

## Mountain Snails - *Oreohelix* sp.

Abundance: Unknown

Status: NSSU

NatureServe: G5 SNR

Population Status:

Limiting Factor:

Comment:

### Introduction

Mountain snails, genus *Oreohelix*, are land snails in the order Stylommatophora. Mountain snails typically have depressed, heliciform shells with an umbilicus and 4 to 6 whorls (Pilsbry 1939). Shell diameter varies between 0.7 and 2.1 cm (0.3 to 0.8 inches). Mountain snails are located in western North America from Saskatchewan and British Columbia to Mexico and California to South Dakota (Pilsbry 1939). Nearly 91% of mountain snail species and subspecies are considered critically imperiled or imperiled (G1/T1 or G2/T2) by NatureServe (2009). In fact, a few species and subspecies have been petitioned for listing under the Endangered Species Act. Mountain snails eat leaf litter, detritus, and microorganisms growing on surfaces, such as rocks, logs, or soil (Speiser 2001). Little is known about the life history of mountain snails, including how long these snails live, and how often they reproduce. Mountain snails are live bearers, meaning they raise their young within their shell until the young reach a certain size. Seven species of mountain snails are recorded from the state: *O. carinifera*, *O. pilsbryi*, *O. pygmaea*, *O. strigosa*, *O. subrudis*, *O. yavapai*, and *O. swopei* (NatureServe 2009). Several subspecies have also been collected in Wyoming, including *O. strigosa berryi*, *O. strigosa cooperi*, *O. strigosa* spp. 1, *O. strigosa* spp. 2, *O. yavapai magnicornu*, *O. yavapai extremitatis*, *O. pygmaea maculate*, *O. strigosa depressa*, and *O. subrudis obscura*. Of these snails, *O. pygmaea* is endemic to the Bighorn Mountains of Wyoming, *O. yavapai* occurs in Wyoming and 5 other western states, and *O. carinifera* is located in one area of Montana and possibly the Bighorn Mountains and Shoshone National Forest of Wyoming. *O. strigosa* and *O. subrudis* are thought to be widespread throughout the mountains of Wyoming.

### Habitat

Mountainsnails live in the mountains in areas with canopy cover and leaf or needle litter. Mountainsnails are generally found in moist, cool areas such as north facing slopes or near streams.

### Problems

- h Lack of basic information on the species present, their distribution, and ecology in Wyoming
- h The taxonomy of species within the genus *Oreohelix* is in question

### Conservation Actions

- h Concerns over the effects of habitat disturbance, such as logging, forest thinning, and grazing in association with the limited dispersal ability of land snails.
- h The unknown affects of climate change on the distribution of *Oreohelix*.

### Monitoring/Research

Tronstad (unpublished data) has an on-going study of *Oreohelix* in the Snowy Mountains of Wyoming and individuals in her study have lived for four years. Tronstad et al. (2014) collected snails from four areas of Grand Teton National Park and identified them as *Oreohelix subrudis*. Additionally, snails collected from the Tensleep and Heart Mountain Preserves were identified as *O. subrudis* (Tronstad et al. 2011).

### Recent Developments

Molecular and morphological work on *Oreohelix strigosa cooperi* in the Black Hills of Wyoming and South Dakota came to two conclusion using different techniques (Weaver et al. 2006; Chak 2007). Chak (2007) found that *Oreohelix* in the Bear Lodge Mountains were different than those in the Black Hills, whereas Weaver's et al. (2006) evidence suggested that *Oreohelix* in the Bear Lodge Mountains and the Black Hills were the same species. Anderson (2010) suggested that *Oreohelix pygmaea* and *Oreohelix strigosa cooperi* are the same species because of little genetic difference.

## References

- Chak, S. 2007. Phylogenetic relationships and population differentiation of *Oreohelix* landsnails in Wyoming and adjacent South Dakota. Thesis. University of Wyoming, Laramie, WY.
- Speiser, B. 2001. Food and feeding behavior. Pages 259-288 in G. M. Barker, editor. *The Biology of Terrestrial Molluscs*. CABI Publishing, New York.
- Weaver, K. F., T. Anderson, and R. Guralnick. 2006. Combining phylogenetic and ecological niche modeling approaches to determine distribution and historical biogeography of Black Hills mountain snails (*Oreohelicidae*). *Diversity and Distributions* 12:756-766.
- Pilsbry, H. A. 1939. *Land Mollusca of North America: North of Mexico*. Academy of Natural Science Monograph 3 edition. George W. Carpenter Fund for the Encouragement of Original Scientific Research, Philadelphia, PA.
- NatureServe. 2016. NatureServe Explorer: An online encyclopedia of life [web application] Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: January 20,2016).
- Anderson, T. 2010. *Oreohelicids (Oreohelix snail species) in the Bighorn National Forest*. Report prepared for the Bighorn National Forest.
- Tronstad, L.M. 2011. *Oreohelix* land snails of Heart Mountain Ranch and Tensleep Preserve, Wyoming. Report prepared for Northwest Wyoming Program of The Nature Conservancy by the Wyoming Natural Diversity Database, University of Wyoming, Laramie, Wyoming.
- Tronstad, L.M., G.P. Beauvais, J. Serb and K. Roe. 2014. *Describing the mountainsnails (Oreohelix sp.) of Grand Teton National Park, Wyoming*. Report prepared for the University of Wyoming-National Park Service Research Center by the Wyoming Natural Diversity Database, University of Wyoming, Laramie, Wyoming.

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SOURCE: Digital maps of ranges for Wyoming Species of Greatest Conservation Need: April 2010. Wyoming Game and Fish Department. A range map is unavailable for the taxa because distribution and ecology are poorly known in Wyoming.