

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

**Invertebrate Abstract**

**Element Code:** IMGASC9320

**Data Sensitivity:** No

**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

**NAME:** *Sonorella imitator*  
**COMMON NAME:** Mimic Talussnail  
**SYNONYMS:** None  
**FAMILY:** Helminthoglyptidae

**AUTHOR, PLACE OF PUBLICATION:** Gregg, W.O. and W.B. Miller. 1974. Two new species of land snails from the Pinaleno Mountains, Arizona. Bulletin of the Southern California Academy of Science 73 (3): 146-151.

**TYPE LOCALITY:** South slope of the Pinaleno Mountains along the Swift Trail highway, on north side, at a point 20.7 road miles from it's beginning at US Highway 666, Graham County, Arizona.

**TYPE SPECIMEN:** Holotype: No. 1154, Natural History Museum of Los Angeles County  
Paratype: No. 12948, Geological Collection of the California Academy of Sciences  
No. 2545, San Diego Natural History Museum

**TAXONOMIC UNIQUENESS:**

**DESCRIPTION:** A land snail with globose shell with about 4.5 whorls. Shell has tan to olive tint and a chestnut-brown shoulder band which has indistinctly pallid borders. Approximately 20.0 mm (0.8 in.) in diameter. *S. imitator* has a shell that is, on average, slightly larger than that of *S. grahamensis*, though in this and all other characteristics, there is complete overlap among all of the shells of *Sonorella* species in the Pinaleno Mountains. For helminthoglyptidae, the buccal mass is small and spheroidal. The gastric caecum and the rectal caecum are absent. The radular teeth are endocones and ectocones retained in marginal teeth but these are serrated, on quadrate or rectangular basal plates or the central and lateral teeth may be lacking endocones and ectocones but with a broad mesocone. The prolonged cuspid head on radular teeth may or may not be present. The cephalic shield is reduced, defined only by vestigial grooves. The hyponotum is absent. Inferior tentacles are present. The eye position is at the tip of more or less elongate cephalic tentacle. The tentacular nerve is bifurcated. (Barker 2001).

**AIDS TO IDENTIFICATION:**

**ILLUSTRATIONS:** Photo of shell (Hoffman, undated: P. 15)  
Line drawing of reproductive tract (Hoffman, undated: P. 23)

**TOTAL RANGE:** Clark Peak area southeast to Marijilda Canyon area, Graham County, Arizona.

**RANGE WITHIN ARIZONA:** See “Total Range.”

### **SPECIES BIOLOGY AND POPULATION TRENDS**

**BIOLOGY:** Believed that most Pinaleno land snails mature in 2-3 years with lifespan of approximately 6 years. According to Hoffman (undated), humidity can be very important, giving them enough moisture to support foraging, although there may be no rainfall for several weeks.

**REPRODUCTION:** Reproduction in *Sonorella* of the Pinaleno Mountains has not been studied. Hoffman believes that they are probably similar to other *Sonorella* species which are hermaphroditic. “Each *Sonorella* lays a clutch of thirty to forty eggs once or, in particularly good years, twice during each summer” (Hoffman undated). For helminthoglyptidae, embryonic brooding may or may not be present and they can be oviparous or viviparous. The eggs are single, not embedded in a jelloid/mucoid mass. The egg capsule could be partially calcified, with calcite crystals embedded in jelly layers but not forming a distinct shell or it could be calcified forming a distinct shell. The larval development has no trochophore or veliger stages, there is direct development in the egg. The larval operculum is absent. The genital orifices in the male and female are fused or nearly so in cephalic region, near right ocular tentacle. The extrapallial sperm duct is a closed duct, free in the body cavity. The lumen of the penis is lacking of spines. (Barker 2001).

**FOOD HABITS:** Hoffman (undated) states that *Sonorella* in the Pinaleno Mountains feed primarily on fungus and decaying plant matter supplemented with young green shoots when available. For helminthoglyptidae, the openings of the digestive gland lobes are more or less adjacent, openings are intestinal. The stomach is greatly simplified, with very poorly developed musculature. The diagonal intestinal folds are absent. The intestinal valve is absent. (Barker 2001).

**HABITAT:** Rockslides within the Pinaleno Mountains, Graham County, Arizona.

**ELEVATION:** 6,680 - 10,280 ft. (2,037 - 3,135 m).

**PLANT COMMUNITY:** Hoffman (undated) states that “the plants associated with the land snails in the Pinaleno Mountains vary with elevation.” He lists various plant species associated with these snails for “higher” and “lower” elevations, but does not define “higher” and “lower” by giving specific elevations or exact species of snails associated with various

plant species. He does note, however, that “the species mix along Highway 666 (Swift Trail) above Ladybug Saddle, the type locality of *S. imitator* ... is *Quercus gambelii* (gambel oak), *Pinus ponderosa* (Ponderosa pine), and *Robinia neomexicana* (New Mexican locust).

**POPULATION TRENDS:** According to Hoffman (undated), it has been observed since 1954 that *S. imitator* is becoming more common over the range previously inhabited by *S. grahamensis*. The reasons for this are unknown at this time.

## **SPECIES PROTECTION AND CONSERVATION**

**ENDANGERED SPECIES ACT STATUS:** None (USDI, FWS 1996)  
[3C USDI, FWS 1991]

**STATE STATUS:** None

**OTHER STATUS:** Forest Service Sensitive (USDA, FS Region 3 1999)

**MANAGEMENT FACTORS:** Land managed as a multiple use forest and is primarily used for recreation. The telescope complex on Mt. Graham and an increase of camping and recreational sites are not expected to impact these snails to a great extent. However, the phasing out by the Forest Service of the fire suppression policy, may have a greater impact. Because fires have been suppressed for a period of time, dead brush and decayed plant matter has built up on top of the talus slopes so that the heat of a large fire may be intense enough to kill the snails in the talus below.

### **PROTECTIVE MEASURES TAKEN:**

**SUGGESTED PROJECTS:** Research needed on the effect of natural fires on snail populations. More studies on general life history, reproduction, morphology and population status need to be performed.

**LAND MANAGEMENT/OWNERSHIP:** USFS - Coronado National Forest.

## **SOURCES OF FURTHER INFORMATION**

### **REFERENCES:**

- Barker, G.M. 2001. The Biology of Terrestrial Molluscs. CABI Publishing UK. Pp: 139-144.
- Bequaert, J.C. and W.B. Miller. 1973. The mollusks of the arid southwest, with an Arizona check list. The University of Arizona Press. Tucson, Arizona. Pp. 110-125.
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- USDA, Forest Service Region 3. 1999. Regional Forester's Sensitive Species List.
- USDI, Fish and Wildlife Service. 1991. Endangered and Threatened Wildlife and Plants; Animal Candidate Review for Listing as Endangered or Threatened Species, Proposed Rule. Federal Register 56(225): 58822.
- USDI, Fish and Wildlife Service. 1996. Endangered and Threatened Wildlife and Plants; Review of Plant and Animal Taxa that are Candidates for Listing as Endangered or Threatened Species. Federal Register 61(40): 7596-7613.

**MAJOR KNOWLEDGEABLE INDIVIDUALS:**

James Hoffman - Pima Community College (West), Tucson, Arizona.

**ADDITIONAL INFORMATION:**

**Revised:** 1992-04-23 (DBI)  
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