

ALABAMA Forest Health Highlights 2020

The Resource

Climate change or climate variation, the term can incite interesting conversations about the state of our environment. Noticeable change is occurring but trying to identify and mitigate these factors influencing alterations in the climate is taxing. However, measuring the pace of this change is even more daunting. Some changes are relatively inconsequential, but extreme climatic variations can be detrimental to the environment. On a positive note, trees, like other living organisms are quite resilient. Even with some mortality caused by adverse environmental events, most trees will rebound and adapt to change. Many trees do recover from devastating episodes quite often and rather quickly. Several years later, the forest regenerates with lush vegetation and numerous trees appear to be unaffected by the catastrophic event.

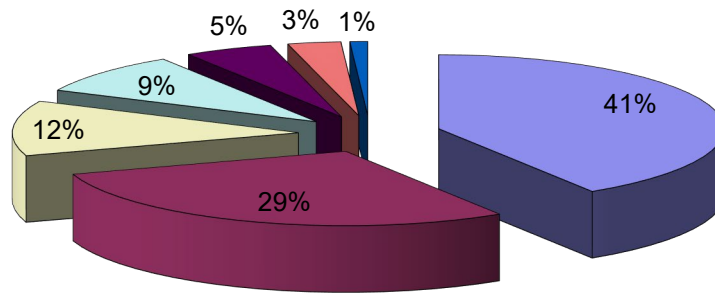
Alabama has experienced some climate variations during the last few years. The state has fared through periodic drought, excessive rain, several hurricanes, destructive tornadoes, and abnormally high and cold temperatures. This year, Alabama reach a record number of catastrophic events. A periodic, 7-week drought occurred during the latter part of 2019. Following the drought was a climatic period of warm weather and excessive amount of rain. The turbulent climate created a perfect haven for destructive storms. Tornadoes in 2020 were numerous. The unstable environment caused severe frost damage and hailstorms in several parts of the state. Alabama did not experience a drought this summer, but the temperatures were warmer than normal. Apparently, the climate was quite similar for the entire southeast. A record number of hurricanes occurred in 2020 with 30 that affected the United States. Most of these hurricanes caused widespread destruction to areas in the southeast.

This year, an unforeseen and unprecedented pandemic occurred that was caused by COVID-19. To slow the occurrences of new infections, there were restrictions placed on practically every aspect of life. Workplaces established restrictions on their employees. Many stores, restaurants, and entertainment venues were temporarily closed for operation. Other vital entities like schools had their normal routine redirected. Many essential workforces, however, remained in full operation to provide necessary goods and services. The Alabama Forestry Commission was one agency that continued to function with some limitations. Landowner assistance was restricted, but other forestry responsibilities like suppressing wildfires, assessing storm damage, and delivering safety equipment did not cease. Most activities pertaining to forest health continued in the state.

Alabama is making accomplishments in forestry to adapt to these possible environmental changes. Resilience and regeneration are factors for sustainability. According to scientists, reforestation is one of the most significant solutions in stabilizing and reverting climate change. Currently, Alabama is sustaining its forests. According to Alabama's Forest Inventory and Analysis report, harvested acres are being regenerated.

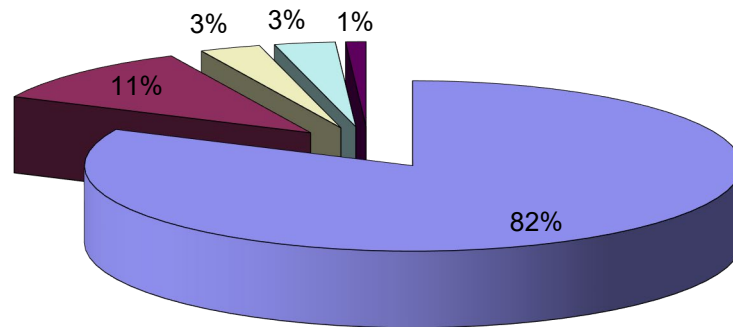
The thriving forest types that exist in the state have changed very little over the last 10 years. Land ownership of forests, however, has a noticeable change. The trend of forest industry divesting their properties has made a complete turn. Divesting of property appeared to have ceased as forest industry increased its land ownership. Non-industrial private landowners were showing a decrease in the amount of forestland ownership. One reason for the change could be that many family-incorporated forests were now categorized as forest industry lands and not private property.

