A L A B A M A EXTENSION FORESTRY, WILDLIFE, AND NATURAL RESOURCES TEAM



2023 Social Media Engagement Facebook 366.6K reach increase of 329.1%; Instagram 5.9K interactions increase of 156.4%.

2023 Newsletter 3K subscribers increase of 66.4%

Working with a passion for enhancing the lives of Alabamians through Forestry, Wildlife, and Natural Resources education





2023 Impact Report

Highlights



Forestry, Wildlife, and Natural Resources Team

The mission of the Alabama Extension Forestry, Wildlife, and Natural Resources (FWNR) team is to provide relevant, science-based information to help Alabama residents make informed natural resource– related management decisions.

"Working with a passion for enhancing the lives of Alabamians through Forestry, Wildlife, and Natural Resources education."

Participants in the Forestry, Wildlife, and Natural Resources program learn how to improve forest health, create and improve wildlife habitat, increase the quality and value of timber, and protect water quality.

Alabama has 64 different and documented ecosystems, and 25 are forests and woodlands covering more than two-thirds of the state. These features make Alabama the fifth most biologically diverse state in the country. You can travel by car from the mountains of north Alabama to the sandy white beaches of the Gulf Coast in just one day and never leave the state. Wood products, hunting, outdoor recreation, and improved water quality significantly contribute to Alabama's economy. For example, in 2020, Alabama ranked second in the United States in pulp, paper, and paperboard production and sixth in lumber production. Outdoor recreation activities, such as camping, hiking, boating, and hunting, generated more than 55,500 jobs and provided \$2.1 billion in wages and benefits to Alabama workers in 2020. Healthy, well-managed forests support these industries and society's well-being.



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Alabama Master Naturalist

Project Leader: Wesley Anderson

Alabama Master Naturalist (AMN) is a statewide program to promote awareness, understanding, and respect for Alabama's natural world among the state's residents and visitors. The AMN program also develops a statewide corps of well-informed volunteers providing education, outreach, and service dedicated to the beneficial management of natural resources and natural areas within their communities.

In October 2023, the online course was launched for the first time and made available to the public. The 22-module course is rolling out with two new modules released every 2 weeks until all the content is fully available in March 2024. Completion of the online course, 30 volunteer hours, and attendance at two day-long field days are the requirements for full certification as an Alabama Master Naturalist.

To make the program accessible to all, the AMN program provided full scholarships to some participants. Using funds from a New Technologies for Ag Extension grant awarded by the Extension Foundation in 2022, the program offered 70 scholarships valued at \$135 each.

Aside from the field days, the course is fully asynchronous. Participants may complete the course and volunteer requirements at their own pace. Because full certification can only be achieved once the course is fully launched in March 2024, submission of volunteer hours was optional for 2023. Of the 333 participants enrolled, 62 submitted volunteer time totaling 1,468 hours. Volunteer activities must occur in Alabama and be natural resource focused.



Number of Participants: 333 participants enrolled in the online Canvas course and working toward Alabama Master Naturalist certification

Audience Diversity: 24% Male, 75% Female, 2% Nonbinary; 92% White, 4% Black, 2% Indigenous American, 1% Asian, 1% More Than One Race, 2% Hispanic, 16% Veterans

Extension Collaborators: Emily Burchfield, Drew Metzler, Becky Barlow, Nancy Loewenstein, Audrey Gamble, Katelyn Kesheimer, Mona Dominguez, Lynn Dickinson, Kerry Steedley, Bence Carter, Dylan Taylor

Agency Collaborator: Alabama Department of Conservation and Natural Resources State Parks Division

Publications/Press: Alabama Extension news release, "Mastering Your Environment: Alabama Master Naturalist Program Provides Hands-On Environmental Education"

Evaluation Technique: Surveys

Direct Impacts:

- 62 course participants logged volunteer hours in 2023
- 1,468 volunteer hours valued at \$46,682 were contributed by volunteers to natural resource management in the state
- Participants actively managed approximately 10,600 acres in Alabama
- Feedback on the online Canvas course has been positive. One participant said: "First I want to say that I'm really happy and impressed with how the [Alabama Master Naturalist] course launch has gone. I know it's a lot of work behind the scenes to run an online course, but y'all are making it look easy from the participants' perspective."

Return on Investment: 2:1

Beekeeping

Project Leader: William Rowe

Beekeeping focuses on bringing up-to-date management practices to Alabama's beekeepers, along with hive product processes to help maximize the production of honey and other edibles, wax, and bees themselves.

The FWNR team focuses on in-person events (17), a newsletter, and a webinar series. In-person events include a one-day symposium covering the whole state, beekeepers association events, beekeeping workshops, school events, Extension Master Gardener meetings, and participation in the Alabama Beekeepers Association and Alabama Master Beekeepers annual conferences.



