V(A). Planned Program (Summary)

Program # 9

1. Name of the Planned Program

Environmental Stewardship

☑ 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
102	Soil, Plant, Water, Nutrient Relationships	10%	10%		
104	Protect Soil from Harmful Effects of Natural Elements	10%	10%		
111	Conservation and Efficient Use of Water	10%	10%		
112	Watershed Protection and Management	10%	20%		
123	Management and Sustainability of Forest Resources	10%	0%		
131	Alternative Uses of Land	10%	0%		
132	Weather and Climate	10%	0%		
133	Pollution Prevention and Mitigation	10%	10%		
135	Aquatic and Terrestrial Wildlife	10%	0%		
136	Conservation of Biological Diversity	5%	0%		
403	Waste Disposal, Recycling, and Reuse	5%	20%		
723	Hazards to Human Health and Safety	0%	20%		
	Total	100%	100%		

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	16.2	3.8	0.0	0.0
Actual Paid	38.1	1.9	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**
627376	98831	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
767113	108249	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
3065911	205731	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The Alabama Outdoor Classroom (AOC) program provides guidance to develop outdoor classrooms on school campuses and provide professional development workshops for educators and those that work with youth. 4-H Skins 'N Skulls program provides hands-on lessons for youth to learn about wildlife, native habitats, and the larger ecosystems in which we all coexist. Mobile Bay Oyster Garden Program (MBOGP) is a volunteer restoration program. Volunteers grow oysters on private wharves for collection and planting on restoration sites. Watershed Management: Educational multi-team programs were conducted to integrate the link between land use and water quality. Topics include link between soils, forages, riparian forests, urban landscapes, and water quality. Actions include citizen science training and monitoring of waterways, implementation of BMPs, and engagement of decision makers. Alabama Smart Yards (ASY) projects offer residential landscape management solutions to reduce nonpoint source pollution associated with the everyday activities within a watershed. Professional Logger Manager (PLM) focuses on continuing education for professional loggers with regard to resource conservation, safety, and business management. The E-waste Institute offers education on the importance of properly managing electronic waste. Synergistic Efforts to Reduce Pharmaceuticals in the Environment offers resources that enable citizens to safeguard their home and the environment from pharmaceuticals and personal care products. The Urban Environmental Science Education Program utilizes in-school enrichment programs to improve environmental stewardship. Alabama Urban Home*A*Syst helps homeowners identify risks in and around the home and encourages them to take action. Waterwheels Program reaches out to Alabama citizens to engage them in hands-on learning activities about water conservation and intervention strategies.

2. Brief description of the target audience

The target audience includes youth, educators, volunteers, and other youth development professionals; coastal residents and visitors; landowners; homeowners; elected officials; farmers; loggers; poultry growers; consumers of horticulture goods and services; citizens, and land managers.

3. How was eXtension used?

The All Bugs Good and Bad series of nine webinars was coordinated, delivered, and recorded. Webinars were delivered to a live audience, and recording made available. The webinar series was co-sponsored by

Fire Ant eXtension. Webinars were delivered using eXtension's Adobe Connect Software. Topics included management of fire ants, ticks, termites, pollinator health, and mosquitoes.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	61809	2605966	15225	2500

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

Patent Applications Submitted

Year: 2014

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- ACES will reach both adult and youth audiences, agricultural producers, homeowners, agribusinesses, and rural and urban populations through participation in workshops, targeted PPT programs, 4-H enrichment programs, 4-H Club meetings, Coosa River Science School, media exposure, websites, partnerships, and curriculum.
  Not reporting on this Output for this Annual Report

Output #2

Output Measure

- Number of trained volunteers to produce, collect, and plant oysters in restoration areas in Mobile Bay

Year	Actual
2014	82

Output #3

Output Measure

- Number of individuals participating in meetings focused on Watershed Management and Stormwater Best Management Practices

Year	Actual
2014	2235

Output #4

Output Measure

- Number of individuals who participated in water monitoring educational activities

Year	Actual
2014	793

Output #5

Output Measure

- Number of individuals participating in Alabama Urban Home*A*Syst workshop series.

Year	Actual
2014	68

Output #6

Output Measure

- Number of individuals participating in meetings focused on Nutrient Management Planning for Poultry Growers

Year	Actual
2014	740

Output #7

Output Measure

- Number of participants reached in Alabama Smart Yards (ASY) face-to-face programs

Year	Actual
2014	4045

Output #8

Output Measure

- Number of participants engaging in continuing education Professional Logger Manager course.

Year	Actual
2014	1700

Output #9

Output Measure

- Number of participants engaging in continuing education Professional Logger Manager course.

Year	Actual
2014	1700

Output #10

Output Measure

- Number of participants in E-waste Institute face-to-face programs and activities.

Year	Actual
2014	472

Output #11

Output Measure

- Number of Synergistic Efforts to Reduce Pharmaceuticals in the Environment Activities.

