

# Weed alert: Water caltrop ...have you seen this plant?

Water caltrop can form dense mats across the surface of a water body. Photo: Shizhao, <http://commons.wikimedia.org>



Water caltrop has floating leaves and feather-like roots. Photo: Karel Jakubec, <http://commons.wikimedia.org>



Water caltrop (*Trapa* species) is a floating aquatic plant that grows in slow-moving water up to 5 m deep, with its stems rooted in the soil beneath the water.

Water caltrop forms large populations that can create nearly impenetrable mats across wide areas of water, out-competing native plants and making waterways inaccessible. Sharp spines on the fruit create a hazard for humans and animals.

Water caltrop has been cultivated around the world as an ornamental water plant, and as such, it is likely to be found in farm dams, water features and fish ponds, or in ponded and slow-moving water bodies near towns.

Although water caltrop is yet to be found in New South Wales (NSW) it has the potential to become a significant weed.

Two species of the *Trapa* genus—*Trapa natans* and *Trapa bicornis*—are referred to as water caltrop. Water caltrop is also known as water chestnut, but is not related to Chinese water chestnut (*Eleocharis dulcis*), which is cultivated for its edible tubers.

## WORLD STATUS

Water caltrop is native to the warm temperate parts of Eurasia and Africa.

In China the seeds are cooked and eaten. Various *Trapa* species have been introduced into North America and have become invasive in eastern areas of Canada and the United States.

## SPREAD

Water caltrop drops seeds during winter. The seeds germinate in the mud during the warmer months, and grow stems that reach the water surface and produce rosettes. A single seed may give rise to 10 to 15 rosettes. Each rosette can produce up to 15 to 20 seeds.

The plant spreads when rosettes break allowing the fruits to detach from the stem and float away. The fruit can also be spread by birds and other animals. Seeds can remain viable for up to 12 years, although most will germinate in the first two years. If the fruit dry out they will not contain viable seeds.

Floating leaves are triangular-shaped with saw-toothed edges. Photo: Shizhao, <http://commons.wikimedia.org>



Water caltrop has rosettes of floating leaves. Photo: Sainty and Associates



Water caltrop fruit. Photo: Vic Ramey, IFAS Centre for Aquatic and Invasive Plants.



## IDENTIFICATION

*Trapa bicornis* is similar to *Trapa natans*, but has two spines on the fruit instead of four.

### Key identification features

- » Stems are submerged, unbranched and long, reaching 3.6–4.5 m in length. The stems are anchored into the mud by very fine roots.
- » There are two types of leaves. The first are submerged and fall off during early stem growth. They are finely divided and feather-like. The second form on the water surface in a rosette. These have saw-toothed edges and are oval- or triangular-shaped, 2–3 cm long, with glossy upper surfaces and lower surfaces covered with fine short hairs.
- » Feather-like roots up to 8 cm long develop where the submerged leaves drop off, and are often mistaken for feather-like leaves.
- » White, four-petalled flowers are 8 mm long, and form above the water surface in early summer.
- » The fruit is a woody or bony nut, about 3 cm wide, with two or four (1 cm long) stout spines or horns. Each fruit contains a single seed.

## CONTROL

Contact your local council weeds officer for assistance if you suspect you have found water caltrop. Hand removal, herbicides and mechanical removal have been used to control water caltrop in other countries, but the ability of the seeds to lay dormant for many years makes total eradication very difficult.

### Acknowledgements

Produced by: Annie Johnson, Andrew Petroeschovsky, Stephen Johnson, Elissa van Oosterhout, John Hosking, Rod Ensbey, Birgitte Verbeek

References: Hosking JR, Sainty G, Jacobs S and Dellow J (in prep) *The Australian WEEDbook*; Global Invasive Species Database (2006) *Trapa* species, <http://www.issg.org/database>

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## WATCH OUT FOR AND REPORT ANY FORM OF WATER CALTROP

Water caltrop is a Class 1 State Prohibited Weed across NSW under the *Noxious Weeds Act 1993*. It must be eradicated and land must be kept free of the plant. As a notifiable weed, all outbreaks must be reported to the local council within 24 hours, and the plant is prohibited from sale in NSW.

**If you have seen this plant please contact your local council weeds officer, the NSW Weeds Hotline 1800 680 244 or email [weeds@dpi.nsw.gov.au](mailto:weeds@dpi.nsw.gov.au)**

**For more information and NSW DPI weed alert updates visit [www.dpi.nsw.gov.au/weeds](http://www.dpi.nsw.gov.au/weeds)**

