

**V(A). Planned Program (Summary)**

**Program # 5**

**1. Name of the Planned Program**

Enhance Natural Resources and Environmental Stewardship

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

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
112	Watershed Protection and Management	30%			
121	Management of Range Resources	5%			
123	Management and Sustainability of Forest Resources	15%			
124	Urban Forestry	6%			
125	Agroforestry	3%			
131	Alternative Uses of Land	10%			
135	Aquatic and Terrestrial Wildlife	27%			
605	Natural Resource and Environmental Economics	4%			
	<b>Total</b>	100%			

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

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	25.0	0.0	0.0	0.0
Actual	24.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
495763	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
495763	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
5112848	0	0	0

## V(D). Planned Program (Activity)

### 1. Brief description of the Activity

WSU Extension works with the people of Washington State to address agricultural, natural resource, and environmental issues by providing information, education, technical assistance, and local development programs. Our programs are available to all without discrimination.

WSU Extension will address this goal directly through educational programs, demonstration activities, and facilitation processes. Training programs for faculty, staff, volunteers and appropriate partner organizations as well as for specific clientele groups, the general public and underserved populations will be conducted. Educational programs will address the following issues/needs:

- Developing more profitable income-generating natural resource-based enterprises.
- Sustaining and enhancing water availability, both in quality and quantity.
- Managing for the recovery and sustainability of anadromous fish.
- Improving stewardship of forest and rangeland health, water quality, wildlife habitat, and reducing soil erosion.
- Controlling non-native, invasive species.
- Decreasing rates of land conversion, ecosystem fragmentation, and land ownership fragmentation.
- Effectively engaging interest groups and stakeholders to address forest, rangeland, and environmental issues.
- Enhancing the quality of life through urban and community horticulture/forestry.

Other outreach techniques will include field demonstrations, mass media (such as web pages, video streams, newspapers and newsletters), workshops and meetings. Trained volunteers will support programming efforts.

### 2. Brief description of the target audience

Forest, rangeland, shoreline, and related renewable natural resource owners and managers; decision makers; interest groups; home owners; general public; and youth.

## V(E). Planned Program (Outputs)

### 1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Plan</b>	15000	30000	3000	0
<b>Actual</b>	212135	596555	14312	21431

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

**Patent Applications Submitted**

Year: 2010  
 Plan: 0  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2010	Extension	Research	Total
<b>Plan</b>	6	0	
<b>Actual</b>	20	0	20

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

**Output Target**

**Output #1**

**Output Measure**

- Number of educational events (resulting in direct and indirect contacts) conducted to increase awareness among citizens and landowners.

Year	Target	Actual
2010	300	985

**Output #2**

**Output Measure**

- Number of contacts with diverse, underserved and limited resource stakeholders within the state resulting in increased knowledge about natural resources practices.

Year	Target	Actual
2010	6500	87114

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of acres (public or private) on which forest or rangeland management was improved as a result of Extension programming or due to partnerships between Extension and other agencies and organizations.
2	Estimated dollars saved or earned by forest, range, fish and wildlife-based income generating enterprises resulting from Extension programming and/or partnerships between Extension and other organizations and agencies.
3	Percentage of program participants that report learning new techniques that may lead to improvement in terrestrial and aquatic habitats, enhanced forest and rangeland stewardship, more effective public policy, control of invasive species, reduced ecosystem fragmentation, and/or increased economic opportunities for natural resource-based industries.
4	Percentage of program participants that apply at least one new technique that may lead to improvement in terrestrial and aquatic habitats, enhanced forest and rangeland stewardship, more effective public policy, control of invasive species, reduced ecosystem fragmentation, and/or increased economic opportunities for natural resource-based industries.

## **Outcome #1**

### **1. Outcome Measures**

Number of acres (public or private) on which forest or rangeland management was improved as a result of Extension programming or due to partnerships between Extension and other agencies and organizations.

### **2. Associated Institution Types**

- 1862 Extension

### **3a. Outcome Type:**

Change in Condition Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2010	40000	0

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

Natural Resources are critical to the economy and environment of the Pacific Northwest. In addition, these resources are central to the overall quality of life of residents of the region. Additionally, these resources are important carbon sinks providing mechanisms for sequestration of the atmospheric carbon dioxide that if left unchecked will contribute to global warming. However, the natural resource base of the state is under constant threat from overuse, fire, invasive species, erosion, and a myriad of other challenges. WSU Extension programs are designed to specifically improve management of the lands, waterways and coastal regions of the state. Successful programs result in protection of the land, air, and water resources.

