

**A New Species of *Vaejovis* from Jalisco, Mexico
(Scorpiones: Vaejoidea)**

STANLEY C. WILLIAMS

San Francisco State University, San Francisco, California 94132.

Abstract. —A small, new species of vaejoidean scorpion from Jalisco, Mexico is described and named *Vaejovis chamelaensis* Williams. This species is placed in the eusthenura group of *Vaejovis*, and it is concluded that it is one of the smallest species of *Vaejovis* known.

During July and August of 1985, I spent two weeks studying the scorpion fauna of the wildlife preserve maintained by the Estacion de Biologia at Chamela, Jalisco, Mexico. During this period, 385 scorpions belonging to four species were studied. By far the most common species was *Centruroides elegans* (Thorell). Lesser numbers of *Vaejovis subcristatus occidentalis* Hoffmann and *Vaejovis increpidus increpidus* Thorell were also encountered. Of special interest was a tiny *Vaejovis* of such a small adult size that, at first, it was mistaken for juveniles of the other species. This new species is here described and named. The measurements taken are as described by Williams (1980).

Alfredo Perez J. and Steven Bulloch, of the station staff, kindly made it possible to carry out the field study at the Estacion de Biologia Chamela that resulted in finding this new species. They also provided laboratory and library facilities, and facilitated the field study. Paul H. Arnaud, Jr. provided research facilities at the California Academy of Sciences. Thanks to Vincent F. Lee, Jack T. Tomlinson, and David Herlocker for reading and criticizing this manuscript, and to Jett Chinn for assistance with illustrations. This study was partially supported by the Universidad, Nacional Autonoma de Mexico, Instituto de Biologia, Estacion de Biologia, Chamela.

***Vaejovis chamelaensis* Williams, NEW SPECIES**
(Fig. 1, Table 1)

Diagnosis. —Member of eusthenura group. Minute in size, total length of mature males up to 14.5 mm. Base color of body golden-yellow; carapace with variegated black markings; metasomal keels outlined with dusky markings. Pedipalps with moderately swollen fingers, ratio of chela length to width 3.8, palm slightly deeper than wide, ratio of fixed finger length to palm width 1.6, ratio of carapace length to movable finger length 1.4; fingers with primary row denticles subdivided into 5 subrows on fixed and movable fingers. Telson with distinctly enlarged subaculear tooth.

Related to *Vaejovis puritanus* Gertsch and *Vaejovis viscainensis* Williams in having primary row denticles of pedipalp fixed finger subdivided into 5 subrows;

