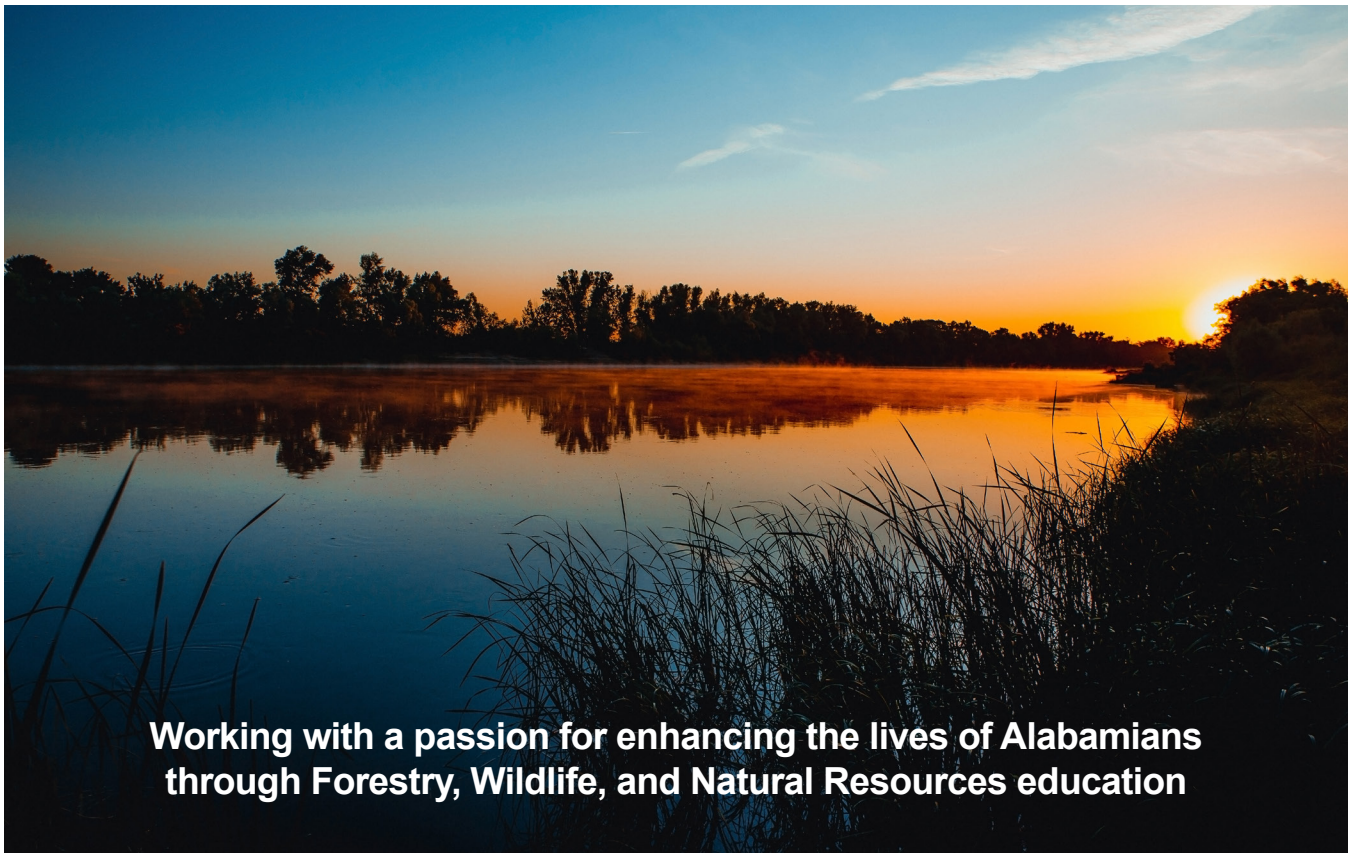
Forestry, Wildlife & Natural Resources Team Impacts 2022

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



Participants in the Forestry, Wildlife, and Natural Resources (FWNR) 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.

