




## BRANDYWINE CONSERVANCY INVASIVE SPECIES PROTOCOLS

### Tree-of-Heaven (*Ailanthus altissima*)

<p><b>What It Is</b></p> 	<ul style="list-style-type: none"> <li>• Also known as Chinese Sumac and Stinking Sumac.</li> <li>• Rapidly growing deciduous tree which, at maturity, can reach 80 feet in height.</li> <li>• All parts of the tree, especially the flowers, have a strong odor similar to that of peanut butter or cashews.</li> <li>• Correct identification of tree-of-heaven is important, as several native trees and shrubs look very similar, including sumac, ash and black walnut.</li> <li>• Can be differentiated from native species by its pungent odor and glandular teeth located near the base of the leaflets.</li> <li>• Trunk smooth with pale gray bark and light brown twigs. The wood is soft, weak, coarse-grained, and creamy-white to light-brown in color.</li> <li>• Leaves compound, alternate, 1-4 feet in length, and composed of 11-25 leaflets. Each leaflet has one or more glandular teeth near the base.</li> <li>• Yellow-green flowers appear near the tips of branches in large clusters in late spring to early summer.</li> <li>• Seeds pink-tan and are produced on female trees from late summer to early fall.</li> <li>• One tree can produce up to 325,000 winged fruits, called samaras.</li> <li>• Seeds are primarily dispersed by the wind.</li> </ul>
<p><b>Where It Is Found</b></p>	<ul style="list-style-type: none"> <li>• Found in 42 of the 50 states, tree-of-heaven is common throughout the United States and has become widely naturalized.</li> <li>• Found in disturbed areas, including vacant lots, alleys, sidewalks, parking lots, along railroad tracks and streets. Also found in fields, roadsides, fencerows and forest edges and openings. Extremely common in both urban and rural settings.</li> <li>• Thrives in poor soils and tolerates pollution. Not found in wetland or shaded areas.</li> </ul>
<p><b>Where It Is From</b></p>	<ul style="list-style-type: none"> <li>• Native to China.</li> <li>• First introduced in 1784 and readily available from nurseries by the mid-1850s.</li> <li>• Originally sought after for its medicinal qualities.</li> </ul>
<p><b>Why It Is a Problem</b></p>	<ul style="list-style-type: none"> <li>• Tree-of-heaven is a prolific seed producer and grows rapidly to form dense thickets and stands, often overrunning native vegetation.</li> <li>• Once taproots are established, it can quickly take over a site and form an impenetrable thicket. The root system can cause damage to sewers and foundations.</li> <li>• Produces toxins that prevent the growth of other plant species.</li> </ul>
<p><b>How to Eradicate It</b></p>	<ul style="list-style-type: none"> <li>• <u>Mechanical Method</u>—For larger trees, manually operated tools can be used to cut tree-of-heaven. This is an important step, however other methods will also need to be employed as tree-of-heaven responds favorably to cutting by shooting up large numbers of stump sprouts. Cutting should be done in early summer.</li> <li>• <u>Manual Method</u>—Although not recommended as the only method of removal, young seedlings can be pulled or dug up when the soil is moist, if it is certain that the entire plant, roots, and root fragments can all be removed. If all parts are not removed, the plant is sure to re-sprout.</li> <li>• <u>Chemical Method</u>—The most effective method of control is the application of systemic herbicides such as glyphosate, imazapyr, and triclopyr. Between June and September these herbicides can be sprayed onto leaves or painted onto freshly cut stumps.</li> </ul>
<p><b>What Not To Do</b></p>	<ul style="list-style-type: none"> <li>• Cutting alone will not control the problem. Many times it will encourage new growth.</li> <li>• When removing plants, be careful not to disturb desirable species and be sure to remove the entire plant, including the root system.</li> </ul>

#### References

- U.S. Dept. of the Interior, National Park Service, Plant Conservation Alliance ([www.nps.gov/plants/](http://www.nps.gov/plants/))
- The Nature Conservancy ([www.tnc.org](http://www.tnc.org))
- Pennsylvania Dept. of Conservation of Natural Resources ([www.dcnr.state.pa.us](http://www.dcnr.state.pa.us))