

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

Invertebrate Abstract

Element Code: IMGASJ0770

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Pyrgulopsis arizonae*

COMMON NAME: Bylas Springsnail

SYNONYMS: *Pyrgulopsis sancarlosensis*, *Apachecoccus arizonae*

FAMILY: Hydrobiidae

AUTHOR, PLACE OF PUBLICATION: D.W. Taylor. 1987. Fresh-water molluscs from New Mexico and vicinity. Bulletin 116: 32-34.

TYPE LOCALITY: Unnamed spring on north side of Gila River, north of Bylas, Graham County, Arizona.

TYPE SPECIMEN: Holotype: LACM 2203. D.W. Taylor, 20 April 1971.

TAXONOMIC UNIQUENESS: *Apachecoccus* is a monotypic genus (Taylor 1987). This genus comprises 35 described species and an additional 20-25 undescribed species in the Southwest.

DESCRIPTION: Shell elongately ovate with blunt apex, spire with convex outline. The shell height (from top of shell to bottom of shell) is 1.1 to 2.4 mm; whorls 3.25 to 4.25 in number, moderately rounded. The operculum is plane, ovate, pale amber, with an amber internal callus. Attachment scar bordered by a narrow but discrete thickening that leaves no conspicuous trace. Male and female are approximately the same size. Snout darkly pigmented, tentacles and sides of head/foot with lighter pigment, central section of latter sometimes unpigmented. The penis has a large accessory lobe bearing an oval glandular patch on dorsal and ventral surfaces, and free portion at right angle to long axis on penis. All hydrobioids have a foot with a rounded posterior end.

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 spring snail 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)

Micrographs of operculum (Hershler and Landye, 1988)

Line drawings (Hershler and Landye, 1988)

Photographs of shells (Hershler and Landye, 1988)

SEM micrographs of radula (Hershler and Landye, 1988)

Line drawings (Hershler and Ponder, 1998)

TOTAL RANGE: Three springs on the north bank of the Gila River between Bylas and Pima, Graham County, southeastern Arizona.

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*. *Apachecoccus* is most common on firm substratum in the springbrooks, on dead wood, gravel, and pebbles.

ELEVATION: 2,580 - 2,800 ft. (787 - 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)
Bureau of Land Management Sensitive
(USDI, BLM AZ 2000, 2005)

MANAGEMENT FACTORS: Threats: restricted geographic distribution with associated potential for extinction due to chance events; water developments, including pond construction; habitat degradation due to livestock grazing. Management needs: fencing to protect springs from effects of livestock and periodic monitoring of populations and habitats.

PROTECTIVE MEASURES TAKEN:

SUGGESTED PROJECTS: Further study of springs. Additional work in chromosome morphology and number would be helpful.

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

SOURCES OF FURTHER INFORMATION**REFERENCES:**

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ADDITIONAL INFORMATION:

Independently described by Hershler and Landye, 1988. Taylor (1987) takes precedence as his data was published one month earlier (Sally Stefferud, US Fish and Wildlife Service pers comm. 1992). Hershler (pers comm. to S. Stefferud, 1991) indicated that Hershler believes the species he described, *Pyrgulopsis sancarlosensis*, holotype USNM 859051, J.J. Landye. 29 June 1973, to be separate and distinct from *A. arizonae* described by Taylor (1987).

Revised: 1992-03-27 (DBI)
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