Number of Participants:

In-person events: 1,678 Newsletter subscribers: 1,006 Webinar viewership: 2,590

Audience Diversity: Male (55%), Female (45%); Ethnicity (96% Non-Hispanic), White (84%), Black (2%), Hispanic (4%).

Impact Assessment: Extension beekeeping efforts are expanding in Alabama with more programming and training for professional and hobbyist beekeepers. Beekeeping as both a hobby and small business has expanded exponentially in Alabama.

The honey bee itself has never been more valuable with package bees (4 pounds of workers with a mated queen) now regularly costing more than \$200.00 to \$300.00. Nucleus colonies (small working colonies used to quickly start a full-sized hive) now cost between \$150.00 and \$200.00 for Alabama beekeepers.

Alabama experiences about a 23 percent loss of managed honey bee colonies per year. Complex health and habitat issues now make beekeeping more intensive and difficult.

Auburn & Extension Collaborators: Geoffrey Williams, Allyson Shabel, Olivia Fuller, Bronson Lubresky, Jake Kelley

Evaluation Techniques: Zoom Poll, Qualtrics Poll

Direct Impacts:

- 80% of attendees report intending to implement practices taught.
- 58% of attendees report potential savings between \$50.00 and \$200.00. Average potential savings: \$60.00 per beekeeper.

Return on Investment: 16:1

Based on \$60.00 per attendee self-reported savings average, number of attendees, and cost of staff hours for beekeeping team members.

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Community Forestry

Project Leaders: Beau Brodbeck, Jack Rowe, Georgios Arseniou

The focus of this project is to improve the health, safety, and resilience of Alabama's urban and community forests. This project seeks to do this in two ways: by increasing the professionalism and knowledge of commercial and municipal treecare professionals and by educating homeowners to improve their knowledge and management of landscape trees on their properties.

Number of Participants:

In-State: 1,522; Out-of-State: 7,214; Total: 8,736

Audience Diversity: 67% Male, 33% Female; 82% White, 12% Black, 3% Hispanic, 3% Other

Storm Preparedness Training: Preparing and Responding to Catastrophic Storm Events

Alabama has and will continue to suffer catastrophic storms. Historically, the state is brushed by a hurricane every 2.5 years and receives a direct hit every 9 years. Central and northern Alabama have an average of 63 tornadoes per year and countless thunderstorms. Storms increase the likelihood of tree failures, which damage homes, disrupt utilities, cause roadblocks, and twist, break, and bend trees creating dangerous cutting situations during cleanup. In 2023, the FWNR team offered 10 tree risk assessment and 8 chainsaw safety workshops to prepare municipal and homeowner audiences for evaluating potentially dangerous trees and operating chainsaws in the aftermath of storms.

Extension Collaborators: Bence Carter, Jack Rowe, Norm Haley, Drew Metzler, Georgios Arseniou

Agency Collaborators: Alabama Association of Resource Conservation and Development Councils

Number of Participants: 1,540

Evaluation Technique: Post-Event Evaluation

Direct Impacts:

- 82% experience a change in knowledge
- 77% plan to implement knowledge gained
- 65% plan to purchase and wear personal protective equipment

Return on Investment: 52:1



Community Forestry (continued)

Virtual Programs for Professional and Homeowner Audiences

The Community Forestry program offered two educational webinar series in 2023. The Raising Trees series focuses on nontechnical audiences providing introductory educational content in the care and management of landscape trees. The Tree Fund series focuses on new and emerging research in the fields of arboriculture and urban forestry for professional audiences. Each webinar series provided a rich diversity of topics and speakers, including timely content, emerging tree-care challenges, and new applied research. The two series combined offered 13 one-hour webinars to 6,452 people from more than 15 countries.

Extension Collaborators: Jack Rowe, Bence Carter

Agency Collaborator: Tree Fund

Number of Participants: 6,452

Evaluation Technique: Post-Event Evaluation

Direct Impacts:

- 74% experienced a change in knowledge
- 68% realized a cost savings estimated at \$1.5 million and based on learned and applied information
- 13 continuing education hours offered to arborists to maintain professional license

Return on Investment: 181:1

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Attendee Comments:

"I really, really appreciate the diversity of speakers and how all that is presented is grounded in science and often decades long studies."

"These webinars are not just a convenient way to stay up to date with CEU requirements, but also delightfully informative. A great assortment of topics."

"The webinars offered by Tree Fund and Raising Trees have been very academic and enriching and have strengthened my knowledge about the implementation of good practices in Arboriculture."



