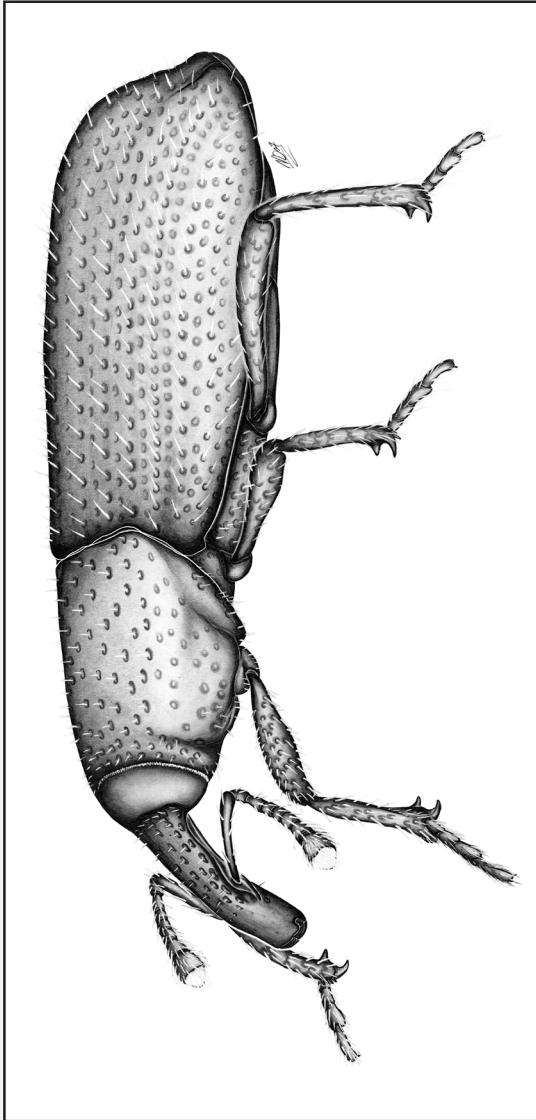


TEXAS MEMORIAL MUSEUM
Speleological Monographs, Number 7



Studies on the
CAVE AND
ENDOGEAN
FAUNA
of North America
Part V

Edited by James C. Cokendolpher
and James R. Reddell

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STUDIES ON THE
CAVE AND ENDOGEAN FAUNA
OF NORTH AMERICA,
PART V

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Cover, The first troglobitic weevil in North America, *Lymantes*
Illustration by Nadine Dup  r  

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CAVE SCORPIONS OF MEXICO AND THE UNITED STATES

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ABSTRACT

Scorpions reported from caves in Mexico and the United States are reviewed. New records are included for: *Centruroides gracilis*, *C. vittatus*, *Troglocormus willis*, *Alacran tartarus*, *Pseudouroctonus apacheanus*, *P. reddelli*, *Uroctonites sequoia*, *Serradigitus gertschi striatus*, *S. wupatkiensis*, *Vaejovis carolinianus*, *V. chisos*, *V. intermedius*, *V. nigrescens*, and *V. rossmani*.

RESUMEN

Se actualizan registros de escorpiones de cuevas en México y Estados Unidos. Se presentan nuevos registros para: *Centruroides gracilis*, *C. vittatus*, *Troglocormus willis*, *Alacran tartarus*, *Pseudouroctonus apacheanus*, *P. reddelli*, *Uroctonites sequoia*, *Serradigitus gertschi striatus*, *S. wupatkiensis*, *Vaejovis carolinianus*, *V. chisos*, *V. intermedius*, *V. nigrescens* y *V. rossmani*.

INTRODUCTION

Scorpions are comparatively uncommon in caves. They are best represented in tropical and subtropical caves where energy input is greater. Volschenk and Prendini (2008) in a review of the troglobitic and troglomorphic scorpions of the world record 32 species that are known only from caves or else exhibit

troglomorphic features. With few exceptions all are known from the tropics or subtropics.

The vast majority of troglobitic scorpions are known from the New World. The most remarkable of these are the troglobitic species assigned to the family Superstitioniidae. Mitchell (1968) described *Typhlochactas reddelli* and *T. rhodesi*, the first eyeless scorpions, from caves in Mexico. Mitchell (1971) added a third eyeless species from Mexico with the description of *T. elliotti* (now *Sotanochactas elliotti*). Subsequently, three more superstitioniids were discovered in Mexican caves. *Alacran tartarus*, the most highly troglomorphic scorpion in the world, was described from more than 700 m below the surface in Sistema Huautla, Oaxaca (Francke, 1982). Francke (1986) then described *Typhlochactas cavicola* from a cave in Tamaulipas, and Sissom and Cokendolpher (1998) added *T. granulatus* from a cave in Veracruz.

The first cave-associated vaejovid scorpions were described by Gertsch and Soleglad (1972) from Mexico and the United States. They provided descriptions of *Vaejovis reddelli* (now in *Pseudouroctonus*) from caves in Texas; *Uroctonus grahamsi* and *U. sequoia* (now in *Uroctonites*) from California; and *Vaejovis gracilis* from

a small juvenile taken in Veracruz, Mexico. Of these *Uroctonus grahami* and *Vaejovis gracilis* are probably troglobites. Soleglad (1975) redescribed *Vaejovis gracilis* based on some new specimens from Oaxaca, Puebla, and Veracruz, but these were misidentifications (Sissom 1986). In the last decade, several more vaejovids were described from caves: Sissom and González-Santillán (2004) described the troglomorphic *Vaejovis norteno* from caves in Tamaulipas, Mexico; Soleglad and Fet (2005) described the possible troglobitic *Vaejovis davidi* from a cave in Puebla, Mexico (two of the specimens erroneously assigned to *V. gracilis* in 1975); Francke and Savary (2006) described *Pseudouroctonus sprousei*, the first troglobitic species of the genus, from Coahuila, Mexico; and Francke (2009) added another troglomorphic species, *P. savvasi* from other caves in Coahuila.

Francke (1977) described the first Diplocentridae from caves in a study of scorpions from the Yucatan Peninsula of Mexico. Of these *Diplocentrus anophthalmus* is a highly modified troglobite, *D. mitchelli* a possible troglobite, and *D. reddelli* a probable accidental. A third possible troglobite, *D. cueva*, was described in 1978 from Oaxaca, Mexico (Francke, 1978). Two more diplocentrids have more recently been described from Mexican caves: *Diplocentrus magnus* from Guerrero (Beutelspacher and López-Forment C. 1991) and the troglobitic *Diplocentrus actun* from Yucatán (Armas and Palacios-Vargas 2002).

Francke (1981) erected the genus *Troglocormus* for the two troglobitic species *T. ciego* and *T. willis* from caves in Mexico, and these represent a fourth family of troglomorphic scorpions (Euscorpidae) in North America.

From a geographical perspective, outside of California and Texas the only three species identified from caves in the United States are *Serradigitus wupatkiensis* in Idaho, *Vaejovis carolinianus* in Alabama, and *Pseudouroctonus apacheanus* in New Mexico. The first two of these are presumably accidentals, but *P. apacheanus* might be considered troglomorphic.

