

**DESCRIPTION OF A NEW SPECIES
IN THE *NITIDULUS* GROUP OF THE GENUS *VAEJOVIS*
(SCORPIONES, VAEJOVIDAE)**

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ABSTRACT. A new species in the *nitidulus* group of *Vaejovis* is described: *V. mauryi* from Sonora, México. Morphological characters, including the hemispermatophore of the holotype male, are illustrated. The species is compared to *Vaejovis decipiens*, *Vaejovis janssi*, and *Vaejovis intermedius*.

Keywords: Scorpion, Vaejovidae, Sonora, México, taxonomy

Vaejovis is the most diverse genus of scorpions in North America, with 66 described species arranged into five species groups (Sissom 2000). Although a comprehensive revision of the genus is not available at the present time, the genus has recently been catalogued (Sissom 2000). Since the appearance of the catalogue one additional species has been described from Sonora, México (Hendrixson 2001).

The *Vaejovis nitidulus* group is a moderately diverse group with 15 species found from the southern parts of Texas, USA, and through much of México (Sissom & Francke 1985; Sissom 1991; Sissom 2000). Members of the group share the following characteristics: (1) the anterior margin of the carapace is obtusely emarginate, with a distinct median notch; (2) the genital opercula of the female possess a membranous longitudinal connection on the anterior two-thirds to four-fifths; (3) the pectinal teeth of the female are all subequal in size; (4) the ventral submedian carinae of the metasoma are obsolete to moderate and crenulate; (5) the cheliceral movable finger bears a well developed serrula on the ventrodistal aspect; (6) the pedipalps are relatively elongated, with chela length/width ratios greater than 3.3 and usually greater than 4.0; (7) the pedipalp chela fingers in most species terminate in enlarged claw-like denticles bearing an apical white patch; (8) chela trichobothria *ib* and *it* are located at the base of the fixed finger; (9) the denticle row of the pedipalp chela fixed finger is divided into six or seven sub-rows; (10) the dorsointernal carina of the pedipalp chela is strong and, in most species,

bears enlarged, sharp granules; (11) the ventral spinule row of the telotarsus is flanked distally by a single pair of larger spinules; (12) the male hemispermatophore bears a two-pronged hook at the base of the distal lamina; and (13) the distal margin of the sperm plug is smooth, i.e., devoid of hooks or spines (Sissom & Francke 1985; Sissom 1991).

The only species in the *Vaejovis nitidulus* group previously reported from the state of Sonora, México is *Vaejovis decipiens* Hoffmann 1931; this record is based on two juvenile females (Sissom 1991). While perusing the collections at the California Academy of Sciences, W.D. Sissom found three specimens representing an undescribed species in the *nitidulus* group from this state. These specimens, which were subsequently made available to me for description, were discovered after years of careful examination of museum material from the United States and around the world (Sissom pers. com., September 1999). The rarity of this species in museum collections may be due to its probable lithophilic habits, which make it difficult to collect with conventional rock-rolling techniques.

METHODS

Terminology for general morphology conforms to that of Stahnke (1970) with the following exceptions: terminology for metasomal and pedipalpal carinae is after Francke (1977); and trichobothrial nomenclature follows Vachon (1974), except that the fourth pedipalpal segment is considered the patella rather than the tibia, adhering to Stahnke's terminology.

Vaejovis mauryi new species
(Figs. 1–11)

Type data.—Holotype male, paratype female, and paratype subadult female from Sonora, México, 28°55'N, 109°45'W, 18 September 1982 (V. Roth). Deposited at California Academy of Sciences, San Francisco.

Etymology.—The specific name is a patronym honoring the late Emilio A. Maury for his contributions to the field of arachnology.

Distribution.—Known only from the type locality. According to maps, this locality lies in the vicinity of Mazatán, Bacanora and Soyapa in the state of Sonora, México.

