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Elongate Hemlock Scale on Christmas Trees

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Introduction

Elongate hemlock scale (*Fiorinia externa*; Fig. 1) is an armored scale insect in the Family Diaspididae. Common host plants include hemlock, firs, spruces, pines, yew, and cedar. Elongate hemlock scale occurs in forests, landscape plantings, nursery production, and Christmas tree farms.

Figure 1. Elongate hemlock scale (Eric Day, Virginia Tech, Bugwood.org).

Life History

Armored scales are named for the protective waxy shields they secrete. Most armored scale species overwinter as eggs beneath the shield of the mother scale. In spring, eggs hatch into tiny mobile crawlers that migrate to new feeding sites. After a few days, the crawlers settle, insert their mouthparts to feed, and begin secreting their shields. Adult female armored scales remain covered their entire life. Adult males, which superficially resemble winged aphids, emerge and fly to find mates.

Elongate hemlock scale has 1-2 generations a year and its life stages can overlap broadly. The crawlers are found mainly May-June, but some appear throughout the warm months, which presents a challenge in managing this pest.

Identification

Elongate hemlock scales are found on the underside of the needles and are best seen with a hand lens. Adult female elongate hemlock scales have long oval bodies that are darker at one end and shade to a lighter brown (Fig. 1). Immature male elongate hemlock scale are yellowish brown ovals with a white covering extending outward (Fig. 1). Needles heavily infested with elongate hemlock scale appear white due to the accumulation of secreted waxy material (Fig. 2). Heavy infestations may develop with layers of young scales settling under older dead scales.

Figure 2. Elongate hemlock scale (Eric Day, Virginia Tech, Bugwood.org).

Damage

Armored scales feed on plant cell contents with long threadlike mouthparts, reducing plant vigor. Large populations of scales often go unnoticed before infested plants show visible damage symptoms. Heavy feeding by elongate hemlock scale leaves a

yellow discoloration visible on the upper surface of the needles. Trees stressed by drought and other factors are more susceptible to further damage by elongate hemlock scale. As infestations progress, infested branches yellow and drop needles. Trees begin to lose twigs and branches and may die eventually.

Control

Correct management for scale insects depends on accurate identification. Contact your local Cooperative Extension office for assistance with identification and treatment recommendations. The Pest Management Guide to Horticulture and Forest Crops has recommendations for scale insects on conifers as nursery crops and Christmas trees.

Regularly scout for scale insects on the underside of the foliage. Check older interior growth where infestations go unnoticed. Older armored scales are largely protected by their waxy shields against contact insecticides, so time applications against the crawlers. Use sticky cards or tape to determine when crawlers are active. Elongate hemlock scale crawlers are found mainly May-June, but some appear throughout the warm months.

Treat elongate hemlock scale on Christmas trees with dinotefuran, buprofezin, or a mix of dimethoate and a synthetic pyrethroid in mid to late June. Infested trees can also be treated with dormant oil in later winter before bud break. Dormant oil applied during winter will reduce elongate hemlock scale by 75%, but additional insecticide treatments should be considered. Direct any treatments to the underside of needles where scales are found. Follow all label instructions regarding phytotoxicity when using dormant oils on conifers. Dormant oil will also remove the glaucous bloom on some conifers.

Dead scale insects remain on the plant until they weather off. Check for the presence of live scale insects before treating by rubbing the protective covers. Live scales release a liquid when crushed but dead scales remain dry. Several treatment applications may be needed for good control of scales, but dead scales do not warrant treatment. Use insecticides judiciously, as their use can disrupt natural enemies and promote outbreaks of spider mites.

Inspect nursery stock for scale insects before planting. When feasible, prune and destroy badly infested branches to remove scale insects. Consider removing and destroying heavily infested small trees or trees too large for market. Don’t apply nitrogen fertilizers to infested trees as the nutrients can result in increasing pest populations.

Note

Cryptomeria scale (*Aspidiotus cryptomeriae*) also occurs on the same host trees as elongate hemlock scale. These two species can be confused with each other but require different management approaches. Accurate identification of the species present is important to ensure that appropriate chemical controls are used.

Hemlock woolly adelgid (*Adelges tsugae*) is another sap-sucking insect found on hemlocks in Virginia. Infestations of hemlock woolly adelgid are characterized by the small cottony balls present at the base of the hemlock needles that protect the feeding insects. For more information about this pest, see VCE Pub. 3006-1451 Hemlock Woolly Adelgid.

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