

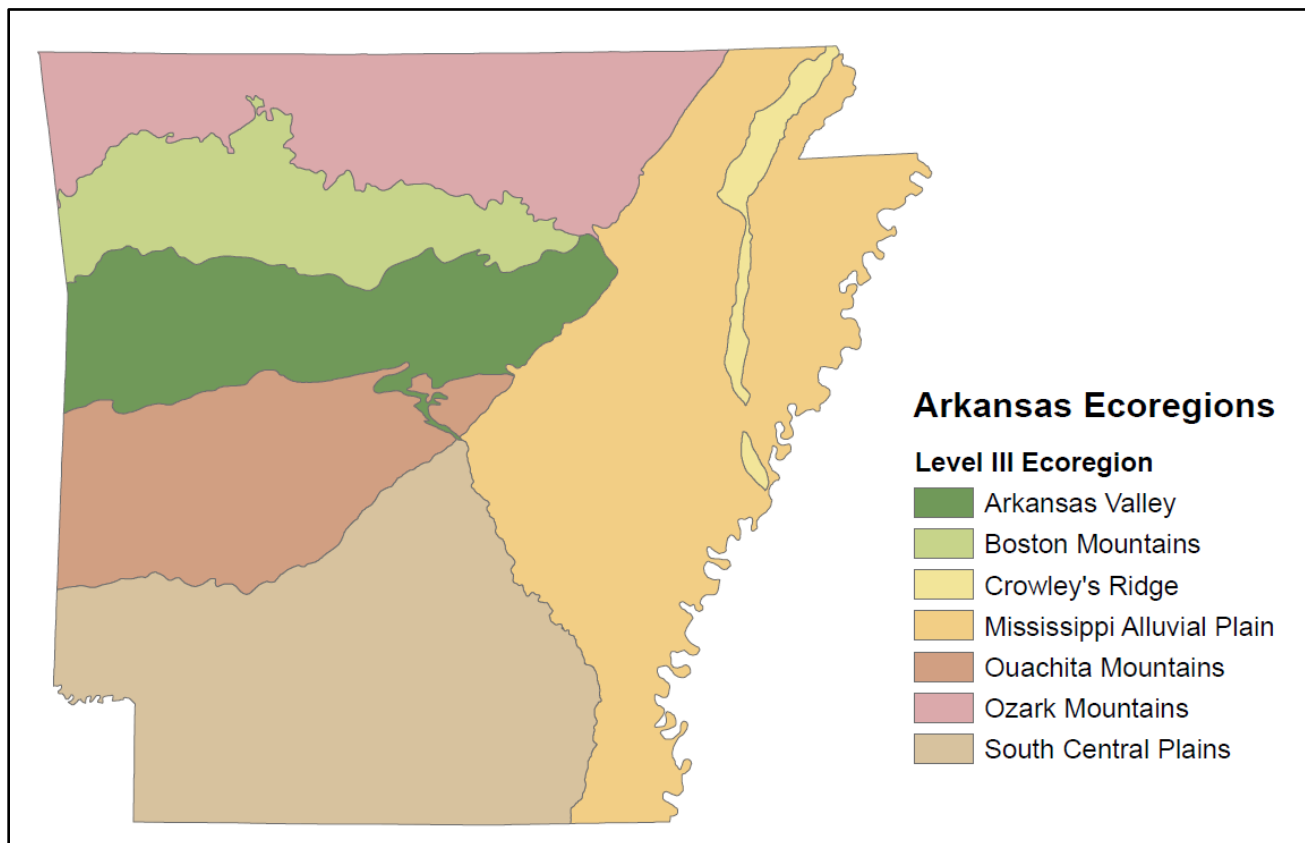


Arkansas

Forest Health Highlights for 2016

Forest Resource

Arkansas's forests cover 19 million acres, which is more than 56% percent of the state's land area. The majority of the state's forested land, some 12.5 million acres, is in non-industrial private ownership, while approximately 2.5 million acres is national forest. Scenic beauty is showcased in the Ozark, Boston, and Ouachita Mountain ranges. Tourism and outdoor recreation opportunities are plentiful within the state's diverse landscape. Major forest types in the state include oak-hickory, loblolly-shortleaf pine, oak-pine, and bottomland hardwood. Loblolly pine dominates the south central plains and it is the most abundant tree species by volume, and shortleaf pine follows second in statewide volume estimates. The most abundant hardwood species, listed in order of greatest volume, are white oak, sweetgum, post oak, northern red oak, black oak, and southern red oak. According to recent forest inventory estimates, volume growth is exceeding the volume harvested, and this is true for both hardwood and pine volumes. This fact makes Arkansas forests a prime resource for forest wood products.



Flooding

