

**A NEW SPECIES AND NEW RECORDS FOR THE  
VAEJOVIS NITIDULUS GROUP, WITH A KEY  
TO THE MEXICAN SPECIES (SCORPIONES, VAEJOVIDAE)**

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**ABSTRACT**

A new troglomorphic species of the *nitidulus* group of the genus *Vaejovis* C. L. Koch is described from caves in the southern parts of Coahuila and Nuevo León, México. Numerous specimens of other *nitidulus* group species were examined, most of them representing new records or verification of old records. A key to all described Mexican species is provided.

**INTRODUCTION**

The *Vaejovis nitidulus* group was defined and revised in two previous papers (Sissom & Francke, 1985; Sissom, 1991). Members of this group are typically crevice dwellers, occurring on talus slopes, rocky outcrops, and vertical cliff faces. Species of the group are typically uncommon in collections. With the recent descrip-

tion of *Vaejovis mauryi* Capes (Capes, 2001), the group currently consists of sixteen species (Sissom, 2000). It is almost entirely Mexican in distribution, with only *Vaejovis intermedius* Borelli reaching northward into Trans-Pecos Texas.

In the course of studying collections at various institutions, a large number of new specimens representing species of the *Vaejovis nitidulus* group was identified. Among these specimens is a new species (the 17<sup>th</sup> member of the group), as well as significant new records for existing species that provide a better assessment of geographical distributions. The new species is recorded from caves in northern Mexico. It does not exhibit any significant troglomorphic adaptations, such as eyelessness, loss of pigmentation, and appendage attenuation, and

should be regarded as troglomorphic. It is the purpose here to describe the new species and provide an updated assessment of the distributions of other species in the group. Finally, a key to the species constituting the *V. nitidulus* group in Mexico is provided for the first time.

*Vaejovis norteno*, new species  
Figs. 1-5

**Type data.**—Adult male holotype collected from Cueva Oyamel, Mesa Colorada, Laguna de Sanchez, Nuevo León, México on 19 March 1999 by Jim Kennedy; deposited in the American Museum of Natural History, New York.

**Etymology.**—The specific epithet is a Spanish word, *norteño*, which means “belonging to the north,” and is used as a noun in apposition (i.e., “northern one”).

**Diagnosis.**—*Vaejovis norteno* appears to be most closely related to *Vaejovis rubrimanus*, *V. minckleyi*, and *V. decipiens*. It differs from all of these in the form of the male hemispermatophore, which has modified laminar hooks and no inner lobe (Figs. 1, 2), and its low pectinal tooth counts (13-17). It further differs from *V. minckleyi*

