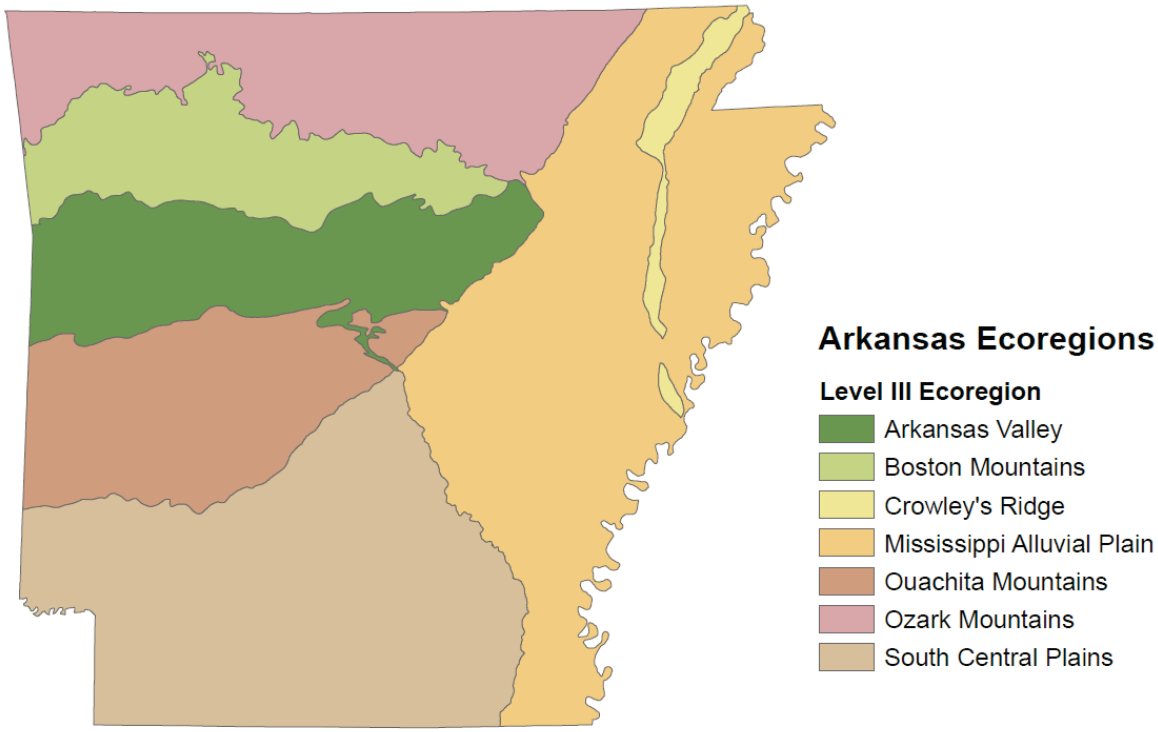
ARKANSAS DEPARTMENT OF AGRICULTURE
FORESTRY DIVISION

