

Florida Forest Service Forest Health Highlights 2019



Forests of Florida

Florida's forests are expansive and diverse and include subtropical systems, baldcypress wetlands, pine flatwoods, pine-oak scrubs, gum-cypress swamps, coastal mangroves, isolated hardwood hammocks, and more extensive upland hardwoods. The state's mild climate, tourism industry, and many ports of entry also make it particularly vulnerable to the introduction and spread of non-native invasive species. Challenges to forest health in the Sunshine State are therefore myriad and complex. What follows are only a small sample of notable examples of Florida's forest pest and disease-related activities and scenarios from 2019.

Forest Health Section

The Florida Forest Service's Forest Health Section staff is constantly involved in countless technical assistance requests from a wide variety of recipients. This recipient list includes but is not limited to The International Society of Arboriculture, The University of Florida and the Cooperative Extension Service, The Division of Plant Industry, FFS personnel, Forest Industries, the Society of American Foresters, The Florida Forestry Association, Florida A&M University, Private Landowners, and others. The FH Section offered at least 12 presentations and training seminars in FY 18/19, to approximately 430 attendees. FFS Forest Health Section staff attended the Southern Forest Insect Work Conference, as well as the winter Southern Group of State Forester's Forest Health Committee meeting. The FFS Forest Health Section staff also provided identifications, diagnoses, and management recommendations regarding over 471 forest-health-related incidents statewide. In addition, the FH Section is in the process of developing and revising new and existing publications for public education and outreach regarding forest pests and diseases. One new leaflet (Post-Hurricane Pest and Disease Issues) was published in 2019.

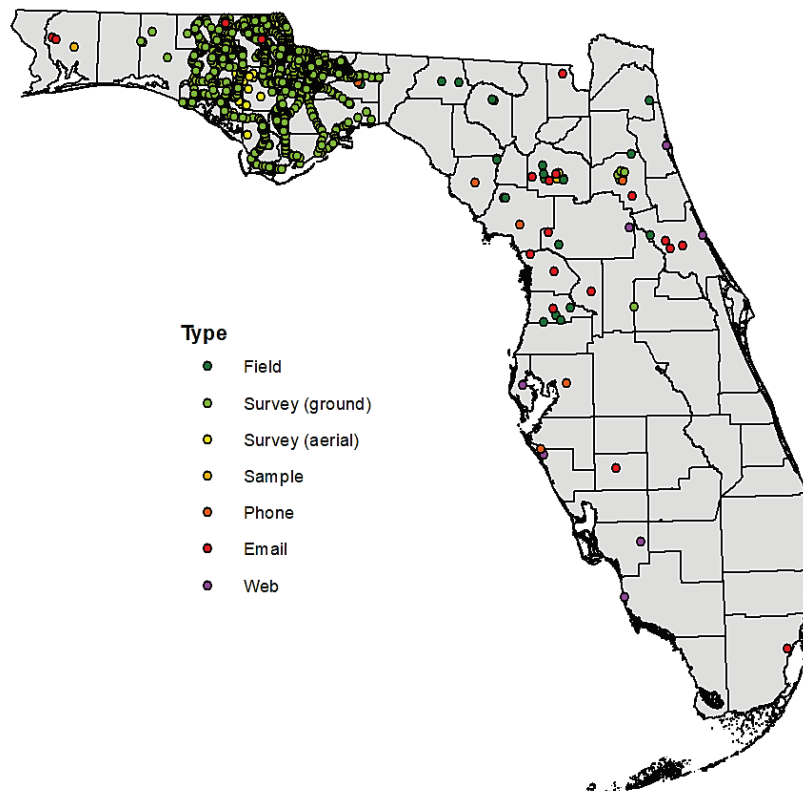


Figure 1. Locations (where recorded) of Forest Health-related assists performed by FFS Forest Health Section Staff, from October 1, 2018 to September 30, 2019. Note the large number of points in the Panhandle region, where extensive survey work was conducted to assess wind damage and bark beetle activity in the area impacted by Hurricane Michael.

