

Alabama

Forest Health Highlights 2017

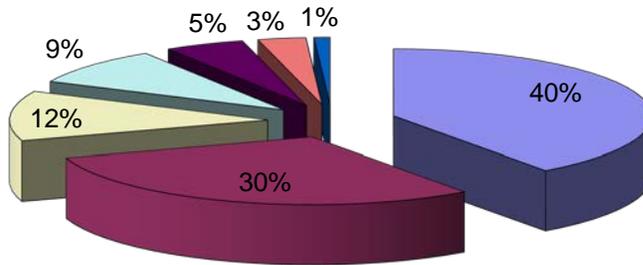
The Resource

“Alabama the Beautiful” is a very descriptive state slogan for a reason. Alabama’s flourishing lush forests of mixed hardwoods and statuesque pine stands can be seen while transitioning from Tennessee to the Gulf of Mexico. The contrast of mountain plateaus of northern Alabama to the coastal beaches of the southern region brings a diverse picturesque scene that is utterly breathtaking. Over 200 tree species exist throughout the state with some more abundant than others. Alabama’s landscape consists of various soil types and topography that creates a diverse forest environment. A variety of wildlife is also associated with these different forest ecosystems. Intertwined in these different forest types are several thousand miles of meandering rivers and streams that sustain aquatic life. The preferred climate also aids in the functioning of these forest ecosystems. The subtropical climate of Alabama contributes to the biodiversity of the forests. Higher temperatures and greater precipitation than most states in the country are largely influenced by the Gulf of Mexico. This body of water provides additional moisture and solar energy that moderate temperature patterns in the state. Because of the suitable climate and abundant forests, Alabama is ranked fifth as the most biologically diverse state in the nation.

There are some discouraging factors associated with this coastal state and its vigorous forests, a significant number of acres are occupied by non-native invasive plants. With a port in the Gulf of Mexico that receives international goods, some exotic species are easily introduced into the state that can potentially harm the livelihood of the forest. Other human activities also contribute to the impairment of Alabama’s forest ecosystems. River dams and land conversions are some human manipulations that compromise the habitat of many forest biological species. In fact, Alabama is ranked number two in the United States for the total number of extinctions, and ranked number four for species in danger of extinction.

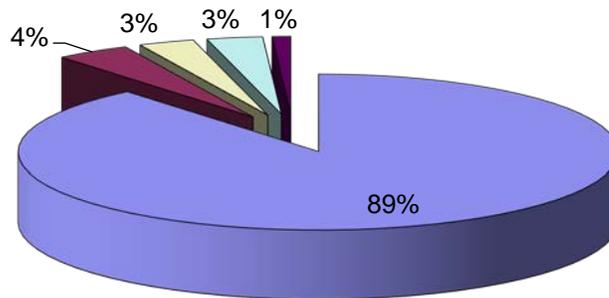
All entities, from private landowners to community volunteers are implementing management practices to ensure perpetual forests, wildlife habitat, clean water, outdoor recreation, picturesque views, and tourism opportunities. The result of these activities assists in the thriving forests seen throughout Alabama. With over 23,000,000 acres of forestland, the various forest types that are conserved will endure the biodiversity in the state. Trees will continue to be a vital part of the forest ecosystem. Pines are a significant part of Alabama’s forests with the number of acres slightly increasing primarily due to reforestation. Private non-industrial landowners own most of the forests with some implementing intense management regimes for timber production. Forest industry is the next largest group of landowners, but still possess a small percentage of the total property in the state. The amount of land ownership for forest industry continues to decrease from divesting of investments. From the previous year, the amount of property holdings for forest industry has declined by two percent. Local, state, and federal entities round off the remaining ownership of forestland in Alabama.

Alabama Forest Type Distribution



- Loblolly Pine/Shortleaf Pine 40% (9,176,800 ac)
- Oak/Hickory 30% (6,966,200 ac)
- Mixed Hardwood/Pine 12% (2,908,400 ac)
- Oak/Gum/Cypress 9% (2,181,400 ac)
- Longleaf Pine/Slash Pine 5% (1,089,800 ac)
- Elm/Ash/Cottonwood 3% (594,700 ac)
- Other 1% (218,000 ac)

Alabama Forestland Ownership Distribution



- Non-industrial Private Landowner 89% (20,605,700 ac)
- Forest Industry 4% (974,200 ac)
- U. S. Forest Service 3% (650,100 ac)
- State and Local Government 3% (618,500 ac)
- Other Federal Land 1% (286,900 ac)