Five species have been recorded from caves in California: *Serradigitus gertschi striatus*, *Uroctonites sequoia*, *Uroctonus grahami*, *U. mordax*, and *Vaejovis iviei*. Of these *Uroctonus grahami* is a troglobite; the other species are either troglomorphs or accidentals.

The scorpion fauna of Texas includes three identified species from caves and one from within a highway tunnel. The only troglomorphic is *Pseudouroctonus reddelli*. This species is widespread in caves along the Balcones Fault Zone and Edwards Plateau (Fig. 4). It is frequently abundant in caves and has been observed feeding on cave crickets of the genus

Ceuthophilus (Fig. 5). The other species are accidentals.

Thirty-four species in five families have been identified from caves in Mexico, with others awaiting identification or description. Thirteen species (62% of world troglobites) are unquestionably troglobitic, while an additional three are known only from caves and show slight troglomorphic adaptations. Two troglomorphic species, *Typhlochactas mitchelli* Sissom (1988) and *T. sylvestris* Mitchell and Peck (1977) are de-pigmented eyeless species known only from leaf litter.

Except as otherwise noted identifications of new records are by W. David Sissom and specimens deposited in the Texas Natural Science Center, The University of Texas at Austin. Acronyms are: American Museum of Natural History, New York (AMNH); W. David Sissom collection (WDS); AM-NMSU, The Arthropod Museum, New Mexico State University, Las Cruces.

Family Buthidae

Centruroides gracilis (Latreille)

New records.—MEXICO: QUINTANA ROO: Cenote Azul, July 1992 (A.G. Grubbs), 1 juvenile. SAN LUIS POTOSÍ: Hoya de las Guaguas, 4 Aug. 1982 (A.G. Grubbs, M. Minton), 1 (det. O. F. Francke); Cueva del Salitre, 20 July 1969 (W. Elliott, S. and J. Peck), 1 female (det. W. J. Gertsch) (AMNH). TAMAULIPAS: Cueva de los Cuarteles (det. W. J. Gertsch) (AMNH). YUCATÁN: Actun Kaua, July 1992 (A.G. Grubbs). 1 female.

Comment.—This accidental is occasionally found in entrance areas.

Centruroides ochraceus Pocock

Records.—MEXICO: YUCATÁN: Actun Kaua (Wagner, 1977); Actun Loltun (Chamberlin and Ivie, 1938; Wagner, 1977); Actun Tucil (Wagner, 1977); Actun Xpukil (Wagner, 1977); Actun (=Cenote) Xtacabihá (Wagner, 1977).

Comments.—This is an accidental. Chamberlin and Ivie (1938) described *Centruroides yucatanus* (a synonym of *C. ochraceus*) from Actun Loltun.

Centruroides vittatus (Say)

Records.—U.S.A.: TEXAS: *Edwards County*: Chivo Cave (Rowland and Reddell, 1976). *Travis County*: Tooth Cave (Rowland and Reddell, 1976). *Williamson County*: Elm Water Cave (Rowland and Reddell, 1976); Steam Cave (Rowland and Reddell, 1976).

New records.—MEXICO: TAMAULIPAS:

Sistema Purificación, 26 Nov. 1979 (P. Sprouse), 1 juvenile.

U.S.A.: TEXAS: *Bell County*: Jagged Walls Cave, Fort Hood, 3 Nov. 1998 (J. Cokendolpher, M. Reyes), 1. *Bexar County*: Charley's Annex, Camp Bullis, 2 Dec. 1994 (W. Elliott), 1 female; Chimney Cricket Cave, 14 June 2001 (J. Cokendolpher), subadult female; Power Pole 60 Feature, Camp Bullis, 30 April 2003 (J. Reddell, M. Reyes, G. Veni), 1; Power Pole Pit, Camp Bullis, 14 Nov. 2002 (B. Shade), 1. *Brewster County*: 400 Foot Cave, 30 June 1985 (A.G. Grubbs), 1. *Edwards County*: Punkin Cave, 4 Sept. 1965 (J. Reddell), 1 male (det. W. J. Gertsch) (AMNH). *Mason County*: Zesch Ranch Cave, 10 June 1967 (R.W. Mitchell), 1 female (det. W. J. Gertsch) (AMNH). *Sutton County*: Caverns of Sonora, near Popcorn Alley, 15 April 1995 (G. Veni), 1 subadult female. *Travis County*: Barbed Wire Sink, July 1983 (W. Russell), 1 (det. O. F. Francke); Garden Hoe Cave, 2 Sept. 2002 (M. Reyes, M. Warton), 1 female; Karst Feature F4, 28 Sept. 2006 (J. Krejca), 1 male; Travis Water Treatment Plant, Karst Feature F-5, Sept. 2002 (M. Reyes, M. Warton), 2 males. *Val Verde County*: Seminole Sink, 11 March 1984 (C. Alexander, W. Elliott) (det. O. F. Francke), 1; 26 May 1984 (L. Bement, S. Turpin, et al.), 2; 27 May 1984 (L. Bement, W. Elliott), 1. *Williamson County*: Cobb Drain Cave, 1 June 2001 (L.J. Graves, J. Reddell, M. Reyes), 1 female; LakeLine Cave, 17 May 1996 (P. Sprouse), 1 subadult female.

Comments.—This medium-sized straw-colored scorpion with a dark interocular triangle and dorsal submedian stripes is occasionally found in the entrance area of caves in Texas. It is clearly an accidental, and is widely distributed over the south central U.S.A. and northeastern Mexico.

Family Diplocentridae

Cazerius n.sp.

Record.—MEXICO: YUCATÁN: Actun Loltun (Reddell, 1977)

Comment.—This was originally identified as an undescribed genus and species but it has since been determined to belong to the genus *Cazerius* (O. F. Francke, pers. comm.).

Diplocentrus sp.

Record.—MEXICO: YUCATÁN: Actun Xkyc (Francke, 1977)

Comment.—A single large chela was collected deep in the cave. It belongs to a large species.

Diplocentrus actun Armas and Palacios-Vargas

Record.—MEXICO: YUCATÁN: Actun Xpukil (=Gruta de Calcehtok) (Armas and Palacios-Vargas, 2002).

Comment.—This troglobite possesses elongate appendages, lacks the ocular tubercle and median eyes, and has reduced pigmentation and lateral eyes.

Diplocentrus anophthalmus Francke Fig. 1

Record.—MEXICO: YUCATÁN: Actun Chukum (Francke, 1977).

Comment.—This troglobite is pale, elongated, and lacks median eyes.

Diplocentrus cueva Francke

Record.—MEXICO: OAXACA: Cueva Desapareciendo (Francke, 1978).

Comments.—This species, known only by the holotype male, has attenuated legs and the median eyes and ocular tubercle are reduced. The cave may have been destroyed by quarrying.

