

ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Invertebrate Abstract

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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TAXONOMIC UNIQUENESS: Based on an unpublished revision by W.B. Miller (1968a, in Bequaert and Miller 1973), he recognized 68 valid species of *Sonorella* (with 19 subspecies), 57 of them in Arizona (three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:	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). Surveys need to be conducted to determine if historic populations are still present and to determine if other populations exist in the Range.

LAND MANAGEMENT/OWNERSHIP: USFS – Coronado National Forest; Private.

SOURCES OF FURTHER INFORMATION

REFERENCES:

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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 granulatisima 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)."

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