Year	Actual
2014	28

Output #12

Output Measure

- Number of participants reached in Urban Environmental Science Education face-to-face programs.

Year	Actual
2014	415

Output #13

Output Measure

- Number of participants in live sessions of All Bugs Good and Bad webinar series.

Year	Actual
2014	834

Output #14

Output Measure

- Number of viewers to recorded sessions of All Bugs Good and Bad webinar series.

Year	Actual
2014	7929

Output #15

Output Measure

- Number of youth participants in the Alabama Outdoor Classroom Program.

Year	Actual
2014	2084

Output #16

Output Measure

- Number of youth participants in the Skins ?N Skulls Program.

Year	Actual
2014	10479

Output #17

Output Measure

- Number of youth participants in the Water Wheels Program.

Year	Actual
2014	2629

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	-knowledge increase local and state environment -how one's action affect the environment -increased knowledge of environmental sustainability -understand value of local involvement -increased knowledge of career choices related to environmental stewardship
2	-increased respect for citizenry, community, and environment; -increased frequency of sustainability behaviors; -increased community service related to environmental stewardship; -inform the policy process as it relates to environmental stewardship; -increased implementation of environmental stewardship management practices
3	-increased perception of self-empowerment - ability to make a difference; -increased capacity for planning organizing, problem solving, decision-making, and teamwork to address problems; -Increased leadership skills; -increased number of citizens practicing environmental stewardship leading to a cleaner, safer environment; -increased capacity to create innovative solutions for complex environmental problems; -increased environmental stewardship advocacy; - revenue generation attributed to improved environmental sustainability; -increased use of alternative, renewable sources of energy
4	Increase citizen awareness of best management practices for residential landscapes
5	Increase adoption of principles taught: IPM, rain barrels installed, pruning for plant health/aesthetics, proper use of garden chemicals, right plant - right place, identification of invasive exotic plants, environmentally sound production of livestock and poultry
6	Increased knowledge and awareness of household hazards and their impact on the environment and human health; -Increased adoption of environmentally friendly homesite BMPs; -Modified behavior towards homesite and residential land management;-Increased conservation of soil and water resources; -Improved management of the household waste generated from urban and suburban homes
7	Number of oysters produced as a result of implementation of environmental stewardship management practices through local involvement.
8	Dollar value of the implementation of Stormwater Control Measures
9	Number of citizen science water monitoring data collection records submitted.
10	Number of individuals who adopted environmentally friendly home site best management practices (BMPs).
11	Percent of attendees who plan to adopt at least 1 BMP related to the proper storage and use of broiler litter
12	Number of individuals who adopted IPM practices taught in Smart Yards and All Bugs programs.
13	The value of the Professional Logging Manager Program to the attendees

14	Quantity of e-waste (pounds) recycled by citizens practicing improved environmental stewardship leading to a cleaner, safer environment
15	Percentage of individuals who adopted a recommended pharmaceutical best management practice (BMP)
16	Number of youth that improved their knowledge of environmental issues and concepts through the Urban Environmental Science Education Program.
17	Number of participants who adopted insect identification techniques for more efficient management of pest insects and protection of beneficial insects.
18	Number of Youth with an increased appreciation and understanding of our state's natural resources and environmental stewardship.
19	Number of Youth who increased their knowledge of native Alabama wildlife and wildlife habitat.
20	Percentage of youth that increased their knowledge of water conservation principles and practices.

Outcome #1

1. **Outcome Measures**

   -knowledge increase local and state environment -how one's action affect the environment - increased knowledge of environmental sustainability -understand value of local involvement - increased knowledge of career choices related to environmental stewardship

   Not Reporting on this Outcome Measure

Outcome #2

1. **Outcome Measures**

   -increased respect for citizenry, community, and environment; -increased frequency of sustainability behaviors; -increased community service related to environmental stewardship; -inform the policy process as it relates to environmental stewardship; -increased implementation of environmental stewardship management practices

   Not Reporting on this Outcome Measure

Outcome #3

1. **Outcome Measures**

   -increased perception of self-empowerment - ability to make a difference; -increased capacity for planning organizing, problem solving, decision-making, and teamwork to address problems; - Increased leadership skills; -increased number of citizens practicing environmental stewardship leading to a cleaner, safer environment; -increased capacity to create innovative solutions for complex environmental problems; -increased environmental stewardship advocacy; - revenue

generation attributed to improved environmental sustainability; -increased use of alternative, renewable sources of energy

Not Reporting on this Outcome Measure

Outcome #4

1. **Outcome Measures**

Increase citizen awareness of best management practices for residential landscapes

Not Reporting on this Outcome Measure

Outcome #5

1. **Outcome Measures**

Increase adoption of principles taught: IPM, rain barrels installed, pruning for plant health/aesthetics, proper use of garden chemicals, right plant - right place, identification of invasive exotic plants, environmentally sound production of livestock and poultry

Not Reporting on this Outcome Measure

Outcome #6

1. **Outcome Measures**

Increased knowledge and awareness of household hazards and their impact on the environment and human health; -Increased adoption of environmentally friendly homesite BMPs; -Modified behavior towards homesite and residential land management;-Increased conservation of soil and water resources; -Improved management of the household waste generated from urban and suburban homes

Not Reporting on this Outcome Measure

Outcome #7

1. **Outcome Measures**

Number of oysters produced as a result of implementation of environmental stewardship management practices through local involvement.

