Physa acuta Draparnaud 1805

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Taxonomy & Systematics. The basommatophoran pulmonate family Physidae is worldwide in distribution but reaches its maximum diversity in North America. The gill has been lost, leaving respiration to occur across the entire mantle cavity, as is true for pulmonates in general. Their ability to enfold an air bubble within this cavity can be seen as an adaptation to the colonization of warm or stagnant freshwaters, where the concentration of dissolved oxygen may be reduced. Physids are hermaphroditic, as is also true for pulmonates in general; typically capable of self-fertilization and laying eggs in irregular, loosely-packed, gelatinous masses.

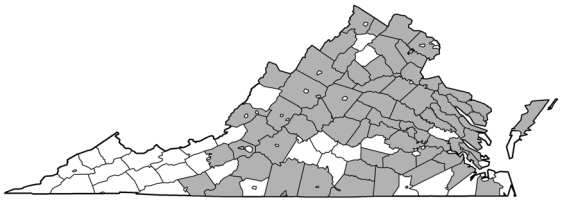
Until recently it was believed that the North American Physidae numbered more than 40 species, and a variety of elaborate classification schemes have been proposed. All of the physids common in the southeastern U.S. have at times been referred to the genus "*Physella*," which VDGIF recognizes following Turgeon et al. It is now clear that most of this nominal diversity is attributable to phenotypic plasticity, however, and that the true number of American species is closer to ten. The simple two-genus system favored by earlier workers would seem sufficient, all species of the American southeast referable to the genus *Physa*.

The shell apex of *P. acuta* is straight to concave, and the penial sheath not subdivided. Junior synonyms include *heterostropha*, *integra*, *virgata*, *cubensis* and many others.

Habitat & Distribution. Although originally described from France, *P. acuta* is almost certainly a North American native, introduced to Europe by early-19th century transatlantic trade. It is now cosmopolitan, having successfully invaded six continents. In Virginia populations are common on steam margins and in lentic waters, especially in rich, disturbed and/or artificially eutrophic environments.

Ecology & Life History. *Physa acuta* is a "weedy" freshwater gastropod. Its rapid maturation, high reproductive rate, and ease of culture have made it the "fruit fly of malacology," facilitating scores of studies on life history, behavior, competition, and predation.

Laboratory populations mature in 6 – 8 weeks, male function arriving slightly before female function, each adult laying 50 – 100 eggs weekly thereafter for up to a year. Physids are preferential outcrossers, and can store allosperm for months. But they self-fertilize successfully in isolation, and low levels of selfing have been demonstrated even in females with proven allosperm reserves. A review of mating behavior in *P. acuta* has been offered by Wethington & Dillon.



Conservation Status. NatureServe G5Q/S5 - Secure.

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