

ALABAMA'S

TREASURED FORESTS

A Publication of the Alabama Forestry Commission



**ALABAMA
COUNTS!**

2020 CENSUS

Summer 2020

Message from the STATE FORESTER

In the last magazine, I discussed how crazy the world had been for the first half of March . . . hoping things would return to normal soon . . . well, I guess not. It just keeps getting stranger. I am not going to ask what's next because I really don't want to know. Instead I am going to take this opportunity to once again brag on the men and women who are the Alabama Forestry Commission.



Rick Oates,
State Forester

Since the COVID-19 crisis began, the AFC's Incident Management Team (IMT) has been activated to handle special roles assigned to us by the Alabama Emergency Management Agency (AEMA) and Governor Ivey. As the Governor's Office began putting together a team to handle the crisis, the AFC was brought to the table almost immediately. For the first month we handled much of the planning and logistical functions for AEMA and the Alabama Department of Public Health. We had a team of men and women who put together the daily work plan for the state and covered many other assignments.

Since mid-April, the AFC has managed the AEMA's warehouse. This is where all the personal protective equipment (PPE) has been stored for distribution state-wide to hospitals, nursing homes, testing sites, clinics, and local communities. Our men and women have hauled over 500 loads of critical PPE across the state. To put it in perspective, that's:

- 206,000 bottles of hand sanitizer
- Over 6.5 million surgical masks
- 666,000 N95 masks
- 200,000 cloth masks
- 285,000 face shields
- 875,000 gowns
- Over 7 million pair of gloves

And, this does not include thermometers, bleach, test kits, body bags, and lab coats . . . it all adds up to almost 16 million individual items that we've moved around the state to keep us all safe! That takes some logistical skills and planning; all organized by our IMT. My thanks go to our team that has pulled this off! If you see one of our trucks on the road pulling an enclosed trailer, please take a minute to give the driver a thumbs up. They will appreciate it.

We've been asked to continue this effort through December, so we will be at it a while longer. I remind our employees that our paychecks don't say Alabama Forestry Commission on them anywhere — they say "State of Alabama." That's why we will help anytime the Governor calls us!

Secondly, I want to say thanks to a friend who left the AFC at the end of June. Many of you know Bruce Springer. He served the agency for over 29 years in a variety of roles from county forester, to division director, regional forester, and finally as assistant state forester. Bruce brought us into the 21st century with his computer skills. In 2002 he helped us move from colored pencils to GIS mapping, and in 2020 one of his last big projects was to revamp our GIS mapping program, taking us to a whole new level. He also developed the grant-tracking database we use to keep up with millions of dollars in federal grants — it keeps us out of trouble. He also aided me in managing our budgets over the last three years to ensure we are on solid financial footing!

Bruce retired and is moving on to enjoy time with his family. There are not many places in the agency that aren't better because of his commitment, including my office. Bruce's steady hand and knowledge of the Alabama Forestry Commission and forestry in general were comforting when I needed advice. I will miss having him around but wish him a happy retirement. He's earned it!

Rick Oates

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The Alabama Forestry Commission supports the Alabama Natural Resources Council's TREASURE Forest program. *Alabama's TREASURED Forests* magazine, published by the Alabama Forestry Commission, is intended to further encourage participation in and acceptance of this program by land-owners in the state, offering valuable insight on forest management according to TREASURE Forest principles. TREASURE is an acronym that stands for Timber, Recreation, Environment, and Aesthetics for a Sustained Usable REsource.



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On the Cover:

Smooth yellow foxglove grows wild in the native soils of Alabama. See back cover for the full story.

Photo by Fred Nation

This publication is provided at no charge to the forest landowners of Alabama, with a circulation of approximately 14,000. Published three times each year, the magazine is filled with forestry information and technical assistance designed to assist landowners in making informed decisions about the management practices they apply to their land. Articles and photographs are contributed by AFC employees and other forestry or natural resources professionals.

Alabama's *TREASURED Forests* magazine is also available on-line! www.forestry.alabama.gov



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ALABAMA'S SOUTHWESTERN APPALACHIANS AND AQUATIC HABITATS

By Ray Metzler, Threatened & Endangered Species Specialist, Alabama Forestry Commission

It's not a well-known fact, but the Appalachians reach into Alabama! The Southwestern Appalachians span an area stretching from Tuscaloosa County northeasterly to Jackson and Dekalb counties. This ecoregion occupies approximately 15 percent of Alabama's land area encompassing much of, but not limited to Jackson, Dekalb, Marshall, Blount, Cullman, Winston, and Walker counties. Characteristic land features are the flat-topped, high elevation plateaus that vary in elevation from 200 feet near Holt Lock and Dam in Tuscaloosa County to above 1,500 feet in Dekalb and Jackson counties. Shallow sandstone-derived soils are common on the plateaus and separated by deep, steep-sided valleys of limestone, shale, and dolomite.

Much of this region is privately owned by individuals, families, and non-industrial forest landowners. Like other areas containing eastern deciduous forests, it has undergone land-use changes directly influenced by agriculture, timber harvesting, urbanization, and other factors. The region sustains a very diverse woody plant community, and a healthy forest products industry that supports many regional as well as global manufacturing efforts. Upland forests within this region, predominated by an oak-hickory complex, serve as a critical neotropical migratory songbird habitat and protect the headwaters to some of the most biologically diverse freshwater stream systems in the world.

Aquatics in the Southwestern Appalachians Region of Alabama

Alabama ranks first in the nation in aquatic biodiversity/species richness, and the southwestern Appalachians ecoregion ranks high within the state. A plethora of snails, mussels, and fish located within the region are protected under the Endangered Species Act and listed as either threatened or endangered. Two

other listed species that call the region home are the flattened musk turtle and black warrior waterdog.

Like all aquatic systems in the state, the southwestern Appalachians has experienced habitat degradation due to many activities (such as construction of dams and various other land use changes) that have occurred since Alabama's statehood in 1819. Some specific issues are related to streambank erosion, obstructions that create passage difficulties, riparian habitat destruction, flow, temperature, and turbidity. Changes in environmental laws, development of Best Management Practices, cost-share programs, and landowner stewardship efforts during the past 30-40 years have lessened the rate of habitat decline and in some instances improved conditions. However, there is still work to be done to continue the habitat improvement efforts that will hopefully lead to species being removed from protection under the Endangered Species Act.

Habitat Improvement Activities and Opportunities

The Paint Rock River and its tributaries in Jackson County are one of the 'shining stars' when discussing aquatic habitat restoration success stories of the recent past in the southwestern Appalachians ecoregion. According to Rob Hurt, Biologist with the Partners for Fish and Wildlife Program of the U.S. Fish & Wildlife Service (USFWS), "The Nature Conservancy was the organizational impetus behind the efforts to begin habitat restoration within the Paint Rock River watershed."

Dozens of projects, both instream and onshore, with many partners (too numerous to name) have been completed to improve aquatic systems on the Paint Rock during the past 20 years. Projects have been as small and inexpensive as bundling discarded Christmas trees and anchoring them to the streambank or stream bottom to increase escape cover for juvenile stream fishes, or reestablishing vegetation by planting trees on the

streambanks. Larger and more expensive projects have included stabilization on as much as 700 feet of actively eroding streambank, or the removal of aquatic migration barriers such as undersized, perched culverts in stream crossings and replacing those structures with a bridge.

The Partners for Fish and Wildlife Program was developed to work with landowners to improve habitat for federal trust species such as those designated as at-risk and listed species. Projects like those accomplished in the Paint Rock River watershed are a testament to what can be accomplished when the right partnerships are developed with a focus on enhancing Alabama's fish and wildlife resources. The successes of the Paint Rock should be an inspiration for additional partnerships to enhance habitat across Alabama's landscape.

The American Forest Foundation (AFF) has formed a unique partnership with the USFWS and collaborates with Alabama state agencies to provide technical and financial assistance to private landowners. AFF is a non-profit conservation organization that helps protect and measurably increase clean water, wildlife

habitat, and sustainable wood supplies that come from family-owned forests. One goal of this partnership is to improve occupied and potential terrestrial and aquatic habitat in the southwestern Appalachians and other north Alabama counties to support federal listing decisions for at-risk species, and to obtain information on species location and habitat potential for current and future populations on private lands. Maintaining the integrity of working family forests while enhancing habitat and populations of at-risk and listed fish and wildlife resources is important to AFF.

Activities covered by this initiative in north Alabama focus on headwater habitat improvement including barrier removals, livestock exclusions, culvert and ditch removals, streambank restoration, riparian buffers, and widening streamside management zones (SMZs). Other terrestrial habitat improvement actions that may be covered include timber stand improvement, pine planting (shortleaf only), hardwood/mid-story control, invasive species control, prescribed burning, site preparation, native warm season grass and other groundcover establishment, hydrology and isolat-

(Continued on page 6)

Streambank Stabilization



Low Water Ford



Streambank Erosion



ALABAMA'S SOUTHWESTERN APPALACHIANS AND AQUATICS HABITATS

(Continued from page 5)

ed wetland restoration, and other habitat improvement practices, as needed.

Cost-share initiatives, administered by the USDA Natural Resources Conservation Service (NRCS), are another option for forest landowners to accomplish fish and wildlife habitat improvements on their property. Farm Bill initiatives provide more money to landowners than any other program in the country and can have tremendous positive impacts that benefit fish and wildlife populations at the local and landscape levels.

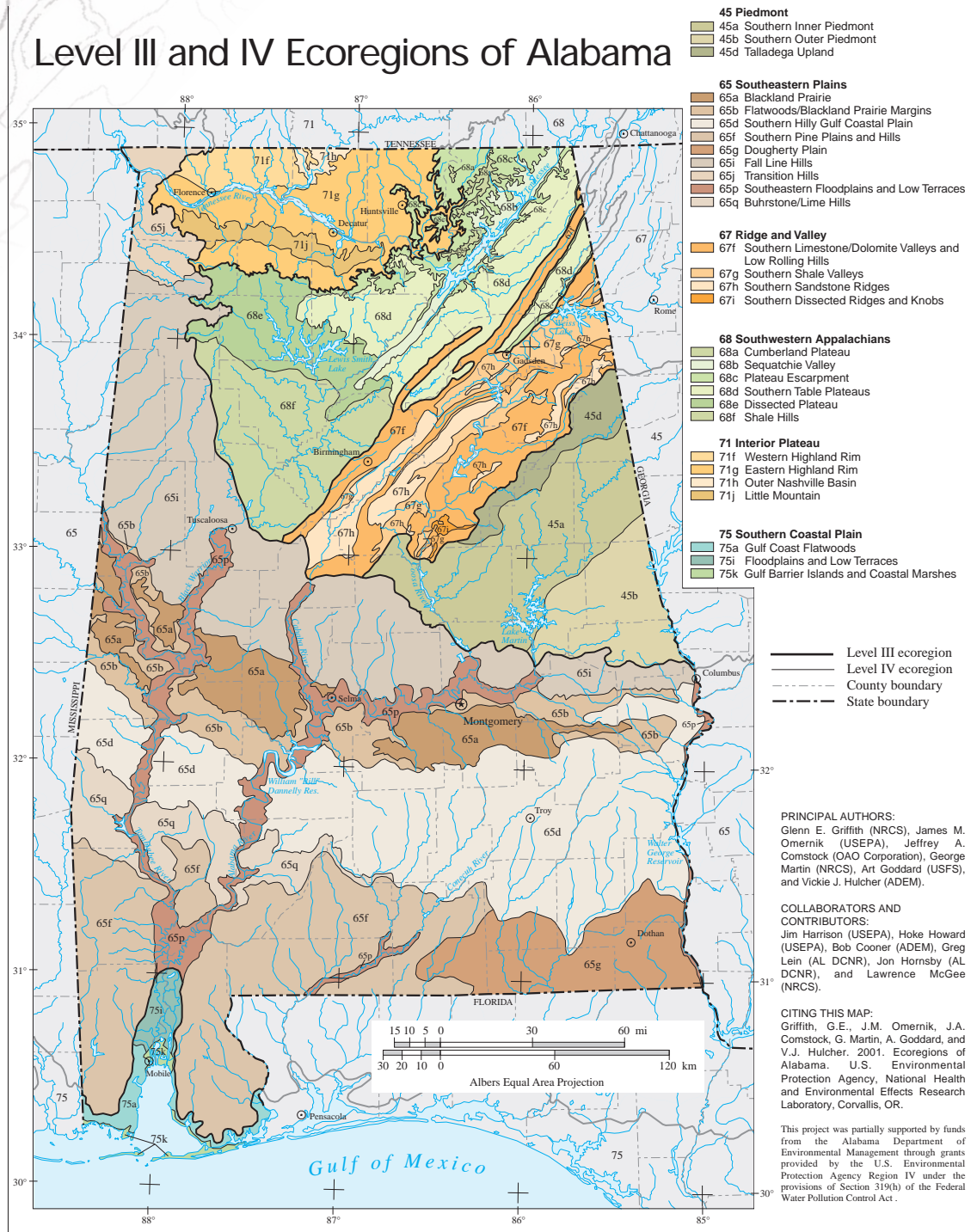
The Alabama Forestry Association also provides technical assistance focused on improving riparian habitats in north Alabama. Many partners are working together to enhance the positive economic impacts that forestry brings to Alabama while striving to maintain and improve our highly diverse terrestrial and aquatic ecosystems.