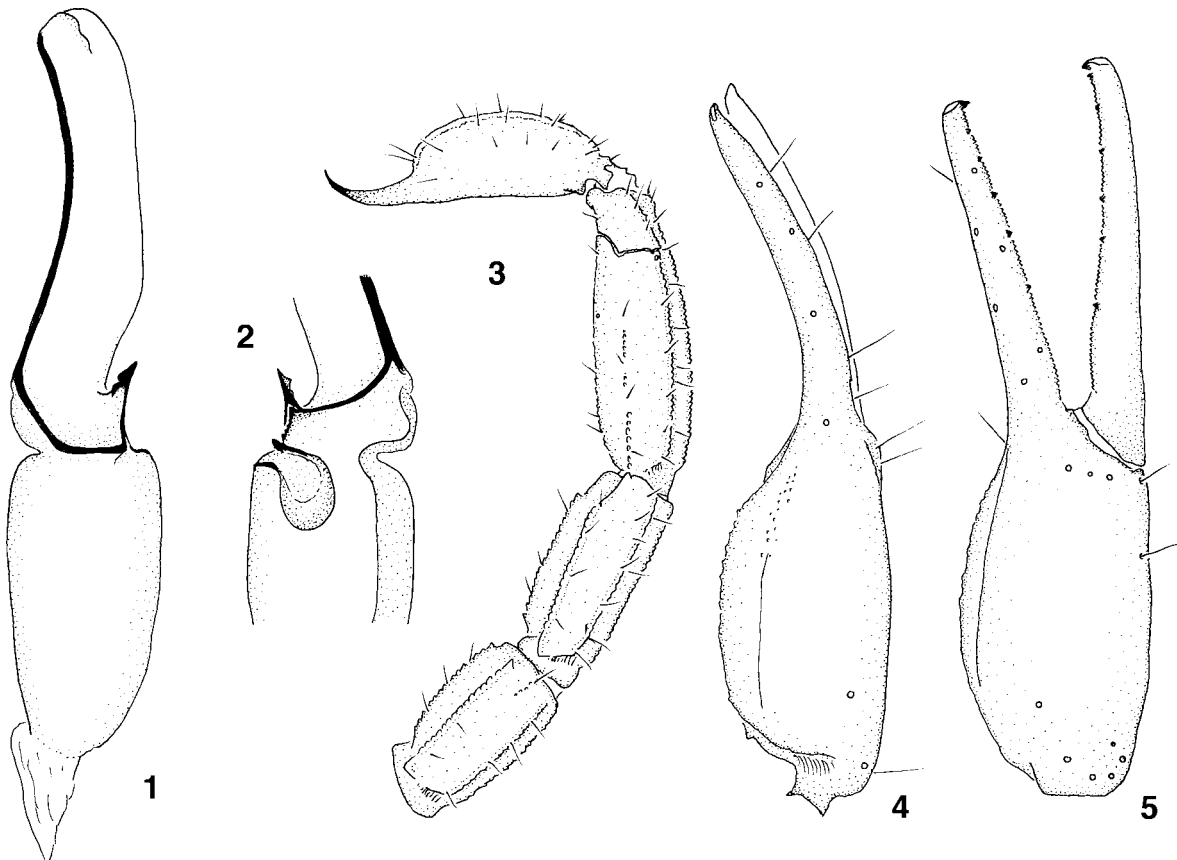
in lacking denticles on the ventral margin of the cheliceral fixed finger, by having only two patellar *esb* trichobothria (instead of three), by having reduced carinal structure on the outer surface of the pedipalp chelae (rather than having granulate carinae). *Vaejovis minckleyi* is also a yellowish species, in contrast to the brownish *V. norteno*.

*Vaejovis rubrimanus* also has three patellar *esb* trichobothria and is a yellowish brown species with the pedipalps distinctly bicolored (yellowish femora and patellae and reddish chelae); *V. norteno* is more or less uniformly colored (brownish to orange brownish), even on the pedipalps.

*Vaejovis decipiens* is a form found in the Sierra Madre Occidental in the southern parts of Chihuahua and Sonora. It is dark brown to blackish, with pectinal tooth counts over 20 in both males and females. The telson of this species is slender, quite unlike that of *V. norteno*.

Comparisons with additional species are given in the identification key.

**Description.**—The following description is based on the holotype male; differences in females are noted in parentheses.



Figs. 1-5. Morphology of holotype male of *Vaejovis norteno*, new species. 1, Right hemispermatophore, dorsal aspect; 2, right hemispermatophore, ventral aspect; 3, left lateral aspect of metasomal segments III, IV, V, and telson; 4, pedipalp chela, dorsal aspect; 5, pedipalp chela, external aspect. Trichobothrial patterns are indicated on the drawings of the pedipalp chela.

**Coloration.** Carapace brown, tergites I-VI orange brown, tergite VII and first three metasomal segments brown, metasomal segments IV-V reddish brown. Telson orange brown, aculeus dark reddish brown. Chelicer manus yellowish, teeth dark brown. Pedipalp femur, patella, and chela manus orange brown. Pedipalp chela fingers reddish basally, slightly yellowish at fingertips. Carinae of pedipalps and metasoma dark brown to reddish brown. Legs pale yellow brown.

**Prosoma.** Carapace length greater than posterior width; ratio of carapace length/metasomal segment V length 0.80 (0.81-0.89). Median ocular prominence slightly raised above carapacial surface. Anterior margin obtusely emarginate; median notch rounded. Carapace densely coarsely granular, less so in interocular area.

**Mesosoma.** Median carina obsolete on I; on II-VI represented by weak, low ridges covered with fine granules. Tergite VII with median carina present on anterior half as a moderate, rounded ridge covered with coarser granules; both pairs of lateral carinae strong, crenulate. Tergites densely finely granular, with post-tergites also bearing dense, coarse granulation. Pectinal teeth numbering 17-16 (13-17). Sternites III-VI sparsely setose; smooth, sublustrous medially; lateral areas finely granular. Sternite VI with coarser granulation laterally. Sternite VII with one pair of moderate, granulose lateral carinae; surface coarsely granular throughout, especially on lateral areas.