Southern Pine Beetle Spring Pheromone Trapping Survey

The Southern Pine Beetle is one of the most destructive forest pests in the southern United States. Since 1995, the Florida Forest Service has participated in an annual statewide Southern Pine Beetle (*Dendroctonus frontalis*, or SPB) spring trapping survey. This survey monitors numbers of adult SPBs and their clerid predators captured in pheromone-baited flight traps during the SPB primary spring dispersal phase. The results are used as an early-season prediction of SPB population trends and activity levels, allowing forest managers to identify areas of potential SPB activity in advance of aerial detection flights. The survey also provides data for monitoring SPB population levels from year to year.

The annual survey to monitor SPB population levels was conducted from February to March 2019. The survey included 45 traps in 34 counties in North Florida. Relatively low numbers of SPB were detected in the survey locations (Figure 2). Collection data was submitted to Dartmouth College cooperators, for use in the new county-level SPB prediction model, which predicted low activity across most of the state (Figure 3).

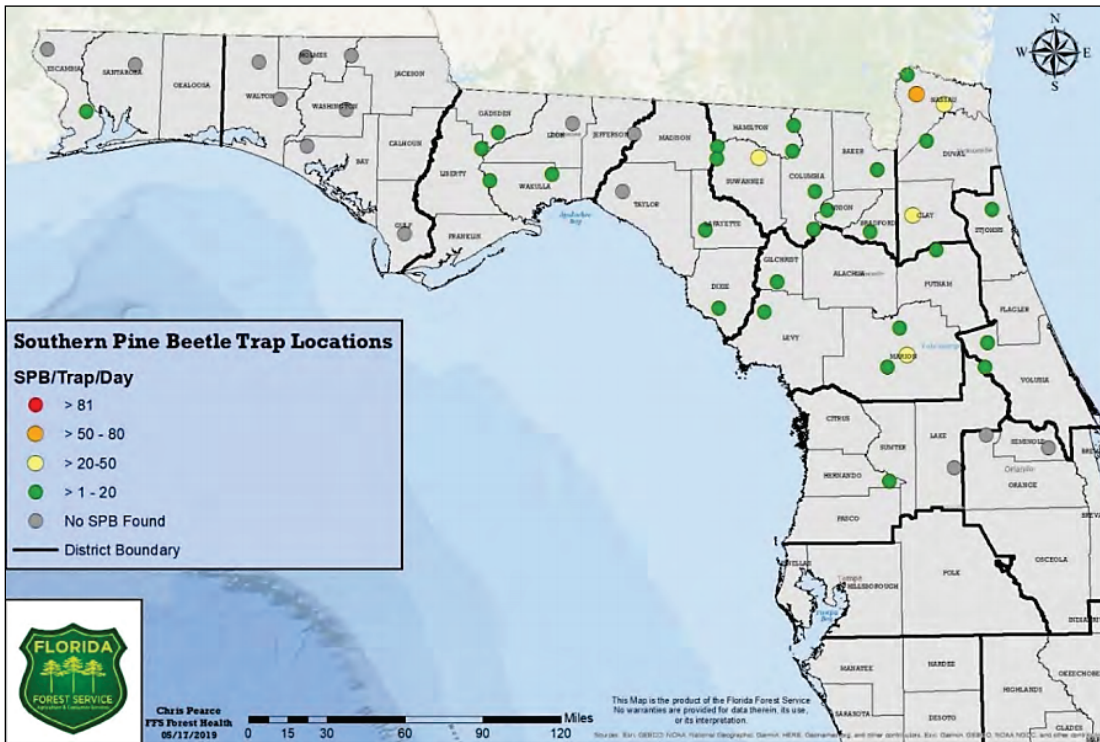


Figure 2. 2019 Southern Pine Beetle population levels (as SPB per trap per day) at each trap location.