The Alabama Forestry Commission recognizes the importance of good stewardship and the positive impacts forest landowners can have on aquatic systems.

We encourage you as a forest landowner to stay engaged with the active management of your streamside and riparian habitats to ensure a healthy future for Alabama's aquatic species and watersheds. As always, AFC employees are available to conduct a site visit on your property to assess management needs and activities.

It is difficult to make habitat improvements on a large scale without partnerships. Working together, we can make a difference to improve aquatic and riparian habitats in north Alabama. 🌲

Level III and IV Ecoregions of Alabama



Contacts for the American Forest Foundation and U. S. Fish & Wildlife Service partnership:

Lee Holt | USFWS Partners Biologist | (256) 353-7243 ext. 28 | roger_holt@fws.gov

Rob Hurt | USFWS Partners Biologist | (256) 353-7243 ext. 29 | rob_hurt@fws.gov

Greg Pate | American Forest Foundation | (919) 922-1539 | greg.pate@fourforestrygroup.com

Contact for the Alabama Forestry Association:

Joel Moon | (334) 481-2133 | jmoon@alaforestry.org

For additional information about the U. S. Fish and Wildlife Service — Partners for Fish and Wildlife Program, visit: <https://www.fws.gov/partners/>

Visit the following websites to get contact information for a registered forester or wildlife biologist in your area: [www.forestry.alabama.gov](http://www.forestry.alabama.gov;); [www.outdooralabama.com](http://www.outdooralabama.com;); OR www.alaforestry.org

STRENGTH IN NUMBERS

Battling the Deakle Road Fire in Mobile County

*By Benji Elmore, Southwest Regional Forester,
Alabama Forestry Commission*

Dry conditions, gusty winds, and low humidity contributed to the growth of a large wildfire in Mobile that started on May 12. Alabama Forestry Commission wildland firefighters and partnering emergency responders continued to battle this blaze over the next seven days.

The fire was finally controlled late on May 19, after burning almost 1,100 acres.

This fire will go down in my book as one of the top 10 most memorable in the 35 years I've been fighting forest fires. I am truly grateful for how the AFC fire-fighting crews conducted the Deakle Road incident. This large wildfire taxed each of us physically AND emotionally each day. A total of 16 AFC employees were on the fireline, and everyone did their jobs in spite of the numerous obstacles we all faced daily.

As each day progressed, from Tuesday through Friday, we felt a sense of accomplishment as we thought we had it controlled, only to have it rise up and defy our efforts. Even the mop-up on Saturday concerned us. Crews continued to check hot spots for the next few days.

We had a wide variety of problems to mitigate. Flame heights reached 80 to 100 feet at times with a high rate of spread, with spotting occurring a quarter mile ahead of the flame front. Some of the terrain was inaccessible for heavy equipment due to peat bogs, but the fuel [vegetation] was still highly combustible. Firebreaks were continually overrun all week as contingency lines became containment lines, and those were overrun as well. Homes were threatened. We broke stuff but dealt with breakdowns, working well into the night.

At the end of the day, the guys stayed the course and didn't back down all week. They worked hard and smart. It's pretty remarkable that with an incident as complex and dangerous as this was, no one was hurt, and no homes were lost.

We are also truly thankful for our partners: numerous fire departments (paid and volunteer) from Mobile County, the Alabama Law Enforcement Agency (ALEA) and National Guard for the air support, for Governor Ivey and Alabama Emergency Management Agency Director Hastings expediting our requests for the Blackhawks, and for State Forester Rick Oates' influence in that process. Their seamless operations protected equipment and firefighters on the ground on more than one occasion when the wildfire was burning intensely and moving fast.

Thanks to the rest of the Southwest Region for catching fires and filling in the gaps, and to AFC Regional Foresters Andy Guy and Terry Ezzell for sending much needed help.

When I was a green recruit attending the AFC's 1985 Fall Forestry Academy, I remember our Legislative Liaison Frank Segó leading us each morning in a chant saying, "I am proud...to be a part of...the Alabama Forestry Commission." We didn't think much about it at the time, but they were building cohesiveness in our team. I AM proud to be associated with these guys. 🙏

(Right Top & Center): AFC wildland firefighters and partnering emergency responders battled this south Alabama wildfire for a week before finally controlling it at 1,090 acres. Local fire departments were tasked with protecting homes that were threatened, while National Guard Blackhawks and ALEA Bell and Huey helicopters dropped approximately 150,000 gallons of water on the blaze.

(Right/Bottom): Flame heights reached 80 to 100 feet at times during the Deakle Road Fire.

(Background): Thick smoke caused hazardous driving on highways in the area.



The AFC's COVID-19 Response Team Delivers!



By the Editor

Forestry may be our mission, but flexibility is our game . . . and the agency's reputation continues to grow as a key TEAM player. Even though the unusual circumstances of the coronavirus pandemic required everyone to work remotely as much as possible during the past few months, Alabama Forestry Commission personnel have not been deterred from carrying out their jobs. In addition to proceeding with fighting the usual wildfires and cleaning up after more than one round of storm damage across the state, agency employees have gone above and beyond the call of duty to assist the citizens of Alabama in a totally new and unique mission.

In March, the AFC began providing Incident Management 'Planning' support to Alabama's Unified Command for COVID-19 Response Team. Joining forces to help fight the coronavirus, this team is comprised of four state agencies: the Alabama Department of Public Health (ADPH), the Alabama Emergency Management Agency (AEMA), the Alabama National Guard, and the Alabama Forestry Commission (AFC).

Equipped with manpower and a statewide fleet of trucks and trailers, the AFC was also called upon to assist in the transportation of crucial personal protective equipment and medical supplies to healthcare facilities across the state. Personnel from all four regions of the agency began delivering face masks, gloves, and hand sanitizer to hospitals, nursing homes, and other medical centers during this time of need.

Currently, AFC crews continue to work together with these three other state agencies in the transportation of crucial medical supplies across the state, as well as inventory tracking of these supplies. An interagency project of this massive scale is not always easy, but Forestry employees have adapted and delivered.

The Alabama Forestry Commission salutes all the brave healthcare professionals working to contain the outbreak across the state and country! 🙏



The Great Toilet Paper Run of 2020

By Bruce Springer, Alabama Forestry Commission (Retired)

Within hours — once they started realizing the invisible coronavirus was in full attack mode, stores might be closing as a result, and shelves were quickly emptying of basic necessities— people went and bought up the rest of the Lysol, masks, gloves, and toilet paper. Unfortunately, human nature is very predictable! (The joke, however, is on them. Because of the run on TP, retail prices spiked.)

Will the Great Coronavirus Toilet Paper Run of 2020 be Noted in the History Book?

Society's reaction to misinformation is alarming. For example, how many of you heard that Corona beer sales plummeted as a result of COVID-19? If you answered yes and believed the stories at face-value, you've been misinformed. I am guilty as charged.

According to Factcheck.org, misinformation about Corona beer was fueled by a survey that claimed “38 percent of those surveyed would not buy Corona beer under any circumstances.”

Results of the survey were picked up by social media and several news outlets, causing the rumors to spread like wildfire. Viral social media posts falsely stated that beer drinkers were shunning Corona beer as a result of the new coronavirus.

However, U.S. sales were up according to Constellation Brands (Corona's producer). Upon further details of the survey,

“Among those who said they *usually* drink Corona beer, only 4 percent said they would stop drinking Corona.” The 38 percent mentioned by news and social media outlets probably don't even drink beer, including Corona. A company spokesman said the social media posts took a shot at the intelligence of the public.

Back to our output situation. So, those without, how will you survive? You'll be comforted to know that toilet paper hasn't been around that long and there are alternatives. In fact, toilet tissue didn't really become an American household staple until the early 1900s.

(Continued on page 10)



Like this Costco shopper in San Francisco, consumers felt the need to buy more toilet paper.

(Photo: Kevin McGovern/Shutterstock.com)

The Great Toilet Paper Run of 2020

(Continued from page 9)



History of Toilet Paper

The use of paper for hygiene was recorded in China in the 6th century AD, with specifically manufactured toilet paper not being mass-produced until the 14th century, and only then in separate sheets. (Source: Wikipedia)

In fact, in many parts of the world toilet paper is still not used, especially where it or the necessary plumbing for disposal may be unavailable or unaffordable. Also, in some parts of the world people consider using water to be a much cleaner and more sanitary practice than paper.

Cleansing with water is performed with other methods or materials, for example using a bidet, a lota, rags, sand, leaves, corn cobs, animal furs, sticks or hands. Afterwards, hands are washed with water and possibly soap.

So, there are some alternatives out there if you run out of toilet paper!

Joseph Gayetty is widely credited with being the inventor of modern commercially-available toilet paper in the United States. Gayetty's paper, first introduced in 1857 and named 'Gayetty's Medicated Paper' was sold in packages of flat sheets.

Modern commercial toilet paper rolls originated in the 19th century. Seth Wheeler of Albany, New York, obtained the earliest United States patents for toilet paper and roll-based dispensers in 1883, the types of which eventually were in common use in

Europe. Toilet tissue dispensed from rolls was popularized when the Scott Paper Company began marketing it in 1890.

The manufacturing of this product had a long period of refinement, considering that as late as the 1930s, a selling point of the Northern Tissue company was that their toilet paper was 'splinter free.' The widespread adoption of the flush toilet increased the use of toilet paper, as heavier paper was more prone to clogging the trap that prevents sewer gases from escaping through the toilet.

One tree produces about 200 rolls (100 pounds), of toilet paper and about 83 million rolls are produced per day. Global toilet tissue production consumes 27,000 trees daily.

If you really need the comfort of a well-stocked bathroom cupboard, but don't want to join the barbarians at the gates of Costco, there's even another option: Make your own toilet paper. Learn how at: www.ehow.com/how_6132991_make-rag-paper.html. It's a surprisingly simple process. It starts with a few sheets of newspaper — which, these days, may not be easy to come by. But yesterday's news, in addition to being a wonderful substitute for toilet paper, may also remind us of a powerful truth in even the darkest of times: All things must pass.

Manufacturers in Alabama

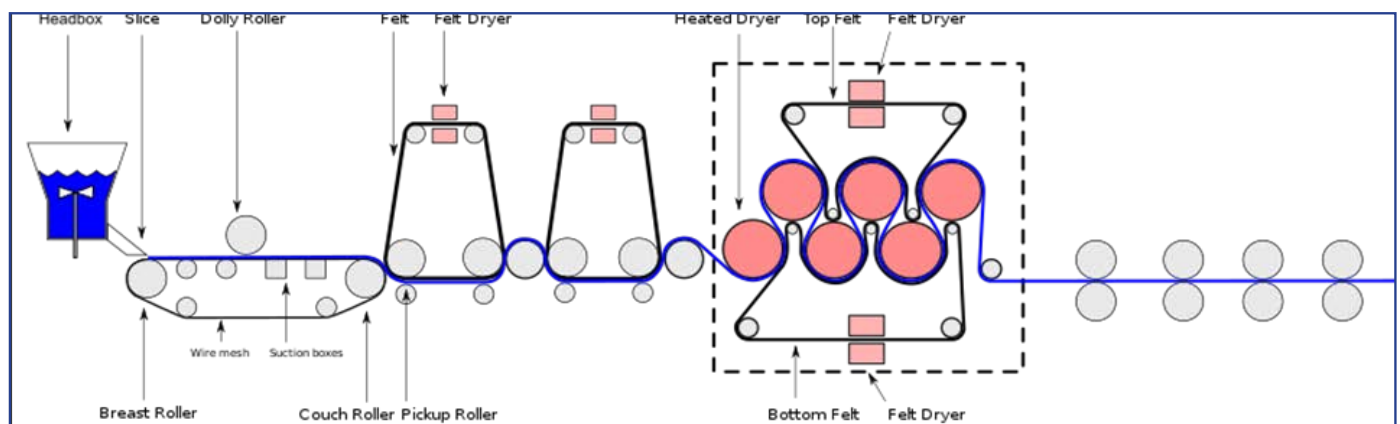
Toilet paper is mainly produced by three companies in the United States: Procter & Gamble, Georgia-Pacific, and Kimberly Clark. There is plenty of the product on inventory and manufacturers are making more, 24/7. More than seven billion rolls of toilet paper are sold yearly in the United States. Americans use an average of 23.6 rolls per capita per year.

