

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

**Invertebrate Abstract**

**Element Code:** IMGASC9160

**Data Sensitivity:** No

**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

**NAME:** *Sonorella clappi* Pilsbry and Ferriss, 1915

**COMMON NAME:** Madera talussnail

**SYNONYMS:** *Sonorella granulatissima occidentalis* Pilsbry and Ferriss, 1915

**FAMILY:** Helminthoglyptidae

**AUTHOR, PLACE OF PUBLICATION:** Pilsbry and Ferriss, 1915, Proc. Acad. Nat. Sci. Philadelphia 67:363-418; Pls. 8-15.

**TYPE LOCALITY:** "Santa Rita Mountains, Station 8 in Madera Canyon, "an extensive rock pile in the bed of the Canyon ca 10 ft above the stream, opposite the saddle at head of Agua Caliente Canyon," Santa Cruz Co.; elevation not given." (Bequaert and Miller, 1973). See "Additional Information" for information on apparently "first land snail collected in Arizona."

**TYPE SPECIMEN:**

**TAXONOMIC UNIQUENESS:** Based on an unpublished revision by W.B. Miller (1968a, in Bequaert and Miller 1973), he recognized 68 valid species of *Sonorella* (with 19 subspecies), 57 of them in Arizona (three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 clappi* is 1 of 23 species in the *S. granulatissima* 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. granulatissima* Complex: The verge of the penis is usually stout and truncate, reaching extremes of diminution in some species or gigantism in others. Snails in the complex have minutely granulose or wrinkly-granulose shells, with a readily peeling periostracum; mostly without 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 the Santa Rita Mountains of Pima County, Arizona. They have been collected in Madera, Agua Caliente, and Gardner canyons.

**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:** Reported in Bequaert and Miller (1973) from 5,600 – 6,500 feet (1708-1983 m).

#### **PLANT COMMUNITY:**

**POPULATION TRENDS:** Unknown.

### **SPECIES PROTECTION AND CONSERVATION**

**ENDANGERED SPECIES ACT STATUS:** None  
**STATE STATUS:** None  
**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:** USFS – Coronado National Forest; Private.

## **SOURCES OF FURTHER INFORMATION**

### **REFERENCES:**

- ANSP Malacology Search Details. <http://clade.ansp.org/malacology/collections/index.php>. Accessed: 19 March 2008.
- Bequaert, J.C., and W.B. Miller. 1973. The Mollusks of the Arid Southwest. The University of Arizona Press. Tucson, Arizona. Pp. 111, 124.
- [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: Talussnail, *Sonorella*. Accessed: 11/23/2005.
- Integrated Taxonomic Information System (ITIS). Retrieved 3/19/2008 from ITIS, <http://www.itis.usda.gov>.
- MCZ Malacology Collection. Accessed: 3/19/2008. <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 <http://www.natureserve.org/explorer>. (Accessed: March 19, 2008).
- Santa Barbara Museum of Natural History. SBMNH: Invertebrate Zoology Online Database Collection. <http://www.sbcollections.org/iz/recordview.php>. Accessed: 3/19/2008.
- The Field Museum. 2007. Department of Zoology Invertebrates Collections. Accessed 3/19/2008. <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).

According to Bequaert and Miller (1973), “A dead shell, apparently of this species, labeled “Santa Rita Mts” at U.S. Nat. Mus., and sent to I. Lea in 1860 by H. C. Grosvenor, appears to be the first land snail collected in Arizona. Synonym: *Sonorella granulatissima occidentalis*

H. A. Pilsbry and J. H. Ferriss, 1915 (T.L.: Santa Rita Mts, Camperel Canyon [= Gardner Canyon of present map], NE side of Old Baldy [Mt Wrightson of present map], Santa Cruz Co.; elevation not given, but probably ca 6,800 ft); (not *S. sabinoensis occidentalis* H. A. Pilsbry and J. H. Ferriss, 1919, renamed *S. sabinoensis dispar* by Pilsbry, 1939).”

**Revised:** 2008-03-20 (SMS)

To the user of this abstract: you may use the entire abstract or any part of it. We do request, however, that if you make use of this abstract in plans, reports, publications, etc. that you credit the Arizona Game and Fish Department. Please use the following citation:

Arizona Game and Fish Department. 20XX (= **year of last revision as indicated at end of abstract**). X...X (= **taxon of animal or plant**). Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. X pp.