2. **Associated Institution Types**

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	68770

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The Eastern Oyster, Crassostrea virginica, is of commercial and economic importance to the Mobile Bay. Oyster beds serve as habitat for about 300 different species of vertebrates and invertebrates which help form the food web of this estuarine ecosystem. Likewise, adult oysters help to improve water quality by filtering phytoplankton from as much as 4-gallons of water per hour. Thus, Oyster Restoration in Mobile Bay is important to the environment and the local economy as its tourism capabilities thrive on the ability to produce oysters.

What has been done
Mobile Bay Oyster Garden Program implemented by recruiting volunteers, producing spat on shell in partnership with AU Shellfish Laboratory and delivering spat on shell to Gardeners. Gardeners care for their spat on shell by cleaning, and removing predators from the gardens to allow for a protected nursery phase on a home-scale engaging with their ecosystem in the form of the mini reef found in the gardens. In November, gardens are collected and planted on restoration reef sites in and around Mobile Bay.

Results
The Mobile Bay Oyster Garden Program engaged 82-gardeners to produce 59,330-oysters of an average size of 46.1-mm, at 41 sites in Mobile Bay. Additionally, students at Alma Bryant High School produced 9,440-oysters on the restoration and enhancement sites.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
132	Weather and Climate
135	Aquatic and Terrestrial Wildlife
136	Conservation of Biological Diversity

Outcome #8

1. Outcome Measures

Dollar value of the implementation of Stormwater Control Measures

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	27500

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Working with local, state, and federal agencies to meet goals that include improved quality of life; safe, abundant drinking water; waters that meet their designated use standard; and increased awareness of new technologies to achieve these goals.

What has been done
ACES becomes the focal point for regional watershed planning ACES has assisted with implementing several place-based local watershed plans (Fowl River, Pintlala Creek, Choccolocco Creek, Parkerson Mill Creek, Saugahatchee Creek, Mill Creek, Mud Creek / Spring Creek, and Rock Creek). Initial investigations were made in the development of watershed plans for Cottonwood Creek and Turkey Creek. ACES is also involved at the river basin level with the Clean Water Partnership steering committees and at the state level with the Alabama Erosion and Sediment Control State Committee and Alabama Water Resource Association Committee. A "Pastures and Ponds" Field Day was developed to demonstrate the relationship between managing pastures for livestock and maintaining surface water quality. ACES is also the focal point for training professionals in the development and implementation of management practices to maintain and enhance water quality on farms with livestock and poultry. Watershed plans were developed. The ACES Water Program was awarded extramural funding to continue the implementation of the Mill Creek Watershed Plan in Lee and Russell Counties and is working with the Fowl River Watershed Planning Project in Mobile County. ACES representatives are actively involved in the Pintlala Creek Watershed Plan in Montgomery County.

Results
500 linear feet of stream enhanced or restored. Improved stormwater quality from implementation of 4 stormwater control measures; 14 agricultural BMPs, valued at $27,500 completed. BMPs included waste management facilities, pasture improvements, stream crossings, and heavy use

areas.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
131	Alternative Uses of Land
135	Aquatic and Terrestrial Wildlife
403	Waste Disposal, Recycling, and Reuse

Outcome #9

1. Outcome Measures

Number of citizen science water monitoring data collection records submitted.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	3572

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The mission of AWW is to improve both water quality and water policy through citizen monitoring and action. Water monitoring workshops, watershed data interpretation, and water data-to-action presentations and publications enable watershed stakeholders to monitor local water quality conditions and become active participants in watershed management.

What has been done
AWW conducted 114 training sessions in 2014: thirty-four water chemistry workshops, 23 bacteriological workshops, four Exploring Alabama's Living Streams workshops, 31 re-certification

sessions, four trainer refresher workshop, and five training-of-trainers were completed in 2014. AWW-certified citizen trainers conducted about 70% of the workshops. Monitor groups included public school groups, lake homeowner-boat owner groups, retiree groups, lake stakeholder groups, stream/river stakeholder groups, bay/estuary stakeholder groups, 4-H youth groups, Future Farmers of America groups, conservation groups, university student groups, and professional groups. Water monitoring and watershed stewardship outreach was extended to a broader audience via presentations at community meetings, professional meetings and conferences, along with regular publications of volunteer monitoring activities and success stories in various publications.

