

Invasive Alien Plant Species of Virginia

Tree-of-Heaven (*Ailanthus altissima* (Miller) Swingle)

Description

Tree-of-heaven is a small to medium-sized tree in the mostly tropical Quassia family. It has smooth gray bark. Leaves are compound, alternate, odd-pinnate, with 11-25 lanceolate leaflets. Most leaflets have one to three coarse teeth near their base. Tree-of-heaven leaves may be confused with those of sumac or black walnut. Flowers occur in panicles at the ends of branches; male flowers produce a strong odor which has been described as “the smell of burnt peanut butter.” The leaves when crushed also produce this distinctive, offensive odor. Seeds are centered in a papery sheath called a samara. The samaras are slightly twisted or curled, and twirl as they fall to the ground. They can be borne on the wind great distances from the parent plant.

Habitat

Tree-of-heaven establishes itself readily on disturbed sites. These include vacant lots of the inner city, railroad embankments, highway medians, fence rows and roadsides. In naturally forested areas, disturbance created by severe storms or insect infestations can open the way for tree-of-heaven infestation.

Distribution

Tree-of-heaven is native to a region extending from China south to Australia. It was imported into the United States in 1784 by a Philadelphia gardener. In the western states it was brought over by Chinese immigrants who use it for medicinal purposes. Due to its rapid growth and prolific seed production, it quickly escaped from cultivation.

Threats

One tree-of-heaven can produce up to 350,000 seeds in a year. Seedlings

establish a taproot three months from germination. Thus they quickly outrace many native plant species in competition for sunlight and space. Tree-of-heaven also produces a toxin in its bark and leaves. As these accumulate in the soil, the toxin inhibits the growth of other plants. This toxin is so effective it is being studied as a possible source for a natural herbicide. These factors combine to make tree-of-heaven a very aggressive invasive plant able to displace native tree and herb species. Furthermore, the root system is capable of doing damage to sewers and foundations.

Control

Tree-of-heaven is very difficult to remove once it has established a taproot. It has persisted in certain areas despite cutting, burning and herbiciding. Therefore, seedlings should be removed by hand as early



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as possible, preferably when the soil is moist to insure removal of the entire taproot. Larger plants should be cut; two cuttings a year may be necessary, once in the early growing season and once in the late growing season. Initially, this will not kill the plant; it will vigorously resprout from the roots, but seed production will be prevented and the plants will be lowered in stature. If continued over a period of several years, cutting during the growing season stresses the plants and may eventually kill them.

A glyphosate herbicide, either sprayed onto the leaves or painted onto a freshly cut stump will kill the plant. However, to insure the herbicide gets into the root system, it is best to apply this herbicide in the late

For more information, contact the Department of Conservation and Recreation or the Virginia Native Plant Society.



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growing season while the plant is translocating nutrients to its roots. Glyphosate herbicides are recommended because they are biodegradable, breaking down into harmless components on contact with the soil. However, glyphosate is a nonselective, systemic and will affect all green vegetation. To be safe and effective, herbicide use requires careful knowledge of the chemicals, ap-

propriate concentrations, and the effective method and timing of their application. Consult a natural resource specialist or agricultural extension agent for more information before attempting herbicide control of tree-of-heaven.

References

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