



Invasive Species Management Plans for Florida

Paper Mulberry

Broussonetia papyrifera (L.) Moraceae

INTRODUCTION

Paper mulberry is a tree in the mulberry family (Moraceae) that is used extensively as an ornamental landscape plant in the United States. Native to Japan and Taiwan, paper mulberry was introduced for its use as a fast-growing shade tree. In its native lands, paper mulberry is used in paper making. In Hawaii and other parts of the South Pacific, its bark is used to make cloth. In the United States it is found from Illinois to Massachusetts, south to Florida and west to Texas. Paper mulberry is an invader of open habitats such as forest and field edges. Native species are displaced by paper mulberry because of its vigorous growth.

DESCRIPTION

Paper mulberry is a large shrub or small tree with a mounded appearance, capable of growth over 30 feet in height. The bark is pale brown and smooth or shallowly grooved. The most revealing characteristic of paper mulberry is the highly variable leaves. In size they range from 3 to 10 inches in length, and are arranged alternately on stems. Smaller leaves tend to be simpler, ovate in shape with pointed tips and serrate margins. Larger leaves tend to be cordate (heart) or mitten shaped, some deeply lobed, with three large or sometimes two smaller lobes near the base of the leaf. Soft, pubescent hairs are found on the underside of leaves. Paper mulberry is deciduous and can be identified by bud characteristics, stipule scars, and hairy, reddish brown twigs in winter. If leaves are damaged or removed from the stem, a milky sap exudes from the cut surface.

Paper Mulberry is dioecious, with male and female flowers produced on separate trees. Male trees produce catkins that are long clusters of flowers. Female trees produce ball-shaped flower clusters, which mature into red, globose aggregate fruits. The fruit is generally 0.5 – 1 inch in diameter and reddish-purple in color.

Seed and vegetative growth (sprouting/suckering) are the primary mechanisms of paper mulberry reproduction.

IMPACTS

Paper mulberry is an invasive plant that will quickly invade disturbed areas throughout Florida. In Florida, paper mulberry is found in Dade, Duval, and Santa Rosa Counties, to name a few. Natural areas are extremely susceptible to invasion of paper mulberry because the Florida climate is ideal for this, as well as many other, invasive species. Paper mulberry is spread via fruit with birds and other wildlife able to spread fruit over significant distances. Once established paper mulberry is able to spread vegetatively from its roots, forming dense thickets that inhibit the growth and development of native species. This also negatively impacts wildlife, which are dependent on native vegetation for forage, nesting, and cover.

MANAGEMENT

Preventative: Do not plant paper mulberry. Educate homeowners and others on its invasive nature so it is not planted in landscapes.

Cultural: Alternative native plants that can be planted after paper mulberry has been removed include: red maple (*Acer rubrum*), hackberry (*Celtis occidentalis*), black gum (*Nyssa sylvatica*), and sassafras (*Sassafras albidum*).

Mechanical: In small infestations, seedlings can be pulled by hand. Shrubs can be cut to the ground, repeating as necessary to control any re-growth from sprouts.

Biological: There is limited research and data on biological control of paper mulberry.

Chemical: Chemicals should be applied prior to seed set. Application of the herbicide triclopyr ester (15%-30%) to the bark has been successful. Larger trees may require multiple treatments. A cut stem treatment with 50% triclopyr amine is another chemical option. Foliar applications of glyphosate (1-3%) or triclopyr (2-4%) will be effective on smaller trees where thorough coverage can be obtained. Be sure to use a surfactant (0.25%) with triclopyr.

REFERENCES AND USEFUL LINKS:

Invasive and Exotic Species of North America: www.invasive.org

University of Florida Center for Aquatic and Invasive Plants:
<http://aquat1.ifas.ufl.edu/welcome.html>

University of Florida's Cooperative Extension Electronic Data Information Source:
<http://edis.ifas.ufl.edu/index.html>

Langeland, K.A. and K. Craddock Burks. 1998. Identification and Biology of Non-Native Plants in Florida's Natural Areas. IFAS Publication SP 257. University of Florida, Gainesville. 165 pp.

USDA Natural Resources Conservation Service, Plants Database: <http://plants.usda.gov>

Morgan, E.C. and W.A. Overholt. 2004. Wildland Weeds: Paper Mulberry, *Broussonetia papyrifera*. Publication ENY-702, Entomology and Nematology Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. <http://edis.ifas.ufl.edu/IN498>

Plant Invaders of Mid-Atlantic Natural Areas:
<http://www.nps.gov/plants/alien/pubs/midatlantic/indexsci.htm>

Invasive and Exotic Species of North America:
<http://www.invasive.org/library/FLFSNoxWeeds/papermullberry.html>

Mature Plant

- Small tree – 20 to 30 feet in height
- Mounded appearance
- Forms dense thickets
- Deciduous



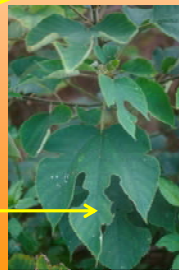
Stems

- Stipule scars on twigs
- Hairy stems
- Reddish to brown twigs in winter
- Milky sap when damaged



Leaves

- Alternately arranged
- Soft hairs on underside
- Smaller leaves
 - Ovate, pointed tips
 - Serrate margins
- Larger leaves
 - Cordate, mitten-shaped
 - Sometimes deeply lobed



Flowers and Fruits

- Dioecious - flowers on separate trees
 - Male flowers are catkins, long clusters
 - Female flowers are ball-shaped flower clusters
- Aggregate fruits – ½ to 1 inch in diameter