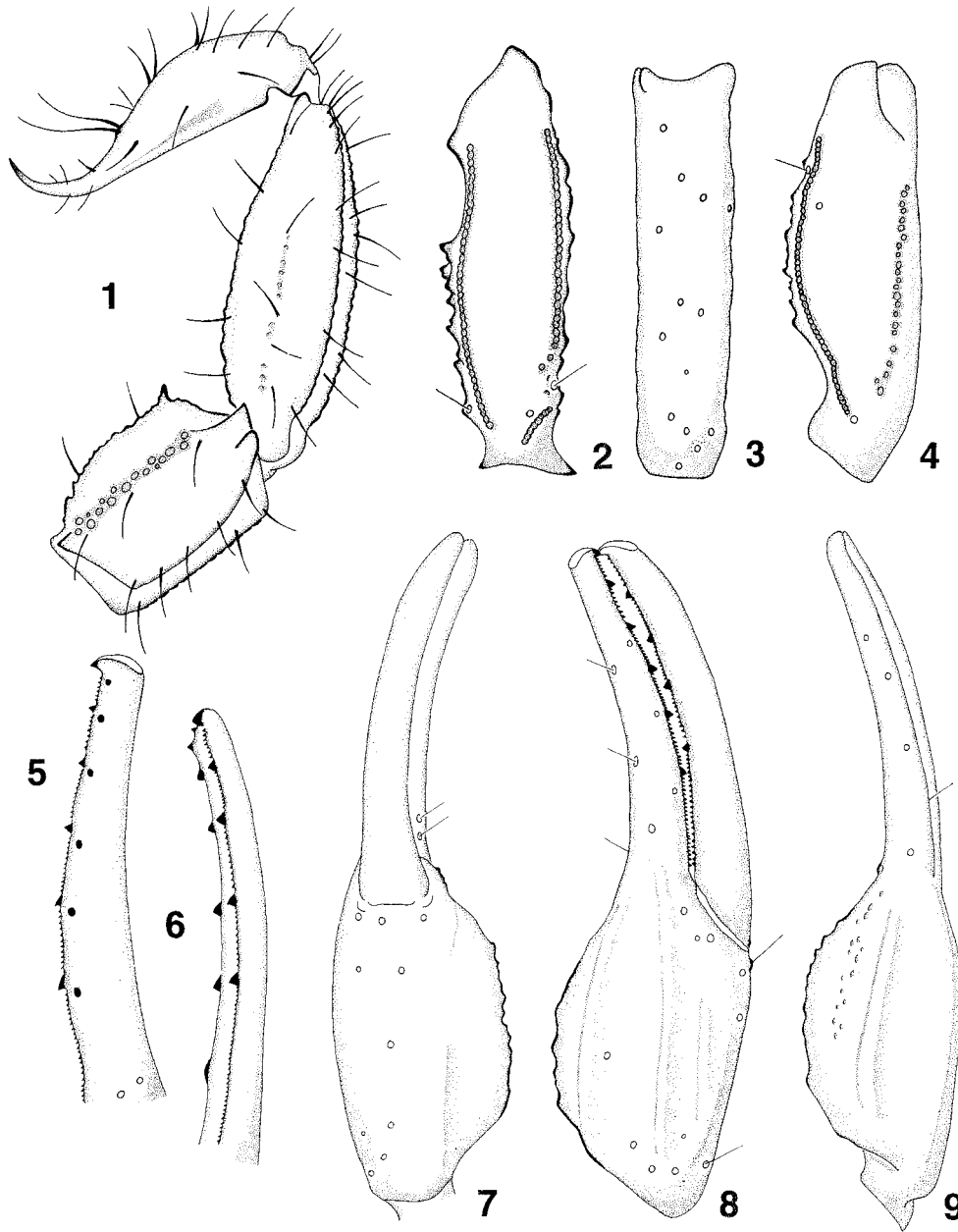
Diagnosis.—Within the *nitidulus* group, *Vaejovis mauryi* is most similar to *Vaejovis decipiens* Hoffmann 1931, *V. janssi* Williams 1980, and *V. intermedius* Borelli 1915. It can be easily distinguished from *V. decipiens* and *V. janssi* by (1) the presence in *V. decipiens* and *V. janssi* of ventral submedian carinae on metasomal segments I–II, with these carinae stronger on III–IV; (2) the presence of granulation in the ventral median intercarinal space in *V. mauryi*; (3) weaker digital and external secondary carinae of the pedipalp chelae in *V. mauryi*; (4) the presence in *V. decipiens* and *V. janssi* of strong lateral keels on sternite VII; (5) higher pectinal tooth counts in both *V. decipiens* (22–25 in males, 21–22 in females) and *V. janssi* (21–22 in males, 18–21 in females); and (6) the noticeable difference in size, with *V. mauryi* being smaller.

Vaejovis mauryi can be distinguished from *Vaejovis intermedius* by (1) the sparseness of setation on the pedipalp chelae, metasoma, and sternite VII (in *V. intermedius* these surfaces are very hirsute); (2) the dorsolateral carinae of *V. intermedius* are serrate, whereas those of *V. mauryi* are crenulate; (3) the presence of only weak scalloping in the chela fingers of *V. mauryi* (distinct scalloping in *V. intermedius*); and (4) higher pectinal tooth counts in *V. intermedius* (21–26 in males, 19–23 in females).