FOREST HEALTH HIGHLIGHTS FOR 2019

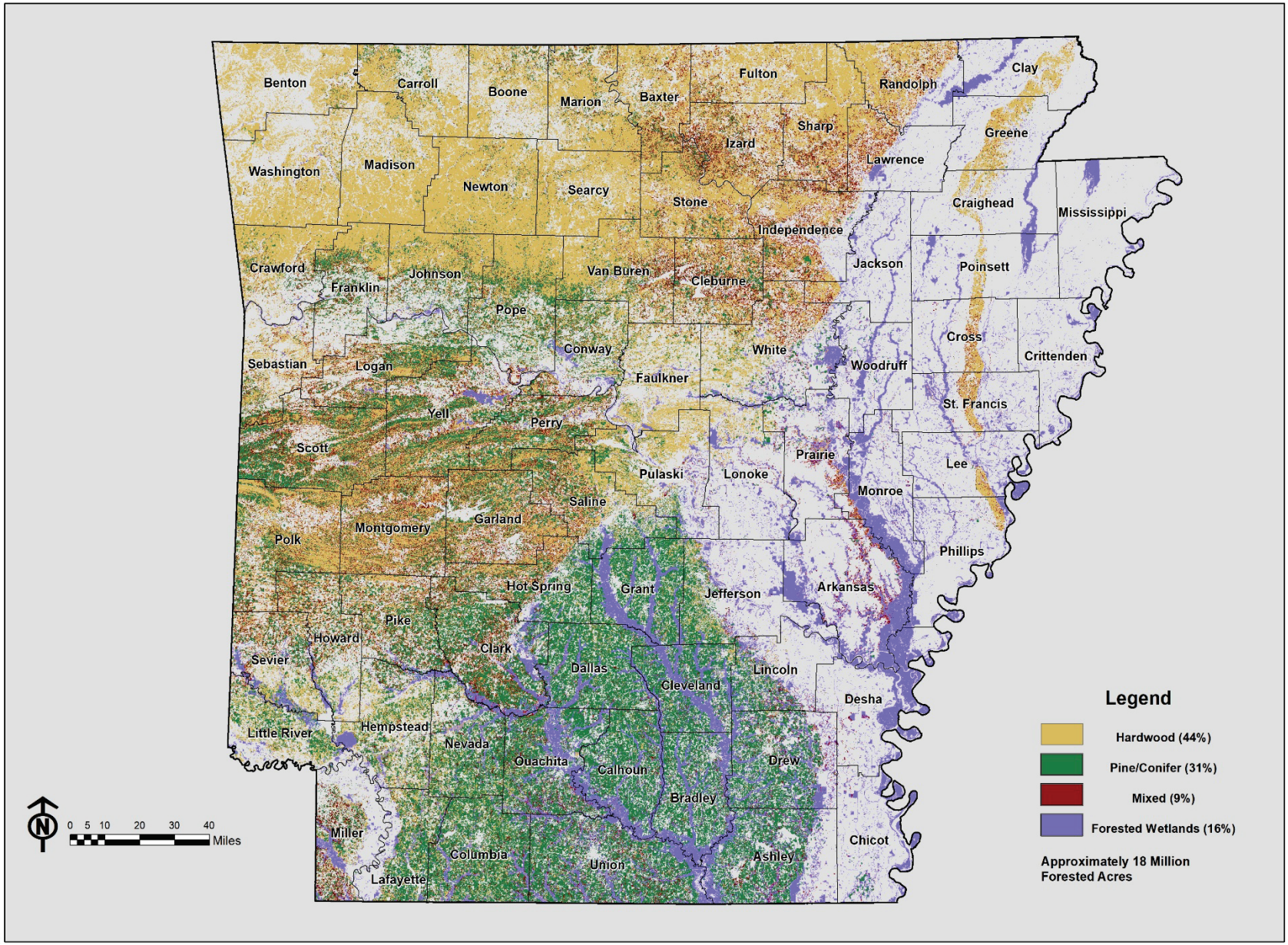
The Arkansas Department of Agriculture – Forestry Division (hereafter simply the Forestry Division) assists nonindustrial private landowners with forest management decisions. Forestry Division field personnel make forest health recommendations and can respond to reports of tree mortality caused by forest disturbances, such as insects and diseases. This report briefly summarizes the forest insect and disease issues in Arkansas that were identified during the 2019 calendar year.

Forest Resource Introduction

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 13.1 million acres, is in non-industrial private ownership, while approximately 2.5 million acres is national forest. This report will reference the Level III Ecoregions shown in the figure below. Major forest types in the state include oak-hickory, loblolly-shortleaf pine, oak-pine, and bottomland hardwood. Loblolly pine dominates the South Central Plains ecoregion and it is the most abundant tree species by volume, and shortleaf pine follows second in statewide volume estimates. Shortleaf pine is abundant in the Ouachita Mountains. 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.



