

Pine Webworm, *Pococera robustella* (Zeller) (Insecta: Lepidoptera: Pyralidae)¹

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The Featured Creatures collection provides in-depth profiles of insects, nematodes, arachnids and other organisms relevant to Florida. These profiles are intended for the use of interested laypersons with some knowledge of biology as well as academic audiences.

Introduction

The pine webworm, *Pococera robustella* (Zeller), is a common defoliator of pines in the eastern United States. Infestations commonly occur on young (one- to two-year-old) pine seedlings, but larger seedlings and branches of mature pines can also become infested. The conspicuous larval nests of the pine webworm can substantially reduce the aesthetic and commercial value of pines grown as Christmas trees or ornamentals (Wallesz and Benjamin 1960). Although severe defoliation can kill first year pine seedlings (Merkel and Hertel 1976), defoliation in plantations and natural forests rarely results in mortality or significant damage, with impact generally limited to reduced seedling growth on stems less than 0.6 m tall (Hertel and Benjamin 1977, USDA Forest Service 1989).

Distribution

The pine webworm occurs in southern Canada and throughout most of the eastern half of the United States from New England to Florida and west to Wisconsin and Minnesota (USDA Forest Service 1989; Johnson and Lyon 1991).

Description

Adult

The adult is a small gray to brownish moth with a wingspan of 22 to 25 mm (1 in). The basal third of the forewing is dark gray to black (paler at extreme base), with the remainder of the forewing pale gray, and becoming darker gray toward the outer half. The hind wings are brown with darker shading toward the outer margin (Wallesz and Benjamin 1960, USDA Forest Service 1989).

Egg

The egg is 1 mm (< 1/16 in) long, ovoid, flattened, and cream to bright yellow in color.

Larva

The larva is 13 to 18 mm (0.5–0.7 in) long when mature. The body is light brown with darker longitudinal stripes, while the head is light brown with black pigmented markings.

Pupa

The pupal case is a flattened ovoid cocoon measuring 12 × 8 mm (0.5 × 0.3 in), covered with packed sand grains and lined with yellow silk.

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Figure 1. Adult female pine webworm, *Pococera robustella* (Zeller).
Credits: Jim Vargo



Figure 2. Adult male pine webworm, *Pococera robustella* (Zeller).
Credits: Jim Vargo



Figure 3. Larva of the pine webworm, *Pococera robustella* (Zeller).
Credits: Connecticut Agricultural Experiment Station Archives, www.forestryimages.org



Figure 4. Frass nest of older larvae of the pine webworm, *Pococera robustella* (Zeller).
Credits: Connecticut Agricultural Experiment Station Archives, www.forestryimages.org



Figure 5. Frass nest of older larvae of the pine webworm, *Pococera robustella* (Zeller).
Credits: Robert L. Anderson, USDA Forest Service; www.forestryimages.org

Biology

The number of pine webworm generations per year varies from three in northeast Florida (Hertel and Benjamin 1979) to one in the northern part of the insect's range (Wallasz and Benjamin 1960). In Florida, adults can be found from April to October, with peak trap captures in June. Female moths lay small masses of one to 10 overlapping eggs on the flat surface of host needles. Young larvae (1st through 3rd instars) mine the needles, whereas older larvae (4th through

6th instars, and occasionally 2nd or 3rd instars) construct and share a common frass nest on a branch or main stem. Larvae either partially or completely exit the nest to clip needles that they bring back into the nest to consume. Mature larvae eventually move to the ground and spin cocoons in which they pupate (Hertel and Benjamin 1979).

Hosts

Reported hosts include the following pine species:

- eastern white (*Pinus strobus* L.),
- jack (*Pinus banksiana* Lamb.),
- loblolly (*Pinus taeda* L.),
- longleaf (*Pinus palustris* Mill.),
- pitch (*Pinus rigida* Mill.),
- red (*Pinus resinosa* Ait.),
- sand (*Pinus clausa* (Chapm. ex Engelm.) Vasey ex Sarg.),
- Scots (*Pinus sylvestris* L.),
- shortleaf (*Pinus echinata* Mill.),
- slash (*Pinus elliotii* Engelm.), and
- Virginia pine (*Pinus virginiana* Mill.)

(Wallez and Benjamin 1960, Merkel and Hertel 1976).

Recognition of Damage

Pine webworms produce a conspicuous globular mass of brown fecal pellets and needles held together with silk webbing. This frass nest is typically 5 to 15 cm (2–6 in) long, with its size depending on the number of larvae contributing to its formation. Affected seedlings and shoots may also exhibit missing foliage and stubs of partially eaten needles.

Management

In forests, the pine webworm is not a serious pest and typically does not warrant control. Populations of the pine webworm are regulated in part by its natural enemies, including several species of parasitic wasps (Hymenoptera: Eulophidae, Braconidae, Chalcididae, Ichneumonidae), parasitic flies (Diptera: Tachinidae), assassin bugs (Hemiptera: Reduviidae), and birds (Wallez and Benjamin 1960, Hertel and Benjamin 1979).

Studies examining possible relationships between site preparation intensity and pine webworm infestation levels have been inconclusive (Hertel and Benjamin 1977). Frass nests containing larvae can be hand picked and destroyed. Removing vacated nests may improve aesthetics, but it provides no population control. Pine webworm larvae may be killed by spraying occupied nests with an approved insecticide. If infestation levels are excessive and chemical control is desired, consult your local UF/IFAS Extension office for current insecticide recommendations.

Selected References

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