Measurements.—Holotype, in mm: total length 35.90; carapace length 4.60; mesosoma length 9.30; metasoma length 17.20. Metasoma: segment I length/width 2.20/2.85; segment II length/width 2.60/2.85; segment III length/width 2.75/2.75; segment IV length/width 3.70/2.65; segment V length/width 5.95/2.35. Telson: length 4.90; vesicle length/

width/depth 3.05/1.8/1.4; aculeus length 1.9. Pedipalps: total length 16.10; femur length/width 4.35/1.25; patella length/width 4.55/1.45; chela length/width/depth 7.20/1.65/1.9; movable finger length 4.60; fixed finger length 3.80.

Description.—Based on holotype. *Coloration (in alcohol):* Base color of carapace and tergites yellow-brown to orange-brown with an underlying dusky pattern. Interocular area darkly pigmented. Metasoma light orange to dark orange. Telson vesicle orange or reddish-brown. Legs orange, with dusky markings proximally; basitarsi and telotarsi uniformly yellow. *Prosoma:* Anterior margin of carapace obtusely emarginate. Median notch shallow. Interocular area finely granular with scattered coarse granules. Remainder densely granular. *Mesosoma:* Median carina on I–II obsolete; on III feeble; on IV–VI weak, granular. On VII, median carina weak, granular; lateral carinae strong, crenulate to serrate, with distal denticle enlarged. Pectinal tooth count 19–19. Sternites III–VI sparsely setose; VII with two weak, finely granular lateral carinae. *Metasoma:* Ratio of segment I length/width 0.76; of segment III length/width 1.00; of segment V length/width 2.50. Segments I–IV: dorsolateral carinae strong, finely crenulate, with distalmost denticle of I slightly enlarged, spinoid; on II–IV distinctly enlarged and spinoid distally. Lateral suprmedian carinae on I–III strong, finely crenulate; on IV moderate, granular with distalmost denticles on I–III enlarged and spinoid. Lateral inframedian carinae on I complete, strong, irregularly crenulate; on II present on anterior half as isolated granules, on posterior one-half, weak to moderate, granular to crenulate; on III present on posterior one-third, moderate, finely crenulate; on IV absent. Ventrolateral carinae on I–II moderate, smooth to finely granular; on III–IV moderate, irregularly, finely serratocrenulate. Ventral submedian carinae on I and II obsolete; on III weak, feebly granular; on IV weak, irregularly granular. Dorsal and lateral intercarinal spaces sparsely, coarsely granular. Ventromedian intercarinal space on IV granulose. Setal count on segments I–IV: dorsolateral setae 0/0:1/1:1/1:2/2; lateral suprmedian setae 1/1:2/1:2/2:3/3; lateral inframedian setae 2/2:1/1:1/1:0/0; ventrolateral setae 3/3:3/3:3/3:4/4; ventral submedian setae 3/3:4/4:4/4:4/4. Segment V: (Fig. 1) Dorsolateral carinae moderate, cren-



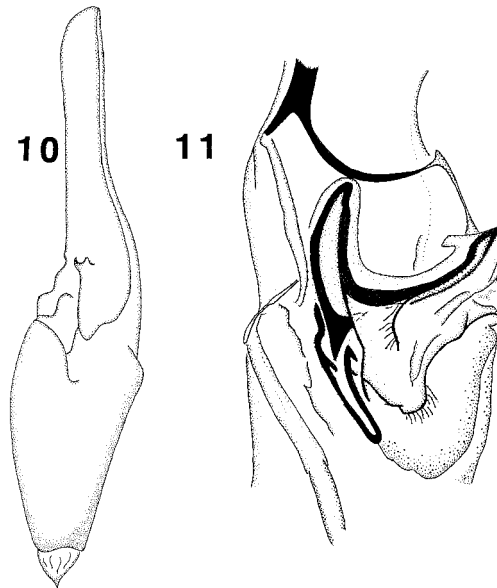
Figures 1–9.—Morphology of *Vaejovis mauryi* (all drawings of holotype male). 1. Lateral view of metasomal segments IV and V and the telson; 2. Dorsal aspect of pedipalp femur; 3. External aspect of pedipalp patella; 4. Dorsal aspect of pedipalp patella; 5. Dentition of pedipalp chela fixed finger; 6. Dentition of pedipalp chela movable finger; 7. Ventral aspect of pedipalp chela; 8. External aspect of pedipalp chela; 9. Dorsal aspect of pedipalp chela.