**Hemispermatothore (Figs. 1-2).** Distal lamina relatively slender, possessing short distal crest. Ectal margin of dorsal trough prolonged into pointed process bearing two denticles. Capsule with simple sperm duct area and lacking sperm plug structure.

**Metasoma (Fig. 3).** Segment I length/width 1.10 (0.92-0.95), III length/width 1.43 (1.17-1.28), V length/width 2.56 (2.35-2.54). Segments I-IV: Dorsolateral carinae strong, irregularly crenulate; distalmost denticle slightly enlarged, subspinoid. Lateral suprmedian carinae strong, crenulate on I-III; moderate, granular on IV; distalmost denticle slightly enlarged, subspinoid on I-III, flared on IV. Lateral inframedian carinae on I strong, complete, granulose; on II present on posterior one-third, strong, granulose; on III present on posterior one-fifth, strong, granulose; on IV absent. Ventrolateral carinae strong, crenulate. Ventral submedian carinae moderate, granular. Intercarinal spaces shagreened; dorsal and lateral intercarinal spaces with scattered coarse granules. Segment V: Dorsolateral carinae moderate, granular. Lateromedian carinae moderate basally, weak distally; present on anterior two-thirds, granular. Ventrolateral carinae strong, feebly crenulate. Ventromedian carina moderate, feebly serrate.

**Metasomal I-IV carinal setation (left side only):** dorsolaterals, 1:3:3:3; lateral suprmedians, 1:3:4:4; lat-

eral inframediands, 2:2:1:1; ventrolaterals, 3 (+1 ventral seta):4 (+1 ventral seta):5 (+1 ventral seta):6 (+3 ventral setae); ventral submedians, 3:5:5:6; ventromedian intercarinal spaces of segments II-III with accessory seta by second carinal pair from base. Setation of metasomal segment V: dorsolaterals, 7; lateromedians, 4; ventrolaterals, 8; an accessory setal row laterally flanking ventrolateral carina, consisting of six setae on left and seven on right side.

**Telson.** Moderately globose. Dorsal surface of vesicle with small irregular punctations; 11 pairs larger setae.

**Pedipalps.** Femur length/width 3.93 (3.56-3.65). Tetracarinate: dorsointernal, dorsoexternal, and ventrointernal carinae strong, crenulate; ventroexternal carina strong, composed of large, irregularly spaced, sharp granules. Internal face with 7-9 larger, pointed granules; ventral face with coarse granulation on proximal portion; dorsal face with sparse fine and coarse granulation. Orthobothriotaxia C (Vachon 1974).

**Patella length/width 3.82 (3.45-3.59).** Tetracarinate. All carinae strong, granulose. Internal carina with 7-9 large and moderate tubercles arranged in oblique, longitudinal row. External, dorsal and ventral faces finely granular. Orthobothriotaxia C (Vachon 1974).

**Chela (Figs. 4-5).** Dorsal marginal carina moderate, granulose; dorsal secondary and digital carinae represented by low, smooth, rounded ridges; dorsointernal carina strong, with sharp granules; ventrointernal carina weak, irregularly granular; other carinae obsolete. Dentate margin of fixed finger with primary denticle row divided into six subrows by five enlarged denticles; six inner accessory denticles. Dentate margin of movable finger with primary row divided into six subrows by five enlarged denticles; apical subrow consisting of a single denticle; seven inner accessory denticles. Dentate margins of chela fingers without distinct scalloping. Chela length/width ratio 4.29 (4.36-4.50); fixed finger length/carapace length ratio 0.91 (0.85-0.89). Orthobothriotaxia C (Vachon 1974).

**Legs.** Ventromedian spinule row of telotarsus terminating between a single pair of enlarged spinules.

**Measurements of Male Holotype (mm):** Total L, 48.0; carapace L, 5.5; mesosoma L, 13.1 (0.9 + 1.0 + 1.4 + 1.8 + 1.9 + 2.4 + 3.7); metasoma L, 23.0; telson L, 6.4. Metasomal segments: I L/W, 3.2/2.9; II L/W, 3.8/2.9; III L/W, 4.0/2.8; IV L/W, 5.1/2.7; V L/W, 6.9/2.7. Telson: vesicle L/W/D, 4.3/2.5/2.1; aculeus L, 2.1. Pedipalps: femur L/W, 5.9/1.5; patella L/W, 6.5/1.7; chela L/W/D, 10.3/2.4/2.8; fixed finger L, 5.0; movable finger L, 5.9; palm (underhand) L, 4.8.