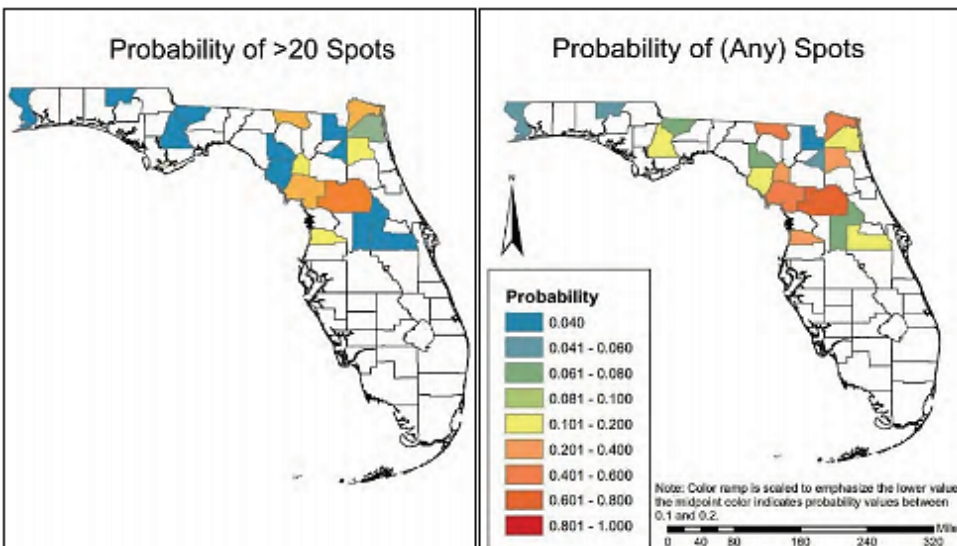


Figure 3. 2019 SPB county-level activity model prediction from Dartmouth College.

Southern Pine Beetle Surveillance and Activity

The annual aerial survey to detect southern pine beetle (SPB) infestations was conducted as usual in 2019. A total of 44 aerial surveillance flights have been flown logging over 13,000 miles during 96 hours of flight time. Total area surveyed for bark beetle surveillance flights is estimated at 43,000,000 acres (Figure 4). SPB activity in Florida decreased significantly in 2019. A total of 12 spots on 9 acres were detected, in Putnam and St. Johns Counties. FFS staff communicated closely with the affected landowners and managers to notify them of infestations and advise them on suppression activities.

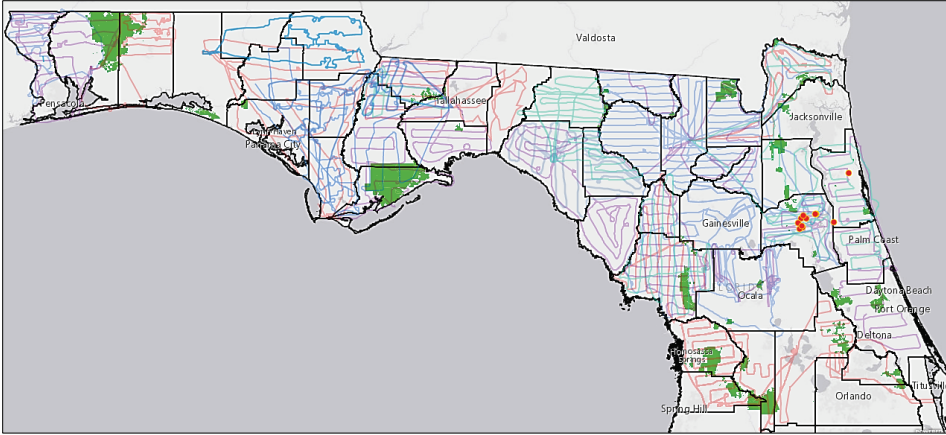


Figure 4. Flight paths (colored lines) covered by the SPB Aerial Survey program in Florida, and locations of SPB infestations (red points) detected as of November 15, 2019.