Diplocentrus magnus Beutelspacher and López-Forment

Records.—MEXICO: GUERRERO: cave 2 km W of Puerto Marques (Beutelspacher and López-Forment, 1991); cave 5 km W of Puerto Marqués (Beutelspacher and López-Forment, 1991).

Comments.—This large dark species has slightly reduced median eyes and ocular tubercle. It is probably an accidental. Records of the species from Puerto Marqués, 2 km from Puerto Marqués, and 4 km N of Puerto Marqués were taken from cracks in granitic boulders. It has also been found on the surface (O. F. Francke, pers. comm.).

Diplocentrus mitchelli Francke

Record.—MEXICO: CAMPECHE: Actun Halmensura (Francke, 1977).

Comments.—This possibly troglobitic species has slightly elongated appendages and reduced median eyes. It is known only from a juvenile.

Diplocentrus reddelli Francke

Record.—MEXICO: YUCATÁN: Actun Xpukil (Francke, 1977).



Fig. 1.—*Diplocentrus anophthalmus* from Actun Chukum, Yucatán, México.



Fig. 2.—*Alacran tartarus* from Sistema Huautla, Oaxaca, México.

Comments.—This small species is known only from this cave. It was found in the entrance sink and is probably an accidental.

Family Euscorpiidae
Megacormus n. sp. 1

Record.—MEXICO: PUEBLA: Sótano de Ocatempa (Sissom, 1994).

Comment.—This species was originally reported as *M. gertschi* but it has since been determined to be an undescribed species; the description is currently in preparation (O. F. Francke, pers. comm.)

Megacormus n. sp. 2

Records.—MEXICO: QUERÉTARO: Cave No. 29, 20 km N Pinal de Amoles, 6 June 1972 (W. Russell), 1 juvenile (AMNH) (det. W. J. Gertsch); Sótano del Buque, 2 June 1972 (T. Raines, R. Ralph), 1 juvenile (AMNH) (det. W. J. Gertsch).

Comment.—The description of this species is currently in preparation (O. F. Francke, pers. comm.).

Megacormus n. sp. 3

Record.—MEXICO: SAN LUIS POTOSÍ: Cueva de la Puente, San Francisco, 26 Sept. 1998 (C. Savvas), 1.

Comment.—The description of this species is currently in preparation (O. F. Francke, pers. comm.).

Megacormus gertschi Diaz

Records.—MEXICO: HIDALGO: cave 15 mi. northeast Jacala (Soleglad, 1976).

Comment.—This possible troglophile is also known from surface habitats in the Sierra Madre Oriental.

Troglocormus ciego Francke

Record.—MEXICO: SAN LUIS POTOSÍ: Cueva de Elías (Francke, 1981).

Comments.—This pale troglobitic species lacks the median eyes. The lateral eyes are more reduced than in *T. willis*.

Troglocormus willis Francke

Records.—MEXICO: TAMAULIPAS: Cueva de Esperanza (Francke, 1981); Cueva X (Francke, 1981); Sistema Purificación (Cueva del Brinco Section) (Francke, 1981).

New records.—MEXICO: TAMAULIPAS: Cueva del Borrego, 18 April 1982 (Peter Sprouse), 1 (det. O. F. Francke); 26 Dec. 1986 (Terri Treacy Sprouse), 1; Sótano de la Cuchillo (PEP59), Purificación area, 31 May 2000 (P. Sprouse), upper level, 1; Cueva de La Llorona, 26 May 1991 (P. Sprouse), 1 female; Cueva de la Onza (det. O. F. Francke); Cueva del Río Corona, Purificación area, 13 Dec. 1995 (C. Savvas, D. Lloyd, J. Krejca), 1 male; Sótano de Trejo, 20 Nov. 1988 (Paul Fambro, Terri Treacy), 1 female.

Comments.—This troglobitic species is known only from caves in the Purificación area of Tamaulipas. It lacks median eyes and the lateral eyes are reduced compared to *Megacormus gertschi*.

Family Superstioniidae
Alacran tartarus Francke
Fig. 2

Records.—MEXICO: OAXACA: Sótano de Agua Carrizo (Francke, 1982); Cueva del Escorpión (Francke, 1982); Sistema Huautla (Sótano de San Agustín Section) (Francke, 1982).

New record.—MEXICO: OAXACA: Sistema Huautla, Sótano de San Agustín Section, May 1985 (A.G. Grubbs, J.H. Smith, F. Holladay), 2.

Comments.—This is the most highly cave-adapted scorpion in the world. It is pale, attenuated, and completely eyeless. It has been taken at more than 700 meters below the surface. Some specimens have been observed crawling under water.

Sotanochactas elliotti (Mitchell)
Fig. 3

Record.—MEXICO: SAN LUIS POTOSÍ: Sótano de Yerbaniz (Mitchell, 1971).

Comment.—This is a highly troglomorphic eyeless species known only from this cave.

Typhlochactas cavicola Francke

Record.—MEXICO: TAMAULIPAS: Cueva del Vandalismo (Francke, 1986).

Comment.—This eyeless species is known only from the holotype male.

Typhlochactas granulosus
Sissom and Cokendolpher

Record.—MEXICO: VERACRUZ: Sótano de Poncho (Sissom and Cokendolpher, 1998).

Comment.—This eyeless species is known only from the holotype male.



Fig. 3.—*Sotanochactas elliotti* from Sótano de Yerbaniz, San Luis Potosí, México.

Typhlochactas reddelli Mitchell

Record.—MEXICO: VERACRUZ: Cueva del Ojo de Agua de Tlilapan (Mitchell, 1968).

Comment.—This eyeless species was previously known only from the holotype female. Three juveniles have recently been collected from the cave (O. F. Francke, pers. comm.).

Typhlochactas rhodesi Mitchell

Record.—MEXICO: TAMAULIPAS: Cueva de la Mina (Mitchell, 1968).

Comment.—This eyeless species is known from three females.

Family Vaejovidae

Pseudouroctonus apacheanus
(Gertsch and Soleglad)

New records.—U.S.A.: ARIZONA: *Cochise County*: Outlaw Cave, 24 July-2 Aug. 1962 (R. Graham), 1 female, 1 subadult female (AMNH); Outlaw Cave, 27 July 1963 (J. Franklin), 1 subadult female (AMNH). NEW MEXICO: *Eddy County*: Doc Brito Cave, 5.3 km E, 5.1 km N Whites City, 14 Feb. 1976 (C. Welbourn),

1 juvenile (AMNH); Hidden Cave (under rock, 20 ft. SW of cave), 17 May 1992 (J. C. Cokendolpher, et al.), 1 female, 1 juvenile (AM-NMSU); Hidden Cave, 15-16 Aug. 1992 (J. C. Cokendolpher, et al.), 2 males (AM-NMSU); Hidden Cave (under rock on surface, within 200 ft. of entrance), 25 Oct 1992 (J. C. Cokendolpher), 1 juvenile (AM-NMSU); Helen's Cave, Carlsbad Caverns National Park, 31 Aug. 1974 (W. C. Welbourn), 1 juvenile (AMNH); Jurnigan #1 Cave, 4.3 km E, 4.8 km N Whites City, 16 Feb. 1974 (C. Welbourn), 1 subadult female, 2 juveniles (AMNH), 26 Apr. 1975, 1 juvenile female (AMNH), 14 Feb. 1976, 1 male, 1 female, 2 juveniles (AMNH); Lincoln National Forest, Three Fingers Cave (Dark Zone), 28 March 1975 (W. C. Welbourn), 1 female, 1 subadult female (AMNH). TEXAS: *Sutton County*: Caverns of Sonora, 22, 24 Nov. 1996 (G. Veni), 1 chela and telson. *Terrell County*: Longley Cave, 27 June 1963 (J. Reddell, B. Russell), 1 juvenile. *Val Verde County*: Four Mile Cave, 1 Sept. 1974 (S. Sweet), 1 female (AMNH). Seminole Sink, 27 May 1984 (W. Elliott, L. Bement), 1.

