

Giant Salvinia

Salvinia molesta



FAMILY	Salviniaceae- Watermosses	ORIGIN	Brazil and Argentina
LIFE CYCLE	Annual or Perennial	OTHER NAMES	Kariba weed, Aquarium watermoss, African pyle

QUICK FACTS

- Giant salvinia is a fast-growing aquatic fern that forms dense mats called a “sudd,” blocking sunlight, **depleting oxygen**, and disrupting aquatic ecosystems. It spreads quickly via fragments and is often unintentionally transported through human activities like boating and aquarium hobbyists.
- This invasive plant **damages ecosystems** by displacing native vegetation, reducing oxygen levels, and creating stagnant water conditions that promote **mosquito breeding**, increasing **disease** risks. It also affects agriculture by obstructing waterways and infesting crops like rice.
- Management is difficult due to its ability to reproduce solely through **vegetative fragmentation**. While early detection, mechanical removal, and water flow management can help, chemical treatments are often **ineffective** in large bodies of water.

The aquatic escape artist that suffocates native ecosystems and turns healthy waterways into a tangled mess. Giant salvinia is a free-floating aquatic fern that wreaks havoc on waterways, even in its native range. The plant forms dense mats that restrict water flow and choke out sunlight. Dead plants decompose slowly and siphon the water’s absorbed oxygen, killing aquatic creatures. The thick foliage stagnates the water and becomes a haven for mosquito larvae, increasing populations of the disease-carrying insect in regions where the plant has invaded. Giant salvinia spreads easily via fragmented leaves and stems, making control of the weed extremely difficult.

What does it look like?

Giant salvinia is an aquatic fern. It is a free-floating plant that does not require soil to grow. The fronds (leaves of the plant) are about 1/5 of an inch long and broad and green (with brown edges in maturity). The fronds form in whorls of three, with two above water and one submerged, modified frond that acts like a root in the water. The modified frond is usually darker in color, typically brown-gold or white, and stringy. These modified fronds are often mistaken for roots. It has a slightly similar appearance to the native common duckweed (*Limna minor*) but is distinguished by much larger leaves and notable “egg beater” hairs.



Leslie J. Mehrhoff, University of Connecticut, Bugwood.org



Robert Vidéki, Doronicum Kft., Bugwood.org



Scott Robinson, Georgia Department of Natural Resources, Bugwood.org

Plant: The weed begins as free-floating leaves or fragments with horizontal stems that sit just below the water surface. Brown leaves grow on the stem below the water and become relatively long to help stabilize the plant.

Leaves: The frond (leaf) blades are mostly ovate to oblong and are relatively flat in young plants. When the plant matures, the fronds tend to be slightly folded along the midrib, with a shallow notch at the tip and a cordate (heart-shaped) base. The fronds are covered in bristly, egg-beater-shaped hairs. The upper surface has rows of cylindrical papillae. Each papilla has four hairs that join at the tips to form an egg-beater shape. This basket-like structure acts as an air trap, providing the plant with buoyancy in water.

Seeds: The plant does not flower and reproduces only through vegetative fragmentation. When the plant is mature, it will fragment spontaneously. Its egg-shaped spore sac develops neatly along modified stems below the water. These spores (if present at all) are deformed, infertile, and do not facilitate propagation.

Impact and Management

Agriculture and Food Security

Farmers and ranchers face increased costs associated with managing this weed, including additional labor and mechanical control measures. Giant salvinia can infest rice fields, reducing plant growth and making harvest and care of the crop much more difficult. As it reduces dissolved oxygen levels, fish and other aquatic food sources may be killed. The weed also clogs up fishing nets, further harming the food industry.

Health & Safety

As giant salvinia form dense mats on the water surface, it can interfere with navigation and human access to waterways. It can damage boat engines and water equipment by clogging up machinery. The mats, combined with the stagnancy they cause, provide ideal conditions for mosquito larvae. This poses a risk to human health as mosquitoes carry harmful pathogens like malaria, encephalitis, and West Nile virus.

Ecosystem Health

Once established, giant salvinia displaces native plants, resulting in a notable loss of floral biodiversity. This can significantly reduce oxygen and food availability for aquatic creatures, damaging the ecosystem as a whole. Plants can restrict waterways, causing stagnation in otherwise healthy streams. Stagnant waters are more likely to facilitate harmful bacteria and pathogens.

The most effective way to control giant salvinia is to minimize its spread. Water recreationists should take measures to thoroughly clean all water equipment before entering and upon exiting any waterway. If possible, avoid thoroughly areas with known existing infestations. Mechanical control has been implemented to some degree of success. In lakes where total removal efforts have been abandoned, plant harvesters will clear paths for boats and watercraft. Small ponds can be drained and left to dry until all plants have withered and died. Chemical control has been effective, but only in water bodies small enough to maintain concentration.

DO's

- Promote water flow. Giant salvinia thrives in slow-moving or stagnant water. Increasing water flow can make the habitat less favorable for the plant.
- Keep a close eye on the growth of giant salvinia in your water bodies. Early detection is key to preventing widespread damage
- Use mechanical removal methods: Skimming or physically removing the plants from the surface is effective in reducing biomass and preventing the spread of the infestation.

DON'Ts

- Transport plants from one water body to another, as this can spread the infestation. Clean equipment, boats, and footwear before moving between sites.
- Ignore small infestations. Even small patches of giant salvinia can quickly grow into major problems. Address infestations early to prevent them from spreading.
- Use herbicides in large water bodies. Large amounts of water will dilute the herbicide concentration to the point of ineffectiveness.



For more information on managing giant salvinia, please visit www.nmweeds.org

