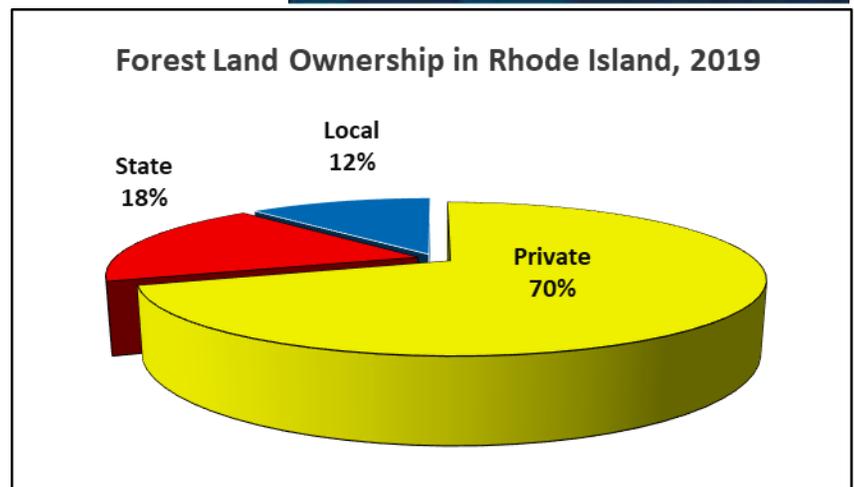
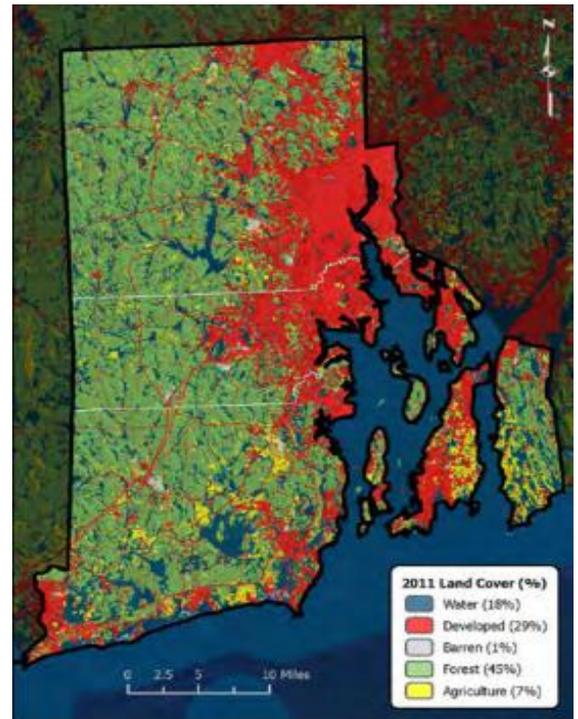




# 2020 Forest Health RHODE ISLAND highlights

## Forest Resource Summary

Rhode Island’s forests are 70 percent privately owned, largely by families and individuals who view their land as a source of enjoyment and a resource to be protected. Other private ownerships include corporate, tribal, conservation groups and clubs. The remainder of the forest land is in State or local town ownership. These forests are valued for clean air, protection of ground and surface water, wildlife habitat, wood fiber, and recreational opportunities. The 2019 Rhode Island forest inventory estimated that there are approximately 361,000 forested acres in the State. This area is less than the estimated 434,000 acres in the first forest inventory in 1952, and is a decrease of about 2 percent from the 2015 estimate of 368,000 acres. The forest resource is made up of many species, primarily oak, but also maple, pine, hemlock, birch, and other hardwoods. The predominant forest type group is oak-hickory.



“In the forest and wood products sector, 513 firms generated 2,496 jobs with \$408 million in gross sales in 2016. The total economic impact of the forest and wood products sector, including the spillover effects across all sectors of the Rhode Island economy, is estimated at \$716 million annually, with 4,844 jobs arising from this economic activity.”

-“[The value of Rhode Island Forests](#)” A Project of the Rhode Island Forest Conservation Advisory Committee and the Rhode Island Tree Council; 2020.

## Forest Canopy Defoliator Surveys

### Aerial Detection Surveys

Aerial detection surveys (ADS) were not flown this year due to restrictions necessitated by the COVID-19 pandemic. Rather, aided by online tools developed by the USDA Forest Health Assessment and Applied Sciences Team (FHAAST), and ForWarn satellite imagery, ground surveys were undertaken in areas of forest canopy exhibiting significant (>50%) “change of greenness”.