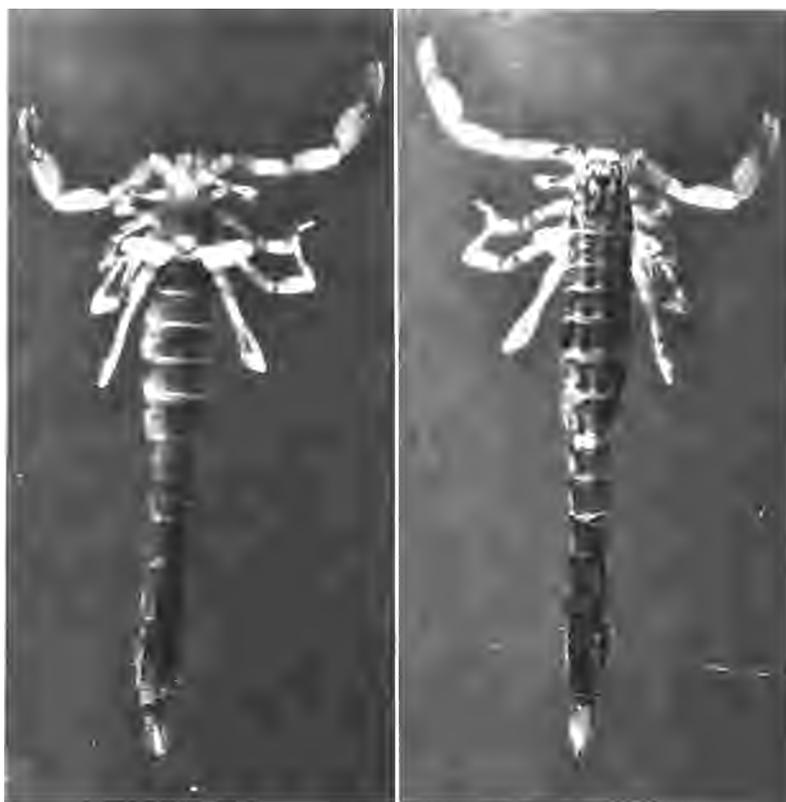


Figure 1. *Vaejovis chamelaensis* Williams, holotype, male, dorsal and ventral views.

distinguished from both species by small size, primary row denticles of pedipalp movable finger subdivided into 5 subrows (not 6), subaculear tooth present.

Holotype description. — Male. **Coloration:** Base color of exoskeleton golden-yellow; carapace with conspicuous variegated black markings; mesosomal dorsum with two pairs longitudinal black stripes; metasoma with keels outlined with dusky-black markings; humerus with irregular black markings; walking legs with distinctive dark markings; pedipalp fingers slightly darker than palm; palm with keel positions outlined with delicate dusky markings; movable cheliceral finger with dusky outline; cheliceral palm with dusky outline at movable finger articulation; pectines whitish; metasoma IV–V darker reddish than metasoma I–III and telson. **Prosoma:** Carapace anterior margin straight, set with 3 pairs stout setae; carapace finely and regularly granular; three lateral ocelli per group; median ocelli on raised, smooth ocular tubercule; sternum short, much broader than long; three pairs sternal setae. **Mesosoma:** Terga completely and regularly granular, granules fine textured; slightly developed median keel; tergum 7 with two pairs serrated lateral keels, terminate posteriorly in enlarged tooth-like denticle. Genital opercula triangular; distinct genital papillae, four pairs macrosetae on genital opercula, linearly arranged along posterior margin. Sterna finely granular, sternum 7 lacking keels. Pectines with basal sternum deeply grooved anteriorly; three marginal la-

Table 1. Measurements (mm) of *Vaejovis chamelaensis* Williams, new species, holotype and allotype. Abbreviations as follows: l = length, w = width, d = depth, fmd = frontal margin distance, did = distal internal trichobothrium distance, p-row = principal row denticles of chela.

| | Holotype (male) | Allotype |
|---------------------------------|-----------------|----------------|
| Total length | 14.3 | 16.3 |
| Carapace (l/w at median eyes) | 1.87/1.23 | 1.94/1.23 |
| Diad (width/fmd) | 0.39/0.68 | 0.42/0.74 |
| Metasoma, length | 6.24 | 5.99 |
| Segment I (l/w/d) | 0.83/1.06/0.94 | 0.77/1.10/0.98 |
| Segment II (l/w/d) | 0.96/1.03/0.90 | 0.84/1.10/0.98 |
| Segment III (l/w/d) | 1.00/1.03/0.90 | 0.97/1.10/0.98 |
| Segment IV (l/w/d) | 1.39/1.03/0.87 | 1.35/1.10/0.98 |
| Segment V (l/w/d) | 2.06/1.09/0.94 | 2.06/1.13/0.98 |
| Telson, length | 1.74 | 1.94 |
| Vesicle (l/w/d) | 1.19/0.61/0.52 | 1.29/0.71/0.55 |
| Aculeus (l) | 0.55 | 0.65 |
| Pedipalp, Humerus (l/w) | 1.39/0.45 | 1.42/0.48 |
| Brachium (l/w) | 1.58/0.55 | 1.68/0.58 |
| Chela (l) | 2.29 | 2.35 |
| Palm (l/w/d) | 1.32/0.61/0.65 | 1.29/0.55/0.55 |
| Movable finger (l/base) | 1.35/0.29 | 1.39/0.29 |
| Fixed finger (l/ditd) | 0.97/0.84 | 1.06/0.94 |
| Supernumerary denticles (ff/mf) | 6/7 | 6/7 |
| Fixed finger p-row denticles | 5-6-6-6-16 | 6-7-7-6-11 |
| Movable finger p-row denticles | 2-6-6-6-21 | 2-7-7-8-18 |
| Pectine teeth (left/right) | 11/10 | 10/10 |
| Stigma 3 (l/w) | 0.067/0.027 | 0.080/0.033 |

