



Georgia's Forest Health Highlights Report

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Forest Health Highlights

Summary:

The Forest Health Management Section provides expert forest health advice to a wide variety of citizens in the state including: consulting firms, industry, natural resource managers, landowners, and Georgia Forestry Commission (GFC) personnel. Our goal is to create cooperative partnerships meeting the needs of all landowners and forestry professionals throughout the state of Georgia.

Georgia Forestry Commission foresters incorporated insect, disease, or invasive species advice in 495 management cases involving 30,296 acres, and 253 Stewardship and Tree Farm Plans incorporated advice concerning forest health issues impacting over 65,000 acres. Training on Forest Health issues was provided to 47,976 Georgia citizens during 140 training sessions, these included a wide variety of outreach methods: field days, exhibits, demonstration plots, field training, hands-on education, and classroom presentations.

Special notes of interest:

➤ **Emerald Ash Borer:**

Emerald ash borer (EAB) was discovered in DeKalb and Fulton Counties, Georgia, in July 2013. Following the initial detection in Georgia; 1,071 traps were placed across 74 counties in north Georgia in high risk areas, including four state parks and three hardwood processing facilities. EAB has now spread to 9 additional counties and Gwinnett County was added under a state quarantine to aid in the disposal of regulated ash articles.

Quarantine efforts and regulations regarding the movement of unprocessed ash logs and firewood have been established. The quarantine now includes: Fulton, DeKalb, Walton, Henry, Clayton, Fayette, Rockdale, Newton, Whitfield, Cobb, Gwinnett, and Carroll Counties. The most up-to-date quarantine map: www.gfc.state.ga.us/forest-management/forest-health/eab/index.cfm

➤ **Pine Health Issues:**

In 2014 aerial surveys were conducted in two counties documenting pine mortality. The Georgia Forestry Commission's forest health staff conducted field visits documenting mortality of pine stands showing signs of pine health issues. The majority of the site visits revealed insect damage from southern pine engraver beetles (*Ips* species) and Heterobasidion Root Disease, but 24 sites were identified with pine health issues, and all sites are being considered for further pine health research by Dr. David Coyle, Professor at UGA Warnell School of Forest Resources.

➤ **Tremex Woodwasp:**

In 2012 the Tremex woodwasp (*Tremex fuscicornis*) was identified during warehouse trapping in Elberton, Georgia. The Georgia Forestry Commission takes this introduction very seriously since Beech, Poplar, Elm, Maple, Willow, and Oak are the preferred hosts in South America, and in north Georgia this list covers many of the primary species in the forest.

In 2013 and 2014 a series of early detection traps were established in the Elberton area to detect where populations of Tremex Woodwasp may have become established. In addition, a four page color brochure has been distributed, at warehouse sites, to provide educational literature and a protocol for the workers to follow if this woodwasp is found. No new suspect Tremex samples were collected in 2014.

In 2015, The Georgia Forestry Commission will continue trapping, for a third year, to detect populations of Tremex woodwasp that may have established near these warehouse sites.

➤ **Ice Storm Damage (February 2014):**

A winter storm impacted multiple southern states and more than 90 Georgia counties experienced winter precipitation, beginning February 11th and lasting through the 13th. Ice accumulation was measured between a tenth of an inch and one inch (or possibly higher) in a zone from roughly north metro Atlanta to Augusta in northern Georgia, and from Macon to Sylvania in central Georgia. GFC foresters evaluated the counties most heavily impacted by ice damage and developed estimates of damage based upon a combination of field work combined with a geospatial analysis of the affected region.

For the pine timber class, an estimated 70,000+ acres were impacted, valued in excess of \$65 million. The majority of these acres (61,000+) were in recently thinned pine.

➤ **American Chestnut Restoration:**

Dawsonville Chestnut Orchard

The Georgia Forestry Commission has partnered with the Georgia Chapter of The American Chestnut Foundation (TACF). The specially-bred chestnut seedlings, called Restoration Chestnuts 1.0, are part of a unique breeding program to restore the chestnut to the eastern forests of America. The partnership started with the planting of 20 pure American chestnuts seeds in a test plot at the Dawson Forestry Commission unit in March 2012.