Arkansas Forests

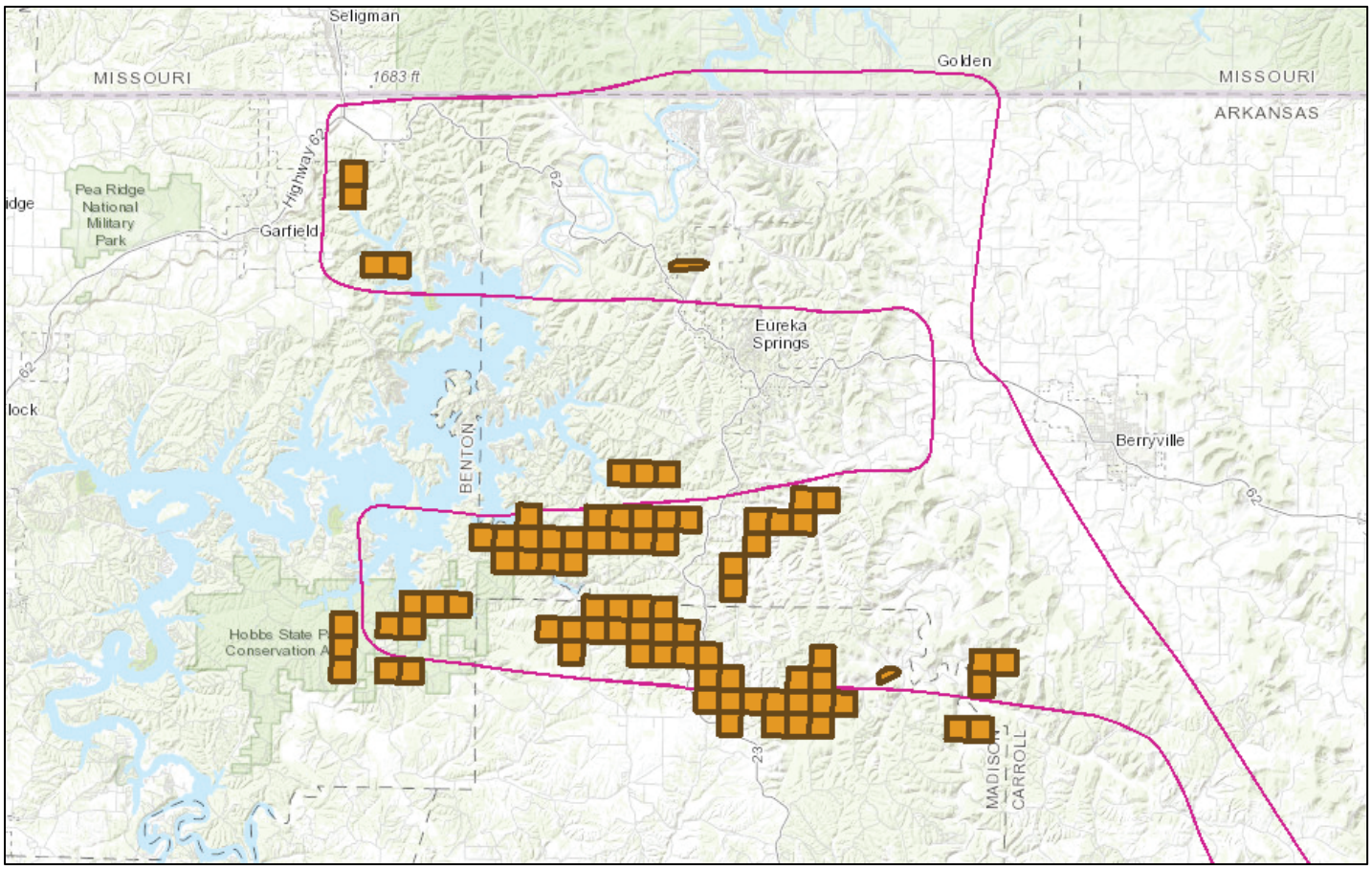


Common Walkingstick

Severe defoliation caused by the common walkingstick, *Diapheromera femorata,* was reported in the Ozark and Ouachita National Forests, having increased in scale for a third consecutive year. Generally, high elevation forests were affected, but the most severe defoliation occurred in the area northeast of White Rock Mountain in the Ozark National Forest and Stonehouse Recreation Area in the Ouachita National Forest. This walkingstick has a body length of four to five inches and has one generation per year. Conditions over the past several years have been beneficial for the walkingstick life-cycle, thus we are now witnessing a population outbreak of amazing abundance. Moisture is especially important during the winter and spring months for the egg and immature stages. If an extended period of dry weather occurs near the egg hatching time, the nymphs will not successfully exit the eggs. Populations of walkingsticks are normally managed by biocontrol agents. Native species of a cuckoo wasp genus, *Amisega* (Chrysididae), are capable of parasitizing walkingstick eggs and they can significantly lower their population. Since walkingstick defoliation occurs immediately before fall leaf-drop, the trees are not expected to suffer growth loss or mortality.

Jumping Oak Gall of White Oak

During late-spring and summer months, Arkansans across the state reported white oaks (*Quercus alba*) with unsightly appearances. Jumping oak gall was determined responsible for the condition of these trees in the northwestern and north-central counties of Arkansas. Hundreds of galls can be made on each leaf and, subsequently, leaves brown, curl, and die. It is not expected to kill the affected white oaks, but the extreme stress could push some trees toward death. The galls fully develop in May and drop to the ground to overwinter in the duff layer. The galls are formed by a Cynipid wasp in the genus *Neuroterus*, but the species in not yet confirmed by a specialist. Based on the shape of the gall, the good guess is *Neuroterus saltatorius*. Affected white oaks could be found in most of the Ozark and Boston Mountains, but observations of severly affected trees were reported in the area around Beaver Lake. Aerial survey data from June 21st is shown in the following map:



Loblolly Pine Sawfly

