



Aquatic Pests

**Introduced from
Aquariums and Water Gardens**

**Georgia Invasive Species Task Force
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The Problem

Invasive species are becoming an important problem throughout the United States. These species are not native to a given ecosystem and cause economic or environmental damage or harm to human health.

Some of the most notorious invasive species were originally sold as plants or pets for water gardens and aquariums. The popularity of these hobbies has led to many aquatic invasive species being introduced into the United States. This pamphlet briefly discusses several pests of concern in the Southeast that invade aquatic habitats or originated from the aquarium trade. Many of these species are widespread problems. Others have restricted ranges or are currently not found in the United States, but have the potential to become widely distributed if they are allowed to establish and spread.



John Byrd, Mississippi State Univ.



Ken Langeland, University of Florida

Hydrilla growing in an aquarium (top) and contaminating a boat trailer (bottom)

The Damage

Aquatic invasive species cost the United States over \$135 billion dollars annually due to environmental and economic harm. They damage all types of aquatic habitats, including lakes, streams, and wetlands, by:

- Interfering with navigation and water control structures
- Restricting native vegetation growth
- Harming fish and invertebrate populations
- Reducing biodiversity
- Harming local economies by discouraging anglers and tourists, and decreasing property values



David Robinson, USDA APHIS PPQ

Giant African Snails

The Solution

Only a small proportion of the plants and animals used in the aquarium and water garden trades become invasive. Familiarize yourself with the problem species (see www.invasive.org) and do not use, plant, keep, or transport these species. Do not introduce your aquatic plants and animals into the wild or dump your aquariums or water garden debris into rivers, streams, lakes or storm sewers. Pour aquarium water into the toilet or sink. Dispose of aquatic plants in the trash and either euthanize or return animals to a pet shop if they are unwanted.

To prevent further spread of established invasive species, be sure to clean any vegetation and mud off of your boats, motors, trailers, and other equipment before moving between waterways or taking your equipment home. Often tiny fragments of plants or larval stages of animals are difficult to see and can hide in mud, sand or equipment. Empty your live wells, bait buckets, bilge and any other water in the waterway from which they were filled. Do not release any plants, fish, or other animals into a waterway unless they came from that waterway.



Scott Robinson, Georgia DNR

Giant Salvinia infesting a waterway in Georgia



Raghavan Chandelattan, University of Florida

Hydrilla - *Hydrilla verticillata* (L. f.) Royle

Hydrilla grows underwater and can root in depths of up to 20 feet. The leaves grow in a circle around the stem in bunches of 3-8. It forms dense mats on the surface of the water. Hydrilla was first introduced into the U.S. as an aquarium plant in the 1950s. Since then it has spread throughout the southeastern and coastal states. This plant can cause significant ecological and economic damage. It restricts native vegetation growth, irrigation, recreation, hydroelectric production, and water flow. Hydrilla can reproduce by root tubers and plant fragments, allowing it to spread between waterways on boating equipment and in live wells. **Hydrilla is a federal noxious weed; any occurrence should be promptly reported.*



Scott Robinson, Georgia DNR

Giant salvinia - *Salvinia molesta* D. S. Mitchell

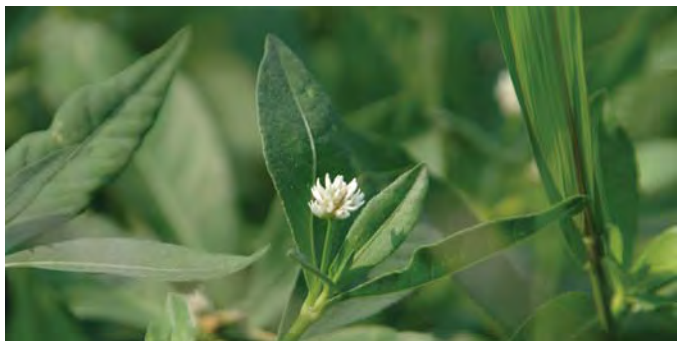
Giant salvinia is an aquatic fern with oblong floating leaves, which can be green, yellow, or brown and are 0.5 to 1.5 inches long. They grow in chains that run together to form thick mats. The surfaces of the leaves have rows of arching hairs that look like tiny egg-beaters. Giant salvinia is native to South America and was first introduced into the U.S. as an ornamental water garden plant. It now occurs across the warmer parts of the southern U.S. This plant invades almost any type of aquatic habitat. The dense thick mats restrict oxygen and light, disrupting the aquatic food chain. It also interferes with recreation, hydroelectric production, drinking water supplies, and aquaculture. **Giant salvinia is a federal noxious weed; any occurrence should be promptly reported.*



Wendy VanDyk Evans

Water Hyacinth - *Eichhornia crassipes* (Mart.) Solms

Water hyacinth is a free-floating aquatic plant that has invaded the eastern and southern U.S. The leaves are oval, thick and waxy. The showy blue-purple flowers grow in upright spikes. Water hyacinth is native to South America and was first introduced as an ornamental into the U.S. in 1884. It now grows throughout the southeastern U.S. and sporadically in the Northeast and Southwest. Water hyacinth invades lakes, ponds, rivers, marshes, and other types of wetland habitats. It usually reproduces vegetatively and can form dense floating mats of vegetation, which shades the underwater environment. This reduces the light available to submersed plants and invertebrates, and depletes oxygen levels.