Comments.—This species, which is found in southeastern Arizona, southern New Mexico, and southwestern Texas, is probably a troglophile. Recently (Francke, 2009) described *Pseudouroctonus savvasi*

from two caves in Coahuila, Mexico, not far from the Val Verde County, Texas localities. The species is distinguishable from *P. apacheanus* on the basis of having a single subdistal tooth on the dorsal margin of the cheliceral movable finger and by differences in the male hemispermatophore. Only the female from Four Mile Cave was available for examination, and that specimen bears a single subdistal tooth on the chelicerae, as in *P. savvasi*. However, variation in this character occurs throughout the range of *P. apacheanus* (WDS, personal observation), rendering identification of female specimens questionable. Tentatively, we have assigned these specimens to *P. apacheanus*, pending collection of males. Welbourn (1978) reported the Helen's Cave specimen as "*Vaejovis* sp."

Pseudouroctonus iviei (Gertsch and Soleglad)

Records.—U.S.A.: CALIFORNIA: *Eldorado County*: Crystal Cave, Somerset (Gertsch and Soleglad, 1972); Crystal Cosumnes Cave (Gertsch and Soleglad, 1972). *Shasta County*: Potter Creek Cave (Gertsch and Soleglad, 1972); Samwell Cave (Gertsch and Soleglad, 1972).

Comment.—This is probably a troglophile.

Pseudouroctonus reddelli (Gertsch and Soleglad)
Figs. 4-5

Records.—U.S.A.: TEXAS: *Bandera County*: Fog Fissure (Gertsch and Soleglad, 1972). *Bexar County*: Government Canyon Bat Cave (Gertsch and Soleglad, 1972); John Wagner Ranch Cave No. 3 (Gertsch and Soleglad, 1972—as Adam Wilson's Cave); Madla's Cave (Gertsch and Soleglad, 1972—as Madla's Ranch Cave); *Burnet County*: Pie Cave (Gertsch and Soleglad, 1972). *Comal County*: Brehmer Cave (Gertsch and Soleglad, 1972); Little Brehmer-Heidrich Cave (Rowland and Reddell, 1976). *Edwards County*: Deep Cave (Gertsch and Soleglad, 1972); Jacoby Cave (Gertsch and Soleglad, 1972). *Hays County*: Donaldson Cave (Gertsch and Soleglad, 1972); Ezell's Cave (Gertsch and Soleglad, 1972). *Kimble County*: Flemming Bat Cave (Gertsch and Soleglad, 1972). *Real County*: Orell Crevice Cave (Gertsch and Soleglad, 1972); Skeleton Cave (Gertsch and Soleglad, 1972). *Travis County*: Bandit Cave (Gertsch and Soleglad, 1972); Beckett's Cave (Gertsch and Soleglad, 1972); Bee Creek Cave (Gertsch and Soleglad, 1972); Broken Straw Cave (Gertsch and Soleglad, 1972); Cave X (Gertsch and Soleglad, 1972); Cotterell Cave (Gertsch and Soleglad, 1972); Goat Cave (Gertsch and Soleglad, 1972); Ken Harrell Cave (Gertsch and Soleglad, 1972); Kretschmarr Cave (Gertsch and Soleglad, 1972); Tooth Cave (Gertsch

and Soleglad, 1972). *Uvalde County*: McNair Cave (Gertsch and Soleglad, 1972); North Well Cave (Gertsch and Soleglad, 1972); Tampke Ranch Cave (Gertsch and Soleglad, 1972). *Williamson County*: Cave 31 (Gertsch and Soleglad, 1972); Inner Space Cavern (Gertsch and Soleglad, 1972); Steam Cave (Gertsch and Soleglad, 1972); Williams Cave (Gertsch and Soleglad, 1972).

New records.—MEXICO: NUEVO LEÓN: Cueva de Cuchillo, 2.5 km S of Minas Viejas, 1270 m, 22 April 1988 (P. Sprouse, A. Cobb), 1.

U.S.A.: TEXAS: *Bandera County*: Albino Bat Cave, 3 March 1984 (R. Waters, B. Cowell, J. Ivy) (det. O. F. Francke), 1; Bob Clark Cave, Hill Country State Natural Area, 23 Sept. 2000 (J. Reddell, M. Reyes), 1 juvenile; Can Creek Cave No. 2, Lost Maples State Natural Area, 30 Oct. 2000 (J. Reddell, M. Reyes), 1 female; Fossil Cave, 21 March 1971 (J. Reddell, T. Mollhagen, S. Wylie), 1 female (AMNH); Harvestman Cave, Hill Country State Natural Area, 28 March 1992 (C. Biegert), 1 juvenile; Keese Cave, 11 July 1974 (W. Elliott, D. McKenzie), 1 juvenile (det. W. J. Gertsch) (AMNH); Keese Cave, 6 mi NW Medina, 11 July 1974 (W. Elliott, D. McKenzie), 1 male, 1 juvenile female (AMNH). *Bexar County*: 40mm Cave, Camp Bullis, 29 Nov. 1993 (J. Ivy, J. Reddell, M. Reyes), 2; 5 Oct. 1995 (J. Reddell, M. Reyes), 1; B-52 Cave, Camp Bullis, 10 Sept. 1998 (J. Cokendolpher, J. Krejca, J. Reddell, M. Reyes), 1; 29 Oct. 2001 (J. Krejca, P. Sprouse), 1 juvenile; Black Cat Cave, 28 Nov. 1982 (S. Harden, R.M. Waters) (det. O. F. Francke), 1; 7 Feb. 1987 (L. Palit, A. Cobb), 1 male (WDS); Charley's Cute Little Hole, Camp Bullis, 30 March 1995 (J. Reddell, M. Reyes), 1; Cross the Creek Cave, Camp Bullis, 31 March 1995 (J. Reddell, M. Reyes), 1; 6 Oct. 1995 (J. Reddell, M. Reyes), 1; 31 Oct. 2000 (J. Reddell, M. Reyes), 1 female; Crownridge Canyon Cave, 9 June 2002 (J. Reddell, M. Reyes), 1 juvenile; Dancing Rattler Cave, Government Canyon State Natural Area, 21 April 2001 (K. Scanlon), 1 male; Elmore Cave, 24 Oct. 1982 (R. Waters) (det. O. F. Francke), 1; Genesis Cave, June 1985 (R. Waters, A. Cobb), 1; 14 Sept. 1986 (R. Waters, W. Elliott), 1; 2 Dec. 2004 (A. Gluesenkamp, P. Sprouse), 2; Hold Me Back Cave, Camp Bullis, Zone 1, 3 March 1994 (W. Elliott, G. Veni), 1; HPD Cave, Government Canyon State Natural Area, 2 Nov. 2001 (K. White, H. Bechtol), 1 female; Isopit, March 1983 (E. Short), 1 (det. O. F. Francke); Kick Start Cave, 30 May 2002 (G. McDaniel, C. Savvas), 1 juvenile; Logan's Cave, 8 June 1993 (J. Loftin, J. Reddell, M. Reyes, G. Veni), 1 juvenile; Madla's Cave, 7 June 1969 (R. Bartholomew), 1 juvenile (AMNH). 24 May 1993 (J. Reddell, M. Reyes), 1 late instar juvenile female; MARS Pit, Camp Bullis, 4 April 1996 (W. Elliott), Zone

