Government of South Australia
Adelaide and Mount Lofty Ranges
Natural Resources Management Board

Weed identification note

Salvinia

(*Salvinia molesta*)

Overview

Salvinia is a free-floating perennial aquatic fern from Brazil in South America. It has spread outside its native range to become one of the world's worst aquatic weeds. It was first introduced into Australia in the 1950s as an aquarium species.

Salvinia is a dangerous aquatic weed. Infestations can double in size every three days to cover water bodies, causing the removal of oxygen and the death of all aquatic organisms. Salvinia is declared in South Australia under the *Natural Resources Management Act 2004*. If found, it must be reported to your nearest NRM office, plants must be destroyed and ongoing control measures undertaken by the landholder. Movement or sale of plants or goods carrying the plant is not permitted.

Description

Salvinia is free-floating mat forming aquatic fern. It has light green oval-shaped leaves with fine egg beater-shaped hairs on their upper surface.

The leaves are attached to stems (rhizomes) and each fern has submerged trailing root like filaments below the surface of the water.

Salvinia has three distinctive growth stages:

1. **First or primary stage** the leaves are smaller than 15mm and lie flat on the surface of the water.
2. **Secondary stage** the leaves become slightly cupped with the edges raised out of water and are between 20–50mm.
3. **In the final or tertiary stage** plants usually become crowded on the surface of the water and the leaves become tightly folded and upright. Mats of plants can become multilayered and they form ridge like thickenings as the plants build up.

In Australia salvinia is incapable of producing viable spores and they only reproduce vegetatively with plants producing daughter plants from buds at the stem nodes.

Individual ferns rarely exceed 30cm in length and, as ferns, they do not produce any flowers.

Images: Colin G. Wilson

Impacts

The rapid growth of salvinia leads to the formation of dense mats across water surfaces. These mats reduce water quality by reducing sunlight and air exchange from water.

Salvinia also increases the rate of water lost through normal water surface evaporation due to a high transpiration rates through its leaves.

The rotting plants remove oxygen from the water causing pollution and stagnation. This can result in the death of fish, crustaceans and other aquatic organisms.

The large mats also create a haven for mosquitos to breed in which increases the chances of spreading mosquito borne diseases.

Salvinia infestations can severely impact boating and swimming activities. Dense infestations restrict water flows in rivers and irrigation channels and interfere with irrigation pumps and pipes.

Distribution

Salvinia has spread to a number of countries worldwide. In Australia, infestations have been found at times in all mainland states.

Persistent infestations still occur in parts of Queensland, New South Wales and the Northern Territory.

In South Australia infestations have so far been confined to ornamental ponds in residential properties, including garden ponds in Adelaide, Waikerie and Victor Harbor.

These infestations have largely stemmed from illegal backyard or market trading; however, it is known that at least one nursery has illegaly offered it for sale in the past.

Invasiveness

Salvinia is known as one of the world's worst aquatic weeds. It has had a major impact in rice-growing countries and can dominate waterways in countries with warmer climates.

Severe problems can occur in the warmer seasons in temperate climates.

Areas at risk include still or slow-moving freshwater creeks, rivers, lakes and wetlands. When introduced salvinia may quickly cover their surface.

In ideal conditions, with warm weather and high nutrient levels, infestations can double in size every 3 days.

Hygiene practices

The main means of spread of salvinia is by humans either deliberately or accidentally.

In eastern Australia many infestations have occurred as a result of people releasing plants in to water bodies to grow stock for the nursery trade.

Other infestations have been a result of people disposing of plants by dumping them into a water body or by the movement of contaminated boats or fishing equipment from infested areas to non-infested areas.

Unwanted aquatic plants should be disposed of appropriately and should not be dumped into any water bodies.

All boats, boat trailers and fishing equipment should be thoroughly cleaned of all plant material after each use.

What is being done

South Australia has listed salvinia as a state alert weed with the aim of keeping salvinia from establishing within the state.

All infestations found are to be treated with the aim of eradication.

Where salvinia has established in water bodies interstate a number of control activities are carried out to either destroy the infestation or to contain the infestation.

These include the use of surface booms, physical removal and herbicides.

In 1980 the salvinia weevil was introduced as a biological control which, once established, has had a significant impact in reducing the size and vigour of some of the salvinia infestations.

What to do

If you find any salvinia plants in the Adelaide and Mount Lofty Ranges region they should be reported as soon as possible to the Adelaide and Mount Lofty Ranges Natural Resources Management Board.

If you are unsure about identifying or controlling salvinia, please contact Board staff who can visit your property for identification, to provide advice and they can also organise appropriate control or removal of plants.

Please contact your local Board office for further information, advice and assistance in controlling Salvinia

Adelaide and Mount Lofty Ranges Natural Resources Management Board contacts

Eastwood – T: 8273 9100

Gawler – T: 8523 7700

Lobethal – T: 8389 5900

Willunga – T: 8550 3400

DENR.AMLRReception@sa.gov.au

www.amlrnrm.sa.gov.au

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