NATURAL RESOURCES WEBINAR SERIES

ALABAMA EXTENSION

Natural Resources Webinar Series

Project Leaders: Bence Carter, Norm Haley

Background: This webinar series provided free, biweekly virtual outreach and education to residents, agencies, and organizations throughout Alabama on various natural resources–related topics. This project also focused on maintaining and building the Extension FWNR team's relevance and name recognition throughout the state, the southeast, and the nation. The wide breadth of topics was aimed to create appeal, interest, and benefits to broad audiences while also creating a following behind reliable, convenient, and easily accessible programming. A total of 25 one-hour webinar sessions, including 15 minutes of live Q&A with the presenter, were hosted live via Zoom and made available on demand to registrants. Live attendance accounted for 49% of viewership, while 51% of the attendees used the recorded on demand format. Professional continuing education credit was also offered to registered foresters and professional loggers.

Number of Participants: 3,159

Audience Diversity: 57% Male, 43% Female, 84% White, 6% Black, 2% American Indian, 4% Hispanic, 4% Other Race, 3% Asian, 2% More than 1 Race

Extension Collaborators: Entire FWNR Team

Collaborators: FWNR, Animal Science, Food Safety, and Aquatic Regional Agents; Specialists; USDA-NRCS, USFS, ADCNR; College of Forestry and Wildlife Sciences; University of Arkansas; Hollins University; Tall Timbers Research Station

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

Acreage Owned or Managed by Attendees: 4,039,111 (equivalent to 17.6% of Alabama forestland)

Estimated Value: $52.25 per acre

Direct Impacts:

- 70% of attendees implemented some practice discussed in one of the webinars viewed.
- 43% of attendees viewed more than 6 of the 25 webinars offered.
- 170 PLM and CFE CEUs were offered to forestry industry professionals at no charge.
- Underserved audience outreach attributed to 43% of the viewership based on sex and 21% based on race.

Return on Investment 52,761:1

Alabama Master Naturalist

Project Leader: Wesley Anderson

Background: Alabama Master Naturalist (AMN) is a statewide program with the goal of promoting awareness, understanding, and respect for Alabama's natural world among state 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.

During 2022, the development of the online course continued. Wesley Anderson, program coordinator,

became vice president of the Alliance of Natural Resource Outreach and Service Programs, the national network of naturalist programs. In fall 2022, AMN partnered with Alabama state parks to offer field days co-led by the AMN program coordinator and park naturalists. Field days are a required component of program certification, with these being the first offered.

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

Agency Collaborators: Alabama Department of Conservation and Natural Resources (ADCNR) State Parks Division

Social Media: 20 Posts; 17,981 Reached

Evaluation Technique: Surveys

Direct Impacts:

- 35% of participants attended more than one field day.
- 2,336 acres of private land managed by participants.
- Participants indicated satisfaction with field days: *"The Oak Mountain State Park field day was my first venture out with a naturalist group and I wasn't sure what to expect. However, my trepidation dissipated right away because of the inclusive welcome upon my arrival and I found the day itself to be a remarkable experience in camaraderie from such diverse individuals with a shared passion for the natural world."*
- Participants indicated a desire to enroll in the online asynchronous training course once available: *"As a result of my experience Friday, I'm firmly committed to obtaining my Master Naturalist certification, not just for the chance to share lunch with [another participant] again but to learn from and with such authentic, inspiring people and to carry that learning forward in service to our communities."*

Return on Investment: 6:1

Beekeeping

Project Leader: William Rowe

Background: 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 main focus is on our web-based educational webinar, At-Home Beekeeping. This effort is led by Alabama Extension and supported by apiculture researchers from 11 southeastern US universities and the USDA-ARS, all of which provide content.

Number of Participants:

- Live viewing participation total: 2,624
- Recording views post-event: 663

Audience Diversity: 55% Male, 45% Female, 96% Non-Hispanic, 84% White, 2% Black, 4% Hispanic

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 a small business grow 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 to $300. Nucleus colonies, small working colonies used to quickly start a full-sized hive, now cost between $150 and $200 for Alabama beekeepers.

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

Extension Collaborators: Geoffrey Williams, Allyson Shabel

Evaluation Technique: Zoom Poll

Direct Impacts:

- 87% of attendees report intending to implement practices taught.
- 48% of attendees report potential savings between $50 and $200. Average potential savings: $56 per beekeeper.
- Based on $56 per attendee self-reported savings average, number of attendees, and cost of working hours for beekeeping team members.

Return on Investment: 15:1

Community Forestry

Project Leaders: Beau Brodbeck, Jack Rowe

Background: The project focuses on improving the health, safety, and resilience of Alabama's urban and community forests. The project seeks to do this in two ways: first, by increasing the professionalism and knowledge of commercial and municipal tree-care professionals, and second, by educating homeowners to improve their understanding and management of landscape trees on their properties.

