 31%, No – 69%

22. If yes, what unauthorized recreation is impacting your property?

Activity	Percent of respondents
Motor biking	20%
Off Road Vehicles	11%
Hunting	9%
Snowmobiling	5%
Cutting Firewood	4%
Horseback Riding	4%
Mountain biking	4%
Trapping	3%
Fishing	2%
Camping	2%
Cross Country Skiing	2%
Cross Country Running	1%
Picnicking	1%
None	33%

What impact do these activities have (1 = least impact, 2 = moderate impact, 3 = severe impact)



23. If you do not actively manage your forestland, what is the most important reason?

Reason	Percent of respondents
Need more information on forest management	35%
Not enough time	20%
Not enough profit to make it worthwhile	15%
Trees not large enough or quality too poor	14%
Opposed to management	5%
Other	11%

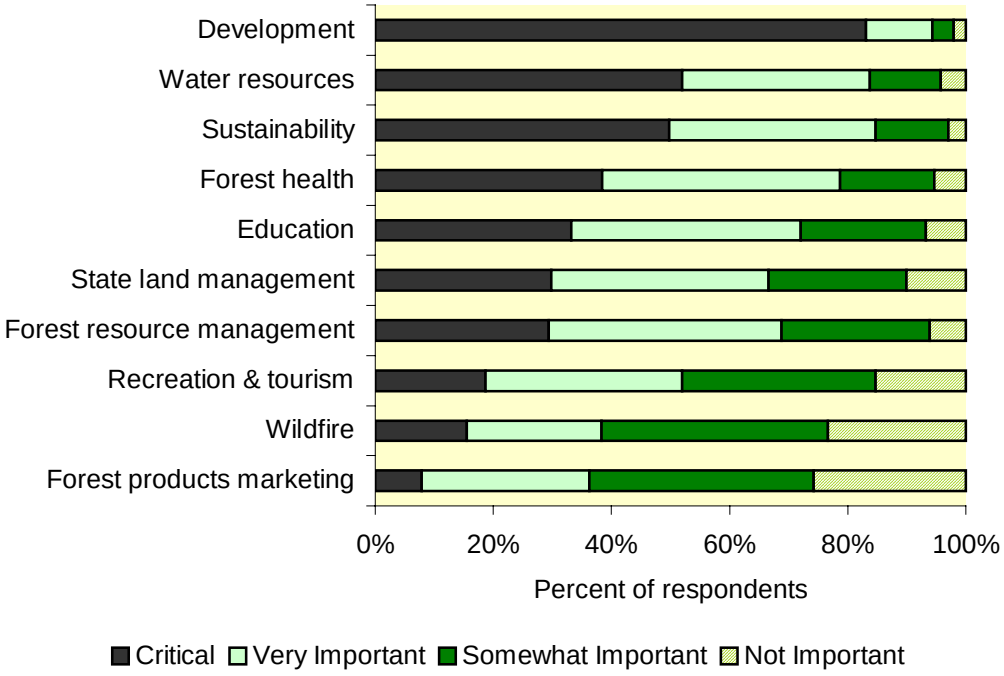
24. Where do you get most of your information about forest management?

Information Source	Percent of respondents
RI DEM Service Forester	30%
Private Consultant	13%
Books	13%
Neighbor, landowner, friend	11%
Brochures/fact sheets	8%
Workshops	5%
Other Govt. Agency	4%
Television, video	4%
Procurement Forester	4%
Internet	4%
Non-profit group	1%
Other	3%
None	38%