Alabama Forest Type Distribution



■	Loblolly Pine/Shortleaf Pine	41%	(9,391,300 ac)
■	Oak/Hickory	29%	(6,772,800 ac)
■	Mixed Hardwood/Pine	12%	(2,659,800 ac)
■	Oak/Gum/Cypress	9%	(2,173,300 ac)
■	Longleaf Pine/Slash Pine	5%	(1,146,500 ac)
■	Elm/Ash/Cottonwood	3%	(582,100 ac)
■	Other	1%	(270,100 ac)

Alabama Forestland Ownership Distribution



■ Non-industrial Private Landowner	82% (18,875,700 ac)
■ Forest Industry	11% (2,646,700 ac)
■ U. S. Forest Service	3% (655,400 ac)
■ State and Local Government	3% (629,700 ac)
■ Other Federal Land	1% (286,500 ac)

The Influences

Pine Engraver Beetle, *Ips spp.*:

Alabama was overcome by another severe drought in late 2019 that caused sporadic pine mortality. Starting in August, the average temperatures were excessively warm, in most cases hotter than normal. This extremely warm climate was preceded by a lack of precipitation. In many areas of the state, Alabama had 7 to 8 weeks of no rain with continuous high temperatures. Even though the drought was short-term in relations to time, it was severe. Counties in Central, East, and Southeast Alabama experienced the worst of the drought having several hundred acres of pine stands to die. Trees that were still struggling from the drought of 2016 were now being affected 3 years later by another drought. Once again, the drought had a huge influence on the health of the state's forests. Pines of all ages and species started showing signs of mortality. County personnel examined several stands and most of them were infested with pine engraver beetles, the bark beetle species that generally responds to drought-stressed pines first. In a large contiguous area of severely stressed pines, some pine engraver beetle infestations spread like a southern pine beetle spot. Even when confirming an infestation in December, most of these bark beetles were still very active. There were several stages of the pine engraver beetle (larva, pupa, and adult) thriving in one tree, still reproducing and creating another generation during the period when most insects are inactive and preparing for overwintering.

Southern Pine Beetle, *Dendroctonus frontalis*:

Late summer of 2019, another prolonged drought occurred where several areas of Alabama did not receive rain for 7 weeks. Pine engraver beetle infestations were being reported throughout the growing season, but there were no reports of southern pine beetle infestations. As the summer months progressed and temperatures increased, there were only a few spots detected. By fall of 2019, the outcome was different. No aerial surveys were conducted during this time, but southern pine beetle infestations were being identified from ground verifications. The summer months are when the southern pine beetle is most active; therefore, Alabama was expecting to have an increase in the number of infestations because of the drought. The results of the pheromone survey, however, gave a different prediction.

Alabama was predicted to have a low number of southern pine beetle (SPB) infestations in 2020. More specifically, high risk counties were expected to have no more than six to nine SPB spots. The overall prediction for the state was that Alabama has a 16 percent chance of having any SPB spots this active season.

No situation, however, is the same because the southern pine beetle population was declining despite the recent drought. The number of infestations was limited during the summer of 2020. Because of the overall prediction and the COVID-19 applied restrictions, only the National Forest Ranger Districts under the SPB Good Neighbor Authority Agreement were selected for aerial surveys. Houston County affected by Hurricane Michael was also surveyed for forest pests. There were a few other places in the state where beetle spots were detected by aerial method while conducting other forestry-related activities. With the combined aerial-surveyed and ground-detected spots, 99 southern pine beetle infestations were reported infesting 3,670 trees.

Pine Needle Diseases, *Coleosporium spp.*, *Lophodermium spp.*, *Dothistroma spp.*, and *Lecanosticta spp.*:

Fungal diseases associated with extreme climates like a drought or excessive rain started manifesting several years ago, especially in Central and South Alabama. A persistent warm environment with excessive amount of precipitation created a suitable habitat for pine needle diseases. Despite the periodic droughts in 2016 and 2019, the last few years have been quite wet and humid. Unfortunately, the climate trend continued in 2020 causing these pests to flourish. Pine needle diseases did not subside and started spreading to neighboring stands. This pest was being reported in pine stands in other areas of the state.

Loblolly pines in well-managed stands were the tree species most affected by these needle diseases. Most of the affected pine stands in Alabama were in fact infected with both pine needle rust and needle cast/needle blight.

