

**Southeast Exotic Pest Plant Council Invasive Plant Manual****Common Name:** Chinese Tallowtree**Scientific Name:** *Triadica sebifera* L.

Chinese tallowtree is a small to medium sized deciduous tree in the Euphorbiaceae (Spurge) family. It is monoecious, producing male and female flowers on the same plant. As with many species in the Euphorbia family, tallowtree is toxic to animals and humans. The white sap may be a skin irritant. It is native to China and Japan where the waxy outer covering of the seed it is used for machine oil, soap making, fuel oil, and many other uses.

**Height:** Chinese tallowtree can reach a height of 15 meters at maturity.

**Leaves:** The leaves are rhombic ovate, 4 to 7 cm long and 3.5 to 6 cm wide. The tip of the leaf is acuminate (pointed) with a rounded to truncate (flattened) base. The leaf surface is glabrous with smooth margins and prominent venation. The leaf stalks are 2-5 cm long with two prominent glands just below the leaf. Leaves are placed alternately on the stem.



Photo by Cheryl McCormick

**Flowers:** The terminal flowers are in greenish-yellow spike-like bundles. The staminate (male) flowers occur in fascicles of 3-15 on the upper portion of the flower. The solitary pistillate (female) flowers are on pedicels at the base of the spike.



Photo by James H. Miller

**Fruit:** The 1 to 1.3 cm capsule has three locules (compartments) turning from green to black upon maturity. The capsule walls are eventually shed exposing the seeds.

**Seeds:** The three seeds per capsule are round, white, and 7 to 8 mm in size.

**Life History**

Growth initiates in early spring and flowers are produced from March through May. Flowering can begin when the trees are one meter tall, which may be as early as three years of age depending on growing conditions. The male and female seed clusters mature at different times. Variation is seen between sub-populations as to which type matures first. This contributes to the high genetic diversity of this species. The seeds mature in late summer to fall. Seeds are produced annually and each tree has the potential of bearing 100,000 seeds. Trees



Photo by James H. Miller

remain productive throughout their lives, which is commonly up to 25 years, although trees of 100 years of age have been recorded. Distribution of seed is primarily due to birds and water. Trees readily resprout from stumps and rootstocks.

### Origin and Distribution

Chinese tallowtree is native to China and Japan. It was introduced into the United States in the 1700's in South Carolina. It was distributed in the Gulf Coast in the 1900's by the U.S. Department of Agriculture in an attempt to establish a soap making industry. Current distribution includes all of the Southeastern United States from Texas to Florida, North Carolina to Arkansas, and it was recently discovered in California.



Photo by Ted Bodner

### Similar Species

Chinese tallowtree resembles several species of poplar (*Populus* sp.) trees. The main distinguishing feature is that tallowtree has smooth margins on the leaves while poplars are serrated.

### Habitat

Tallowtree prefers mesic to hydric soils but it can tolerate a wide range of soil conditions. It is commonly found in bottomlands, old fields, coastal prairies, and riparian areas. It can become established in shaded areas and is capable of spreading into undisturbed, as well as, disturbed areas. It is tolerant of periodic flooding and exposure to saltwater.

### Management Recommendations

#### Mechanical Control

**Cutting:** Cut trees at ground level with power or manual saws. Cutting is most effective when trees have begun to flower to prevent seed production. Because tallowtree spreads by suckering, resprouts are common after treatment. Cutting is an initial control measure and will require either an herbicidal control or repeated cutting for resprouts.

**Girdling:** Use this method 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 15 cm (6 in) above the ground. Be sure that the cut goes well into or below the cambium layer. This method will kill the top of the tree but resprouts are common. Follow-up treatments for many years may be required until roots are exhausted, so this method is not recommended for large populations.

**Hand Pulling:** Chinese tallowtree is effectively controlled by manual removal of young seedlings. Plants should be pulled as soon as they are large enough to grasp, but before they produce seeds. Seedlings are best pulled after a rain when the soil is loose. The entire root must be removed since broken fragments may resprout.

#### Herbicidal Control

**Foliar Spray Method:** This method should be considered for large thickets of tallowtree seedlings where risk to non-target species is minimal. Air temperature should be above 65°F to ensure absorption of herbicides.

**Glyphosate:** Apply a 2% solution of glyphosate and water plus a 0.5% non-ionic surfactant to

thoroughly wet all leaves. Use a low pressure and coarse spray pattern to reduce spray drift damage to non-target species. Glyphosate is a non-selective systemic herbicide that may kill non-target partially sprayed plants.

**Triclopyr:** Apply a 2% solution of triclopyr and water plus a 0.5% non-ionic surfactant to thoroughly wet all leaves. Use a low-pressure coarse spray pattern to reduce spray drift damage to non-target species. Triclopyr is a selective herbicide for broadleaf species. In areas where desirable grasses are growing under or around tallowtree, triclopyr can be used without non-target damage.

**Cut Stump Method:** This control method should be considered when treating individual trees or where the presence of desirable species precludes foliar application. Stump treatments can be used as long as the ground is not frozen.

**Glyphosate:** Horizontally cut stems at or near ground level. Immediately apply a 50% solution of glyphosate and water to the cut stump, covering the outer 20% of the stump.

**Triclopyr:** Horizontally cut stems at or near ground level. Immediately apply a 50% solution of triclopyr and water to the cut stump, covering the outer 20% of the stump.

**Basal Bark Method:** This method is effective throughout the year as long as the ground is not frozen. Apply a mixture of 25% triclopyr ester and 75% horticultural oil to the basal parts of the tree to a height of 30-38 cm (12-15 in) from the ground. Thorough wetting is necessary for good control; spray until run-off is noticeable at the ground line.

### Biological Control

Although no biological controls are currently available, in 2000 the U. S. Department of Agriculture reported that the potential for biological control for tallowtree is promising. This was concluded after several species of insects were observed feeding on the leaves, flowers and seeds in natural stands of tallowtree in China.

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