Toilet paper demand is very predictable, even during emergencies. Customers regularly wipe out the toilet paper aisle (pardon the pun) ahead of big snowstorms and hurricanes, and the system can quickly rebound.

In Alabama, a Choctaw County plant is helping to meet the nation's demand for toilet paper in the wake of the coronavirus pandemic. Georgia-Pacific's mill, which employs 900 people, is working to churn out the product. It produces the Quilted Northern and Angel Soft brands.

Georgia-Pacific is able to meet the demand because it recently invested \$120 million facility that specifically improved its toilet paper capability. The company has invested more than \$500 million into the mill over the past six years, and about \$1.6 billion

General manufacturing roll process to produce paper.





*Manufacturers are rolling with the demand, but they're not drastically increasing production.
(Photo: Studio Dagdagas/Shutterstock)*

into its Alabama operations across the State. Maybe they saw the pandemic coming. (Source: AI.com)

Two other secondary industry manufacturers produce toilet paper from recycled paper in the state. Kimberly-Clark in Mobile County. They produce Scott, Cottonelle, and KC Professional toilet tissue and paper towels. The company employees over 500 people to keep those rolls churning.

Essity in Cherokee County is a global producer of hygiene products. Employing over 500 people, they use recycled paper to produce Cushelle toilet tissue. (The name Essity stems from the words 'essentials' and 'necessities.' (Source: <https://www.essity-usa.com/>)

Wrap Up

The coronavirus great toilet paper run of 2020 turns out to reveal a great deal about who we are and how we behave in a crisis. Maybe people are squeezing the Charmin because, in uncertain times, we need to hold on to something. But the truth is, there is no toilet paper shortage. Irresponsible response of people has unnecessarily divided this country – those with and those without one of the greatest necessities of life, at least in the bathroom. I suspect no one ever really ran out of toilet paper, nor would they tell anyone if they did!

All will turn out okay. In the fall, I'm certain there will be plenty of supply when Toomer's Corner is rolled again! 🙏



ECONOMIC IMPACTS OF COVID-19: THE BIG PICTURE

By Dan Chappell, RF, Senior Forest Inventory Analysis & Marketing Coordinator, Alabama Forestry Commission

It goes without saying that tracking market activity – whether it concerns stumpage, lumber futures, housing starts, or even paper product availability – in this present year has required an uncommon amount of acceptance of the unexpected.

The left side of Graph 1 below is taken from February, or the time before the present disruptions. As March wore on, and uncertainty increased, prices paid for 1,000 board foot increments of lumber declined and bottomed out on April 1. Prices came up from their lows, but remained depressed for all of April, before beginning a steady climb with the first of May. During high points in July, prices have been more than double the April lows. Is this sustainable? Many lumber mills across the US and Canada geared down in response to the virus, but did not stop completely as the industry was declared ‘essential.’ Major home improvement retailers have reported record sales to individuals for home improvement projects, and this, coupled with tight supplies due to the earlier slowdown has led to lumber shortages being reported in some regions of the country, particularly the Northeast. Data from the Harvard Joint Center for Housing Studies suggests that it is individuals buying and using much of this lumber themselves, as professional remodelers are reporting economic damage has been done to their businesses and prospects moving forward.

The lumber market is not buoyed solely by the remodeling market. Demand for new housing is finding support from the lowest fixed-rate 30-year mortgage interest rates on record. See Graph 2 from trendingeconomics.com.

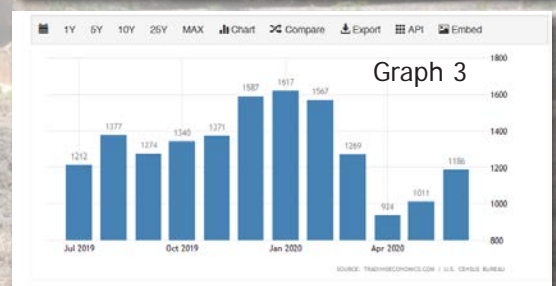
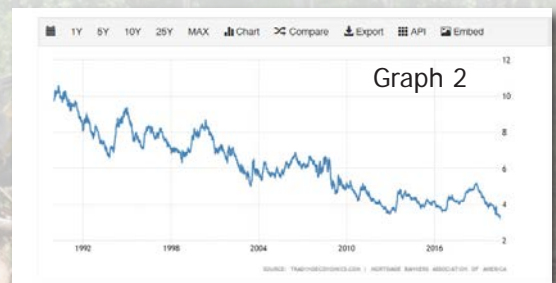
Not surprisingly, April was a historically bad month for housing starts, but improvement has been steady since then, with the latest June figures representing an annualized rate of 1.186 million housing starts for the month. See Graph 3 from trendingeconomics.com.

Recovery in this sector is the key support for lumber markets and the sawtimber stumpage that supports them.

As for pulp and paper, these markets have been very product specific. If you have been to the store recently, then you know that bathroom tissue has made its long-awaited return to store shelves. One overlooked factor that exacerbated the run on bathroom tissue relates back to some of its intrinsic properties. Consider, it is large and bulky, therefore it takes up a large amount of valuable space in the backrooms of retail stores. Those same stores have a very good idea of typical demand for that product line. The bulkiness, coupled with the known demand, means that it does not typically make sense to keep large supplies of bathroom tissue on hand. Panic buying throws reasonable calculations such as that overboard, and it took weeks, as we know, to work through the resulting market imbalance.

If cardboard shipping boxes are the end product in which you are interested, they have done well in the last several months. If you are interested in writing paper such as schools utilize in large volume, then the picture has not been a good one, with continued uncertainty ahead. One unexpected bright spot in the paper industry has been the growing business success being attributed to physical paper catalogues, which not so many years ago were written off as a relic of the past. As counterintuitive as it might seem, e-commerce retailers are once again finding success with printed catalogues, as several years of trend data is now making apparent. Late 2019 even saw Amazon emulate the old “Wishbook” formula by creating a paper catalogue of their toy offerings and distributing this to customers. High return on investment (ROI) seen in this area is expected to drive more retailers back to using paper, even though their businesses may have been born in the digital age.

Drawing on stumpage price information from the April, May, June quarter, it is enough to say that prices were down in most product categories. Local conditions such as the needs of the mills operating in your area, weather conditions, road access, the species and quality of your stand of trees, the total supply of trees coming on the local market, and the availability of the logging workforce to cut and haul the timber are still the main drivers behind the value assigned to any given stand of timber. 🌲



CLOSER TO HOME...

THE COVID-19 IMPACT ON TIMBER MARKETS IN THE MID-SOUTH

By Doug Ezzell, Registered Forester/Limestone Work Unit Manager, Alabama Forestry Commission and
Billy Rye, President of Forest Management Specialists, Inc.

At the time of this writing, uncertainty is still swirling about the impact of the COVID-19 pandemic on US and global economies. As forest owners, business owners, and consumers, the questions are more specifically concerning timber markets.

I recently talked to Billy Rye, President of Forest Management Specialists, Inc., to get his insight into the effect on timber markets in the Mid-South area. He is a registered forester and consulting forester working in north Alabama, southern Tennessee, and northwest Mississippi. The following information is the advice Billy has been offering his clients.

We are now in our fourth month of the new 'normal' caused by COVID-19 and its impact on the economy. During this time, markets have remained fluid. Prices and demand for certain products can fluctuate wildly in a short period of time. Below is a general summary of the markets for standing timber in the Mid-South region since April:

- Markets will likely remain unstable as timber buyers and manufacturers grapple with the perceived future demand for their products. For this reason, most buyers will only purchase timber on a pay-as-cut basis. I am ok with a pay-as-cut contract if there are enough security measures in place and a reputable buyer is selected. The good news is that we have moved a significant amount of wood during this time by using this method of payment.
- Although pine pulpwood markets have remained open throughout most of this period, low prices persist and most timber buyers are only interested in clear-cuts. This makes pine thinning unlikely unless it is combined with nearby clear-cuts. Mills are now beginning to enact quotas on the amount of wood they receive due to the slightly drier weather and increased volume of gate wood they have received.
- At the beginning of the pandemic, most pine sawmills either shut down or refused to take on new contracts for the purchase of standing timber. However, they have reopened and are now accepting wood as they have gained some clarity on pine lumber markets. While prices are not great for this product, they are higher than this time last year for most areas.
- Hardwood pulpwood markets had been trending down from their all-time high in the winter of 2019, even before the pandemic struck. Some mills remained closed for months and have just recently began to accept wood again. Prices are significantly lower than they were last year, and restrictive quotas are just now beginning to ease.
- Many loggers/buyers had switched over to harvesting pine due to the shutdown of the hardwood pulpwood market. Pine mills have begun initiating restrictive quotas as a response to the increased volume of wood. Hopefully, the reopening of the hardwood pulpwood markets and the usual fall buildup of inventory will help alleviate some of these quotas.
- The demand for crossties had ground to a halt at the beginning of the quarantine. However, quotas have been lifted and prices have rebounded after the economy re-opened.
- Most grade hardwood is moving again. Many hardwood sawmills continued to saw lumber and store it in warehouses during the most pessimistic outlooks of the past few months. I can only assume they have been able to move their inventory as they are back to buying standing timber and paying good prices for most forms of hardwood sawtimber. The price for grade white oak is outstanding, grade red oak has seen a slight increase in price, poplar has fallen off some, but most hardwood sawtimber remains relatively strong compared to their historical price average.

The decision on when to sell timber is a complicated one. The landowner's objectives and plans, the condition of the existing timber, the harvesting conditions present, and the current/future markets all play a part in that decision. In these uncertain times, it is more important than ever to work with a professional forester that is familiar with the markets in your area and has the experience necessary to assist you with your decision.

I appreciate Billy sharing his 25+ years of knowledge and expertise in timber markets. I am sure by the time of printing many conditions will have changed in the COVID-19 pandemic situation. I am optimistic that as you read this article, the situation has greatly improved and we are closer to 'old normal.' Please stay safe and healthy. 🙏

Landowner Assistance Stand Maps




By Bruce Springer, Alabama Forestry Commission (Retired)

One of the objectives of the Alabama Forestry Commission's three-fold mission is to provide forest management recommendations to landowners. Our forestry professionals provide recommendations to landowners on a daily basis, even though this work doesn't get the same level of attention as our wildfire response. This work, however, is vitally important to ensuring that Alabama's forests, mostly owned by private individuals, are environmentally healthy and provide multiple benefits, including a steady wood supply for the forest industry.

In the process of providing forest management recommendations to landowners, a stand map is usually produced and provided to the landowner. If the landowner wishes us to produce a forest management stewardship plan for their entire property, then our professionals also produce a plan map for the stewardship plan.

Prior to 2004, most of our professionals were hand-drawing the forest stand maps. I remember sitting at my desk in the '90s using colored pencils to produce these stand maps (all three copies, since no one had color copiers). We also had to use a dot-grid to calculate acres for each stand. This was very time-consuming work. In 2004, for the first time in the AFC's history, agency employees across the state were provided with and trained on a new computerized mapping program, Maptitude. For the last 16 years, our professionals have been using Maptitude to create and print stand maps for landowners. It has also been used for special mapping purposes, including mapping all the southern pine beetle (SPB) spots detected from our aerial observation flights and printing individual SPB spot maps for landowners.

Over the last few years, the agency has been transitioning to an ArcGIS mapping platform as described on page 20 in the Winter 2020 issue of *Alabama's TREASURED Forests*. Recently, AFC Geographical Information Systems (GIS) Specialist, Abi Dhakal, combined all the stand maps everyone has produced over the years into one map. The map on the right shows these stand and plan maps created by AFC employees. While a small set of the data could not be combined, the map clearly shows the amount of work completed throughout the state. For every stand or plan map produced, our professionals also provided the landowner with forest management recommendations that would meet the landowner's goals and objectives for their property.

