

Hemlock Woolly Adelgid

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fast facts

exotic pest

Hemlock woolly adelgid (HWA, *Adelges tsugae*) (pronounced uh DEL jid) is a tiny fluid-feeding insect from Japan that kills eastern (*Tsuga canadensis*) and Carolina (*Tsuga caroliniana*) hemlock trees in the eastern U.S., where it is invasive. HWA is also present in western North America, but it is thought to be endemic there and it does not damage western or mountain hemlocks. **HWA is not established in Wisconsin, although it has been intercepted on out-of-state nursery stock.**

In North America, HWA populations are comprised entirely of females that reproduce asexually and have two generations per year. Settled nymphs of the overwintering first generation break dormancy in late fall, actively feeding by inserting their stylets into hemlock needle bases on the undersides of branches. There, they suck fluid from them all winter and secrete waxy wool resembling cotton swabs, giving the insect its common name. They become mature females in early spring, laying 100-300 eggs in woolly ovisacs. Immature crawlers, or first stage nymphs (the only dispersing stage of HWA) emerge from eggs in April-May and settle at the bases of hemlock needles to feed, preferring young growth. Wind, birds, or mammals may carry crawlers to hemlocks to start new infestations. As they settle and feed, they develop into 2nd-4th stage nymphs of the second generation. Some develop into winged adults that don't reproduce in North America in the absence of tigertail spruce. Wingless adults of this generation stay on hemlock and lay 75-100 eggs in woolly ovisacs from late May to early June. Crawlers emerge from these eggs, disperse, and settle onto new hemlock feeding sites, where they remain dormant until late fall.

life cycle

HWA eggs



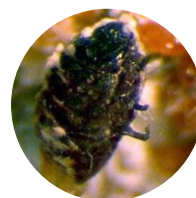
crawlers



settled nymphs



HWA with wax removed



adult female under woolly wax



damage & spread

HWA feeding causes hemlocks to take on a gray-green appearance and leads to needle loss, dieback, and mortality in as little as four years. HWA spreads 15-20 miles per year on average, spreading via wind, people, birds and other animals. HWA originated from a warm area in southern Japan, and its spread and population buildup appear to be slower in colder parts of the northeastern U.S.

how to help

Check hemlock nursery stock before planting and follow quarantine regulations if importing hemlock from an area infested with HWA. **If you suspect you have found hemlock woolly adelgid in Wisconsin, please report it immediately to the Pest Hotline at (866) 440-7523 or DATCPPESTHotline@wisconsin.gov.** A clear photo or physical specimen, along with a precise location, are required to confirm pest identity.

Photo Credit Banner Image by DATCP, HWA egg photo by Michael Montgomery USDA, Forest Service; crawler, settled nymphs, HWA with wax removed, and wingless adult photos by DATCP



WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE
AND CONSUMER PROTECTION

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Guide to Wisconsin's Hemlock Woolly Adelgid Regulations

Hemlock Woolly Adelgid (HWA) is a non-native, invasive insect pest that weakens and kills hemlocks. To prevent the introduction of HWA, the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) has imposed an exterior quarantine ([ATCP 21.16](#)) on the import of following items:

- Hemlock nursery stock or seedlings (*Tsuga canadensis* or any *Tsuga* spp. or cultivars)
- Hemlock logs or lumber with bark
- Hemlock bark or chips with bark

HWA-infested areas include: AK, CA, CT, DE, GA, ID, KY, ME, MD, MA, MI, NH, NY, NJ, NC, OH, OR, PA, RI, SC, TN, VT, VA, WA, and WV; the District of Columbia; the Canadian provinces of British Columbia and Nova Scotia; and any state or area officially declared to be infested with HWA.

Nursery Growers, Nursery Dealers, and other Businesses:

Businesses may be granted a limited exemption to the HWA quarantine if certain plant safeguarding measures are taken as part of a compliance agreement (CA) with DATCP. Nursery growers and dealers, including landscapers, greenhouses and garden centers and other businesses in Wisconsin seeking to import hemlock from any HWA-infested area, should contact DATCP to sign a CA annually. As part of this CA:

- Businesses need to provide DATCP documentation verifying the imported regulated plant products are free of HWA; and
- Businesses must provide DATCP prenotifications* of all incoming hemlock (*Tsuga*) shipments.
- Though not a common species used for lumber or pulpwood, any company interested in importing hemlock logs from the states listed above should also contact DATCP to discuss compliance options.

*** Prenotifications shall be emailed to MeganT.Sanders@wisconsin.gov and include the following information:**

- The name and address of the importer (AKA the Wisconsin business)
- The type and volume of material being imported into Wisconsin
- The source locations from which the material originates and was grown
- The plant material delivery location including name (if applicable) and address
- The method of import

If no CA has been issued, each shipment of regulated items from the infested area must be accompanied by a phytosanitary certificate signed by a pest control official in the state or province of origin who has inspected the items and certified that the items:

- **Were free from HWA at the time of inspection; or**
- **Have been effectively treated to destroy HWA; or**
- **Originate from non-infested premises,** or have otherwise been produced, stored and handled under conditions which preclude transmission of HWA.

If purchasing nursery stock or other plant products through a plant broker, **it is your responsibility to know the origin of the plant material.**

Wisconsin businesses must make certain anyone handling regulated articles as part of business operations has been trained to identify HWA.

Quarantine boundaries are subject to change. If you have any questions regarding the movement of hemlock seedlings, nursery stock, logs, chips, or firewood, please contact: Meg Sanders at (715) 891-8158 or MeganT.Sanders@wisconsin.gov.

Visit https://datcp.wi.gov/Pages/Programs_Services/HWAQuarantine.aspx for more information.



HWA on nursery stock



HWA under waxy wool at needle bases



HWA mortality

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