Storm Preparedness Training: Preparing and Responding to Catastrophic Storm Events

Background: Alabama has suffered 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 numerous thunderstorms. Storms increase the likelihood of tree failures, which damage homes, disrupt utilities, block roads, and twist, break, and bend trees creating dangerous cutting situations during cleanup. In 2022, the FWNR team offered 14 tree risk assessments and 15 chainsaw safety workshops to prepare municipal and homeowner audiences to evaluate potentially dangerous trees and operating chainsaws in the aftermath of storms.

Extension Collaborators: Bence Carter, Lynn Dickenson, Ryan Mitchell, Kerry Steedley, Norm Haley, Drew Metzler

Agency Collaborators: Alabama Association of Resource Conservation and Development Councils

Number of Participants: 717; 94% Male, 27% Black, 70% White

Evaluation Technique: Post-event evaluation

Direct Impacts:

- 78% experienced a change in knowledge
- 81% plan to implement knowledge gained
- 79% plan to purchase and wear personal protective equipment.

Return on Investment: 56:1

Virtual Programs Offered for Professional and Homeowner Audiences

Background: The Community Forestry program offered two educational webinar series in 2022. The Raising Trees series is focused on nontechnical audiences providing introductory educational content in the care and management of landscape trees. The Tree Fund series is focused 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 results from applied research. The two series combined offered 18 one-hour webinars to 5,492 people from moe than 11 countries.

Extension Collaborators: Wesley Anderson, Nancy Loewenstein

Agency Collaborators: Tree Fund

Number of Participants: 5,492; 52% Professional, 13% Homeowner, 12% Government, 9% Educators/Research

Evaluation Technique: Post-event evaluations

Attendee Comments: *"Love the webinars. So easy to learn more while sitting at my desk juggling other tasks. I would not attend so many workshops if I had to travel to them as well as lose time from work."*

"Content is precise, there is a range of topics targeting different participants."

"Good research that changed standard ideas and practices and new ways of looking at old topics. Very informative."

"I saved money based on not planting inappropriate trees for location."

Direct Impacts:

- 73% experienced a change in knowledge
- 75% realized a cost savings based on information learned and applied- est. at $1.3 million
- 18 continuing education hours offered to arborists to maintain professional license

Return on Investment: 38:1

Environmental Education through Citizen Science

Project Leaders: Wesley Anderson, Kerry Steedley

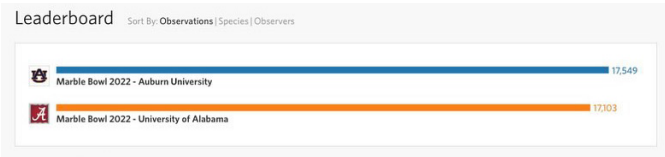
Background: Environmental Education through Citizen Science encourages conservation-focused volunteerism while teaching participants about natural resources in Alabama. The flagship initiative of this program is The Marble Bowl.

The Marble Bowl is an online competition pitting fans of Auburn University and fans of 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 total number of observations. Observations must occur within the state of Alabama. In 2022, the Auburn University team won; however, it remained competitive throughout. The objective is for the Marble Bowl to become an annual competition.

Number of Participants: 361 Observers (237 Auburn University, and 125 University of Alabama)

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

Publications/Press: 1 Alabama Extension; 1 On-Air Interview (WSFA); coverage in 1 news article (al.com)



Direct Impacts:

- 34,517 unique observations
- 4,927 unique species
- 361 unique observers
- Approximately 1,725 volunteer hours contributed
- Praise for the competition: *"What an awesome idea... I wish FSU/UF had this!"*.

Return on Investment: 35:1

Forest Business Resources: Increasing the Health and Wealth of Private Forestland in Alabama

Project Leader: Adam Maggard

Background: This project focuses on enhancing the livelihoods of Alabama residents by improving forest management, business practices, and increased opportunities for producing income. Specifically, the information and tools focus on temporary or small-scale 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. This income can potentially be used to support the costs of forest management practices.

Extension Collaborators: Bence Carter, Norman Haley, Drew Metzler, FWNR Regional Agents; 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; ALFA; Alabama Forests Forever Foundation; College of Architecture, Design and Construction; Samuel Ginn College of Engineering; Office of Sustainability; University Architect; and Industry collaborators from forestry, architecture, engineering, building construction, green business, and economic development.

