

Bring in the Weevils:

Biological Control of *Salvinia* in the Burdekin

Salvinia molesta is regarded as one of the worst weeds in Australia and is a significant issue in the Burdekin.

Salvinia is highly invasive and can spread quickly, significantly impacting the health of waterways, wetlands and water quality.

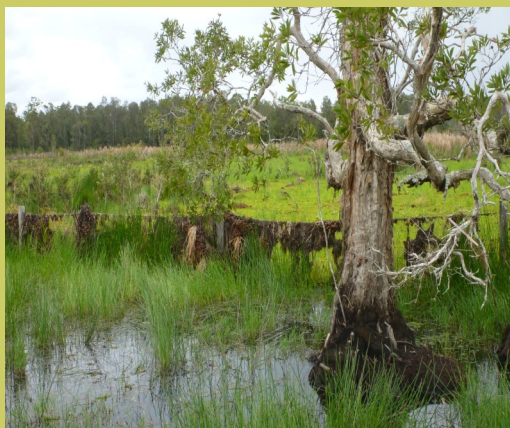
Once established, *Salvinia* can be very costly to control.



Salvinia infestations can grow rapidly, completely covering the water surface.
Photo Credit: WetlandCare Australia



Salvinia mats can appear to look like solid ground, posing risks to livestock.
Photo Credit: WetlandCare Australia.



Salvinia taking down a fence.
Photo Credit: WetlandCare Australia.

What is *Salvinia* and do I have it?

Salvinia is a free-floating aquatic weed from South America. It was introduced to Australia in the mid-1980s through the aquarium trade.

Salvinia has many branching horizontal stems and oval-shaped hairy leaves. These leaves cover the water and can form dense, multi-layered mats.



Salvinia close-up.
Credit: WetlandCare Australia.

Reproduction of *Salvinia* is purely vegetative, meaning that one leaf or root fragment is capable of starting a new infestation. In optimal conditions *Salvinia* can grow up to three times in size in just three days!

Salvinia prefers slow-moving, freshwater environments like wetlands, backwater systems and even irrigation channels.

What does *Salvinia* do to my property?

Salvinia grows to form dense continuous mats across the water surface. This blocks light, direct oxygen exchange and impacts water quality.

The weed grows in multi-layers which sink, consuming oxygen as they die and rot in the decomposition process. The resulting low-oxygen conditions can kill fish, turtles, and other animals living in the water.

A lack of open water, as a result of the infestation, also limits available habitat for water birds and prevents animals from accessing clean water.

In many cases the dense weed mat can often appear like solid ground, posing danger to humans and livestock.

The weed can have disastrous impacts on farm management by limiting access to clean water for irrigation and livestock. It can also impact farm infrastructure by blocking pumping equipment and dragging down fence lines.

How can weevils help reduce my *Salvinia* infestation?

Salvinia weevils are a biological control for *Salvinia* infestations. By burrowing into the *Salvinia* stems and fresh buds, the weevils weaken the plant and eventually kill it, returning areas of open water.

The weevils have proven to be an effective tool for the management of *Salvinia*. They have been used widely in tropical Australia, from Lake Moondarra to Kakadu National Park.

The weevils are safe to use around livestock and crops as they only impact *Salvinia*.



Salvinia weevil: *Cyrtobagous salviniae*

Case Study: Austin property, Ayr

When Bill and Yvonne Austin returned from a six week holiday they discovered that *Salvinia* had completely smothered their wetland. "It was awful, we could not see any open water and we saw far less birds" said Yvonne. Before the *Salvinia*, fish and wetland birds could be seen using the pond from our back porch, she explained.

The Austins contacted BBIFMAC who visited the site and determined that a weevil release would be an appropriate method to manage the infestation.

Four months after the release, the *Salvinia* began to die off. Seven months after the initial release, significant areas of open water had returned.

"It was wonderful, we are very happy with the work that was done and the result," said Yvonne. Turtles, fish and birdlife have since been observed with the return of open water.

Whilst continued monitoring will be necessary, this is an example of the success of weevils in controlling *Salvinia*.



Salvinia infestation before weevil release



7 months after weevil introduction

Austin *Salvinia* infestation. Top: June 2015, full extent of infestation. Bottom: January 2016, the return of open water.

How can I get involved in the Weevil Program?

If you are a landowner with *Salvinia* (or suspect you have *Salvinia*) and are interested in trialing weevils, visit BBIFMAC at 20 Queen Street, Ayr or phone: (07) 47 834 344.

Weevils are best used as a part of a comprehensive pest management plan and may not be appropriate for all sites. BBIFMAC are able to provide advice to landowners.

BBIFMAC (Burdekin Bowen Integrated Floodplain Management Advisory Committee) works with a number of partners to deliver projects that

improve our natural resources including the *Salvinia* Weevil Breeding Program.