Environmental Education Through Citizen Science

Project Leader: Wesley Anderson, Kerry Steedley

Environmental Education through Citizen Science encourages conservation-focused volunteerism while teaching participants about natural resources of Alabama. The flagship initiative of this program is The Marble Bowl.

The Marble Bowl is an online competition pitting fans of Auburn University and the University of Alabama using the iNaturalist.org platform. During college football season, teams compete to log biodiversity observations, with the winning team being determined by a combination of unique observers, unique observations, and the total number of observations. Observations must occur within the state of Alabama.

This year, project leaders partnered with the Alabama Extension communications team to produce a promotional video advertised through social media and Buckmasters. In 2023, the Auburn University team won, although it was competitive throughout. This is the second year of the Marble Bowl, and the goal is for it to remain an annual event.



Number of Participants: 370 observers (Auburn University, 279; University of Alabama, 91)

Collaborators: Alabama Museum of Natural History; Auburn University Museum of Natural History; Auburn University's College of Forestry, Wildlife, and Environment

Publications/Press: Promotional video (4.8k views on Facebook and Instagram, 342 views on YouTube), 7 Facebook/Instagram posts (81 shares); "The Marble Bowl: Gamifying Citizen Science in Alabama" presented by Wesley Anderson at the annual conference of The Wildlife Society

Direct Impacts:

- 39,383 unique observations
- 5,072 unique species
- 370 unique observers
- Approximately 1,725 volunteer hours contributed

Return on Investment: 2:1

Forest Business Resources

Project Leader: Adam Maggard

The project focuses on enhancing the livelihoods of Alabama residents through the betterment of forest management, business practices, and increased opportunities for producing income. Specifically, the information and tools focus on temporary or smallscale income-producing opportunities and owning and operating a value-added business to assist private forest owners in achieving their goals and objectives. Further, this project educates landowners on the benefits of healthy forests and how practicing forest management can not only enhance the health and resiliency of forests but also enhance opportunities to generate income from forests that can potentially be used to support the costs of forest management practices.

Specific Topics: Timber market outlook, trending topics in forest management and markets, supplemental income opportunities for forest landowners, costs and trends of southern forestry practices, carbon markets, financial decision-making for timber investments, owning and operating a forest microenterprise, portable sawmilling as a management tool and microenterprise opportunity, biochar for forest landowners



Number of Participants: 32 events; 2,627 participants

Audience Diversity: 45% Female, 55% Male; 79% White, 16% Black, 5% Other

Extension Collaborators: Bence Carter, Norm Haley, Drew Metzler, County Extension Coordinators

Collaborators: County Forestry Planning Committees; Alabama Forest Owners Association; Alabama Forestry Commission; Alabama Forestry Association; Alabama Treasure Forest Association; Forest Landowners Association; Forest Landowner Foundation; Alfa Insurance; Alabama Forests Forever Foundation; College of Architecture, Design, and Construction; Samuel Ginn College of Engineering; Offices of Sustainability and University Architect; industry collaborators from forestry, architecture, engineering, building construction, green business, and economic development

Evaluation Techniques: Post-event surveys, follow-up discussions, live webinar polling, emailed Qualtrics evaluation

Delivery Modes/Format: In-person, online, hybrid

Direct Impacts:

- Approximately 672,520 forestland acres owned or managed by participants of Forest Business Resources workshops and events
- Estimated \$4.5 million in improved forestland value, recovered loss, economic development, and financial decision-making based on information learned

Return on Investment: 110:1

Forestry and Wildlife Education Programs for Youth (Alabama 4-H)

Project Leader: Emily Nichols

Alabama Extension and Alabama 4-H are committed to promoting statewide awareness of native species and management of habitat through a suite of program offerings, capacity building, and outreach publications. These include statewide coordination of Project WILD with the Association of Fish and Wildlife Agencies, the Wildlife Habitat Education Program (WHEP) as part of the National WHEP, the Alabama 4-H Forestry Program as part of the National 4-H Forestry Invitational, and the delivery of other forestry- and wildlife-related educational lessons, such as Skins 'N Skulls, widely used in classrooms. Our efforts build the capacity of adult volunteers, informal and formal educators, and industry professionals to engage a youth audience in hands-on learning.

In the summer of 2023, Extension partnered with the Weeks Bay National Estuarine Research Reserve to conduct the Alabama WHEP contest and deliver coastal ecosystem outreach and education and with the Jacksonville State University Little River Canyon Center and the Alabama Forestry Commission to conduct the Alabama Forestry Contest (sponsored by Westervelt) and deliver forest management education and outreach. The Auburn University Museum of Natural History helped train the Barbour County wildlife team in species identification to prepare for the national contest while Extension delivered wildlife management training.





