

Biological control of *Cabomba caroliniana*: biology and host range of the cabomba weevil *Hydrotimetes*

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Summary *Cabomba caroliniana* Gray is a submerged aquatic weed, invasive in the waterways of Australia and several other countries. In Australia, *C. caroliniana* is a Weed of National Significance, and its detrimental effects include choking of waterways, reducing the water holding capacity of dams supplying drinking water and affecting native flora. During preliminary surveys and host specificity tests in the native range (Argentina and Paraguay), the aquatic weevil, *Hydrotimetes natans* Kolbe has been identified as a potential biological control agent to control *C. caroliniana*. We imported *H. natans* from the native range to Australia and studied its biology and host specificity. From biology studies, we found that eggs were laid on submerged leaves of *C. caroliniana* semi-embedded in a small divot and hatched in 7.65 ± 0.86 days. Larvae developed tunnelling through the leaves (early instar) or stems (late instar) and pupated outside the stem near the base of petioles after 25 to 27 days of development.

Pupae developed into adult in 14.3 ± 2.7 days. The full lifecycle, from oviposition through to adult eclosion, took 46.5 ± 4.4 days. Host specificity trials were setup with *Brasenia*, *Nymphaea* and *Trithuria* species selected based on the centrifugal phylogenetic method, and data on oviposition, larval development, pupation and lifecycle completion were recorded. We found no evidence of oviposition and development of *H. natans* on any of the *Nymphaea* or *Trithuria* plant species tested. While *Brasenia schreberi* supported partial development (which was significantly lower than that on *C. caroliniana*), it did not support multiple generations of *H. natans*. In this talk, we discuss these results in light of risks of *H. natans* to native and other non-target species in Australia, and its potential to be part of the integrated weed management of *C. caroliniana*.

Keywords Biocontrol, cabomba, *brasenia*, WoNS, invasion, weeds, weed management, host specificity, erirhininae