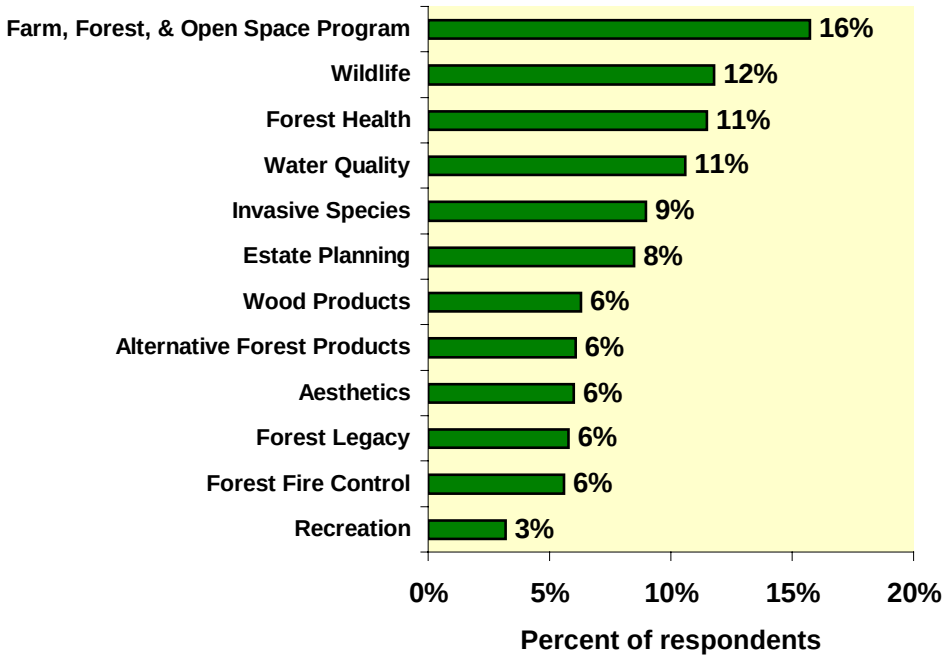
25. Do you allow the public use of your forestland for any of the following?

Activity	Percent of respondents
Hunting	18%
Nature study	7%
Hiking	7%
Horseback riding	7%
Cross country skiing	4%
Fishing	4%
Cutting firewood	3%
Cross country running	2%
Motor biking	2%
Picnicking	2%
Camping	2%
Snowmobiling	2%
Trapping	1%
None	41%

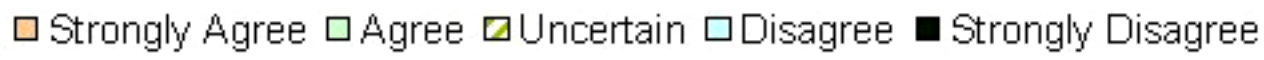
26. What are the key issues affecting the forest resources of Rhode Island (1 = critical, 2 = very important, 3 = somewhat important, 4 = not important)?



27. What topics do you think the Division of Forest Environment should develop informational programs/brochures about?



28-48 Below are possible solutions to the issues that impact Rhode Island's forest resources. Please rank you opinion of each using the following key and mark your choice beside each number. (1 = strongly agree, 2 = agree, 3 = uncertain, 4 = disagree, 5 = strongly disagree)



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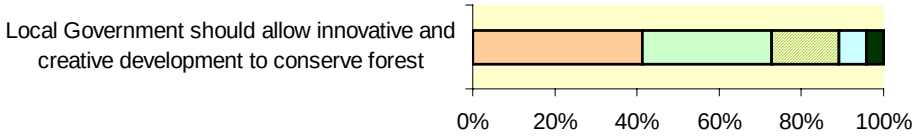

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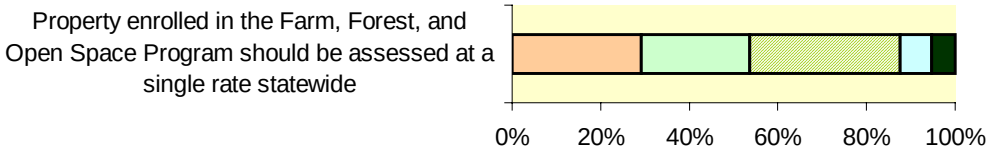

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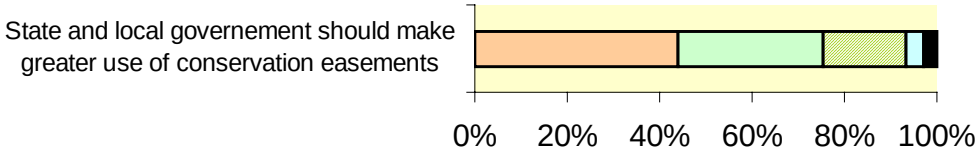

