

WEED ALERT



Center for Aquatic Weeds

Mimosa pigra

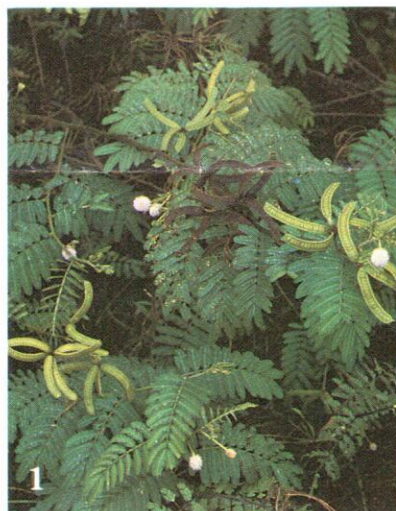
Deborah White*

Florida Cooperative Extension Service Institute of Food and Agricultural Sciences University of Florida John T. Woeste, Dean

Figure 1. Fruit (brown at maturity), flowers, and bipinnate leaves of *Mimosa pigra* var. *pigra*.

Figure 2. The pink flowers on this prickly stem of *Mimosa pigra* are clustered into small heads.

Figure 3. *Mimosa pigra* var. *pigra* grows to a height of six to ten feet on this Florida lake margin.



Characteristics

- Sensitive leaves fold upon touch.
- Recurved spines and prickles appear on stems and at the junctions of leaflets.
- Mature sections (yellow-haired seeds) making up the long brown fruit (6 - 8 in.) break away, leaving the margin as a frame.
- Flowers appear as a fluffy pink ball approximately one-half inch in diameter.

*Former Aquatic Biologist, Center for Aquatic Weeds, IFAS, University of Florida, Gainesville 32611

Mimosa pigra

Mimosa pigra is a thicket forming leguminous shrub that rapidly spreads in agricultural, wetland, and riverine communities. A native of Central America, this aggressive weed has spread to all tropical regions of the world in the past ten years. It is especially troublesome in southeast Asia where it first was introduced into Thailand as a cover crop and for erosion control in 1947. The spread of this species into subtropical Florida is now documented from several localities. Based on these reports and its world wide reputation, *M. pigra* var. *pigra* was included on the federal noxious weed list (7CF, Part 360) published by the Plant Protection and Quarantine Program, USDA/APHIS¹.

This mimosa, commonly called the giant sensitive plant, stands one to four meters tall. Distinctive field characteristics include (see figures on front): 1) sensitive (folding upon touch) leaves, 2) recurved prickles and spines on the stems and leaves and at the junctions of leaflets, 3) flowers arranged in a head and the pink stamens of each flower extended, 4) clusters of flat brown pods each with transverse sections held by the suture, 5) single seeded sections of the pod with golden hairs scattered on the surface which break from the suture, leaving an empty frame.

A complex of morphological and physiological characteristics enables this species to quickly colonize new areas. It often produces seeds year round in the tropics and a mature plant may produce 42,000 or more seeds a year.² The light buoyant seed is covered with hooked hairs and is ideally suited for dispersal via wind, water, or moving objects. The seeds remain viable for many years and may germinate in a wide range of environmental conditions. Once established, this plant can withstand almost total submergence by readily forming adventitious roots from aerial and submerged stems. It can tolerate upland soils and moisture regimes such as occur along roadways, in secondary forests, and even in highly saline marine habitats in Australia.³

Mimosa pigra thickets increase flooding along rivers and irrigation systems by obstructing water flow thus increasing sedimentation and nutrient levels. These shrub barricades block access to inhabited areas as well as those used for recreation and tourism, agriculture, and fisheries. As the thickets spread they replace native plant species and compete with cultivated species.

Although problems caused by *Mimosa pigra* are reported from the New World Tropics, Mexico, and Africa, it has had the most impact in the East Indies. Farmers there utilize every open space in an integrated plan for the support of livestock, crops, and family. For instance, if *M. pigra* dominates roadsides, the cattle that usually graze these areas are forced onto adjacent agricultural fields. Native people have also developed uses for the plant in medicines and as firewood. These cultural pressures must be considered in developing management schemes for the control of this shrub.

However, as the patterns of reproduction and establishment of *Mimosa pigra* populations are studied,

natural limits to its growth are being discovered. Germinating seeds and subsequent stages of the young *M. pigra* seedlings are vulnerable to water inundation and their establishment success is possibly restricted to areas of fluctuating or low water levels.³ As is typical of many legume species, seed germination is induced by ground fires. This affords mimosa an advantage in establishing in nutrient-rich exposed areas. If, however, induced germination is combined with subsequent water inundation, seedling success could be reduced. The plants occurrence is also associated with environmental disturbance or newly exposed land. Since ruderal habitats are rapidly increasing everywhere, both of these establishment characteristics can be helpful in predicting where mimosa will spread. Also, a study of *M. pigra* var. *berlandieri* (L) B. L. Turner, which occurs in Mexico and southern Texas, indicates it is a successional species and thus is eventually replaced in areas where succession is allowed to proceed.⁵

Although it is unlikely that *M. pigra* can be eradicated in areas where extensive populations have become established, several methods of control are currently in use. Manual cutting and burning or mechanical operations temporarily control the spread of the plant but rapid regrowth reduces the effectiveness of these methods. Chemical management is often most feasible, although repeated treatments usually are necessary. Among the herbicides shown to be effective are glyphosate, hexazinone, fosamine and others. Biological controls such as plant pathogens and insects are being researched. Management schemes likely will involve several types of controls to reduce cost and environmental impact.

The extensive open wetlands and waterways in Florida are similar to the habitats *Mimosa pigra* has invaded elsewhere. Locating populations of this pest is essential in assessing its biological potential in Florida. As managers and users of our waters become aware of the threat posed by *M. pigra* it is very important that they report any populations, even suspected ones, to the county extension agent or biologist, or to the Center for Aquatic Weeds, University of Florida, 7922 N.W. 71st Street, Gainesville, FL 32606, telephone (904) 376-0732.

Bibliography

- ¹ Federal Register Vol. 49 (no. 120) June 20, 1984. Animal and Plant Health Inspection Service, USDA, p. 25222-3.
- ² Chanarong Duangsaad, et al., A study of Seed Production of *Mimosa pigra* L. Chiang Mai: Mae Jo Inst. of Tech. Thailand.
- ³ Miller, I.L. The Distribution and Threat of *Mimosa pigra* in Australia. In: Proc. Int. Sym. *Mimosa pigra* Management, ed. G. Lamar Roberts and Dale H. Habeck. IPPC no. 48-A-83.
- ⁴ Hidejiro Shibayama. Habitats, Seed Germination and Growth of *Mimosa pigra* L. In: Proc. Int. Sym. *Mimosa pigra* Management, ed. G. Lamar Roberts and Dale H. Habeck. IPPC no. 48-A-83.
- ⁵ Farrald, Carol and Robert Lonard. Comparative Vegetational Analysis of a Dry Basin and a Shallow Pond within the Bed of Cattail Lake Santa Ana Wildlife Refuge, Texas. Texas J. Sci. Vol. XXXVI (2.3), 149-161.
- ⁶ Miller, I.L. Control of *Mimosa pigra*. Northern Territory, Australia. Division of Primary Industry, Department of Industrial Development.

This publication was produced at a cost of \$964.15, or 48 cents per copy, to inform Florida residents about problems posed by Mimosa Pigra. 5-2M-85

