UF IFAS Extension UNIVERSITY of FLORIDA

EENY-724

Marsh Rams-Horn, Marsh Ramshorn *Helisoma* (*Planorbella*) *trivolvis* (Say) (Gastropoda: Planorbidae)[1]

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Introduction

The marsh rams-horn, *Helisoma* (*Planorbella*) *trivolvis* (Say), is a species of air-breathing freshwater aquatic snail that is native to Florida. It belongs to the family Planorbidae, commonly known as the ramshorn snail, which comes from the shape of its shell.

Figure 1. Top view of a marsh rams-horn, *Helisoma trivolvis* (Say), next to a strand of hydrilla. Specimen approximately 2 cm.
Credits: Lyle J. Buss, UF/IFAS

Synonyms

Planorbella trivolvis intertexta (Sowerby 1878)

Planorbella trivolvis (Say 1817)

Planorbis trivolvis (Say 1817)

Distribution

The marsh rams-horn is native to North America, with its habitat ranging from northern arctic Canada and Alaska to Florida. This species has also been discovered in parts of Mexico, Peru and Ecuador. This species of snail is often seen breathing air or grazing on plants on or near the surface of the water (Baker 1945). The marsh rams-horn can be also be found in the bottom of swamps, lakes, rivers, and ponds.

Description

The marsh rams-horn is characterized by its sinistral (left-turning) flat coil shell. The color of the shell ranges from light to dark brown with the body of the snail similar in color. The visible portion of the body of the snail consists of a head, a foot and a pair of tentacles. The snail uses its singular foot for movement via muscle contraction. This foot also allows the snail to walk underneath the surface of the water via surface tension and viscous drag.

The head of the snail contains the mouth and a pair of tentacles with eyes at their base. The mouth is a triangular structure located at the bottom of the head. Inside the mouth is the radula which allows the snail to graze on food via a ribbon structure of tiny teeth (Baker 1945). The snail uses its tentacles to gather chemical cues about its surroundings. Adults reach a maximum size of approximately

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15–18 mm in shell diameter, with the body being a similar length. The young of this species hatch as crawl-away juveniles, with a strikingly flat-topped shell bearing little resemblance to that of the adult.

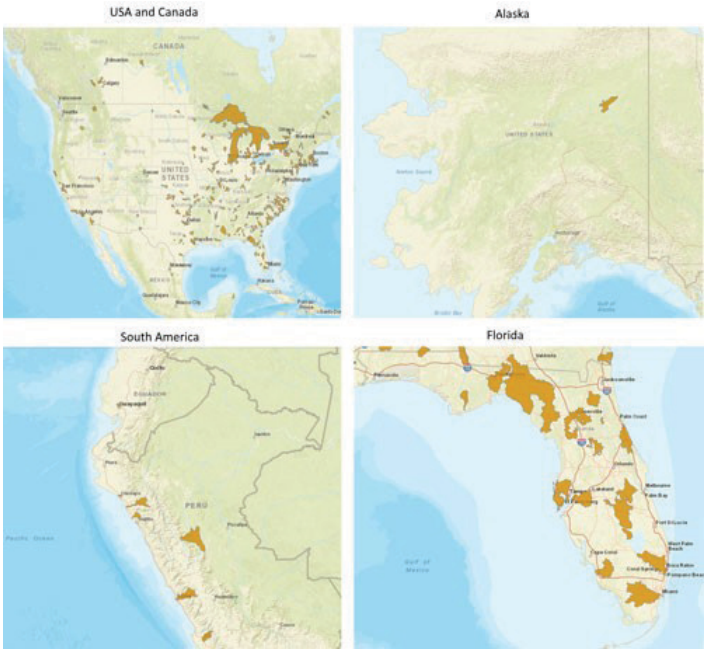

Figure 2. Distribution of the marsh rams-horn, *Helisoma trivolvis* (Say).
Credits: Distribution data used with permission from The IUCN Red List of Threatened Species

Figure 3. Front view (left) and back view (right) of the sinistral shell of a marsh rams-horn, *Helisoma trivolvis* (Say). The snail has a planispiral (flat coiling) shell.
Credits: Lyle J. Buss, UF/IFAS

Life History

Members of this species are hermaphrodites, containing both male and female reproductive organs. This snail is capable of both sexual and asexual reproduction (Burch 1989). The eggs of the marsh rams-horn are contained in a hard, gel-like egg sack that is less than 5 mm. The egg sacks are initially a clear light orange and darken as the eggs mature. The egg sacks can be found stuck on solid surfaces such as aquatic vegetation (Hung et al. 2018). The primary author has observed the marsh rams-horn on bulltongue arrowhead (*Sagittaria lancifolia*) and pickerelweed (*Pontederia cordata*). However, the snail is not limited to these two species.