ulate basally, granular distally. Lateromedian carinae weak, granular, present on anterior 3/4. Ventrolateral carinae strong, serrate. Ventromedian carina strong, crenulate. Intercar-

inal spaces with scattered, coarse granules. Segment V setal count: dorsolateral setae 5/6; lateromedian setae 4/4; ventrolateral setae 7/9. *Telson*: (Fig. 1) Ventral aspect with irreg-

ular punctations and granulation. Ventral midline with small granules terminating in a subtle subaculear tubercule. Nine pairs of large setae, with several smaller setae. *Pedipalps*: Trichobothrial pattern type C, orthobothriotaxic. Pedipalpal ratios: chela length/width 4.20; femur length/width 3.38; fixed finger length/carapace length 0.83. Femur: (Fig. 2) carinae strong, granulose; internal face with 8–10 large, pointed granules, with scattered fine granules. Patella: (Figs. 3, 4) Dorsointernal, ventrointernal, and ventroexternal carinae strong, crenulate. Internal face with oblique longitudinal carina of 8 large, serrated granules and 10 smaller granules. Chela: (Figs. 7, 8, 9) Dorsal marginal carina strong, crenulate. Dorsal secondary carina moderate, smooth. Digital carina moderate, smooth. External secondary carina weak, smooth. Ventroexternal carina moderate, granular. Ventromedian carina vestigial. Ventrointernal carina moderate, smooth. Dorsolateral carina strong, with large, crenulate granules. Dentate margin of fixed finger (Fig. 5) with primary denticle row divided into six subrows by five enlarged denticles; six inner accessory granules. Dentate margin of chela movable finger (Fig. 6) with primary denticle row divided into six subrows by five enlarged denticles; seven inner accessory granules. Fingers without distinct scalloping. *Hemispermatochore*: (Figs. 10, 11) Distal lamina slightly longer than trunk, not distinctly tapered. Median lobe relatively large, rounded.

Variation.—Only three specimens were available for study. These included one adult male, one adult female, and one subadult female. The adult female is better preserved than the male and may therefore be closer to the actual coloration of the species. Base color of carapace and tergites deep orange-brown to yellow-brown with underlying dusky pattern. Metasomal segment V slightly darker than the preceding segments. Legs yellow-brown with mottling proximally; basitarsi and telotarsi uniformly yellow. Interocular area of female smooth with scattered coarse granules. Remainder of prosoma sparsely granular. Ventrolateral carinae smooth to finely granular on I–II; moderate, finely serrate on III–IV. Ventrolateral carinae in juvenile female paratype moderate, finely serrate on I–II; moderate, irregularly serratocrenulate to finely serrate on



Figures 10–11.—Morphology of the hemispermatochore of *Vaejovis mauryi* (holotype male). 10. Dorsal aspect of left hemispermatochore; 11. Capsular area of left hemispermatochore.

III–IV. Pectinal tooth count 17–17 in both female paratypes.

Selected measurements (in mm) of the paratype female are as follows: total length 40.60; carapace length 5.70; mesosoma length 12.25; metasoma length 17.30; metasoma segment III length/width 2.70/3.05; segment V length/width 6.45/2.80; chela length/width/depth 8.95/1.85/2.10; fixed finger length 4.90; movable finger length 5.95.

Setal counts of the adult and subadult females are as follows (L/R): Dorsolaterals: 0/0:1/1:1/1:2/2 and 0/0:1/1:1/1:2/2. Lateral supramedians: 0/1:2/1:2/1:4/4 and 0/0:1/1:2/2:3/3. Lateral inframedians: 2/3:1/1:0/1:0/0 and 2/2:1/1:0/0:0/0. Ventrolaterals: 2/2:3/3:3/4:5/5 and 3/3:3/3:3/3:4/3. Ventral submedians: 3/3:4/4:4/4:4/5 and 3/3:4/4:4/4:4/4. Setal counts on V are as follows: dorsolaterals: 2/5 and 5/5; lateromedians: 3/4 and 4/4; ventrolaterals: 8/7 and 7/8.

Specimens examined.—MÉXICO: Sonora, 28°55'N, 109°45'W, (pine forest which, according to maps of the area, must be located between Matatán, Bacanora, and Soyopa), 18 September 1982 (V. Roth), 1 male holotype, 1 female paratype, 1 juvenile paratype (CAS).

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