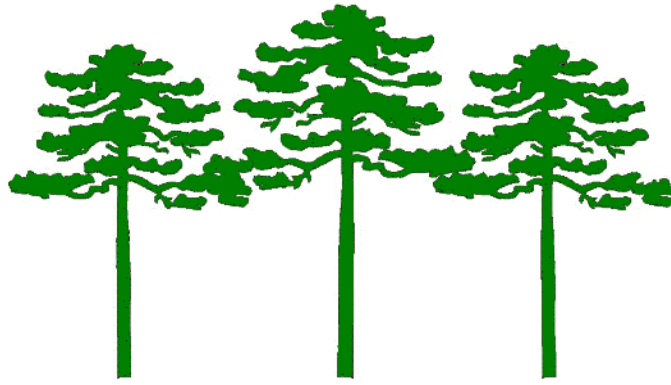




Florida Forest Service

Forest Health Highlights 2024



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 is only a small sample of notable examples of Florida's forest pest and disease-related activities and scenarios from 2024.

Forest Health Section

The Forest Health Section is the part of the Florida Forest Service (FFS) focused on pests, diseases, invasive plants, and other disorders that impact forests and shade trees statewide. They provide assistance and information to a wide range of private landowners, public land managers, and other stakeholders. They also survey and monitor pests, diseases, and other causes of forest damage, and conduct a range of related projects and programs. The FH Section's staff offered at least 12 presentations, workshops, field events, and training seminars in the 2023-2024 federal fiscal year, to approximately 376 attendees. They also recorded 726 activities in the form of survey observations, identifications, diagnoses, and management recommendations regarding forest-health-related incidents statewide (Figure 1). This included the documentation of 6 new county records, 5 new host records, and one new state record.

