Interagency Giant Salvinia Control
Salvinia molesta

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U.S. Fish and Wildlife Service
AIS Coordinator-Southwest Region

www.salvinia.org

School yard aquatic education pond

May1998, Houston, TX

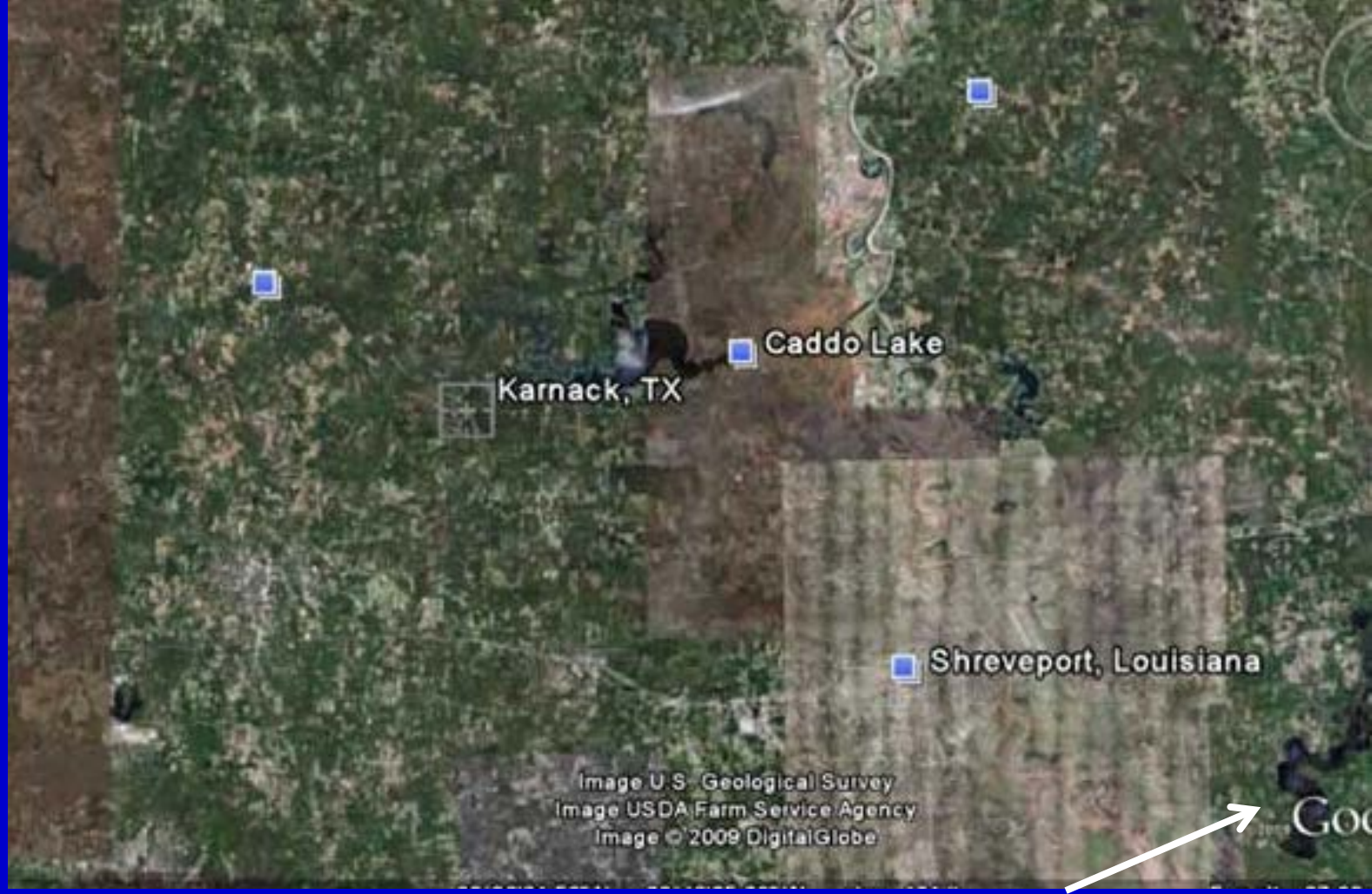
- Early detection
- Raising awareness
- Rapid response
- Control
- Eradication

After several failed efforts to eradicate fast growing giant salvinia, the pond was filled-in.