**Measurements of Female Paratype, Coahuila (mm):** Total L, 62.5; carapace L, 7.2; mesosoma L, 18.5 (1.1 + 1.4 + 2.0 + 2.6 + 3.0 + 3.6 + 4.8); metasoma L, 28.3;

telson L, 8.5. Metasomal segments: I L/W, 4.0/4.2; II L/W, 4.5/3.9; III L/W, 4.8/3.8; IV L/W, 6.1/3.5; V L/W, 8.9/3.5. Telson: vesicle L/W/D, 5.7/3.4/2.9; aculeus L, 2.8. Pedipalps: femur L/W, 7.3/2.0; patella L/W, 7.9/2.2; chela L/W/D, 12.6/2.8/3.2; fixed finger L, 6.4; movable finger L, 7.5; palm (underhand) L, 5.7.

**Variation.**—Metasomal I-IV carinal setation (left side only) for the three adult females were as follows: dorsolaterals, 1-2:2-3:3:3-4; lateral supramedians, 1-2:3-4:3-4:3-4; lateral inframedians, 3:1-2:1:1; ventrolaterals, 1-3 (+1 ventral seta):2-4 (+1 ventral seta):4 (+1 ventral seta):5-6 (+1-2 ventral setae); ventral submedians, 3-4:5:5:5 (one specimen had two unpaired setae on the first segment in addition to the three pairs); ventromedian intercarinal spaces of segments II-III usually with one or two accessory setae. Setation of metasomal segment V: dorsolaterals, 6-10; lateromedians, 4; ventrolaterals, 7-10. The ventral accessory setal row laterally flanking ventrolateral carina consists of 3-6 setae.

The six female specimens exhibited pectinal tooth counts as follows: there were 1 comb with 13 teeth, 7 combs with 14 teeth, 1 comb with 15 teeth, 2 combs with 16 teeth, and 1 comb with 17 teeth. Juvenile specimens are light yellowish brown in coloration with diffuse dusky markings.

Juvenile specimens are light yellowish brown in coloration with diffuse dusky markings.

Paratypes. MÉXICO: *Coahuila*: Cueva de Los Llanitos, 1700 m N Los Llanitos (= 5 km NW Mesa de Las Tablas), Ejido el Potrero, 16-17 July 1993 (P. Sprouse), 1 female (AMNH). *Nuevo León*: Cueva San Francisco de Asis, Chipinque, 2 July 2000 (P. Sprouse), 1 female, 3 juv. females (AMNH); Hoya Aporrear, Mesa de la Colorado, Laguna de Sánchez, 1 Jan 1998 (J. Kennedy); 1 female, 1 2<sup>nd</sup> instar (TMM).

## SPECIMENS EXAMINED

### OTHER *VAEJOVIS NITIDULUS* GROUP SPECIES

*Vaejovis curvidigitus* Sissom, 1991. MÉXICO: *Guerrero*: Acatempa (1675 m), 4 Feb 1989 (E. Barrera, A. Cadena, L. Cervantes), 1 female (UNAM); Huitzucó, Dec 1948, 1 male (UNAM); Iguala, 17 June 1961, 1 female (UNAM); Mpio. Tixtla, Atliaca, 16 July 1999 (Vásquez, Martínez, Moreno, Texta), 1 male (InDRE); Tlapa (date and collector unknown), 4 females (InDRE). *México*: Ixtapan de la Sal, 4 Nov 1977, 1 female (UNAM); Tonatico, 6 Mar 1948, 1 female (UNAM). *Morelos*: Cuautla, 23 Apr 1972 (M. García Peña), 1 male (UNAM); Cuautla, II-1936, 2 females (UNAM); Tlayacapan, Apr 1990 (Ibañez-Bernal), 1 female (InDRE, Sc 90018); Tlayacapan (in house), 13 Apr 1990 (Ibañez-Bernal), 1 male (InDRE, Sc 90019). *Oaxaca*: Huajuapán de León, 21 Jan 1997 (J. Rivera Gomez), 1

male (InDRE); San Lorenzo Nuchila, 18 Nov 1996 (Jose Rivera), 1 female (InDRE); San Miguel Amatitlán, 25 Sept 2000 (E. Martin, M. A. Peregrina, V. Alcantara), 1 female (ENCB-IPN, no. 367); Silacayoapan (San Vicente, El Zapote?), 25 Nov 1996 (J. Rivera), 1 female (InDRE).