#### **What has been done**

WSU Extension professionals design and deliver programs that lead to specific and measurable changes in management practices on land and water resources of the state. This includes direct remediation of invasive plant species, training landowners how to improve management of forest resources and protect land and dwellings from catastrophic wildfires, and working with landowners and agency personnel directly to restore riparian zones and coastal regions.

#### **Results**

WSU Extension programs reached 2,882 landowners and managers that indicated increased knowledge of forest stewardship practices, and 2,190 landowners and managers indicated they have implemented at least one new practice on their land. 486,115 acres were directly impacted by Extension programs. Program participants estimate execution of practices on 10 percent of their ownership, with a cost earnings or savings estimate of \$26,406,000. As a result of implementing forest stewardship and health practices, air and water quality has been protected by

reducing wildfire risk and run-off of sediments into streams and lakes and public health threats due to smoke inhalation has been curtailed from these family forests.

In Eastern Washington, 87 family forest plans were completed, leveraging the expertise of 16 volunteer professional foresters to work one-on-one with landowners to provide on-site management recommendations and certification, totaling 22,140 acres. Certification provides market access, landowner recognition, and value-added potential for the sale of wood products.

In Snohomish County, 52% of class participants enrolled in Current Use Taxation programs within a year of taking the course, saving \$2,500 per year on average in forest taxes. Additionally, 13 percent generated an average of \$1,233 per person in forest products revenue and 10 percent secured an average of \$3,281 in new cost share funds using knowledge gained from the class. Quality of life improvement is suggested by the 94 percent of respondents who reported an increased enjoyment of their land and 97 percent reporting that they feel better equipped to successfully steward their land.

Field days evaluations demonstrated that 92 percent of participants actually changed behavior and implemented new stewardship practices within one year based on follow-up evaluations. This resulted in the improvement of 26 percent of total represented acreage with activities such as habitat enhancement, invasive species control, fire risk reduction, and tree planting.

#### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
112	Watershed Protection and Management
121	Management of Range Resources
123	Management and Sustainability of Forest Resources
605	Natural Resource and Environmental Economics

#### **Outcome #2**

##### **1. Outcome Measures**

Estimated dollars saved or earned by forest, range, fish and wildlife-based income generating enterprises resulting from Extension programming and/or partnerships between Extension and other organizations and agencies.

##### **2. Associated Institution Types**

- 1862 Extension

##### **3a. Outcome Type:**

Change in Condition Outcome Measure

### 3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	2500000	8122456

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Natural resources are major economic engines for Washington State. However, these resources must be management to ensure sustainable production and to support multiple uses including forestry, grazing, recreation, and collection of foods. WSU Extension programs are designed to train natural resource managers to effectively conserve natural resources while concurrently providing jobs and income to the state.

#### What has been done

Numerous natural resource based programs are conducted annually by WSU Extension professionals. This includes programs such as Coached Forest Stewardship, Integrated Weed Control, training for forest product harvesters, Sustainable Landscapes, and the Climate Friendly Farming research and demonstration project. These programs employ various methods to educate landowners and resource managers how to balance economic returns with the need to sustain the resource base.

#### Results

As a result of the Forest Stewardship Coached Planning Program, 52% of class participants representing over 18,000 acres of forest lands, enrolled in Current Use Taxation programs within a year of taking the course, saving \$2,500 per year on average in forest taxes.

Invasive species, including purple loosestrife, yellow starthistle, St. Johnswort, diffuse knotweed, spotted knapweed and Dalmatian toadflax, once threatened over one million acres of rangeland and was spreading exponentially. WSU Extension provided 353 biocontrol agent releases to land managers that released over 229,470 insects and mites (17 species) to control 12 weed species. Releases were made in 35 of 39 counties serving private landowners, industry, conservation groups, county, state and federal agencies, and tribes. Alternative control using herbicides would have cost over \$6 million and many sensitive areas could not be sprayed.

1765 acres were treated with biocontrol agents at an estimated average cost of a single release of approximately \$500. Using these calculations, land managers received an estimated \$176,500 in biocontrol agents releases. These releases have led to a decrease in the amount of herbicide usage and unmanaged weed problems.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
121	Management of Range Resources
123	Management and Sustainability of Forest Resources
124	Urban Forestry
125	Agroforestry
605	Natural Resource and Environmental Economics

### **Outcome #3**

#### **1. Outcome Measures**

Percentage of program participants that report learning new techniques that may lead to improvement in terrestrial and aquatic habitats, enhanced forest and rangeland stewardship, more effective public policy, control of invasive species, reduced ecosystem fragmentation, and/or increased economic opportunities for natural resource-based industries.