3, 1 male; 10 Sept. 1998 (J. Cokendolpher, J. Krejca), 1; 29 Oct. 2001 (J. Krejca, P. Sprouse), 1 juvenile; Mattke Cave, 10 June 1993 (D. McKenzie, J. Reddell, M. Reyes), 1 late instar juvenile male, 1 late instar juvenile female; Phil's Line Cave, Iron Horse Canyon, Helotes, 7 April 2005 (M. Warton), 1; Plethodon Pit (=site #602, #604), Stone Oak Karst Region, north of 1604 and 218 intersection, 19 Sept. 1999 (Kemble White) 1; Jan. 2000 (K. White), 1; Por Boy Ranch Cave, 13 Aug. 1983 (G. Veni), 1; Porcupine Cave, Government Canyon State Natural Area, 12 Sept. 2001 (G. Veni), 1 female; Robbers Cave, no date (A.G. Grubbs), 1 juvenile; Root Toupee Cave, Camp Bullis, 5 Dec. 1994 (G. McDaniel, B. Johnson), 1; Scenic Overlook Cave, 11 May 2000 (K. White), 2; Scorpion Cave, 1 June 1993 (J. Loftin, J. Reddell, M. Reyes, G. Veni), 1 female; Strange Little Cave, Camp Bullis, 29 Nov. 1993 (J. Reddell, M. Reyes), 1; 22 March 2004 (B. Shade, G. Veni), 1; Surprise Sink, Government Canyon State Natural Area, 21 April 1996 (G. Veni, K. Veni, J. Kennedy), 1 juvenile; 29 May 2002 (J. Krejca, T.

Engelhard, M. Holmback), 1 juvenile; 10K Cave, Government Canyon State Natural Area, 16 Dec. 2007 (M. Miller), 1 juvenile; Three Fingers Cave, 22 June 1993 (J. Loftin, J. Reddell, M. Reyes), 1 juvenile, 1 late instar juvenile female; Tick 'n Delight Cave, 16 March 1993 (G. Veni, J. Ivy), 1 late instar juvenile male; Well Done Cave, Camp Bullis, 15 April 2002 (J. Reddell, M. Reyes, G. Veni), 2 juveniles; Winston's Cave, Camp Bullis, 13-14 Dec. 1993 (J. Ivy, L. McNatt, G. Veni), 1; Young Cave No. 1, 6 Aug. 1983 (G. Veni, J. Ivy) (det. O. F. Francke), 1; 6 Sept. 1993 (J. Reddell, M. Reyes), 1 late instar juvenile female. *Burnet County*: M.V.N. Cave, 20 March 1993 (A. Grubbs, T. Whitfield), 1 juvenile. *Comal County*: Coreth Bat Cave, 28 Oct. 1995 (J. Reddell, M. Reyes), 1; May 2000 (J. Krejca), 1 female; Little Bear Creek Cave, 30 Jan. 1988 (C. Biegert, P. Reavely, P. Jauk, C. Grant, D. McKenzie), 1 juvenile; Natural Bridge Caverns, 23 Sept. 1989 (O. Knox, J. Reddell, M. Reyes), 1 female; Shadow Cave, Kuhn Ranch, 8 Jan. 2006 (A. Gluesenkamp), 1; Tall Tales Cave, Camp Bullis, 12 Jan. 2000 (Peter Sprouse),

