

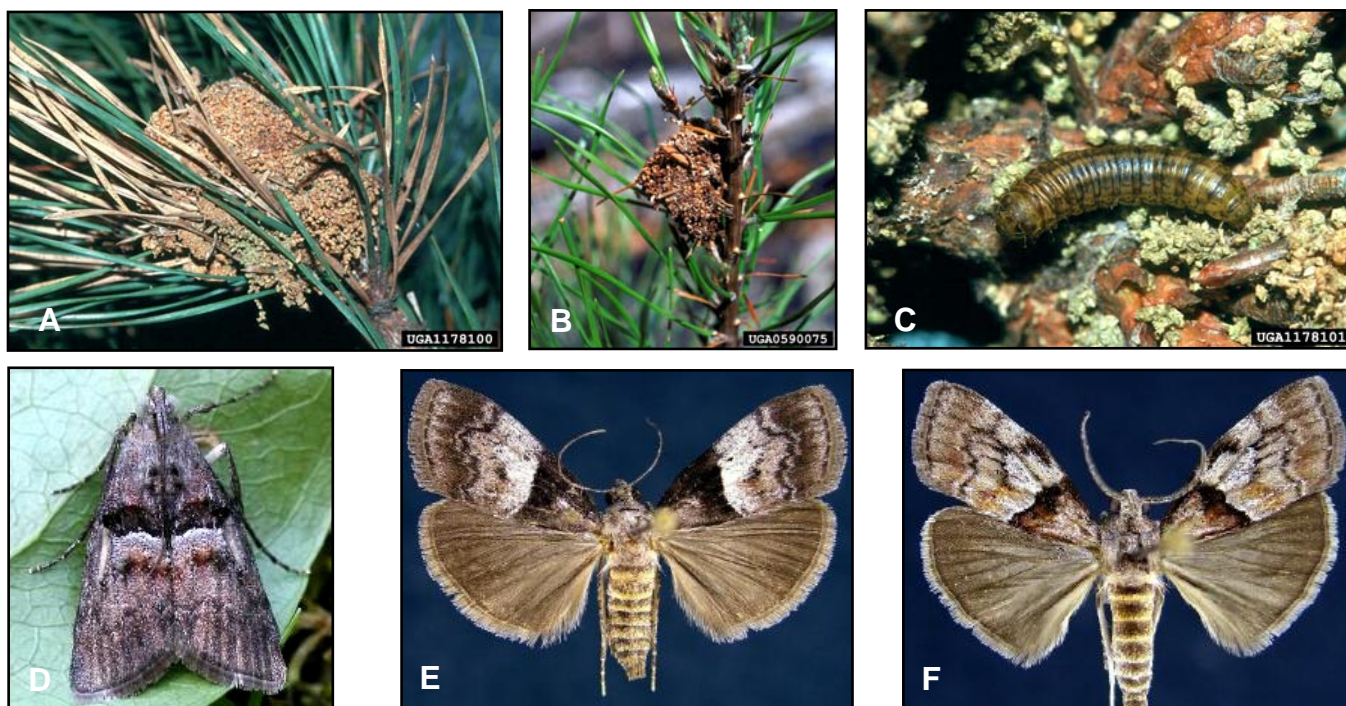
## The Pine Webworm, *Pococera robustella* (Zeller) (Lepidoptera: Pyralidae)<sup>1</sup>

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**INTRODUCTION:** The pine webworm, *Pococera robustella* (Zeller) (known for many years as *Tetralopha robustella*), is a common defoliator of pines in the eastern United States. Infestations commonly occur on young (1-2 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 (Wallez 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).

**RECOGNITION OF DAMAGE:** Pine webworms produce a conspicuous globular mass of brown fecal pellets and needles held together with silk webbing (Figs. 1A, B). This frass nest is typically 5-15 cm 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.

**DESCRIPTION OF THE INSECT:** **Egg:** 1 mm long, ovoid, flattened, cream to bright yellow. **Larva:** 13-18 mm long when mature, body light brown with darker longitudinal stripes, head light brown with black pigmented markings (Fig. 1C). **Pupa:** flattened ovoid cocoon measuring 12 x 8 mm, covered with packed sand grains and lined with yellow silk. **Adult:** a small gray to brownish moth, wingspan 22-25 mm (Figs. 1D-F). Basal third of forewing dark gray to black (paler at extreme



**Fig. 1.** The pine webworm. A, B) Frass nest; C) Larva; D) Adult, wings folded; E) Adult female, wings extended; F) Adult male, wings extended. Photography credits: Connecticut Agricultural Experiment Station Archives (A, C); Robert L. Anderson, USDA Forest Service (B); Lynette Schimming (D); Jim Vargo (E, F). Images A-C accessible at <http://www.forestryimages.org> Images D-F accessible at <http://mothphotographersgroup.msstate.edu/MainMenu.shtml>

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base), remainder of forewing pale gray, becoming darker grey toward outer half. Hind wings brown with darker shading toward outer margin (Wallez and Benjamin 1960; USDA Forest Service 1989).

**DISTRIBUTION AND HOSTS:** The pine webworm occurs in southern Canada and throughout most of the eastern half of the U.S. from New England to Florida and west to Wisconsin and Minnesota (USDA Forest Service 1989; Johnson and Lyon 1991). Reported hosts include the following pine species: loblolly (*Pinus taeda* L.), longleaf (*P. palustris* Mill.), shortleaf (*P. echinata* Mill.), slash (*P. elliotii* Engelm.), sand (*P. clausa* (Chapm. ex Engelm.) Vasey ex Sarg.), jack (*P. banksiana* Lamb.), red (*P. resinosa* Ait.), eastern white (*P. strobus* L.), Scots (*P. sylvestris* L.), pitch (*P. rigida* Mill.), and Virginia pine (*P. virginiana* Mill.) (Wallez and Benjamin 1960; Merkel and Hertel 1976).

**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 (Wallez 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 1-10 overlapping eggs on the flat surface of host needles. Young larvae (1<sup>st</sup> through 3<sup>rd</sup> instars) mine the needles, whereas older larvae (4<sup>th</sup> through 6<sup>th</sup> instars, and occasionally 2<sup>nd</sup> or 3<sup>rd</sup> 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).

**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. A granular formulation of the systemic insecticide carbofuran was shown to protect young seedlings from pine webworm attack (Merkel and Hertel 1976), but this formulation has faced subsequent environmental restrictions and bans (Extension Toxicology Network 1996). 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 county cooperative extension service for current insecticide recommendations.

## LITERATURE CITED

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