

**ARIZONA GAME AND FISH DEPARTMENT  
HERITAGE DATA MANAGEMENT SYSTEM**

**Invertebrate Abstract**

**Element Code:** IMGASJ7160

**Data Sensitivity:** No

**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

**NAME:** *Tryonia gilae*

**COMMON NAME:** Gila Tryonia

**SYNONYMS:**

**FAMILY:** Littoridinidae (According to Taylor, 1987)

Hydrobiidae (According to Hershler, 1988)

**AUTHOR, PLACE OF PUBLICATION:** D.W. Taylor. 1987. Fresh-water molluscs from New Mexico and vicinity. New Mexico Bureau of Mines & Mineral Resources. Bulletin 116: 36-37.

**TYPE LOCALITY:** Unnamed spring on north side of river about 2 miles north of Bylas, Graham County, Arizona.

**TYPE SPECIMEN:** Holotype: LACM 2187. D.W. Taylor, 20 April 1971. Paratype: UTEP 10,063.

**TAXONOMIC UNIQUENESS:**

**DESCRIPTION:** An elongate species attaining a shell length (length from mantle collar to posterior tip of digestive gland) of 3.4 mm. Whorls number 4-5 in larger males and 5-6 in larger females, regularly convex and separated by an incised suture (area where whorls touch). Shell is narrowly conical and broadly rounded anterior end. Adult shell height 1.9-3.3 mm. The shell is clear, transparent, and without periostracum. Protoconch smooth and flat (sometimes slightly depressed), with 1.0-1.25 whorls. Inner lip is fairly straight, slightly thickened and reflected; outer lip is rounded and thin. The operculum is amber, paucispiral, over one and a half times longer than wide, and with three whorls. Snout is longer than wide, terminating with fleshy lips. Cephalic tentacles are narrow, slightly expanded at the tips, and moderately elongate. The head/foot is lightly dusted with epithelial melanin throughout, except for tentacles. All hydrobioids have a foot with a rounded posterior end. Penis is flattened, elongate, and large relative to snout, extending forward from attachment without coiling. Penis also has two lobes on inner curvature near distal tip and single, enlarged lobe on outer curvature at base.

**AIDS TO IDENTIFICATION:** Due to the small size of this animal, it cannot be identified to species in the field but must be identified in a laboratory by a qualified authority. Therefore, to obtain specimens, sift sand believed to contain the snail through an ordinary kitchen strainer. The rule of thumb that springsnail species are specific to a particular location (i.e. a single spring

or group of springs connected or close to each other), may be used as a means of preliminary identification.

**ILLUSTRATIONS:**

Line drawings (Taylor, 1987)  
Scanning electron microscope (SEM) micrograph of protoconch (Hershler and Landye, 1988)  
SEM micrograph of operculum (Hershler and Landye, 1988)  
Photographs of shell (Hershler and Landye, 1988)  
Line drawings (Hershler and Landye, 1988)  
SEM micrographs of cephalic tentacles (Hershler and Landye, 1988)  
SEM micrographs of radula (Hershler and Landye, 1988)  
SEM micrographs of penis (Hershler and Landye, 1988)  
Line drawings (Hershler and Ponder, 1998)

**TOTAL RANGE:** Unnamed spring north of Bylas, Graham County, Arizona (same as type locality).

**RANGE WITHIN ARIZONA:** See "Total Range."

**SPECIES BIOLOGY AND POPULATION TRENDS**

**BIOLOGY:** The hydrobioid digestive system is typical of style-bearing neotaenioglossans.

The mouth opens to a short oral area containing a pair of dorsolateral chitinous jaws composed of small, simple rodlets, immediately behind which is a well-developed buccal mass (situated within the snout). A pair of simple, unbranched, tubular salivary glands opens anterodorsally to the buccal cavity and (almost always) pass posteriorly over the nerve ring, rarely stopping short of the ring, but never passing through it in hydrobioids. Hydrobioids have a taenioglossate radula (i.e., seven teeth per row) comprising numerous rows of cusped teeth, each of which includes a typically squarish or trapezoidal central tooth flanked on each side by lateral, inner marginal, and outer marginal teeth. Teeth near the anterior end of the radula are often worn or broken, whereas the proximal portion of the ribbon has several to many rows of poorly differentiated or incompletely formed teeth. (Hershler and Ponder, 1998).

**REPRODUCTION:** Most hydrobioids are oviparous, with females depositing small egg capsules, either singly or (rarely) in strings, on the substrate. A small number of hydrobioids are ovoviviparous, in which female's brood shelled young in the pallial gonoduct. Hydrobioid egg capsules are typically hemispherical to spherical. Copulation in hydrobioids is usually via an anterior opening to the glandular oviduct. The ventral channel may be traversed at least in part by the penis, but it is more likely that the penis only enters the anterior most section. (Hershler and Ponder, 1998).