In the summer of 2013, plans moved forward to start the Progeny Test Orchard with Restoration 1.0 Chestnut seedlings. The main challenge at this site is keeping competition from grasses to a minimum during the first couple of years of growth – and, of course, reducing animal damage. The orchard was planted in late November by a combined total of over 50 GA-TACF volunteers and GFC employees. The orchard is set up in 25 blocks of 24 trees each. This experimental design randomly distributes seedlings from the same 24 families in blocks throughout the orchard to account for micro-environmental differences in location within the orchard or differences in planting.

The first maintenance work, in spring of 2014, was an application of a pre-emergent weed control around each seedling. This was followed by a survival check after full leaf out, which showed 88% survival across the orchard with no pattern of death across the orchard or families. Currently, the orchard is being mowed regularly and an application of glyphosate was made around each seedling in the summer of 2014 to control competition.

The goal for the orchard is to provide data on field performance (growth rate, growth form, blight resistance, etc.) of individual trees to TACF's Research Farm. This will help TACF further select and breed lines for use in reforestation projects throughout the region.

Southern Pine Beetle Pheromone Trapping / Pine Beetle Aerial Survey

The Georgia Forestry Commission (GFC) participates annually in the southern pine beetle (SPB) trapping program. Insect traps are deployed in early spring by GFC foresters and are checked weekly for at least four weeks. In the spring southern pine beetle prediction survey, USDA Forest Service, Department of Defense (Fort Stewart), and Georgia Forestry Commission, established a total of 52 traps statewide. All prediction traps in Georgia indicated low SPB populations/activity for 2014. (See 2014 Southern Pine Beetle Prediction Map): <http://gatrees.org/forest-management/forest-health/pine-bark-beetles/2014%20Southern%20Pine%20Beetle%20prediction.pdf>

Two areas of the state have seen noticeable beetle activity this summer; Bryan and Glynn counties along the coast and Washington and Greene counties in the piedmont.

Nineteen Southern Pine Beetle spots have been detected across the state; for a total of 49.4 acres. Early detection flights began on July 9, 2014 when pine bark beetle activity was reported in Glynn County, Georgia. Aerial survey crews conducted a systematic survey of coastal Georgia and found active pine bark beetle infestations on Saint Simons Island - 10 spots (41.6 acres), Richmond Hill - 5 spots (3.7 acres), and Fort McAllister State Park - 1 spot (3.1 Acres). The Southern Pine Beetle spots in Washington - 2 small spots (.5 acres) and Greene Counties - 1 spot (.5 acres) were associated with the February ice storm damage.

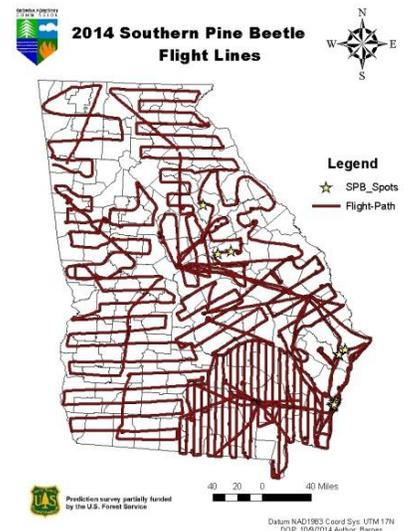
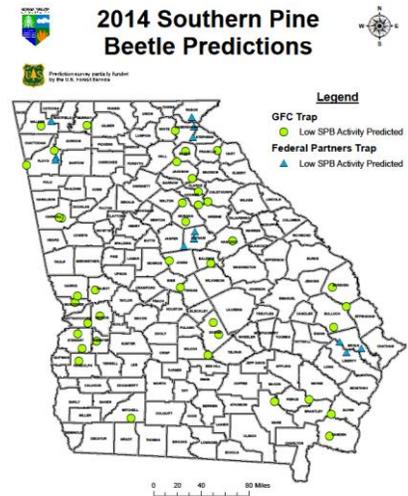
Ground crews conducted inspections of each area and determined the spots to be Southern Pine Beetle. Landowners were assisted in making sound management decisions, and each infested area has been harvested. Follow-up inspections were conducted to insure no infested trees were left with active beetles.

Heterobasidion Root Disease **Formally known as Annosum Root Disease**

Widespread mortality caused by Heterobasidion root disease in recently thinned pine plantations (slash and loblolly) was reported in 2005, and the disease continues to cause ongoing damage with new sites being reported in 2014.