It is satisfying to me to see the amount of work performed in *"Making Alabama Better through Forestry."* 

Stand Maps and Management Plans Created by AFC Since 2004

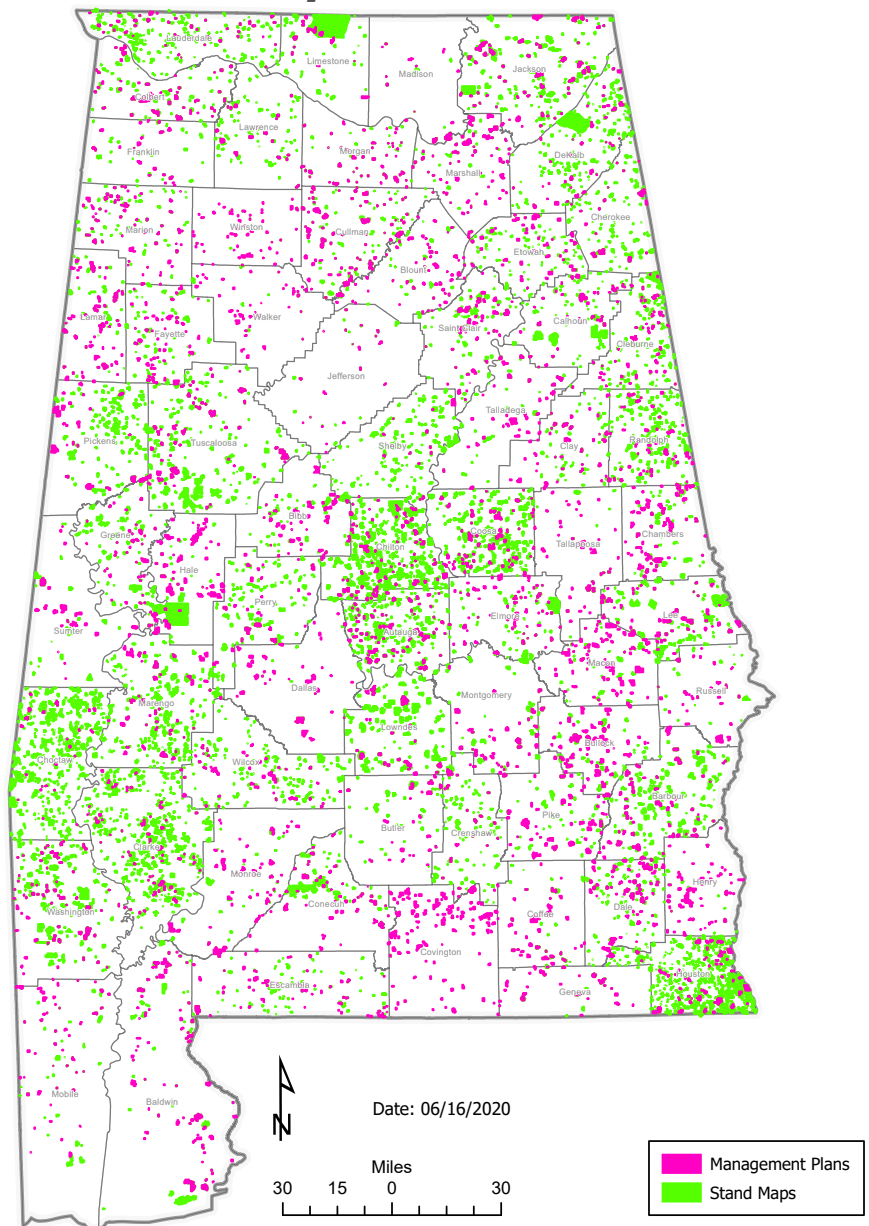




Photo by USDA Forest Service - Region 8 - Southern, USDA Forest Service, Bugwood.org

Prediction Low for Southern Pine Beetles in 2020

By Dana Stone, AFC Forester/Forest Health Specialist

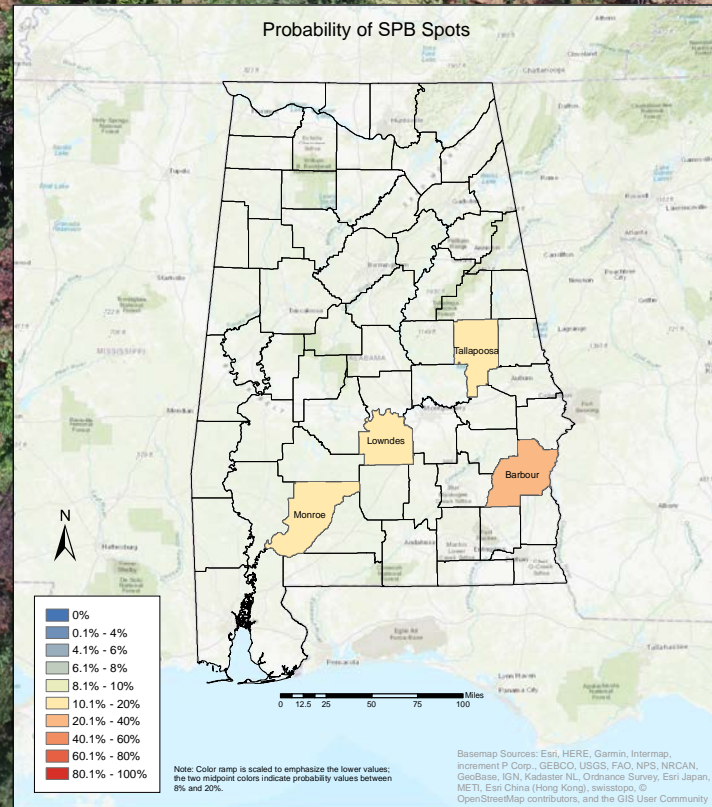
Good news for forest landowners – Alabama is predicted to have a low number of southern pine beetle (SPB) infestations in 2020, according to the Alabama Forestry Commission (AFC). More specifically, high risk counties are expected to have no more than six to nine SPB spots. The overall prediction for the state is that Alabama has a 16 percent chance of having any SPB spots this active season.

Southern pine beetle is one of the most destructive forest pests in the southern and eastern United States. They will attack most species of pines, but the most vulnerable are dense, mature stands of loblolly, shortleaf, and/or Virginia pines. The location and intensity of SPB outbreaks varies from year to year, and infestations are based on many factors. Condition of the pine stand is one factor. Other contributing factors are extended adverse environmental conditions and SPB population levels.

Since 2018, an updated analytical model has been used to predict infestation trends more accurately. Each year, a spring SPB pheromone survey is conducted to monitor population levels. Several southeastern states participate in the annual survey, including Alabama. Traps are deployed in several counties throughout each state, generally from late February to early March, and remain in place from four to six weeks. Baited with a lure – SPB pheromone (frontalin and *endo*-brevicomin) and a polyethylene blue sleeve (primarily *alpha*-pinene) – the traps are checked once a week by retrieving the insects from the traps' collection cups and counting the number of adult southern pine beetles as well as their predators, clerid beetles. After the survey period, the traps are removed from the site. The results of the number of SPBs and clerid beetles caught each week are used to obtain population levels and predict infestation trends for each state.

The 2020 survey data was collected and submitted by AFC and other agency employees in Alabama and analyzed by researchers from Bates College, Dartmouth College, and the USDA Forest Service. This analysis does not include data from the National Forests in Alabama, so the final report is not complete. While a preliminary summary was determined for the region, this information is by no means absolute confirmation of what will occur across the state. 🌲


Summer 2020



Southern Pine Beetle (SPB) Outbreak Prediction Maps: Alabama 2020

The outbreak prediction model is based on a number of predictor variables that were determined to provide the best fit to the data. Most prominent among the driving variables were number of SPB/two week time period, and number of spots last year.

The SPB prediction project is supported by USDA Forest Service: Science and Technology Development Program (STDP)
Contact: Matt Ayres - matthew.p.ayres@dartmouth.edu, Carissa Aoki - caoki@bates.edu



Alabama's Rural Communities Experiencing Critical Shortage in Volunteer Firefighters

Part three in a series: Help Could Be on the Way

By Coleen Vansant, Public Information Manager, Alabama Forestry Commission

They are critical to the safety and health of millions of people in Alabama, yet we are near a crisis point in recruiting and retaining firefighters for the almost 1,000 volunteer departments that serve the rural areas of our state.

For 85 percent of Alabama's 4.9 million residents, a local volunteer fire department is the first line of defense in the event of an emergency. Over the past couple of decades, recruitment and retention of firefighters and medical personnel have become major problems with many departments, so much that the lack of manpower is starting to take a toll on the capability of many departments to respond to emergency calls.

Rural Alabamians are dependent on the many services provided by volunteer fire departments. Structural and wildland fire suppression, first responder medical services, search and rescue, as well as natural disaster and hazardous material response are just a few of the critical and lifesaving services that the 990 volunteer fire departments provide the citizens of the state on a day-to-day basis.

In a report released in April of last year by the National Fire Protection Association (NFPA), the U.S. has lost approximately 132,250 volunteer firefighters since 2015. Sadly, this decline has had the most impact on very small communities and cities across the nation. Of the 132,250 loss in firefighters, approximately

83,550 or 63 percent, have occurred in communities and towns with a population under 2,500 residents.

Throughout this series I've used the firefighters of my hometown of Hanceville in southeast Cullman County as my model department because they fit the NFPA report data very closely. Although Hanceville has a population of around 3,000 residents, their fire department coverage area encompasses over 36 square miles of rural Cullman County, dramatically increasing the number of residents and structures it is responsible for protecting. For a small city, Hanceville is very fortunate to have four paid members: the chief, assistant chief, and two additional full-time firefighters. The remainder of their force is made up of volunteers.

To give a snapshot of the work a small volunteer fire and rescue department does, in 2019 Hanceville responded to a total of 1,301 calls. Included in that number were 967 medical calls, 71 motor vehicle accidents, 52 structure calls, 37 other types of fires, and 106 service calls. The remainder were false alarms. Of the total calls, 114 were multiple calls at once. In January of this year, the department set a record with 145 calls for the month. With only one paid firefighter per 24-hour shift, their resources are spread thin.

Hanceville's Mayor Kenneth Nail is not unfamiliar with the work and struggles of a small volunteer fire department. Nail served 20 years in the department as a firefighter and EMT, and

during a recent interview he said that it's not uncommon to have only one or two people who are able to respond to a fire during the daytime or on a weeknight. Because many volunteers in the department work out of town or have jobs that will not allow them to respond to incidents during these times, it puts a tremendous burden on the department. To help make up for the lack of firefighters, Hanceville has sent some of its policemen through basic firefighter training. And at times "everybody" with the city has to fight fire, "including policemen, public works department, and the mayor," Nail said.

Because of his concern that the shortage of firefighters is quickly becoming "a public safety problem," in October of last year, Nail hosted a meeting to discuss the issues with District 11 State Representative Randall Shedd and District 4 State Senator Garlan Gudger. Invited to the meeting were fire chiefs from the Cullman County Association of Volunteer Fire Departments and a representative from the Alabama Forestry Commission. Several fire chiefs from the DeKalb County Association of Volunteer Fire Departments also attended.

Rep. Shedd and Sen. Gudger spent about two hours attentively listening to fire chiefs and firefighters describe the problems they were facing with recruiting and retaining firefighters, as well as funding issues that departments are currently facing.

After hearing the problems and concerns voiced at the meeting, and because they both realize the important role rural volunteer fire department have in their communities, the pair carried this knowledge back with them to this year's legislative session. Sen. Gudger and Rep. Shedd, along with Alabama House of Representatives Majority Leader Nathaniel Ledbetter of DeKalb County, co-sponsored a resolution for the creation of a 'Joint Legislative Study Committee on Volunteer Fire Departments and Community Medical Responders.' The resolution was filed on May 18, the last day of this year's legislative session, and has been signed by Governor Kay Ivey.

According to Rep. Shedd, he will co-chair the joint committee with Sen. Gudger, along with four members each of the State House of Representatives and the State Senate. Shedd went on to explain that the committee would be holding several meetings across the state with representatives from rural fire and medical services and other organizations impacted by the firefighter shortage, to hear the problems they are having with the recruitment and retention of volunteers.

"At this point we don't know what will happen," Shedd said. "We want to meet across the state and identify the challenges fire departments are facing and see if we can find some solutions."

Shedd included that Gov. Ivey and legislators were aware of the problems faced by volunteer departments and "are determined to help" as well as there being "bi-partisan" support in the legislature.

Gudger explained that this all came about after the October meeting in Hanceville, when Rep. Shedd came up to him and said, "We have to take this to a state level instead of local."

"Our goal is to collect data and information from departments all across the state," Gudger said. "Then analyze that data and see if we can fix it."

He added that by holding regional meetings, the committee would be able to better determine what problems departments were having from one end of the state to the other. "We want to

look at all areas of the state," Gudger said. "Some problems may be a little different from one area to the other."

Gudger joined Shedd in stressing the interest both houses of the legislature had in helping find solutions to the problems facing rural fire and medical services in Alabama and that the efforts were "bi-partisan."

The final report of the Joint Legislative Study Committee on Volunteer Fire Departments and Community Medical Responders is to be presented to the Legislature no later than the fifth day of the 2021 legislative session. 🏠



AUTHOR'S NOTE:

This story completes the three-part series outlining the problem Alabama's rural volunteer fire departments are facing with recruitment and retention of personnel. In the event you missed the first two stories, they can be found in the Winter 2020 and Spring 2020 of Alabama's TREASURED Forests magazine.

I will be attending some of the regional meetings of the Joint Legislative Study Committee on Volunteer Fire Departments and Community Medical Responders, and I will report back to you with another story on the outcomes of these meetings.



