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Forest Health Monitoring in Rhode Island 1996-1999



RHODE ISLAND

The National Forest Health Monitoring (FHM) program monitors the long-term status, changes and trends in the health of forest ecosystems and is conducted in cooperation with individual states.

In Rhode Island, four FHM plots were established in 1990 (Fig. 1). Each point in Figure 1 represents the status and approximate location of one FHM plot. Each plot is a set of four fixed-area circular plots. Most tree measurements are made on four 1/24-acre subplots. Seedling and sapling measurements are made on four 1/300-acre microplots, located within the subplots.

All plots were visited at least once between 1996 and 1999. This report summarizes the most recent conditions.

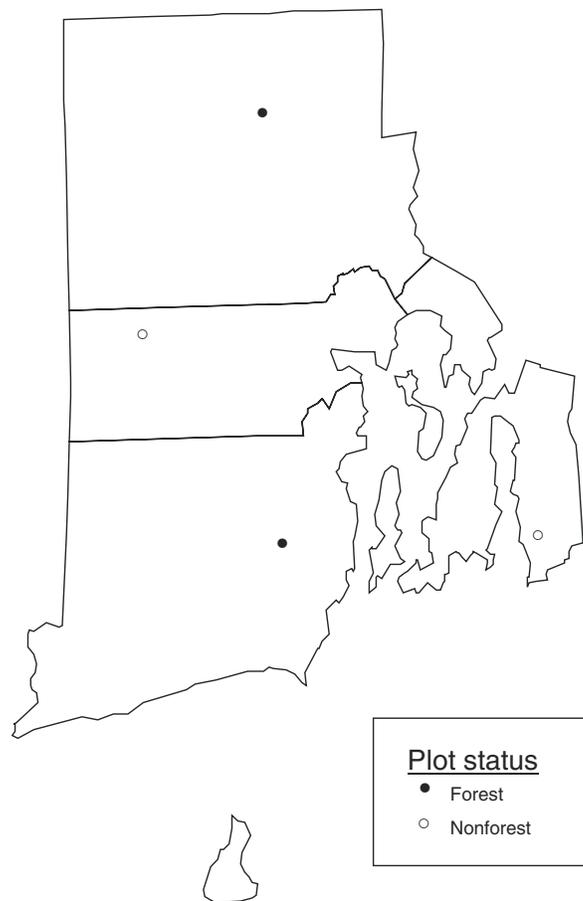


Figure 1. – Current status and approximate locations of Forest Health Monitoring (FHM) plots in Rhode Island.

Plot Characteristics

- Two of the four plots were forested.
- One plot was sampled in 1996 and 1999. It was fully forested in the elm-ash-red maple forest-type group. It was in a sawtimber-size stand that was over 60 years old.
- The other forested plot was sampled in 1997. It was in the aspen-birch forest type group. It was in a seedling-sapling stand that was 21 to 40 years old.

Plot Structure

Seedlings

- Tupelo/blackgum seedlings (12 inches tall, less than 1 inch diameter) were most abundant, accounting for 35 percent of the 37 seedlings counted.
- The four most abundant species groups collectively accounted for 86 percent of the seedlings. They were tupelo/blackgum, yellow birch, red maple, and white and green ash.

Saplings

- Red maple saplings (1 to 4.9 inches d.b.h.) were the most abundant, accounting for 70 percent of the 17 saplings counted. Tupelo/blackgum saplings accounted for 18 percent of the saplings.

Trees

- Red maple trees (5 inches d.b.h. or greater) were the most abundant, accounting for 31 percent of the 35 trees counted.
- The three most common species groups collectively accounted for 66 percent of the trees. They were red maple, select red oak, and white and green ash.

Tree Condition

Crown Dieback

Crown dieback refers to recent mortality of branches with fine twigs and is measured as a percentage of the tree crown. Low dieback ratings (5 percent or less) are considered to be an indicator of good health. High dieback ratings indicate poor health.

- 91 percent of the trees had low dieback ratings; average plot dieback was 2 percent.
- No trees had high dieback ratings (more than 20 percent affected crown).

Foliage Transparency

Foliage transparency is the amount of skylight visible through the live, normally foliated portion of the crown. Foliage transparency estimates the crown condition in relation to a typical tree for the site where it is found. Low transparency ratings (little visible skylight) indicate a full and generally healthy crown; high transparency ratings indicate a sparse crown. Transparency ratings of 30 percent or less are considered normal for most trees.

- Foliage transparency was normal on all trees; average transparency was 15 percent.

Crown Density

Crown density is the percentage of crown area where sunlight is blocked by crown branches, foliage, and reproductive structures. Crown density estimates crown condition relative to a typical tree for the site. Density also serves as an indicator of future growth. High density ratings (greater than 30 percent) indicate a full, healthy, crown.

- Over 97 percent of trees had high density ratings; average crown density was 52 percent.
- 9 percent of red maple trees had low density ratings. No other species had low density ratings.

Tree Damage

Signs and symptoms of damage were recorded if the damage could kill the tree or affect its long-term survival. The 11 categories of damage used in this report were: cankers and galls, decay, open wounds, resinosis and gummosis, cracks and seams, vines, dead or broken tops, broken branches, other bole and root damage, other crown damage, and other damage (not otherwise defined).

- 86 percent of trees had no significant damage, 6 percent had one damage, and 8 percent of the trees had two damages.
- Five of eight damages were decay; two were dead or broken tops; and one damage was in the canker and gall type.
- 27 percent of red maple (three trees) had one or more damage; three of five damages were decay and two were dead or broken tops.

Summary

Most of the trees that were sampled were healthy, with full crowns (low transparency, high density), little dieback and little damage. However, it should be noted that this conclusion is based on sampling limited numbers of trees on two partially forested plots. The number of plots in Rhode Island on which forest health is collected has been increased and future reports will present a more complete picture of the state's forests.

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