Christopher Evans, University of Georgia

Alligatorweed - *Alternanthera philoxeroides* (Mart.) Griseb.

Alligatorweed has invaded aquatic areas throughout the southern United States. The white flowers grow in short spikes. Alligatorweed is native to South America and was first introduced into the U.S. around 1900. Alligatorweed roots in wet soils or shallow water and grows out into waterways. The floating mats expand along the surface where they can displace native vegetation, clog waterways, restrict oxygen levels, increase sedimentation, interfere with irrigation, and prevent drainage. Alligatorweed can also grow on dry ground, where it grows smaller, tougher leaves.



Alison Fox, University of Florida

Eurasian water milfoil - *Myriophyllum spicatum* L.

Eurasian water milfoil is an underwater plant that invades lakes, ponds, and other open waters throughout the United States. Plants are rooted, but the stems grow to the surface, and can be as long as 30 feet. It is easy to recognize by the dense mats formed by the bright green, feathery leaves. Eurasian water milfoil is native to Europe, Asia, and northern Africa. It was introduced into the U.S. in the early 1900s. It requires stagnant-to-slowly moving water. Once established it can form dense mats of leaves which restrict light, thereby making conditions difficult for native underwater plants to survive. It displaces the native species of water milfoil, and reduces fish spawning and feeding habitats.



John Byrd, Mississippi State Univ.

Purple loosestrife - *Lythrum salicaria* L.

Purple loosestrife is a tall plant with several stems that can grow up to 10 feet in height. It is easily identified by the abundant, showy spikes of purple flowers. The leaves are dark-green and lance-shaped. The stems are square and semi-woody. Purple loosestrife is native to Europe and Asia, and was first introduced into the U.S. in the early 1800s as a yard, pondside, or water garden ornamental. It has also been used as a nectar plant for beekeeping. Purple loosestrife now grows throughout the U.S. and is a serious invader of many types of wetlands, including wet meadows, prairie potholes, river and stream banks, lake shores, marshes, and ditches. It quickly forms dense stands that eliminate native vegetation. Purple loosestrife can spread very rapidly; one plant can produce up to 3 million seeds per year.



Bill Frank, jaxshells.org

Channeled Apple Snail - *Pomacea canaliculata* (Lamarck)

The channeled apple snail is an aquatic snail invading lakes, streams, and wetlands in the southeast U.S. The snails are native to South America. Their taxonomy is yet unresolved; there may be several closely related species. Shells are round, heavy, and up to 3 inches long with a large opening. They range from yellow to brown, and may have dark spiral bands. They can reproduce at 3 months of age, laying a tight mass of 200-600 reddish orange (sometimes green) eggs. Egg masses are attached to vegetation or structures above the waterline. These snails eat a wide variety of aquatic plants, leading to a decline in diversity and loss of habitat. The reduction in aquatic vegetation from heavy infestations can decrease water quality. In other areas of the world it is a serious pest of rice.



Yuri Yashin, achatina.ru

Giant African Snail - *Achatina fulica* Bowdich, 1822

Giant African snails, though not an aquatic pest, are often kept as aquarium pets. They are prohibited in the U.S. Adult snails can be up to 8 inches long, with a 4-inch shell. Shell color varies greatly, but is often striped with brown and cream bands. These snails were introduced into the U.S. twice in the mid-1900s, but both populations were successfully eradicated. While the giant African snail is a tropical species, it can survive cold temperatures and could potentially survive throughout the U.S. Adult snails have both male and female reproductive organs and can produce up to 1,200 eggs per year. They can live as long as 9 years and eat a wide variety of vegetation, from commercially important vegetable crops to tree bark and fallen leaves. **Giant African snail is a federally regulated pest; any occurrence should be promptly reported.*



GEORGIA INVASIVE SPECIES TASK FORCE

A cooperative approach, to help minimize the impacts of invasive species to Georgia's agricultural and natural resources.



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This publication is available online at: www.gainvasives.org.
Images in this publication are available online at www.invasive.org.

For more information on Aquatic Pests, visit:

www.invasive.org

www.protectyourwaters.net

www.habitattitude.net

*** To report Federal Noxious Weeds or Regulated Pests, please contact your local county Extension agent or e-mail the task force at bugwood@uga.edu.**

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