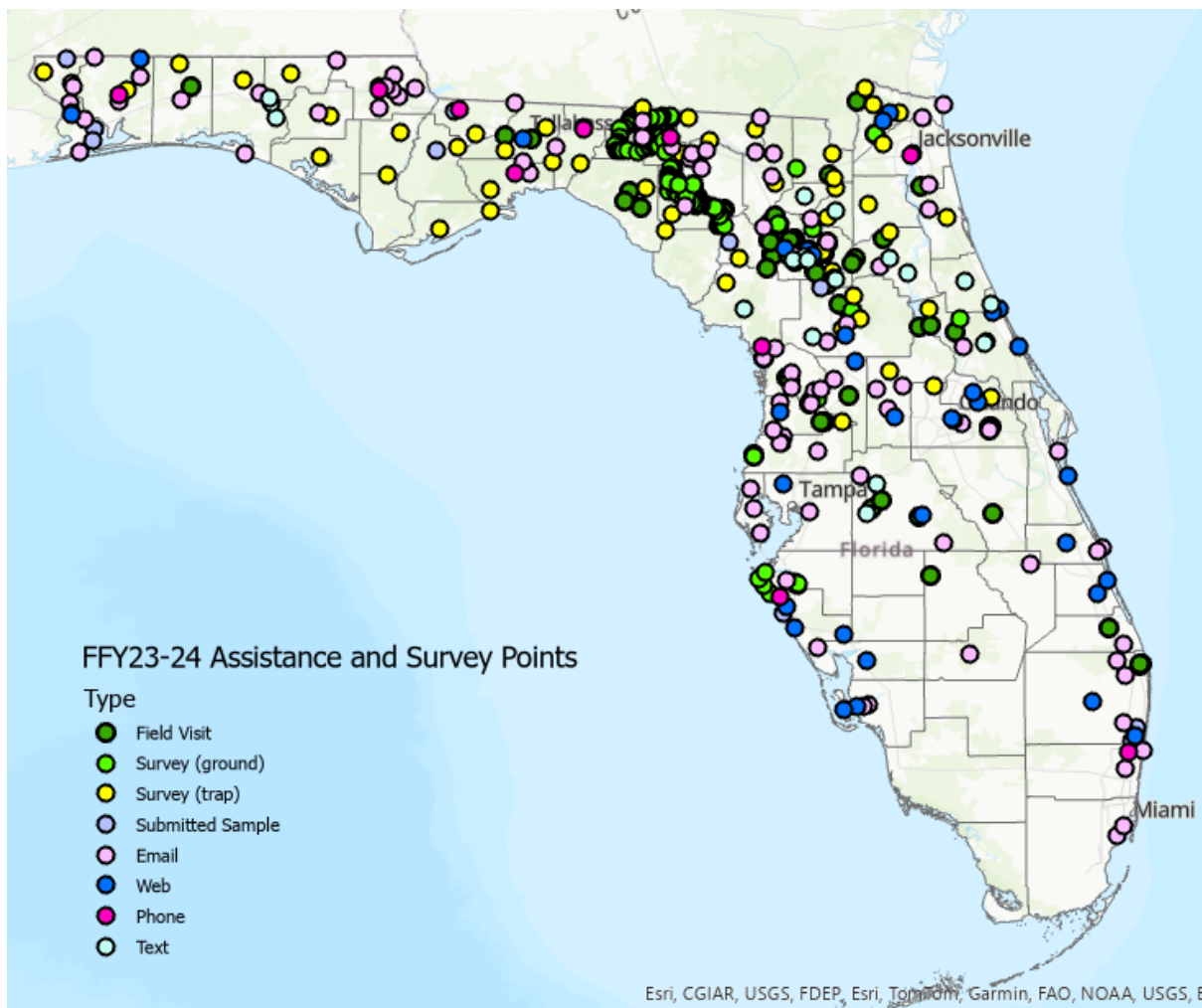


Figure 1. Locations of incidents reported and assists performed by FFS Forest Health Section Staff, from October 1, 2023 to September 30, 2024.

Hurricane Activity

Florida was impacted by three separate hurricanes in 2024. Hurricane Debby made landfall on Florida as a Category 1 Hurricane on August 5, 2024, and Hurricane Helene as a Category 4 storm on September 26, 2024. Both storms initially followed a path quite close to that of Hurricane Idalia in 2023. These were followed by Hurricane Milton, which made landfall as a Category 3 storm on October 9 before moving across the south-central Peninsula (Figure 2). Although all of these storms had major impacts on human communities and infrastructure in their paths, the most severe wind damage to forests was caused by Helene, which resulted in an estimated loss of nearly 8.9 million tons of timber valued at over \$114 million.