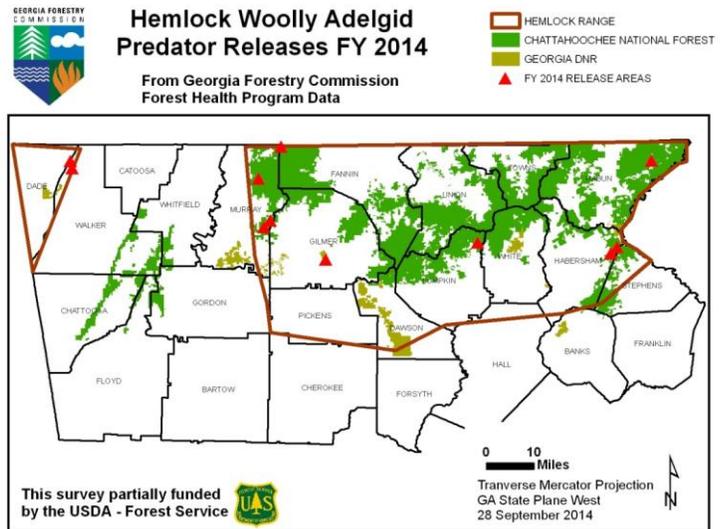
Georgia Forestry Commission field foresters perform the majority of field inspections, and the forest health staff supports the field foresters as needed. It was noted in 2013 and 2014 that the majority of the site visits, in west central Georgia, for Pine Decline were documented as insect damage from southern pine engraver beetles (*Ips* species) and Heterobasidion root disease. Many of these cases associated with pine health issues were found to be symptomatic for Heterobasidion root disease.

Georgia Forestry Commission field foresters recommend treatment of freshly-cut stumps in thinned stands with dry granular borax powder, such as Sporax® or water-soluble borate powder, such as Cellu-Treat® (disodium octaborate tetrahydrate). With Sporax no longer produced, there will only be the option of Cellu-Treat® as a viable treatment of thinned loblolly stands on deep sandy soil.



Hemlock Woolly Adelgid

Surveys for Hemlock Woolly Adelgid (HWA) focused on assessing predator beetle release areas and locating suitable foliage for predator beetle rearing labs. Georgia Forestry Commission provided assistance to the predator beetle rearing labs at University of Georgia, University Of North Georgia, Young Harris College, and Clemson University. Activities include scouting for and collecting foliage for rearing, scouting and preparing beetle release locations, and releasing beetles.



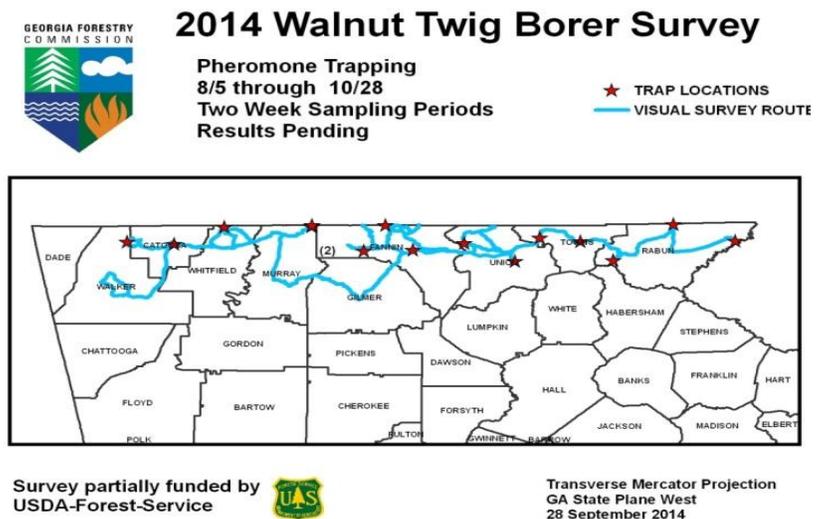
In FY2014, GFC assisted in scouting 17 sites and selecting 11 predator beetle release areas on the Chattahoochee National Forest(8), Georgia Department of Natural Resources Wildlife Management Areas(1), and secure land trust property(2). The GFC conducted predator beetle releases using *Laricobius nigrinus*, *Sasajiscymnus tsugae* and *Scymnus coniferarum*.