Forest Influences

Pine Engraver Beetle, *Ips* spp.:

By late summer 2016, Alabama started experiencing complications from a drought. The drought continued well into the fall season causing extreme stress on all vegetation. In December, there

were numerous reports of dying trees, especially pines. Most of these reports were from the northern section of the state where the drought was most severe. Drought-related pests were noticeable. Aerial surveys for selected counties were initiated in January 2017 to detect beetle infestations and other drought-related pests. There were 22 counties surveyed with 465 beetle spots detected infesting 19,550 pines. County personnel verified aurally detected spots to determine the specific bark beetle species (*Ips* engraver beetle, southern pine beetle or black turpentine beetle) infesting pines. Most of the detected spots were caused by the *Ips* engraver beetle. There were, however, some infestations caused by the black turpentine beetle and the southern pine beetle. By the end of May 2017, reports of drought-related beetle infestations declined. Most of the spots detected in late spring were mainly remnants of inactive *Ips* engraver beetle infestations.

Black Turpentine Beetle, *Dendroctonus terebrans*:

During the start of 2017, black turpentine beetle infestations were quite prominent. The 2016 drought caused stress on all trees, especially pines. *Ips* engraver beetle infestations were ravaging pines causing noticeable mortality, but there was a significant number of black turpentine beetle infestations as well. These infestations were more aggressive than usual. Some black turpentine beetle infestations were spreading like a southern pine beetle spot, with neighboring trees being affected by the wrath. Many of the identified spots had at least 20 to 30 infested trees. Black turpentine beetles continued to be active with reports of infestations clear into the latter part of the year.

Southern Pine Beetle, *Dendroctonus frontalis*:

During the first formal aerial surveys in the state, several beetle infestations were identified as a southern pine beetle spot. Because there were limited number of southern pine beetle infestations, there was no immediate worry of an outbreak. Right after the drought, *Ips* engraver beetle attacks were the main concern. In June 2017, however, new reports emerged about the rapid expansion of pine mortality from bark beetles. This time, the concerned area of the state was central Alabama. The Alabama Forestry Commission changed its focus from surveying for drought-related pests to detecting for southern pine beetles. Starting on June 5, 2017, selected counties in the state were surveyed for southern pine beetle infestations.

Ips engraver beetle attacks were more prevalent after the extended drought. When adequate precipitation returned, as it did during the winter and spring seasons, the pines recovered and the number of large-scale *Ips* engraver beetle infestations subsided. For a southern pine beetle outbreak, the contributing factors were more complicated. The drought was a factor which caused pines to become stressed and more susceptible to a beetle attack. Another factor was the mild winter that increased the survival of overwintering beetles. Overstocked stands and over-mature pines were additional contributing factors that increased the susceptibility of already compromised pine stands. When temperatures increased during the summer months, so did the southern pine beetle activity.

By mid-summer, Alabama was experiencing heightened beetle infestations with over 100 detected spots in several counties. Montgomery County reached an epidemic level of infestations

while a few others were quite close. Some southern pine beetle infestations were so aggressive that several small spots began to merge, resulting in one large infestation covering several acres. In all, the Alabama Forestry Commission surveyed 29 counties and 3 National Forests. There were 2,322 spots detected of various sizes, infesting 212,135 pines. The total value of pines destroyed is estimated to be \$1.8 million.

Deodar Weevil, *Pissodes nemorensis*:

Drought related bark beetle infestations were killing pines throughout Alabama, especially in the northern areas of the state. Some pines appeared to have died from no recognizable pest, they succumbed outright from the drought. Pines growing on less desirable sites like steep slopes or shallow soils were excessively stressed and more prone to mortality. At a closer glance, some of these pines dying from drought-related conditions were infested with the deodar weevil. Not a primary cause of mortality, the deodar weevil was most active during the winter season that immediately proceeded the devastating drought. Chipped cocoons were noticeable in weevil-infested pines. In most cases, a deodar weevil infestation accompanied a beetle infestation. Both pests were simultaneously infesting the same trees. When drought-related pests subsided, so did the deodar weevil infestations.

Dying Red Oaks, *Quercus spp.*:

There have been other isolated forest pests reported in Alabama because of the 2016 drought. Certain species of trees were quite vulnerable to the excessive and extensive period of no rain and high temperatures. The northern part of the state was affected the most. Red oak species in this area of Alabama started showing signs of decline by late summer of 2016. Leaves were turning brown and defoliating early. Some of these trees may have also been infected with bacterial leaf scorch. By late winter, some of the drought-affected hardwoods were succumbing to Hypoxylon canker. As the months approached the 2017 warm summer, more and more reports of dying hardwoods, especially red oaks were confirmed. Most of these red oaks were infected with Hypoxylon canker.