Extension also collaborated with the Global Conservation Consortium for Oak (GCCO) and the Auburn University Davis E. Arboretum to conduct a needs survey about Alabama oaks awareness and how to engage stakeholders in future conservation efforts. This information is used to enhance Alabama oak-related outreach, education, and conservation efforts.

Extension Collaborators: Danny Cain, Drew Metzler, Nancy Loewenstein, County Extension Coordinators, 4-H Youth Development Coordinators, Regional Extension Agents, 4-H Agent Assistants

Agency Collaborators: Association of Fish and Wildlife Agencies, Weeks Bay National Estuarine Research Reserve, Auburn University Museum of Natural History, National Wildlife Habitat Education Program, Jacksonville State University Little River Canyon Center, Auburn University Davis E. Arboretum, National 4-H Forestry Invitational, Global Conservation Consortium for Oak, Westervelt, Alabama Forestry Commission, certified volunteers

Number of Participants: 37,933 young people and adults reached through education and outreach inperson and virtual training, activities, and events

Audience Diversity: Female (51%), Male (49%); White (62%), Black (24%), Hispanic (13%)

Forestry and Wildlife Education Programs for Youth (Alabama 4-H) (continued)



Direct Impacts:

- 77 educators certified in Project WILD
- 52 participants from 6 counties involved in Alabama WHEP contest; 26 young people demonstrated how to provide habitat that attracts native species in coastal wetlands ecosystem
- 51 participants from 6 counties involved in Alabama Forestry Contest; 30 young people demonstrated how to implement management techniques in forested uplands
- 30 educators and volunteers trained in forestry and wildlife best management practices
- 15 representing Alabama in national forestry (West Virginia) and wildlife (Iowa) contests
- 37,719 young people involved in communitybased forestry and wildlife learning
- Published the following publications: "Alabama Sandstone Oak" in the Treasured Forest Magazine; "Species Spotlight: Quercus boyntonii. Alabama's Unique Sandstone Oak" by International Oak Society; and "Alabama's Unique Dwarf Oak" (4HYD-2522) and "Meet Alabama's Meat-Eating Pitcher Plants" (4HYD-2517) by Alabama Extension

Return on Investment: 51:1

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Invasive Plant Identification and Control

Project Leader: Nancy Loewenstein

Invasive plants pose an increasing threat to forest productivity, forest management options, wildlife habitat, outdoor recreation, and overall ecosystem health. Invasive plant control is also expensive. Preventing the establishment of invasive plants and treating infestations when still small are the most cost-effective ways to slow their spread and reduce their impact across the landscape. Prevention, early detection, and effective treatment are also important tools for minimizing the effects of invasive species following extreme weather events and other landscape disturbances. Stakeholders consistently identify invasive species as a top natural resource issue of concern. Educational programming and outreach provide stakeholders with timely information, allowing for more effective management of invasive species.

Extension Collaborators: FWNR team; Animal Sciences and Forages; Home Grounds, Gardens, and Home Pests; Aquatic Resources

Agency Collaborators: Alabama Invasive Plant Council, Alabama Forestry Association, Alabama State Parks, Southern Regional Extension Forestry

Number of Events: 24

Number of Participants: 1,000

Audience Diversity: 33.5% Female, 66.5% Male; 83.9% White, 15% Black, 1.1% Other

Overall Impact: Impacts range from homeowners and landscapers not planting invasive species to improved invasive plant control through increased ability to identify invasive plants, use of more effective methods of control, use of more effective and safer herbicides, and encouraging action. Forest health and productivity are ultimately improved through earlier detection of invasive species, enhanced and more rapid control efforts, more acres treated, and fewer plants escaping cultivation. Impacts are amplified through collaborating with federal and state agency personnel and other stakeholders who implement control work and share timely information with their clients.

Impact, Land Managers:

- Acres Impacted: More than 3 million acres owned or under the management of program participants. While not all are affected by invasive plants, many of these sites will receive more effective monitoring and prevention. The impacts of prevention are difficult to quantify.
- Acres Treated: More than 100,000 acres reported as receiving invasive plant control; a conservative estimate of \$2 per acre savings over time.

Return on Investment: 25:1



Natural Resources Webinar Series

Project Leaders: Bence Carter, Norm Haley, Ryan Mitchell, Drew Metzler

The Natural Resources Webinar Series provided free, biweekly virtual outreach and education to residents, agencies, and organizations throughout Alabama on a variety of natural resources-related topics. This project aimed to enhance and expand the relevance and visibility of Alabama Extension's FWNR Team across the state, the southeast, and the nation. The wide breadth of topics was designed to create appeal, interest, and benefits to broad audiences while also creating a following behind reliable, convenient, and easily accessible programming. Twenty-five 1-hour webinar sessions that included 15 minutes of Q&A with the presenter were hosted live via Zoom and made available on demand to registrants. Live attendance accounted for 26% of viewership, while 74% of attendees accessed the on-demand recordings. Professional continuing education credit was also offered to registered foresters and professional loggers.