Results
A total of 793 certifications were awarded in 2014: 245 people were certified in water chemistry monitoring, 362 people were certified in bacteriological monitoring, 29 people were certified in Exploring Alabama?s Living Streams, 125 people were recertified in water chemistry and/or bacteriological monitoring, 8 citizen trainers were certified in the trainer-refresher workshop, eleven new citizen trainers were certified in training-of-trainer workshops, and 13 new trainers completed their intern workshops. AWW-certified water monitors contributed 3,572 additional water data records to the AWW online database in 2014. AWW water monitor workshops and water monitoring are routinely employed in the implementation of ADEM 319(h) watershed management plans throughout the state for both stewardship outreach and water data collection/watershed assessment. Municipal, county, university and state agencies also employ AWW monitoring for data collection, outreach and watershed management.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
135	Aquatic and Terrestrial Wildlife

Outcome #10

1. Outcome Measures

Number of individuals who adopted environmentally friendly home site best management practices (BMPs).

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	55

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Education and outreach programs that address emerging environmental issues and offer integrated approaches to help resolve them are critical in combating environmental illiteracy among urban and suburban home owners. In order to enhance decision-making, homeowners must understand that their actions are crucial to the protection of their health and the environment.

What has been done
Alabama Urban Home*A*Syst workshops were conducted to help homeowners identify risks or problems found in and around the home, and encourage them to take action. A total of 68 participants learned how to complete action checklists and perform environmental risk assessments. The majority of the participants surveyed identified runoff management, lawn and garden care, and managing household trash and waste prevention as "high risk" as it is related to their home and property; while storage and handling of automotive products was rated as a "low risk".

Results
Participants (n=68) showed increased knowledge in water quality; runoff management; lawn and garden; managing hazardous products; storing automotive products; household wastewater treatment; and managing trash and waste prevention. Of the 55 participants responding to 3 to 6 month follow-up surveys, 75% had adopted at least 2 of the recommended BMPs and 81% felt that the program enabled them to achieve a social (hazard free, securer home), environmental (protecting the environment from poor home site management practices) or economic (saving money) expectation.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
403	Waste Disposal, Recycling, and Reuse
723	Hazards to Human Health and Safety

Outcome #11

1. Outcome Measures

Percent of attendees who plan to adopt at least 1 BMP related to the proper storage and use of broiler litter

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	92

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Poultry litter is a valuable commodity when handled, stored, and used properly and can be sold by producers to increase sustainability of the farm enterprise and to reduce phosphorus buildup on surrounding farm land. Boiler producers now sell much of their litter to row crop producers. These new users of broiler litter are less knowledgeable regarding the property storage and use of litter.

What has been done
Row crop producers were targeted through 14-litter management meetings. Poultry producers have also been trained to provide key litter management tips to their customers who purchase litter.

Results
92% of litter management meeting participants plan to adopt at least one of the litter management BMPs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
104	Protect Soil from Harmful Effects of Natural Elements
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation
403	Waste Disposal, Recycling, and Reuse

Outcome #12

1. Outcome Measures

Number of individuals who adopted IPM practices taught in Smart Yards and All Bugs programs.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	911

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Non-point source pollution is associated with land uses and every day activities of the people living within each watershed (EPA841-F-96-004A). Residential landscapes are one of these activity areas. Consumer spending related to horticulture goods was $843 million in 2009. This has huge potential for environmental impact.

What has been done
79 workshops, demonstrations and webinars were conducted in 2014 on topics such as pest management in home landscapes (IPM), pollinator protection, pest/beneficial insect ID, home lawn fertility and management, water conservation and collection, and invasive pest species.

Results
87% of 1,040 participants (n=911) adopted the IPM practices promoted or taught during the programs. The webinar series, All Bugs Good and Bad was especially successful having 96% (n=404) of respondents saying "yes" they adopted the IPM techniques.

4. Associated Knowledge Areas

KA Code	Knowledge Area
136	Conservation of Biological Diversity

Outcome #13

1. Outcome Measures

The value of the Professional Logging Manager Program to the attendees

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	87

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The Professional Logging Manager (PLM) Training Program began in the early 1990's to address professionalism of logging firms with regard to resource conservation, safety, and business management issues. The Sustainable Forestry Initiative (SFI) designated the program as the program in Alabama that satisfied SFI objectives in the mid 1990's. The need to demonstrate continuous improvement resulted in a continuing education requirement of six hours per year in 2002. ACES is responsible for curriculum development and preparation of trainers. Participation in the PLM program by SFI members and their contractors addresses criteria and indicators in the SFI certification system. The program has about 1700 active members and PLM training adds about 100 new participants each year.

What has been done
The program is held over 2 days and covers forest resource conservation, endangered species, conserving biodiversity, forest productivity through forest management, best management practices for water quality protection, and timber harvest planning. Also included are logging safety and compliance, business regulations, and logging business information and management tools. 130 participants attended the program in 2014.

Results
In the program evaluations the participants express that the information in the programs is new and valuable to them. Ratings range from 1.3 to 1.5 on a 5 point scale (1 = Strongly agree) with standard deviations from 0.5 to 0.7. The programs yield greater value than total cost of attendance (1.4). We have projected total direct cost of attendance at $1000 per day. General program ratings were similar with 90 % of participants projecting that they plan to adopt (1.3)

information or tools presented in the program. From the evaluations about 75% of the program participants were loggers, and collectively the participants manage or work on logging firms that account for about 15% of the annual harvest in Alabama.

