ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Invertebrate Abstract **Element Code:** IMGASC9370

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Sonorella magdalenensis* (Stearns, 1890)
COMMON NAME: Sonoran talussnail

SYNONYMS: *Helix magdalenensis* Stearns, 1890
Sonorella tumamocensis Pilsbry & Ferriss 1915
S. sitiens arida Pilsbry & Ferriss 1915
S. hinkleyi Pilsbry & Ferriss 1919
S. hinkleyi fraterna Pilsbry & Ferriss 1919
S. tumacacori Pilsbry & Ferriss 1919
S. cayetanensis Pilsbry & Ferriss 1919
S. linearis Pilsbry & Ferriss 1923

FAMILY: Helminthoglyptidae

AUTHOR, PLACE OF PUBLICATION: (R.E.C. Stearns, 1890, as *Helix*, U.S. Nat. Mus 13(813):205-225; Pls. 15-17).

TYPE LOCALITY: Sonora, Mexico, on top of a mountain, 1,000 ft above Magdalena; elevation not given. Found in 1965 at the probable T.L. in Sierra Magdalena, ca 1 mi N of Magdalena, at 3,650 ft (which is ca 1,000 ft above the town). (Bequaert & Miller 1973).

TYPE SPECIMEN:

TAXONOMIC UNIQUENESS: The *Sonorella* genus contains 68 recognized species (with 19 subspecies) (Bequaert and Miller 1973, Integrated Taxonomic Information System 2024), 57 of them in Arizona (three in common with Sonora), three in New Mexico, one in trans-Pecos Texas (in common with New Mexico), eight in Sonora (three in common with Arizona), and three in Chihuahua. *Sonorella magdalenensis* is one 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 1973).

ILLUSTRATIONS:

TOTAL RANGE: In Arizona from Pima County and Santa Cruz counties. Sonora, Mexico, from Sierra Magdalena (Type Locality) to as far south as Sierra Pajaritos.

RANGE WITHIN ARIZONA: In Pima County, known from Cerro Colorado; Roskruge Mts.; S part of Tucson Mts.; N foothills of Santa Rita Mts.; and Tumamoc Hill near Tucson. In Santa Cruz County, known from San Cayetano and Tumacacori mountains (Center for Biological Diversity 2010).

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).

Talussnails are active above ground during or following summer monsoon rains (Weaver et al. 2010). Talussnails spend considerable time in estivation (dormancy) (U.S. Fish and Wildlife Service 2012)

REPRODUCTION: *Sonorella magdalenensis* have been observed mating during summer rains (Center for Biological Diversity 2010).

FOOD HABITS: Sonorella snails feed on lichens, plants, leaf litter, and potentially fungus (Center for Biological Diversity 2010).

HABITAT: The talussnail is a rock snail usually found in taluses or "slides" of coarse broken rock or limestone outcrops, and are generally found in crevices one to several feet below the surface, sealed to stones by their mucus (Center for Biological Diversity 2010). They are also found in areas of accumulated leaf litter near the edges of talus slopes, and are dependent on areas with moist microhabitat to prevent desiccation (Center for Biological Diversity 2010).

ELEVATION: In Arizona, from as low as 2,750 feet up to 6,000 feet (839–1,830 m) elevation (Bequaert & Miller 1973).

PLANT COMMUNITY:

POPULATION TRENDS: Unknown.

SPECIES PROTECTION AND CONSERVATION

Status definitions: https://bit.ly/hdms-status-definitions
Heritage Network Conservation Status Rank definitions: https://bit.ly/hdms-rank-definitions

ENDANGERED SPECIES ACT STATUS:	UR (USDI, FWS 2012)
STATE STATUS:	3 (AZGFD, AWCS 2022)
HERITAGE NETWORK STATUS:	G2
	S1S2
OTHER STATUS:	Forest Service Sensitive (USDA, FS Region 3 2013)
	Bureau of Land Management Sensitive (USDI, BLM 2017)

PREVIOUS STATUS

ENDANGERED SPECIES ACT STATUS:	
STATE STATUS:	1C (AZGFD, SWAP 2012)
OTHER STATUS:	

MANAGEMENT FACTORS: Threats include destruction or disturbance of talus slopes; mining impacts, development; illegal immigration, smuggling, and border control activities; recreation; vandalism, and impacts from invasive species (Center for Biological Diversity 2010).

PROTECTIVE MEASURES TAKEN:

SUGGESTED PROJECTS: Validity of the informal *Sonorella* "species-groups" (or "complexes") has been brought into question by 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; State Land Department; Private.

SOURCES OF FURTHER INFORMATION

REFERENCES:

Arizona Game and Fish Department. 2012. Arizona's State Wildlife Action Plan 2012-2022. Arizona Game and Fish Department, Phoenix, Arizona. 233 pages.

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Bequaert, J. C., and W. B. Miller. 1973. The mollusks of the arid southwest. The University of Arizona Press. Tucson, Arizona. Pp. 111, 121-122.

Center for Biological Diversity. 2010. Petition to list two talus snail species from the Sky Islands of Arizona as threatened or endangered under the Endangered Species Act. Submitted to the U.S. Fish and Wildlife Service, Washington D.C. Center for Biological Diversity. 29 pages.

Gilbertson, L. H. and Radke, W. R., 2006. A new species of *Sonorella* (Pulmonata: Helminthoglyptidae) from Arizona, with notes on predation and evasive behaviors. American Malacological Bulletin 21(1-2):17-22.

Integrated Taxonomic Information System. 2024. The Integrated Taxonomic Information System (ITIS) on-line database, 13 August 2024 version. https://www.itis.gov , CC0, https://doi.org/10.5066/F7KH0KBK

Roth, B. 1996. Homoplastic loss of dart apparatus phylogeny of the genera, and a phylogenetic taxonomy of the Helminthoglyptidae (Gastropoda: Pulmonata). The Veliger. 39(1):18-42.

USDA, Forest Service Region 3. 2013. Regional forester's sensitive species: animals - 2013. U.S. Forest Service. 5 pages.

USDI, Bureau of Land Management. 2017. Arizona BLM sensitive species list. Instruction memorandum No. AZ-IM-2017-009. Bureau of Land Management, Arizona State Office, Phoenix, Arizona. 6 pages.

USDI, Fish and Wildlife Service. 2012. Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition To List the Sonoran Talussnail as Endangered or Threatened. Federal Register 77(142):43218-43222.

Weaver, K. F., P. F. Weaver, and R. Guralnick. 2010. Origin, diversification and conservation status of talus snails in the Pinaleno Mountains: a conservation biogeographic study. Animal Conservation 13(3):306-314. https://doi.org/10.1111/j.1469-1795.2009.00341.x

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, an 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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