Hurricane Michael Damage Assessment Survey

Hurricane Michael struck Florida's Panhandle Region in October 2018, causing unprecedented devastation to forests across a large area. Following initial estimates based on remote methods, the FFS Forest Health Section initiated a ground assessment survey, adapting methods developed by the Georgia Forestry Commission for rapid collection of field assessment data using ESRI's Collector and Survey123 applications for mobile devices. An improved damage map was developed based on data collected at 743 locations using this method (Figure 5).

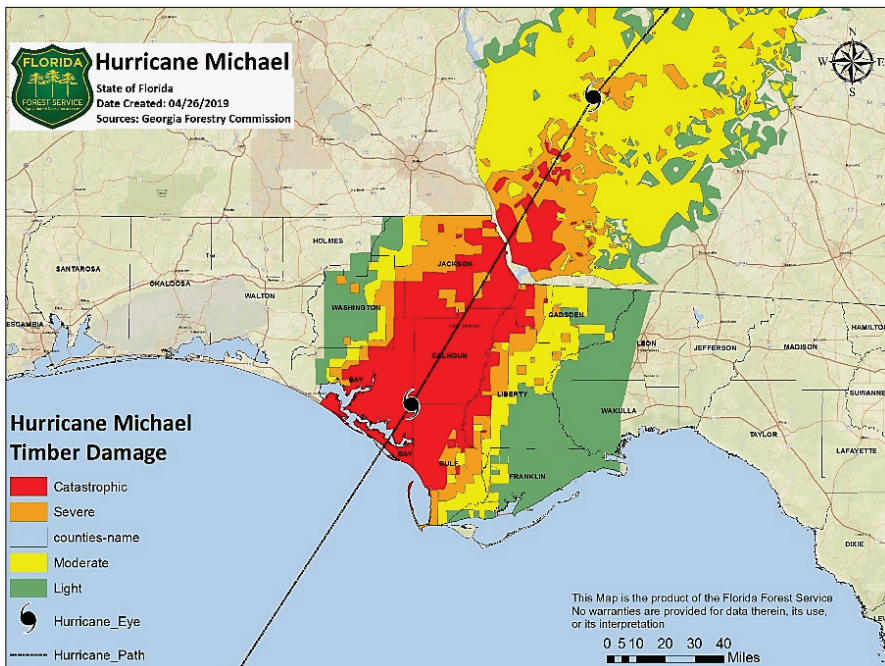


Figure 5. Results of the Florida damage assessment survey in area impacted by Hurricane Michael. Georgia data shown courtesy of the Georgia Forestry Commission.

***Ips* Engraver Beetles**

In the summer of 2019, many reports began to be received regarding pine mortality in the region impacted by Hurricane Michael, with associated infestations of *Ips* species. The FFS Forest Health Section began efforts to monitor the distribution and abundance of these bark beetles across the affected region, including a pheromone trapping survey (June-July 2019) to see how their population varied across the region (Figure 6), and both aerial and ground surveys (June through October 2019) to map the infestations (Figure 7). These surveys showed that *Ips* beetle populations and activity were elevated even well beyond the areas that experienced the most direct and severe wind damage during the hurricane itself. More infestations continued to be reported through the end of 2019, and more monitoring of this region is planned for the coming year.



(Above Picture) Young loblolly pines infested with *Ips* engraver beetles, due to wind damage sustained during Hurricane Michael.

