

## Biology and Management of Chinese Tallow Tree<sup>1</sup>

Rick Williams and Patrick Minogue<sup>2</sup>

Tallowtree (*Triadica sebifera* (L.) Small) or the synonym, Chinese tallowtree (*Sapium sebiferum* (L.) Roxb.) is a deciduous tree that displays rapid growth. *Sapium sebiferum* was introduced to the USA in Charleston, South Carolina in the late 1700s. It was introduced initially for oil production and used in making candles. It has spread to every coastal state from North Carolina to Texas, and inland to Arkansas. In Florida it occurs as far south as Tampa. It is most likely to spread to wildlands adjacent to or downstream from areas landscaped with *Sapium sebiferum*. It has been detected in California (along the American River, Sacramento County) and in wetlands in Yolo County (Rice 1998). This tree is favored as an ornamental tree because of its rapid growth and fall color. Chinese tallowtree was listed as a noxious weed by the Florida Department of Agriculture and Consumer Services Noxious Weed List (5b-57.007 FAC) in 1998, which means that possession with the intent to sell, transport, or plant is *illegal* in the state of Florida.



**Figure 1.** Chinese tallow tree turning reddish color in the fall. Credits: Rick Williams

### Biology

Chinese tallowtree can be identified by its simple, alternate leaves with broadly rounded bases that taper to a slender point. Leaf stalks are 1-2 inches long. This tree has milky sap and can attain heights of 30 feet. Small, yellow flowers bloom in the spring along spikes up to 8 inches long. The fruit is a 0.5-inch wide, 3-lobed capsule that turns brown at maturity and splits open to reveal 3 dull white seeds (Figure 1). The seeds, which often remain attached

1. This document is FOR190, one of a series of the School of Forest Resources and Conservation, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Original publication date July, 2008. Visit the EDIS Web Site at <http://edis.ifas.ufl.edu>.
2. Rick Williams is an associate professor and extension forestry specialist in the School of Forest Resources and Conservation at the West Florida Research and Education Center, 5988 Hwy 90 Bld. 4900 Milton, FL 32583. Patrick Minogue is an assistant professor of silviculture in the School of Forest Resources and Conservation, North Florida Research and Education Center, 155 Research Road, Quincy, FL 32303.

**PLEASE READ AND FOLLOW ALL HERBICIDE LABEL DIRECTIONS:** The use of trade names in this publication is solely for the purpose of providing information. UF/IFAS does not guarantee or warranty the products named, and references to them in this publication do not signify our approval to the exclusion of other suitable products. Treatment recommendations involve general herbicide prescriptions that have yielded acceptable levels of control in experimental trials. However, these recommendations are not guaranteed to work on every site.

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. U.S. Department of Agriculture, Cooperative Extension Service, University of Florida, IFAS, Florida A. & M. University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Larry Arrington, Dean



**Figure 2.** White seeds and reddish fall color in the leaves.  
Credits: Rick Williams

to the tree through the winter, resemble popcorn, suggesting the other common name of popcorn tree (Langeland 2006).

Chinese tallowtree is a difficult tree to remove once it becomes established on your property. Existing trees can be readily killed, but the abundant seeds can quickly re-establish the area, and root systems can re-sprout. Some speculate that the seeds remain viable for many years (Jubinsky and Anderson 1996). Although the leaves of Chinese tallowtree are poisonous to livestock, the seeds are widely spread by birds and water.

## Management Strategies

### Biological Control

Since Chinese tallowtree is out of its native range in the southeastern U.S., the normal biological control organisms are not present. Research in biological control methods is limited because we do not want to introduce another non-native pest to our environment.

### Fire

Fire provides partial control of Chinese tallowtree. Larger, mature trees are not impacted by fire because they have developed thick bark and are tall enough to escape the direct flames of the fire. Smaller, young infestations of tallowtree can be controlled by repeated burning. The fire will kill the above-ground stems, but root systems will re-sprout new growth. Thus, repeated burning every 2 to 3

years will be necessary to manage and eventually eliminate this tree.

