

## **Polygyrid land snails, *Vespericola* (Gastropoda: Pulmonata), 4. A new and possibly extinct species from central California, U.S.A.**

BARRY ROTH

*Department of Invertebrate Zoology, Santa Barbara Museum of Natural History, Santa Barbara, California  
93105, U.S.A.  
barryroth@earthlink.net*

### **Abstract**

*Vespericola ohlone* **sp. nov.**, is described from material collected in the nineteenth century, probably around freshwater marshes in Alameda County, central California. No more recent collecting records have been found, and the species may be extinct. The new species differs from *Vespericola pilosus* (Henderson, 1928) in having its base produced and somewhat excavated around the umbilicus, the inner quadrant of the base with a small shelf set off by a spiral sulcus behind the basal lip, and the inner part of the basal lip angled, rather than gently curved, forward. The soft anatomy is unknown.

**Key words:** Mollusca, Gastropoda, Polygyridae, *Vespericola*, new species, taxonomy, extinction

### **Introduction**

Roth and Miller (1993) reviewed the identity of Californian specimens of the land snail genus *Vespericola* Pilsbry, 1939, formerly referred to *V. columbianus* (Lea, 1838). They concluded that "*Vespericola columbianus pilosus*" (Henderson, 1928) was a distinct species, *V. pilosus*, with a range restricted to the San Francisco Peninsula. They observed that shells in museum samples from east of San Francisco Bay, in Contra Costa and Alameda counties, are more depressed and more widely umbilicate than those of *V. pilosus*, with the inner part of the basal lip angled rather sharply forward. Efforts since that time to locate living populations for anatomical data (including a request on the Mollusca Internet list) have been unsuccessful.

Anatomical characters are desirable for diagnosis of *Vespericola* species, but it seems unlikely that they will soon become available for this species. I have therefore chosen to describe the species on shell characters alone.

Material from the counties east of San Francisco Bay is scarce in collections and none has been collected recently – perhaps none since the nineteenth century or earliest twentieth century. For example, the collection of Allyn G. Smith, now held by the California Academy of Sciences, includes other land snails from the East Bay counties collected from 1914 to 1942, but no *Vespericola*. Labeled localities such as San Pablo (Contra Costa County) and Oakland (Alameda County) have undergone profound urbanization since the nineteenth century. Given the complex pattern of land ownership and access, a comprehensive survey is obviously not possible. The possibility exists that the species described below is extinct.

The most informative extant lot is Santa Barbara Museum of Natural History lot SBMNH 03357, consisting of 44 specimens from Patterson's Willows, Alameda County, collected by James Graham Cooper on March 1, 1875. "Patterson's Willows" probably refers to marshy ground on the ranch of George Washington Patterson, who owned nearly 6000 acres (2400 ha) now located largely in the cities of Fremont and Newark, California. In about February 1875 Cooper moved his residence to the nearby town of Hayward (then called "Haywood" and shortly later, "Haywards"), where he continued his lifelong natural history investigations (Coan 1982). Cooper (1887) mentioned the occurrence of "*Mesodon (Aplodon) armigera*" [i.e., *Vespericola armiger* (Ancey, 1881)] in freshwater marshes of Alameda and Contra Costa counties. A portion of the old Patterson Ranch is now preserved as public lands (Ardenwood Regional Preserve and Coyote Hills Regional Park).

It is unlikely that "Patterson's Willows" refers to the vicinity of Patterson Pass, eastern Alameda County. That location, on the eastern side of the Coast Range, is in a much more arid setting that does not offer probable habitat for drought-sensitive snails like *Vespericola*.

Search by Elizabeth J. Kools and me in 2001 under willows and in other habitats around the freshwater marshes of Coyote Hills Regional Park yielded only introduced land mollusks: *Oxychilus draparnaudi* (Beck, 1837), *Deroceras reticulatum* (Müller, 1774), *Deroceras panormitanum* (Lessona and Pollonera, 1882), and *Arion (Kobeltia)* sp. The evidence is negative, but there is the suggestion that even in this wildlife sanctuary (which has undergone considerable modification for flood control and waste disposal), the species is extinct.

The following abbreviations and definitions are used: ANSP, Academy of Natural Sciences of Philadelphia; CAS, California Academy of Sciences, San Francisco; SBMNH, Santa Barbara Museum of Natural History; USNM, United States National Museum of Natural History, Smithsonian Institution, Washington, DC.