Number of Participants: 28 Events; 1,629 Participants

Audience Diversity: 38% Female, 62% Male, 84% White, 11% Black, 2% Asian or Pacific Islander, 3% Other

Evaluation Techniques: Event surveys; follow-up discussions and interviews 6 and 12 months post event.

Direct Impacts:

- Approximately 574,445 forestland acres owned or managed by participants of Forest Business Resources workshops
- Estimated $4.3 million in improved forestland value, recovered loss, economic development, and financial decision-making based on information learned
- **Return on Investment:** 163:1

Invasive Plant Identification and Control

Project Leader: Nancy Loewenstein

Background: 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 the spread and reduce the impact of invasive plants 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 programs and outreach provide stakeholders with timely information, allowing for more effective invasive species management.

Extension Collaborators: FWNR Team; Home Grounds, Gardens, and Home Pests; Agronomic Crops

Number of Participants: 28 Events; 741

Audience Diversity: 40% Female, 60% Male, 94% White, 5.9% Black, <0.1% Other Race

Social Media: 66 Posts; 83,121 Reached,

Overall Impact Estimate: Impacts range from homeowners and landscapers not planting invasive species to improved invasive plant control through an increased ability to identify invasive plants, use of more effective methods of control, more effective and safer use of herbicides, and encouragement to take action. Forest health and productivity are improved through early 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.

Direct Impacts:

- Acres Impacted: Approximately 2 million acres owned or under the management of program participants. While not all were affected by invasive plants, these acres will receive more effective monitoring. Prevention of impacts are difficult to quantify.
- Acres Treated: More than 200,000 acres of forestland managed with more effective invasive plant prevention and control methods. Conservative estimate of $2 per acre savings over time.

Return on Investment: 20:1

Learn to Burn Workshops; Other Prescribed Fire Trainings

Project Leader: J. Ryan Mitchell

Background: Prescribed fire is a complex tool landowners and managers use to improve wildlife habitat, reduce hazard fuel loads, and restore forestland. A major barrier often noted to conducting prescribed fires is the lack of hands-on training and experience. This project provided prescribed fire training to landowners and professionals using a hands-on approach though Learn to Burn workshops, webinars, and Prescribed Burn Manager Certification courses. During Learn to Burn workshops, landowners are paired with mentors

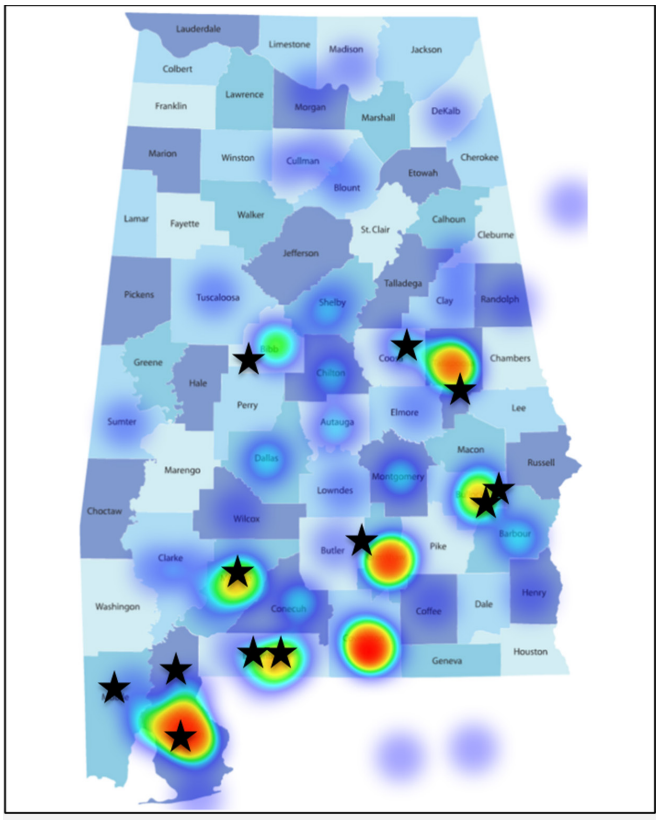


Figure 1. Learn to Burn attendee residences.
★Learn to Burn workshop locations.

and receive hands-on training on the planning, preparation, executing, and assessing of a prescribed burn. This project expands on the work conducted in 2021 and reports only results from 2022.