Fortunately, there was little evidence of damage to RI’s forest from forest canopy defoliators, nor any observable tree mortality. The change of greenness was attributed to abiotic factors (drought, and temperatures well above average) which caused early leaf and needle senescence.



Figure 3. Polygons of "change of greenness" >50%. (Map: RIDEM Forest Health Program).

## Ground Surveys

Ground surveys were undertaken to detect evidence of defoliation caused by Winter moth, Gypsy moth, and Orange-striped oakworm. There was no reportable damage or mortality due to these damage causal agents.

A survey of 140 plots for Gypsy moth egg masses yielded a single egg mass, a clear sign that the Gypsy moth outbreak of the last few years is over.

## Forest Health Special Projects

### Emerald Ash Borer

Detection surveys for Emerald Ash Borer (EAB) are conducted in cooperation between the Rhode Island Department of Environmental Management (RIDEM) and the University of Rhode Island (URI). While RIDEM's survey goal is to establish the limits of the area considered "infested", URI's goal is to monitor population densities and therefore identify locations for bio-control efforts.

### *Cerceris fumipennis* Biosurveillance Survey

The Emerald Ash Borer Biosurveillance Project continued to provide a

### Emerald Ash Borer Trap Program

RIDEM used the Green Lindgren funnel trap collection method to aid in delimiting the EAB infestation. When an EAB was collected from a trap, the trap was moved approximately 3 miles away and reset. This process was continued until no further EAB were captured.

In all, traps were set in 20 locations and 31 EAB were collected from 10 sites, all in Providence County. Traps set in Bristol and Newport counties did not yield any EAB.

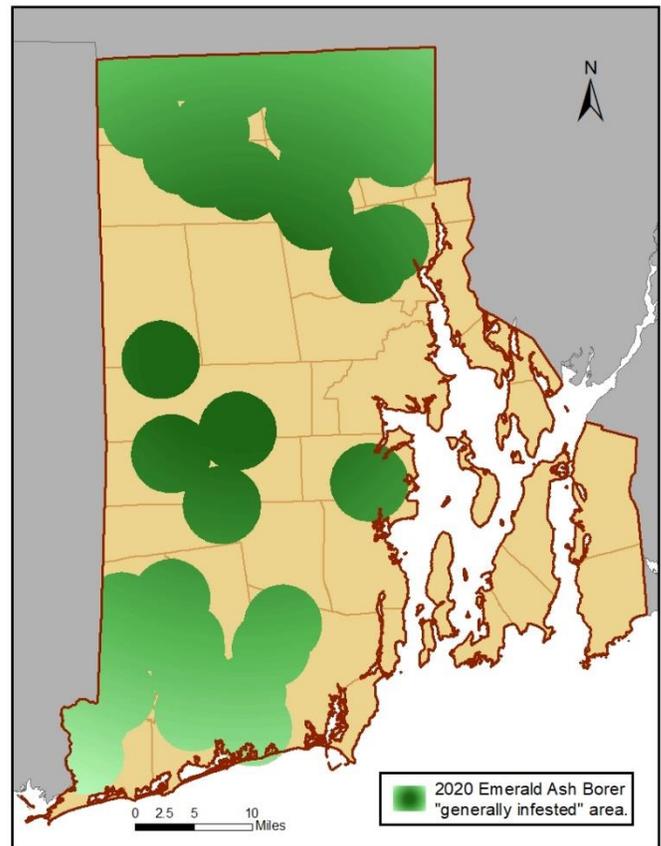


Figure 4. Areas considered "generally infested" are within a three-mile buffer of where an Emerald Ash Borer had been trapped, captured, or collected. (Map: Rhode Island Forest Health Program).

multipronged approach to detect Emerald Ash Borer. Surveys for active colonies and beetle collection were conducted, and where appropriate *Cerceris* wasps were captured in order to strip them of their prey. Altogether 19 sites were sampled, and 15 EAB beetles were collected from 6 sites.

URI installed traps in 27 locations and collected 9 adults from 5 sites in Washington and Kent counties. No EAB were collected from Newport county locations.

## Emerald Ash Borer Biocontrol Program

In 2020 URI established five EAB parasitoid release sites (three in Burrillville and two in Cumberland) and released 15,888 parasitic wasps. The releases included *Oobius agrili*, an egg parasitoid, and *Tetrastichus planipennis*, a larval parasitoid. Data collection will begin in 2021.



