

## **Planned Program 3 (Summary)**

### **1. Name of the Planned Program**

Enhancing the Use of Natural Resources and Restoring Ecosystem Integrity

### **2. Brief summary about Planned Program**

This planned program emphasizes the areas of urban impacts on resource conservation, management of forest and estuarine ecosystems as well as plant and animal population biology and management. The major focus is on restoring and maintaining natural communities and ecosystems, providing environmental services, and more fully incorporating social and economic concerns into management decisions. Sustainable harvest of fish, timber, and wildlife are recognized as only one part of a complex set of objectives. Important research topics will include the effects on native fish communities of changes in hydrology and water quality (from urbanization and other land use changes in the watershed, water withdrawals, and riparian zone management), of waterway fragmentation (caused by dams and road culverts), and of exotic species (including fish, invertebrate, and aquatic plant species). This planned program will also continue applied research into the issues of controlling invasive plant and insect species, restoring environmentally degraded sites, establishing and managing ecological reserves, managing habitat for rare species, creation of urban greenbelts, and reducing risk of forest fires at the rural-urban interface.

**3. Program existence :** New (One year or less)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

## **V(B). Program Knowledge Area(s)**

### **1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources			36%	
102	Soil, Plant, Water, Nutrient Relationships			31%	
104	Protect Soil from Harmful Effects of Natural Elements			1%	
112	Watershed Protection and Management			5%	
131	Alternative Uses of Land			8%	
133	Pollution Prevention and Mitigation			7%	
135	Aquatic and Terrestrial Wildlife			3%	
306	Environmental Stress in Animals			8%	
403	Waste Disposal, Recycling, and Reuse			1%	
	<b>Total</b>			100%	

### V(C). Planned Program (Situation and Scope)

#### 1. Situation and priorities

Ecosystem management, conservation biology, and sustainable resource management are the terms used to describe several new approaches to resource management. One of the rapidly developing areas in conservation science deals with the effects of urbanization on ecosystems. The effects of urban and suburban expansion have now become highly important environmental concerns, with impacts on watersheds, biodiversity, climate, recreation, and overall quality of life. These issues initially were associated only with major metropolitan areas, but increasingly the effects of land conversion to residential or commercial development are felt throughout large parts of industrialized countries and in developing countries as well. Wildlife managers must address problems such as human conflicts with key predators (e.g., coyotes) at the same time that species once regulated by predators (e.g., deer and beaver) are overpopulating and becoming pests. The increasing fragmentation of rural open spaces requires management of habitat for wildlife in the places where people live, in yards, parks, and urban greenbelts. Even in areas far from cities, roads and highways have damaging impacts on wildlife populations; opportunities exist for working with highway departments to mitigate these impacts with passage structures to allow wildlife to cross more safely. There is increasing concern about the impacts of timber harvesting and other forestry practices on wetlands, surface water quality and wildlife habitat. The impact of commercial fishing and shellfish harvesting on replacement stocks is of critical concern and is a source of on-going controversy. The introduction of non-native animals and management of habitat for game species has been questioned for its potential impacts on biodiversity. Land-use and natural resources decisions are made by a variety of state and federal agencies

and private organizations on parks and recreation land, wildlife sanctuaries and refuges, state forests, reservations, watersheds and conservation land. In addition, many private landowners and land trusts (there are 235,000 forest landowners in Massachusetts) manage their land to protect natural resources through Chapter 61 (forest land classification), forest stewardship and conservation restrictions. Proper stewardship of natural resources depends, in part, on educating those who own and manage much of the land.

**2. Scope of the Program**

- In-State Research
- Multistate Research
- Integrated Research and Extension

**V(D). Planned Program (Assumptions and Goals)**

**1. Assumptions made for the Program**

In the past, cities and suburbs tended to be overlooked by natural resource managers (with the notable exception of the urban forestry field). The landscape of Massachusetts, although severely altered in the past, is currently 66% forested. Management of watershed lands for increased water yields creates conflict with other desired values. The Commonwealth’s form of strong town governance has led to a populace strongly interested in the quality of their physical environment. The efficient utilization of plants, animals and marine resources and the wise use of forests, land and water resources are necessary to preserve open space, maintain a green living environment, protect water quality and maintain biodiversity.