Arkansas experienced heavy rainfall patterns during spring and early summer. As a result, wildfire activity in the state was limited and delayed until fall months. Isolated damages from flood water were observed throughout the state. Various hardwood stands in the Mississippi alluvial plains experienced mortality, especially in areas with beaver activity. Some pine plantations suffered losses near Millwood Lake in Sevier and Howard Counties when nearly 8,000 acres were flooded north of the lake.

Fall Webworm and Other Defoliators

Fall webworm, *Hyphantria cunea*, was exceedingly abundant for the second straight year. The pest was common in the north and northwest regions of the state. In many places, overwhelming abundance caused complete crown defoliation of persimmon, pecan, walnut, hickories, sweetgum, and some oak species. Newspaper articles, television news reports, and magazine articles were prepared to address the growing public concern. Specialists reassured Arkansans that the defoliation was unlikely to cause our trees harm because the leaves are lost so late in the growing season.

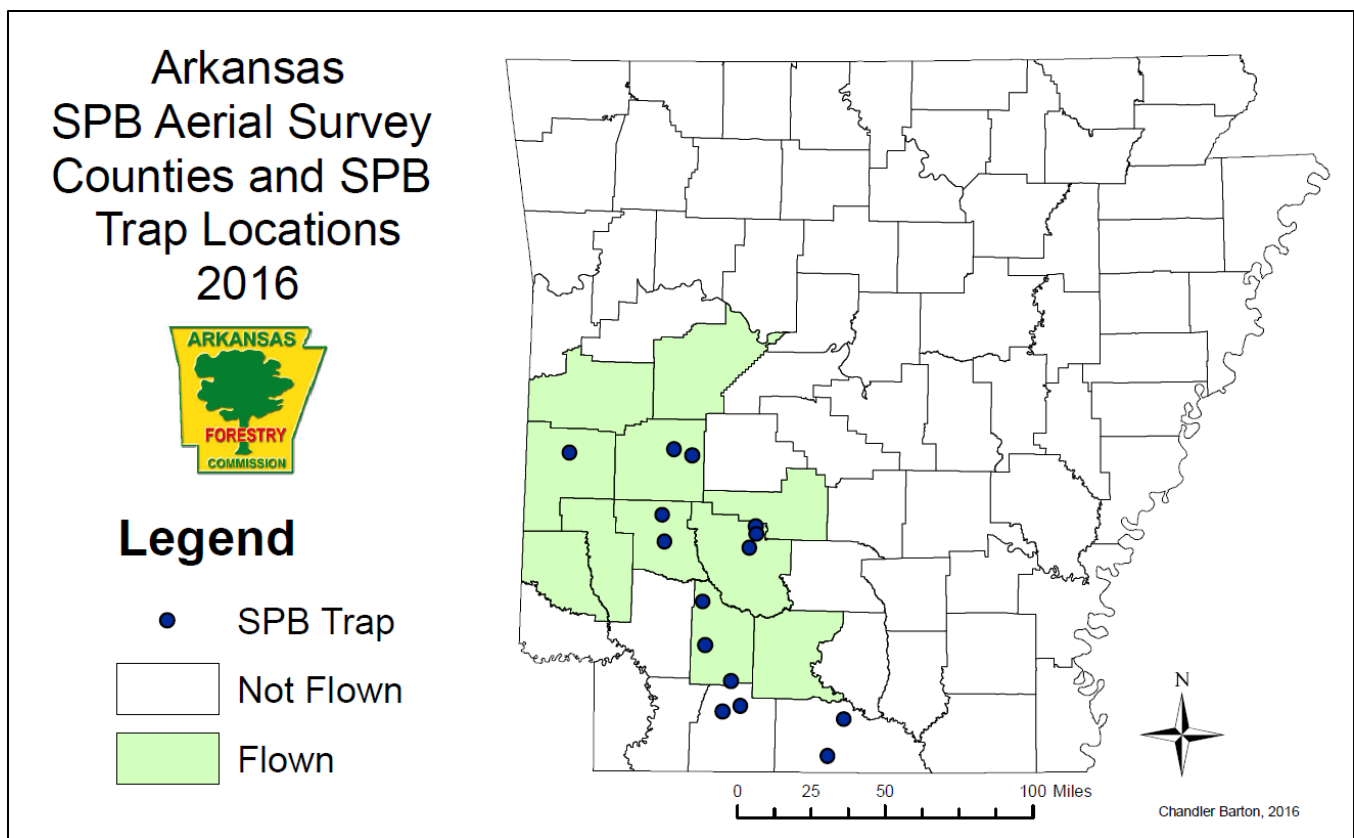
Likely attributed to mild temperatures and regular rainfall, several types of defoliators reached outbreak-level abundance. Isolated damages caused by May beetles and loblolly pine sawfly were reported during the spring months. Walkingsticks and red-headed pine sawfly cause defoliation during late-summer months. These outbreaks caused small acreage disturbances, most of which were unnoticed by the general public.