Georgia Forestry Commission continued to serve in an advisory capacity working with the Georgia Department of Natural Resources (DNR) to help survey and protect hemlocks on state lands (mainly state parks). Work this year focused on retreating priority areas in state parks previously treated and developing plans for chemical treatment and predator beetle releases in Cloudland Canyon State Park.

With the spread of HWA to the northwestern most counties, and waitlists in several other counties, six new backpack style soil injectors were purchased to distribute across the area. This brings the total number of injectors available to landowners to 10 kioritz injectors and 6 backpack injectors in 11 county offices. Injectors are now available in the following counties: Dade, Dawson, Fannin, Gilmer, Habersham, Lumpkin, Murray, Pickens, Rabun, Union and Walker.

Thousand Canker Disease

The Georgia Forestry Commission (GFC) forest health staff has been concerned about the rapid spread of the walnut twig beetle (*Pityophthorus juglandis*) (WTB) and the associated thousand cankers disease (ICD). This year marks the third year of pheromone trapping for WTB and trapping was expanded from twelve to fifteen locations, focusing closely on the counties sharing boundaries with Tennessee and North Carolina.



The survey began in early August and trapping will run through six 2 week observation periods. Results for all 2014 sampling periods show no walnut twig borer found to date.

Sudden Oak Death

2014 marks the 10th year for Sudden Oak Death (SOD) early detection program surveys with 10 watersheds chosen in north Georgia to monitor for the presence of the pathogen *Phytophthora ramorum*. In 2014, special focus was placed on watersheds in the south and southwest metro Atlanta area. Nine new early detection watersheds were selected in this area that have had no early detection sampling to date.

All stream sampling in 2014 was done using the bottle of baits (BOB) method. Four samples were taken from April 16th through May 21st, 2014. Results from these samples were negative for *P. ramorum* in all streams. Two additional 2014 samples were completed in October.

A vegetation surveys was conducted as a cooperative effort between Georgia Forestry Commission and USDA Forest Service to detect the presence of Sudden Oak Death symptoms along two streams. GFC personnel performed the vegetation surveys in June, and samples were submitted to Dr. SeongHwan Kim, Plant Disease Diagnostic Lab, for screening. To date all samples have returned negative for *P. ramorum*.

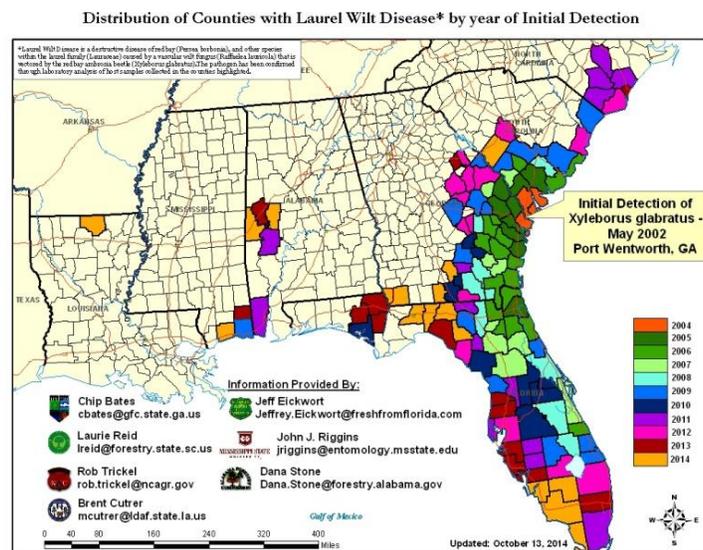
Laurel Wilt Disease

Laurel wilt disease (LWD) was introduced from Asia through the Port of Savannah in solid wood packing material. More recently, LWD has spread into redbay in the coastal plain of North Carolina and has been documented in distant, isolated locations in the panhandle of Florida, Alabama, Mississippi, and northern Louisiana, with the newest introductions being found exclusively in sassafras species.

The spread of LWD throughout the southeastern United States has been charted county-by-county since 2005. State cooperators and others report new confirmations to the GFC Forest Health Coordinator who updates maps and posts them on the USDA Forest Service Laurel Wilt website.

As of September 2014, the presence of LWD had been confirmed in a total of 44 counties in Georgia, mostly in redbay, but from early 2012 through September 2014, 7 of 13 new county detections were from sassafras trees in the absence of known redbay populations. The two most recent new county detections in 2014 were in sassafras from the southwestern corner of Georgia, likely a result of spread from an expanding disease episode in the panhandle of Florida.