4. Associated Knowledge Areas

KA Code	Knowledge Area
104	Protect Soil from Harmful Effects of Natural Elements
112	Watershed Protection and Management
123	Management and Sustainability of Forest Resources

Outcome #14

1. Outcome Measures

Quantity of e-waste (pounds) recycled by citizens practicing improved environmental stewardship leading to a cleaner, safer environment

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	10753

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Educational information to respond to community needs related to electronic waste (e-waste) management is becoming increasingly important. The number of electronic products in households and businesses that are considered to be obsolete, broken, or irreparable is growing at an enormous rate. Continued production of e-waste in such a rapid manner creates a need for improved education and increased adoption of e-waste BMPs. The E-Waste Institute serves as a medium to educate, train, and influence public policies about safe environmental practices for e-waste.

What has been done
1) In 2014, 1503 lbs. of printer cartridges (921) and cell phones (69) were recycled through the small electronics recycling program (SERP) via Funding Factory, resulting in 839.22 lbs. of remanufactured items and 664.03 lbs. of recycled items.2) Two city-wide e-waste recycling drives in 2014 led to 203 cars dropping off 9250 lbs. of e-waste. A survey of the participants (n=203)

revealed that 56% of the individuals participating were female. It also revealed that participation among African Americans (19%) and other minorities (Asian >1) was low when compared to Caucasians (80%). The survey also revealed that 79% of the participants were recycling e-waste for the first time.

Results

A total of 10,753 lbs. of e-waste was recycled in 2014. 1) The 1503 lbs. of e-waste recycled through the SERP program led to the reclamation of 425.23 lbs. of precious resources (i.e., copper, steel, aluminum). Fourteen MtCO2e (metric ton carbon dioxide equivalent) were prevented through remanufacturing and recycling. This is equivalent to offsetting CO2 emissions from the consumption of 1,670.64 gallons of gasoline or the consumption of 34.66 barrels of oil. Total earnings generated since development of the Funding Factory partnership equals $746.88. 2) The economic and environmental gains observed from the 9250 lbs. of e-waste recycled via the city-wide e-waste drives totaled $1,269.00 for 2200 lbs. of plastic ($44.00), 3500 lbs. of metal ($245.00); 300 lbs. of wire ($240.00) and 600 lbs. of electrical units ($240.00). The two e-waste drives deferred 14,930 lbs. of carbon emissions from entering the atmosphere. According to the EPA Waste Reduction Model (WARM) this equates to 2,533 gallons of gasoline conserved [@ $1.98 per gal. = $5015.34], 576 trees saved, 21,638 plastic bottles recycled or 99,534 aluminum cans recycled [@0.60 per lb. = $59,740.20].

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation
403	Waste Disposal, Recycling, and Reuse
723	Hazards to Human Health and Safety

Outcome #15

1. Outcome Measures

Percentage of individuals who adopted a recommended pharmaceutical best management practice (BMP)

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	88

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Pharmaceuticals and personal care products (PPCPs) are being detected in the environment by scientists all over the world. The Synergistic Efforts to Reduce Pharmaceuticals in the Environment (SerPIE) Program helps individuals understand the environmental safeguards germane to proper management and disposal of unwanted medicine. The program aims to improve human, animal and environmental health through a reduction in the number of pharmaceuticals fated for the environment and stockpiled in homes by promoting positive changes in behavior and adoption of recommended pharmaceutical best management practices (BMPs).

What has been done

Modes of program delivery in 2014 included workshops, demonstrations and drug take-back initiatives. A total of 11 drug take-back programs with ACES staff participation yielded over 1500 lbs. of PPCPS. A survey of 380 participants revealed that 71% (n=131) of the participants in the drug take-back initiatives were female. It also revealed that participation among minorities was fairly low (16%). The majority of the medicines collected were prescription drugs, followed by over-the-counter medicines. A survey of individual participating in SerPIE demonstrations revealed that 81% (n=249) of the participants were female; while 19% were male. Sixty-six percent of the participants were African American and 30% Caucasian; other minorities made up the additional 5%.

