

## Scale Insects on Hemlock

Several armored scale insects infest Maryland Hemlock trees. The elongate hemlock scale, *Fiorinia externa*, was introduced from the Orient and builds up on plantings of hemlock. Cryptomeria scale, *Aspidiotus cryptomeriae*, was introduced from Japan. It is also found on hemlock needles. A third armored scale, the hemlock scale, *Abgrallaspis ithacae*, is native to the United States and is not considered to be as threatening as the elongate hemlock scale or the Cryptomeria scale.

Hemlocks that are heavily infested with elongate hemlock leaf scale or the Cryptomeria scale exhibit an unhealthy appearance, and the needles begin to drop. The infestation in an advanced



*Hemlock Scale*

stage causes leaf yellowing, thinning foliage, and eventually, death of the tree. The undersides of the leaves are covered with waxy male and female scale covers.



*Elongate Hemlock Scale*

### Life Cycles and Descriptions

#### Elongate Hemlock Scale, *Fiorinia externa*

In Maryland, this scale insect has two generations each year. This means that young scale insects, called “crawlers”, begin to hatch from eggs in May. Crawlers are very tiny, yellow, and very active. They crawl to new spots on leaves and begin sucking plant sap and producing their own covers. As the insects feed, turning the needles yellow, they continue to enlarge the scale coverings. The female covers are elongated, parallel sided, and light to dark brown. The male covers are white. When they become mature, the male insects emerge from beneath their covers and fly to the wingless, covered females. They mate and the fertilized female produces eggs under her scale cover. Egg production and crawler emergence continues for another generation. Two crawler peaks occur; one in May and the other in September. The overlap of these generations produces needle scales throughout the summer. The scale covers are waxy and may be so numerous that the needles have a whitewashed appearance. Although Eastern hemlock is most heavily damaged, heavy infestations also build up on Carolina hemlock, Japanese hemlock, yews, spruces, and firs.



*Cryptomeria Scale*

stage causes leaf yellowing, thinning foliage, and eventually, death of the tree. The undersides of the leaves are covered with waxy male and female scale covers.

### Damage

Damage is done to the leaves as the insect feeds beneath its protective cover. These particular insects hatch from eggs inside the female cover, settle on needles, and suck the sap from the

### **Cryptomeria Scale, *Aspidiotus cryptomeriae***

Cryptomeria scale also has two generations per year in Maryland. The life cycle is similar to that of the elongate hemlock scale. Yellow crawlers are present in June and September. The covers of the adult females are elongated, oval and translucent to light brown. Male covers are similar but smaller. In addition to eastern hemlock, this scale occurs on many conifers including balsam fir, spruces, Douglas fir, Cryptomeria, white cedar, cypress, yew and pines. It is found in both natural and ornamental plantings.

### **Hemlock Scale, *Abgrallaspis ithacae***

The hemlock scale, *Abgrallaspis ithacae*, is native to North America, and occurs throughout the east where hemlock occurs. This scale also has two generations in Maryland, with a life cycle similar to the other armored scales that occur on hemlock. Crawlers are present in June and in August. The covers of the adult females are slightly convex, circular to broadly oval, and gray. Male covers are oval and gray. The primary host for this scale is hemlock, but it also feeds on spruce and fir. It generally does not reach damaging levels that would warrant control in Maryland.

### **Control**

To control any of the above scale insects, a 3% dormant rate of horticultural oil may be applied in late February to early March, or before budbreak in the early spring. A 2% summer rate of

horticultural oil may be applied to control crawlers in the summer (June and August). This may not be as effective in controlling the elongate hemlock scale, *Fiorinia externa*. Orthene may be used to control all three of the scales during the summer months. (Check for the presence of crawlers before spraying as emergence depends on the weather.)

Spraying of large trees is very difficult at best. Consider having a licensed arborist do the spraying for you, should it become necessary. They have the proper equipment and training to assure the best coverage and reduce overspraying.

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#### **References:**

**Johnson, W.T. and H.H. Lyon. 1991. Insects That Feed on Trees and Shrubs. Ithaca, NY: Comstock Publishing Associates, Cornell University Press. 560 pp.**

**Pirone, P.P. 1978, Diseases & Pests of Ornamental Plants, 5th Ed. New York: John Wiley & Sons. 566 pp.**

### **Use Insecticides With Care. Read the Label. Follow All Safety Precautions.**

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