

Invasive plants and animals

Cabomba

Cabomba species



DECLARED CLASS 2



Cabomba, or fanwort, is a fully submerged aquatic plant, originally introduced into Australia as an aquarium plant. Five species are currently recognised but only one of these, *Cabomba caroliniana*, is known to be naturalised in Australia.

Cabomba is an aggressive invader of native freshwater systems, particularly if they are nutrient rich. It outcompetes native freshwater plants and presumably has a negative impact on native fish or

aquatic invertebrates. Dense infestations impede aquatic recreational activities, and the risk of drowning from entanglement is a danger to swimmers.

Originally, only *C. caroliniana* was declared for a few Local Government areas in the Wet Tropics, but a 1996 review of the pest status of cabomba led to the declaration of the entire genus. As for any submerged water weed, control is difficult.

Description

Five species are currently recognised – *C. aquatica*, *C. caroliniana*, *C. furcata* (= *piauhyensis*), *C. haynesii* and *C. palaeformis*. The previously recognised *C. australis* is now considered to be a sub-species of *C. caroliniana*, namely *C. caroliniana* var. *caroliniana*. All are perennial, aquatic herbs growing below the water surface.

C. caroliniana may have stems up to 10 metres long. The submerged leaves and stems have a thin gelatinous coating, with the leaves being opposite and repeatedly divided to form feathery, fan-shaped structures. The leaves of *C. aquatica* tend to be less finely divided than those of the other species.

Flowers are produced above the surface and colour is dependent on species and sub-species. Flowers of *C. caroliniana* and *C. palaeformis* tend to be white, while *C. aquatica* flowers are yellow and those of *C. furcata*, purple.

The main types of cabomba that have been commercially grown in Queensland are:

- common cabomba (brown-green in appearance) (*C. caroliniana*)
- green cabomba (*C. caroliniana* var. *caroliniana*) (formerly *C. australis*)
- pink cabomba (*C. furcata*)

If unsure of whether or not the plant is cabomba, take samples to the local Biosecurity Queensland, Department of Primary and Industries office.

The problem

Cabomba is a popular aquarium plant. However, if released into natural waterways, its rapid growth allows it to dominate native vegetation and obstruct creeks, lakes and dams.

- **Nature conservation**
Cabomba quickly forms a dense monoculture choking out native plants, birds, fish and reptiles. This exotic species is a serious threat to the biological diversity of Australian waterways.
- **Wetland habitat destruction.**
The thick stands of cabomba block out sunlight effectively excluding native water plants. Cabomba accelerates the aging of lakes by increasing siltation, in the waterbody.
- **Water quality degradation**
Recent research indicates cabomba adversely affects water quality by imparting colour and taints. This increases the cost of treating potable water and impairs the sustainable use of drinking water storages. Research is continuing at the Alan Fletcher Research Station to establish the full extent of the water quality problem.
- **Recreational loss**
Cabomba thickets prevent swimming, boating and fishing.

Cabomba grows readily in both cool southern and tropical northern waters of Queensland. It has little value to wildlife and no known predators, allowing

dense monocultures to form to the exclusion of native flora and fauna.

Life cycle

Cabomba flowers and has its maximum growth period in summer. Regeneration by seed has not been observed in Australia – new growth starts from dislodged stem pieces.

Habitat and distribution

Cabomba grows in ponds, lakes and quiet streams. It is generally rooted in water 1 to 3 m deep but can continue to grow free-floating if uprooted. It does well in both cool and warm waters.

C. caroliniana is the only species known to be naturalised in Queensland. It occurs in several locations in the Wet Tropics, most notably, Leslie Creek on the Atherton Tablelands. It also occurs in south-east Queensland at several locations, the most important being the water storages of Ewan Maddock dam near Caloundra and Lake MacDonald near Noosa.

Declaration details

Cabomba is a declared Class 2 plant under the *Land Protection (Pest and Stock Route Management) Act 2002*. Declaration requires landholders to control declared pests on the land and waters under their control. A Local Government may serve a notice upon a landholder requiring control of declared pests.