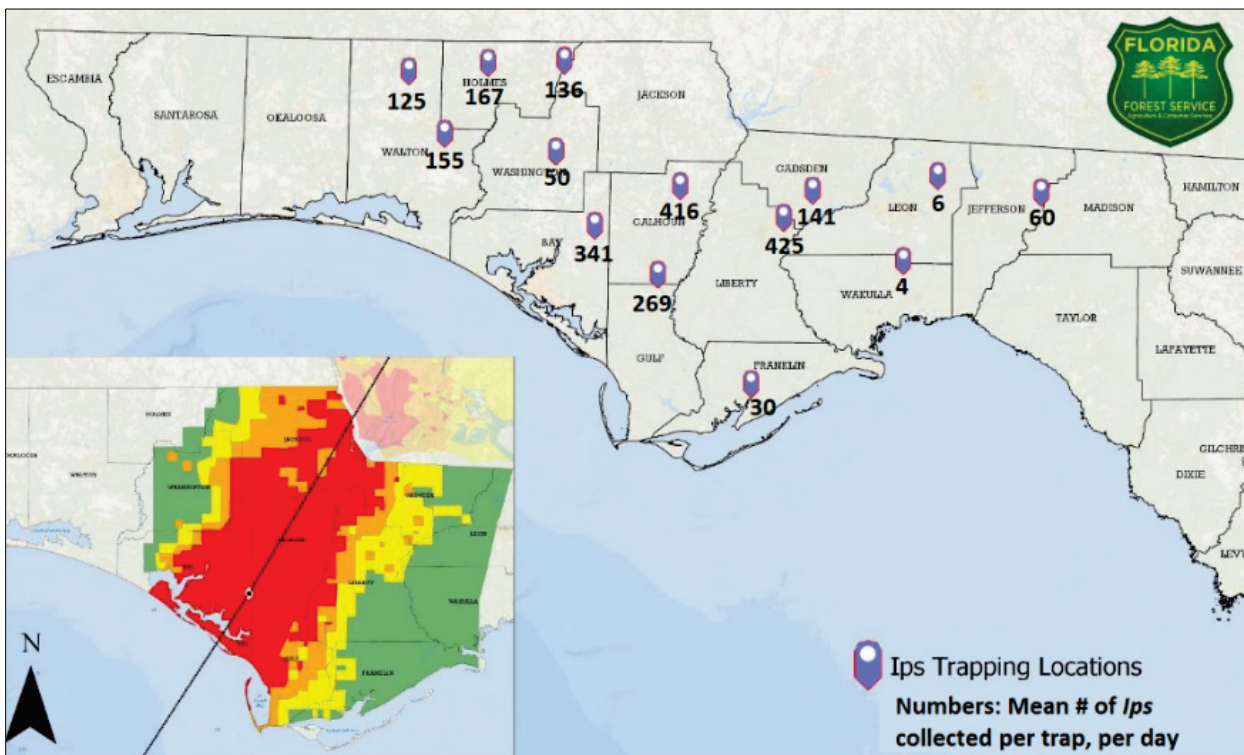


Figure 6. Locations and mean trap counts (beetles/trap/day) for the 2019 *Ips* engraver beetle pheromone trapping survey.