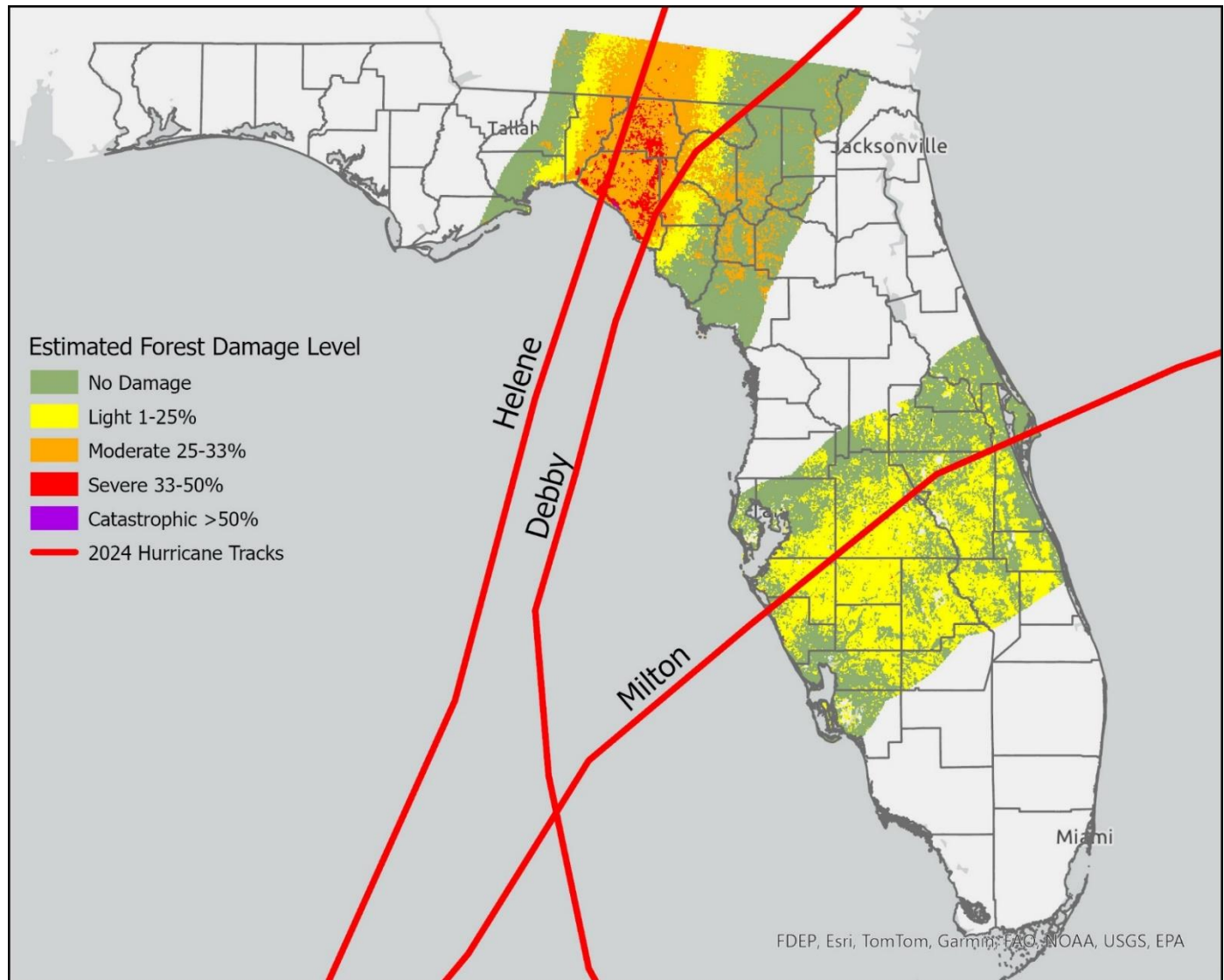


Figure 2. Paths of hurricanes that impacted Florida in 2024, along with the preliminary estimates of average forest damage (at 900-meter resolution) for Hurricanes Helene and Milton, based on the TreeS-DIP (ForestGALES) maps produced by the USDA Forest Service Geospatial Technology and Applications Center.

Initial model estimates of forest wind damage were produced by the USDA Forest Service Geospatial Technology and Applications Center. Following Hurricane Helen, Florida Forest Service staff collected direct visual survey observations, both at ground level and from aircraft, to validate and refine the model-based estimates. A total of 1,313 survey points were collected by ground crews, and two survey flights were conducted over the survey area (Figure 3). These observations generally supported the large-scale patterns predicted by the model estimates, although many differences were found at smaller spatial scales.

