

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

**Program # 4**

**1. Name of the Planned Program**

Enhancing the Sustainable Management of Missouri's Natural Resources

Reporting on this Program

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

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
123	Management and Sustainability of Forest Resources	40%			
125	Agroforestry	5%			
135	Aquatic and Terrestrial Wildlife	40%			
136	Conservation of Biological Diversity	5%			
605	Natural Resource and Environmental Economics	5%			
610	Domestic Policy Analysis	5%			
	<b>Total</b>	100%			

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

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	0.0	0.0
Actual Paid Professional	3.0	0.0	0.0	0.0
Actual Volunteer	0.0	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
115198	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
101987	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

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

### 1. Brief description of the Activity

- Develop curriculum-based natural resource ecology and management programs, including assessment and evaluation tools, marketing strategies and promotional materials.
- Conduct training workshops for local natural resource teams (MU Extension, Missouri Department of Conservation, and USDA NRCS) and potential local partners (e.g. Missouri Tree Farm, Conservation Federation of Missouri, Quail Unlimited, Wild Turkey Federation, Ducks Unlimited, Isaac Walton League, and Walnut Council).
  - Collaborate with these "conservation partners" in the delivery of the curriculum-based programs.
  - Participate in agricultural education events and field days at MU Agricultural Experiment Station Farms and Research Centers throughout the state.
  - Produce up-to-date, science-based information and deliver through guide sheets, newsletters, and websites.

### 2. Brief description of the target audience

There are two target audiences:

1. Landowners (both resident and absentee) interested in improving the natural resource base of their property.

2. Individuals who may or may not own land, but are interested in natural resource ecology and management issues.

### 3. How was eXtension used?

Posted case studies on the MU CHP Plant's new biomass boiler and the MDC Missouri Fuels for Schools projects on the Wood Energy Community of Practice webpage

Serve as an 'Ask the Expert' for the Wood Energy; Climate, Forests & Woodlands; Freshwater Aquaculture; and Wildlife Damage Management Communities of Practice. Over 150 questions were answered across all four CoPs.

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

### 1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	3500	5000	5500	7500

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

**Patent Applications Submitted**

Year: 2012

Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	10	0	10

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

**Output Target**

**Output #1**

**Output Measure**

- Provide training sessions for Extension specialists and/or state/federal natural resource professionals.

Year	Actual
2012	12

**Output #2**

**Output Measure**

- Coordinate delivery of natural resource ecology and management information via 'live' short courses, field days, and workshops to private landowners across Missouri.

Year	Actual
2012	65

**Output #3**

**Output Measure**

- Coordinate delivery of natural resource ecology and management information via distant-learning satellite seminars, webinars, and online short courses.

<b>Year</b>	<b>Actual</b>
2012	6

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

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

O. No.	OUTCOME NAME
1	50% of Extension specialists and natural resource professionals participating in training sessions exhibit a knowledge gain in natural resource ecology and management.
2	50% of farmers and family forest landowners participating in either 'live' or distant-learning education events exhibit a knowledge gain in natural resource ecology and management.
3	30% of farmers and family forest landowners participating in either 'live' or distant-learning education events have a natural resource management plan in-place after six months.
4	75% of farmers and family forest landowners completing a natural resource management plan will have engaged in at least one natural resource management practice within six months of the plan's completion.
5	50% of farmers and family forest landowners implementing a natural resource management practice will see a positive response within 12 months of completion.

## **Outcome #1**

### **1. Outcome Measures**

50% of Extension specialists and natural resource professionals participating in training sessions exhibit a knowledge gain in natural resource ecology and management.

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

- 1862 Extension

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	50

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

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

Natural resource managers need to know the latest science-based information to assist landowners in meeting their land management goals and objectives.

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

During this reporting period, 70 foresters, private land conservationists, and wildlife managers attended either a Woodland Steward or Missouri Master Wildlifer workshop; quail management field day; or quality deer management workshop.

#### **Results**

Collectively, 50 pre- and post-Likert self-evaluations (1-5 scale) were returned following a training session. KA 123 (Management and Sustainability of Forest Resources) impact was assessed by observing a 1.8-point knowledge increase in those foresters turning in both evaluations. KA 135 (Aquatic and Terrestrial Wildlife) impact was assessed by observing a 2.0-point knowledge gain in the 40 wildlife managers turning in both evaluations.

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

<b>KA Code</b>	<b>Knowledge Area</b>
123	Management and Sustainability of Forest Resources
125	Agroforestry
135	Aquatic and Terrestrial Wildlife
136	Conservation of Biological Diversity
605	Natural Resource and Environmental Economics
610	Domestic Policy Analysis

## **Outcome #2**

### **1. Outcome Measures**

50% of farmers and family forest landowners participating in either 'live' or distant-learning education events exhibit a knowledge gain in natural resource ecology and management.

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

- 1862 Extension

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	525

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

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

Farmers and family forest landowners need to know the latest science-based information to assist them in meeting their land management goals and objectives. Missouri citizens at large also need to gain knowledge in natural resource ecology to support the efforts of these famers and forest landowners.

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

During this reporting period, 3,500 farmers, forest landowners and members of the general public attended either a Woodland Steward, Missouri Master Wildlifer, or a Missouri Master Naturalist workshop; quail management field day; or quality deer management workshop.

#### **Results**

Of the 3,500 individuals attending the above educational events, we were able to only assess the 525 people who attended one of the named programs and returned valid pre- and post-Likert self-evaluations. KA 123 (Management and Sustainability of Forest Resources) impact was assessed by observing a 2.0-point knowledge increase in the 152 family forest landowners participating in a Woodland Steward workshop. KA 135 (Aquatic and Terrestrial Wildlife) impact was assessed by observing a 2.1-point knowledge gain in the 373 individuals participating in either a Missouri Master Wildlifer or Missouri Master Naturalist short course.