**FOOD HABITS:**

**HABITAT:** Spring sources are all mildly thermal, ranging from 26 to 32°C. The most abundant submergent vegetation is *Chara*, with marginal sedges and *Distichlis*. Found on dead wood, leaves, or stones in spring or brooks.

**ELEVATION:** 2,600 - 2,800 ft. (793 - 854 m).

**PLANT COMMUNITY:** Unknown.

**POPULATION TRENDS:** Unknown.

### **SPECIES PROTECTION AND CONSERVATION**

**ENDANGERED SPECIES ACT STATUS:** None (USDI, FWS 1996)  
[C2 USDI, FWS 1991, 1994]

**STATE STATUS:** None

**OTHER STATUS:** Not Forest Service Sensitive (USDA, FS Region 3 2007)  
[Forest Service Sensitive (USDA, FS Region 3 1999)]  
Bureau of Land Management Sensitive (USDI, BLM AZ 2008, 2010)

**MANAGEMENT FACTORS:** **Threats:** restricted distribution with associated potential for extinction due to chance events; groundwater depletion, reduction of spring flow.  
**Management needs:** protection of spring sources; periodic monitoring of snail populations and their habitats; research on ecology and systematics.

**PROTECTIVE MEASURES TAKEN:**

**SUGGESTED PROJECTS:** Studies to determine basic information on ecology, life cycle, and population dynamics are needed.

**LAND MANAGEMENT/OWNERSHIP:** BIA - San Carlos Reservation; BLM – Safford Field Office; Private.

### **SOURCES OF FURTHER INFORMATION**

#### **REFERENCES:**

Hershler, R. and J.J. Landye. 1988. Arizona Hydrobiidae (Prosobranchia: Rissoacea).  
Smithsonian Contributions to Zoology. Number 459: 43, 48-49.

- Hershler, R. and W.F. Ponder. 1998. A Review of Morphological Characters of Hydrobioid Snails. Smithsonian Institution Press, Washington D.C.
- LACM Type Catalog: Class Gastropoda. Available:  
<http://www.nhm.org/research/malacology/coltypelist/hydrobiidae.html>.
- NatureServe Explorer: An online encyclopedia of life [web application]. 2003. Version 1.6. Arlington, Virginia, USA: NatureServe. Available: <http://www.natureserve.org/explorer>. (Accessed: November 18, 2003).
- Taylor, D.W. 1987. Fresh-water molluscs from New Mexico and vicinity. New Mexico Bureau of Mines & Mineral Resources. Bulletin 116: 36-37.
- USDA, Forest Service Region 3. 1999. Regional Forester's Sensitive Species List.
- USDA, Forest Service Region 3. 2007. Regional Forester's List of Sensitive Animals.
- USDI, Bureau of Land Management Region 2. 2008. Arizona BLM Sensitive Species List.
- USDI, Bureau of Land Management Region 2. 2010. Arizona BLM Sensitive Species List.
- USDI, Fish and Wildlife Service. 1991. Endangered and Threatened Wildlife and Plants; Animal Candidate Review for Listing as Endangered or Threatened Species, Proposed Rule. Federal Register 56(225): 58823.
- USDI, Fish and Wildlife Service. 1994. Endangered and Threatened Wildlife and Plants; Animal Candidate Review for Listing as Endangered or Threatened Species, Proposed Rule. Federal Register 59(219): 59007.
- USDI, Fish and Wildlife Service. 1996. Endangered and Threatened Wildlife and Plants; Review of Plant and Animal Taxa that are Candidates for Listing as Endangered or Threatened Species. Federal Register 61(40): 7596-7613.

**MAJOR KNOWLEDGEABLE INDIVIDUALS:**

- Bob Hershler - Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution, Washington, D.C.
- Jerry Landye - USDI, Fish and Wildlife Service, Pinetop, Arizona.
- Dwight Taylor - Department of Geology, Oregon State University, Corvallis, Oregon.

**ADDITIONAL INFORMATION:**

Hershler and Landye list holotype (USNM 859059. J.J. Landye. 30 January 1971) and four paratypes (unnumbered) that are different from those listed by Taylor (1987).

**Revised:** 1992-03-23 (DBI)  
1993-06-15 (DBI)  
1997-03-03 (SMS)  
2003-12-04 (AMS)

To the user of this abstract: you may use the entire abstract or any part of it. We do request, however, that if you make use of this abstract in plans, reports, publications, etc. that you credit the Arizona Game and Fish Department. Please use the following citation:

Arizona Game and Fish Department. 20XX (= year of last revision as indicated at end of abstract). X...X (= taxon of animal or plant). Unpublished abstract compiled and

edited by the Heritage Data Management System, Arizona Game and Fish Department,  
Phoenix, AZ. X pp.

Arizona