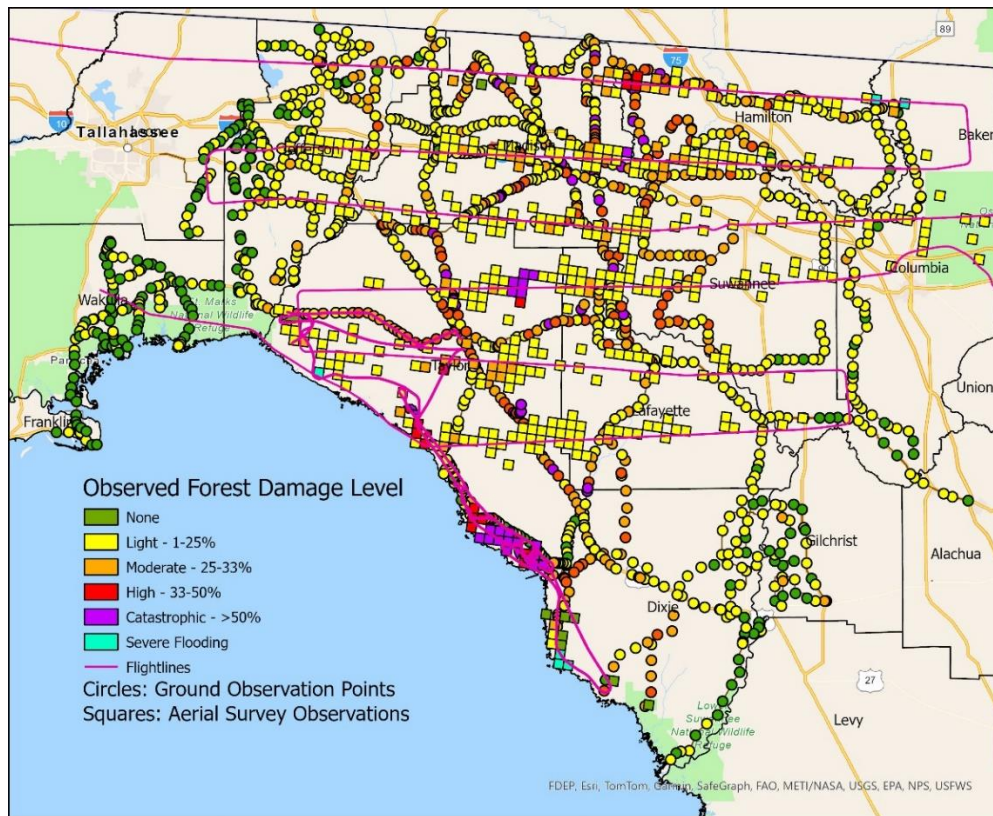


Figure 3. Ground observation points and aerial observations from surveys conducted in October 2024 by Florida Forest Service staff in the area impacted by Hurricane Helene.

Drought Mortality

From Fall 2023 to Spring 2024, unusual areas of tree mortality were observed in northern Escambia and northwestern Escambia County. This was related to the extreme drought conditions that occurred in the Southeast in the fall of 2023. Although the western Panhandle region of Florida was on the eastern margin of that “flash drought” event (which was centered in Louisiana and Mississippi, the conditions were still hot and dry enough to result in substantial die-offs of trees in many areas. Florida Forest Service field staff in that region recorded at least 54 areas of tree mortality, with many more scattered and individual trees affected through the region (Figure 4)

