



Giant Salvinia

Salvinia Molesta

ALBERTA REGULATION:
FISHERIES ACT

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Barry Rice, sarracenia.com, Bugwood.org



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

Overview:

Giant salvinia, is a free-floating, perennial aquatic plant native to Brazil. Technically it is a hybrid fern since it produces spores; however, the spores are sterile and reproduction is exclusively vegetative.¹ In non-tropical climates, it may function as an annual.² It has been introduced around the world as an aquarium and pond plant, and accidentally as a contaminant of other aquatic plants.³

In optimum growing conditions giant salvinia plants can develop into large, thick, impenetrable floating mats, which block any light and atmospheric oxygen penetrating the water as well as impede the natural water flow. Dead salvinia plants sink to the bottom where decomposition consumes dissolved oxygen.³ This oxygen is needed by other organisms in the water body like fish. Thick mats can be an important

plant host for the mosquito that transmits West Nile Virus.¹

Giant salvinia progresses through three growth stages: a primary or colonizing phase where leaves are small (about 10mm) and lie flat, in the secondary phase leaves grow to about 25 mm long and wide and fold upward, and the final phase where leaves expand (38 mm x 25 mm) and thicken, the terminal bud form almost vertical, folded leaves and this is known as the mat stage. In harsh environments another form has been observed where growth is slow and the leaves are flat and sometimes yellowish.¹ Giant salvinia lacks roots and does not produce flowers.

Habitat:

Outside tropical climates, giant salvinia grows best in warm temperate areas in still or slow moving water bodies,

such as ditches, canals, ponds, and lakes. Optimal growth is at water temperatures between 20°C and 30°C. Extended temperatures below -3°C kill the buds.² It cannot withstand ice formation on the water surface.³ It has low tolerance to salinity. Giant salvinia prefers high nutrient waters, especially nitrogen and phosphorous, and a pH of 6-7.5.¹

Identification:

Stems are irregularly branched and softly hairy. Plants are green, up to 30 cm long and 5 cm wide, forming mats up to 2.5 cm thick or more.¹

Leaves have short stems, occur in whorls of three (2 upper 1 lower), elliptic to round with entire edges. There is a distinct midvein and partial netted veins for rest of leaf. Leaves are 0.7-3 cm long, to 1.8 cm wide, often folded in crowded conditions. The



Giant Salvinia (continued)

upper surface of floating leaves are covered with parallel rows of hairs that split and rejoin at the tips, similar to a whisk or an egg-beater. These hairs trap air assisting flotation.¹

Submerged leaves are brown, feather-like and resemble roots; they are also finely divided into linear segments and do not photosynthesize. The sporocarps, when present, are globe to oval shaped, long-stalked, and clustered in the submerged leaves.¹

Prevention:

Learn to recognize giant salvinia and do not grow it. It spreads by wind and water currents, as well as by

birds and aquatic mammals.¹ Plant material clinging to water recreational equipment also facilitates spread. Never empty any contents of an aquarium into natural water bodies.

Upon leaving a water body check all equipment and clothing for plant material and leave it at the site. Any material discovered after leaving the site should be disposed of in garbage.

Control:

Mechanical - Floating mats can be removed and should be discarded in landfill bound garbage. Removal can be effective but is labour-intensive and usually only practical with new

infestations. Control will be required on an annual basis.¹

Chemical – Currently there are no herbicides registered for use on control of giant salvinia in Canada. Pesticide use in water bodies requires certification. Always check product labels to ensure the herbicide is registered for use on the target plant in Canada by the Pesticide Management Regulatory Agency.

Biological – The salvinia weevil *Cyrtobagous salviniae* has been released in 16 countries to control *S. molesta*, including Texas where the weevils reduced giant salvinia infestations by 90%.¹



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