**2. Ultimate goal(s) of this Program**

To develop wildlife and fishery management guidelines that account for the increase urbanization and suburbanization of the region /to increase the understanding of woodlot and other landowners of the interconnectivity of these managed ecosystems, to assist municipalities, state, and regional agencies to use science-based research to restore damaged ecosystems

**V(E). Planned Program (Inputs)**

**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2009	0.0	0.0	2.4	0.0
2010	0.0	0.0	2.4	0.0
2011	0.0	0.0	2.4	0.0
2012	0.0	0.0	2.4	0.0
2013	0.0	0.0	2.4	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

Conduct research and produce refereed publications in the scientific literature. Maintain an interactive, internet tool (ACORN) for connecting woodlot owners

**2. Type(s) of methods to be used to reach direct and indirect contacts**

Extension	
Direct Methods	Indirect Methods
● {NO DATA ENTERED}	● {NO DATA ENTERED}

**3. Description of targeted audience**

Environmental protection, Soils, Alternative Energy groups, Dairy Farmers, Turfgrass, Water Quality Managers, Regional Planners, Landscape Ecologists, fisheries industry

**V(G). Planned Program (Outputs)**

**1. Standard output measures**

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2009	0	0	0	0
2010	0	0	0	0
2011	0	0	0	0
2012	0	0	0	0
2013	0	0	0	0

**2. (Standard Research Target) Number of Patent Applications Submitted**

**Expected Patent Applications**

2009 :1                      2010 :1                      2011 :1                      2012 :1                      2013 :1

**3. Expected Peer Review Publications**

Year	Research Target	Extension Target	Total
2009	40	0	0
2010	40	0	0
2011	40	0	0
2012	40	0	0
2013	40	0	0

**V(H). State Defined Outputs**

**1. Output Target**

- # of refereed manuscripts

2009 :8                      2010 :8                      2011 :8                      2012 :8                      2013 :8

**V(I). State Defined Outcome**

**1. Outcome Target**

Accurate research on wildlife management made available and shared

**2. Outcome Type :** Change in Knowledge Outcome Measure

**2009 :0                      2010 : 0                      2011 : 0                      2012 :0                      2013 : 0**

**3. Associated Institute Type(s)**

•1862 Research

**4. Associated Knowledge Area(s)**

- 101 - Appraisal of Soil Resources
- 102 - Soil, Plant, Water, Nutrient Relationships
- 104 - Protect Soil from Harmful Effects of Natural Elements
- 112 - Watershed Protection and Management
- 131 - Alternative Uses of Land
- 133 - Pollution Prevention and Mitigation
- 135 - Aquatic and Terrestrial Wildlife
- 306 - Environmental Stress in Animals
- 403 - Waste Disposal, Recycling, and Reuse

**1. Outcome Target**

Accurate research on woodlot management made available and shared

**2. Outcome Type :** Change in Knowledge Outcome Measure

**2009 :0                      2010 : 0                      2011 : 0                      2012 :0                      2013 : 0**

**3. Associated Institute Type(s)**

•1862 Research

**4. Associated Knowledge Area(s)**

- 101 - Appraisal of Soil Resources
- 102 - Soil, Plant, Water, Nutrient Relationships
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## **V(J). Planned Program (External Factors)**

### **1. External Factors which may affect Outcomes**

- Competing Public priorities

#### **Description**

Competing pressures for alternative land uses due to increased suburbanization may drive the economics of these processes

## **V(K). Planned Program (Evaluation Studies and Data Collection)**

### **1. Evaluation Studies Planned**

- Other (scientific peer review)

#### **Description**

Evaluation will be done through the established scientific review process in the open literature and the merit review process.

### **2. Data Collection Methods**

- Journals

#### **Description**

{NO DATA ENTERED}

## **V(J). Planned Program (External Factors)**

### **1. External Factors which may affect Outcomes**

- Natural Disasters (drought, weather extremes, etc.)

#### **Description**

The management practices that are most appropriate are strongly influenced by extremes of weather.

## **V(K). Planned Program (Evaluation Studies and Data Collection)**

### **1. Evaluation Studies Planned**

- Other (scientific peer review)

#### **Description**

Evaluation will be done through the established scientific review process in the open literature and the merit review process.

### **2. Data Collection Methods**

- Journals

#### **Description**

{NO DATA ENTERED}