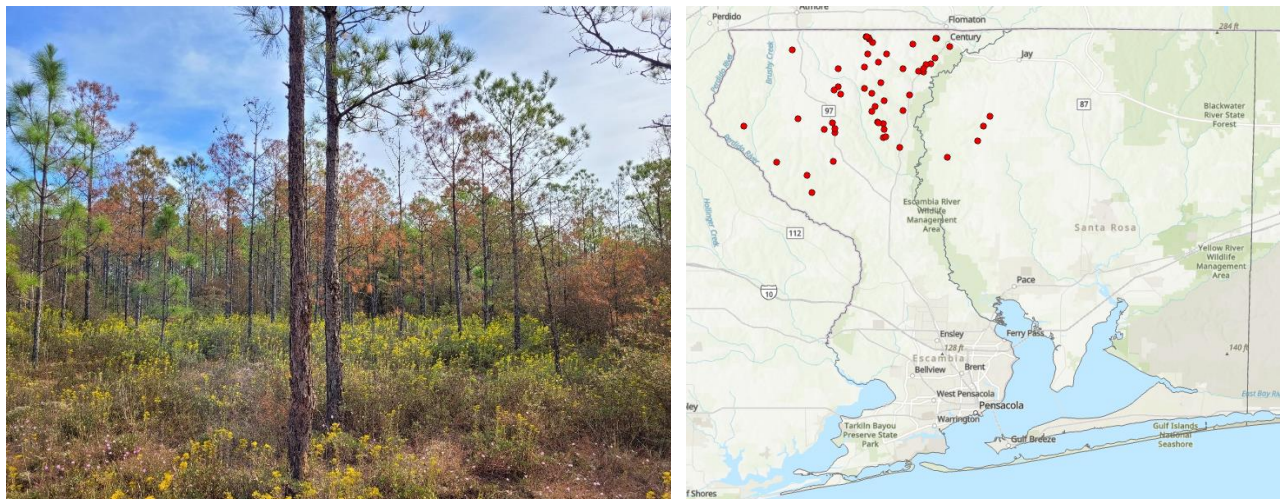


Figure 4. Left: areas of young pines dying due to severe drought stress in Escambia County, October 2023 (Image by Cathy Hardin, FFS). Right: Locations (red points) where unusual drought-related tree mortality was observed from Fall 2023 to Spring 2024.

Cypress Leaf Beetle and Cypress Looper

Beginning in June 2024, reports began to be received from public land managers in Orange County concerning areas of baldcypress and pond cypress (*Taxodium* spp.) with rapidly browning foliage. These trees were also covered with active swarms of small, yellowish-brown beetles. The cypress foliage was browning because these beetles fed by making short gouges into the needles, causing the rest to wilt and die (Figure 5). The beetles and their characteristic feeding damage were a close match for a “cypress leaf beetle” that was recorded as having outbreaks in Florida in the 1970s and 80s, identified then as *Systema marginalis*. However, beetle samples collected in this event were identified as a similar relative, *S. plicata*. This supports suspicions that the beetle may have been misidentified in previous events. The feeding activity had largely subsided by midsummer, at which point the trees had already begun to produce fresh foliage and recover.



Figure 5. Left: Foliage of a pond cypress (*Taxodium ascendens*) browned due to cypress leaf beetle feeding. Center: Pond cypress needles with gouges from feeding damage by the beetle. Right: An adult cypress leaf beetle (length: 4 mm).

Starting in late July 2024, dramatic browning of cypress trees began to be observed in another region of Florida, from an outbreak of a different pest: the cypress looper *Iridopsis pergracilis* (Figure 6). This is a native moth that feeds on cypress leaves in the caterpillar stage, and periodic outbreaks have historically occurred in which cypress trees are heavily defoliated across large areas of forest. As with the cypress leaf beetle, often part of the leaf is eaten while the remainder wilts and turns brown. Although severe and repeated defoliations can cause branch dieback, in most cases the trees are able to tolerate the feeding damage and recover. This year’s outbreak took place in and around Fisheating Creek Wildlife Management Area in Glades County, a location where outbreaks have been frequently recorded since the 1960s.



Figure 6. Aerial view of areas where cypress trees were turning brown due to feeding damage caused by the cypress looper in Glades County in July 2024. Image by Mac Stone.

Relámpago Blight

The FFF Forest Health Section has continued to collaborate with other state and university specialists to investigate a newly discovered fungal tree pathogen. Reports and samples of a new tree disease began to be received by the Forest Pathology lab at the University of Florida in 2019, caused by a then-undescribed fungus that spreads as bright white mycelial threads on the outer bark surface, resulting in death of leaves and branches on a very wide range of host species (Fig. 7). This disease became known by the common name “relámpago blight,” and by early 2022 it began to be reported in nurseries, urban landscapes, and forested areas in multiple counties. In 2024, an article was published which described and named the causal fungus as *Parvodontia relampaga*¹. Although it has currently only caused the death of small trees and branch dieback on larger ones, much about the potential impact of this fungus (as well as its origin and biology) is still largely undetermined. The Forest Health Section surveyed an estimated 221.5 acres and recorded 21 new survey observations for relámpago blight this fiscal year, including 3 new county records and 3 new host records.