Extension Collaborators: FWNR Team

Agency Collaborators: United States Department of Agriculture–Natural Resources Conservation Service; United States Fish and Wildlife Service; Alabama Forestry Commission; Auburn University College of Forestry, Wildlife, and Environment & School of Fisheries; University of South Florida; University of Tennessee; Marshall University; The Jones Center at Ichauway; University of Georgia; University of Florida; Clemson University; Mississippi State University; IVM Solutions; Alabama TREASURE Forest Association **Number of Participants:** 6,165 registered, 1,481 on-demand views exceed registration (indicates videos are being shared by registrants)

Audience Diversity: 60% Male, 40% Female; 90% White, 5% Black, 1% American Indian, 1% Hispanic, 1% Other Race, 1% Asian, 1% More Than 1 Race

Evaluation Technique: Pre-registration demographic and acreage reporting, live webinar Zoom polling, post webinar series Qualtrics evaluation via e-mail

Acreage Owned or Managed by Attendees:

25,045,435 (equivalent to 109% of Alabama forestland)

Estimated Value: \$52.25 per acre custodial costs (derived from Alabama Extension publication FOR-2115, "Costs and Trends of Forestry Practices 2020")

Direct Impacts:

- 69% of attendees implemented some practice discussed in one of the webinars viewed
- 57% of attendees viewed more than 6 of the 25 webinars offered
- 600 PLM and CFE CEUs were offered to forestry industry professionals at no charge
- Underserved audience outreach attributed to 40% of the viewership based on sex and 10% based on race

Return on Investment: 327,156:1

Professional Logging Manager

Project Leader: Richard Cristan

Alabama has 23 million acres of timberland and ranks third in largest commercial forestland in the United States. Logging is very important in the state economically and brings the need to train loggers in both sustainable forestry practices and logging safety. The Alabama Professional Logging Manager (PLM) initial trainings and subsequent required yearly continuing forestry education (CFE) provide loggers the needed training. PLM and CFE topics include sustainability, forest management, biodiversity, conservation, wildlife, threatened and endangered species, forestry best management practices (BMPs) for water quality protection, logging safety, and trucking.

Loggers must complete 5 CFE hours to maintain their PLM status annually and registered foresters (RF) need 10 CFE hours annually to maintain their registration with the Alabama State Board of Registration for RF. Alabama Extension FWNR specialists and regional agents (REAs) conduct in-person CFE workshops for loggers and foresters along with a bi-weekly webinar series that offers PLM and CFE hours. Specialists and REAs are also invited to speak at CFE workshops hosted by the forest industry, organizations, associations, and natural resource council planning committees.



Collaborators: FWNR Extension Specialists, REAs and CECs, Alabama Forestry Association, Alabama Forestry Commission, Alabama Loggers Council, Forest Workforce Training Institute

Overall Program Contacts: 1,396 Alabama; 103 Out-of-State (21 Events)

PLM Initial Training Contacts (New PLM): 81

PLM Initial Training Demographics:

42 Alabama Counties Represented; 39 Average Age (19–83); 76.5% White, 16% African American, 2.5% Hispanic, 2.5% Native American, 2.5% Other

PLM CFE Participant Contacts and Hours: 334 contacts; 1,635.5 hours

RF CFE Participant Contacts and Hours: 563 contacts; 1,704 hours

Out-of-State CFE Contacts and Hours: 103 contacts; 243 hours

Overall CFE Contacts and Hours: 1,000 contacts; 3,582.5 hours

Products: Peer-reviewed Extension publications available at www.aces.edu

Evaluation Techniques: Surveys following PLM initial trainings and CFE workshops

Direct Impacts:

- Increased knowledge of sustainable forestry practices by an average of 57% (65%, 2022; 58%, 2021)
- PLM initial training materials were clear and easy to understand (4.8/5), well organized (4.8/5), and valuable by increasing knowledge (4.7/5)
- Based on an annual timber harvest removal of 40.8 million tons and 1,081 PLM and CFE contacts, it is estimated that the 2023 PLM and CFE program had a direct impact on 53% of tons of wood harvested in Alabama

Return on Investment: 67:1

Venomous Snake Training

Project Leader: Wesley Anderson and Bence Carter

Human-snake conflicts have existed for millennia. Snakes capture the public's imagination through a combination of fear and fascination. At the same time, many people are beginning to recognize their ecological importance, and requests for snake relocation rather than extermination have become increasingly common.

