



Invasive Plant Species: *Ailanthus (Ailanthus altissima)*

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Ailanthus, also known as tree-of-heaven and paradise-tree, is a major nuisance to foresters, farmers, and homeowners alike. Native to China, the tree was introduced to the Eastern United States in the late 1700's and has been planted as an urban street tree.

Its prolific seeding, ability to sprout from roots and stumps, rapid growth, and ability to grow just about anywhere, make it a serious competitor and threat to native species and cultivated crops (figure 1). Ailanthus is also allelopathic, producing substances that are toxic to, and inhibit the growth of, neighboring plants.



Figure 1. Prolific seeding and rapid growth allow Ailanthus seedlings to become a nuisance, even in regularly maintained areas, like this urban sidewalk strip. (Karen Snape, Virginia Tech)

Identification

Leaves: Leaves are pinnately compound, measuring 1 to 3 feet in total length with 9 to 41 individual leaflets. Leaflets typically have a pair of glandular teeth at the base (figure 2).

Twig: Twigs are stout, smooth to fuzzy, with large shield-shaped leaf scars after the leaves drop (figure 3). The most convincing identification feature is the inside of a broken twig, which smells like rancid or burnt peanut butter and even resembles it in appearance (figure 4).

Flower: Clusters of yellow-green flowers bloom in late spring to early summer. Male flowers have a disagreeable scent, similar to that of the broken twig.

Fruit: Fruits are samaras, similar to the winged fruits found on maple trees (figure 5).

Bark: Bark is smooth and green when young, eventually turning brown, then gray, and resembling a cantaloupe (figure 6).

Form: Ailanthus first grows as a single, unbranched stem, or multiple stems, from the ground, particularly when cut back. These quickly form dense thickets comprised solely of ailanthus. Individual stems can grow eight feet in one year and ultimately up to 100 feet tall.



Figure 2. Ailanthus leaves are pinnately compound and 1-3 feet long. (Karen Snape, Virginia Tech)



Figure 3. Ailanthus twigs are stout with large leaf scars. (Karen Snape, Virginia Tech)



Figure 4. Ailanthus pith is light brown, spongy and continuous. (Karen Snape, Virginia Tech)



Figure 5. Ailanthus fruits are winged samaras. (Karen Snape, Virginia Tech)



Figure 6. Ailanthus bark is somewhat variable, eventually developing a cantaloupe-like appearance. (Karen Snape, Virginia Tech)

Look-alike Species

Ailanthus can be confused with native sumacs (*Rhus* spp.), but can usually be distinguished by sumac's small, red, fuzzy drupe (fruit) that persists throughout the winter. Black walnut (*Juglans nigra*) is also sometimes mistaken for ailanthus due to its compound leaves and large shield-shaped leaf scars. Ailanthus's spongy pith and unpleasant odor, compared to walnut's chambered pith and citrusy scent should help distinguish between these trees.

Control

Cutting alone will not kill ailanthus, but instead cause it to resprout vigorously. Cutting must be combined with chemical control unless the entire root system is excavated, which usually is not feasible. Triclopyr has been verified to provide effective control of ailanthus through basal, foliar, and cut-stump applications. The use of a surfactant for basal and foliar applications is also recommended.

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