

ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Invertebrate Abstract

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CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Sonorella xanthenes* Pilsbry and Ferriss, 1923

COMMON NAME: Kitt Peak talussnail

SYNONYMS:

FAMILY: Helminthoglyptidae

AUTHOR, PLACE OF PUBLICATION: Pilsbry and Ferriss, 1923, Proc. Acad. Nat. Sci. Philadelphia 75: 47-104(72); Pls. 1-8.

TYPE LOCALITY: United States, Arizona, Kitts Peak, Pima County 1500 ft from top.

TYPE SPECIMEN: HT: ANSP 118095 A11002A. J.H. Ferriss, 1918, Station 123, 1 dry and 1 alcohol.

TAXONOMIC UNIQUENESS: Based on an unpublished revision by W.B. Miller (1968a, in Bequaert and Miller 1973), he recognized 68 valid species of *Sonorella* (with 19 subspecies), 57 of them in Arizona (three common with Sonora), 3 in New Mexico, 1 in trans-Pecos Texas (in common with New Mexico), 8 in Sonora (3 in common with Arizona), and 3 in Chihuahua. *Sonorella xanthenes* is 1 of 15 species in the *S. binneyi* Complex.

DESCRIPTION: Snails in the genus *Sonorella* have a “depressed globose, helicoids shell, 12 to 30 mm in diameter, umbilicate or perforate, with a wide, unobstructed mouth and a thin, barely expanded peristome, smoothish or slightly sculptured with growth-lines, occasionally with fine oblique or spiral granulation and short hairs (mainly on the early whorls), lightly colored, and normally with a dark peripheral band. Its most characteristic features are, however, in the genitalia, which lack a dart sac and mucus glands.” (Bequaert and Miller, 1973). For species in the *S. binneyi* Complex: the usually short penis is more or less thick, with a bluntly rounded verge. The shell is relatively small and globose, occasionally depressed, with a smooth, silky-lustrous periostracum; usually with apical spirally descending threads. (Bequaert and Miller, 1973).

AIDS TO IDENTIFICATION: The most characteristic features of the genus *Sonorella* are, in the genitalia, which lack a dart sac and mucus glands (Bequaert and Miller 1972).

ILLUSTRATIONS:

TOTAL RANGE: Endemic to Arizona, in Quinlan Mountains, Pima County.

RANGE WITHIN ARIZONA: See "Total Range."

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: Terrestrial gastropods do not move much, usually only to find food or reproduce. Olfaction is the primary sensory behavior utilized to find and move toward a food item (on the scale of centimeters to meters). A moving terrestrial gastropod lays down water-laden mucus on which it moves, exposing its integument to a potentially drying atmosphere, and increasing its water losses through the pallial cavity because of the necessity for gas exchange. A roosting terrestrial gastropod deploys a variety of passive mechanisms for water conservation, including the direct protection of its wet surfaces from drying conditions, avoidance of temperature extremes, the creation of more favorable microclimates and decreases in gas exchange. (A. Cook, *in* Barker 2001).

REPRODUCTION:

FOOD HABITS: Probably omnivorous, feeding on plant material (including algae, mosses, lichens, and possibly roots, shoots, leaves, flowers, anthers, pollen, fruit, seeds and rotting wood), and microorganisms associated with live and decaying vegetation; followed to a lesser extent by fungi and soil. (Speiser, *in* Barker, 2001).

HABITAT: *Sonorella xanthenes* was found and collected near the top of Kitt's Peak, in a humid area at the foot of cliffs (ANSP 118095, accessed 2008). This area is near the head of a stream under scattered rocks in oak brush, among sticks and leaves. This species was also collected under granite rocks at the foot of huge boulders on the NW slope below the picnic grounds (SBMNH 74775, accessed 2008).

ELEVATION: About 5,500 feet (1678 m), (Pilsbry 1923 *in* Bequaert & Miller 1973). Reportedly collected in several ravines on the north slope of Peak from 6,200 to 6,700 feet (1891-2044 m), (Bequaert & Miller 1973, SBMNH accessed 2008, SDCP accessed 2008).

PLANT COMMUNITY: Oak brush.

POPULATION TRENDS: Unknown.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None
STATE STATUS: 2 (AZGFD, AWCS 2022)
[1C (AGFD SWAP 2012)]
OTHER STATUS: None

MANAGEMENT FACTORS: Threats include destruction or disturbance of talus slopes.

PROTECTIVE MEASURES TAKEN:

SUGGESTED PROJECTS: Validity of the informal *Sonorella* “species-groups” (or “complexes”) has been brought into question by Naranjo-García (1988) and Roth (1996). Further research, including the use of molecular techniques, is needed to help clarify the relationships of these informal taxa. (Gilbertson and Radke 2005).

LAND MANAGEMENT/OWNERSHIP: BIA – Tohono O’Odham Nation.

SOURCES OF FURTHER INFORMATION

REFERENCES:

- Arizona Game and Fish Department. 2012. Arizona's State Wildlife Action Plan 2012-2022. Phoenix, AZ.
- Arizona Game and Fish Department. 2022. Arizona Wildlife Conservation Strategy: 2022-2032. Arizona Game and Fish Department, Phoenix, Arizona. 378 pages.
- Bequaert, J.C., and W.B. Miller. 1973. The Mollusks of the Arid Southwest. The University of Arizona Press. Tucson, Arizona. Pp. 111, 120.
- [Http://www.co.pima.az.us/cmo/sdcp/sdcp2/fsheets/vuln/ts.html](http://www.co.pima.az.us/cmo/sdcp/sdcp2/fsheets/vuln/ts.html). Fact-sheet: Talusnail, *Sonorella*. Accessed: 11/23/2005.
- [Http://www.pima.gov/CMO/SDCP/species/fsheets/vuln/ts.html](http://www.pima.gov/CMO/SDCP/species/fsheets/vuln/ts.html). Accessed: 4/23/2008.
- Integrated Taxonomic Information System (ITIS). Retrieved 4/23/2008 from ITIS, <http://www.itis.usda.gov>.
- MCZ Malacology Collection. Accessed: 4/23/2008. <http://collections.oeb.harvard.edu/Mollusks.MolluskDetail.cfm>.
- NatureServe. 2008. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.0. NatureServe, Arlington, Virginia. Available <https://explorer.natureserve.org/> (Accessed: April 23, 2008).
- Santa Barbara Museum of Natural History. 2008. SBMNH: Invertebrate Zoology Online Database Collection. <http://www.sbcollections.org/iz/recordview.php>. Accessed: 4/23/2008.
- The Academy of Natural Sciences. ANSP Malacology Search Details. Accessed: 23 April 2008. <http://clade.ansp.org/malacology/collections/index.php>.
- The Field Museum. 2007. Department of Zoology Invertebrates Collections. Accessed 4/23/2008. <http://emuweb.fieldmuseum.org/iz/MolluscDisplay.php>.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

ADDITIONAL INFORMATION:

The genus *Sonorella* occurs over most of Arizona (except a strip north of the Grand Canyon, an extensive northeast corner, and the small southwest *Eremarionta* area), the southwest corner of New Mexico, trans-Pecos Texas, northeast Sonora, and the northwest corner of Chihuahua, Mexico. (Bequaert and Miller, 1973).

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