Results

Results identifying trends among demonstration participants (n=249) revealed that 85% of the participants were aware of the growing problem of prescription drug abuse; 78% stated that they kept their pharmaceuticals out of reach, locked up or away from youth. Interestingly, 42% of the respondents frequently kept expired pharmaceuticals in their medicine cabinet. When asked how they disposed of unwanted pharmaceuticals, 41% of the respondents admitted to throwing drugs in the trash; 24% admitted to flushing them down the toilet; 4% admitted to giving them to friends or relatives; while 31% chose not to respond. Of the 35 (n=44) participants responding to 3 to 6 month follow-up surveys, 88% had eliminated the practice of throwing drugs in the trash and 84% had achieved their environmental expectation of protecting the environment from pharmaceutical drug contamination

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation
403	Waste Disposal, Recycling, and Reuse
723	Hazards to Human Health and Safety

Outcome #16

1. Outcome Measures

Number of youth that improved their knowledge of environmental issues and concepts through the Urban Environmental Science Education Program.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	415

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Outreach education provides a framework for citizens to avoid the long-term consequences associated with poor environmental stewardship and management of natural resources. The Urban Environmental Science Education Program (UESeP) seeks to improve citizen appreciation for science and enhance their understanding of the environment. In short, it identifies environmental issues and provides unbiased, science-based information to help citizens become better stewards of the environment.

What has been done
A team-based approach was used to implement UESeP in various settings. The Team carried out 70 activities utilizing multiple delivery modes, including classroom enrichment, workshops, field days, fairs and festivals. Four extramural grants were received and presentations were also made at local and regional conferences. Research activities were used to create experiential learning opportunities for undergraduate students and to provide researched-based data for Extension program enhancement.

Results
UESEP youth learned the impacts of non-point pollution; the importance of natural resource conservation, the importance of pollinators; and the benefits of reducing, reusing and recycling discarded waste. The percentage of youth participants who improved their knowledge of program concepts was as follows: water quality and quantity (71%); natural resource conservation (75%); forestry and wildlife; (70%) energy and waste management (64%) (n=415). The average youths knowledge before the workshops was rated very low to moderate (1-3) compared to ratings of high and very high (4-5) after the workshops. Surveys revealed that 82% of youth surveyed agreed that the program made them want to become better stewards of the environment (n=

415).Comments: Great Program! Loved It! Excellent Speaker; Great Presentation, I learned a lot I didn't know! It really made me think of outdoors! The YeES Program was Fun! When are you coming back?

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
403	Waste Disposal, Recycling, and Reuse
723	Hazards to Human Health and Safety

Outcome #17

1. Outcome Measures

Number of participants who adopted insect identification techniques for more efficient management of pest insects and protection of beneficial insects.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	156

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Entomologists estimate that 2% of insects are considered pests. An example of increased pest pressure due to misuse of miticides is noted in spider mite populations. This often damages parasitoid populations which would normally manage the spider mites to tolerable levels. Identification is important before any pesticide is chosen or used. As well, the misuse of insecticides can have a negative effect on pollinating insects important to food producing crops.

What has been done
Workshops and demonstrations were hosted to teach the value of and identification of beneficial insects (including pollinators). 206 participants answered our surveys.

Results

156 (76%) of 206 participants who responded said they added plants to their landscape to attract pollinating insects. 144 (70%) learned about beneficial (predatory and parasitoid) insect identification. 187 (91%) learned to identify types of pollinating insects.

4. Associated Knowledge Areas

KA Code	Knowledge Area
136	Conservation of Biological Diversity

Outcome #18

1. Outcome Measures

Number of Youth with an increased appreciation and understanding of our state's natural resources and environmental stewardship.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	2084

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The youth involved in the AOC program have become more aware and actively involved in environmental issues and in improving the local natural environment around their school's campus. This is local involvement is very important as it gives them a "voice" as well as ownership in the world around them. Once they realize that they do have a "voice" in improving the local environment, they are more likely to realize that they can also have an impact on a larger scale regarding the environment.

What has been done
Through the AOC Program, youth actively participated in assisting with the development and maintenance of their school?s outdoor classroom as well as with the design and construction. For example, students have helped construct raised bed gardens, aquatic study areas (ponds), tree plantings, wildlife habitat development, as well as many other learning stations. In addition to the learning station development, the students actively participate in activities related to these areas.

Results

According to the quantitative outcome, 2084 students were identified as being reached through the AOC program. The students involved in the AOC program have a better understanding of the natural world and the role they can personally play. The AOC program is continuing to expand, adding approximately 15-20 new schools to the program each year. Each year, enrolled schools receive thousands of dollars in grants for the development of their outdoor classrooms. Even though the number of students represented above gives us a numerical number, we know that with 310 schools enrolled in the AOC program, this number is a small fraction of the youth that are actually reached by this program. Being conservative, if we figure that just 10 teachers at each school, with an average class size of 20 involve their students in only one environmental-based activity per year in their outdoor classroom, this would mean that at least 62,000 students are really involved in the AOC program. Of course, we know that many of these teachers teach several lessons a year in the outdoor classroom and that many of these teachers teach more than one group of students.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
123	Management and Sustainability of Forest Resources
131	Alternative Uses of Land
132	Weather and Climate
133	Pollution Prevention and Mitigation
135	Aquatic and Terrestrial Wildlife
136	Conservation of Biological Diversity
403	Waste Disposal, Recycling, and Reuse
723	Hazards to Human Health and Safety

Outcome #19

1. Outcome Measures

Number of Youth who increased their knowledge of native Alabama wildlife and wildlife habitat.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	10479

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Skins N Skulls Program gives youth the opportunity to not only see the skins and skull of the selected mammal but to also learn why the different species are classified as carnivore, herbivore, or omnivore. Youth learn about the different roles each species plays in the environment, and also their role in the food chain. This Program is also a great way to introduce wildlife management.