Gypsy Moth

The gypsy moth detection program in Arkansas is a multi-agency effort led by the Arkansas State Plant Board (ASPB). The Arkansas Forestry Commission (AFC) assisted in 2016 by placing 283 traps (3-4 traps per county). Nearly 5,000 traps were placed by all agencies combined. No gypsy moth suspects were captured in AFC traps. However, two suspects were trapped in ASPB traps, and additional trapping will occur around these locations over the next two years to make sure that a population of gypsy moths has not established.

Southern Pine Beetle (SPB) and Aerial Survey

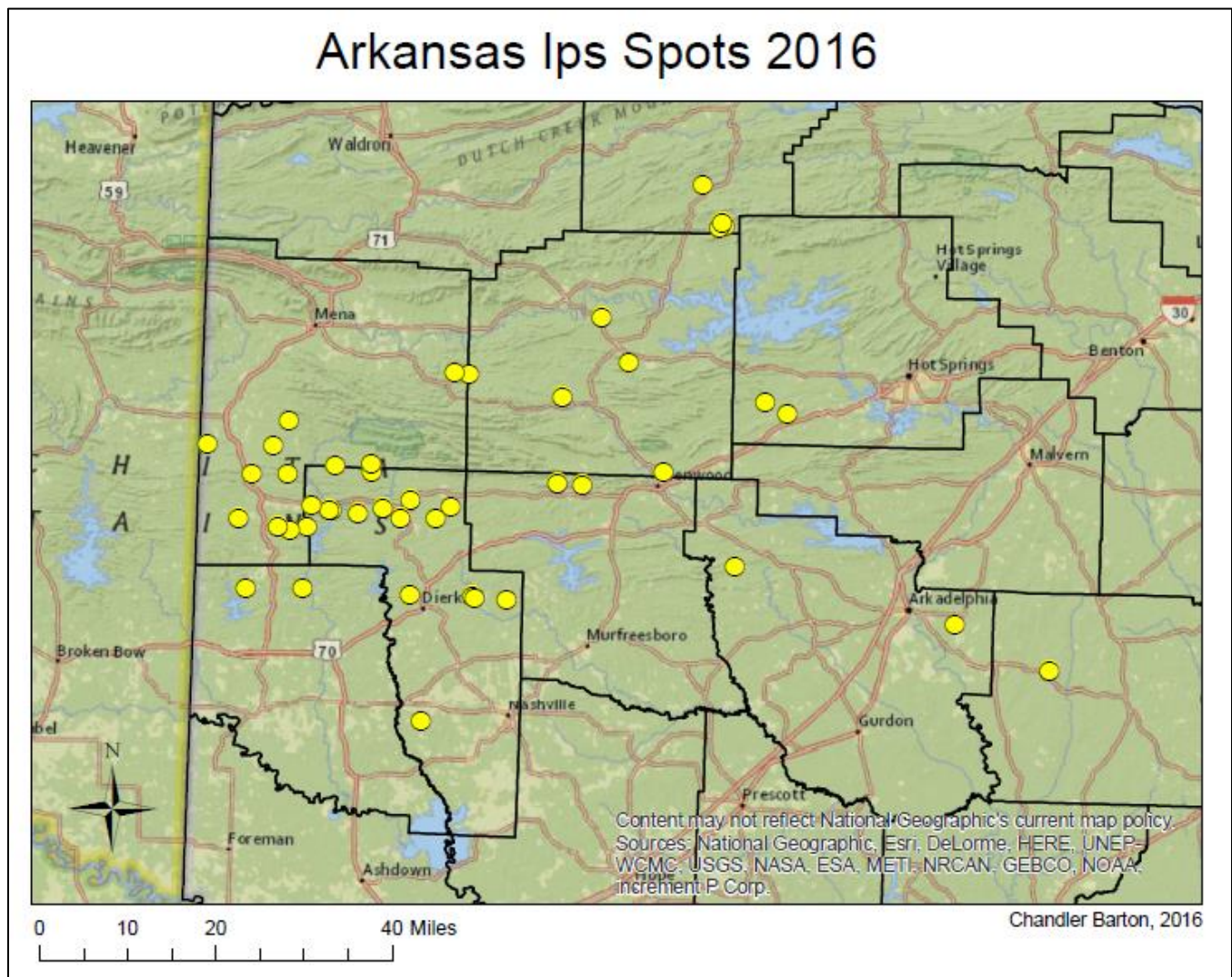
A major outbreak of SPB has not occurred in Arkansas or the states west of the Mississippi for nearly two decades. In AR, trap catches trailed off around 2005 and, more recently, annual traps rarely have a positive catch. The trend continued in 2016 when 15 traps baited with the aggregation pheromone frontalin and monoterpenes did not catch a single beetle. Locations of the traps are shown in the following figure. Preparation for future SPB outbreaks is important to the strategic plan of AFC. As such, AFC’s aerial survey methods are being modernized to hasten the detection of outbreaks, which will lead to faster alerts to private and public landowners. In 2016, Arkansas began using a tablet-based aerial survey tool for mapping forest disturbances known as Digital Mobile Sketch-Mapper (DMSM). This tool was used in 11 counties. No disturbances caused by SPB were detected; however, the tool helped the forest health specialist map 47 small outbreaks of *Ips* bark beetles in 2016.



Ips Pine Engraver Beetles

Following a period of drought in 2015, *Ips* pine engraver beetles took advantage of weakened loblolly pine trees in southeastern Arkansas. The damages were most severe in Sevier, Howard, and Polk counties. Approximately 21,000 acres were affected between late 2015 and 2016, all of which were

mapped with the DMSM tool following the outbreak. Ips abundance declined in 2016 as regular rainfall improved the growing condition for drought stressed pines, and observations of large-scale damages were rarer. Forty-seven active Ips spots were located by aerial survey in June through August of 2016. Most outbreaks did not exceed areas greater than an acre. Many of these small outbreaks are marked on the following map.



