



Elongate hemlock scale (*Fiorinia externa*)

Exotic pest threat

v2 16 January 2019

The elongate hemlock scale (EHS) was detected mid-December 2018 on Fraser firs grown in North Carolina and imported as Christmas trees from there to Oregon. After being detected in California, the pest was also found on trees being sold in Oregon. The Oregon Department of Agriculture ordered the company to destroy or send back the infested trees. By then, some had been sold at retail stores in Alaska, Washington, Oregon, California, Nevada, Montana and Utah. EHS has been established in the eastern U.S. since at least 1908 and has become a pest of eastern hemlock (*Tsuga canadensis*) and Carolina hemlock (*T. caroliniana*). EHS is not established in Oregon but has the potential to become a pest of western hemlock (*T. heterophylla*) and mountain hemlock (*T. mertensiana*). It is also known to feed and reproduce on Douglas-fir, spruce (*Picea* sp.), fir (*Abies* sp.), and pine (*Pinus* sp.). Below are tips on how to identify and reduce risk of spreading EHS on infested Christmas trees.

Identification

The EHS has one to two generations per year. It spends the majority of its life as an immature (1.5 mm long) under a brownish white waxy layer fixed to the needles where it feeds on cuticle cells. Immatures eventually grow and molt. Males have wings and females are flightless. After reproduction, females lay eggs which hatch into “crawlers” that are then dispersed on wind currents. Crawlers are most abundant in spring and early summer. They land on needles where they affix themselves and start producing a wax covering. The overwintering stages are adults or eggs, although crawlers are found all year long in some eastern states.

EHS feed on the underside of conifer needles. Damage is most apparent on older needles on the lower part of the tree. Yellow bands may appear on the top of needles with EHS. Trees with heavy feeding damage drop needles and crowns appear thin. Excessive feeding causes reduces tree growth.



UGA1122009

Above: individual EHS on underside of needles
Below: Hemlock branch with EHS infested needles
Photos: Eric Day



UGA1122011

Right:

Conifer with heavy infestation of EHS. Older interior needles will drop prematurely, causing the crown of the tree to appear thin or sparse .

Photo: Lorraine Gruney



5472191



Reporting suspect EHS

Contact ODF Forest Health:

Wyatt Williams, Invasive Species Specialist, Wyatt.Williams@oregon.gov
Christine Buhl, Forest Entomologist, Christine.buhl@oregon.gov

Oregon Invasive Species Hotline:

<https://oregoninvasiveshotline.org>

Best Management Practices for Christmas trees

1. Visually inspect Christmas trees for the presence of EHS. Pay special attention to trees marked or labeled as Fraser fir, which are grown commercially in the eastern U.S. and have been the only tree species with EHS detected in western states this year.
2. If a tree is suspected to have EHS or is marked as a Fraser fir, separate it from other trees. Suspect trees should be sent to landfill, a municipal wood recycling center or burned as soon as possible. Send electronic photos to the resources listed above.
3. Other Christmas trees can be mulched and spread along trails and landscaping or used in stream restorations for fish habitat improvement. **Do not illegally dump or dispose of Christmas trees in Oregon's forests.**
4. Before or after mulching, cover trees with plastic and leave for approximately four to six weeks. Plant material will dry, and any emerging insects will be captured under the plastic and die. Plant material can then be safely spread. **It is important to note that although this tactic is likely to work for EHS, it has not been documented as such.**



Left: eastern hemlock foliage with EHS. Note the brownish and white nymphs on older needles.

Right: grand fir Christmas tree. Underside of needles have no EHS. This Christmas tree is free of EHS and can be discarded or recycled.

Photos: Wyatt Williams

Further Reading/More information:

Penn State Fact Sheet: <https://ento.psu.edu/extension/factsheets/elongate-hemlock-scale>

North Carolina Fact Sheet: <https://content.ces.ncsu.edu/elongate-hemlock-scale>

U.S. Forest Service Fact Sheet: <https://www.forestpests.org/acrobat/EHScale.pdf>