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

<b>KA Code</b>	<b>Knowledge Area</b>
123	Management and Sustainability of Forest Resources
125	Agroforestry
135	Aquatic and Terrestrial Wildlife

136	Conservation of Biological Diversity
605	Natural Resource and Environmental Economics
610	Domestic Policy Analysis

### **Outcome #3**

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

30% of farmers and family forest landowners participating in either 'live' or distant-learning education events have a natural resource management plan in-place after six months.

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

- 1862 Extension

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	136

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

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

Knowledge gain needs to be captured in a plan to assist the landowner in meeting his or her land management objectives.

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

Three Woodland Steward workshops and three Master Wildlifer workshops were conducted with 136 landowners participating, representing 34,840 acres. Six-month follow-up mail surveys were conducted.

##### **Results**

Six-month follow-up surveys revealed that 136 plans out of a possible 136 were prepared. KA 123 (Management and Sustainability of Forest Resources) impact was assessed by observing 102 forest stewardship plans were prepared, representing 30,840 acres. KA 135 (Aquatic and Terrestrial Wildlife) impact was assessed by observing a 34 wildlife management plans were prepared, representing 4,000 acres.

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

<b>KA Code</b>	<b>Knowledge Area</b>
123	Management and Sustainability of Forest Resources
125	Agroforestry
135	Aquatic and Terrestrial Wildlife

136	Conservation of Biological Diversity
605	Natural Resource and Environmental Economics
610	Domestic Policy Analysis

#### **Outcome #4**

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

75% of farmers and family forest landowners completing a natural resource management plan will have engaged in at least one natural resource management practice within six months of the plan's completion.

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

- 1862 Extension

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	136

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

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

To be truly effective, the landowner needs to implement his or her plan and not let it rest on a shelf, in a filing cabinet, or in a computer file.

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

Of the 3,500 farmers, forest landowners, or members of the general public who attended an educational event, six-month follow-up mail surveys were sent to 561 individuals who provided us with their contact information.

###### **Results**

Of the 136 farmers, forest landowners, or members of the general public who attended either a Woodland Steward or Master Wildlifer workshop, all individuals reported performing at least one natural resource management practice on their property; positively impacting 26,500 acres. In addition, we received 200 valid surveys from individuals who attended an educational event other than the named programs representing an additional 11,250 acres where at least one natural resource management practice was performed.

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

<b>KA Code</b>	<b>Knowledge Area</b>
123	Management and Sustainability of Forest Resources

125	Agroforestry
135	Aquatic and Terrestrial Wildlife
136	Conservation of Biological Diversity
605	Natural Resource and Environmental Economics
610	Domestic Policy Analysis

## **Outcome #5**

### **1. Outcome Measures**

50% of farmers and family forest landowners implementing a natural resource management practice will see a positive response within 12 months of completion.

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

- 1862 Extension

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	36

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

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

It is important that the landowner is able to see the impact their active management has on improving the health of their forest and/or wildlife habitat and associated animal communities.

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

The Master Wildlifer Program is a knowledge based educational program conducted in a short-course format. The program consists of 8-planned 2/1/2 - 3 -hour instructional modules and field experiences (approximately 21-24 hours of instruction) delivered through a combination of local programs conducted by MU Extension Specialists at the local level, in collaboration with the Missouri Department of Conservation. Past programs have delivered through the use of distance education technology (ITV) in combination with videoconferencing (CENTRA) with combinations of live presentations for program delivery.

#### **Results**

Over 80% of the landowners and wildlife enthusiasts participated in Master Wildlifer Programming indicated that they did not possess the knowledge and skills needed to understand basic ecological concepts or apply management practices on their property for wildlife benefits. Using a 5-point Likert Scale to assess participants level of knowledge (pre- and post-course), the average pre-test was 2.0, compared to an average post- test of 4.3. The knowledge gain of 2.2; indicated a significant increase in participants' understanding of key ecological concepts and the biology of

wildlife species as a result of the program. Approximately 5,000 acres were positively impacted and improved as a result of wildlife conservation practices implemented. Participants' estimated an economic benefit of approximately \$20.00 per acre (increase of approximately \$10,000) as a result of improved management, improved wildlife recreation opportunities and added value to property.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
125	Agroforestry
135	Aquatic and Terrestrial Wildlife
136	Conservation of Biological Diversity
605	Natural Resource and Environmental Economics
610	Domestic Policy Analysis

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

##### External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Other (Land Fragmentation)

##### Brief Explanation

The economy continued to suppress the number of landowners participating in two of our named programs; Missouri Woodland Steward and Missouri Master Wildlifer. However, six-month follow-up surveys did reveal a significant increase in the number of landowners who followed through and implemented their management plan. This suggests that we might be seeing the beginning of a turnaround. We must look for ways to lower the cost of delivering natural resource management information to these recreational landowners. As a result of limited resources preventing us from mailing 12-month surveys, we were unable to measure Outcome #5. We do not see this fiscal reality changing in the near future and recommend this outcome be dropped.

#### V(I). Planned Program (Evaluation Studies)

##### Evaluation Results

Our evaluation results show we are continuing to have a positive influence in promoting active land management. In this reporting year, through 78 combined natural resource educational events (both forestry and wildlife named programs, and assorted field days and workshops), we have directly reached over 3,500 adults and 5,500 youths. Of the adult population we have impacted change on 37,750 acres through the implantation of at least one new forest or wildlife management practice.

##### Key Items of Evaluation

See above section.