*Vaejovis decipiens* Hoffmann, 1931. MÉXICO: Chihuahua: Copper Canyon, 17 Mar 1997 (B. Pickering), 1 female (CAS); 5 mi SW Tejabán along Urique River, 4-10 May 1991 (R. E. Stecker), 1 male, 3 females, 3 juvs. (CAS); 10 mi SW Tejabán along Urique River, 11-15 May 1991 (R. E. Stecker), 3 females, 3 juvs. (CAS); 25 mi SW Tejabán along Urique River, 20-23 May 1991 (R. E. Stecker), 1 male, 2 females (CAS).

*Vaejovis gracilis* Gertsch & Soleglad, 1972. MÉXICO: *Veracruz*: Cueva del Cabrito, La Palma (728270 2106469 NAD27, 14Q) 2 Mar 2001 (P. Sprouse, T. Whitfield), 1 male (TMM); Gruta de Ojo de Agua, Paraje Nuevo, 1 Dec 1956, 1 female (UNAM); Gruta de Ojo de Agua, Paraje Nuevo, 2 May 1952, 1 female (UNAM).

*Vaejovis intermedius* Borelli, 1915. MÉXICO: *Chihuahua*: Nuevo León: Bustamante Canyon, Bustamante, 4 Sept 1999 (P. Sprouse), 4 males, 2 females (TMM).

*Vaejovis kochi* Sissom, 1991. MÉXICO: *Hidalgo*: Actopan (in house), Aug 1975 (Zerón), 1 male (UNAM); Actopan, 15 July 1990 (F. Zerón), 1 male, 2 juv males, 3 females (ENCB-IPN, No. 185); Barranca de Mezquitlán (sobre al Poblado de Venados), 18 Aug 1962 (D. Pelaez, C. Bolivar), 2 males, 2 females, 1 sub female, 1 juv male, (ENCB-IPN, No. 116); Actopan, Aug 1991 (F. Zerón), 1 male, 1 sub female (ENCB-IPN, No. 184); Actopan, 21 Dec 1984 (F. Zerón), 2 females (ENCB-IPN, No. 6); Actopan, Nov 1979 (F. Zerón), 1 female (ENCB-IPN); Actopan, 4 Mar 1979 (F. Zerón), 1 female (ENCB-IPN); Guerrero, Mineral del Chico, 27 May 1986 (Rafael Aguilar), 1 female (ENCB-IPN, No. 172); Mpio. Huasca, San Sebastián, 11 June 2000 (collector unknown), 1 juv. male (InDRE); Mpio. Ixmiquilpan, Nicolás Flores (Cerro de la Cruz), 27 June 2000 (collector unknown), 1 sub female (InDRE); Metzquitlán, Tlamaya (in house), 5 Aug 2000 (Vidal Angeles Pérez), 1 sub female, 1 juv female (InDRE); KM 76 de Pachuca a Ixtlahuaca (2000 m), 14 July 1962 (C. Bolivar, J. Alvarez), 1 sub male, 1 sub female (ENCB-IPN, no. 54); Pachuca, Colonia Vista Hermosa, 11 July 1999 (A. Franco), 1 female (UNAM); San Miguel Regla, Huayapan, 24 Feb 1990 (H. Brailovsky, E. Barrera), 1 female (UNAM); Santa María Lucana, Tula, 1953, 1 female (UNAM); Tulancingo (date and collector unknown); 1 female (ENCB-IPN, No. 155).

*Vaejovis mitchelli* Sissom, 1991. MÉXICO: *Querétaro*: Mpio. Arroyo Seco, Río Conca, 14 May 2000 (Ricardo Pérez), 1 female, 3 sub females, 1 juv female, 1 juv male (UNAM).