Extension Collaborators: Bence Carter, Drew Metzler

Agency Collaborators: Gulf Coast Resource, Conservation, and Development Council; Alabama Forestry Commission; Alabama Forestry Foundation; Alabama Forestry Association; Tall Timbers Research Station; AHERO Foundation

Learn to Burn Workshops: 8; 175 Attendees

Prescribed Burn Manager Certification Workshops: 3; 142 Attendees (87 Veterans and First Responders)

Webinars: 3; 681 Views

Audience Diversity for Workshops: 82% Male, 18% Female, 87% White, 12% Black, 2% American Indian

Evaluation Techniques: Evaluation following training events.

Learn to Burn Attendees Reported:

- 55% increase in prescribed fire knowledge.
- 33% increase in willingness to conduct a prescribed fire in the future.
- 99% will implement practices learned during the event in future management.
- 86% increase in attendees stating they will manage a prescribed burn on their own land.

Direct Impacts:

- Instruction provided to more than 315 attendees.
- 272,459 acres owned or managed by Learn to Burn Workshop attendees.
- 142 people certified as a Prescribed Burn Manager in Alabama.

Return on Investment: 99:1

Professional Logging Manager (PLM) & Continuing Forestry Education (CFE)

Project Leader: Richard Cristan

Background: Alabama has 23 million acres of timberland and ranks third in largest commercial forest land in the United States. Logging is 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 training and subsequent required yearly continuing forestry education (CFE) requirements provide loggers with the needed training. Training 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 hazards, and trucking.

Loggers need to complete 5 CFE hours to maintain their PLM status annually, and registered foresters (RF) need to complete 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 and webinars for loggers and foresters throughout the state. 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: Alabama Extension FWNR Specialists, REAs, and CECs; Alabama Forestry Association; Alabama Forestry Commission; Alabama Loggers Council; Forest Workforce Training Institute

Overall PLM Program Contacts: 3,578 Alabama, 110 Out-of-State (53 events)

PLM Initial Training Contacts (New PLM): 119

PLM CFE Participant Contacts and Hours: 608 contacts; 2,839 Hours

RF CFE Participant Contacts and Hours: 477 Contacts; 2,006 Hours

Out-of-State Contacts and Hours: 40 Contacts; 209 Hours

Overall CFE Contacts and Hours: 1,125 contacts; 5,054 hours

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

Direct Impacts:

- Increased knowledge of sustainable forestry practices by an average of 65% (58% in 2021).
- PLM initial training materials were clear and easy to understand (4.9/5), well organized (4.9/5), and valuable by increasing knowledge (4.8/5).
- Based on an annual timber harvest volume of 40,190,00 tons and 1,674 up-to-date trained PLM loggers, it is estimated that the 2022 PLM and CFE program had direct impact on 64% of the tons of wood harvested in Alabama.

Return on Investment: 92:1

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 (e.g., 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, and facilitating volunteer water monitoring workshops. Project outcomes include improved knowledge of watershed best management practices, increased adoption of watershed best management practices, and improved conditions of water resources as documented by Alabama Water Watch volunteer water monitors.

Alabama Watershed Stewards: Taking a Watershed Approach

Project Team: Laura Bell, Eve Brantley, Mona Dominguez, Sergio Ruiz-Córdova

Background: The Alabama Watershed Stewards (AWS) is a 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. Initiated in 2018 by the Alabama Extension Water Program in conjunction with Alabama Water Watch, the AWS program is fully funded by the Alabama Department of Environmental Management through a Clean Water Act Section 319(h) nonpoint source grant provided by the US Environmental Protection Agency–Region 4. The program has one full-time staff member.

AWS program goals are to increase awareness, protection, and restoration of land, water, and natural resources, by providing education and tools for individuals, agencies, and municipalities. The program focuses on watershed planning as to reduce nonpoint source pollution. The program increases awareness and knowledge about water issues, inspires participation in conservation programs, and promotes hands-on activities to improve and protect water and natural resources.

"I think that this was very helpful for me to understand what my role in my watershed should and could be and to see what I needed to do to help keep it health."

"I think this course is very nice and helpful to the people that want to make a change in their community but don't know where to start. Also this is a good place to educate and educate others so there will be awareness for the different environments we live in."

"[I learned] the connection of the knowledge of watershed management to my local community. It was nice to learn about watersheds through the scope of something close to me as my understanding and appreciation for the subject differed greatly."