An Overview of Farm Service Agency (FSA) Landowner Assistance Programs

Part two in a two-part series

By Ryan T. Peek, AFC Coastal Programs Manager

This article is designed to provide an overview of the types of landowner assistance the USDA Natural Resources Conservation Service provides to non-industrial private forest (NIPF) landowners. An overview of USDA Farm Service Agency programs was offered in part one of this series in the spring 2020 issue of *Alabama's TREASURED Forests* magazine.

To help landowners achieve their conservation goals, the Natural Resources Conservation Service (NRCS) administers a variety of programs. The agency also employs technicians who are available to provide technical guidance to landowners. The two NRCS programs forest landowners most often apply for are the Environmental Quality Incentives Program and the Conservation Stewardship Program.

When applying for NRCS financial assistance, the basic requirement for a landowner is to obtain a 'Farm and Tract number' through the Farm Service Agency (FSA). The recommended method of attaining this Farm and Tract number is for the landowner to set up an appointment with their local FSA office. At a minimum, the landowner will need personal identification and their property deed. If the landowner's property is set up in a more complex holding, such as a trust or LLC, the landowner may be asked to provide additional documents. It is advised to call the FSA office in advance and speak with one of the clerks if your property is in such a complex holding so that you will know what documents to bring. After completing the paperwork, it can take four to six weeks to receive your Farm and Tract number.

Through the Environmental Quality Incentives Program (EQIP), eligible producers (landowners) may receive a payment based on the statewide average cost of the installation of the conservation practice, for example longleaf pine tree planting. Socially disadvantaged, limited resource, and beginning farmers or ranchers are eligible for a higher payment rate and can receive

up to 30 percent advanced payment for purchasing materials or contracting. This article will go over the basic requirements for participating in these programs and will provide a link to the NRCS conservation programs website so readers can get additional information.

EQIP is a voluntary program that provides financial and technical assistance to agricultural (forest) producers in order to address natural resource concerns and deliver environmental benefits. These potential benefits include improved water and air quality, conserved ground and surface water, reduced soil erosion and sedimentation, and improved or created wildlife habitat. Financial assistance payments are made to participants after the conservation practices/activities in their EQIP plan have been implemented. EQIP contracts can last up to ten years. Although applications are accepted on a continuous basis, the NRCS will establish a submission deadline date for evaluation, ranking, and approval of eligible applications. The EQIP program is open to all eligible agricultural (forest) producers and submitted applications may be considered or evaluated in multiple funding pool opportunities.

Eligibility is limited to agricultural producers, non-industrial private forest landowners, and Native Tribes. Eligible lands include cropland, rangeland, pastureland, non-industrial private forestland, and other farm or ranch lands. Landowners and producers who begin installing a practice prior to written contract approval will become ineligible for that practice for EQIP assistance unless a waiver has been approved. An applicant must control or own the eligible land, comply with the adjusted gross income limitation provisions, be in compliance with the highly erodible land and wetland conservation requirements, and develop an NRCS EQIP plan of operations. As with other federal government programs, additional restrictions and program requirements may apply. Applicants are responsible for complet-

ing and filing all application and eligibility paperwork as required.

Producers can apply for a variety of forestry practices ranging from tree planting to timber stand improvement for a hardwood stand. In short, if the forestry practice is sound and backed by science, the landowner can likely apply for it. Once an application is filed, the NRCS will have a Soil Conservationist/ Technician or a Technical Service Provider (TSP) make a site visit and assess the site for the practices the landowner has applied. The Alabama Forestry Commission assists the NRCS as a TSP for forestry applications. If the application is funded, participants are required to sign a contract and agree to implement the planned conservation practices to NRCS standards and specifications as scheduled.

As mentioned earlier, the EQIP program assists landowners in implementing structural and management conservation practices that optimize environmental benefits on working agricultural (forest) land. There are several national and state priorities such as reductions in nonpoint source pollution, reduction of surface and ground water contamination, reduction in soil erosion, wildlife habitat enhancement, etc. As is the trend with these federal cost-share/financial assistance programs, the focus is on environmental benefits and not timber production. Timber production is not listed as a national or state priority. That is not to say that the landowner could not or will not gain some timber production benefits from the program, it is just that those benefits will be secondary.

The Conservation Stewardship Program (CSP) is designed to encourage agricultural and forestry producers already engaged in conservation practices and assist them in building upon existing

efforts. CSP is a voluntary conservation program that provides financial and technical assistance to landowners to conserve and enhance soil, water, air, and related natural resources on their land. The conservation practices are wide ranging and could include improving grazing conditions, increasing crop resiliency, improving wildlife habitat, etc.

Forest landowners may opt for the wildlife habitat improvement practice as it often yields many forest management benefits as well. I have worked with several landowners in southeast Alabama that participated in CSP to enhance their prescribed burning regimes. The NRCS will design a custom CSP plan to assist the producer in meeting his or her goals. This plan will help the landowner identify potential or existing natural resource problems and provide technical and financial assistance to solve these problems or attain higher levels of stewardship. Participants earn CSP payments for conservation performance. The more conservation practices the landowner is engaged in the higher the CSP payment.

Please note, these programs are subject to change. As stated in part one of this series, any landowner considering applying for a federal landowner assistance program should read over and fully understand the requirements of the program. I hope you have found this overview of the two most commonly utilized NRCS programs helpful. If you would like more information on either program, please contact your local NRCS office or visit the Alabama NRCS website at <https://www.nrcs.usda.gov/wps/portal/nrcs/site/al/home/>. If you need help managing your timber, whether or not it is in a government landowner assistance program, please contact your local AFC county forester or ranger. 🏠

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FORESTRY AND RURAL DEVELOPMENT :

Alabama's Economic Development Success

By Gary Faulkner, Forest Economic Development Specialist, Alabama Forestry Commission and Dan Chappell, Senior Forest Inventory Analysis & Marketing Coordinator, Alabama Forestry Commission

In pre-historic times, the area we now call Alabama was one of the more densely populated areas of North America. There was a maze of distinctly 'market' forest trails connecting the many Indian towns and villages, where formed interconnecting links in the complex foot-highways that reached the Eastern Seaway and the Great Lakes country. Authority has it that "Alabama," when translated from Choctaw, means "the thicket clearers." This translation gives a clue to the first acts of man which affected the forested area of not only Alabama, but also the South.

Since those early times, Alabama has achieved remarkable economic development success and the state's wood-based economy has been an integral part of this success. Alabama has been recognized nationally by her achievement in economic expansion, business climate, and proactive economic development leadership. Headlines across the state have exploded with exciting new and expanding announcements of manufacturing, citing billions of dollars of capital investment and thousands of new job creations within the last few years. Of course, such success further strengthens the state's economy by providing a better quality of life for its citizens.

The state's targeted business sectors, as pursued by the Alabama Department of Commerce (Commerce), include advanced manufacturing, bioscience, and foundational targets. As we look at our economic development legacy, history would suggest that Alabama's economic foundation was initiated by our variety of abundant natural resources such as forests, fish, agricultural land, minerals, among other assets. The severance and utilization of these basic resources, along with an advantageous geographical location, facilitated growth. It is a story of rural development. One of the greatest of these economic renewable attributes has been, and still is, Alabama's wood-based economy.

Importance to Economic Development Professionals

Why is wood-based economic development important? Possibly the best reasons can be provided by local professional economic development leaders whose jobs are to facilitate business expansion in rural communities. Here is a sampling of comments:

Matt Parker, President, Dothan Area Chamber of Commerce –

"With the Wiregrass located in the middle of the pine belt, our region is strategically positioned to continue to grow and expand this sector. Our area has a strong presence with the forestry products markets with a paper mill, three sawmills, the first cross-laminated timber manufacturing plant east of the Mississippi River, and the first to use southern pine for the manufacturing process. The forestry and wood-based economy has a presence in every county in the Wiregrass area. It is essential for any community to embrace and grow this sector, compounded with Alabama's abundance of forest supply. The economic impact is incredible, and the value-added benefits to this renewable resource is immeasurable."



Valerie Grey, Executive Director, Chambers County Development Authority –

“Forest products and related industries within this sector have been a target for our office for quite some time. Our strategic plan and target studies have always included forest products. The sheer abundance of timberland and wood resources within our county has made it a natural fit. Our local forest industries account for a large percentage of our workforce and economy. For example, more than 23 local logging companies provide wood to just one manufacturer within the community. They (forest product companies) support our local career tech center and talent pipeline, as well as our local community banks . . . these are just a couple of significant ways of supporting our community. The significant investment that these firms make into capital equipment is largely noticeable in our tax digest. I would say that the forestry/wood product industry is just as impactful to us as the automotive industry. With wood products your suppliers and services tend to locate within a closer proximity. These include landowners, foresters, loggers, truck and machinery maintenance technicians, engineers, as well as safety and environmental folks.”



David Thornell, President & CEO, Northwest Economic Development Authority –

“In our three counties (Fayette, Lamar, and Marion), forest industry is important to the area as we have two significant corporate lumber mills that have made significant investments. Local timberland owners are able to grow their timber for local users within a convenient distance. Further, we have companies who utilize the by-products of our two major mills to make items such as particleboard. Plus, there are two furniture makers in our region. We also have a firm making railroad ties, one who mills power poles, plus a treating facility for these. Finally, we have six manufactured home companies that are framing and sheathing homes with wood, as well as two others who make moldings and/or decorative trim pieces. These companies depend on each other in either a supplier or customer relationship. This network keeps people in our region working. I can’t imagine how we would survive without it. The forest industry in our region employs thousands of jobs within their factory walls, plus many loggers in the field daily, plus drivers who transport the finished product to the mill or to their customer locations.”

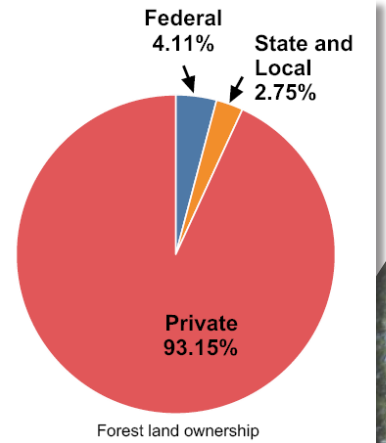


Can’t See the Forest for the Trees

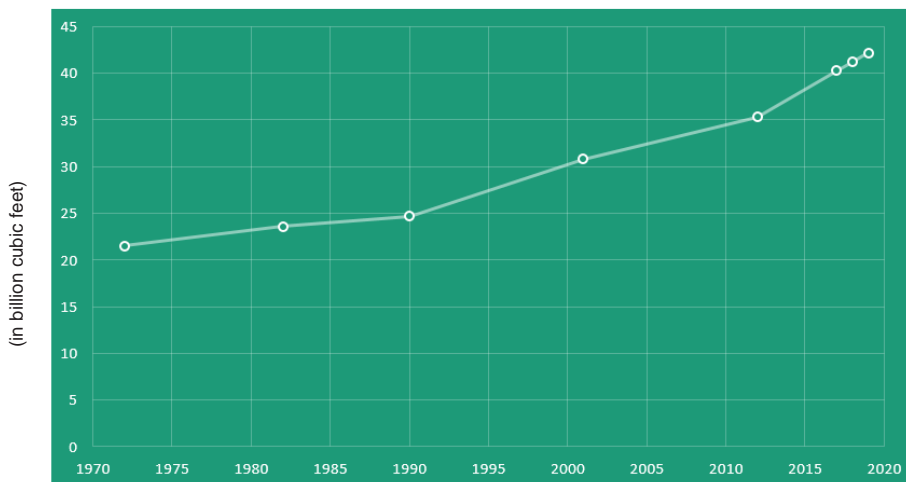
Success in rural forest economic development is primarily based upon the availability of forest resources. It is estimated that forests cover approximately 30 percent of the contiguous U.S. in the lower 48 states. In comparison, Alabama’s forest timberland covers approximately 68 percent of the land base. In fact, the state’s forests are found more abundantly now than ever in the history of recorded data as documented by the 2019 Forest Inventory Analysis (FIA).

Alabama’s productive forests are located in the heart of the Southern U.S. wood basket with approximately 23 million acres of timberland. Our single most prevalent forest type is softwood (mostly pine) at 45 percent of stands, followed by 43 percent hardwood stands, and 12 percent mixed hardwood/pine stands (2019 FIA). More importantly, our forests are growing beyond expectations. The latest 2019 U.S. Forest Service FIA data shows Alabama today with 42.2 billion cubic feet of standing timber – the largest recorded inventory in the state’s history.

