

caddo lake giant salvinia eradication

cise.tamu.edu/caddo

The **Caddo Lake Giant Salvinia Eradication** project is evaluating and demonstrating multiple control methods—biological and chemical—and assessing their effectiveness in killing giant salvinia.

The **Caddo Lake Giant Salvinia Eradication** project is the initial effort being undertaken through the Center for Invasive Species Eradication. This project is advancing management options for giant salvinia (*Salvinia molesta*) in Texas and other infested states. Giant salvinia is a free-floating aquatic fern, native to South America and introduced to the United States by the water garden industry. Since its introduction, giant salvinia has proven to be an aggressive invader that can double in size in four to 10 days under favorable growing conditions.

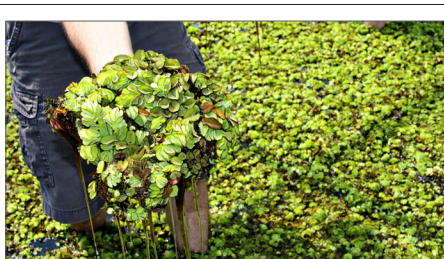
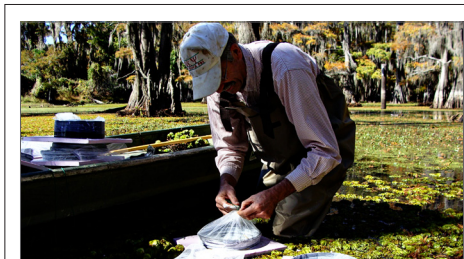
Caddo Lake was first infested with giant salvinia in 2006 and, within two years the plant expanded its coverage on the lake from less than two acres to more than 1,000 acres. Efforts conducted to control giant salvinia thus far have yielded moderate success but have not completely eradicated the species from the lake.

The project's overarching goal is to identify the most effective control methods for killing giant salvinia on Caddo Lake and incorporate these methods into agency guides, such as the USDA Natural Resources Conservation Service's *Field Office Technical Guide* and Texas AgriLife Extension Service educational program materials, so that public and private entities have readily available, proven methods to fight giant salvinia.

For more information, visit the project's blog at <http://caddosalvinia.blogspot.com> and the project's Facebook page at <https://www.facebook.com/caddo.salvinia>.

Objectives

- Evaluate individual and combined control practices (including chemical, biological, mechanical and other management) to determine their effectiveness and implementation costs
- Establish, operate and maintain a salvinia weevil rearing facility near Caddo Lake to serve as a ready source of weevils for release on Caddo Lake and also provide a living laboratory and nursery to develop a better knowledge of salvinia weevils and their behavior
- Develop specifications and recommendations for individual and combined control methods verified through the effective control of giant salvinia at Caddo Lake and surrounding water bodies
- Evaluate and quantify nontargeted environmental and ecosystem impacts resulting from demonstrated control methods and develop mitigation practices to minimize adverse effects
- Develop and deliver educational programs for landowners and managers on methods for controlling and eliminating giant salvinia and for preventing its spread from infested to noninfested waters



caddo lake giant salvinia eradication

- Collaborate with the Texas Parks and Wildlife Department, other agencies and nongovernmental organizations in Texas and Louisiana to expand and enhance public educational efforts to help prevent the spread of giant salvinia

Accomplishments

- Constructed and are actively operating salvinia weevil rearing facilities at Caddo Lake
- Conducted a weevil over-wintering study to determine a temperature tolerance threshold for weevil survival in colder temperatures
- Established a blog and Facebook page for the Caddo Lake efforts to aid in publicizing work and results
- Initiated a study to determine a spring-time temperature threshold for weevil reproduction
- Released more than 100,000 salvinia weevils on Caddo Lake during 2011 and monitored survival and dispersal of released weevils and impact on salvinia growth at four release locations
- Conducted initial evaluations of various foliar and systemic (absorbed through the roots) chemical and surfactant combinations at varying concentrations to assess the efficacy of each to control giant salvinia
- Continued evaluations of triploid grass carp consumption of giant salvinia compared to other native and non-native aquatic plants
- Maintained active coordination and collaboration partnerships with local, regional, state and federal entities
- Presented educational information on the dangers of giant salvinia to audiences, locally, regionally and statewide



Salvinia Weevil damage on Caddo Lake June 15, 2011

Project Leaders

- Texas Water Resources Institute
- Texas AgriLife Extension Service
- Texas AgriLife Research

Collaborators

- Caddo Lake Institute
- Texas Parks and Wildlife Department
- U.S. Fish and Wildlife Service
- U.S. Army Corps of Engineers
- USDA Agricultural Research Service
- Cypress Valley Navigation District
- Louisiana State University and Louisiana State Agencies

Funding Agency

- Congressional support through USDA Natural Resources Conservation Service



Texas Water Resources Institute
1500 Research Parkway, Suite 110, 2260 TAMU
College Station, TX 77843-2260
979.845.1851
twri@tamu.edu
4/2012