

Invasive Aquatic Plants

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Georgia Invasive Aquatic Plants

Georgia Exotic Pest Control Council (www.gaepcc.org)

- ❑ Alligatorweed
- ❑ Hydrilla
- ❑ Parrotfeather
- ❑ Phragmites
- ❑ Giant Salvinia
- ❑ Torpedograss
- ❑ Water Hyacinth

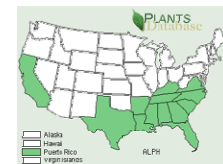
Other Exotic Aquatic Plants

Sea Grant, Univ. Florida

- ❑ *Egeria densa* – Brazilian elodea
- ❑ *Ipomea aquatica* – Swamp cabbage
- ❑ *Lythrum salicaria* – Purple loosestrife
- ❑ *Melaleuca quinquenervia* – Melaleuca
- ❑ *Myriophyllum spicatum* – Eurasian milfoil
- ❑ *Nymphoides peltata* – Yellow floating heart
- ❑ *Pistia stratiotes* – Water lettuce
- ❑ *Potamogeton crispus* – Curlyleaf pondweed
- ❑ *Urochloa mutica* – Para grass
- ❑ At least eight others targeted by committee

Alligatorweed

Alternanthera philoxeroides



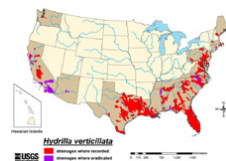
Alligatorweed Ecology



- ❑ Native to South America
- ❑ Introduced 1890's
- ❑ Emerged, perennial
- ❑ Adapts structurally to the environment
- ❑ Vegetative reproduction
- ❑ Stem node buds take root with soil contact
- ❑ Flea beetle, *Agasicles hygrophila*

Hydrilla

Hydrilla verticillata



Hydrilla Ecology



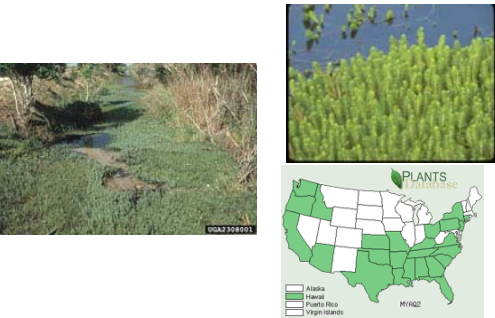
- ❑ Invaded Florida, 1959
- ❑ Found worldwide
- ❑ Submersed, rooted
- ❑ Whorls of 3-10 leaves with toothed margins
- ❑ Fast growing, reproduces from pieces of broken stems and underground propagule. Seed rare.

Hydrilla Control

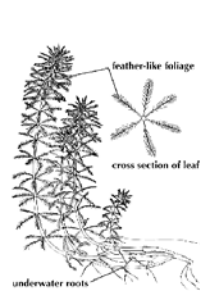
- ❑ Costs up to \$5 million/yr in Florida, \$2.5 million/yr in South Carolina
- ❑ Contact herbicides followed by grass carp
 - Diquat or endothal
- ❑ Tuber weevil, *Bagous affinis*
- ❑ Stem borer, *Bagous hydrillae*
- ❑ Leaf mining fly, *Hydrellia balciunasi* or *Hydrellia pakistanae*, *Hydrellia bilbifera*
- ❑ Impact mature plants and destroy reproductive structures

Parrotfeather

Myriophyllum aquaticum



Parrotfeather Ecology



- ❑ Native to S. America
- ❑ Aquarium plant
- ❑ Perennial rooted, with rhizomes
- ❑ Deep water to mudflat
- ❑ Yellow-green, graceful foliage above water
- ❑ 2,4-D or other systemic herbicide
- ❑ Contact herbicide then grass carp
- ❑ Cover after drawdown

Phragmites

Phragmites australis



Phragmites Ecology

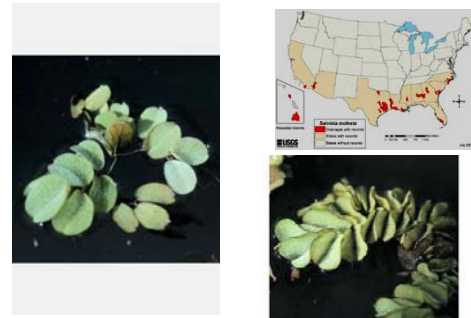
- ❑ European introduction
 - Aggressive genotype, 1800's
- ❑ Erect along waterways in several feet of water to moist soil, perennial
- ❑ Dense hedge-like stands
- ❑ Systemic herbicides
 - Glyphosate, Imazapyr
- ❑ Mechanical removal
- ❑ After removal plant native plants quickly

Biological Control of Phragmites

- Phragmites damages natural areas and reduces biological diversity
- Biological control work is rather recent, late 1990's
- Native herbivores
 - Yuma skipper – *Ochlodes yuma*
 - Dolichopodid fly – *Thrypticus* sp.
 - Gall midge – *Calamomyia phragmites*
- At least 21 species of exotic herbivores have been unintentionally introduced (Tewksbury et al.)

Giant Salvinia

Salvinia molesta, *Salvinia biloba*, *Salvinia herzogii*, *Salvinia minima*, *Salvinia auriculata*



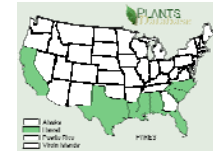
Giant Salvinia Ecology



- Recent invader, probably from aquarium release
- Floating fern
- Spreads very fast
- Biological control
 - Wide use in Texas
- Contact herbicides
 - Diquat, Diquat & Cutrine-Plus
- Report all sightings

Topedogress

Panicum repens



Torpedogress Ecology



- S. America and West Indies and widely distributed
- Marginal and forming mats
- Rhizomes and seeds
- Displaces Maidencane
- Control with systemic herbicides
 - Imazapyr, glyphosate

Water Hyacinth

Eichhornia crassipes



Water Hyacinth Ecology



- ❑ One of first exotic invasives, 1884
- ❑ Federal control efforts for more than 100 yrs
- ❑ Floating or rooted
- ❑ Spread by stolon
- ❑ Seeds germinate after reflooding
- ❑ Systemic (2,4-D) or contact (diquat) herbicides

Biological Control of Water Hyacinth

- ❑ Mottled waterhyacinth weevil - 1972
 - *Neochetina eichorniae*
- ❑ Chevroned waterhyacinth weevil - 1974
 - *Neochetina bruchi*
- ❑ Waterhyacinth moth larvae - 1977
 - *Smeodes albiguttalis*

Water Lettuce

Pistia stratiotes



Water Lettuce Ecology



- ❑ S. America in 1700's
- ❑ Floating mats or roots
- ❑ Buds in still water
- ❑ Not cold tolerant
- ❑ Mosquito habitat, navigation impact, clogs water intakes
- ❑ Water lettuce weevil
 - *Neohydronomus affinis*
- ❑ Water lettuce moth
 - *Spodoptera pectinicornis*

Information Sources

- ❑ Florida Sea Grant
 - aquat1.ifas.ufl.edu/seagrant/aquinv.html
- ❑ U.S. Army Corps of Engineers
 - www.saj.usace.army.mil/conops/apc/