(Continued on page 22)



Total Volume – Standing Timber



Source: FIA (2019), U.S. Forest Service

Forestry and Rural Development: Alabama's Economic Development Success

(Continued from page 21)

Forestry is Rural Economic Development

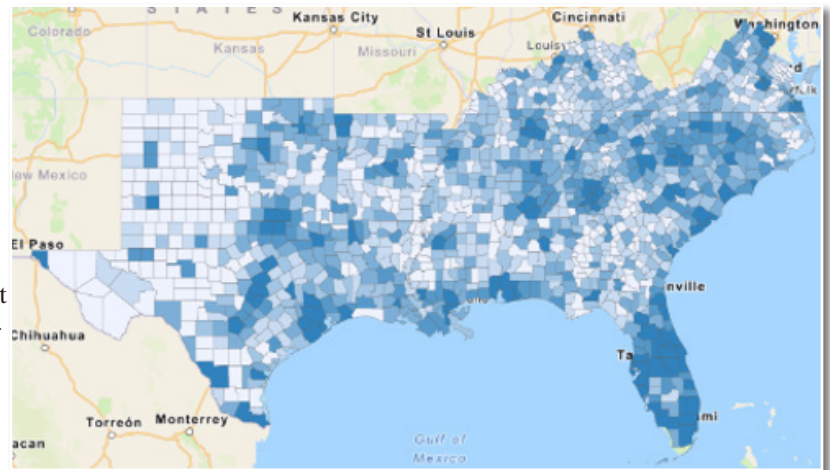
Supply and demand are basic economic principles. With an impressive fiber supply opportunity, Alabama feeds the demand of various value-added manufacturing end users. Wood utilization has been and is a primary catalyst creating an impressive industrial manufacturing footprint. By the numbers (pre-COVID-19), the wood product sector directly employs approximately 43,000 citizens, within 1,478 establishments according to Chmura, a national economic development data service. Also, in 2019, the industry exported approximately \$1.36 billion internationally, as noted by Commerce.

The service and supply chain supporting economic development elements of the industry also contribute to this remarkable manufacturing sector. Therefore, the benefits of Alabama's resource-based sector is a significant factor in local and state economic contribution. The Alabama Department of Commerce recognizes the state's natural resource opportunities.

Brenda Tuck, Rural Development Manager, Alabama Department of Commerce –

“Our state recognizes the value of our agricultural industries, including forestry, that continue to lead our state, but we are recognized on a much greater stage. With 23 million acres of timberland that covers approximately 68 percent of our land mass in the state of Alabama, we are the third largest commercial forestland in the nation. Within this, we have a great mixture of hard and soft woods. Because of these natural assets and our current companies’ abilities to responsibly utilize these resources, we continue to have an abundance of raw materials that enable us to locate new companies in Alabama, especially in our rural counties. We have all the needed elements to continue to support this industry. Our mild climate and favorable terrain contribute to our success, while fuel prices and infrastructure are also key elements. Our roads, rails, and developed waterways carry both raw materials and finished goods throughout our state, nation, and world, and our many research and development facilities support all aspects of this industry and others. Just like other industries, forestry is not what it once was; technology now plays a large role, especially in the equipment and machinery that is involved in every aspect of the many jobs throughout this vast industry. While we have diversified our economy throughout our state, our reliance on, and our ability to capitalize on, these natural assets will continue. Most importantly, you cannot utilize what you do not have, so it is always great to see the numbers that reflect the responsible use of these natural resources which have created a sustainable future for the forestry industry.”

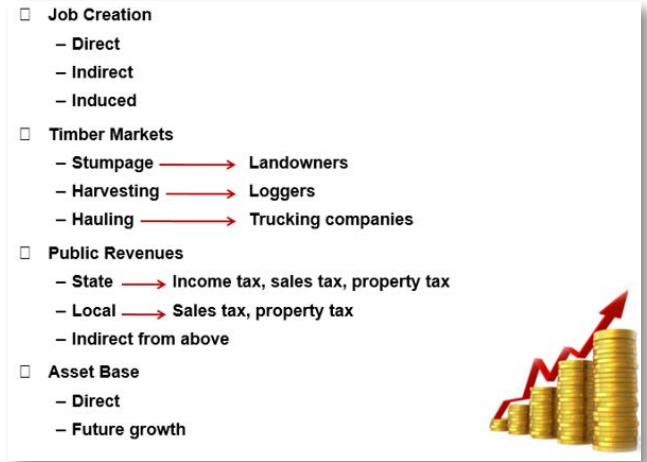
Alabama is but one state in a key region of the U.S. producing forest products and services. The South's forest industry (forestry and logging, wood product manufacturing, paper manufacturing, and furniture and related product manufacturing sectors) provide an impressive employment footprint throughout her states as illustrated in the map on this page.



Source: Alabama Power, Chmura Jobs EQ

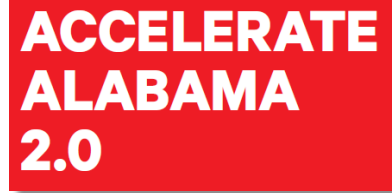
Wood-based Economic Development and Teamwork

Forest industry investment does not develop by chance. Alabama competes with many states having surplus wood inventory opportunities in other geographic locations. In today's business climate, posturing for business expansion and subsequent site location is a highly competitive endeavor, guided by experienced economic development professionals. Site location success follows a methodology involving a client's decision to meet or exceed its individual project parameter needs. The client's desire is to mitigate risk and seek to take advantage of the South's positive attributes to facilitate a long-term profitable business plan. Within this attractive region, Alabama has been very successful in attracting capital investments utilizing economic development teamwork initiatives oriented to its strengths. These include a strategic plan for growth utilizing **Accelerate Alabama 2.0** (Commerce); a one-stop, state-wide, forest-based economic development for site selection (Commerce Strategy); a nation-leading forest inventory analysis



Source: AIDT/Forest Products Development Center

(Alabama Forestry Commission); workforce development programs including Forestry Works (Forest Workforce Training Institute); and a Wood Innovation Team (Alabama Forestry Association), among other initiatives. These advantages, when coupled with one-stop property search availability, efficient one-stop environmental permitting, favorable business incentives, and public-private economic development ally cooperation, provide Alabama with a proven formula for successful recruitment. Post COVID-19 recovery will take advantage and utilize these many assets for economic normalcy.



EDAA Rural Development Initiative 2020

Alabama is blessed with an effective and professional organization of economic developers – the Economic Development Association of Alabama (EDAA). The mission of EDAA as a state-wide, membership-based organization is focused on developing economic growth in Alabama. The state’s economic developers are tasked with improving the quality of life in Alabama and understanding what drives businesses to call Alabama home. Therefore, EDAA is a champion of rural development and recognizes that improving economic development in rural Alabama must begin with an understanding of the issues that might inhibit growth, as well as community assets that can be further developed and promoted.

To address rural opportunities, EDAA has developed a “Rural Development Initiative,” or RDI for short. One of the five targeted marketing assets recognized within RDI include the state’s value-added wood-based industry. To this end, the Alabama Forestry Commission, as a team member of RDI, has provided state-wide and local resource analysis, as well as forest industry and economic development data to be utilized for education and further development. The importance of the forest industry is noted within the EDI program per the following:

Mr. Brian Hilson, Chief Strategist, Rural Development Initiative –

“The forest and wood product industries not only continue to drive local economic growth in rural Alabama communities, but are also vital parts of the economic base of the entire state. Alabama is blessed to be one of the nation’s leading states for forestry products, and rural Alabama is in position to sustain – indefinitely – economic development that is based on the timber industry and wood products. Through EDAA’s Initiative, I think it’s safe to say that the timber industry is already an economic driver for all of them, and it will continue to develop as one of our state’s leading growth sectors. There is a highway sign near Butler, in Choctaw County, that reads Money Does Grow on Trees. The words on that old sign have faded, but they’re just as true today as when they were written – forestry has been important to our state’s economy as long as anyone can remember.”



**RURAL
DEVELOPMENT
INITIATIVE**



Summary

With a historical legacy of wood-based manufacturing, the state’s rural forest resources have continued to grow productively and contribute significant economic benefits for rural Alabama communities. The state’s economic development professionals understand the importance of our incredible renewable forest resource assets. Alabama’s inventory today is the largest on record supplying the demands of hundreds of value-added manufacturers. The wood-based industrial sector is one of the largest manufacturing sectors in the state, providing value-added products and jobs from these renewable resources. The forest industry holds an extensive footprint of operations throughout Alabama and the South. Further, our wood-based resources have attracted billions of capital investment dollars facilitating economic benefits for rural communities across Alabama in recent years. The state markets her wood-based resources as a team and augments growth opportunities with advantageous programs. Post COVID-19 economic recovery, our forest industry will be positioned to realize a positive ramp up. Key factors will be the impact on national housing starts and unemployment rates. Wood has certainly been good to Alabama and will continue to support our economy. Forestry still works! 🌲

MONSTERS in our Landscape: Native, Naturalized, and Invasive Plants

*By Katie Wiswall, Urban Forester, Alabama Forestry Commission and
Juan Merriweather, Forester/Work Unit Manager, Alabama Forestry Commission*

Remember autumn olive? It's the beautiful, evergreen shrub that grows well even on poor soils and makes a wonderful screen. The one that we once planted everywhere, now we battle to keep it out of the rest of our gardens and yards.

Every few years, it seems the plant hailed as "the best landscape addition ever" gets recast as a monster that we must all stop planting. How does this happen and what is a gardener to do? The answers to these questions can be found in a little history, a bit of research, and some serious soul-searching.

People have been adding plants and trees to their surroundings since the earliest times. Many plants have been spread across the globe by gardeners looking for the perfect specimen to complement their landscape, or by settlers longing for the familiar plants of their homeland. In many cases, such introduced species become acclimated to their new homes to the point that they become 'naturalized,' meaning they can reproduce without help.

Many of these naturalized species have become ubiquitous features in our yards and woodlands. Naturalization is how the camellia, a native of eastern and southern Asia, became so firmly ensconced in our culture as to be declared the Alabama state flower. In fact, the crape myrtles, ginkgoes, and cherries that beautify our grounds all come from half a world away. Like peaches, apples, and even pecan trees, they are introduced, non-native species that have become naturalized in the Alabama environment.

While naturalized plants can add value and beauty to our homes and lives, some can become problems within our ecosystems. This happens when they out-compete native species in the constant fight for space, light, nutrients, and water. When they begin to take over the landscape, adversely affecting native ecosystems, they move from being considered introduced, naturalized species to being deemed 'invasive.' Kudzu and Japanese privet readily come to mind when we talk about invasive species, but there are others just as insidious – or perhaps more so. Think back to your childhood and early springtime drives on the interstates or US highways. All along the right-of-way, you probably saw the beautiful purple blooms of redbuds and perhaps some maples, with their dark red seed pods decorating the landscape. Now, those same rights-of-way will likely be covered with mimosa and privet, while nearby uncultivated land is likely to be covered up with the white blossoms of the Callery pear – all invasive monsters in our state.

There were usually good intentions to the introduction of our invasive species. Often, today's invasive started out as a hearty, tolerant tree, shrub, or vine that was the only thing that would

grow easily in a spot with soil degraded by poor management practices. Early farming methods did not include good soil management; by the 1930s much farmland in Alabama was severely eroded and abandoned. Plants were sought to cover the ground quickly and begin rebuilding soil (hello princess tree, autumn olive, and kudzu). Landscaping plants were sought that would tolerate the less-than-ideal soils or provide better, showier foliage or flowers than similar native species (hello Chinese wisteria, nandina, and Bradford pear).

Even today, building a home (or any other structure) drastically alters the surrounding soil composition and structure, usually making it a less-hospitable environment for the original native flora and fauna.

The dark side to these invasive species is the way in which they impact the lands outside our yards. While the waving fronds and delicate pink flowers of the mimosa on the right-of-way may give you great joy, its invasion into our native landscape impacts far more than the view along the highway. When it supplants our native redbud, it is removing the pollen, nectar, and nesting materials that many species of native bees and butterflies depend upon for sustenance. These native bees and butterflies are essential for pollinating many of our food crops, as well as other forest trees and flowers.

The same is true for maples that get crowded out by Callery pear or some other invasive plant. Maple seeds feed birds and squirrels; maple leaves feed many types of caterpillars; and maple flowers attract their own native pollinators. Although invasive species can also provide nectar and fruit for animals and insects, the composition and timing of what they provide is rarely, if ever, the same as that of the native plants that developed along with the local fauna. This means appropriate food or shelter may not be available at the correct time for the native creatures that form our ecological communities. Even soil microbial communities can be altered by interactions with the roots of invasive plant species.

As non-native, invasive species move out of our gardens and into our urban and rural forests, they can disrupt migration cycles as well. Many birds and butterflies migrate in sync with the flowering patterns of native trees. Butterflies depend upon the flowers as a food source, while research indicates that insectivorous birds key on flowers as an indicator of insect availability. Their rest stops during migration correlate with flowering of native trees. When those trees are replaced by an introduced species, the food and shelter they provide disappear as well. This can affect reproductive success or even survival of some individual species¹.

Considering these adverse effects of invasive species on our environment, what should a home gardener do? It comes down to three options.

