TREE OF HEAVEN: Options for control

Tree-of-Heaven (Ailanthus altissima), is a class C noxious weed. It is a native of China and Taiwan. Tree-of-heaven is naturalized throughout Washington. It is a fast growing tree, forming thickets that outcompete native plants. It leaches a variety of allelochemicals into the soil that have demonstrated inhibitory or toxic effects on neighboring plants. It is also noted as being a preferred host for the spotted lanternfly, an insect that could damage many crops in Washington if it were able to establish here.

It grows in a variety of habitats, from open sites into more shaded areas by vegetative growth. It can commonly be found along forest edges, woodlands, fence rows, roadsides, railroad embankments, old fields, and urban parks.

Plants can reproduce by seed as well as vegetatively by roots and stump sprouts. The tree drops thousands of seeds from its red and orange seed pods during the late summer. Tree of heaven, otherwise known as *Ailanthus altissima*, has male and female trees. The female trees can produce 300,000 + seeds annually that are distributed by wind and water. In other words, it's a seed producer and it can throw those seeds 330 feet. They're fairly heavy seeds. Cut branches and trees can also form roots when left on moist ground.

Tree identification, in general, can be a complicated and sometimes difficult process. Luckily, the tree of heaven has some very obvious characteristics that can make recognizing it easier. The leaves are a great way to identify this problem tree. They can grow to be one to three-feet long and are compound, meaning that each leaf consists of a number of leaflet s. In this case, the compound leaves have 11 or more pointed leaflets. The pointed shape helps to differentiate tree of heaven from other trees that grow in our area that also have compound leaves. Taking a closer look at the leaflet's shape will prevent confusing *Ailanthus* with black walnut. The leaflets have an unequal base with two to four teeth. These teeth often have one to four glands. These glands help to give the tree of heaven its unpleasant aroma. With or without its leaves, the smell of broken tissue of this species can be a clue to its identity. The smell can come from the glands at the base of the leaves, but also from broken twigs. This means that the smell can help to identify this species, all year long. Some people describe the smell as rancid peanut butter or well-worn gym socks.

Found throughout the state, tree of heaven has a higher known distribution in eastern Washington.

Leaf length is up to 3 ft. with 10-45 leaflets.

Male & female flowers are in clusters on separate trees. Clusters may be up to 12" wide & are green to yellow and small.

Key identifying traits

- Base of leaflets have glands which when crushed have a strong offensive odor
- Bark is smooth & green when young, then turning light brown to gray, resembling the skin of a cantaloupe.

Each leaf has a gland bump on the lower surface. The leaves & stems have a rancid peanut-butter smell when crushed.

Fruit is a single seed in a papery wing that is loosely twisted. Color at maturity varies from greenish yellow to reddish brown.

Biology and ecology

- Dioecious, a tree is either male or female
- Grows in dense colonies
- Produces toxic chemicals that inhibit the growth of other plants
- Hosts the invasive pest Spotted Lanternfly
- Female trees continually send up root suckers that can emerge as far as 50 ft. from the parent tree

Leaflets are typically 1.5 to 6 " long.

Bark is smooth and gray, developing shallow, diamond shaped fissures as it ages.

CONTROL MEASURES:

Prevention:
- Control efforts should focus first on preventing establishments in new areas.

Biological:
- None available.

Mechanical:
- Seedlings can be hand-pulled, but root fragments left in the soil can sprout. Mechanical methods alone are not recommended as they result in basal and root suckering. Mowing is not effective.

Chemical:
- Tough to control and will require multiple years of treatment. Target the root system with systemic herbicides applied by foliar, hack and squirt or the basal bark method from July through the onset of fall color. Foliar applications of triclopyr combined with glyphosate has less soil activity and poses little risk to non target plants through root uptake. Or imazapyr in late summer to early fall.
- **Read** the **label** instructions before applying.

Spotted lanternfly

Spotted lanternfly (Lycorma delicatula) is a new and emerging pest in the United States. Its preferred host is tree of heaven; however, it can be a serious pest on a wide variety of important agricultural crops, including grapes, fruit trees, hops, and ornamentals.

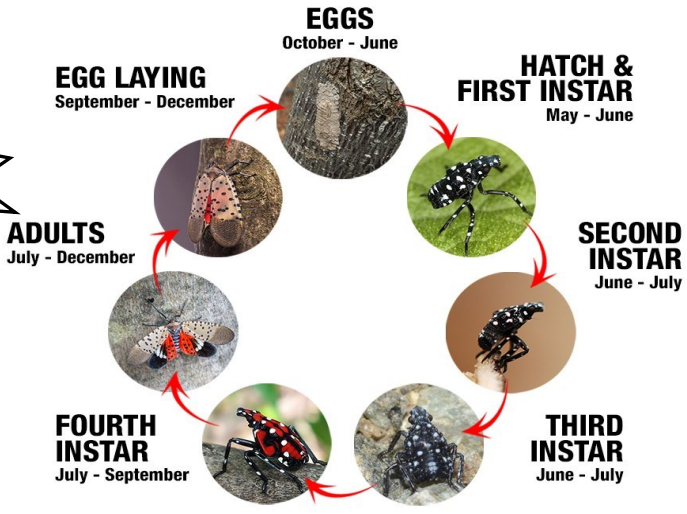
Spotted lanternfly is currently established in several northeastern states, and the potential for rapid spread across North America is high. Egg clusters and adults can be easily transported by car, rail or air. Careful inspections of materials before transport will help prevent further spread.

Nymphs and adults damage plants by sucking sap from stems, trunks, and leaves. They also secrete large amounts of honeydew, which hosts pathogens such as sooty mold. In Washington, grapes, fruit trees, and hops are most likely to be impacted.

Spotted lanternfly is not currently in Washington State, but is likely to first infest tree-of-heaven populations if it arrives. Mapping known tree of heaven populations allows for strategizing control efforts. Report any sightings of tree of heaven and spotted lanternfly directly to the Washington State Dept.of Agriculture: pestprogram@agr.wa.gov

Adult Spotted Lanternfly

Pest Alert!



Spotted lanternfly infests a grapevine.

! Tree of Heaven is on the WA State quarantine list. It is prohibited to transport, buy, sell, offer for sale, or distribute plants or plant parts, seeds in packets, blends, or wildflower mixes of this species, into or within the state of Washington. WAC 16-752

Photos and references courtesy of: WA State Noxious Weed Control Board, Franklin County Noxious Weed Board, Montana State University, Monroe County Indiana, Wild Utah.

Lincoln County Noxious Weed Control Board
405 Ross St.
Davenport, WA 99122
509-725-3646