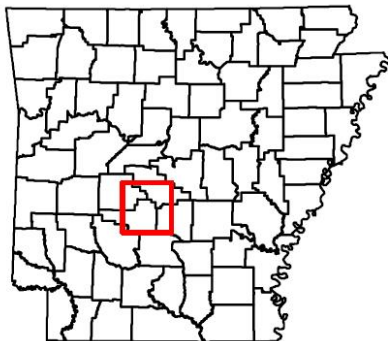


Needlecast

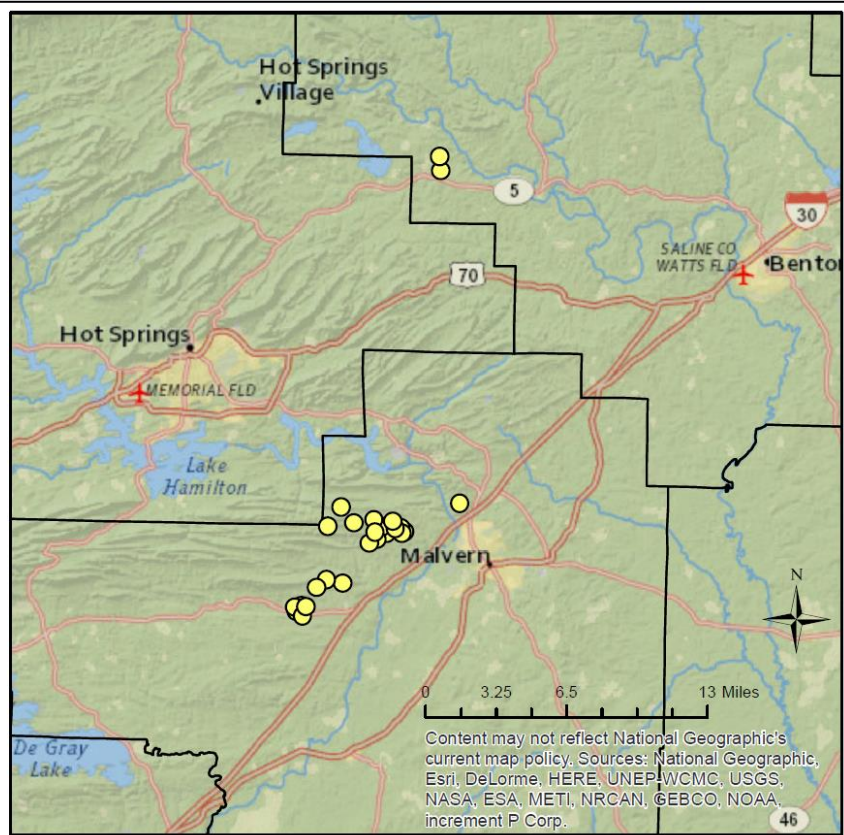
Browning needles were discovered on the crowns of loblolly pine trees during the winter months of 2015-2016. The unhealthy appearance of these pine stands could be viewed by aerial survey (see the locations of affected stands in the following figure) and an investigation was quickly underway to determine the cause. Specialists collected samples for laboratory testing, and forest pathologists from Forest Health Protection confirmed the presence of needlecast fungal infections, *Lophodermium* sp (symptoms of the fungus shown below). Though sporadic cases could be found throughout the range of loblolly pine, the most severe outbreaks occurred in Hot Spring County with moderate outbreaks in neighboring central Arkansas counties. Since the stands were weakened by the fungus, land managers were recommended to monitor the stands for bark beetle attacks. Many stands recovered the following spring and losses were mitigated by salvage thinning when isolated bark beetle outbreaks occurred.