1. Do nothing at all.
2. Focus on introduced species that have proven through time to be either non-invasive, such as camellias, or non-naturalized (cannot reproduce independently), such as the tulip magnolia (*Magnolia liliiflora*).
3. Initiate the soul-searching. Ask – do I HAVE to have that particular plant? Can I find a native species almost as wonderful? For a conscientious gardener, the answer to those questions can be “no” and “yes,” respectively.


There are native alternatives to most of our insidious interlopers. They may not be perfect replicas of their introduced cousins, but once you recognize the negative impact many introduced species can have across our landscape, the native alternatives will get a lot better-looking. Some suggestions to get you started are shown at right.

Finally, here are some resources for further study if you want more help avoiding the monsters:

Native plants for your area

- Audubon Native Plant Search (can search by zip code) <https://www.audubon.org/native-plants>
- Lady Bird Johnson Wildflower Center at https://www.wildflower.org/collections/printable_QR_main.php?collection=AL
- Birmingham Gardening Today at <https://birminghamgardeningtoday.com/category/native-plants/>

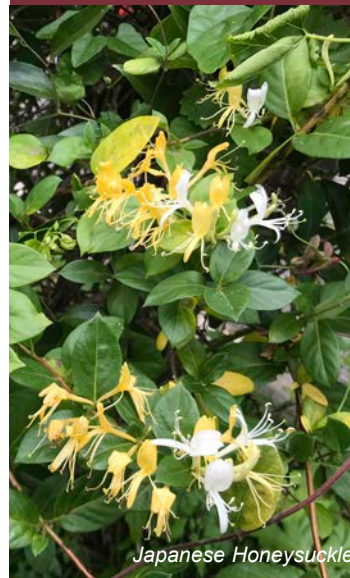
About Alabama Invasive plants

- General information about invasive species: Alabama Invasive Plant Council at <https://www.se-eppc.org/alabama/>
- The current ‘monster’ list can be found on the Alabama Invasive Plant Council’s website at: <https://www.se-eppc.org/alabama/2012-updatedALIPCinvasiveplantlist.pdf>
- To find out whether any plant in Alabama is native or introduced, check out the US Plant Database available from the USDA at <https://plants.sc.egov.usda.gov/java/> 

Reference:

¹McGrath, van Ripper, and Fontaine. “Flower power: tree flowering phenology as a settlement cue for migrating birds.” *Journal of Animal Ecology* 2009, 78, 22–30 doi: 10.1111/j.1365-2656.2008.01464.x © 2008 (McGrath 2008) <https://besjournals.onlinelibrary.wiley.com/doi/pdf/10.1111/j.1365-2656.2008.01464.x>

If you WANT a honeysuckle, try the native variety (*Lonicera sempervirens*) instead

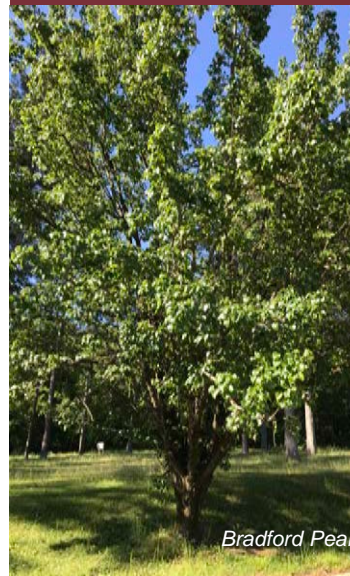


Japanese Honeysuckle



Native Honeysuckle

If you LOVE Bradford Pear, try fringe tree (*Chionanthus virginicus*) instead



Bradford Pear



Fringe Tree

If you NEED Nandina, try Hearts-a-Burstin' (*Euonymus americana*) instead



Nandina



Hearts-a-Burstin'

Photo by J. Michael Raby

A survey crew walking transect lines through a young long-leaf pine stand on non-industrial private forest lands.

Alabama Tortoise Alliance Makes Progress

By Ray Metzler, Threatened & Endangered Species Specialist, Alabama Forestry Commission

Gopher tortoise populations east of the Mobile and Tombigbee rivers in Alabama were determined to be a 'candidate' for federal listing as a threatened/endangered species in 2011. Populations west of these rivers were listed as a threatened species in 1987 under the Endangered Species Act. The U.S. Fish & Wildlife Service (USFWS) reported that a decision regarding the listing status would be completed in fiscal year 2022. Alabama had very little gopher tortoise population and distribution information as of 2011. The Department of Conservation & Natural Resources began surveying public lands in a manner that met 'scientific

rigor,' resulting in population and distribution data for 11 sites as shown in Figure 1 below.

Approximately 93 percent of the land within Alabama's gopher tortoise range is privately owned. It became readily apparent that additional information from private lands would be needed if Alabama was to provide enough data to the USFWS to preclude the possibility of listing. In December 2017, a large group of individuals from various state, tribal, and federal agencies, Alabama's forest industry, non-governmental organizations, and non-industrial private forest landowners met in Atmore, Alabama, to discuss the listing status and a plan to move forward

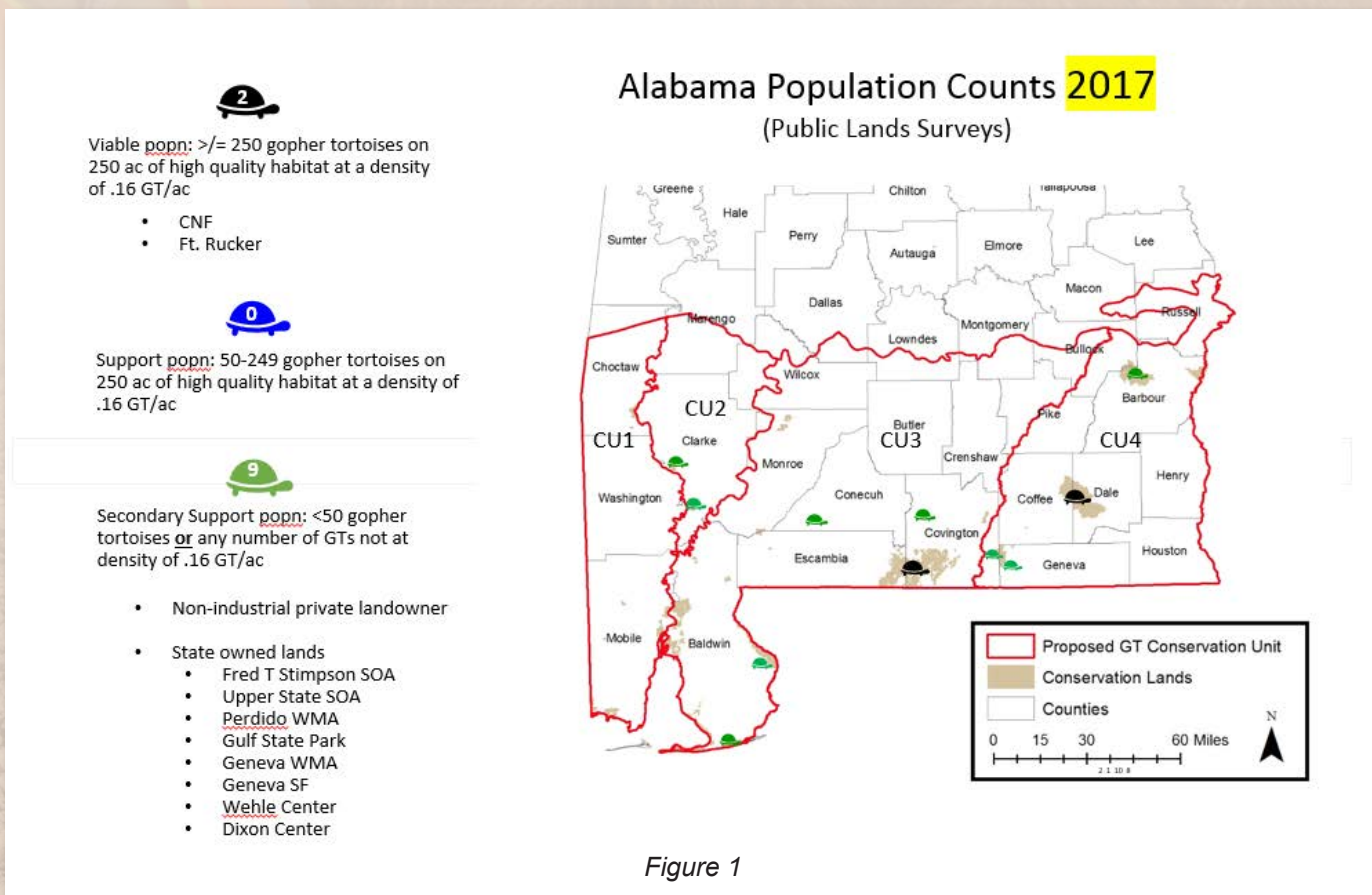


Figure 1

with additional data collection efforts. This group became known as the “Alabama Tortoise Alliance” or ALTA.

A series of landowner engagement meetings called ‘chat and chews’ were held across south Alabama to initiate private landowner involvement in the data collection process. These meetings and other efforts resulted in many non-industrial private forest landowners agreeing to a survey of their gopher tortoise populations. A survey includes a team of three individuals walking transect lines across a property (opposite) and ‘scoping’ all burrows to determine occupancy (right). Results of the surveys are below in Figure 2.

ALTA continued to meet twice a year to discuss ongoing data collection efforts and strategies to provide the USFWS with enough information to preclude the need to list the gopher tortoise as a threatened/endangered species. All data collected by the various survey teams was submitted to the USFWS prior to the March 2020 deadline for inclusion in the species status assessment. This data was submitted in a format that maintained anonymity of the landowner.

Kudos to the survey teams, partners, and the private landowners that were engaged in the process during the past several years. A tremendous amount of progress has been made in Alabama since 2017, but there is still a great deal of work to be done if we are to ensure the gopher tortoise and other longleaf



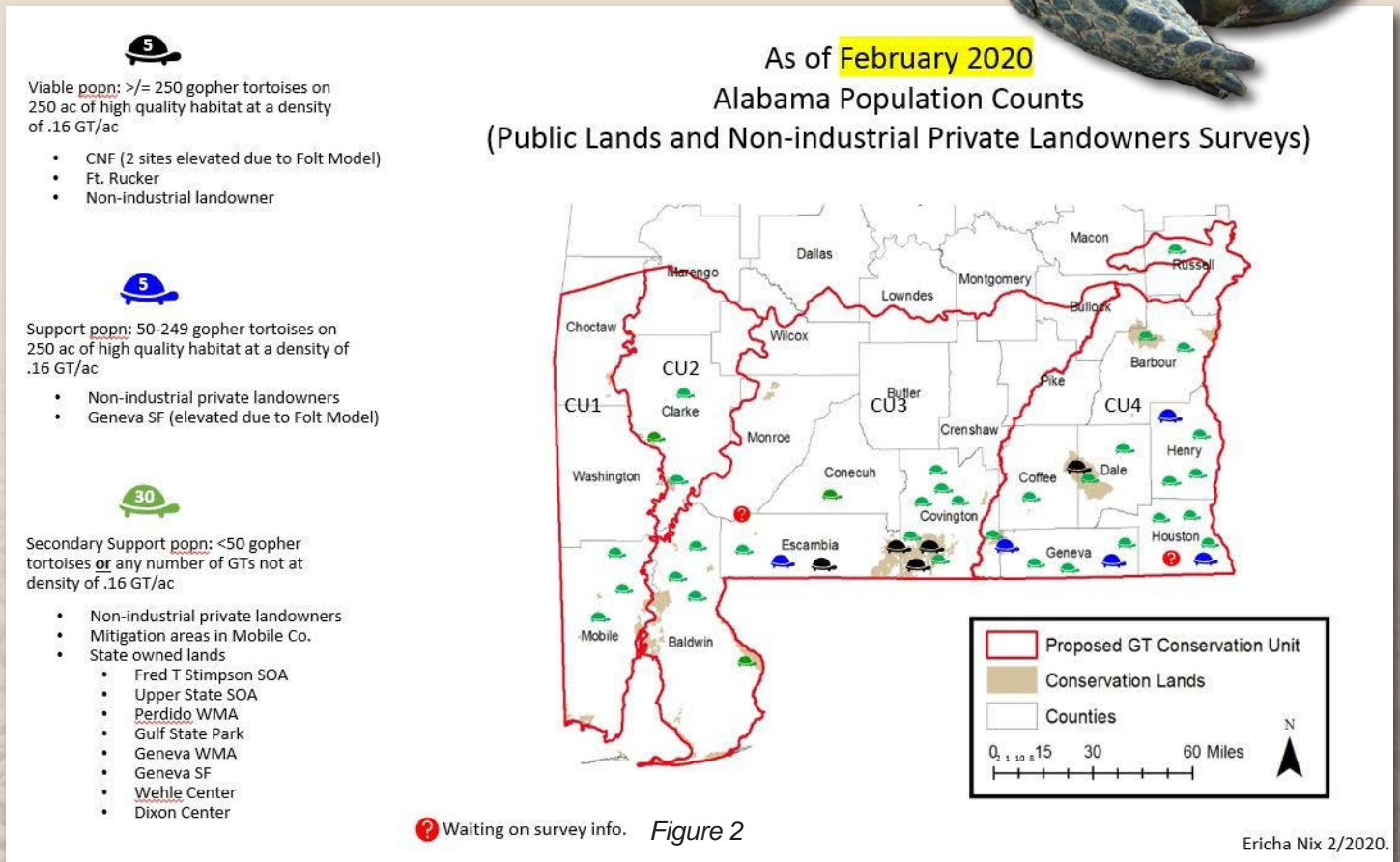
To determine occupancy, burrows were scoped using a burrow camera system. A diamondback rattlesnake was found in this burrow along with a gopher tortoise.

pine ecosystem species are to prosper in the state. It is imperative that Alabama continues to collect additional data, and private landowners are encouraged to get involved to prevent listing the tortoise as a threatened/endangered species. Future partnerships such as the ALTA effort will be needed as additional species are assessed for listing and protection under the Endangered Species Act. 🌱

If you are interested in having your property surveyed for gopher tortoises, please contact Ericha Nix, DCNR Gopher Tortoise Coordinator, at Ericha.Shelton-Nix@dcnr.alabama.gov or Ray Metzler, AFC Threatened and Endangered Species Specialist, at ray.metzler@forestry.alabama.gov



Photo by Chris Evans, University of Illinois, Bugwood.org





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BEATING THE **HEAT** IN ALABAMA

By Coleen Vansant, Public Information Manager, Alabama Forestry Commission

Living in the South in the summer has many rewards and benefits – scorching summer heat and breath-taking humidity are not included on the list.