What has been done

For the Skins N Skulls program, we have a prepared written as well as a PowerPoint presentation with hands-on materials that can be adjusted depending on the size of the group, age of the group, and other factors. The Skins N Skulls module or kit contains the skins of 10 common Alabama mammals as well as the skulls of these same 10 species. During a presentation, the skins and skulls can be passed around to let the youth and adults that are participating in the program, have direct contact with the items. In addition, the PP presentation can be used to show the students other images of the mammals as well as a means to share other information about the various species, therefore increasing their knowledge level. This module has been used with 4-H In-School Groups/Clubs, 4-H Clubs, 4-H Enrichment, adult groups, as well with general audiences such as at a county fair, community event or other program. This presentation has been verified by wildlife experts to assure that scientifically, fact-based information is being communicated to the audience

Results

During 2014, a total of 10,479 youth are reported as having participated in the Skins N Skulls program through 350 presentations. Most of the participants were reached through group presentations (In-School Clubs/Groups, Enrichment, and traditional 4-H Clubs. Through the Skins N Skulls presentations that where conducted, the participants increased their knowledge pertaining to the following: 1) Participants learned the different between a herbivore, carnivore and omnivore. 2) Participants learned the difference between hair and fur. 3) Participants increased their knowledge regarding the importance of wildlife management 4) Participants are able to name at least 8 different mammals that are native to Alabama.

4. Associated Knowledge Areas

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife
136	Conservation of Biological Diversity
723	Hazards to Human Health and Safety

Outcome #20

1. Outcome Measures

Percentage of youth that increased their knowledge of water conservation principles and practices.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	61

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The Interactive 3-D Game-Based Mobile Water Conservation Learning Laboratory (Water Wheels) Program is supported primarily by one Urban Program Assistant, who also serves as the Program Manager; and 6 Urban Regional Extension Agents (UREAs), cover 9 urban centers which encompass 21 counties and span the whole state of Alabama. During the course of 2014, Water Wheels conducted workshops, seminars and attended various conferences to educate Alabama urban youth and clientele on the benefits of rain water harvesting in limited urban spaces, the options rain water gardening with limited resources, and potentially create a behavior change in youth and adults towards water conservation.

What has been done
The Water Wheels 2014 FY reached 2,629 (face to face) individuals through 50 scheduled activities. Some of these activities also have the potential to reach other (non-face to face) individuals through distributed educational resource materials, internet, radio and T.V. interviews, social media (Website visited for FY2014, 7,142 visits, with 13,658 website hits, 19 average visits per day, and August with the highest traffic month: 56% visits from the U.S.), and newspapers. The non-traceable clientele are estimated to be 7,626. Total number reached by the Water Wheels FY2014 is 10,255. The face to face clientele (2,629) were 37% adults, 61% youth, 20% black, 78% white, 50% male, and 50% female.

Results
Administered surveys and responses indicate that the Water Wheels programming has (2629 face to face, 932 surveyed): 1. Increase the use of rainwater and adoption of water conservation interventions (Adult: 32% n=1014 / Youth: 18% n=1614), 2. Decrease in pollution and runoff, 3. Knowledge gain of water conservation (Adult; 85% n=1014 / Youth: 15% n=1614), 4. Number of clientele participating in the cost/returns /impact of the project increased (324, 32% participation,

n=1014).

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation
723	Hazards to Human Health and Safety

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 Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

Strong partnerships among local, state, and federal institutions have provided a solid platform for successful implementation of projects and additional extramural funding. These partnerships also include state and national commodity organizations as well as non-agriculture environmental groups. AWW's merger with the AU Water Resources Center in mid-2013 has provided institutional stability and expanded facilities for the program, which is aiding in more effective outreach efforts and more competitiveness for grant funds. Strong partnerships and close collaboration fostered by the development of personal relationships between AWW staff and our AWW volunteer monitors continues to provide a solid foundation for the success and expansion of our program. Grants acquired for related projects provide synergies in outreach and staff support. Grant funds were received in 2014 from USDA-AFRI, ADEM, Alabama Water Resources Research Institute, the Mobile Bay National Estuary Program, and contributions from individuals throughout the state.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

• The Mobile Bay Oyster Garden Program engaged 82-gardeners to produce 59,330-oysters of an average size of 46.1-mm, at 41 sites in Mobile Bay. Additionally, students at Alma Bryant High School produced 9,440-oysters on the restoration and enhancement

sites.

• 500 linear feet of stream enhanced or restored. Improved stormwater quality from implementation of 4 stormwater control measures; 14 agricultural BMPs, valued at $27,500 completed.