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

In June and July 2017, highly susceptible counties were surveyed for natural spread of laurel wilt disease. Washington, Perry, Lowndes, and Autauga Counties were surveyed. Areas of Covington County were also surveyed, since this county has the only known stands of pondberry (an endangered plant species) in the state. Stem samples from symptomatic sassafras collected in Perry and Washington Counties were sent to the USDA Forest Service laboratory and later confirmed of having laurel wilt disease. Perry County was added to the national map.

Emerald Ash Borer, *Agrilus planipennis*:

In October of 2016, an informal announcement was released by email to county personnel that emerald ash borer insects were caught in traps located in Calhoun County. The identification of

the 3 emerald ash borers caught during the summer was confirmed by the USDA Animal and Plant Health Inspection Service (APHIS) laboratory. The Alabama Department of Agriculture and Industries established a temporary quarantine for selected counties – Calhoun, Cherokee, and Cleburne. In February 2017, the Alabama legislature approved the final version of the quarantine for the 3 selected counties.

The USDA Animal and Plant Health Inspection Service (APHIS) hired an independent contractor again this year to deploy over 400 emerald ash borer traps in the state. The traps remained in their designated location from May to September 2017. The Alabama Forestry Commission has not received the results of the 2017 survey. In July 2017, the Alabama Forestry Commission conducted monitoring activities in neighboring counties – Etowah, St. Clair, and Talladega for natural spread. Symptomatic ash trees were evident in Calhoun, Talladega, and St. Clair Counties. The Alabama Forestry Commission extracted larvae samples from identified symptomatic ash trees in Calhoun and Talladega Counties. Auburn University laboratory confirmed that the larvae were that of the emerald ash borer. These larvae samples were forwarded to the USDA APHIS laboratory for a second analysis. The results were the same, larvae samples from Calhoun and Talladega Counties were that of the emerald ash borer.

Forest Programs

Southern Pine Beetle Prevention Cost-share Program

In 2015, a SPB Prevention Cost-share Program was implemented for non-industrial private forest landowners. This cost-share program offered financial assistance for pre-commercial thinning of existing loblolly or shortleaf pine stands that are at least 10 acres in size. Additional prevention practices offered for financial assistance were mechanical or chemical site preparation and site preparation burning for longleaf pine planting. A total of 120 non-industrial private forest landowners applied for the cost-share program, but only 47 landowners were approved into the program. There were several applications (landowners) that requested an extension to complete the approved management practices under the 2015-2016 cost-share program. Approximately 7 requests for an extension were granted and the new due date to complete the practices was January 31, 2017. Prevention practices were completed on 3,750 acres under this cost-share program to reduce the southern pine beetle hazard of pine stands. The 2015-2016 SPB Cost-share Program officially ended on January 31, 2017.

In February 2017, the 2017-2018 SPB Prevention Cost-share Program was implemented. The announcement to apply for the program was made. The funded practice was non-commercial first thinning. Stand assessment and application approval were done in May 2017. Landowners were notified in June 2017 on the status of their application. There were 15 landowners approved to complete the non-commercial first thinning practice.

Southern Pine Beetle Suppression Program

Because of the rapid increase of southern pine beetle (SPB) infestations during the summer, affected landowners were concerned about controlling the spread. Many landowners and loggers were inquiring about financial assistance to control these beetle spots. As a response, the

Alabama Forestry Commission (AFC) implemented the SPB Suppression Cost-share Program. In July 2017, the cost-share program was announced. The control practices that were funded under the program were Cut & Leave, Cut & Burn, Cut & Mulch, and Cut & Spray. There were 16 landowners that applied for the SPB Suppression Cost-share Program.

Public Education Programs

Because of numerous inquiries from landowners about bark beetles, a public awareness strategy was implemented. Several articles for local newspapers, the TREASURED Forests magazine, and TREETopics were written informing agency personnel and the public about the latest situation on bark beetles and other forest health issues in Alabama. Televised news reports were also done pertaining to bark beetles in the state. Other agencies' newsletters and magazines also presented information about bark beetle infestations and dying pines.