Because of the extremely hot and muggy summer months we are susceptible to heat-related illnesses. Almost all heat-related deaths occur during May to September, with the highest numbers reported during July and August. According to the Center for Disease Control, more than 600 people in the United States die from heat-related illnesses each year. Annually more people die of heat-related illnesses than from hurricanes, lightning, tornadoes, floods, and earthquakes combined. It is one of the deadliest weather-related health outcomes in the United States.

Heat-related illnesses occur when our bodies are unable to compensate and properly cool themselves. The body normally cools itself by sweating, but under some conditions sweating isn't enough, causing the person's body temperature to rise rapidly. Several things can affect the human body's ability to cool itself during extremely hot weather. In high humidity, sweat will not evaporate as quickly, preventing the body from releasing heat quickly. Other risk factors include age, obesity, fever, dehydration, heart disease, mental illness, poor circulation, sunburn, some prescription drugs, and alcohol use.

Most people do not realize that even exposure to short periods of high temperatures can cause serious problems. Heat-related illnesses can occur by doing too much on a hot day, spending too much time in the sun, or even staying in an overheated place. Two of the most serious heat-related health conditions are heat stroke and heat exhaustion.

HEAT STROKE

Heat stroke is the most severe heat-related illness. It occurs when there is excessive fluid and salt loss in hot or humid conditions that leads to general dehydration and exhaustion. The body's ability to cool itself shuts down, causing the body temper-

ature to rise rapidly. The natural sweating mechanism shuts down. Under these conditions body temperature may rise to 106 degrees F or higher within 10 to 15 minutes. Heat stroke can cause death or permanent disability if emergency treatment is not provided.

Some of the warning signs of heat stroke include:

- An extremely high body temperature (above 103 degrees F, orally)
- Flushed, hot, and dry skin (no sweating)
- Rapid, strong pulse
- Throbbing headache
- Dizziness
- Nausea
- Confusion
- Unconsciousness

If any of these signs occur, you could be dealing with a life-threatening situation. Immediately call 911 and begin cooling down the victim.

Ways to cool down the victim:

- Get the person to a shady area.
- Do not give a heat-stroke victim fluids to drink. Cool the body from the outside.
- Cool the victim rapidly using whatever methods you can. Example: immerse the person in a tub of cool water; place them in a cool shower; spray them with cool water from a garden hose; sponge them with cool water; or wrap them in a cool, wet sheet and fan them vigorously.
- Monitor the body temperature and continue cooling the body until the victim's temperature drops to 101-102 degrees F.
- Get medical assistance as soon as possible.

(Continued on page 30)



BEAT THE HEAT: Extreme Heat

Heat-related deaths are preventable

WHAT:

Extreme heat or heat waves occur when the temperature reaches extremely high levels or when the combination of heat and humidity causes the air to become oppressive.



Children

WHO:



Older adults

More males than females are affected



Outside workers



People with disabilities

WHERE:



Houses with little to no AC



Construction workites



Cars

HOW to AVOID:



Stay hydrated with water, avoid sugary beverages



Stay cool in an air conditioned area



Wear lightweight, light-colored, loose-fitting clothes

Outside Temperature 80°



Time Elapsed: 20 minutes



Time Elapsed: 40 minutes



Time Elapsed: 60 minutes

During extreme heat the temperature in your car could be deadly!

HEAT ALERTS: Know the difference.

HEAT OUTLOOK

Minor Excessive heat event in 3 to 7 days

HEAT WATCHES

Excessive heat event in 12 to 48 hours

HEAT WARNING/ADVISORY

Major Excessive heat event in next 36 hours

DID YOU KNOW?

Those living in **urban areas** may be at a greater risk from the effects of a prolonged heat wave than those living in rural areas.

Most **heat-related illnesses** occur because of overexposure to heat or over-exercising.

Sunburn can significantly slow the skin's ability to release excess heat.

During 1999–2009, an average of **658** people died each year from heat in the United States.

\$30 BILLION estimated total cost of the 2012 US drought and heatwave.

For more information on ways to beat the heat please visit: <http://www.cdc.gov/disasters/extremeheat>



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BEATING THE HEAT IN ALABAMA

(Continued from page 29)

HEAT EXHAUSTION

Not as serious as heat stroke, heat exhaustion usually develops after several days of exposure to high temperatures or inadequate or unbalanced fluid replacement. This illness is the body's response to an excessive loss of the water and salt contained in sweat. Those most prone to heat exhaustion are the elderly, people with high blood pressure, and persons who work or exercise in a hot environment.

Some of the warning signs of heat exhaustion:

- Heavy sweating
- Dry tongue and thirst
- Cold clammy skin with an ashen pallor
- Muscle cramps
- Tiredness
- Weakness
- Headache
- Nausea or vomiting
- Feeling faint, dizzy, or weak

When a person is suffering from heat exhaustion their pulse rate will be fast and weak, while breathing will be fast and shallow. The skin may be moist and cool. If untreated, heat exhaustion can progress to heat stroke. If the victim has heart or high blood pressure problems, or if the symptoms are severe, call 911 for medical services immediately. If these conditions do not exist, you should assist the victim in cooling off.

Cooling measures may include:

- Move person to a cool place.
- Loosen tight-fitting clothing or remove extra layers of clothing.
- Drink cool non-alcoholic beverages.
- Rest.
- Take a cool shower or bath.
- Apply cool, wet cloths to the body.

Physical activity should be limited until the symptoms disappear.

PREVENTATIVE MEASURES

The best preventative measure against heat-related illnesses is to stay indoors where there is air conditioning. But for those who work or have activities that require you to be outside in the summer heat, there are measures that can be taken that will aid the body's cooling mechanisms to prevent a heat-related health crisis.

- Drink plenty of fluids – In hot weather, you should increase your fluid intake regardless of your activity level. While doing outdoor activities or anything in a hot environment, you should drink two to four 16- to 32-ounce glasses of cool fluids each hour. Don't drink liquids that contain caffeine,

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- alcohol, or large amounts of sugar, as these can make you loose body fluid.
- Replace salt and minerals –This can be done by drinking sports drinks. However, if you are on a low-salt diet, you may want to avoid sports drinks.
- Avoid hot foods and beverages, as well as heavy meals – They will add heat to your body.
- Wear appropriate clothing and sunscreen –Wear light-weight, light-colored, loose-fitting clothing. If you go outdoors, protect yourself from the sun by wearing a wide-brimmed hat and sunglasses, or shade your face with an umbrella. Use an SPF-15 or higher sunscreen.
- Plan outdoor activities – Limit outdoor activities to morning and evening hours; avoid exposure to the sun during mid-day hours. Consider postponing outdoor sports events for the sake of both players and spectators. If you do work or play outside, take frequent breaks in a shady place and drink plenty of liquids.
- Pace yourself – The best rule is to start slowly and pick up the pace gradually. If exertion in the heat makes your heart pound or makes you gasp for air, stop and get into a cool area or shade.
- Use a buddy system – Partners can keep an eye on each other. Check on coworkers and have them check on you. If you are planning to work outside in the heat alone, let someone know and schedule a check-in time with them. Keep your cell phone close by.
- Monitor those at high risk – Check on infants and children up to four years old, people 65 years old or older, overweight people, people who overexert during work or exercise, the physically ill (especially with heart disease or high blood pressure), and people who take certain medications.
- Do not leave infants, children, or pets in a parked car.
- Use common sense.

DON'T FORGET YOUR PETS

Like humans, pets can suffer from heatstroke. Pets depend on panting to rid themselves of excess body heat, but it can be affected by high humidity or low ventilation.

Some of the warning signs of a heat-related illness with a pet:

- Quick and forceful panting
- Excessive drooling or salivating
- Staring or anxious expressions
- Refusal to obey commands
- Warm, dry skin
- High fever
- Rapid heartbeat
- Vomiting

Heatstroke is a life-threatening condition for pets. You can help them by lowering the body temperature quickly with cool water, either by immersion or spraying them with a garden hose. Never use ice to cool your pet. Call your veterinarian immediately.

Ways to protect your pet:

- If your pet lives outdoors, make sure they have protection from the midday sun and heat. There should always be some shade for an outdoor pet.
- Provide plenty of fresh drinking water. Place their water bowl in a shaded area and leave water in more than one place in the event they tip their bowl over.
- Avoid exercising your pet excessively on hot days. If you do exercise, do it early in the morning or late in the afternoon.
- Keep your pet well groomed.
- Never leave your pet in a parked car, even if the window is down or it is in the shade.
- If your pet is tied outdoors, make sure they cannot get tangled in their leash and not be able to get to shade or water.
- If possible, bring them inside where it is cool. 🏠



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Smooth Yellow Foxglove

(*Aureolaria flava*)

By Fred Nation, Environmental Services, Baldwin County

Smooth yellow foxglove is a large, ill-shaped deciduous, herbaceous perennial. The principal branches, up to 5 feet long, often lean and sometimes sprawl nearly on the ground. The leaves are opposite, to about 5 inches long, variably shaped. Some are football-shaped with smooth edges, while others, lower down, are pinnately lobed and somewhat resemble fern leaves. Blooming from July into September in Alabama, the flowers are 5-lobed, cone-shaped, about 2 inches long, and they are brilliant yellow. Unopened buds sometimes have red-orange spots near the tips, which fade as the flowers open and mature.

Frequent pollinators include bumblebees and ruby-throated hummingbirds. The natural range is a huge area from Ontario to Maine, south to Florida, west to eastern Texas. Favored habitats include upland mixed pine-oak forests, roadsides, and dry hardwood tree lines. Like many members of its family, the plants turn black upon drying.

Aureolaria flava and its relatives in the figwort family (Orobanchaceae) are semi-parasites. They have chlorophyll and conduct photosynthesis to make their own food from nutrients and water that they take from the roots of oaks. This feat is accomplished by a special structure called a *haustorium*, which penetrates the roots of the hosts to enable the transfer of nutrients and water.

This parasitism does not appear to do much, if any, damage to the oaks.

One distinguished relative of smooth yellow foxglove is perhaps the most important and historic of the world's medicinal plants. Purple foxglove, *Digitalis purpurea*, an old herbal folk remedy, was carefully studied and tested to determine the proper dosage and the effects on the human body. Conducted in England in the 1770s, this research became the foundation of modern pharmacology, and digitalis remains an important medication for the treatment of heart rhythm problems and congestive heart failure. Who knows what preventions or cures may yet be found in the leaves or roots of our related native, *Aureolaria flava*!?

In 1863, respected Charleston physician Dr. Francis Porcher was commissioned to write a book on uses of native plants for the Confederate Army. The book, entitled *Resources of Southern Fields and Forests*, contains a single rather cryptic statement on the usage of *Aureolaria flava*: "This plant, it is said, will prevent the attacks of yellow and other flies upon horses." If true, wouldn't this be wonderful, for horses and people as well?

Alabama's remarkable flora has many wonderful tales to tell. Searching for these stories is a fascinating learning activity for Alabamians of any age, anywhere in the state. 🌿



Photo by Fred Nation