

**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 1994]
[C2 USDI, FWS 1991]

STATE STATUS:

None

OTHER STATUS:

Forest Service Sensitive (USDA, FS Region
3 1999)

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.

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<http://www.nhm.org/research/malacology/coltypelist/hydrobiidae.html>.
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- USDA, Forest Service Region 3. 1999. Regional Forester's Sensitive Species List.
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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).

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