Found in TX ponds

- 9/98 – Toledo Bend
- 12/98 – Trinity River
- Aug – 99 Colorado River
- Etc. …

Recently found in Sam Rayburn
Now established in 11 TX reservoirs



Lake Bistineau – 17,000 acres

Mark McElroy – Louisiana Dept Wildlife & Fisheries
Lake Bistineau Rehabilitation planner estimates 7,000 covered acres

October 21 – local news coverage – heavy rains
Shreveport/Bossier City, Louisiana
Reporting from Lake Bistineau

Heavy rains & flooding pushed giant salvinia into shoreline homes & businesses

Local flooding due to heavy rains is news.

Coverage was more about giant salvinia than the flooding.

Interagency Giant Salvinia Control Team
Meeting to develop strategies

Caddo Lake National Wildlife Refuge
August - 2009

- Texas Parks & Wildlife Dept
- Louisiana Dept of Wildlife & Fisheries
- Southeast Aquatic Resources Partnership (SARP)
- Gulf & South Atlantic Regional Panel
- Louisiana State University
- University of Texas – PanAm, Weslaco, TX
- US Army Corps of Engineers
  - Lewisville Aquatic Ecosystem Research
  - Engineer Research & Development Center – Vicksburg
- USDA-APHIS-PPQ – Ft. Collins
- USDA-APHIS-ARS – Welaco, TX
- Fish & Wildlife Service
  - Regions 2 (Albuquerque) & 4 (Atlanta)
  - Caddo NWR

Goals & Objectives

- Increase control efficiency
- Enhance bio-controls
  - Increase weevil numbers
  - Overcome rearing & distribution problems
- Improve public awareness & willingness to prevent spread
- Develop cutting edge control tools
  - Satellite/aerial monitoring

Delivering a bio-control program has several problems

- Temperature setbacks in north TX-LA to giant salvinia & weevil rearing
  - Need healthy salvinia to rear weevils
- Moving weevils means moving lots of salvinia

Giant salvinia bio-control agent, *Cyrtobagous salviniae,* from S. America


USDA – APHIS – PPQ
Photo by Dewey W. Murray
08.21.2003 14:57

Biological Control of Giant Salvinia at the Lewisville Aquatic Ecosystem Research Facility (LAERF)

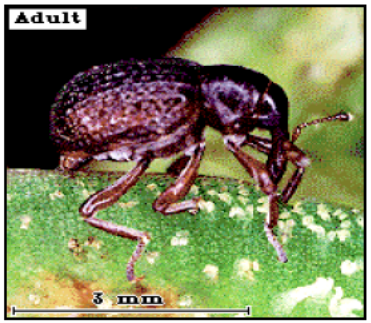
Julie G. Nachtrieb

US Army Engineer Research and Development Center
Lewisville, TX

Working with Team members to improve weevil rearing & distribution.

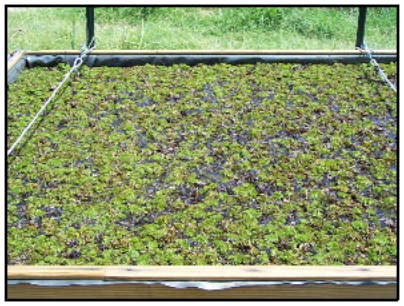
Cyrtobagous salviniae

- Eggs
  - Hatch in 10 days
- Larvae
  - Tunnel within rhizome
  - Complete development in 3-4 weeks
- Pupate for 2 weeks
- Adults
  - Feed on buds
- Total developmental time
  - 6.5 – 7.5 weeks



Culture Boxes

- Initial set-up
  - Peat moss & sediment
- Maintenance
  - Weekly
    - Fertilize & water
  - Every 3 – 4 weeks
    - Sample weevil population
      - Berlese funnels
    - Provide fresh salvinia for weevils
      - Transfer infested salvinia
      - Screens for weevil transfer



Mass weevil rearing & distribution by LSU, Dearl Sanders estimates 2 million released in 09.

Partnership – USDA-NRCS for more ponds in 2010.

Caddo Lake Pilot Study using CTBs (Concrete Traffic Barriers) to create temporary ponds.

Howard Elder – TPWD
Aquatic Plant Control

- Rear weevils near release sites
- Improved harvest/transfer
- Controlled environment for earlier weevil releases

- Large natural lake 25,000 acres
- Largest cypress forest in the world
- Internationally protected wetland under the RAMSAR treaty