*Vaejovis nigrescens* Pocock, 1898. MÉXICO: *Guanajuato*: Mpio. Apaseo de Alto, 3 km S Huapango, 12/IX/98 (L. Ramirez), 1M (UAQ, LE0043); Mpio. Apaseo el Grande, El Tunal, 28 May 2000 (A. R. Arias), 1 female (InDRE); Mpio. Atarjea, El Pilar (El Pilón) (on wall of house), 12 May 2001 (Manual Suarez), 1 female (InDRE); Celaya, 23 June 1979 (Marisol Robledo), 2 males, 3 females, 1 sub female (ENCB-IPN, No. 49); León, 27 May 1965 (collector unknown), 1 male, 3 females (InDRE); Mpio. Irapuato, Rancho Cuchicuato (near Irapuato), 25 April 2001 (E. Martinez Zavala), 1 male (InDRE); Salamanca, 20 May 2001 (Veronica Jaime), 1 male, 1 female (ENCB-IPN); Mpio. Salvatierra, Emenguero, Feb 1969 (collector unknown), 1 female (InDRE, Sc 88199); Mpio. Salvatierra, Cd. Salvatierra, 31-Oct 1999 (J. Callzontzin), 1 juv female (UAQ); Mpio. Salvatierra, San José del Carmen, Jan 1969 (collector unknown), 2 males, 1 female (InDRE, Sc 88195); Mpio. Salvatierra, San Pedro de los Naranjos, Feb 1969 (collector unknown), 3 males, 12 females, 2 juv. females (InDRE); Mpio. Salvatierra, Santiago Maravatio, Feb 1969 (collector unknown), 1 female, 2 juv females (InDRE, Sc 88198); Mpio. Victoria, Agua Fría (in house), 10 May 2001 (Mayorico Rivera Diaz), 1 male, 1 juv (InDRE). *Jalisco*: Chamela, 4 Apr 1977, 1 female (UNAM). *México*: Ixtapan del Oro, 8 June 1941, (UNAM); San Juan de los Lagos, 31 Mar 1979 (Hector Plascencia), 1 male (ENCB-IPN, no. 189). *Michoacán*: Agua Blanca, Junganjeo (in house), 1 male (UNAM); Apatzingan, 30 July 1989 (Laura Rios), 2 males (UNAM); Cd. Hidalgo, 12 July 1987 (Irma Estreila), 1 male (UNAM); Hondacareo, 18 May 1989 (D. A. Fernandez), 1 male (UNAM); Hondacareo, 15 May 1989, 2 females (UNAM); La Piedad, 25 July 1987 (Mario Méndez), 1 female (UNAM); Morelia, 15 June 1987 (Angel Tinoco), 1 juv male (UNAM); Morelia, 7 Sept 1986 (Jorge Fabela), 1 male (UNAM); Morelia, 30 June 1987 (Ma. de Jesus Nereyda), 1 male, 1 female (UNAM); Morelia, 28 May 1987 (Rosalba Maya), 2 males (UNAM); Morelia, 7 June 1987 (Irma Tinoco), 1 male (UNAM); Morelia, 12 May 1986, 2 females (UNAM); Morelia, 11/7/87 (Olga Barriga), 1 female (UNAM); Morelia, 8 Aug 1984 (J. Lopez), 1 male (UNAM); Morelia, El Reolito, date? (J. Ponce), 2 juvs. (UNAM); Pariwaro, 31 July 1988 (Baltazar Castro Zarco), 1 female (UNAM); Taretan, 12/07/96, 1 male (UNAM); Uruapan, 3 May 1988 (Manuel Moreno G.), 1 male (UNAM); Zamora, 2 June 1991 (A. Rosa Santos), 1 female (UNAM); Zitcuaro, 6 July 1985, 1 female

(UNAM). *Querétaro*: Mpio. Querétaro, 7/09/98 (R. Barron, Cid, Morales), 1 female (UAQ-LE0008). *Zacatecas*: Aguas Frías, July 1963 (collector unknown), 1 male (InDRE, Sc 88203).

