

Tree of Heaven

Tree of heaven, potential host to a devastating invader

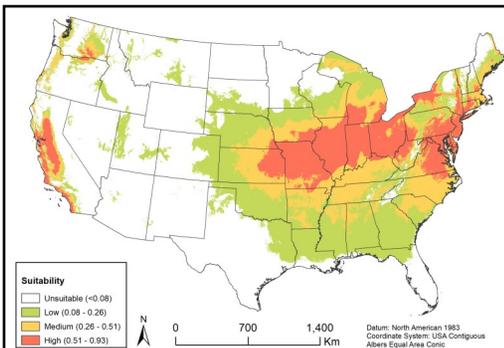
The spotted lanternfly is an invasive agricultural pest that is particularly attracted to tree of heaven for nesting. The insects feed on more than 70 types of plants, including crops such as grapes, apples, hops, walnuts and other hardwood trees.



Spotted lanternflies

First detected in Pennsylvania in 2014, spotted lanternflies have since been found in other eastern states. Although they have not turned up in Washington state, they pose a serious threat to the state's agricultural industry should they arrive.

Because of an abundant presence of tree of heaven in southeast Washington and other factors, USDA scientists have identified much of the area as potential habitat for the spotted lanternfly.



USDA Agricultural Research Service

Look-alikes

Tree of heaven can be confused with other species that have compound pinnate leaves and numerous leaflets. Here are some identification tips:



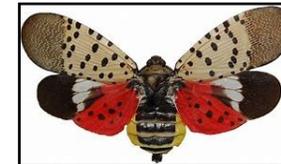
Leaf edges of tree of heaven (left) are mostly smooth except for one or two glandular teeth at the base.

Most look-alikes such as smooth sumac (below left) and black walnut (below right) have toothed, or serrated, leaf edges.



Another identifying characteristic that distinguishes tree of heaven from other look-alike species is the smell. Crushed foliage or broken twigs of tree of heaven will produce a foul odor while others will not.

Control options in this publication are meant as a guide and do not reflect the complete list of options, herbicides or combinations available, nor do they endorse any of the products mentioned. The FCNWCB is not liable for applications of herbicides that do not follow the label. The LABEL IS THE LAW and the FCNWCB will not be held liable for any misapplications. 1/20



Nesting habitat of the invasive spotted lanternfly, a serious threat to Washington's agriculture.



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Tree of Heaven

Tree of heaven, a Class C Noxious Weed in Franklin County, is a fast-growing tree of the Simaroubaceae family. Originating in China and Taiwan, *Ailanthus altissima* was brought to the



eastern U.S. in 1784. Initially valued as an ornamental tree, it was widely planted in urban areas. In the 1850s, Chinese immigrants are thought to have planted tree of heaven on the

West Coast for its cultural significance. It has since spread and become naturalized across much of the country, invading urban, agricultural and forested areas. It has the potential to establish in every state and has been found on every continent except Antarctica.

Identification

Tree of heaven is a drought-hardy tree that grows rapidly, reaching heights of 80 to 100 feet. It typically grows in dense colonies, or clones, that displace native species.



Bark: Smooth and green when young, eventually turning light brown to gray, resembling the skin of a cantaloupe.

Leaves: On a central stem of 1 to 4 feet with 10 to 40 leaflets attached on either side. Leaflets have mostly smooth edges.

Seeds: Seeds on female trees are a 1 to 2 inch twisted samara, or wing.

With one seed per samara, the samaras grow in clusters, often hanging on the tree through winter. Female trees have the potential to produce more than 300,000 seeds per year. The samaras are dispersed by wind.



Roots and suckers: Established trees have extensive root systems. The trees continually spread by sending up root suckers that can emerge 50 feet or more from the tree. A cut or injured tree may send up dozens of root sprouts.

Options for control

Cutting or mowing tree of heaven is ineffective. Hand-pulling can be effective on small seedlings, preferably in loose or moist soil. Root fragments left in the soil can sprout into new shoots, so revisit the site often to ensure control.

Larger infestations or trees with strong root systems will require an appropriate herbicide.

Timing is key for herbicide applications. Target the root systems of tree of heaven in mid- to late summer when the plants are moving sugars down to their roots.



Foliar applications

Only apply herbicides at proper rates and for the site conditions or land usage specified on the product label.

Foliar treatments will work best on small trees and new growth.

Many different herbicides are effective on tree of heaven but most research recommends a combination of glyphosate and triclopyr. Foliar treatments should only be used where tree height allows for acceptable leaf coverage without damaging nearby desirable plants.

Larger trees require basal bark or frill treatments. The cut-stump method is not recommended.

Basal bark treatment

Target individual trees with trunks 6 inches in diameter or less with a basal bark application. Use a concentrated mix of herbicide containing the ester formulation of triclopyr in oil. Spray from the ground up to 12 to 18 inches high, completely around the stem.



Frill method, or “hack-and-squirt”

For trunks greater than 6 inches in diameter, apply a concentrated herbicide solution into evenly spaced frill cuts around the stem, leaving uncut tissue between the cuts to allow herbicide to travel down to the roots.



Well-established stands will require a combination of these methods beginning with a foliar application to eliminate small, low growth first. Initial treatments often only reduce the root systems, so repeated efforts and monitoring will be needed.

Sources: Penn State University Extension, Columbia Gorge Cooperative Weed Management Association.