The Plant Doctor's LANDSCAPE TIPS

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Photo 1: This hemlock tree and others in the vicinity are in serious trouble from significant buildup of Elongate Hemlock Scale activity. Trees exhibit severe foliage loss and branch death.

Photo 2: Symptoms of EHS may be mistaken for other instigators such as herbicide, excess watering, root rot, etc. Note yellowing and unthrifty appearance of needles on upper surfaces.

Photo 3: Examination of the undersides of the needles reveals high populations of EHS. Their extraction of vital plant nutrients starves plants of their nourishment.

Photo 4: The EHS may attack a variety of conifers including yews.

ELONGATE HEMLOCK SCALE

INTRODUCTION:

Hemlocks (Tsuga sp.) are highly desirable forest and landscape trees. In the landscape, hemlock tolerates significant shade while providing a nice screen. Hemlock's shade tolerance plus its screening and evergreen attributes make it an especially valuable tree for establishment under mature deciduous trees. In general, hemlocks are reasonably disease and pest tolerant compared to some other species of conifers. In my experience, there seems to be two types of hemlocks in the landscape: 1) those that are very thrifty, and 2) those that do poorly. I suspect the problem hemlocks are most likely affected by human inputs such as excessive irrigation, herbicides, etc. Recently, I observed another serious malady on hemlock known as the Hemlock Elongate Scale (aka Fiorinia scale).

The elongate hemlock scale (*Fiorinia externa Ferris=EHS*) is an armored scale that is capable of attacking various species of conifers. The scale is especially serious on eastern hemlock, Tsuga Canadensis (Photo 1), but is also capable of attacking other hemlocks such as Carolina hemlock and Japanese hemlock. It is also a pest of spruce (Picea sp.) and fir (Abies sp). Some other less preferred hosts include cedar (Cedrus sp.), pines, Douglas fir, and yew (Photo 4). The scale was thought to have been introduced from Japan in the early 1900s and was first reported in New York (Queens). Since the introduction, the scale has spread through much of the eastern U.S.

EHS SYMPTOMS AND CYCLE:

Symptoms of EHS include unthrifty appearance of trees, defoliation, stunted growth, yellowing foliage and, ultimately, dead twigs and dead trees (Photo 1). The symptoms may be mistaken for herbicide toxicity, root pathogens, overwatering and other problems (Photo 2). The most obvious sign of EHS is the actual presence of the scale insects ***on the undersides of the leave*** (Photo 3). The presence of the scale may go undetected if close examination of the foliage is not accomplished. Severe attack may predispose hemlocks and other conifers to secondary issues with borers, *Armillaria* root rot and other maladies.

Females lay eggs beneath their waxy coating in the spring. Crawlers hatch from eggs in several weeks and crawl short distances on the tree but may be disseminated long distances by wind and animals, especially birds. Crawlers converge on the underside of needles where their piercing sucking feeding habit weakens plants as vital fluids are withdrawn. After several weeks of feeding and molting, the insects mature into adults. Tiny males emerge with wings, mate with females and then die—an all too common phenomenon in the critter world. Eggs and females produced during this later stage overwinter to the following spring, when the cycle is repeated.

EHS MANAGEMENT:

While there are natural enemies of this scale, their numbers may explode and preclude much benefit from bio-control. Application of a registered insecticide from May through June may significantly reduce crawler populations. Repeated applications may be necessary if crawler populations are still present during the summer and early fall. Maintaining tree health and vigor with proper nutrition and moisture will help trees ward off/recover from scale attacks.

For more information, please feel free to email David Roberts at robertsd@msu.edu or contact a professional plant health care provider. The author, MSU and MGIA do not endorse any particular products. If using pesticides, be sure to read and follow label directions.