Agency Collaborators: Alabama Department of Environmental Management; EPA Region 4; Soil and Water Conservation Districts; Riverkeepers; Water Authorities; Alabama Stormwater Association

Evaluation Technique: Knowledge assessment provided in workshops and feedback surveys.

Number of Participants: 145 in 8 AWS Workshops; 20 Counties Reached.

Impact Estimates:

- 3 in-person Alabama Watershed Stewards Workshops
- 1 in-person Watershed Planning Workshop
- 3 litter pickups conducted
- 4 Low Impact Development Professional Trainings conducted (Rain Garden Design Workshops, Grant Writing for Watershed Groups and Nonprofits)
- 100% experienced a change in knowledge after AWS training events (30% average knowledge increase after training)
- Virtual Alabama Watershed Stewards course provided (22 people received CEUs for full course completion).
- 1 peer-reviewed Extension publication.
- 3 educational resources developed.
- Statewide newsletter following grew to more than 350 people

CEUs:

- Cumulative participants: 103
- Total hours of CEUs provided: 694.

Alabama Private Well Program: Establishing a Successful Well Owner Network

Project Leaders: Jessica Curl, Eve Brantley

Background: 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. This program has one full-time staff member.

After launching a collection of newly developed resources to Alabama Extension offices in early 2021, the program embraced an opportunity to enhance educational efforts by supplementing printed materials with interactive training. The APWP began in-person workshops in 2022, with events in Talladega, Mobile, County, and Tallapoosa Counties.

The APWP increased its reach by partnering with researchers at Auburn University and the University of Alabama to build and refine the program with science-based recommendations. The APWP is currently a partner on two research projects, with the potential to expand in the upcoming year.

"I had a very good experience. I am so glad I came [to the workshop]. I learned a lot."

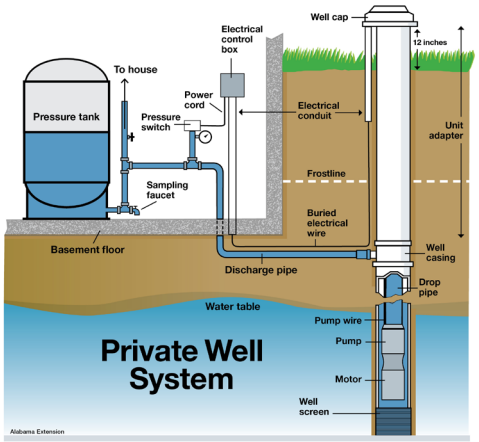
"Everyone was wonderful! Thank you so much for sharing your info!"

"This was a GREAT workshop. We needed this one. Thank you!!"

Collaborators: Alabama Department of Public Health, Geological Survey of Alabama

Evaluation Technique: Direct consultation and evaluation survey

Number of Participants: 186 individuals reached through workshops and direct consultations, 16 counties



Impact Estimates:

- Connected with the Alabama Department of Public Health to provide "Step-by-Step Guides for Getting Your Well Water Tested" to distribute more than 3,350 publications across 67 counties.
- 14 wells tested using Tiger Giving Day funds
- Published "Owning a Private Well in Alabama" handbook (7 chapters)
- 4 in-person well water workshops
- 3 virtual Coastal Well Owner Workshops
- 2 Alabama Extension team trainings
- Launched "Owning a Private Well in Alabama" online course (approximately 5 hours of content)
- Published "Coliform Bacteria in Well Water"
- 10 water quality reports sent to coastal well owners in collaboration with AU researchers

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

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

Background: Alabama Water Watch is a citizen volunteer water quality monitoring program established in 1992 with the mission to improve water quality through citizen monitoring and action. AWW works toward its goal of fostering statewide water quality monitoring by educating residents on water issues in Alabama and the world. AWW also trains people to use standardized equipment and techniques to gather credible water information using quality assurance protocols and empowers individuals to make a positive impact by using their water monitoring data for environmental education, water body restoration and protection, and involvement in watershed stewardship.

In 2022, AWW implemented a hybrid training model that includes self-paced online courses and in-person field sessions. This model enabled AWW to meet the high demand for training following the pandemic years. Participant feedback and evaluation responses indicate that the new model effectively conveys key concepts and prepares participants to conduct water monitoring.

