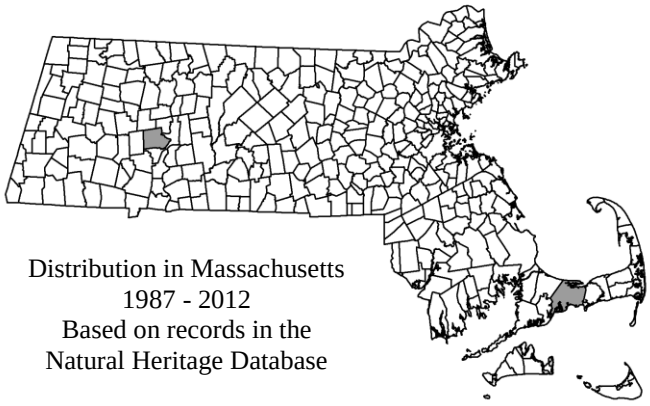
Natural Heritage & Endangered Species Program
Massachusetts Division of Fisheries & Wildlife
1 Rabbit Hill Road, Westborough, MA 01581
tel: (508) 389-6360, fax: (508) 389-7891
www. nhesp.org

Walker's Limpet

Ferrissia walkeri

State Status: **Species of Special Concern**
Federal Status: none

Description: Walker's Limpet is a small freshwater limpet with a thin shell displaying distinct growth rings. It ranges up to 6 mm in length, with width about 2/3 of its length. Shell color can vary from whitish-yellow to yellow-orange to dull brown, but may be obscured by foreign matter growing on the shell. Like all members of the Family Ancylidae, Walker's Limpet has a sinistral organization, with all major body openings on the left side of the body. When viewed from above, the apex is far to the right of center in the posterior portion of the shell. The apex often appears as a knob-like protuberance, with faint radial striations. The tentacles of Walker's Limpet are white.



Distribution in Massachusetts
1987 - 2012
Based on records in the
Natural Heritage Database

Similar Species: A sinistral arrangement and all-white tentacles are diagnostic of the genus *Ferrissia*. (The ancylid *Laevapex fuscus* is also sinistral, but its tentacles have a black core.) Within *Ferrissia*, *F. walkeri* is best distinguished by its high peaked apex, located far right of center, almost at the edge of the shell. The closely-related *F. fragilis* has an apex that is only slightly off-center, sometimes has a shelf-like septum across the posterior part of its aperture, and rarely exceeds 3.5 mm; however, the two species can be difficult to differentiate. In fact, Basch (1963) described an almost continuous gradient of morphological forms between the two populations, and a more recent study (Walther *et al.* 2010) was unable to distinguish genetically between them. *Ferrissia rivularis* has a sturdier shell, and is typically confined to running water. *Ferrissia parallela* has an elongate shell, with parallel sides, while *F. walkeri* is clearly oval and wider anteriorly.

Habitat in Massachusetts: Little is known about the habitat requirements of Walker's Limpet. It has been found in a freshwater lake and a freshwater pond in Barnstable County, as well as in the Mill River system in Hampshire County. In Barnstable County, its habitat was characterized by exceptionally clear water, high sodium levels, low calcium content, and the absence of any other snail species. In Hampshire County, it was associated with muddy-bottomed ponds and slow streams. Within both environments, limpets were found attached to a variety of substrates, including rocks, glass bottles, tin cans, and water lilies, and feeding on twigs and leaves fallen on a sand-pebble substrate.

Range: Walker's Limpet has been found in Connecticut, Vermont, and New York, in addition to Massachusetts. Scattered specimens have also been reported from Arkansas, California, Colorado, Georgia, Michigan, and Oklahoma. The limpet may have a wider distribution, but is rarely surveyed for.

Life Cycle/Behavior: Walker's Limpet is rarely found and little-studied, so little is known about its natural history. The high-sodium, low-calcium conditions in which it has been found are generally unsuitable for freshwater snails, and so it may fill this low-competition niche.

Ancylids are one of a number of freshwater snail lineages that have independently evolved a cap-shaped, patelliform shell. The limpet shape is believed to originally have been an adaptation to turbulent waters, and to provide protection from predators. Ancylids have a reduced lung and a pseudobranch (false gill) which aids in respiration. These limpets are hermaphroditic,and can self-fertilize under proper conditions. They are believed to disperse between water bodies in part by attaching themselves to waterfowl and the wings of aquatic insects. Within pond environments, they will generally be found feeding on organic matter, which they scrape from hard surfaces and emergent vegetation.

Population Status and Threats in Massachusetts: Walker's Limpet is listed under the Massachusetts Endangered Species Act as a Species of Special Concern. All listed species are protected from killing, collecting, possessing, or sale and from activities that would destroy habitat and thus directly or indirectly cause mortality or disrupt critical behaviors. In addition, listed animals are specifically protected from activities that disrupt nesting, breeding, feeding, or migration.

The species is known from only a few localities in Barnstable and Hampshire counties. The clear, clean waters it inhabits are threatened by organic pollution, and most freshwater snails are also sensitive to pesticides and other chemical contaminants. Sudden changes in water level can expose and desiccate snails. Dams and other non-natural barriers can limit dispersal through river systems.

Management Recommendations: Management recommendations to protect Walker's Limpet include: 1) avoiding, mitigating, or eliminating organic and chemical pollution of freshwater ponds; 2) avoiding sudden changes in water level which might desiccate limpets; and 3) removing barriers to dispersal in watersheds. All active management of state-listed populations is subject to review under the Massachusetts Endangered Species Act, and should be planned in close consultation with the Massachusetts Natural Heritage & Endangered Species Program.

References:

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Walther, A.C., J.B. Burch, and D. Ó Foighil. 2010. Molecular phylogenetic revision of the freshwater limpet genus *Ferrissia (Ferrissia) rivularis* and *Ferrissia (Kincaidilla) fragilis*. *Malacologia* 53 (1): 25-45.

Updated 2012
Map Updated 2012