Prevention

The major concern at present is to stop further introduction of cabomba into natural waterways and dams.

The threat to Queensland waters by cabomba should be made known throughout the community. Persons wishing to dispose of cabomba from aquariums should do so thoughtfully to avoid its spread, for example by drying and burning of the entire plant.

It is illegal to sell any species or variety of cabomba anywhere in the State.

Report the sale of cabomba to the nearest Biosecurity Queensland, Department of Primary Industries and Fisheries office.

Early detection of cabomba infestations is essential, as eradication of infestations larger than one hectare may be impossible.

Control

The best form of weed control is prevention. Always treat weed infestations when small, do not allow weeds to establish. Weed control is not cheap but it is cheaper now than next year, or the year after. Proper planning ensures you get value for each dollar spent.

Look at your weed problem carefully:

- Should you contain the weed to stop new infestations developing while you reduce existing ones?
- What are you required to do by legislation?
- How does weed control fit into your property management plan?
- What can you do to restore areas and prevent re-establishment?

Mechanical control

Mechanical removal of small infestations can be accomplished by pulling (in deeper areas scuba

gear may be required), taking care to remove all of the plant to prevent reinfestation. The removed plants must be properly disposed of or destroyed.

Cabomba is a true aquatic and is therefore susceptible to dehydration. Removing the water (called "draw down") and exposing the stems and leaves for several weeks is effective.

Herbicide control

Herbicide trials conducted by Alan Fletcher Research Staff concluded the use of 2,4-D N-Butyl Ester to be effective for the control of Cabomba in non potable water.

TABLE 1 – HERBICIDES REGISTERED FOR THE CONTROL OF C. CAROLINIANA

Situation	Herbicide	Rate
Aquatic Situation (non potable water only)	2,4-D N-Butyl Ester (AF Rubber vine Spray)	12.5 L/megalitre of water

Directions

- For spot application to scattered Cabomba patches
- Add 12.5L AF rubber vine spray to partly filled 200L tank
- Pre mix 5kg diatomaceous earth/clay in 10L water and add to tank
- Top up to 200L mark and agitate thoroughly
- Inject required dose through submerged nozzles into Cabomba biomass
- Do not treat whole of water at once
- Do not use in potable water

How to calculate how much of the mixtures are required to control the Cabomba infestation

Measure the width of the infestation = _____ metres (A)

Measure the length of the infestation = _____ metres (B)

Measure the average depth of water of the infestation = _____ metres (C)

_____ metres (A) X _____ metres (B) X _____ metres (C) = _____ metres³ (D) 1m³ = 1000L

_____ metres³(D) X 1000 = _____ Litres (E)

_____ Litres (E) = _____ (F) Number of 200 litre tank mixes required

_____ to treat the area. (Follow the mixing 1 000 000 in Table 1).

(F) also is equal to the number of megalitres of water that you are treating.

In summary to check the total amounts of ingredients required to treat your entire infestation perform the following calculations

Total amount of AF Rubber vine Spray required = _____ megalitres (F) X 12.5L
= _____ Litres (G)

Total amount of diatomaceous earth/clay required = _____ megalitres (F) X 5kg
= _____ kilograms (H)

Total amount of water needed to use for application = _____ megalitres (F) x 200L
= _____ Litres (I)

Further information

Further information is available from the vegetation management/weed control/environmental staff at your local government.





Fact sheets are available from DPI&F service centres and the DPI&F Information Centre phone (13 25 23). Check our website <www.dpi.qld.gov.au> to ensure you have the latest version of this fact sheet. The control methods referred to in this Pest Fact should be used in accordance with the restrictions (federal and state legislation and local government laws) directly or indirectly related to each control method. These restrictions may prevent the utilisation of one or more of the methods referred to, depending on individual circumstances. While every care is taken to ensure the accuracy of this information, the Department of Primary Industries and Fisheries does not invite reliance upon it, nor accept responsibility for any loss or damage caused by actions based on it.
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