This sawfly (*Neodiprion taedae linearis*), which feeds primarily on loblolly pine, annually occurs in southeastern Arkansas. Ashley, Drew, and Bradley Counties are affected every year between March and May. In 2019, severe defoliation was observable outside of the normal counties, and it was particularly apparent in Dallas County as seen in the following aerial survey photo. Since the defoliation occurs on the prior year's leaves, the tree quickly grows new leaves to replace those lost. This sawfly does not cause tree mortality.

Southern Pine Beetle (SPB) Survey Update

An outbreak of SPB has **not** occurred in Arkansas or the states west of the Mississippi for nearly two decades. In AR, spring trap catches subsided around 2005 and now traps rarely have a positive catch. Forestry Division uses pheromone traps to detect increases in SPB abundance. Eighteen traps are set annually. Back in 2018, 26 were captured in Ashley County and one was captured in Columbia County. In 2019, zero SPB were captured.

Southern Pine Beetle Prevention Program

The Southern Pine Beetle Prevention Program continues to offer monetary incentives to landowners who thin overly dense pine forests. Landowners can apply for the program through local Forestry Division offices. The program currently offers incentives for first commercial thinnings, non-commercial thinnings, prescribed burns, and in-woods chipping. Logger incentives are also available for thinning harvests on tracts less than 40 acres.

***Ips* Pine Engraver Beetles**

In 2019, Ips beetles contributed to minimal losses of pine timber statewide. Unlike SPB, Ips beetles (*Ips calligraphus*, *Ips grandicollis*, and *Ips avulsus*) are considered secondary invaders that target injured or stressed trees. Frequent rainfall limited the occurrence of drought-stressed pine trees in Arkansas. Despite the good weather, sporadic infestations were still reported during the late fall months. In pine plantations of the South Central Plains, small and short-lived infestations (less than 20 trees) were observed. The most impactful losses occurred in the southern portion of the Mississippi Alluvial Plain where mature pine, predisposed by extremes of wet and dry weather, suffered rapid decline. These losses were a financial burden to communities, such as Eudora and Wilmot, where hazardous tree removal was necessary.