Laurel Wilt Disease, Fungus-*Raffaelea lauricola* and Redbay Ambrosia Beetle-*Xyleborus glabratus*:

In 2018, several southeastern states participated in a forest health project administered by the USDA Forest Service to monitor the spread and impact of laurel wilt disease in sassafras beyond

the Gulf-Atlantic Coastal Plain. Alabama selected 8 sites in highly susceptible counties, 7 in all, to participate in the sassafras monitoring project. For the third consecutive year, sassafras stands in Lowndes, Talladega, Chilton, Bibb, Coosa, Lee, and Jefferson counties were observed for laurel wilt disease.

Redbay ambrosia beetle traps were deployed during the summer months in 2 of the 7 participating counties, one in Lowndes and the other in Chilton. Two traps per site were deployed in the sassafras stand for 8 weeks during the summer (July to September). There were no reports this year of any additional counties in Alabama with laurel wilt disease.

Emerald Ash Borer, Agrilus planipennis:

The emerald ash borer was identified in Calhoun County, AL in 2016. The Alabama Department of Agriculture and Industries collaborated with the United States Department of Agriculture (USDA) – Animal and Plant Health Inspection Service (APHIS) to establish a quarantine for Calhoun, Cherokee, and Cleburne counties. The non-native insect has now spread to Talladega and St. Clair counties.

The emerald ash borer has continued to spread in the state and is heading towards the larger cities in northern Alabama. Most of these urban areas have main streets and local parks lined with ash trees. Several landowners and urban planners in this region have expressed concerns about the encroachment of the emerald ash borer.

One event in Birmingham, AL was proactively responding to the threat of the emerald ash borer. Sponsored by the Nature Conservancy with other entities (i.e. Ruffner Mountain), the partners hosted a planting event at East Lake Park in January 2020. Many years ago, ash trees were planted throughout the park. As they matured, the ash trees provided abundant shade to visitors of the vicinity. Knowing the possible demise of these beautiful shade trees by this non-native pest, the attendees wanted to make sure there would be trees at the park in the future. The participants of the event planted approximately 25 different species of trees providing a variety that will serve numerous functions for the park.

Hemlock Woolly Adelgid, Adelges tsugae:

In June 2020, the hemlock woolly adelgid was reported in Dekalb County, Alabama by a Cooperative Extension System agent. After confirmation from two laboratory analyses, the hemlock woolly adelgid was confirmed for the first time in Alabama. Several hemlock trees in Dekalb County were infested with this non-native insect. Natural spread down the Appalachian mountain range into the northeastern corner of DeKalb County was assumed to be the cause of the ultimate presence of this pest in the state.

The hemlock woolly adelgid is responsible for extensive mortality and decline of hemlock trees across the eastern United States. Unfortunately, this pest currently exists in most of the eastern

hemlock's natural range. The most southern extension of this range is in Alabama, making the last areas of the eastern hemlocks threatened by this pest.

The USDA Forest Service is monitoring the spread of the hemlock woolly adelgid since part of the southern range of eastern hemlocks expands into the Bankhead National Forest. The Alabama Forestry Commission, the Alabama Cooperative Extension System, and the Alabama Department of Agriculture and Industries are working together to document, mitigate, and inform the public about this pest. In August 2020, the Alabama Cooperative Extension System in Dekalb County presented a webinar by Zoom on the discovery of the hemlock woolly adelgid in the state, but education and outreach efforts are continuous. Alabama is at its initial phase of dealing with this non-native pest.

Gulf Coastal Plain Ecosystem Partnership Cogongrass (*Imperata cylindrica*) Project

Partners in the Working Group continued to coordinate control and prevention efforts within the targeted landscape, the Cogongrass Partnership Area. A Cogongrass Coordinator was hired last year by The Longleaf Alliance to assist with the program. The Coordinator worked with the members of the partnership to control cogongrass infestations in Alabama and Florida.

The Alabama Forestry Commission employees implemented control treatments on cogongrass infestations enrolled into the Covington County Soil and Water Conservation District Landowner Incentive Program. Small spots on private lands were directly treated by Alabama Forestry Commission personnel. This year, the Alabama Forestry Commission and the USDA Forest Service created an online GIS application to collect cogongrass data. There were approximately 200 spots treated that encompassed about 40 acres. The Alabama Forestry Commission also purchased more supplies needed for the program that included herbicides, sprayers, accessories for the sprayers, and personal protection equipment.

Environmental and Climatic Events

Wildfires

The number of wildfires was significantly low in 2020. Adequate rainfall occurred during 2020 with no periodic drought.

