

ARIZONA GAME AND FISH DEPARTMENT  
HERITAGE DATA MANAGEMENT SYSTEM

Invertebrate Abstract

Element Code: IMGASC9330  
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**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

**NAME:** *Sonorella imperatrix* Pilsbry, 1939

**COMMON NAME:** Total Wreck Talussnail

**SYNONYMS:**

**FAMILY:** Helminthoglyptidae

**AUTHOR, PLACE OF PUBLICATION:** Pilsbry, 1939, Mono Acad. Nat. Sci. Phi. 3: 1; fig. 320.

**TYPE LOCALITY:** Empire Mts, W side of a large peak 1.5 mi N of Total Wreck Mine, Pima Co.; elevation not given. (Bequaert & Miller, 1973).

**TYPE SPECIMEN:** Paratype: ANSP 118104 A11005D. J.H. Ferris, 1918, 7 dry specimens and 1 in alcohol, station 149.

**TAXONOMIC UNIQUENESS:** Based on an unpublished revision by W.B. Miller (1968a, in Bequaert and Miller 1973), he recognized 68 valid species of *Sonorella* (with 19 subspecies), 57 of them in Arizona (three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 imperatrix* 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:** Empire Mountains, Pima County, Arizona, USA.

**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:** The talussnail is a rock snail usually found in taluses or “slides” of coarse broken rock, generally found in crevices one to several feet below the surface, sealed to stones by their mucus. (SDCP).

**ELEVATION:** Collected in North section of range at 4,900 feet (1495 m) (Bequaert & Miller, 1973), and at 5,100 feet (1556 m) (ANSP 307005).

### **PLANT COMMUNITY:**

**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:** State Land Department.

### **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.
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- The Academy of Natural Sciences. ANSP Malacology Search Details. Accessed: 26 March 2008. <http://clade.ansp.org/malacology/collections/index.php>.
- Santa Barbara Museum of Natural History. 2008. SBMNH: Invertebrate Zoology Online Database Collection. <http://www.sbcollections.org/iz/recordview.php>. Accessed: 3/26/2008.

#### **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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