Arkansas Needlecast Locations 2016



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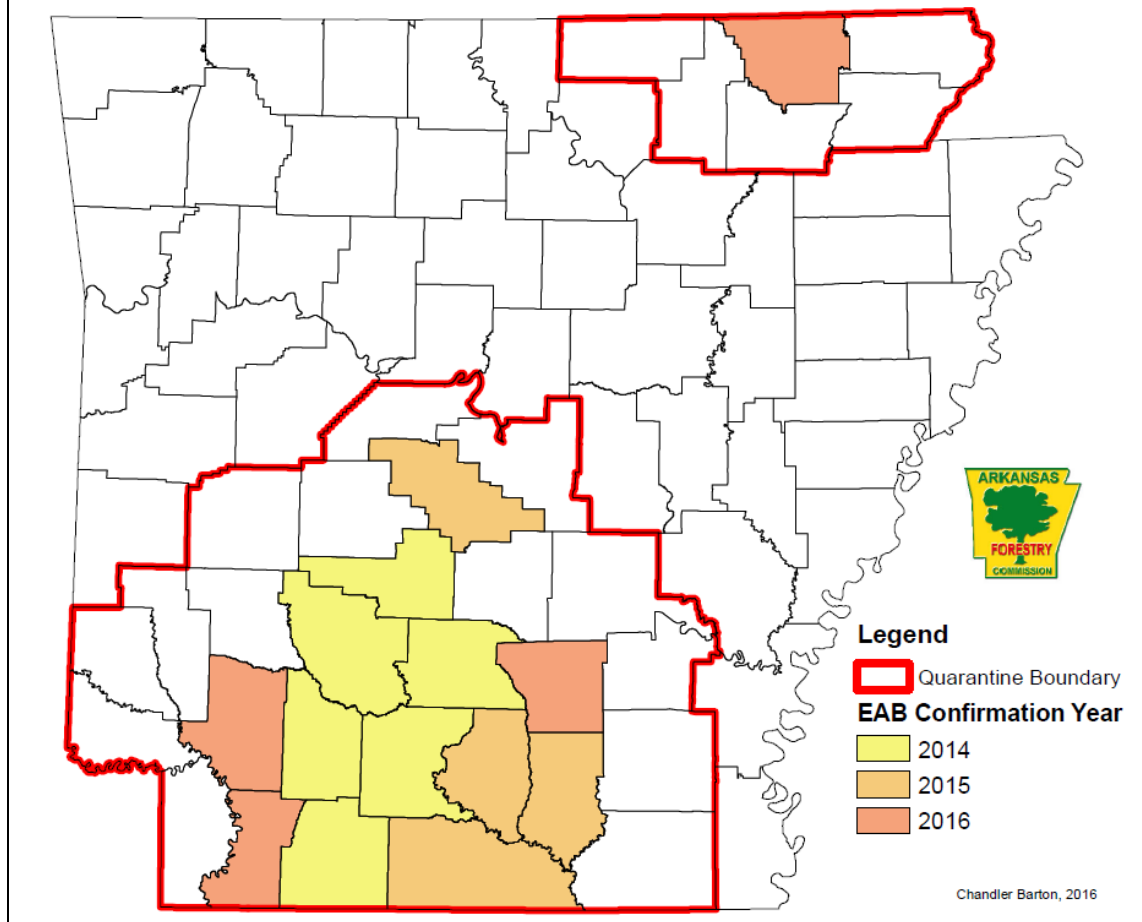
Emerald Ash Borer

The infestation of emerald ash borer in southern Arkansas began to show observable widespread mortality in 2016. Mortality was evident along the Ouachita River where ash densities are greater. Four new counties were confirmed, bringing the total to 14 known counties. One new confirmed county was Randolph, which borders the Missouri state line. This confirmation indicates that the previously known infestation in southeastern Missouri has now spread into Arkansas.

As a result of the new county confirmations, the quarantined region was expanded by the Arkansas State Plant Board (ASPB) and the Animal & Plant Health Inspection Service – Plant Protection & Quarantine (APHIS-PPQ). See the quarantine boundary highlighted in red on the following map. Arkansas decided that the quarantine boundary should be ahead of the confirmed counties, thus “buffer counties” were included in the quarantine region. The choice to include buffer counties was made based on evidence in other states that the beetle is present years before an initial detection.

