

Nantucket Pine Tip Moth Infests Longleaf Pine Seedlings in a North Carolina Nursery

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An infestation of Nantucket pine tip moth (*Rhyacionia frustrana* Comstock) was found in spring-seeded longleaf pine (*Pinus palustris* Mill.) seedlings in a North Carolina Division of Forest Resources nursery. Infestation began in newly emerged seedlings, eventually resulting in death. About 3.59% of the spring-seeded crop was affected. *Tree Planters' Notes* 45(3):86-87; 1994

During the week of June 20, 1994, a routine inspection of longleaf pine (*Pinus palustris* Mill.) seedlings in Claridge Nursery (Goldsboro, North Carolina) revealed seedling buds infested with insects. On June 29, during a followup evaluation, plots were taken to determine causal agent and extent of damage.

Methods

Infested seedlings were dissected and any insects found were saved for identification. Magnitude of damage was determined by randomly dropping a 2-ft² (.19-m²) counting frame across longleaf pine beds and then counting healthy and infested seedlings inside the frame. This procedure was repeated 151 times. Counts were added and percentage infestation was derived by dividing number of infested seedlings by total number of seedlings inside the frame. Percentage infested was then multiplied by the number of seedlings in the nursery to estimate total damage.

Results and Discussion

Late-instar larvae and pupae collected from damaged longleaf pine seedlings were identified as Nantucket pine tip moth (*Rhyacionia frustrana* Comstock, figure 1). Longleaf pine had not been reported as a host for the species (Anon 1985, Yates 1960).

Longleaf pine seeds are planted at Claridge Nursery twice each year, once in the fall (mid-September) and again in the spring (mid- to late April). Examination of fall-seeded plants revealed no damage, but damage was visible in springseeded trees.

Based on information about the Nantucket pine tip moth's life cycle (Yates 1960) and on seedling age



Figure 1—Larva of Nantucket pine tip moth on longleaf pine seedling.

when the infestation was first noticed, oviposition must have occurred shortly after the seedlings emerged, probably about the time they shed their seedcoats. Attacking larvae hollowed out chambers inside terminal buds, killing surrounding needles. Four or 5 dead needles were evident around each afflicted bud, surrounded by healthy needles. Gradually, the larvae bored downward from the terminal bud, killing more needles; by the time of pupation, most seedlings were dead. Pupation occurred in the stem or root system of the seedling, either near or just below ground line. The loss at Claridge Nursery was estimated at 3.59% of the spring-seeded crop, or about 168,119 seedlings. In addition to infestation in field-grown stock, we observed scattered infestation of containerized longleaf pine seedlings of about the same age as the field-grown seedlings.

In view of its magnitude, we suspect that the problem was not new to the nursery. Because infested seedlings are so small, damage may well have been misdiagnosed at first as postemergence damping off. Nursery managers producing longleaf pine seedlings should pay particular attention to mortality in young seedlings. If damage is caused by Nantucket pine tip moth, and if economic analysis indicates that control measures are warranted, a carefully timed application of a currently registered insecticide should reduce damage to acceptable levels.

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Literature Cited

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- Yates HO III. 1960. The Nantucket pine tip moth, a literature review. Paper No. 115. Asheville, NC: USDA Forest Service, Southeastern Forest Experiment Station. 19 p.