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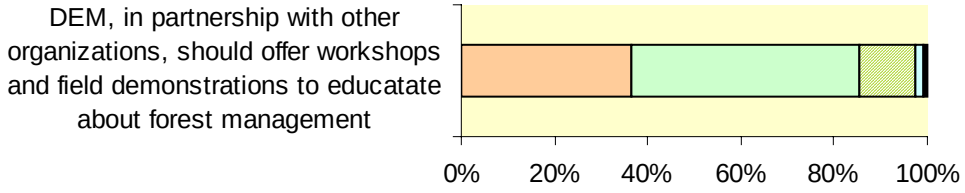
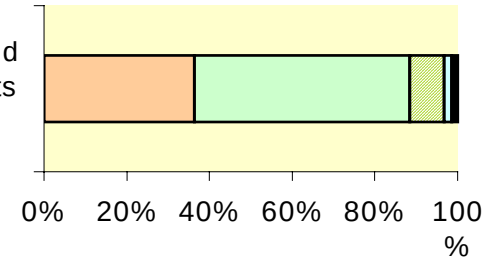


Strongly Agree Agree Uncertain Disagree Strongly Disagree

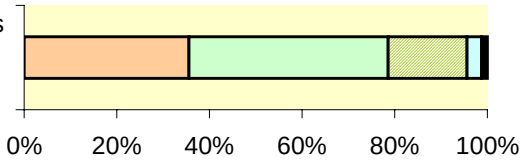
32.

DEM, in partnership with other organizations, should prepare and distribute pamphlets and booklets explaining techniques of forest management



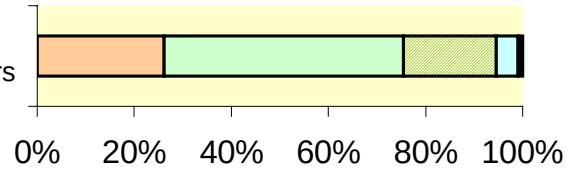
33.

Publicly owned forest should be managed as demonstration areas to promote sustainable forest management



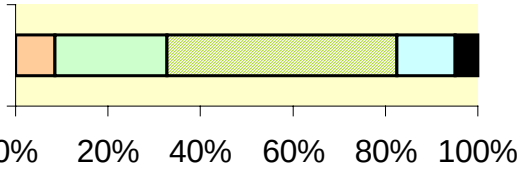
34.

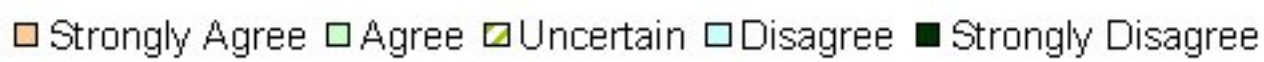
DEM should provide "on the ground" technical assistance to forest landowners



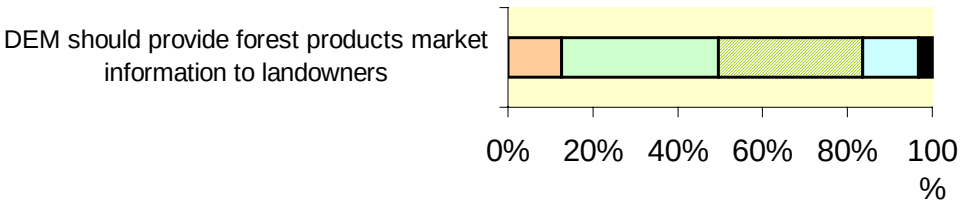
35.

DEM should limit technical assistance and instead promote the use of private forestry consultants




Strongly Agree
Agree
Uncertain
Disagree
Strongly Disagree

36.


DEM should provide forest products market information to landowners
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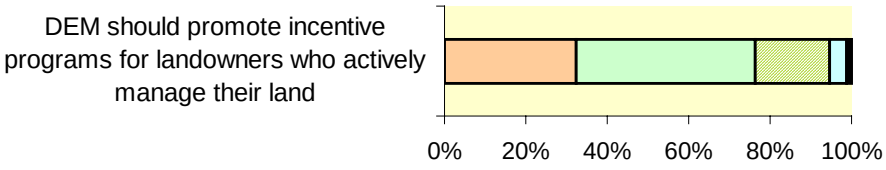
20%
40%
60%
80%
100 %

37.


