ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Invertebrate Abstract **Element Code:** IMGASJ0230
Data Sensitivity: Yes

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Pyrgulopsis thompsoni* Hershler and Landye
COMMON NAME: Huachuca Springsnail
SYNONYMS:
FAMILY: Hydrobiidae

AUTHOR, PLACE OF PUBLICATION: R. Hershler, and J.J. Landye. 1988. Arizona Hydrobiidae (Prosobranchia: Rissoacea). Smithsonian Contributions to Zoology. Number 459: 41-43.

TYPE LOCALITY: Peterson Ranch Springs, Santa Cruz County, Arizona.

TYPE SPECIMEN: Holotype: USNM 859057. J.J. Landye, 19 August 1973.

TAXONOMIC UNIQUENESS: This genus comprises 35 described species and an additional 20-25 undescribed species in the Southwest.

DESCRIPTION: Shell with 3.25 to 5.0 moderately convex, slightly shouldered whorls. Adult shell height (height from top of shell to bottom of shell) 1.7-3.2 mm. Snout and anterior portion of foot (dorsal surface) with light to fairly dark pigment. Remainder of head/foot usually unpigmented. All hydrobioids have a foot with a rounded posterior end. Penis moderate size, with elongate filament and single, small glandular ridge on ventral surface of penial lobe. Sexually dimorphism significant in two of four populations studied, with males larger in one of these and females larger in the other.

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 drawing of pallial oviduct (Hershler and Landye, 1988)
Photographs of shell (Hershler and Landye, 1988)
Scanning electron microscope micrographs of radula (Hershler and Landye, 1988)

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Line drawings (Hershler and Ponder, 1998)
Color photo (Jakle *in* http://arizonaes.fws.gov/images/Huachuca%springsnail2.jpg)

TOTAL RANGE: Springs in southern Santa Cruz and Cochise counties, Arizona, and northern Sonora, Mexico.

RANGE WITHIN ARIZONA: Monkey Canyon, Sonoita Creek, Santa Cruz River vicinity in the San Rafael Valley, Canelo Hills Cienega in the O'Donnell Canyon Area, and several canyons in the Huachuca Mountains to include: Scotia Canyon, Garden Canyon, McClure Canyon, Sawmill Canyon, Huachuca Canyon, Blacktail Canyon, Ramsey Canyon, Cienega Creek and Redfield Canyon.

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 cuspate 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: Springs and cienegas inhabited by the snail, are typically marshy areas characterized by various aquatic and emergent plant species that occur within plains grasslands, oak and pine-oak woodlands, and coniferous forest vegetation communities. Typically occupies shallower areas within the cienega, which are often very limited. Often found in the rocky seep areas at the spring source.

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ELEVATION: 4,500 to 7,000 ft. (1373 – 2134 m).

PLANT COMMUNITY: Unknown.

POPULATION TRENDS: Population status: locally abundant. However, appropriate habitat within each cienega is generally limited. Conflicting sources state the number of occurrences between 13 and 16. Many potential suitable sites in the southern half of the Huachuca Mountains have not yet been surveyed for Huachuca springsnail. Other potentially suitable unsurveyed habitats exist within the range of the species. (USFWS 2001).

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: C (USDI, FWS 1996)
[C USDI, FWS 2002, 2004-2011]
[C USDI, FWS 1997]
[C2 USDI, FWS 1991, 1994]
[C2 USDI, FWS 1989]

STATE STATUS: None

OTHER STATUS: Forest Service Sensitive (USDA, FS Region 3 1999, 2007)
Bureau of Land Management Sensitive (USDI, BLM AZ 2000, 2005, 2008, 2010)

MANAGEMENT FACTORS: Threats: loss or degradation of spring and cienega habitat due to overgrazing, timber harvest, altered fire regimes, drought, mining, water developments, recreation, and catastrophic fire resulting from human-caused alterations of fire regimes. Extirpation of a population could occur as a result of a major storm, drought, fire, or other forms of environmental stochasticity. Because populations are isolated, once extirpated, sites are unlikely to be recolonized without active management. Small populations are also subject to genetic deterioration and demographic variability, which increases the likelihood of extinction.

PROTECTIVE MEASURES TAKEN: Cottonwood Spring is being protected by cooperation between the private landowner and the Partners Program.

SUGGESTED PROJECTS: A range-wide survey to determine the distribution is critically needed, as is basic information on ecology, life cycle, and population dynamics. Another important need is the development of a monitoring protocol to assess population size.

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LAND MANAGEMENT/OWNERSHIP: DOD - Fort Huachuca Military Reservation; Private; USFS - Coronado National Forest; TNC - Cottonwood Spring Preserve, Canelo Hills Cienega; Private.

SOURCES OF FURTHER INFORMATION

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ADDITIONAL INFORMATION:

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