*Vaejovis nitidulus* Koch, 1843. MÉXICO: *Hidalgo*: Mpio. Alfajayucan, Alfajayucan (found inside Health Center building), 22 Sept 2000 (Irene Hernandez), 1 female (InDRE); Mpio. Huichapan, Huichapan, 25 Mar 1970 (A. Luisa Lang), 1 male (UNAM); Mpio. Huichapan, Huichapan, 18 Aug 1969 (A. L. Amaya L.), 1 male (UNAM); Mpio. Huichapan, Huichapan, 13 Nov 1961 (Sergio Guerrero), 1 female (UNAM); Mpio. Huichapan, Maney (date and collector?), 1 juv female (InDRE); Mpio. San Jose Atlán, Barrio Guadalupe, 6 June 2000 (collector?), 1 male (InDRE). *México*: Mpio. Aculco, Poblado de Aculco, 31 Oct 1999 (V. Sanchez), 1 female (UNAM). *Querétaro*: Cadereyta Vizarron, 1977 (S. Zamudio), 1 male (ENCB-IPN, No. 191); Mpio. Querétaro, 7/09/98 (R. Barron, Cid, Morales), 1 male, 1 female (UAQ-LE0044, LE0045); Tequisquiapan (Debajo de corteza de *Taxodium*), 17 Sept 1999 (R. Jones), 1 juv female (UAQ-LE0024); Vizarron (date and collector?), 2 males, 1 female (InDRE, Sc 88197).

*Vaejovis pococki* Sissom, 1991. MÉXICO: *Guanajuato*: Camino a Xichu, 30 May 1999 (Castelo), 1 male, 1 female + exuviae (UNAM); Rancho Corralillo, Victoria, 19 Feb 1985 (W. Lopez-Forment), 1 female (UNAM). *Querétaro*: Hacienda del Ahorcado, Pedro Escobedo, 3 June 1975 (J. Gpe. Pacheco), 1 female (UNAM); Mpio. El Marquez (700 m), 15 Nov 1997 (E. Rojo), 1 juv female (UAQ-LE0003); Mpio. Querétaro, 1 female (UAQ, LE0030); no specific locality (probably Mpio. Querétaro), 1 subadult female (UAQ-LE0022). *San Luis Potosí*: Camino a Santa María del Río, 12 Oct 1953 (F. Medellín), 1 male, 2 females (ENCB-IPN, No. 99).

*Vaejovis rubrimanus* Sissom, 1991. MÉXICO: *Nuevo León*: ca. 6 kms. W. Medreros, 21 December 1967 (F. García B., José Castillo T., J. Puente F., A. Jiménez G.), 1 male, 3 females, 1 subadult female (UNAM); Cañon de el Diente, arriba de la Canica, Monterrey, 22 May 1959, 1 female, 1 juv male (UNAM).

*Vaejovis solegladi* Sissom, 1991. MÉXICO: *Oaxaca*: Cuicatlán, IX-1948, 4 males, 1 female (UNAM); Cuicatlán (collected in wall of a manger), 13 May 1954 (Jordi Julia), 1 female (UNAM); Cuicatlán Mpio., Cuicatlán, 23 March 1998 (J. L. Casto), 1 female (UNAM); Dominguiillo, Mpio. Cuicatlán, 23-25/XI/1997 (J. Castelo), 1 female. *Puebla*: Izucar de Matamoros, 25 May 1943, 1 male (UNAM).