With the rising concern about dying trees from the 2016 drought, the Alabama Forestry Commission, other natural resource agencies, and Auburn University conducted several landowner workshops during the early part of 2017. Bark beetle identification and their management recommendations were discussed. Other topics discussed at these workshops were the encroaching non-native invasive pests spreading in Alabama, like emerald ash borer and laurel wilt disease. Approximately 46,000 people received forest health updates from public education and outreach activities.

For immediate and continuous forest health information, the Alabama Forestry Commission (AFC) placed updates on the agency's website. More specifically, the AFC State Office personnel (Forest Health Coordinator, GIS Specialist, and the Media Team) prepared a drought-related beetle report for the AFC website. In this report, a statewide infestation map and drought map were illustrated along with the total number of detected beetle spots. This report was updated weekly until the last posted update was done on June 2, 2017.

Environmental and Climatic Events

Wildfires

By late summer, Alabama started experiencing complications from several weeks of drought conditions. In the latter part of September, the extensive drought was causing a significant number of wildfires in the state. The extreme dry conditions, however, continued well into the fall season. By October 2016, wildfires were ravaging forest stands throughout the state, especially in the northern counties. Because of the heightened number of wildfires in early fall, the Alabama Forestry Commission started documenting these occurrences. From October 1 to October 26, 2016, there had been 1,028 wildfires consuming 11,232 acres. Thus, on October 27, 2016, Governor Robert Bentley signed a Drought Emergency Declaration that prohibited outdoor burning for 46 counties in north and central Alabama. A Fire Alert was also established restricting outdoor burning for the remaining 21 counties in the state. Unfortunately, the drought situation persisted and on November 7, 2016, the 'No Burn' declaration was placed on all counties in Alabama. Starting at the latter part of November, Alabama received some relief from the drought. Periodic rainfall occurred throughout the state and continued for the next several

weeks. On December 5, 2016, the 'No Burn' declaration was immediately lifted for the entire state.

Periodic rainfall continued for the remaining year. During some months, the amount of precipitation that Alabama received was greater than average. The warm humid climate drastically influenced the wildfire behavior in the state, decreasing the number of occurrences for the remaining year. In all, there were 3,371 wildfires that burned 48,660 acres in 2017.

Hurricanes, Tornadoes, and Storms

The climate during the past year in Alabama was extreme. Following an extended drought, the winter was unusually warm and wet. Like the previous year, Alabama experienced the warmest winter since 1948. Even into the month of March 2017, the average temperatures in certain areas of Alabama were several degrees above normal. Tornado season in Alabama usually occurs in the spring and fall, with March, April, and November being the most recordable months, but this year was different. Because of the exceptionally warm winter and excessive amount of precipitation, tornadoes occurred during the most unconventional time. The first recordable tornado in Alabama occurred in January 2017.

Surprisingly, there was no significant forest damage from seasonal storms or tornadoes this year. A formal tornado report was completed for the January 20–22, 2017 weather event. Tornadoes descended in areas of Choctaw, Pike, Russell, and Houston Counties. One tornado traversed across Choctaw County destroying approximately 190 acres of forestland.

Tropical Storm Cindy moved just west of Alabama on June 21-22, 2017, spawning tornados and causing flooding in certain areas of the state. Even though the storm made a presence in Alabama, no significant damage was reported.

Hurricanes Harvey, Irma, Maria, and Nate came through southern United States with ravaging force and destruction. Several states and territories were insurmountably damaged and many lives were lost. Alabama did not receive the severe demise like other areas in the southeast, but experienced some calamity from spawning tornadoes initiated by Hurricanes Harvey and Nate.

From Hurricane Harvey, areas in Pickens, Fayette, Hale, Bibb, and Blount Counties received some level of damage from traversing tornadoes. The Alabama Forestry Commission implemented an aerial survey over selected counties to assess damage. There was recordable damage in Pickens and Fayette Counties, where approximately 50 acres of forestland was destroyed by descending tornadoes.

Hurricane Nate transpired some minor flooding in Mobile and Baldwin Counties and spawning tornadoes in Autauga, Chilton, and Lowndes Counties. Despite power outages, impaired structures, and sporadic fallen trees, there was no significant damage reported.

References

- Alabama Forest Climate and Biodiversity Information – Encyclopedia of Alabama

- Alabama Forest Health Information – Alabama Forestry Commission Forest Health Section
- Alabama Forest Resource Information – Alabama Forestry Commission Forestry Inventory Analysis (FIA) Data
- Alabama Wildfire Information – Alabama Forestry Commission Fire Operations Section

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

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