Temporary Ponds

spearheaded by Howard Elder
Texas Parks & Wildlife Depart

Fish & Wildlife Service providing 10K

- R4 – Atlanta
- R2 – Albuquerque + Caddo NWR

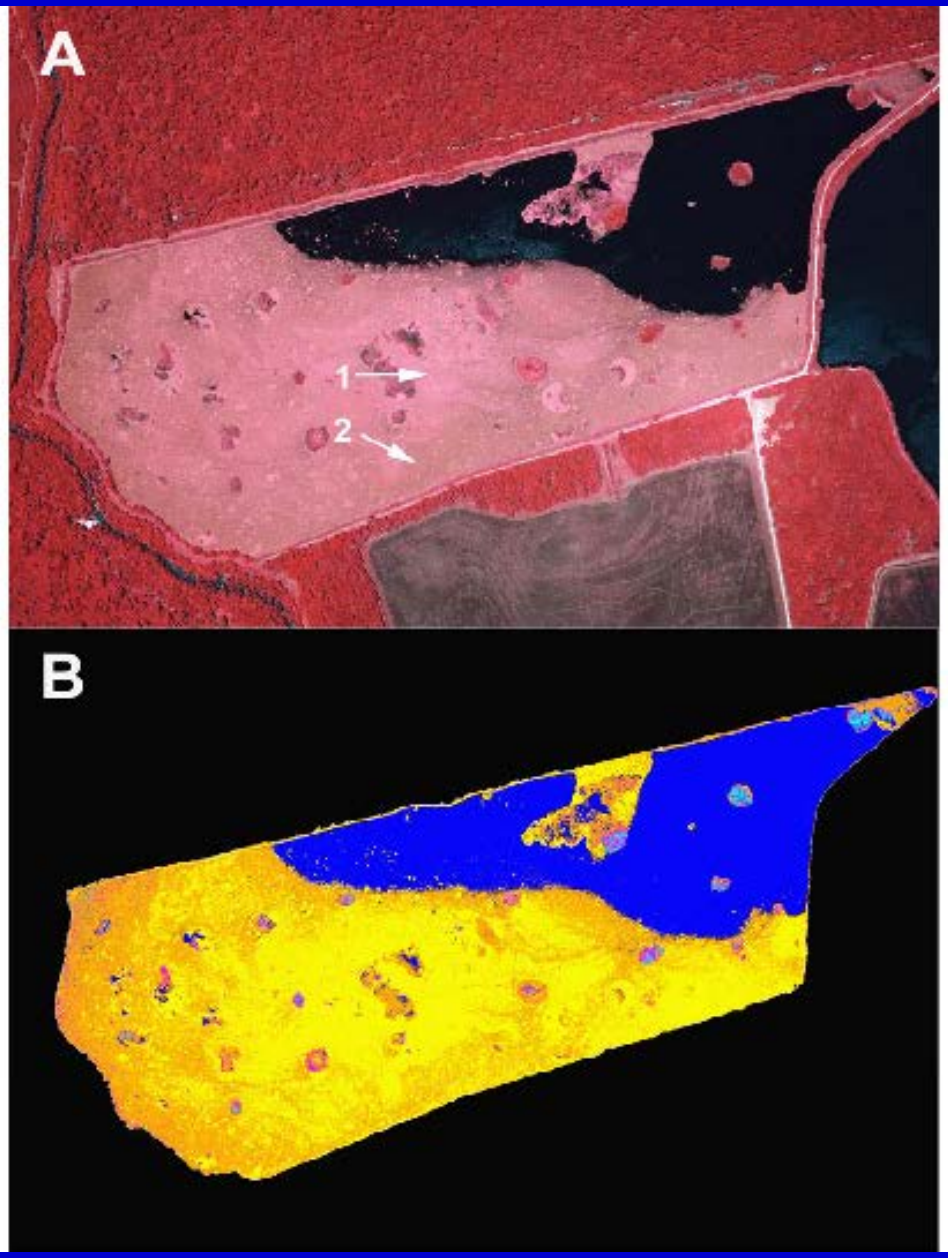
Cities on Caddo lake

Jefferson, Texas
Karnack, Texas
Mooringsport, Louisiana
Oil City, Louisiana
Swansons Landing, Texas
Uncertain, Texas