¹Paez, C.A., Smith, J.A., Nakasone, K.K., Bec, S., Harmon, C.L., Urbina, H., Eickwort, J.M. and Smith, M.E., 2024. *Parvodontia relampaga* sp. nov.: A Cystostereaceae fungal pathogen that is the causal agent of relampago blight of woody plants in Florida, USA. *Fungal Biology*, 128(3), pp.1758-1770.

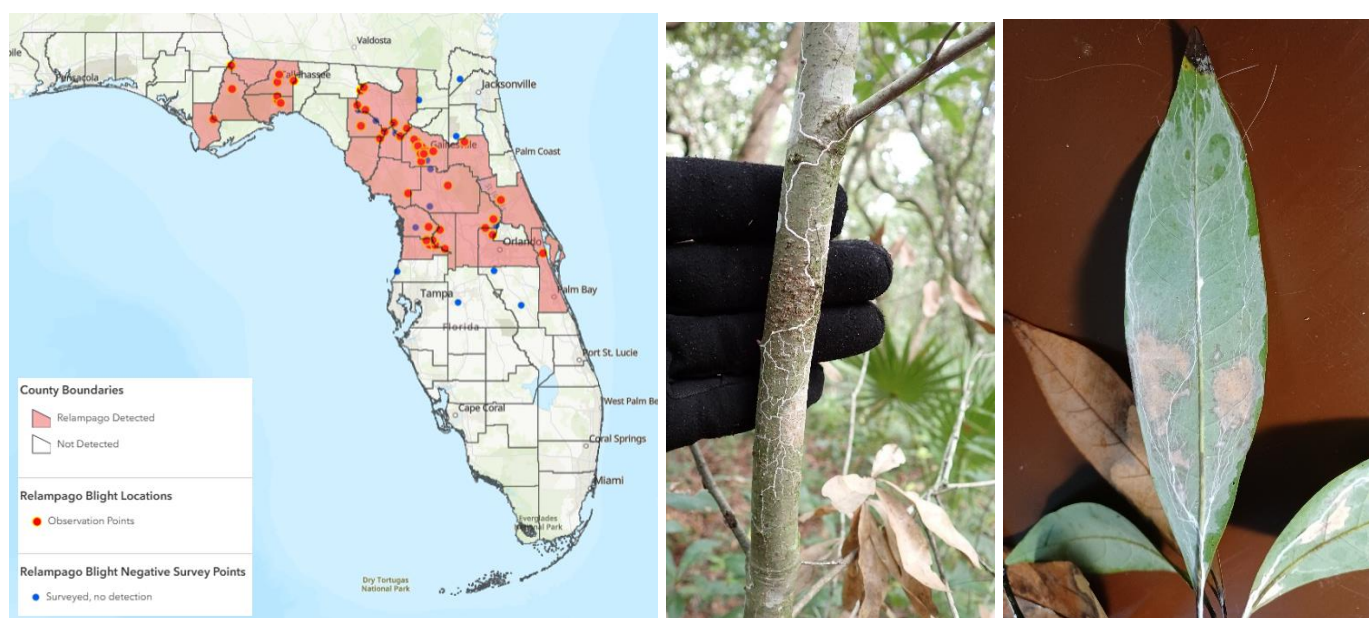


Figure 7. Left: Locations of confirmed infections of relámpago blight as of November 2024. Center: Oak tree stem with white mycelial threads of the relámpago blight fungus. Right: Growth of the fungus on the underside of a redbay tree leaf.

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 2024 trapping survey was conducted over 6 weeks at 57 locations across 40 counties in North Florida, corresponding to the historical range of SPB in the state. Relatively low numbers of SPB were collected across all locations surveyed. When these results were used with the regional SPB prediction model, a low risk of SPB activity was forecast for most of the state, with a slightly elevated risk predicted in Franklin, Liberty, and Wakulla Counties (Figure 8).