The Georgia Forestry Commission continues to work with the USDA Forest Service and other partners to document the spread of this and other destructive nonnative invasive insects and diseases. A LWD training session was held in Bainbridge in August 2014 to prepare GFC foresters and technicians for continued survey and detection as LWD moves into new areas.



Early Detection Rapid Response

In 2014, the Georgia Forestry Commission perform early detection insect trapping around facilities accepting international cargo with solid wood packing material (SWPM).

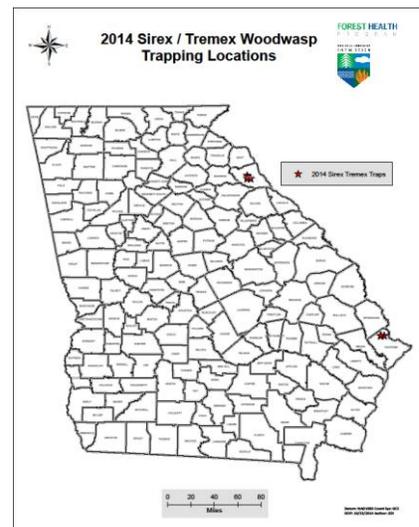
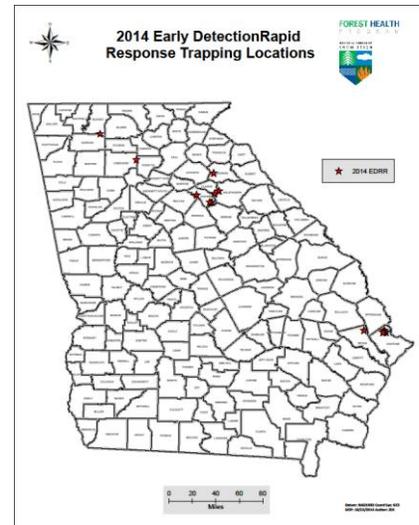
Fourteen sites were selected across the state. Twelve Lindgren funnel trap sites (36 Traps) were deployed in the Athens and Savannah area for the detection of nonnative exotic bark and ambrosia beetles around warehouse sites identified as high priority sites. Two additional sites (4 Traps) were selected in Murray and Cherokee Counties to conduct early detection trapping for a new, first introduction to the United States, bark beetle that has been determined to be of the genus *Ambrosiophilus* sp.

During the collection period, no new United States records were recorded, but in October 2014, it was reported that multiple catches of this new *Ambrosiophilus* sp. have been made in traps placed for Thousand Canker Disease survey. There appears to be approximately 30 miles between trap sites which would suggest this beetle is either far more common than first reported or there have been multiple introductions. In 2015 additional EDRR traps will be set in Murray County to determine the extent of the spread of this new United States first introduction.

Xyleborinus artestriatus was initially documented in 2010 near a warehouse in Port Wentworth, Georgia. In 2013 *X. artestriatus* was recovered in multiple traps and is considered to be established in the Savannah area. To date no damage has been documented on native vegetation in the area, and the preferred native plants have still not been determined.

New threats such as **Tremex woodwasp** (*Tremex fuscicornis*) have been introduced in international cargo with solid wood packing material (SWPM). These new pest introductions illustrate that increased global trade carries with it new challenges for our forest health program and emphasizes the importance of our early detection programs.

A series of panel insect traps were deployed at high risk warehouses receiving solid wood packing materials near Savannah and Elberton Georgia. Trapping began in June and was completed at the end of October. No *Sirex noctilio* or Tremex woodwasp have been captured to date.



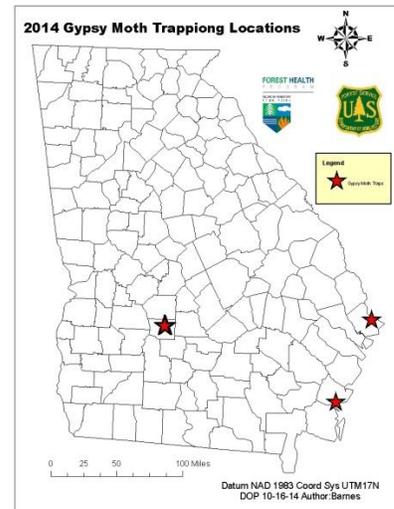
Gypsy Moth Survey

The Gypsy Moth is a serious forest pest capable of causing severe damage to hardwood trees, especially oaks. In cooperation with the USDA Forest Service, the Georgia Forestry Commission deployed traps to detect the presence of gypsy moth.