DEM should promote incentive programs for landowners who actively manage their land
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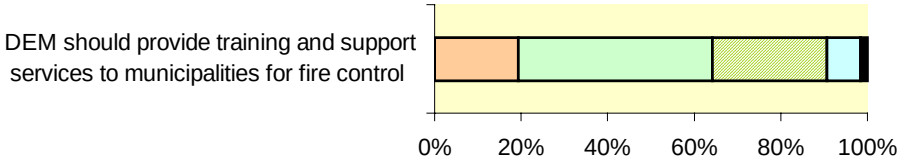
100%

38.


DEM should provide training and support services to municipalities for fire control
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80%
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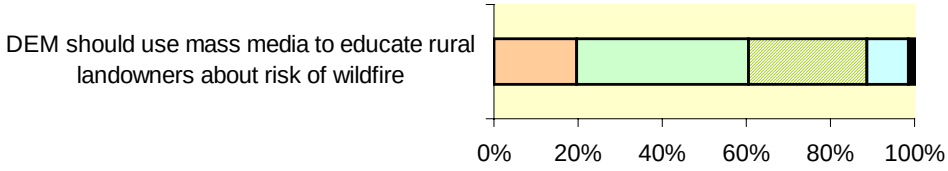
39.


DEM should use mass media to educate rural landowners about risk of wildfire
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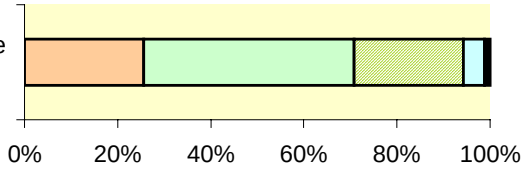
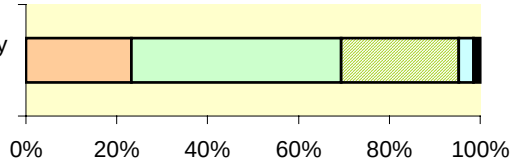
20%
40%
60%
80%
100%

Strongly Agree | Agree | Uncertain | Disagree | Strongly Disagree

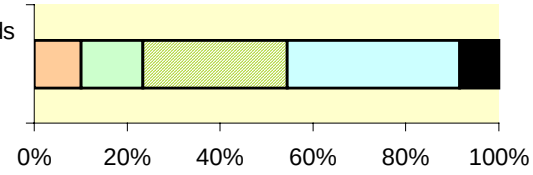
40. Communities should promote the use of fire leagues and mutual aid agreements



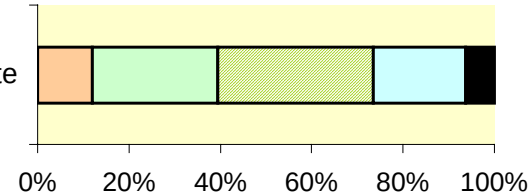
41. State and local government should actively recruit volunteer firefighters in rural areas

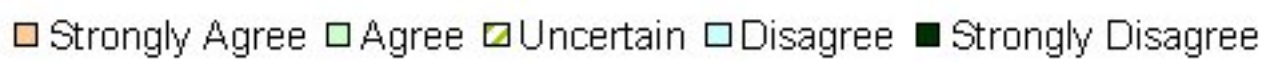


42. DEM should concentrate its efforts towards managing state-owned lands rather than working with private landowners

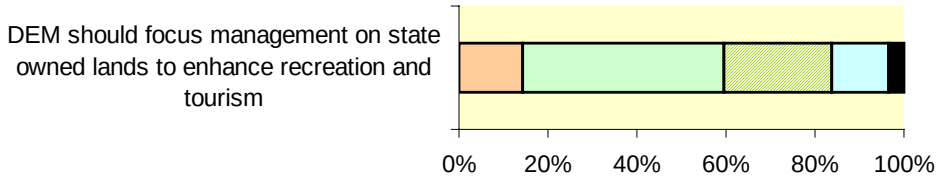


43. DEM should focus resource management on state land to promote economic benefits




Strongly Agree
Agree
Uncertain
Disagree
Strongly Disagree

44.