The FWNR team offers free workshops on how to identify native venomous snakes, general safety, and steps to take if bitten. They culminate in attendees interacting directly with native venomous snakes, including timber rattlesnakes, copperheads, and cottonmouths, while using appropriate tools to handle and secure them for relocation.

An Auburn University Tiger Giving Day grant covers a portion of the workshop expense. Between July and October 2023, the team offered seven workshops three to first responders and four to Alabama Extension personnel and the public. Workshops were held in Lee, Shelby, Baldwin, Houston, Coffee, and Madison Counties.

Number of Participants:

170 including 72 first responders



Audience Diversity: 54% Male, 45% Female, 1% Nonbinary; 91% White, 6% Black, 2% Asian, 1% Indigenous American, 4% Hispanic

Collaborators: Auburn University Foundation, Auburn University's College of Forestry, Wildlife, and Environment, Alabama A&M University, Oak Mountain State Park, Graham Creek Nature Preserve

Evaluation Techniques: Surveys

Social Media: Tiger Giving Day campaign: 91 donors, \$10,725 raised

Direct Impacts:

- 79% of attendees indicated their ability to identify venomous snakes increased.
- The average perceived ability to correctly identify venomous snakes increased from 2.2 (Slightly Knowledgeable) to 4.0 (Very Knowledgeable) on a five-point scale.
- 74% of participants indicated their opinion of snakes had changed by the conclusion of the workshop.
- 99% of participants indicated they were More Comfortable or Much More Comfortable safely relocating a venomous snake.
- Participants indicated satisfaction with the workshops. One attendee from a first responder-specific training in Lee County said, "This is the best CEU I've been to [in my] lifetime."

Return on Investment: 16:1

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Watershed Management

The Watershed Management Project develops and demonstrates management practices to enhance the development and implementation of effective watershed education, monitoring, planning, and improvement (water quality, watershed education, domestic well water). Project efforts include training in water and watershed management using demonstrations and stakeholder meetings at the watershed level, incorporating management practices into landowner education programs, drought education, and facilitating volunteer water monitoring workshops. Project outcomes include improved knowledge and adoption of watershed best management practices, improved documentation of drought conditions, and improved water quality as observed by Alabama Water Watch volunteer water monitors.

The Watershed Management Project involved more than 30 partnering organizations and agencies and reached nearly 3,000 residents. The project has a broad network of partners and attracts new audiences. In 2023, nearly 60% of participants in Watershed Management programming had not previously engaged with the Alabama Extension.

Alabama Watershed Stewards: Taking a Watershed Approach

Project Leader: Laura Bell Cooley, Eve Brantley, Mona Dominguez and Sergio Ruiz-Córdova

Alabama Watershed Stewards (AWS) is a statewide science-based educational program promoting healthy watersheds, increasing understanding of water pollution, and providing the knowledge and tools needed to prevent and resolve local water quality problems. The goal of the AWS program is to increase citizen awareness and knowledge about the function of watersheds, their potential impairments, and local watershed protection strategies. The program includes technical training and practical information about local watersheds, providing opportunities to connect with local community groups, and presenting engaging tools for encouraging individuals to take leadership roles in improving their local water quality.

Agency Collaborators: Alabama Department of Environmental Management, EPA Region 4, Soil and Water Conservation Districts, Riverkeepers, Water Authorities, Alabama Stormwater Association, Mobile Bay Estuary Program, The Nature Conservancy of Alabama

Evaluation Technique: Knowledge assessment provided in workshops and feedback surveys



2023 Summary:

- Hosted 7 topical technical trainings on green infrastructure design and planning.
- Provided guidance to municipalities on watershed planning at 3 workshops.
- Hosted 2 watershed stewardship workshops encouraging hands-on stewardship activities at a local level.
- Developed educational resources: 2 Extension peer-reviewed articles, 6 media articles, and 3 outreach Extension articles.
- Hosted an Alabama Watershed Stewards online course available to the public year-round (49 students enrolled).
- Reached more than 348 people (in-person events), 351 (newsletters), 545 (social media).

Alabama Private Well Program: Empowering the Residents of Alabama

Project Leader: Jessica Curl, Eve Brantley

The Alabama Private Well Program was established in 2020 and has since become a highly valued and referenced resource to Alabama Extension clients and staff across the state. This program increases access to private well educational materials to empower, engage, and equip well users with the resources needed to protect their water systems. The program's core values are to deliver meaningful information to homeowners with private wells, educate well owners on the importance of proper well stewardship, and serve as a resource for well owners and Extension personnel to obtain answers and information about small-water systems.