While the ASPB and APHIS-PPQ are responsible for confirmation and quarantine regulation, multiple agencies are assisting with the detection and monitoring of EAB. AFC investigates reported sightings across the state and uses traps and visual surveys within the quarantined region. University of Arkansas Extension Service also investigates trees reported by landowners, and they provide outreach efforts for the state. Monitoring and research is conducted by the University of Arkansas Monticello, and their efforts will reveal more information about EAB dispersal and biology in southern states.

Arkansas EAB Confirmations and Quarantine Boundary 2016



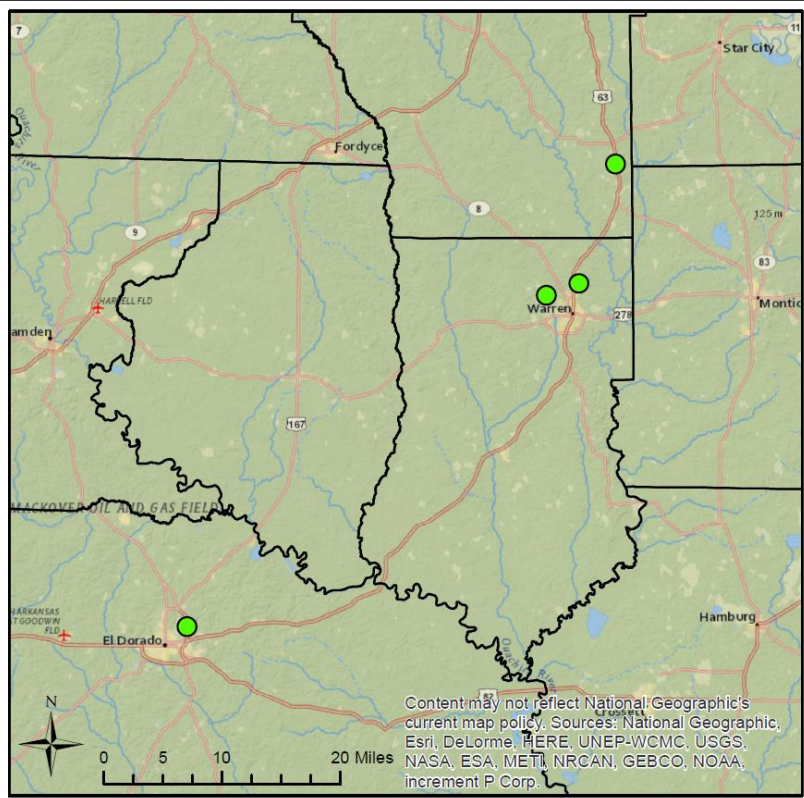
Redbay Ambrosia Beetle and Laurel Wilt Disease

In December of 2015, a forest landowner reported to his county forester instances of sassafras mortality on his property. The forest health specialist inspected the dying trees and suspected laurel wilt disease (LWD). Ambrosia beetles were also found in the trees. With the assistance of Forest Health Protection in Pineville, LA, the disease was indeed confirmed as LWD and the beetle was identified as *Xyleborus glabratus*, the redbay ambrosia beetle (RAB). RAB is responsible for transmitting the disease from tree to tree. Arkansas's confirmed sightings are shown in the figure below. First discovered near Savannah, GA in 2002, LWD and RAB have spread and killed redbay trees across most of their natural range in the United States. Redbay trees are rare in Arkansas, but sassafras is a suitable host for the invasive disease and beetle. Sassafras is infrequent in southern Arkansas (it makes up less than one percent of tree volume greater than five inches), however it is common in the Ozark Mountains of northern Arkansas. As LWD spreads in Arkansas, the loss of sassafras will be noticed, and ecological losses can be expected.

Arkansas Laurel Wilt Confirmations 2016



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For More Information, Contact:

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The mission of the Arkansas Forestry Commission is to protect Arkansas's forests, and those who enjoy them, from wildland fire and natural hazards while promoting rural and urban forest health, stewardship, development, and conservation for all generations of Arkansans. To report wildfires, call 1-800-468-8834. To report prescribed burns, call 1-800-830-8015. For more information about the Arkansas Forestry Commission, visit www.forestry.arkansas.gov.