Emerald Ash Borer (EAB) Update

No new counties were confirmed in 2019. However, this does not mean the insect has slowed its expansion. Ash mortality is easily observed in the South Central Plains; it is possible to spot ash killed by EAB along interstate 30 between Arkadelphia and Hope. While APHIS-PPQ are responsible for quarantine regulation, multiple agencies assist with the detection and monitoring of EAB expansion. The Forestry Division investigated reported sightings across the state and used visual surveys. A limited supply of panel traps was deployed in key areas of the state. Arkansas has 23 EAB confirmed counties.

Redbay Ambrosia Beetle and Laurel Wilt Disease

Laurel wilt disease, caused by a fungus (*Raffaelea lauricola*), was discovered in Arkansas in December of 2015 on symptomatic sassafras trees. The tiny beetle that transmits the fungus, redbay ambrosia beetle (*Xyleborus glabratus*), was also identified at that time. Redbay trees are rare in Arkansas, but sassafras is a suitable host for the invasive disease and beetle. Sassafras is infrequent in southern Arkansas; however, it is common in the Ozark Mountains of northern Arkansas and Missouri. According to Forest Inventory and Analysis estimates, seedling and sapling size sassafras is more abundant in the Ozark highlands than anywhere else in the United States. The Forestry Division participated in a laurel wilt monitoring study led by the US Forest Service. Three permanent plots were established to measure disease progression and beetle presence. The disease has been confirmed in six Arkansas counties so far.

Arkansas Forest Health Calendar

January

- Recommended time to plant seedlings (Dec. – Mar.)
- Pine trees with red needles may be discovered that were killed late last year

February

- Start of 1st wildfire season (Feb. – Apr.)
- Prune trees during the window of time between the winter freeze and the spring flush

March

- Eastern tent caterpillar nests are seen on fruit and cherry trees
- Forest tent caterpillar defoliates various hardwoods (seen in large groups)
- Southern pine beetle detection traps are placed

April

- Emerald ash borer adults start emerging
- Loblolly pine sawfly defoliates pine
- May beetle defoliates oak
- Emerald ash borer detection traps are placed

May

- Peak adult emerald ash borer activity
- Damage from jumping oak gall of white oak is most visible
- Cogongrass blooms are most visible
- Gypsy moth detection traps are placed

June

- Variable oak leaf caterpillar defoliates hardwoods
- Pine tip moth damages easily observed (treat saplings multiple times from Mar. – Sept. since there are about 5 generations per year)

July

- Trees attacked by pine bark beetles (i.e., southern pine beetle, ips pine engravers, pine sawyers) now have red needles
- Emerald ash borer now in larval stage found under the bark until next April

August

- Fall webworm nests become more visible; remove now
- Start of 2nd wildfire season (Aug. – Oct.)
- Redheaded pine sawfly (later generations) defoliates pine
- Bacterial leaf scorch (common on maple and oak) more visible

September

- Fall defoliators of hardwoods, like walkingsticks, may be abundant
- Hypoxylon canker spreads between oaks (Aug. – winter); drought makes trees more vulnerable to hypoxylon, avoid wounding them

October

- Peak eastern pine weevil activity; avoid wounding pine or bush-hogging plantations
- Rake fallen leaves to prevent spread of some fungal diseases, such as anthracnose and other leaf spots

November

- The cumulative damages from *Ips* can be observed now; *Ips* activity declines due to cooler temperatures

December

- Pine needlecast fungus is observable; look for browning needles on living trees

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Link to Arkansas Department of Agriculture

The Arkansas Department of Agriculture is dedicated to the development and implementation of policies and programs for Arkansas agriculture and forestry to keep its Farmers and Ranchers competitive in national and international markets while ensuring safe food, fiber and forest products for the citizens of the state and nation.