Shell diameter is the greatest distance across the shell perpendicular to the axis of coiling; it excludes the expanded outer lip of adult shells. Shell height is the greatest distance from the apex to the base of the shell, parallel to the axis of coiling; it excludes the expanded lip of adult shells. Whorls are counted by the method of Pilsbry (1939: xi, fig.

B). Coiling tightness is the number of whorls divided by the natural logarithm of the diameter; a high value represents a shell with more tightly coiling whorls (i.e., more whorls at a given diameter) than a shell with a low value.

## Systematics

### Polygyridae Pilsbry, 1895

#### *Vespericola* Pilsbry, 1939

*Vespericola* Pilsbry, 1939: xvii. --Pilsbry, 1940: 892-894. --Zilch, 1960: 586. --Roth and Miller, 1993: 135.

**Type Species.** *Polygyra columbiana pilosa* Henderson, 1928 [= *Vespericola pilosus* (Henderson)], by original designation.

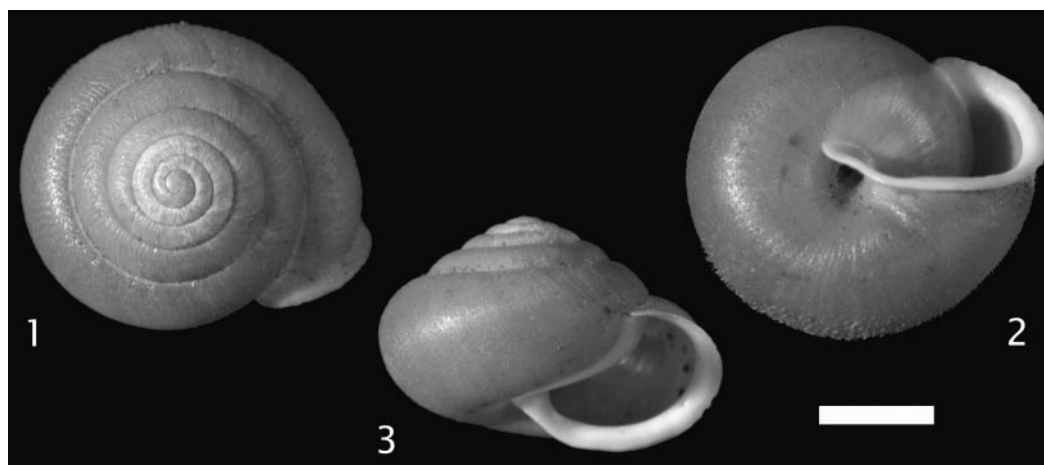
#### *Vespericola ohlone* Roth, sp. nov.

(Figures 1-3)

*Mesodon* (*Aplodon*) *armigerus* [Ancey], Cooper, 1887: 367, 368, 370, 374; non *Vespericola armiger* (Ancey, 1881).

*Vespericola columbiana pilosa* (Henderson), Pilsbry, 1940: 896-898, in part (record from San Pablo, Contra Costa County).

*Vespericola*, new species "o" Roth & Sadeghian, 2003: 37.



**FIGURES 1-3.** *Vespericola ohlone* Roth, sp. nov. Holotype, SBMNH 348128, Patterson's Willows, Alameda County, California. Top, apertural, and basal views of shell. Diameter (exclusive of outer lip) 14.5 mm; scale bar = 5 mm.

**Type material** (all, formerly contained in lot SBMNH 03357): Holotype, SBMNH 348128, **CALIFORNIA:** Alameda County: "Patterson's Willows" (probably now part of Coyote Hills Regional Park, approximately 37.55° N, 122.09° W), J. G. Cooper coll. 1 Mar 1875. Paratypes (37), SBMNH 348129, from same location as holotype. Additional paratypes deposited in ANSP (2), CAS (2), USNM (2).

**Referred material: CALIFORNIA:** Contra Costa County: ANSP 1889 (3), San Pablo, A. D. Brown (?) coll. The collection date for this lot is unknown, but it was catalogued at ANSP between 1915 and 1919 (P. Callomon, personal communication, January 2003). Alameda County: SBMNH 03696 (11), collector unknown; USNM 30484 (4), Oakland, A. W. Crawford coll.; USNM 30485 (3), Oakland, A. W. Crawford coll. The latter two lots are undated, but A. W. Crawford was a resident of Oakland and active as a mollusk collector around the 1870's (Pilsbry 1939: 63; Hanna and Smith 1954; Pressley 1983).