## Firewood Vector Analysis

As part of the invasive insect survey work in Rhode Island for emerald ash borer and Asian longhorned beetle, the RIDEM Division of Forest Environment visited 41 campgrounds, RV resorts, and other facilities where the movement of firewood was a concern. They supplied posters and information about Asian longhorned beetle and emerald ash borer including information about the “Don’t Move Firewood” program.

## Southern Pine Beetle Trapping

2020 was the 5<sup>th</sup> season of trapping Southern Pine Beetle (*Dendroctonus frontalis*) in Rhode Island. As in 2019 RIDEM and URI each set and maintained 5-black funnel traps each. Southern Pine Beetle were collected from 7 of the 10 traps, but in low numbers at each site (a low of 1 to a high of 17, Mean = 3).

The trapping program for southern pine beetle has identified a small population in Rhode Island’s pitch pine forest, but we have not experienced an outbreak during our trapping period.

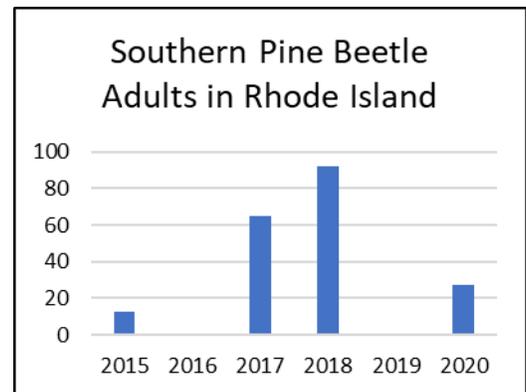


Figure 6. Number of southern pine beetles caught by year. (Graph: Lisa Tewksbury, URI).

## Other

### Beech Leaf Disease

A NEW infestation in Rhode Island (Hopkinton, Washington County). A declining Beech tree was identified as being infested with Beech leaf disease. A limited survey within 5-miles of the initial detection identified a total of 80 infested trees. URI established a permanent survey plot nearby and survey work and establishment of additional plots will continue next year.



*Figure 7. Leaf curl of beech infested with Beech Leaf Disease. (Photo: Fern Graves RIDEM).*

## Kudzu

A NEW infestation in Rhode Island (Charlestown, Washington County). Kudzu, colloquially known as “the vine that swallowed the south” or “Mile-a-minute vine” was reported by a private property owner to the Rhode Island Natural History Survey, where it was positively confirmed. The vine will be eradicated from the small half acre site. A survey of the surrounding area was undertaken but no further plants were found. As the property abuts a national wildlife refuge, the refuge manager has been notified and conducted a survey in that area but did not find any Kudzu plants. Plans are to monitor the vicinity for any additional detections.



*Figure 8. Kudzu vine on the ground. (Photo: David Gregg, RI Natural History Survey).*

## Forest Service Assistance

USDA FHAASST provided early warnings of significant change in greenness of forest canopy which led to further office and field investigation.

U.S. Forest Service Remote Sensing Specialist Bill Frament provided significant assistance to the Rhode Island Forest Health Program Coordinator in the analysis, development, and interpretation of ForWarn satellite imagery.

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## References

### Forest Land Ownership

USDA Forest Service. 2020. Forests of Rhode Island, 2019. Resource Update FS-242. Madison, WI: U.S. Department of Agriculture, Forest Service. 2p. <https://doi.org/10.2737/FS-RU-242>

### Rhode Island Forest Inventory

USDA Forest Service, Forest Inventory and Analysis Program, Fri Aug 14 18:43:16 GMT 2020. Forest Inventory EVALIDator web-application Version 1.8.0.01. St. Paul, MN: U.S. Department of Agriculture, Forest Service, Northern Research Station. [Available only on internet: <http://apps.fs.usda.gov/Evalidator/evalidator.jsp>]

### Land Use/Land Cover

RIGIS, 2011. Rhode Island Land Use/Land Cover. Rhode Island Geographic Information System (RIGIS) Data Distribution System, URL: <http://www.rigis.org>, Environmental Data Center, University of Rhode Island, Kingston, Rhode Island

### Change of Greenness Map

Rhode Island DEM Forest Health Program map



### Forest Health Programs

State forestry agencies work in partnership with the U.S. Forest Service to monitor forest conditions and trends in their State and respond to pest outbreaks to protect the forest resource.

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