

Tree-of-Heaven (*Ailanthus altissima*)

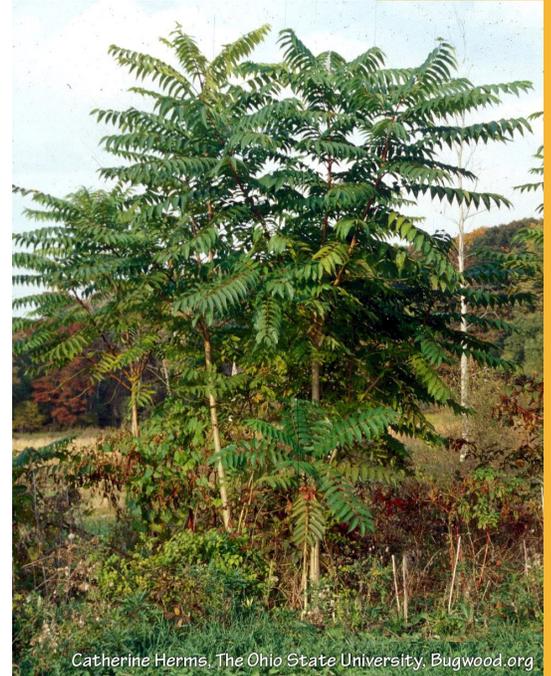
-3
Aggressive
Weed

DESCRIPTION:

Tree-of-heaven is a member of the generally tropical Simaroubaceae family and is often confused with sumac or walnut because they have a similar leaf structure. Native to China it first reached Philadelphia in 1748 as a ornamental plant and has since spread throughout temperate North America. This species thrives in disturbed areas and tolerates air pollution and acidic soils. The aggressive root system quickly forms dense colonies from root sprout and release chemicals that hinder the growth of other plants. It is important to protect yourself from the sap when cutting because it can cause heart problems, debilitating headaches and nausea.

Tree-of-heaven is a fast growing, colony forming tree typically no more than 30' in height. Each leaf can be several feet long and have 11-41 leaflets that are lance shaped with a long pointed tip and has 1-5 teeth at the base of the leaflet. The alternately arranged foliage when crushed produces a distinctive unpleasant odor that is often described as burnt peanut butter. The twigs are covered with fine hairs when young and has yellowish pith. Older trees have relatively smooth bark with a light brown or striped gray-brown color. Tree of heaven produce yellowish clustered flowers above the leaves at the end of the branches in early summer. An adult female tree can produce more than 300,000 papery winged seeds in late summer to fall.

Smooth and staghorn sumac look similar to tree-of-heaven but lack any strong odor when injured. They also have distinctive terminal red fruit clusters. Black walnut also releases a distinctive smell when the foliage is damaged (or even if you rub your fingers on the rough, sticky leaf stalks), but it is quite different from that of tree-of-heaven and walnut always grows as a tree with large round fruits. All three types of plants have distinctive leaf scars.



Catherine Herms, The Ohio State University, Bugwood.org

CONTROL METHODS:

Organic: Young trees can be hand pulled in loose soil or a weed wrench could be used. Any root fragment left in the soil could result in new sprouts. Studies indicate that neither cutting nor girdling alone is effective at killing a clone of Tree-of-heaven. Cutting and girdling stimulates suckering from the root system. Mowing and burning can be used to control the spread of young shoots from root system, but this can promote seed germination and sprouting.

Chemical: The extensive root system of Tree-of-heaven are best attacked by systemic herbicides. For small trees a foliar application triclopyr (Garlon®, etc.) or glyphosate (Roundup®, etc.) will be effective. For cut stump and basal bark treatment triclopyr mixed with oil is the herbicide of choice (though this chemical is less effective in spring), glyphosate will also work. Stump treatment with glyphosate works best when applied in late summer, early fall, or during the dormant season. Always read herbicide labels carefully before use and always apply according to the instruction on the product label.



Chuck Barger, University of Georgia, Bugwood.org UGA1150026

NATIVE ALTERNATIVES:

In a landscape setting, many native shrubs can be used in place of Tree of heaven including smooth or staghorn sumac (*Rhus glabra* and *R. hirta*), dogwoods (*Cornus spp.*), nannyberry viburnum (*Viburnum lentago*) and maple leaved viburnum (*Viburnum acerifolius*). If clearing large amounts of Tree of heaven, such as in a woodlot, the area should be interseeded with a mix of native woodland wildflowers and grasses which can prevent the establishment of weeds, prevent erosion, provide resources for wildlife and improve the aesthetics of the site. If you are looking to replace Tree of heaven with another tree, oak species are recommended because they also prefer sun to shade.