DEM should focus management on state owned lands to enhance recreation and tourism
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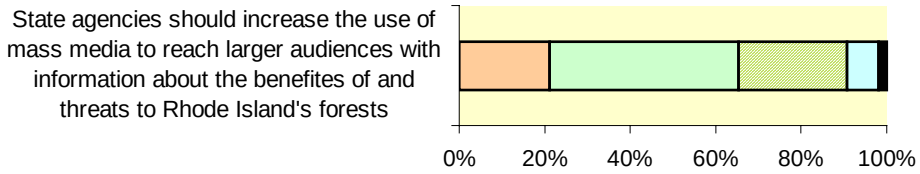
60%
80%
100%

45.


State agencies should increase the use of mass media to reach larger audiences with information about the benefites of and threats to Rhode Island's forests
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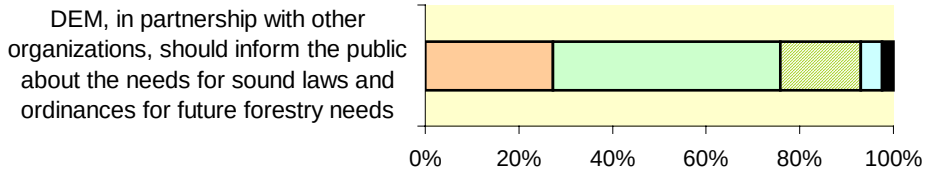
DEM, in partnership with other organizations, should inform the public about the needs for sound laws and ordinances for future forestry needs
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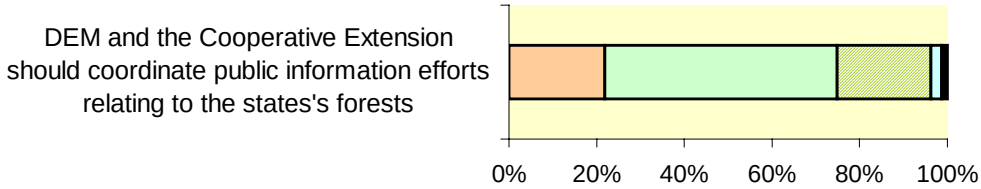
100%

47.


DEM and the Cooperative Extension should coordinate public information efforts relating to the states's forests
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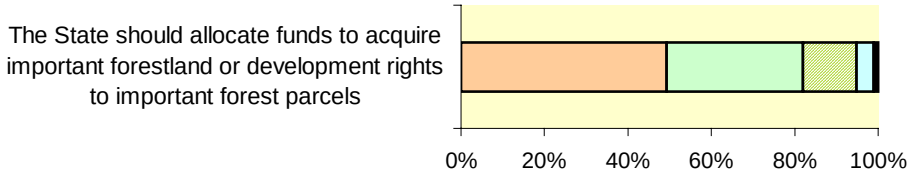
60%
80%
100%

48.


The State should allocate funds to acquire important forestland or development rights to important forest parcels
0%
20%
40%
60%
80%
100%

49. If an additional $100 were made available for forest resource management in Rhode Island, how would you allocate the funds among the categories listed below?

Acquisition - $28
Broaden Management - $10
Development Rights - $20
Technical Assistance - $8
Publications - $6
Public Education - $6
Promote State Forests - $5
Promote Forest Products Industry - $2
Forest Health - $5
Forest Fire Control - $5
Recreation on Public Forestland - $5

Key Changes since the previous survey

Parcel size

As expected, the survey showed that the trend over the last twenty years has been the subdivision of large forest tracts into smaller parcels. Forty- four percent of the parcels are ten to twenty-four acres in size (in 1983 it was 26 percent). The average parcel size however was larger than reported by the USDA, Forest Service, most likely because their methodology considers a five-acre house lot in a wooded setting forestland while this survey only dealt with ownerships of more than ten acres. These results are consistent with the previous survey, which found a discrepancy between USDA, Forest Service reports and results from the questionnaire [3].

Length of Ownership

Although many acres of forest have been divided into smaller parcels in the last twenty years, the tenure of ownership, at least in rural towns, has been stable; forty seven percent of respondents have owned their land more than 20 years (since the previous resource survey). This is most likely related to the landowners' age and has implications for Rhode Island's forest since it is likely many of these parcels will come to market in the future.

