

Red-rimmed Melania *Melanooides tuberculatus*:

Ecology: This is a small, aquatic, herbivorous snail, consuming detritus and benthic microalgae. Adult snails typically attain a shell length of between 30 and 36 mm, however, lengths up to 80 mm have been reported (Murray 1975). It has an elongated conical shell with regularly increasing whorls. Five whorls typically make up the shell. There are prominent vertical ribs present on the middle and upper whorls. The spiral of the shell is usually twice the length of the aperture or more. Shell coloration is usually light brown, frequently mottled with rust colored spots that may form a spiral below the suture (GSMFC 2007).

Red-rimmed Melania is very common throughout its native range in both Africa and Asia. It prefers shallow, slow running water (0.6 - 1.2 cfs) (GSMFC 2007). This snail tolerates a wide range of saline environments and can be found in fresh water as well as estuarine environments up to 30 ppt (Roessler et al. 1978). The temperature tolerance for this snail is believed to be restricted in the U.S. to 18 - 25 degrees Celsius (Murray 1971). The prime habitat for this species consists of areas rich in detritus and silt, behind overhanging stems and protruding roots of bank vegetation. They are active mostly at night, hiding beneath decaying plants and stones or burying themselves in the mud during the day (Livshits and Fishelson 1983).

Red-rimmed Melania reproduce both sexually and through parthenogenesis (Livshits et al. 1984). Individual snails as small as 10 mm are able to reproduce (GSMFC 2007). This species is viviparous (Livshits and Fishelson 1983), holding up to 70 offspring in a brood pouch. Young remain in the brood pouch until released at 1 - 2 mm in length (GSMFC 2007).

Red-rimmed Melania are also a vector for several important diseases. They are the intermediate host for a number of trematode parasites including: *Clonorchis sinensis*, the Chinese liver fluke; *Paragonimus westermani*, the Oriental lung fluke; *Diorchitrema formosanum*, an intestinal trematode; *Opisthorchis sinensis*, the human liver fluke; and *Philophthalmus sp.*, the avian eye fluke (GSMFC 2007).

Distribution: *M. tuberculatus* is native to subtropical and tropical regions of northern and eastern Africa and southern Asia, from Morocco and Madagascar to Saudi Arabia, Iran, Pakistan, India, southern China, and Indonesia east to Java and the Celebes (Power et al. 2006). In the United States, *M. tuberculatus* is widely distributed throughout the Gulf of Mexico.

Pathways of Introduction The original method of introduction for *M. tuberculatus* to the United States was through the aquarium trade. A San Francisco aquarium dealer introduced it into California prior to 1937. It was then introduced into Tampa Bay, Florida after purchase from the same San Francisco aquarium dealer (Roessler et al. 1978). It is likely that it was spread to Utah and the rest of the Great Basin through the aquarium trade. There are a number of springs throughout the Great Basin that either have Red-rimmed Melania or represent suitable habitat (Don Archer, Utah Division of

Wildlife Resources). Fisherman using felt-soled waders as they move from one site to the next, without decontaminating their equipment, could continue to spread this species throughout Utah.

Management Consideration: Once these snails have been introduced into a new body of water it is difficult to remove them. They compete with native gastropods for resources (Roessler et al. 1977) and could eventually displace them. The best method for preventing the spread of this species into new waters is to decontaminate all equipment that has come in contact with infested waters. This can be done with scalding hot water (Mitchell and Brandt 2003). Educating the public on the risks of this species, as well as how to prevent the spread, is the most effective way of keeping this species out of new waters.

Literature Cited:

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Red-rimmed Melania

- Counties with Red-rimmed Melania Present
- Major Waterways