#### **2. Associated Institution Types**

- 1862 Extension

#### **3a. Outcome Type:**

Change in Knowledge Outcome Measure

#### **3b. Quantitative Outcome**

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2010	85	87

#### **3c. Qualitative Outcome or Impact Statement**

##### **Issue (Who cares and Why)**

Natural resource managers and land owners are critical audiences that must be effectively engaged to facilitate the ultimate landscape-wide impacts that WSU Extension strives to achieve. The first step in the process is to ensure that participants acquire new skills and clearly understand how to effectively apply these skills. Learning assessment is therefore incorporated into virtually all natural resource based programming.

##### **What has been done**

A broad array of programs were designed and delivered to targeted audiences across the state. Topics include enhancing the health of Puget Sound, developing sustainable landscapes, forest stewardship, youth education, community horticulture, watershed management, and Master Gardener volunteer training.

##### **Results**

?At a Family Foresters Workshop, 62 professionals gained knowledge of forest methodology, economics and scientific research, protecting over 4,507 acres of forestland.

?84 landowners and natural resource professionals controlling 4.4 million acres of private and public land engaged in field-based demonstrations for fuel reduction, regeneration systems, and utilization of forest biomass. Three facilities within 50 miles of the major forestland holdings are paying landowners and public agencies for the material, and the Dayton School District has completed the feasibility study to construct a boiler system for heating the school, which is expected to be completely paid off within seven years. Agency commitments for material contribution to biomass users have been improved. Increased thinning on state, federal, and private land has led to improved forest health and habitat, and reduced wildfire hazard risk.

-816 family forest owners and natural resource professionals controlling 35,904 acres attended one of three Forest Owner Field Days hosted by WSU Extension, in cooperation with Oregon State University Extension Service, University of Idaho Extension, and other partners. These field days increased awareness of fundamental forest management techniques and emerging issues, as well as united participants with products and services to help them achieve their personal management objectives.

The class of 2010 Beach Watchers experienced a 12 percent increase in understanding about Puget Sound issues and processes based on the results of pre and post tests given at the start and the end of the 100-hour WSU Beach Watcher training.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
121	Management of Range Resources
123	Management and Sustainability of Forest Resources
135	Aquatic and Terrestrial Wildlife
605	Natural Resource and Environmental Economics

#### Outcome #4

##### 1. Outcome Measures

Percentage of program participants that apply at least one new technique that may lead to improvement in terrestrial and aquatic habitats, enhanced forest and rangeland stewardship, more effective public policy, control of invasive species, reduced ecosystem fragmentation, and/or increased economic opportunities for natural resource-based industries.

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	40	84

##### 3c. Qualitative Outcome or Impact Statement

###### Issue (Who cares and Why)

Appropriate application of land and water management techniques is necessary to realize improvements in land and water resources. Once training occurs, it is generally incumbent upon

the land owner or natural resource managers to make changes in their methods to enhance the resource base.

#### **What has been done**

A broad array of programs were designed and delivered to targeted audiences across the state. Topics include enhancing the health of Puget Sound, developing sustainable landscapes, forest stewardship, youth education, community horticulture, watershed management, and Master Gardener volunteer training.

#### **Results**

Over 70 percent of a training course on building rain gardens indicated that they used information from a previous years' class to modify their home or business. 100 percent of participants have started or completed changes to their landscapes such as stabilizing eroding slopes, replacing a high-maintenance lawn with plants and mulch, adding retaining walls to control erosion, modifying existing beds to increase water infiltration, using native plants or other site appropriate plants, and digging a drainage ditch to divert runoff. Three rain gardens were built as a direct result of this program.

The Living on the Land program graduated 31 people owning 184 acres in 2010. Since 2003, participants implemented 445 best management practices on at least 2116 acres affecting at least 1007 livestock, excluding poultry, and shared what they learned with over 2,331 other people.

After four Shore Steward Shoreline Workshops were completed, 51 percent of the attendees completed an evaluation and 85 percent of indicated that would change at least one practice on their property, based on what they had learned. The highest intended practices dealt with maintaining properly operating home septic systems, surface water runoff from private property, and installing native plants on their property.

Based on evaluations sent to attendees one year after attending training, 68 percent reported they had changed their gardening practices to incorporate information they learned in class; 75 percent reported growing their own fruits and vegetables; 59 percent reported gaining a better sense of physical well-being and mental health from gardening.

#### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
112	Watershed Protection and Management
121	Management of Range Resources
123	Management and Sustainability of Forest Resources
131	Alternative Uses of Land
135	Aquatic and Terrestrial Wildlife
605	Natural Resource and Environmental Economics

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

### **External factors which affected outcomes**

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

### **Brief Explanation**

{No Data Entered}

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

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

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)

### **Evaluation Results**

{No Data Entered}

### **Key Items of Evaluation**

{No Data Entered}