mellae; one basal and 6 sub-circular middle lamellae; fulcra triangular. Stigma tiny, oval, twice as long as wide. Metasoma: Ventral and ventrolateral keels granular on segments I–V; dorsal and dorsolateral keels terminate in enlarged pointed denticles posteriorly; standard metasomal keels present, granular; dorsal and dorsolateral intercarinal surfaces finely granular. Telson: Vesicle long, narrow, smooth, lustrous; distinct subaculear tooth flanked by four long macrosetae; vesicle with about 15 pairs macrosetae ventrally. Pedipalps: Palm smooth, no keels; no scallop between fingers; no elongated terminal tooth on fingers; primary row denticles divided into 5 subrows by four elongate, sharp denticles on fixed and movable fingers; fixed finger with supernumerary denticle 6 distal to trichobothria *id* and *ip*; supernumerary denticle 6 not paired with enlarged primary row denticle on fixed finger, supernumerary denticle 7 not paired with enlarged primary row denticle on movable finger; brachium with two dorsal trichobothria, 14 retrolateral trichobothria, two ventral trichobothria, one prolateral trichobothrium and four macrosetae.

Allotype description. —Similar to holotype in color and structure with following exceptions: Slightly larger size; pectines with 10 teeth per comb; primary row denticles of chela less robust, supernumerary denticles less robust, proximal two approaching obsolescence on fixed and on movable fingers, palm more slender; vesicle more elongate, subaculear tooth slightly less elongate.

Topoparatype variation. —Similar to holotype in size, color and structure with

the following exceptions: Varied in total length from 13.5 to 14.0 mm; pectine tooth counts ranged from 10 to 11 (mode = 11).

Type.—Holotype (male), allotype and 7 topoparatypes (males), collected at Estacion de Biologia, Chamela (operated by Universidad Nacional Autonoma de Mexico), Jalisco, Mexico, 10-11 July 1985, S. C. Williams, ultraviolet detection. Holotype depository: California Academy of Sciences, type no. 15744. Named *Vaejovis chamelaensis* after the biological station where it was discovered.

Habitat.—*Type* locality is located 122 km north of Manzanillo, about 2 kilometers from the Pacific Ocean at an elevation of about 100 meters. The climate is a seasonally dry tropical one with rainy season from June to November. These scorpions were found on moderately well drained, flat sedimentary soil, in the center of a little used, unpaved, access road called Eje Central. The habitat was dominated by dense, deciduous, tropical forest, with stands of cacti in high, more exposed areas. The soil was fine textured and well packed.

Remarks.—*Vaejovis chamelaensis* appears to belong to the eusthenura group of *Vaejovis*, but has no known close relatives. It is only known from the specimens collected July 10-11, 1985, at the Estacion de Biologia, Chamela. It is of interest that during the two weeks of study this species was observed on only two nights, and 8 of the 9 specimens encountered were located in the center of an unpaved access road. Field observations suggest that this is an obligate burrowing species that does not frequent the ground surface and that perhaps the observations of the males were the result of a synchronized courtship behavior. This species is distinguished by its small body size. In this respect, it is the smallest member of the eusthenura group of *Vaejovis* and is perhaps the smallest sized member of the genus *Vaejovis*, with the possible exception of *Vaejovis minutis* Williams in which adults can occasionally be found in the 14 mm size range. This species was found sympatrically with *C. elegans*, *V. subcristatus occidentalis*, and *V. increpidus increpidus*. Land crabs were also found at the type locality.

LITERATURE CITED

- Williams, S. C. 1980. Scorpions of Baja California, Mexico, and adjacent islands. Occas. Pap. Calif. Acad. Sci., 135:1-127.