Ips Engraver Beetles Continued

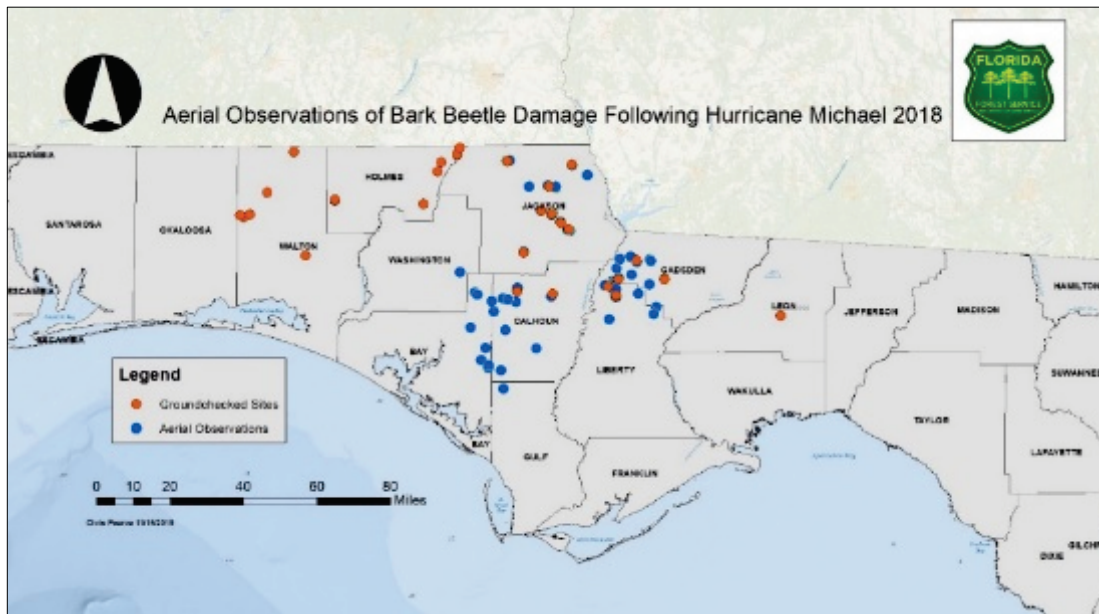
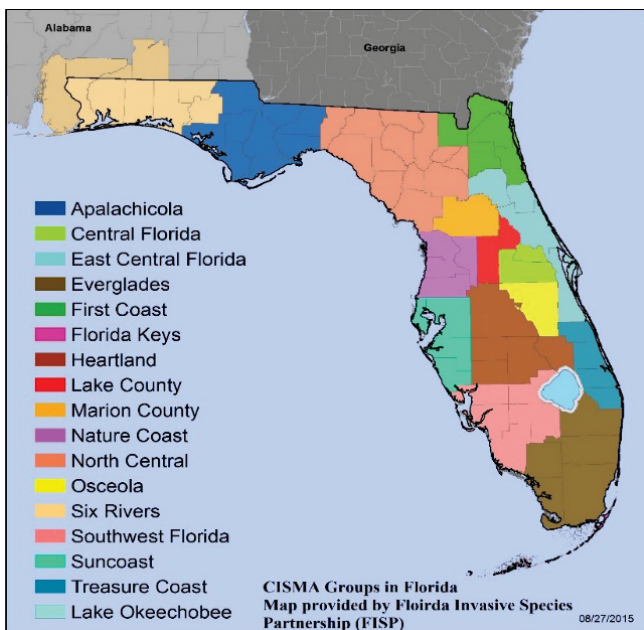


Figure 7. Locations of pine mortality with *Ips* infestations detected by aerial and ground checks, June-October 2019.

Non-native Invasive Plants

Non-native invasive plant species represent a substantial threat to forests and other lands in Florida; they can reduce forest productivity and diversity, degrade the value of the land for wildlife habitat and recreation, and increase the risks and effects of wildfires. As invasive plant problems often cross property boundaries, the Florida Forest Service advocates a partnership approach, cooperating with other public agencies and private land managers to address invasive plant problems across the landscape. This is exemplified by Florida's Cooperative Invasive Species Management Areas (CISMAs), representing voluntary regional partnerships between many public and private stakeholders, with the common goal of reducing the distribution and future spread of invasive species. These groups are supported at the state level by the [Florida Invasive Species Partnership](#).



Invasive Species Treatments

Funding from the Cooperative Forest Health Protection Program is used to support invasive plant survey and suppression efforts on selected State Forest lands. Exotic plant crews in these State Forests have treated at least 10,865 acres of invasive plant infestations in FY 18/19. Cogongrass (*Imperata cylindrica*) and Japanese climbing fern (*Lygodium japonicum*) continue to be widespread problems in many state forests. However, the largest areas treated this year were for melaleuca (*Melaleuca quinquenervia*) control projects in South Florida (964 acres), with Caesar weed (*Urena lobata*) in Central Florida ranking as a close second (925 acres).

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