In summary, 256 monitors submitted 4,073 water data records from 452 sampling sites on 373 water bodies in 100 different hydrologic unit code (HUC) 12 watersheds in 42 Alabama counties. 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 the state more than $802,887.

Collaborators: National Oceanic and Atmospheric Administration, US Forest Service, Alabama Department of Environmental Management, Wild Alabama, Cheaha State Park, Mississippi State University, University of Alabama at Birmingham, the Birmingham Zoo, the Benjamin Moore Company, and several stormwater management entities.

Evaluation Technique: Analysis of volunteer monitor data submitted to the AWW database and evaluation survey.

Number of Participants: 1,920 reached through online courses, in-person field sessions, webinars, and other outreach events.

Impact Estimates:

- 317 completions of the Introduction to AWW online course
- 200 completions of the AWW Water Chemistry Monitoring online course
- 166 completions of the AWW Bacteriological Monitoring online course
- AWW staff and volunteer trainers led 59 field sessions throughout Alabama, with 389 attendees
- 454 water monitoring certifications awarded
- 256 monitors submitted; 4,073 water data records submitted to the AWW database
- 18,866 volunteer hours valued at $565,037 contributed
- 19 articles published on the *AWWareness* blog
- Monthly e-newsletters highlighting upcoming events and blog articles (3,611 subscribers)
- 50 Facebook posts reaching 4,551 accounts and 37 Instagram posts reaching 2,249 accounts
- AWW represented through presentations at two national conferences
- 6,481 youth involved through the 4-H Alabama Water Watch Program.
- More than 80% of those who completed AWW training responded that they would continue or adopt positive behaviors related to water quality including conducting water monitoring, educating others about water, becoming informed about local decision-making, reporting water issues, correctly applying fertilizer, and picking up pet waste.

"This was such a fun and informative workshop! I learned so much in such a short period of time. The online component was worth the time beforehand, and flowed smoothly with the classroom experience."

"My experience was great. The AWW staff was friendly, knowledgeable, and professional. The material was well organized, and the presentation was excellent. I look forward to participating in future events."

Return on Investment: 64:1

Wild Pig Damage Management

Project Leaders: Mark Smith, Bence Carter

Background: Wild pigs are found in nearly all 67 Alabama counties 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 (i.e., training the trainers) on practical, cost- and time-effective approaches for reducing or eliminating local populations of wild pigs. This training resulted in reductions in agricultural and natural resource damage. In-person seminars and demonstrations, print and electronic publications, and short how-to videos available on the internet reached various audiences in Alabama.

In 2021, this project continued to provide outreach and monitoring technical support to the Alabama Feral Swine Control and Eradication Pilot Project administered by the Alabama Soil and Water Conservation Committee. This multiagency, multiyear effort aims to reduce damage caused by wild pigs in select Alabama. Additional programming such as webinars, field day events, and trap demonstrations were conducted throughout the year.

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: 16 events, 522 participants

Audience Diversity: 79% White, 21% Black, 80% Male, 20% Female

Evaluation Techniques: Event surveys, in-person technical assistance

Adoption Rate: 99%

Conservative Direct Impact Estimate: $1.25 million in damage reduction on more than 248,472 acres of farm and forestland in Alabama and neighboring states

Return on Investment: 129:1

Key Project Resources: Wild pig education unit trailer, "Landowner's Guide to Wild Pig Management," Alabama Extension Fresh from the Field wild pig how-to YouTube video series

Wildlife Management: Enhancement and Damage

Project Leader: Mark Smith

Background: Alabamians spend more than $2.2 billion each year on wildlife-related recreation. Most of these expenditures are made by 1.1 million wildlife watchers ($734 million) and 535,000 hunters ($913 million/year). These individuals spend more than 14.3 million days per year engaged in these two outdoor activities. The Wildlife Management: Enhancement and Damage project assists clients in managing Alabama's natural resources. Management may involve programs and one-on-one contacts to improve wildlife habitat or 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 require significant work for regional Extension agents and specialists. These activities may be through one-on-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

Audience Diversity: 66% Male, 36% Female, 81% White, 19% Black

Number of Participants: 1,170

Conservative Direct Impact Estimate: $242,385 in prevented wildlife damage to property (assumes an average of $715/contact event) and $799,500 in wildlife enhancement in both urban and rural communities ($1,230/enhancement expenditure per contact based on 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation)

Return on Investment: 77:1

For more information, contact your county Extension office. Visit www.aces.edu/directory.

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