Reasons of Owning

The majority of survey respondents live on their land and gave "as a place to live" the most important reason for owning forest; this increased from 82 percent in the 1983 survey to 90 percent in the 2003 survey. "As an investment" and "recreational use" were key reasons for ownership in the previous survey, making up 84 and 82 percent of the responses but decreased to 76 and 73 percent of respondents in 2003. Only five percent of respondents relied on forestry or farming to provide a significant portion of their income implying that the quality of life afforded by living in the forest not profitability is an attraction for most forest landowners in Rhode Island.

Management

Fourteen percent of landowners have an up to date (within ten years) forest management plan and 34 percent actively manage their land. More landowners were involved in commercial harvesting activity than in the previous survey; 42 percent having harvested firewood and 43 percent sold sawtimber over the last ten years versus 24 percent sold and 15 percent in 1983. There is more interest in alternative (non-wood) forest products in recent times with 12 percent of respondents selling products (e.g. mushrooms, witch hazel, floral greens, or maple syrup) versus less than five percent who reported having sold non-wood products during the survey in 1983.

The Farm, Forest, and Open Space Program continues to be an effective tool for protecting land with twenty nine percent of forest landowners enrolled in the Farm, Forest, and Open Space versus 21 percent in the previous survey. According to the recent survey, an additional 59 percent of forest landowners have their land enrolled as open space. This information was not tracked in the previous survey. Lack of information continues to be the main reason landowners do not participate in the Program. Not knowing enough about the law was cited as the main reason by 88 percent of respondents to the recent survey, 55 percent cited this in the survey done 20 years ago.

Lack of interest in management was a key barrier to management in the 1983 survey, as reported by 31 percent of respondents, but only an issue to 5 percent in 2003. Lack of profit being was a negative for 5 percent in the first survey but increased to 15 percent in 2003. Trees being too small or of poor quality discouraged active management by five percent of respondents in 1983 but was an issue for 14 percent in 2003.

[3] Rhode Island Woodland Owners Survey Report. Lyn White and Kathy Weber Jones. September 1980.

Lack of information about forestry was the most common reason for not actively managing- given by 36 percent of respondents versus 11 percent in 1983. DEM Forester (30 percent), private consultants (13 percent), and books (13 percent), were the most common sources of information for landowners in the recent survey. Data on sources of forestry information were not collected in the 1983 survey.

Long range plans

Most respondents planned to leave their property to heirs (40 percent). This is consistent with previous surveys where it was listed as 54 percent.

Five percent intend to sell for development while 24 percent intend to protect it from development versus 16 percent and 20 percent in 1983.

The respondents to the most recent survey were less decisive about the long- term plans for their forestland with over 30 percent being undecided (6 percent undecided in 1983).

Both the 1983 and 2003 surveys were an attempt to encourage landowner involvement in the forestry planning process by seeking their input on a variety of issues.

Key issues (identified as critical or very important) were Development, Water resources, Sustainability (sustainable management), and forest health. Information on key issues was not collected in the 1983 survey.

The respondents also provided input into suggested solutions. Top recommendations (in order of importance).

2003

- The State should allocate funds to acquire important forestland or development rights to important forest parcels
- DEM, in partnership with other organizations, should prepare and distribute pamphlets and booklets explaining techniques of forest management
- DEM, in partnership with other organizations, should offer workshops and field demonstrations to educate about forest management
- State and local government should make greater use of conservation easements
- Publicly owned forest should be managed as demonstration areas to promote sustainable forest management
- DEM should promote incentive programs for landowners who actively manage their land

1983

- State and local government should make greater use of conservation easements
- Property enrolled in the Farm, Forest, and Open Space Program should be assessed at a single rate statewide
- DEM, in partnership with other organizations, should inform the public about the needs for sound laws and ordinances for future forestry needs
- Communities should promote the use of fire leagues and mutual aid agreements
- DEM should use mass media to educate rural landowners about risk of wildfire

Implications

According to the most recent USDA, Forest Service Survey, 70 percent of the forestland in Rhode Island is in private ownership. Therefore factors affecting these landowners have the greatest impact on Rhode Island forests.

The age of the typical landowner as reported in the survey is older than the general population and has increased since the previous survey. These properties are likely to be subject to development pressure as the existing landowners pass on. Although many of the landowners surveyed plan to protect the property from development, many are unsure of their long-term plans for their land. Uncertainty about the future of the land has increased since the last survey. Educating these landowners about estate planning provides an opportunity to reduce conversion of forestland to other uses.