Color-infrared Aerial Photography

QuickBird Satellite Imagery

James Everitt – USDA – APHIS – ARS
Rod Summy & Ruben Mazariegos – University of TX - PanAm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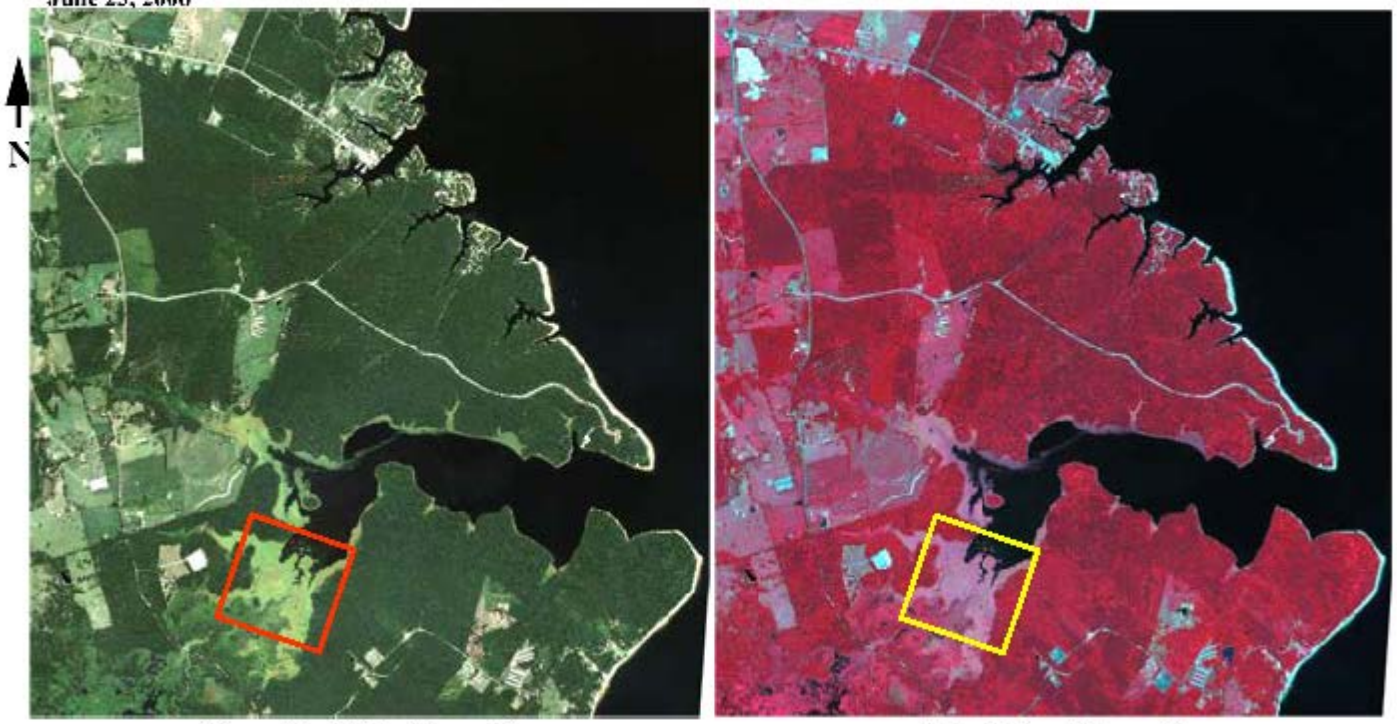
1
2
B

QuickBird Satellite Imagery
Siepe Bayou
June 23, 2006



Conventional Color Composite

Color Infrared Composite

Expected Products

- Develop aerial & satellite maps of Caddo Lake
- Integrate control data into a GIS of the study area for routine & long-term monitoring
- Assess varying levels of feeding damage for control adjustments
  - Nitrogen fertilization
  - Strategic herbicide applications
  - Identify areas w/o weevils

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Giant Salvinia

Photo Credit: USFWS

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Interagency Giant Salvinia Control Team

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Giant Salvinia Control

Giant salvinia is a free-floating aquatic fern native to central South America. Its explosive growth characteristics have had devastating impacts on resources in Africa, Australia, New Guinea and Sri Lanka where the plant has been inadvertently released. Introductions of co-evolved, predatory weevils (*Crytobagous salviniae*) from South America successfully controlled giant salvinia in many locations. In 1998 giant salvinia was recognized as a U.S. problem when it resisted eradication efforts in a small schoolyard pond being used for aquatic resource education near Houston, Texas. Biologists suspect it was introduced to the demonstration pond as a contaminate hitchhiking along with aquatic plants purchased from an aqua garden distributor. Although giant salvinia was listed as a federally prohibited noxious weed in the 1970s, it was still readily available as an aquarium plant and used in aqua gardens.

Soon after giant salvinia's appearance in Houston, it was being reported in Toledo Bend, Lake Conroe and the lower Trinity River in Texas and Bayou Teche in Louisiana. Its original spread to open water was likely as an escape from horticulture. A study by USDA found giant salvinia being cultured in sixteen states. Once established, boaters became the primary pathway to spread this prolific and hardy aquatic nuisance species to other waters. Efforts to control giant salvinia in the schoolyard demonstration pond were eventually abandoned and the pond was filled.

Last updated: October 29, 2009

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