• 245 people were certified in water chemistry monitoring, 362 people were certified in bacteriological monitoring, 29 people were certified in Exploring Alabama's Living Streams, 125 people were recertified in water chemistry and/or bacteriological monitoring, 8 citizen trainers were certified in the trainer-refresher workshop, eleven new citizen trainers were certified in training-of-trainer workshops, and 13 new trainers completed their intern workshops.

• Participants (n=68) showed increased knowledge in water quality; runoff management; lawn and garden; managing hazardous products; storing automotive products; household wastewater treatment; and managing trash and waste prevention. Of the 55 participants responding to 3 to 6 month follow-up surveys, 75% had adopted at least 2 of the recommended BMPs and 81% felt that the program enabled them to achieve a social, environmental, or economic expectation.

• 87% of 1,040 participants (n=911) adopted the IPM practices promoted or taught during the programs.

• All Bugs Good and Bad was especially successful having 96% (n=404) of respondents saying "yes" they adopted the IPM techniques.

• The SERP program led to the reclamation of 425.23 lbs. of precious resources (i.e., copper, steel, aluminum). Additionally, 14 MtCO2e (metric ton carbon dioxide equivalent) were prevented through remanufacturing and recycling. The quantity of e-waste recycled was equivalent to offsetting CO2 emissions from the consumption of 1,670.64 gallons of gasoline or the consumption of 34.66 barrels of oil. SerPIE workshop outcomes revealed that 80% of participants (n=44) increased their knowledge concerning the impacts of improperly disposing of pharmaceuticals.

• 156 (76%) of 206 participants who responded said they added plants to their landscape to attract pollinating insects. 144 (70%) learned about beneficial (predatory and parasitoid) insect identification. 187 (91%) learned to identify types of pollinating insects.

• The students involved in the AOC program have a better understanding of the natural world and the role they can personally play. The AOC program is continuing to expand, adding approximately 15-20 new schools to the program each year.

Water Wheels programming has (2629 face to face, 932 surveyed): 1. Increase the use of rainwater and adoption of water conservation interventions (Adult: 32% n=1014 / Youth: 18% n=1614), 2. Decrease in pollution and runoff, 3. Knowledge gain of water conservation (Adult; 85% n=1014 / Youth: 15% n=1614), 4. Number of clientele participating in the cost/returns /impact of the project increased (324, 32% participation, n=1014).

Key Items of Evaluation

Implementation of stream restoration and both urban and agricultural stormwater measures contributed to improved water quality of Alabama water resources. As a result, 500-linear feet of stream was enhanced or restored; and 14-agricultural Best Management Practices, valued at $27,500, were completed.

The Synergistic Efforts to Reduce Pharmaceuticals in the Environment (SerPIE) Program- Results identifying trends among demonstration participants (n=249) revealed that 85% of the participants were aware of the growing problem of prescription drug abuse; 78% stated that they kept their pharmaceuticals out of reach, locked up or away from youth. Of the 35 (n=44) participants responding to 3 to 6 month follow-up surveys, 88% had

eliminated the practice of throwing drugs in the trash and 84% had achieved their environmental expectation of protecting the environment from pharmaceutical drug contamination.

Smart Yards - 87% of 1,040 participants (n=911) of the Smart Yards and All Bugs Good and Bad Programs adopted the Integrated Pest Management (IPM) practices promoted or taught during the programs. Results from the webinar series, All Bugs Good and Bad revealed that 96% (n=404) of respondents adopted the IPM techniques. Workshops and demonstrations were hosted to teach the value of and identification of beneficial insects (including pollinators). Survey results indicate that 156 (76%) of 206 participants who responded said they added plants to their landscape to attract pollinating insects. 144 (70%) learned about beneficial (predatory and parasitoid) insect identification. 187 (91%) learned to identify types of pollinating insects.

Implementation of the SERP Program resulted in a total of 10,753 lbs. of e-waste recycled in 2014. The economic and environmental gains observed from the 9250 lbs. of e-waste recycled via the city-wide e-waste drives totaled $1,269.00 for 2200 lbs. of plastic ($44.00), 3500 lbs. of metal ($245.00); 300 lbs. of wire ($240.00) and 600 lbs. of electrical units ($240.00). The two e-waste drives deferred 14,930 lbs. of carbon emissions from entering the atmosphere. According to the EPA Waste Reduction Model (WARM) this equates to 2,533 gallons of gasoline conserved [@ $1.98 per gal. = $5015.34], 576 trees saved, 21,638 plastic bottles recycled or 99,534 aluminum cans recycled [@0.60 per lb. = $59,740.20].

The Urban Environmental Science Education Program (UESEP) -Results indicated increased knowledge of UESEP program concepts: water quality and quantity (71%); natural resource conservation (75%); forestry and wildlife; (70%) energy and waste management (64%) (n=415). The average youths' knowledge before the workshops was rated very low to moderate (1-3) compared to ratings of high and very high (4-5) after the workshops. Surveys revealed that 82% of youth surveyed agreed that the program made them want to become better stewards of the environment (n= 415).