Although the typical forested parcel is small (and continues to decrease between surveys) many landowners actively manage. The most common management activities are harvesting wood for their own use and building trails to improve access for recreation. About 30 percent have had commercial harvesting activity; wood products (timber and firewood) comprise 85 percent of the harvests but a wide array of other products (e.g. mushrooms, witch hazel, maple syrup, and floral greens) were reported demonstrating that resourceful forest landowners are seeking alternative income sources to pay property expenses.

The small parcel size also has implications for wildlife since less disturbance leads to an aging forest and lack of habitat for species that need young forest. The scale of management on small parcels may make management to improve habitat less effective.

Fewer DFE staff to serve landowners could have serious implications since landowners look to DEM to provide information. DEM is the primary source of technical assistance to forestland owners although many also use the services of private consultants. Staffing at DEM also has implications for the Farm, Forest, and Open Space Program since interest in the program has increased dramatically recently. The most common reason given by landowners for not enrolling in the Program is lack of knowledge. Clearly outreach by DEM, in cooperation with other partners, could result in a greater increase in the effectiveness of this Program.

The information gathered in this survey provided historical information background as to changes in the values and attitudes of forest landowners in the last 20 years as well as valuable insight into ways to address key issues affecting Rhode Island's forest resources.

The survey identified issues of concern and topics of interest to most landowners. The key issues identified in the survey (development, water resources, and sustainability) clearly indicate where forest landowners feel resources should be focused. When asked to allocate resources forestland owners suggested protecting land protection (outright purchase or development rights) receive 36 percent of the budget and forest landowner education (technical assistance, public education, and publications) receive 20 percent of the budget.

Since it is not possible (or desirable) for government and non-government organizations to own all of the State's forest, the protection and stewardship clearly lies in the hands of private landowners. The role of DEM and other environmental organizations is to inform these landowners to enable them to more effectively manage their property. Given the concerns raised by respondents to the survey, the focus of education efforts should include Information about tools to conserve forestland (e.g. estate planning, conservation easements, Farm, Forest and Open Space Program) as well as methods to preserve and protect water resources (e.g. the value of riparian forest buffers, best management practices, and wetland restoration).

Given limited budgets and staff shortages a cooperative effort is needed to effectively undertake this educational role but clearly the benefits both measurable (e.g. jobs, clean water, recreational opportunities) and non-measurable (e.g. aesthetics, quality of life) outweigh the costs.

World Wide Web Links

United States Department of Agriculture (USDA) Forest Service
http://www.fs.fed.us/spf/

http://na.fs.fed.us/spfo/ce/index.cfm

http://na.fs.fed.us/pubs/misc/flg/

USDA - Natural Resource Conservation Service (NRCS)
http://www.ri.nrcs.usda.gov/

Department of Environmental Management (DEM)
http://www.state.ri.us/dem/

Division of Forest Environment (DFE)

http://www.state.ri.us/dem/programs/bnatres/forest/index.htm

http://www.state.ri.us/dem/programs/bnatres/forest/index.htm

http://www.state.ri.us/dem/programs/bpoladm/stratpp/forprod/forstprd.htm

Department of Administration (DOA)
Rhode Island Statewide Planning Program (RISPP)
http://www.planning.ri.gov

R.I. Forest Conservators' Organization (RIFCO)
http://www.rifco.org

Southern New England Forest Consortium (SNFECI)
http://www.snefci.org

Rhode Island Tree Farm
http://www.treefarmsystem.org

Society of American Foresters (Rhode Island Chapter)
http://www.safnet.org

The Nature Conservancy (Rhode Island Chapter)
http://nature.org/wherewework/northamerica/states/rhodeisland

Audubon Society of Rhode Island, (ASRI)
http://www.asri.org/index.html

Rhode Island Tree Council
http://users.ids.net/~ritrees/AboutTC.html

Rhode Island Land Trust Council
http://www.rilandtrust.org/

Smokey Bear
http://www.smokeybear.com/

FireWise
http://www.firewise.org/

Project Learning Tree
http://www.plt.org/

Southern New England Forest Consortium Inc.
http://www.snefci.org/

URI Master Gardeners Program
http://www.uri.edu/ce/ceec/mastergardener.html