**Key to the species of the *Vaejovis nitidulus* group in Mexico**

1. Pedipalp chela fixed finger with primary row of denticles divided into seven subrows ..... 2  
    Pedipalp chela fixed finger with primary row of denticles divided into six subrows ..... 4
2. Pedipalp patella with 3 *esb* trichobothria; base color of body yellow brown ..... *V. nitidulus* Koch  
    Pedipalp patella with 2 *esb* trichobothria; base color of body dark brown to reddish brown ..... 3
3. Male pectinal tooth count greater than 24, female count greater than 23; movable  
    finger of chela with eight subrows of denticles and eight inner accessory granules ... *V. mitchelli* Sissom  
    Male pectinal tooth count less than 24, female count less than 23, movable finger  
    of chela with seven subrows and seven inner accessory granules ..... *V. pococki* Sissom
4. Pedipalp patella with 3 *esb* trichobothria ..... 5  
    Pedipalp patella with 2 *esb* trichobothria ..... 9
5. Metasomal segments I-III in male distinctly longer than wide; at least II-III in  
    female longer than wide; pectinal tooth counts greater than 25 in males,  
    greater than 24 in females ..... 6  
    Metasomal segments I-II (and usually III) wider than long in both males and  
    females; pectinal tooth counts less than 25 in males, less than 24 in females ..... 7
6. Dorsal and external keels of pedipalp chela well developed, granulose; chela fixed  
    finger with denticles ventrally at base; chela manus yellowish; ratio of chela  
    length/width greater than 4.6 in males, 6.0 in females ..... *V. minckleyi* Williams  
    Dorsal and external keels of pedipalp chela moderately to weakly developed,  
    smooth to finely granular; cheliceral fixed finger lacking denticles ventrally  
    at base; chela manus reddish; ratio of chela length/width approximately  
    3.8 in males, 4.6-4.7 in females ..... *V. rubrimanus* Sissom
7. Metasoma with ventral submedian carinae obsolete ..... 8  
    Metasoma with ventral submedian carinae present (at least on segments II-IV) ..... *V. peninsularis* Williams
8. Body size large, with adults 45 mm or more in length; pedipalp chela  
    moderately swollen, with strong dorsointernal carina bearing enlarged sharp  
    granules; pectinal tooth counts greater than 21 in males and 18 in females ..... *V. kochi* Sissom  
    Body size small, with adults less than 30 mm in length; pedipalp chela palm  
    slender, with weak dorsointernal carina; pectinal tooth counts in male  
    16-17, in females 14-15 ..... *V. platnicki* Sissom
9. Metasoma with ventral submedian carinae obsolete on I-IV (except in  
    *V. curvidigitus*, which may have vestiges of these keels on segment IV) ..... 10  
    Metasoma with ventral submedian carinae present, often variable on I-II,  
    but distinct on III-IV ..... 13
10. Pedipalp chela fingers lacking distinct scalloping; metasomal segments  
    II-III with lateral inframedian carinae extending one-half to two-thirds  
    length of segment; distalmost denticles on dorsolateral metasomal  
    carinae not distinctly enlarged ..... *V. solegladi* Sissom  
    Pedipalp chela fingers of male with more or less distinct scalloping;  
    metasomal segments II-III with lateral inframedian carinae limited to  
    distal third to one-fifth of segment; distalmost denticles on dorsolateral  
    carinae noticeably enlarged ..... 11
11. Adult body size less than 40 mm; scalloping in male chela fingers pronounced;  
    metasomal segments III-IV usually with faint vestiges of ventral  
    submedian carinae; ventrolateral carinae finely crenulate ..... *V. curvidigitus* Sissom  
    Adult body size greater than 40 mm; scalloping in male chela fingers subtle  
    to moderate; metasomal segment IV always with ventral submedian  
    carinae obsolete; ventrolateral carinae smooth ..... 12
12. Metasoma very hirsute, especially ventrally, with accessory setae between  
    the carinae; chela length/depth 2.9-3.1 in males, 3.5-4.1 in females;  
    femur length/carapace length 0.84-0.91; northern Mexico and  
    southern Texas ..... *V. intermedius* Borelli

- Metasoma sparsely setose, with few setae restricted to the carinae; chela length/depth 3.47-4.5 in males, 3.7-4.6 in females; femur length/carapace length 0.94-1.05; central Mexico ..... *V. nigrescens* Pocock
13. Pedipalps and metasoma greatly elongated; chela length/width ratio greater than 7.5; metasomal segment V length/width greater than 4.0; general coloration light yellow brown throughout ..... *V. gracilis* Gertsch & Soleglad
- Pedipalps and metasoma not drastically elongated; chela length/width ratio less than 5.5; metasomal segment V length/width less than 2.50; coloration variable ..... 14
14. Ventral aspect of metasomal segments with an accessory row of setae along ventrolateral carinae; metasomal carinae more setose (e.g., segment V with 7-10 setae along dorsolateral carinae and 7-10 along ventrolateral carinae); metasomal segments more elongate (e.g., segment V 2.83-3.04 times longer than wide) ..... *V. norteno*, new species
- Ventral aspect of metasomal segments with no more than one or two accessory setae along ventrolateral carinae; metasomal carinae less setose (e.g., segment V typically with 5 setae along dorsolateral carinae and 5-6 on ventrolaterals) ..... 15
15. Ventral submedian carinae on metasomal segments I-II obsolete; carinae of sternite VII weak, granular; pectinal tooth count 19 in males, 17 in females ..... *V. mauryi* Capes
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- Chela of male with subtle scallop; ventral submedian carinae on II-IV crenulate; digital and external secondary carinae of chela granular; pectinal tooth count of male 21-22, of female 18-21; Isla Socorro, México ..... *V. janssi* Williams

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