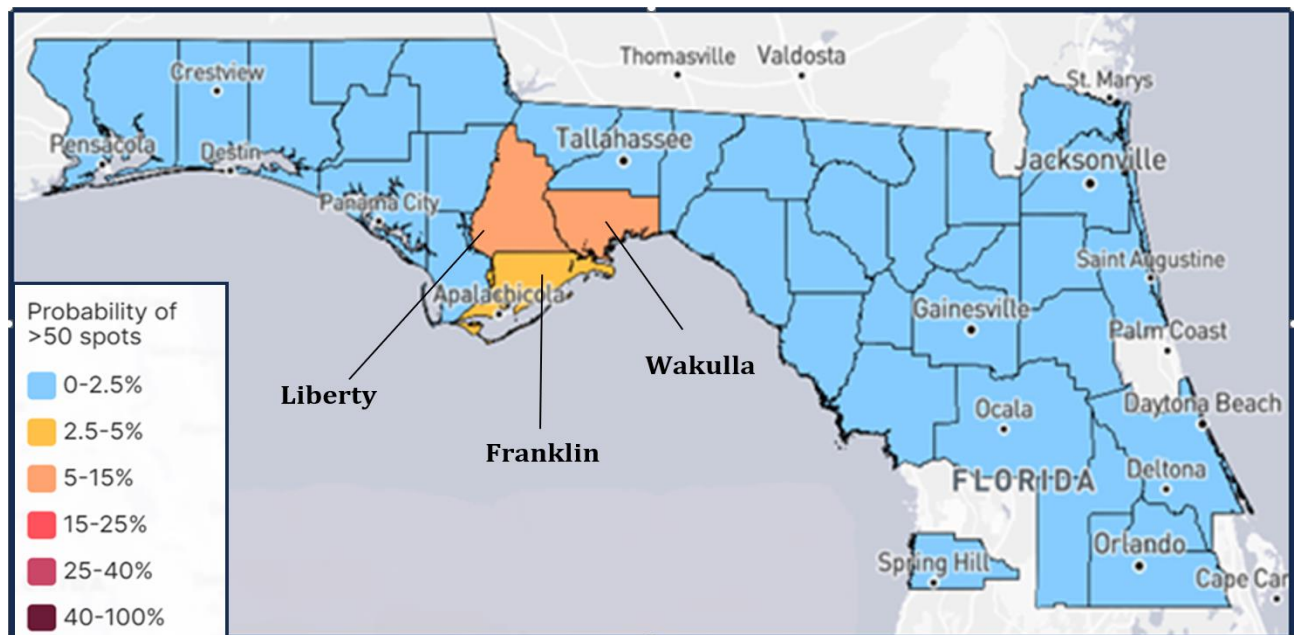


Figure 8. The forecasted risk of SPB activity for each county where traps were established in the 2024 Southern Pine Beetle Spring Pheromone Trapping Survey.

Southern Pine Beetle Surveillance and Activity

The routine annual SPB aerial survey was conducted over North Florida, from May through September 2024. In total, FFS pilots and field staff conducted 24 flights, logging 9,129 linear miles and covering an estimated 16,366,464 acres (Figure 9). Special attention was paid to checking areas where SPB had been active in 2022 and 2023. Any areas of suspicious pine mortality were investigated with ground checks. However, no confirmed SPB infestations were detected in the state during the 2024 season, consistent with the generally low numbers that were collected in the spring pheromone trapping survey. The neighboring states of Alabama and Georgia experienced extreme outbreaks of SPB in 2024, and the Florida Forest Service will remain alert for any evidence of that outbreak spreading into Florida in 2025.