Figure 4. Empty egg sack of *Helisoma* (*Planorbella*) sp., the egg sack is approximately 3 mm in length.
Credits: Lyle J. Buss, UF/IFAS

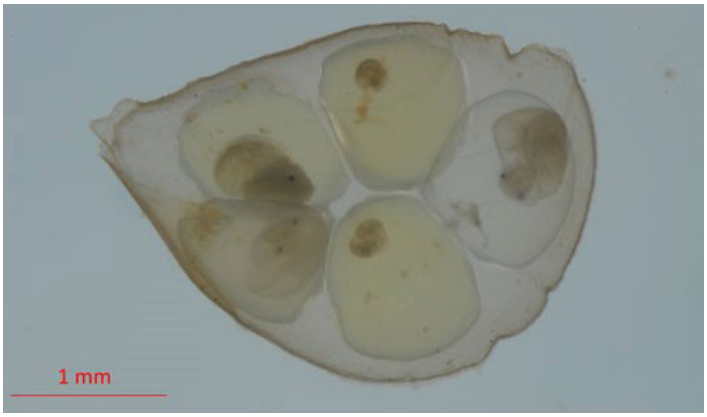

Figure 5. Egg sack of *Helisoma* (*Planorbella*) sp., with five snail eggs in various stages of development. It takes approximately two weeks for eggs to hatch depending on the conditions. This egg sack is approximately 3 mm in length. An egg sack can contain anywhere from five to 20 snails.
Credits: Lyle J. Buss, UF/IFAS

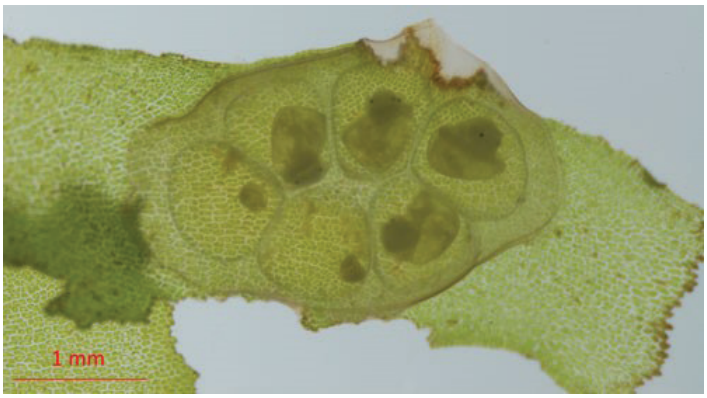

Figure 6. Egg sack of *Planorbella* sp. with six developing snail eggs on a piece of Lomariopsis sp. The eyes of the developing snails are visible via the two black dots on the right uppermost three and lower right developing eggs.
Credits: Lyle J. Buss, UF/IFAS

Hosts

Snails belonging to the family *Planorbidae* have been known to serve as intermediate hosts for a variety of parasitic trematodes such as *Ribeiroia* and *Schistosoma*, both commonly known as flukes. The marsh rams-horn has been observed to be hosts for the larval stage of *Echinostoma trivolvis*, which are trematodes that can infect humans, fish, and other animals (Fried et al. 1996).

The marsh rams-horn is also a host to another type parasitic trematode, *Ribeiroia ondatrae*. This trematode is thought to be responsible for limb malformation in amphibians. This can include either deformed, additional, or missing limbs. Warm temperatures (26Â°C) induce the eggs of *Ribeiroia* to develop up to four times faster. Warming global temperatures can potentially have a major effect on the abundance of this parasite (Paull and Johnson 2011).

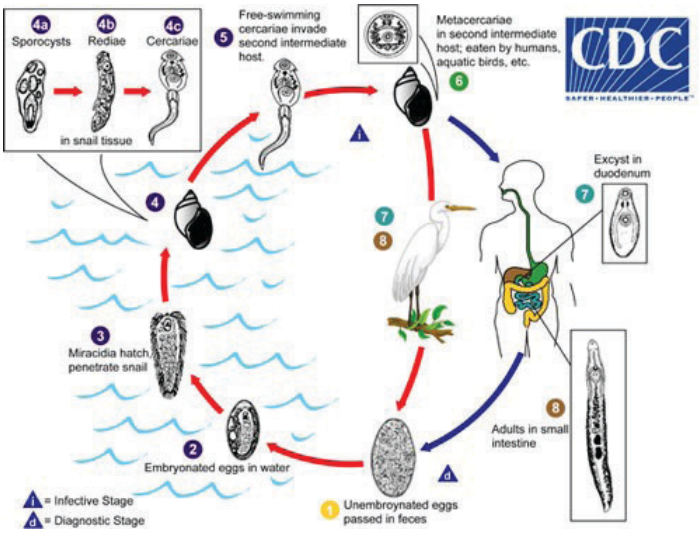

Figure 7. Life cycle of the parasitic trematode *Echinostoma* sp.
Credits: Image used with permission from the Centers for Disease Control and Prevention

Ecological Significance and Management

Gastropods play a crucial role in nutrient cycling through the grazing of algae and decaying material. The marsh rams-horn is primarily a detrivore, grazing on decaying plants, dead organisms, and algae. In some circumstances they may consume living macrophytic tissues. They also play a role in the aquatic food web by serving as prey for other species such as fish, turtles, birds, and young alligators (Johnson et al. 2018). The marsh rams-horn has been used by researchers as an indicator species for wetland permanence in exurban areas (Urban and Roehm 2018). Exurban areas are the developing rural areas outside of urban areas.

In some areas marsh rams-horn populations build to levels that have the potential to disrupt fisheries operations because parasitic trematodes from the snails may infect the fish. In these areas management with perimeter shoreline treatment and aquatic applications have be used to decrease not just marsh rams-horn, but also trematode populations. Treatment options are available for these snails and parasites (Mitchell 2002; Meepagala et al. 2004).

Figure 8. Ventral (underside) view of marsh rams-horn, *Helisoma trivolvis* (Say), showing foot, head and tentacles.
Credits: Lyle J. Buss, UF/IFAS

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