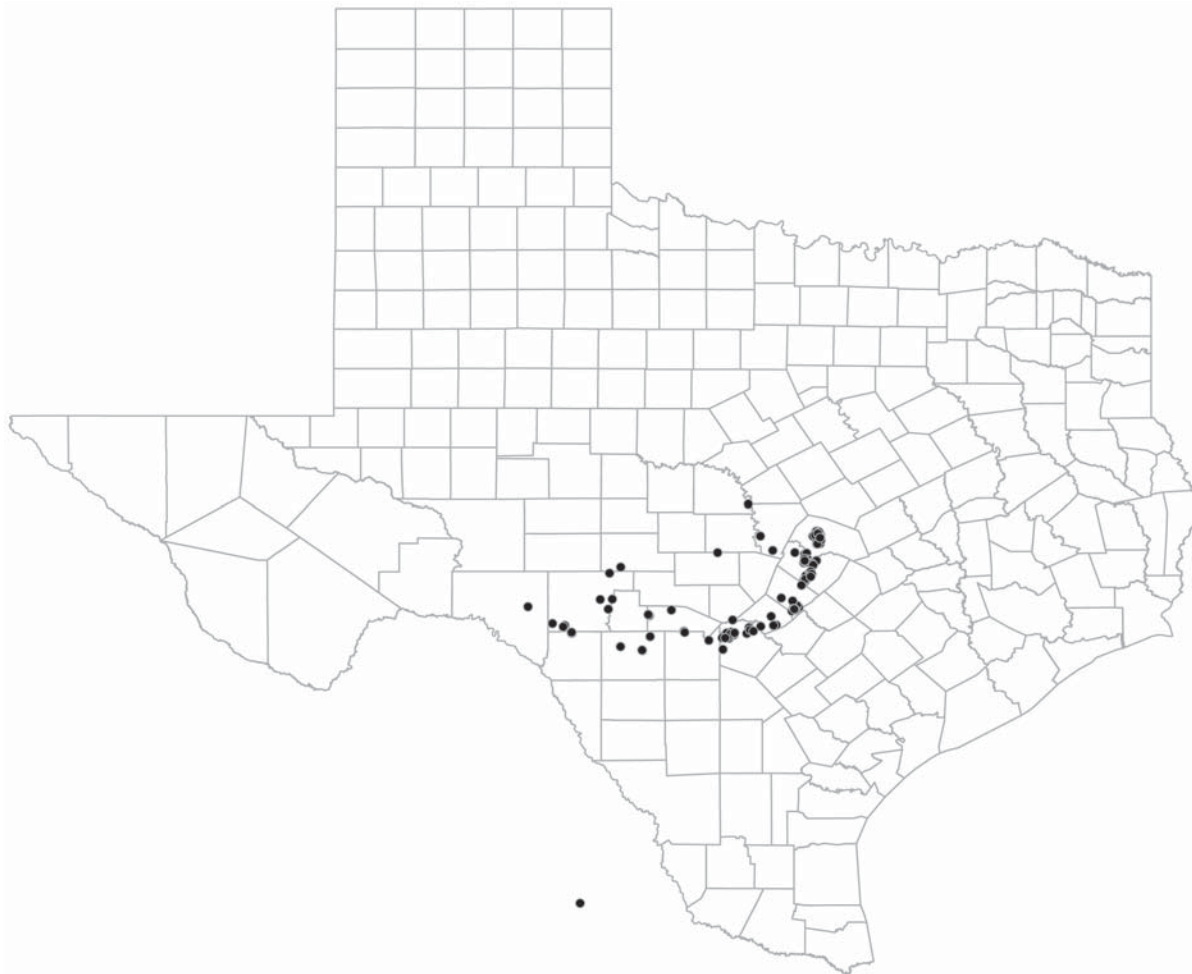


Fig. 4.—Map showing distribution of *Pseudouroctonus reddelli*.

3; 17 Jan. 2000 (J. Reddell, M. Reyes), 1. *Edwards County*: Blue Elm Cave, 2 April 1988 (J. Ivy, S. Tomsett), 1 female; Cueva de la Cola Blanca, 29 Oct. 1988 (W. Elliott), 1 male, 1 female; Deep Cave, 3 March 2005 (A. Gluesenkamp), 12; Fountain Cave, 26 March 1994 (A.G. Grubbs, D. Allen, J.M. Walsh), 1 juvenile; Glynn Cave, 20 Sept. 1969 (C. Kunath, N. Lucas), 2 males (AMNH) Sky High Cave, 3 Sept. 2005 (M. Reyes, M. Warton, 1; Skylight Cave, 27 Sept. 1969 (B. Burney), 1 male (det. W. J. Gertsch (AMNH); Sumac Cave, 2 April 1988 (S. Tomsett), 1 juvenile. *Hays County*: Sinkhole, 5 Willow Court, Wimberley, 18 June 2005

(A. Gluesenkamp, S. Summers, L. Adams), 4; Anyway Cave, San Marcos, 11 April 2001 (G. Veni), 1 adult; Assassin Cave, 7 Sept. 1985 (A. Cobb), 1; Autumn Woods Well, potato peel bait trap, 22 Aug. 1993 (W. Russell), 1; Boggus Cave, 21 June 1984 (A. Cobb), 1; 20 April 1986 (W. Elliott), 1; 4 April 2001 (J. Reddell, M. Reyes), 1 male; Donaldson Cave, 16 Jan. 1986 (A. Cobb), 1; 20 April 1986 (W. Elliott, J. Cradit, R. Green), 2; 4 April 2001 (J. Reddell, M. Reyes), 1 subadult female, 1 juvenile; Ezell's Cave, 28 Dec 1977, 1 juvenile (AMNH); 2 Feb. 1979, 3 juveniles (AMNH); 6 Aug. 2000 (P. Sprouse, X. de la Rosa), 1 male; Fern Cave, 26



Fig. 5.—*Pseudouroctonus reddelli* feeding on *Ceuthophilus cave* cricket.

May 1989 (A. Grubbs, J. Reddell, M. Reyes), 1 male (WAS); Fox Cave, San Marcos, 7 Nov. 2001 (G. Veni), 1 juvenile; Ladder Cave, 26 May 1989 (A. Grubbs, J. Reddell, M. Reyes), 1 subadult male; McCarty Cave, 1988 (A. Grubbs), 2 juveniles; 6 March 2000 (J. Kennedy), 1; 15 Dec. 2000 (J. Kennedy), 1 female; McGlothlin Sink, 16 May 1989 (A. Grubbs, J. Reddell, M. Reyes), 1 subadult male; Rattlesnake Cave, San Marcos, 19 Nov. 2000 (J. Krejca), 1 juvenile. *Kendall County*: Cueva de los Tres Bobos, 2 Aug. 1987 (A. Cobb, S. Harden, G. Veni), 1 juvenile male; Falcon Point Cave, Cordillera Ranch, 4 Nov. 2000 (M. Warton), 1 adult; Grand Column Cave, 1-5 March 1999 (M. Reyes), 1 female. *Kinney County*: Kickapoo Cave, 17 Oct. 1987 (A. Cobb), 1 juvenile; 17 Oct. 1987 (W. Elliott), 1 male; 28 Nov. 1987 (G. Veni), 1 female; Scorpion Cave, 17 Oct. 1987 (G. Veni, J. Ivy), 1 female, 1 juvenile. *Llano County*: Enchanted Rock Cave, 14 April 1985 (J. Reddell, M. Reyes), 1. *Medina County*: Nisbet Cave, 4 March 2001 (G. Veni, R.M. Waters), 1 juvenile. *Real County*: Red Arrow Cave, 12 March 2005 (J. Kennedy, A. Cobb, S. Summers, T. Scott, A. Scott), 1. *San Saba County*: Sour Cave, Feb. 1996 (J. Kennedy), 1 subadult male. *Travis County*: Airman's Cave, 14 May 1984 (J. Reddell, M. Reyes), 2; Amber Cave, 8 April 1984 (J. Reddell, M. Reyes) (det. O. F. Francke), 1; Bandit Cave, 6 May 1973 (T. Byrd, R. Fieseler), 1 subadult female (det. W. J. Gertsch), (AMNH); Bee Creek Cave, 4 Oct. 1975 (T. Byrd, M. Cossey, A. Grubbs), 1 juvenile (det. W. J. Gertsch) (AMNH); Cave X, 4 May 2004 (C. Collins, K. White), 1; Cortana Cave (F17), 14 Sept. 2006 (Bev Shade), 1 female (probably subadult); Deer Stand Cave, Dec. 1988 (J. Reddell, M. Reyes), 2 juveniles; Disbelievers Cave, 4 Jan. 1995 (M. Warton), 1; Down Dip Sink, 29 March 2007 (Peter Sprouse), 1 male; Feather Sink, 2 July 1990 (J. Reddell, M. Reyes), 1 juvenile female; Flint Ridge Cave, 19 Jan. 1989 (M. Grimm, J. Reddell, M. Reyes), 1 female, 1 subadult female, 1 juvenile male; 22 Dec. 1999 (G. Veni), 1 juvenile; Four Points Karst Feature F-14, 22 Dec. 1994 (M. Warton), 1; Gallifer Cave, 20 April 1991 (J. Reddell, M. Reyes), 1 juvenile; GCWA Cave, 15 May 1996 (W.R. Elliott), 1 subadult male; Jest John Cave, 26 Jan. 1991 (M. Warton), 1 juvenile; 29 May 1993 (W. Russell, J. Sigmund), 1 juvenile; Jester Estates Cave, 4 June 1990 (J. Reddell, M. Reyes), 1 juvenile male; 10 June 1990 (J. Reddell, M. Reyes), 1 juvenile; Karst Feature F1, 15 Aug. 2006 (Andy Gluesenkamp, Peter Sprouse), 1 male, 1 female; Kretschmarr Double Pit, 20 April 1991 (J. Reddell, M. Reyes), 1 juvenile male, 1 subadult female; LaCrosse Cave, 3 May 1990 (J. Reddell, M. Reyes), 1 juvenile female; 8 May 1990 (J. Reddell, M. Reyes), 1 female; Little Black Hole, 9 June 1994 (W. Elliott, P. Sprouse), 3; Little Shoal Creek Storm Sewer, 31 Oct.

