Fact Sheet: Princess Tree

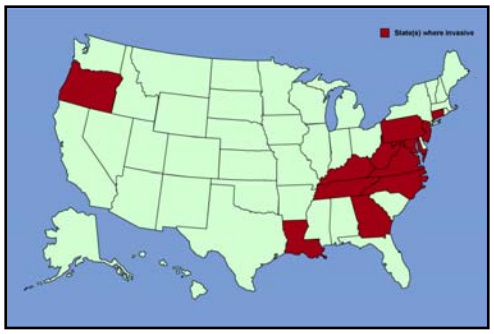
Princess Tree

Paulownia tomentosa (Thunb.) Sieb. & Zucc. ex Steud.
Figwort family (Scrophulariaceae)

NATIVE RANGE
China

DESCRIPTION
Princess tree, also known as royal paulownia or empress tree, is a small to medium sized tree that may reach 30-60 feet in height. The bark is rough, gray-brown, and interlaced with shiny, smooth areas. Stems are olive-brown to dark brown, hairy and markedly flattened at the nodes (where stems and branches meet). Leaves are large, broadly oval to heart-shaped, or sometimes shallowly three-lobed, and noticeably hairy on the lower leaf surfaces. They are arranged in pairs along the stem. Conspicuous upright clusters of showy, pale violet, fragrant flowers open in the spring. The fruit is a dry brown capsule with four compartments that may contain several thousand tiny winged seeds. Capsules mature in autumn when they open to release the seeds and then remain attached all winter, providing a handy identification aid.

ECOLOGICAL THREAT
Princess tree is an aggressive ornamental tree that grows rapidly in disturbed natural areas, including forests, streambanks, and steep rocky slopes.



DISTRIBUTION IN THE UNITED STATES
Princess tree is found in 25 states in the eastern U.S., from Maine to Texas.

HABITAT IN THE UNITED STATES
Princess tree can be found along roadsides, streambanks, and forest edges. It tolerates infertile and acid soils and drought conditions. It easily adapts to disturbed habitats, including previously burned areas, forests defoliated by pests (such as the gypsy moth) and landslides and can colonize rocky cliffs and scoured riparian zones where it may compete with rare plants in these marginal habitats. Its ability to sprout prolifically from adventitious buds on stems and roots allows it to survive fire, cutting, and even bulldozing in construction areas.

BACKGROUND
Princess tree was introduced into the U.S. as an ornamental and landscape tree around 1840. It was first imported to Europe in the 1830's by the Dutch East India Company and brought to North America a few years later. This tree has since become naturalized in the eastern U.S. and is also grown on the west coast. Princess tree is native to western and central China where historical records describe its medicinal, ornamental, and timber uses as early as the third century B.C. It was cultivated centuries ago in Japan where it is valued in many traditions. Recently it has also been grown in plantations and harvested for export to Japan where its wood is highly valued.

BIOLOGY & SPREAD
Princess tree can reproduce from seed or from root sprouts; the latter can grow more than 15 feet in a single season. The root branches are shallow and horizontal without a strong taproot. Seed-forming pollen is fully developed before the onset of winter and the insect-pollinated flowers open in spring. A single tree is capable of producing an estimated twenty million seeds that are easily transported long distances by wind and water and may germinate shortly after reaching suitable soil.

Seedlings grow quickly and flower in 8-10 years. Mature trees are often structurally unsound and rarely live more than 70 years.

MANAGEMENT OPTIONS

Princess tree can be controlled using a variety of mechanical and chemical controls. Hand pulling may be effective for young seedlings. Plants should be pulled as soon as they are large enough to grasp. Seedlings are best pulled after a rain when the soil is loose. The entire root must be removed since broken fragments may resprout. Trees can be cut at ground level with power or manual saws. Cutting is most effective when trees have begun to flower to prevent seed production. Because Princess tree spreads by suckering, resprouts are common after cutting. Cutting should be considered an initial control measure that will require either repeated cutting of resprouts or an herbicidal treatment.

Princess tree seedlings and small trees can be controlled by applying a 2% solution of glyphosate (e.g., Roundup®) or triclopyr (e.g., Garlon®) and water plus a 0.5% non-ionic surfactant to thoroughly wet all leaves. Use a low pressure and coarse spray pattern to reduce damage from spray drift on non-target species. Glyphosate is a non-selective systemic herbicide that may kill non-target plants that are only partially sprayed. Triclopyr is a selective herbicide for broadleaf species. In areas where desirable grasses are growing , triclopyr can be used with minimal non-target damage.

Girdling is effective on large trees where the use of herbicides is impractical. Using a hatchet, make a cut through the bark encircling the base of the tree, approximately six inches above the ground. Be sure that the cut goes well below the bark. This method will kill the top of the tree but resprouts are common and may require a follow-up treatment with a foliar herbicide.

The cut stump method, that is applying herbicide to freshly cut stumps, should be considered for individual trees or when desirable plants are nearby that might be impacted by foliar applications. Stump treatments can be used as long as the ground is not frozen. Begin treatments by horizontally cutting stems at or near ground level. Immediately apply a 50% solution of glyphosate or triclopyr and water to the cut stump making sure to cover the outer 20% of the stump. Basal bark applications are effective throughout the year as long as the ground is not frozen. Apply a mixture of 25% triclopyr and 75% horticultural oil to the base of the tree trunk to a height of 12-15 inches from the ground. Thorough wetting is necessary for good control; spray until run-off is noticeable at the ground line.

USE PESTICIDES WISELY: Always read the entire pesticide label carefully, follow all mixing and application instructions and wear all recommended personal protective gear and clothing. Contact your state department of agriculture for any additional pesticide use requirements, restrictions or recommendations.

NOTICE: mention of pesticide products on this page does not constitute endorsement of any material.

CONTACTS

For more information on the management of Princess Tree, please contact:

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SUGGESTED ALTERNATIVE PLANTS

Many native shrubs and trees make excellent alternatives to Princess tree. Examples include serviceberry (*Amelanchier canadensis* and *A. arborea*), redbud (*Cercis canadensis*), flowering dogwood (*Cornus florida*), American holly (*Ilex opaca*), red mulberry (*Morus rubra*), spicebush (*Lindera benzoin*), and sassafras (*Sassafras albidum*). Contact the native plant society in your state for additional recommendations and for information on local sources of native plants.

OTHER LINKS

- http://www.invasive.org/search/action.cfm?q=Paulownia%20tomentosa
- http://nbii-nin.ciesin.columbia.edu/ipane/icat/browse.do?specieId=83

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