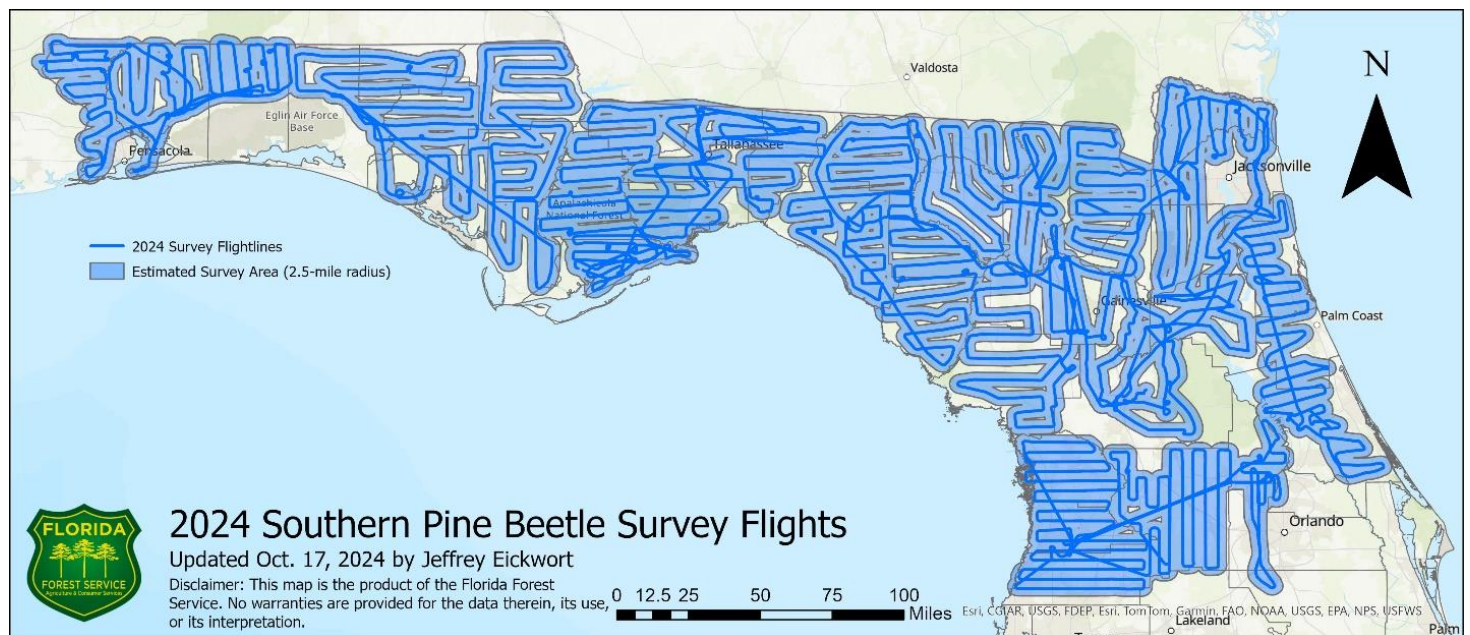


Figure 9. Flight paths covered by the SPB Aerial Survey program in Florida as of November 2024, including a 2.5-mile buffer to indicate the estimated area observed by the aircraft.

For Further Information, Please Contact:

FFS Forest Health Section Staff:

Jeffrey Eickwort (Entomologist and Supervisor); (352) 395 4689; Jeffrey.Eickwort@FDACS.gov

Brianna Benitez (Biologist and Survey Coordinator); (352) 395-4690; Brianna.Benitez@FDACS.gov

Rose Bency (Staff Assistant); (352) 395-4691; Rose.Bency@FDACS.gov

Allen Percifield (SPB Forester); (352) 395-4652; George.Percifield@FDACS.gov

Florida Department of Agriculture and Consumer Services

Florida Forest Service, Forest Health Section

1911 SW 34th St.

Gainesville, FL 32608

[Florida Forest Service Forest Health Website](#)

USDA Forest Service

Forest Health Protection, Southern Region (R8)

1720 Peachtree Road, NW

Atlanta, GA 30309

404-347-4095

[USDA Forest Service, Region 8 Forest Health Website](#)



Cover photo: Pines that were bent and broken by the winds of Hurricane Helene. Taken October 2, 2024 in Dixie County, FL.