**Distribution:** Alameda and Contra Costa counties, central California, U.S.A.

**Diagnosis:** A medium-sized, thin-shelled, setose *Vespericola* with base of shell produced and somewhat excavated around umbilicus, inner quadrant of base with small shelf set off by spiral sulcus behind basal lip, inner part of basal lip angled forward, and dilation of inner end of lip weakly impinging on umbilicus.

**Description:** Shell diameter 11.7-15.4 mm; height 7.8-10.3 mm; height-diameter ratio 0.57-0.74. Shell thin. Periphery broadest at or just above middle of whorl; tightly rounded (sometimes with a trace of angulation, especially on early body whorl near aperture), convexly sloping toward base. Whorls 5.5-6.2. Coiling tightness 2.05-2.42. Spire conical; apical angle approximately 130°; whorls of spire flattened; suture moderately impressed to strongly impressed. Embryonic whorls 1.5-1.75; smooth for first 0.2 whorl, thereafter with crowded, irregular, papillose, radiating rugae. Early post-embryonic sculpture of retractive collabral striae and minute, overall granulation; granules axially elongated, close-set, parallel to growth striae, giving way after about third whorl to irregular collabral wrinkling. Spiral sculpture absent. Surface of periostracum radially wrinkled, pebbly to scaly on first four whorls, smoother on whorls 5-6. Periostracal setae present; borne in distinct rows, oblique to coiling direction; rows of setae descending at approximately 40-45° with respect to whorl trajectory; density of setae 12-20 per mm<sup>2</sup>. Setae on spire and shoulder of body whorl 0.2-0.4 mm long; curving away from direction of coiling to mostly askew, and readily lost by abrasion; bases of setae not conspicuously broadened or forked at base. Fin-like, abapertural basal extensions of setae absent. Tips of setae not recurved. Setae on base about as long as those on spire; setation extending into umbilicus. Base of shell produced and somewhat excavated around umbilicus; inner quadrant of base with small shelf set off by spiral sulcus behind basal lip. Inner quadrant of base not spirally corrugated behind basal lip. Umbilicus of moderate width; contained 13-20 times in diameter. Body whorl behind aperture not deflected downward prior to pre-apertural constriction. Last quarter-turn (approximately) of body whorl not compressed apico-basally.

Aperture broadly ear-shaped. Peristome in lateral view shallowly concave; at angle of approximately 30 degrees to shell axis. Lip turned outward and expanded above periphery, reflected below periphery; face of expanded lip concave; basal lip not markedly more thickened than rest of peristome; inner part of basal lip angled forward; inner end of lip scarcely dilated; dilation of inner end of lip covering from less than 10% to 50% of umbilicus. Parietal callus extending only slightly to left of columella in basal view; with shallow sinus below upper limb of peristome. Parietal lamella absent. Color of fresh shell not known, museum specimens yellowish brown; lip whitish.

**Dimensions of holotype:** Diameter 14.5 mm; height 9.7 mm; 6.1 whorls

**Etymology:** *Ohlone*, a culture of Native American people who inhabited the San Francisco Bay area prior to the arrival of Europeans (cf. Margolin 1978).

**Remarks:** *Vespericola ohlone*, **sp. nov.**, differs from *Vespericola pilosus* (Henderson, 1928) in having its base produced and somewhat excavated around the umbilicus rather than tumid and solid-looking. The inner quadrant of the base has a small shelf set off by a spiral sulcus behind the basal lip, not found in *V. pilosus*. The inner part of the basal lip is angled forward toward the front of the umbilicus, whereas that of *V. pilosus* is straight or gently curved forward (see Roth & Miller, 1993: 136, figs. 1-3).

The new species differs from *Vespericola marinensis* Roth & Miller, 1993, in having its base produced and somewhat excavated around the umbilicus rather than tumid and solid-looking. The inner quadrant of the base has a small shelf set off by a spiral sulcus behind the basal lip, not found in *V. marinensis*. The inner part of the basal lip of *V. marinensis* is gently curved forward, rather than angled as in *V. ohlone* (see Roth & Miller, 1993: 140, figs. 14-16).

*Vespericola armiger* (Ancey, 1881), to which Cooper (1887) referred this species, differs in that its umbilicus is a minute, oblique perforation, nearly or completely covered by dilation of the inner lip; the inner end of the basal lip is briefly angled forward then angled backward over the umbilicus (see Pilsbry, 1940: 910, fig. 521a). A parietal lamella is present in *V. armiger* but is absent in *V. ohlone*.

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