1993 (W. Russell), 1; Live Oak Cave, 11 July 1998 (W. Russell, J. Jenkins), 2; Lost Gold Cave, March 1973 (W. Elliott, R. Fieseler), 1 male (det. W. J. Gertsch) (AMNH); 29 March 1974 (W. Elliott, R. Fieseler), 1 subadult female (AMNH); Lost Oasis Cave, 31 Oct. 1985 (D. Pate, W. Russell), 1; McDonald Cave, 18 May 1984 (D. Pate, J. Reddell, M. Reyes) (det. O. F. Francke), 1; 15 Dec. 1988 (J. Reddell, M. Reyes), 1 juvenile; Maple Run Cave, 31 Jan. 1991 (J. Reddell, M. Reyes), 1 juvenile; Moonmilk Cave, 9 Feb. 1995 (W. Elliott), 1; 28 Feb. 1995 (P. Sprouse), 1; New Comanche Trail Cave, 26 Jan. 1989 (J. Reddell, M. Reyes), 1 juvenile; Pickle Pit, 7 May 1989 (W. Elliott, J. Reddell, M. Reyes), 1 juvenile; Pipeline Cave, outside entrance, Oct. 1983 (W. Russell), 1; Rock Joint Sink, 4 Sept. 2002 (M. Reyes, M. Warton), 1 female; Singletary Cave, 27 June 1990 (J. Reddell), 1 female; Spyglass Cave, 8 Dec. 1997 (M. Sanders), 1; Stovepipe Cave, 25 Oct. 1990 (J. Reddell, M. Reyes), 1 male; Substation Sink, 4 June 1990 (M. Reyes), 1 male; Tooth Cave, 7 April 1984 (M. Reyes), 1 (det. O. F. Francke); Travis Water Treatment Plant Karst Feature F-5, Sept. 2002 (M. Reyes, M. Warton), 1 male; Twisted Elm Cave, 22 Dec. 1994 (M. Warton), 1; West Rim Cave, 9 April 1992 (M. Warton), 1 juvenile. *Uvalde County*: Big Foot Cave, 13 May 1989 (M. Warton), 2 juveniles; Cement Tank Cave, 12 July 1974 (W. Elliott, P. Lynn, D. McKenzie), 1 male, 1 female, 1 juvenile (det. W. J. Gertsch) (AMNH); Cristin's Cave, 27 April 1983 (R. Waters), 1 (det. O. F. Francke); Crom Cave, Summer 1983 (R. Waters), 1 (det. O. F. Francke); Frio King Cave, 8 June 1985 (A. Grubbs, M. Warters, A. Cobb), 3; Jester's Gold Cave, 4 April 1993 (J. Loftin), 1 juvenile; Maybe Stream Cave, 24 July 1974 (W. Elliott, S. Sweet), 1 juvenile (AMNH); Moss Pit Cave, 13 May 1989 (M. Warton), 1 subadult male, 1 juvenile; Secret Valley Cave, Feb. 1984 (R. Waters), 2 (det. O. F. Francke); Tampke Ranch Cave, 25 July 1974 (W. Elliott, S. Sweet), 1 juvenile (AMNH); West Holler Cave, 13 July 1974 (D. McKenzie, K. Morton), 1 juvenile (AMNH). *Val Verde County*: Fawcett's Cave, 10 April 1968 (J. Reddell), 1 female, 1 juvenile (det. W. J. Gertsch) (AMNH); 29 March 1975 (R.W. Mitchell), 1 female (det. W. J. Gertsch) (AMNH); 8 Aug. 1987 (D. Pate), 1 subadult male; 16 Nov. 2003 (J. Kennedy), 1. *Williamson County*: Abused Cave, 21 April 1993 (M. Warton), 1 female, 2 juveniles; Apache Cave, Sun City, 9 Dec. 1993 (J. Reddell, M. Reyes), 1; Bone Cave, 4 June 1989 (W. Elliott, J. Reddell, M. Reyes), 1 subadult female; Broken Plate Cave, 20 April 1993 (M. Warton), 1 juvenile; Deliverance Cave No. 1, Sun City, 18 Nov. 1993 (J. Reddell, M. Reyes), 1; Double Dog Hole Cave, Sun City, 25 March 1994 (J. Reddell, M. Reyes), 1; East Fork Fissure, 5 July 1991 (W. Elliott, D. Green), 1 juvenile; 13 June 1995 (J.