### Machinery

Chinese tallowtrees can be mowed when they are young or in early stages of colonizing an area. Even with repeated mowing, however, tallowtree will continue to re-sprout. They are prolific sprouters on cut or damaged stems. Older, mature trees can be cut with heavier cutting machines like a brown tree cutter or a chainsaw. The cut trees will re-sprout, so mowing or cutting must be combined with fire or herbicides to have effective control. In fact, cutting tallowtrees and treating the cut stems with herbicides or allowing new growth to form and then spraying with herbicides is an effective method of control. The cutting allows better herbicide coverage compared to spraying the foliage of large trees.

### Herbicides

Herbicides can be applied to foliage between June and early October as long as the plants are actively growing and not under drought stress. The frequently recommended foliage spray mixture is a 1- to-2 percent solution of Garlon® 4 herbicide or Arsenal® AC as a 1-percent solution (4 ounces per 3-gallon mix). Note that Arsenal® AC is a persistent herbicide and damage to nearby trees and shrubs may occur if their roots extend into the treated area. If the trees are growing in water, a 1- to 2-percent solution of Accord® Concentrate in clean water can be used, or a solution of 1- to 2-percent Garlon® 3A can be used. A surfactant can be added at 1-1.5 percent to improve wetting and penetration (Miller 2003).

For sapling-sized trees, basal sprays can be used to control tallowtree. The young bark is still thin enough that the herbicide can penetrate into the cambium layer. Garlon® 4 Ultra is mixed at 20-30 percent in basal oil. Various commercially prepared basal oils are available at local feed stores or coops. Diesel can also be used in place of basal oil. Pathfinder® II\* herbicide is a ready-to-use product for basal bark treatments, containing the same active ingredient as in Garlon® 4. Use an up-and-down motion to apply the spray to the base of the stem covering about a foot of area. Spray the stem on at

least two sides to be sure to treat the full circumference.

Cut stems and stump treatments can be used any time of the year as long as the herbicide does not freeze when applied. Apply Garlon® 3A or Accord® XRT II undiluted, or dilute 1 to 1 with clean water and apply to freshly cut stumps or slits cut into the stem (Miller 2003).

For larger trees, stem injection is a viable method of controlling tallowtree. In a process often referred to as "Hack-'n'-Squirt," a hatchet or similar tool is used to make horizontal cuts around the trunk of the tree. The cuts do not have to touch, but they should be made evenly around the tree. Make stem injections using Arsenal® AC\*, Garlon® 3A, or Pathfinder® II\* according to label directions any time except March and April.

### Literature Cited

- Jubinsky, G. and L. C. Anderson. 1996. The invasive potential of Chinese tallow-tree (*Sapium sebiferum* Roxb.) in the Southeast. *Castanea* 61:226-231
- Langeland, K. A. 2006. Natural area weeds: Chinese tallow (*Sapium sebiferum* L.). Univ. Florida Cooperative Extension Service SS-AGR-45. 4 p. <http://edis.ifas.ufl.edu/AG148>.
- Miller, J. H. 2003. Nonnative invasive plants of southern forests: A field guide for identification and control. USDA Forest Service Southern Research Station General Technical Report SRS-62. Asheville, NC. 93 p.
- Rice, B. 1998. Weed Alert: Chinese Tallowtree, Florida Aspen, Popcorn Tree, Wildland Invasive Species Team, The Nature Conservancy. <http://tncweeds.ucdavis.edu/alert/alrtsapi.html>

### Trade Names

Accord® Concentrate and Accord XRT II are registered trademarks of Dow AgroSciences, LLC.

Arsenal® AC is a registered trade mark of BASF.

Garlon® 3A is a registered trademark of Dow AgroSciences, LLC.

Garlon® 4 Ultra is a registered trademark of Dow AgroSciences, LLC.

Pathfinder®\* II is a registered trademark of Dow AgroSciences, LLC

PLEASE READ AND FOLLOW ALL HERBICIDE LABEL DIRECTIONS: The use of trade names in this publication is solely for the purpose of providing information. UF/IFAS does not guarantee or warranty the products named, and references to them in this publication do not signify our approval to the exclusion of other suitable products. Treatment recommendations involve general herbicide prescriptions that have yielded acceptable levels of control in experimental trials. However, these recommendations are not guaranteed to work on every site.