Collaborators: Alabama Department of Public Health, Geological Survey of Alabama, Alabama Rural Water Authority, Auburn University College of Science and Mathematics, University of Georgia Extension

Evaluation Technique: Direct consultation and evaluation survey

Number of Participants: 156 individuals in 16 counties through workshops and direct consultations

Direct Impacts:

- Hosted 4 signature well water workshops with complementary bacteria screening offered in partnership with Extension food safety and quality specialist. 17 wells tested for bacteria.
- Partnered with the AU Department of Geosciences to host 2 coastal well owner workshops for well in Mobile and Baldwin Counties, offering complimentary water testing to 30 participants.
- Hosted 7 educational webinars.



- Hosted a water systems workshop in partnership with UGA Extension.
- 1 publication in partnership with Alabama Watershed Stewards.
- 72% of participants said they would test for bacterial contamination each year following the training; 22% reported they already test annually.
- 100% satisfaction rate of workshop attendees.

Alabama Water Watch: Community-Based, Science-Based Volunteer Water Monitoring of Alabama's Water Resources

Project Leaders: Mona Dominguez, Sergio Ruiz-Córdova, Sydney Zinner, Carolina Ruiz, Rachel McGuire, Eve Brantley

Alabama Water Watch (AWW) is a citizen volunteer, water quality monitoring program established in 1992 with the mission of improving water quality through citizen monitoring and action. AWW fosters statewide water quality monitoring by educating citizens on water issues in Alabama and the world; training citizens to use standardized equipment and techniques to gather credible water information using quality assurance protocols; and empowering citizens to make a positive impact by using their water monitoring data for environmental education, water body restoration and protection, and involvement in watershed stewardship. **Collaborators:** National Oceanic and Atmospheric Administration, US Forest Service, Alabama Department of Environmental Management, Wild Alabama, Mississippi State University, University of Alabama at Birmingham, the Birmingham Zoo, Camp Meadowbrook, Huntsville Botanical Gardens, City of Foley Graham Creek Nature Preserve, City of Orange Beach Wind and Water Center, City of Auburn, City of Gadsden, City of Opelika, Jefferson County Stormwater, Mobile Baykeeper, Mobile Bay National Estuary Program, Legacy, and the F. Allen & Louise K. Turner Foundation

Number of Participants: 2,388 reached through online courses, in-person field sessions, webinars, and other outreach events

Evaluation Technique: Analysis of volunteer monitor data submitted to the AWW database and post-training survey

Direct Impacts:

 274 monitors submitted 4,368 water data records from 484 sampling sites on 223 water bodies in 144 different hydrologic unit code (HUC) 12 watersheds in 46 Alabama counties. Entities including agencies, nongovernmental organizations, municipalities, and universities use AWW water data. Data collection of a similar magnitude by a state agency, such as the Alabama Department of Environmental Management, would cost more than \$869,052.



- 864 online course completions.
- AWW staff and volunteer trainers led 66 field sessions throughout Alabama with 579 attendees.
- 664 water monitoring certifications awarded.
- 20,913 volunteer hours valued at \$665,033 contributed through data collection and training.
- Monthly e-newsletters and social media posts highlighting upcoming events and 29 blog articles (3,621 newsletter subscribers; 4,100 Facebook followers).
- 150 educators received copies of the America's Amazon poster used to educate around 40,000 adults and young people about Alabama's water resources and aquatic biodiversity. Social media posts featuring the digital poster reached an additional 150,000+.
- AWW staff presented at four state, regional, and national conferences.
- 7,365 young people involved through the 4-H Alabama Water Watch Program.
- 99% of participants planned to conduct water monitoring.

- 98% intend to educate others about water quality.
- 196% interest increase in participation with a local watershed group.

Return on Investment: 49:1

Alabama Drought Reach

Project Leader: Brianne Minton, Kent Stanford, Eve Brantley

Alabama Drought Reach (ADR), launched in 2023, is working to improve drought communications and drought agricultural impact monitoring in Alabama through a collaborative partnership among the Auburn University Water Resources Center. Alabama Extension, and the Office of the State Climatologist. The program vision is to document drought's agricultural impacts in Alabama better, resulting in a more informed scientific and agricultural community. The objectives of ADR are to develop a systematic approach and monitoring program for drought agricultural impact data collection by Extension and Alabama Agricultural **Experiment Station personnel; develop and** conduct drought training for Alabama Extension and Experiment Station personnel; work with the



Office of the State Climatologist to provide timely and relevant agricultural impact data; and increase drought impact literacy among Alabama farmers, landowners, and the public.