Accomplishments:

The Port of Savannah is the 4th largest port in the nation and Brunswick is the 6th largest automobile processing port in the nation. With this much overseas cargo, it was determined that these two ports justified Port Environment/Waterways surveys. 247 traps were established from the mouth of the Savannah River, through the waterfront of historic Savannah, and around the Port of Savannah to the Houlihan Bridge north of Savannah.

An additional 25 traps were established in Crisp County around the Cordele Intermodal Service (CIS) center. The CIS brings in containers, to the Crisp County area (Cordele), on rail from ports of entry, and then these containers are shipped around the United States. With the risk of egg masses being found on containers at the port it was decided to hang an additional 25 traps around this location to check for any moths that might come from the containers.

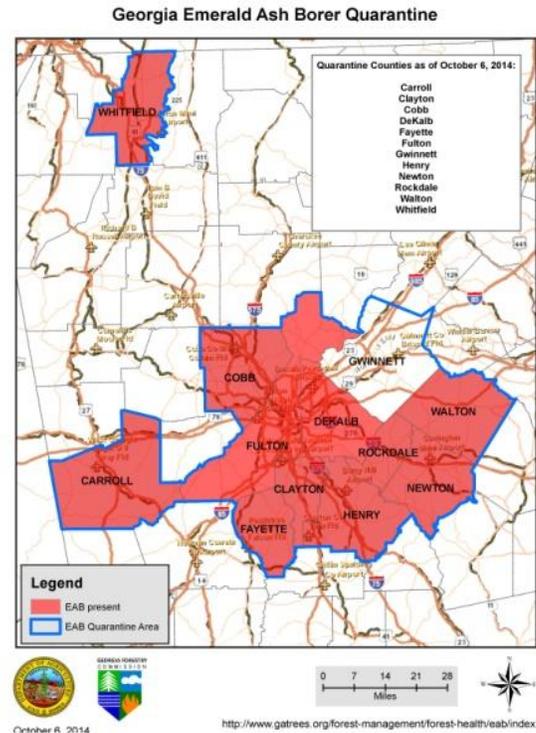


Emerald Ash Borer (USDA-Aphis Funded) 14-8213-0651-CA

EAB was discovered in DeKalb and Fulton Counties, Georgia, in July 2013. Following the initial detection of EAB; 1,071 traps were placed across 74 counties in north Georgia.

From this trapping, EAB was found in 9 new counties: Carroll, Clayton, Cobb, Fayette, Henry, Newton, Rockdale, Walton and Whitfield. A county level quarantine was established by state agencies in Georgia to slow the man assisted spread of Emerald Ash Borer. An additional quarantine was established to include Gwinnett County in the regulated area, bringing the total number of counties under quarantine to 12. Whitfield County appears as an outlier, but it is contiguous with Tennessee's EAB quarantine and allows the unrestricted movement of ash materials to the north.

The majority of the work that GFC conducted in the 2013-2014 fiscal year was coordinated closely with USDA-APHIS and the Georgia Department of Agriculture on determining quarantine boundaries and establishing the quarantine regulations for Georgia. State regulations were finalized by the Secretary of State's office in July 2014 and became effective in August 2014. GFC worked to develop a set of documents that explain the EAB quarantine regulations "In Plain Language". These documents include an explanation of the regulations (Emerald Ash Borer Regulations in Plain Language) and flow charts to determine when and where ash materials can be moved (EAB Decision Charts). All information and the most up-to-date quarantine maps are hosted on GFC's webpage (<http://www.gatrees.org/forest-management/forest-health/eab/index.cfm>).



The EAB Quarantine information was presented at the GFC's statewide forester meeting in September 2014 and is included in all Master Timber Harvester educational presentations.

Reference Documents for Emerald Ash Borer:

<http://gatrees.org/forest-management/forest-health/eab/index.cfm>

- Quarantine regulations for Georgia Forestry Commission
- EAB quarantine regulations "In Plain Language"
- EAB Decision Charts
- Quarantine Map
- Compliance Agreement Request