There was a drought episode during the summer of 2019. On September 16, 2019, the Alabama Forestry Commission issued a Fire Danger Advisory for all 67 counties because of the drought conditions and the persistent high temperatures. The climate situation continued leading the Alabama Forestry Commission to issue a Fire Alert on October 11, 2019. Several days after the Fire Alert, persistent rains relieved the state from the extended drought. On October 22, 2019 the Fire Alert was lifted. The suitable climate for low wildfire occurrences continued throughout 2020. During the fiscal year, there were 950 wildfires that consumed 12,595.90 acres.

Hurricanes, Tornadoes, and Storms

This year, Alabama had several recordable storms from tornadoes traversing inland to hurricanes near the coast, and even hail damage during the most unconventional time of the year. Isolated tornadoes from turbulent and unstable climates were relentless. There were so many tornadoes in Alabama that most of these weather events were not formally reported. A very unusual weather event occurred, a widespread hailstorm. This weather event caused leaf and stem damage to a variety of trees over thousands of acres. The southeast region of the country had a high number of hurricanes this year, almost tying a record for the most hurricanes during a season. Unfortunately, Alabama was affected by a few of those seasonal hurricanes and one specifically was Hurricane Sally that left damage and destruction sporadically throughout the state.

Hurricane Sally entered the Gulf of Mexico from the southeast coast of Florida on Saturday, September 12, 2020. Initially a tropical depression, the storm soon increased speed as it traversed the warm waters of the Gulf. By Monday, September 14, the storm was classified as a Category 1 hurricane. The path of Hurricane Sally appeared to be heading toward the shores of southeast Louisiana until it suddenly shifted. By late Monday, the hurricane had turned eastward toward the coastline of Alabama. As the storm continued its new path in the warm waters of the Gulf on Tuesday, September 15, it increased to a Category 2 hurricane. Tumultuous rain pummeled the coastal areas of Alabama and Florida. On Wednesday, September 16, Hurricane Sally made landfall near Gulf Shores, Alabama as a Category 2 with wind speeds around 100 mph. Although structural damage to buildings and homes, broken limbs and fallen trees occurred, more serious destruction was caused by water efflux and extensive flooding. The worst of the storm damage occurred in areas around Orange Beach and Gulf Shores, Alabama, as well as Pensacola, Florida. In summary, there were 2,440 forested acres damaged in Baldwin County, Alabama by Hurricane Sally with 79,175 tons of timber destroyed at a value of \$1,564,160.

A total of 10 significant weather events occurred this year and they were on these dates: December 16, 2019, January 12, 2020, February 5, 2020, March 3, 2020, March 24, 2020, March 31, 2020, April 12, 2020, April 19, 2020, April 23, 2020 and September 16, 2020. Even though forest damage and destruction of property were noticed after these storms, the loss of timber was not significant enough for a formal report. There were only a few formal documentations of weather events this year.

References

- Alabama Forest Resource Information – Alabama Forestry Commission, Forest Inventory and Analysis (FIA) Data
- Alabama Wildfire Information – Alabama Forestry Commission, Fire Operations Section
- Alabama Forest Health Information – Alabama Forestry Commission, Forest Health Section
- Article, [What Climate Change Means for Alabama](#) by the United States Environmental Protection Agency, August 2016, EPA 430-F-16-003.
- News article about a tree planting event at East Lake Park in Birmingham, Alabama. Author, Sarah Cantey. Date: January 22, 2020.

For more information about Alabama's forest health program, go to the Alabama Forestry Commission's website: <http://www.forestry.alabama.gov>.

Forest Health Assistance in Alabama

Alabama Forestry Commission
Forest Health Section
513 Madison Avenue
Montgomery, AL 36104
Cell #: 205-385-2387
Dana.Stone@forestry.alabama.gov

Alabama Cooperative Extension System
Plant Diagnostic Laboratory
961 South Donahue Drive
Auburn, AL 36849
Office #: 334-844-4336
<http://offices.aces.edu/>

USDA Forest Service
Southern Region, State & Private Forestry
Forest Health Protection
2500 Shreveport Highway
Pineville, LA 71360
Office #: 318-473-7286
<http://www.fs.usda.gov/main/r8/forest-grasslandhealth/>

Alabama Department of Agriculture and
Industries
Plant Protection Division
1445 Federal Drive
Montgomery, AL 36107
Office #: 334-240-7100
<http://www.agi.alabama.gov/>

USDA Forest Service
Southern Research Station
320 Green Street
Athens, GA 30602
Office #: 706-559-4273
<http://www.fs.usda.gov/main/r8/forest-grasslandhealth/>