During the most recent drought that began in late July 2023, ADR played a pivotal role in communicating and monitoring drought conditions across the state. ADR released a weekly crop condition graphic summarizing data from the National Agricultural Statistics Service (NASS) reports and a weekly drought update communicating current drought conditions across the state in collaboration with US Drought Monitor and the Alabama Office of the State Climatologist. ADR also disseminated drought-related data to any Extension agent filing for USDA assistance for their farmers. This data included drought conditions, precipitation, temperature, stream flow, and soil moisture. The program also offered a unique opportunity for Alabama Extension to directly communicate with the state climate office by providing a platform to request climate data. ADR is the first program of its kind in the southeast and will continue to better prepare the agricultural community for future drought events. In 2024, ADR is training Extension personnel to use a new drought reporting survey to help the state climate office provide more accurate drought information to the federal US Drought Monitor map.

2023 Summary:

- ADR press features (Alabama Extension, University of Alabama Huntsville, Huntsville Business Journal)
- Media interviews with WAAY 31 and Fox 54
- 27 drought reports and 23 crop impact reports published; 6 articles developed for Extension web pages
- 3 field visits with Extension personnel and 6 presentations at professional meetings
- Supported 36 counties by providing droughtrelated data for livestock and crop loss claims



Wild Pig Damage Mangement

Project Leaders: Mark Smith, Bence Carter

Wild pigs are found in nearly all 67 counties of Alabama causing more than \$55 million a year in agricultural and forestry damage. This project provides hands-on technical training to landowners and natural resource professionals who work with landowners (training the trainers) on practical, cost- and time-effective approaches for reducing or eliminating local populations of wild pigs resulting in reductions in agricultural and natural resource damage. This project used multiple approaches to reach a diversity of audiences in Alabama. These included in-person seminars and demonstrations, print and electronic publications, and short how-to videos available on the internet.

In 2023, this project continued to provide outreach and monitoring of technical support to the Alabama Feral Swine Control and Eradication Pilot Project administered by the Alabama Soil and Water Conservation Committee. This multiagency, multi-year effort aims to reduce damage caused by wild pigs in select Alabama counties. Additional programming such as webinars, field day events, and trap demonstrations were conducted throughout the year.

Agency Collaborators: Alabama Soil and Water Conservation Committee, Soil and Water Conservation Districts, USDA Wildlife Services, USDA Natural Resources Conservation Service, University of West Alabama, Alabama Wildlife and Freshwater Fisheries Division, Alabama Farmers Federation, National Wild Turkey Federation.

Number of Participants: 7 events, 321 participants

Evaluation Technique: Event surveys, in-person technical assistance

Adoption Rate: 99%

Audience Diversity: 88% White, 12% Black; 72% Male, 28% Female

Conservative Direct Impact Estimate:

\$770,400 in damage reduction on more than 152,796 acres of farm and forestland in Alabama and neighboring states.

Key Project Resources: Wild Pig Education Unit Trailer, "Landowner's Guide to Wild Pig Management," Alabama Extension Fresh from the Field Wild Pig howto YouTube video series

Return on Investment: 233:1

Project Leader: Mark Smith

Alabamians spend more than \$2.2 billion a year for wildliferelated recreation with most of these expenditures made by 1.1 million wildlife watchers (\$734 million) and 535,000 hunters (\$913 million per year). Moreover, these individuals spend more than 14.3 million days per year engaged in these two outdoor activities. As such, The Wildlife Management: Enhancement and Damage project is designed to assist clients in managing Alabama's natural resources. Management may involve programs and one-on-one contacts to improve wildlife habitat or to minimize or eliminate damage caused by wildlife. Enhancement programs cover topics ranging from backyard birds and planting food plots for deer to managing habitats for wild turkeys and pond management.

Wildlife damage and legal ways to address those problems comprise a significant amount of work for regional Extension agents and specialists. These activities may be in the form of oneon-one contacts (phone calls, emails, office visits) or structured educational programs. Backyard wildlife damage programs focus on vertebrate species that may cause damage to structures, yards, and ornamentals or pose health threats. Program topics include squirrels, chipmunks, moles, voles, commensal rodents, bats, snakes, and white-tailed deer.

The goal of these activities is to educate clients in how to identify damage and take actions necessary to eliminate this damage, either by contacting a professional or using the information provided to address the problems themselves.



Extension Collaborators: Wes Anderson, Bence Carter, Lynn Dickinson, Norm Haley, Drew Metzler, J. Ryan Mitchell, Kerry Steedley, Dylan Taylor

Audience Diversity: 65% Male, 35% Female; 93% White, 7% Black

Number of Participants: 634

Conservative Direct Impact Estimate: \$63,635 in prevented wildlife damage to property (assumes an average of \$715 per contact event) and \$670,350 in wildlife enhancement in both urban and rural communities (\$1,230 per enhancement expenditure per contact based on 2006 National Survey of Fishing, Hunting, and Wildlife—Associated Recreation)

Return on Investment: 87:1





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