

The Carp: damage to aquatic plants and fauna

Impact

Carp can cause significant damage to aquatic plants and increase water turbidity, negatively impacting on native aquatic fauna and habitat. The greatest environmental impact of carp results from their feeding behaviour. Being a predominantly *benthic* (bottom feeding) species, carp cause habitat modification as well as competing for habitat with native fish species.

Carp pose an economic threat by affecting industries that depend on pristine water quality and aquatic habitats, including: domestic and irrigation water suppliers, agriculture and commercial and recreational fisheries. Angling is an important industry in Australia. The dominance of carp in fish populations has the potential to reduce angler numbers as carp are not popular for eating or angling. They may also out-compete preferred native species resulting in lower catch numbers and loss of angling potential.



Carp now dominate fish communities throughout most of their range, making up 90% of the fish biomass in parts of the Murray Darling Basin. Carp still have the potential to spread through many more of Australia's water systems, eventually becoming widespread throughout the country.

Carp facts

The biology and ecology of carp are two of the major reasons why they are such an important and successful vertebrate pest in Australia. Carp have broad environmental tolerances and thrive in habitats disturbed and modified by humans, such as where natural flows have been altered and streamside vegetation is cleared.

Carp usually migrate at the time of spawning (warmer months) and some individuals have been recorded moving up to 230 kilometres. Carp are closely related to the goldfish, being distinguished only by the presence of two pairs of barbells (mouthparts). Carp have been reported to live for more than 30 years, growing to a size of 20 kilograms. However, anecdotal evidence suggests that ages of up to 60 years or more may be attained in Europe.

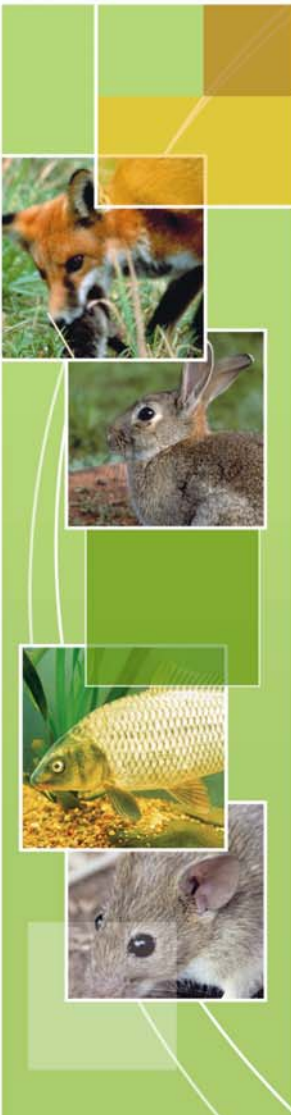
Female carp can produce from 1 million to 1.6 million eggs for fish of 6 kilos (around 13% body weight) and, even though fertilisation is close to 100%, mortality of eggs and larvae is commonly high. Despite this, the ability of carp to reproduce means that only a few successful spawnings can replenish carp numbers.

Carp control

The Pest Animal Control CRC was contracted the management of the Daughterless Carp Program in 2003, part of the Murray-Darling Basin Commission's 50-year Native Fish Strategy. This long-term program aims to develop a sustainable biotechnology solution for carp control. This involves biasing the sex ratio of carp towards males, eventually depleting females from carp populations causing a population crash.

'Daughterless technology' involves modifying the gene responsible for the production of an enzyme in carp, called aromatase, rendering it non-functional. Only the specific carp gene would be affected. This enzyme is a 'sex differentiation' enzyme, and if absent from the developing carp, will result in the production of male offspring only. Over many generations, less and less females are produced, eventually driving the overall population down.

The Pest Animal Control CRC also plans to investigate other control strategies such as pheromone attractants and Koi Herpes Virus.



Benefiting the environment
through pest animal control



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