Reddell, M. Reyes), 1; Electro-Mag Cave, Sun City, 24 July 1995 (J. Reddell, M. Reyes), 1; Flat Rock Cave, 25 May 1992 (R. Aalbu, J. Reddell, M. Reyes), 1 late instar juvenile female; Kiva Cave No. 1, Sun City, 6 March 1994 (J. Reddell, M. Reyes), 1; Ku Klux Klan Cave, 2 Sept. 1990 (D. Allen, W. Elliott), subadult male, 1 female; Lobo's Lair, 28 July 1991 (J. Reddell, C. Savvas, M. Warton), 1 juvenile female; 1 Sept. 1991 (W. Elliott, J. Reddell, M. Reyes, M. Warton), male, 1 female; 1 Sept. 1991 (J. Reddell, M. Reyes), Berlese of litter, 1 juvenile; 13 Sept. 1991 (J. Reddell, M. Reyes), 1 male; Lorfing's Unseen Rattler Cave, 10 Nov. 1990 (W. Elliott, J. Reddell, M. Reyes), 1 juvenile female; Marigold Cave, 18 Sept. 1988 (P. Sprouse), 1 juvenile; Off Campus Cave, 8 April 1989 (W. Elliott, J. Reddell, M. Reyes), 1 female, 1 subadult female, 1 juvenile female, 1 juvenile; Papoose Cave, Sun City, 9 Dec. 1993 (J. Reddell, M. Reyes), 1; Polaris Cave, 19 April 1994 (J. Reddell, M. Reyes), 1; Pussy Cat Cave; 5 June 1991 (J. Reddell, M. Reyes), 1 male; Quahadi Cave, Sun City, 20 April 1994 (J. Reddell, M. Reyes), 1; Red Crevice Cave, 24 April 1991 (W. Elliott, J. Reddell, M. Reyes), 1; Shaman Cave, Sun City, 29 Sept. 1994 (J. Reddell, M. Reyes), 1; Smoke Signal Cave, Sun City, 25 March 1994 (J. Reddell, M. Reyes), 1; 8 April 2000 (J. Reddell, M. Reyes), 1; Sting Cave, Sun City, 28 Sept. 1995 (P. Sprouse), 1; Susana Cave, 7 March 1991 (J. Reddell, M. Reyes), 1 subadult male; Temples of Thor Cave, 10 May 1991 (L. J. Graves, M. Warton), 1 juvenile; 13 May 1991 (J. Reddell, M. Reyes), 1 male, 1 juvenile female; 17 May 1991 (W. Elliott, L. J. Graves), 1 female; 13 Nov. 1999 (J. Krejca, P. Sprouse), 2; 20 Nov. 1998 (J. Krejca), 1 juvenile; 14 Jan. 2003 (J. Krejca, P. Sprouse), 1; Terrell's Cave, 20 Nov. 1991 (J. Reddell, M. Reyes), 1 juvenile; Testudo Tube, July 2002 (J. Krejca, P. Sprouse), 2; Texella Cave, 28 Sept. 1981 (J. Reddell, M. Reyes), 1 female; Turner Goat Cave, Sun City, 17 Nov. 1993 (J. Reddell, M. Reyes), 1; 16 April 1994 (J. Reddell, M. Reyes), 1; 8 April 2000 (J. Reddell, M. Reyes), 1; 13 Dec. 2006 (J. Reddell, M. Reyes), 1 subadult female. Undercut Cave, Sun City, 18 Nov. 1993 (J. Reddell, M. Reyes), 1; Unearthed Cave, 17 Nov. 1993 (J. Reddell, M. Reyes), 1; Venom Cave, Sun City, Zone 1, 17 Nov. 1993 (J. Reddell, M. Reyes), 1; 29 Sept. 1995 (P. Sprouse), 1; Waterfall Canyon Cave, 22 May 1992 (J. Reddell, M. Reyes), 1 female; Wolf's Cave, 7 Aug. 1983 (W. Elliott, B. Vinson, D. Pate) (det. O. F. Francke), 4; 19 Jan. 1991 (A. Cobb, W. Elliott), 1 chela; Woodruff's Well Cave, Sun City, 8 April 2000 (J. Reddell, M. Reyes), 1; Zee End Cave, Sun City, 25 Oct. 1994 (J. Reddell).

Comment.—This species is seasonally abundant in some caves. It reproduces in caves and is a troglophile.

It is occasionally common on the surface, especially under rocks in oak litter on slopes. It has been observed feeding on cave crickets (Rhaphidophoridae: *Ceuthophilus*).

Pseudouroctonus savvasi Francke

Records.—MEXICO: COAHUILA: Cueva de la Azufrosa (Francke, 2008); Cueva de Casa Blanca (Francke, 2008).

Comments.—This species is known only from these two caves, but the species shows no troglomorphic adaptations and is a troglophile. See also the Comments for *Pseudouroctonus apacheanus*.

Pseudouroctonus sprousei Francke and Savary

Record.—MEXICO: COAHUILA: El Abra (cave) (Francke and Savary, 2006).

Comments.—This large species is known only by the male holotype. It has slightly reduced eyes and pigmentation and is more attenuated than its closest relative, *P. reddelli*.

Serradigitus sp.

New record.—MEXICO: NUEVO LEÓN: Sótano del Anticlino, Sept. 1971 (Terry Raines), 1 juvenile (det. W. J. Gertsch) (AMNH).

Comments.—The specimen, which could not be located in the AMNH collection, was identified by Gertsch as belonging to the *wupatkiensis* group of *Vaejovis*, which now comprises the genus *Serradigitus*. The genus is not otherwise known from Nuevo Leon.

Serradigitus gertschi striatus (Hjelle)

New records.—U.S.A.: CALIFORNIA: *Tuolumne County*: Indian Quarry Cave, SW ¼ Sec 26, T3N R14E, 3 mi NE Columbia, 28 March 1979 (D. C. Rudolph, B. Martin, S. Winterath), 1 juvenile (AMNH); Scorpion Cave, in entrance area, rocks and soil, 12.6 km NNW Sonora, 1 Feb. 1978 (no collector given), 1 juvenile (AMNH); Vulture Cave, NE ¼ Sec 34, T3N R14E, 3 mi NW Columbia, 22 Feb. 1974 (D. C. Rudolph, S. Winterath, B. Martin), 1 juvenile (AMNH).

Comments.—*Serradigitus gertschi striatus* is common outside of caves throughout the California Coast Range (Hjelle, 1972). Like other members of the genus, it specializes in rocky habitats, often associated with cracks and cliff faces. Its presence inside caves is accidental.

Serradigitus wupatkiensis (Stahnke)

New record.—U.S.A.: IDAHO: *Adams County*: Ashmead Cave, 1972 (no day, month, or collector), 1 male (AMNH).

Comment.—This species is widespread over western U.S.A., and can be common on rocky slopes, rocky outcrops, and cliff faces. Its presence in the cave is certainly accidental.

Uroctonites sequoia (Gertsch and Soleglad)

Record.—U.S.A.: CALIFORNIA: *Tulare County*: Clough Cave (Gertsch and Soleglad, 1972).

New Record.—U.S.A.: CALIFORNIA: *Tulare County*: Windy Pit, 4 May 2004 (J. Krejca, S. Fryer, J. Snow, P. Sprouse), 1 (fragments) (AMNH).

Comment.—This species was described from Clough Cave but it shows no adaptations for cave existence and is at best a troglophile.

Uroctonus grahami Gertsch and Soleglad

Record.—U.S.A.: CALIFORNIA: *Shasta County*: Samwell Cave (Gertsch and Soleglad, 1972).

Comments.—This probable troglobite is known only from this cave. The median eyes are reduced.

Uroctonus mordax Thorell

Record.—U.S.A.: CALIFORNIA: *Eldorado County*: Crystal Cave, Somerset (Gertsch and Soleglad, 1972).

New Record.—U.S.A.: CALIFORNIA: *Mariposa County*: Water Pit Cave, Sec. 29? T2S R18E, 10 mi E Coulterville, 7 Apr 1979 (D. C. Rudolph, B. Martin, S. Winterath, D. Cowan, T. Lakner), 1 male, 1 juvenile female (AMNH).

Comments.—This is probably an accidental. The species is widespread on the surface in California, Oregon, and extreme southern Washington.

Vaejovis spp.

New records.—MEXICO: DURANGO: Cueva de los Riscos, 15 June 1972 (E. Alexander, W. Elliott, C. Kunath, J. Reddell), 5 juveniles (det. W. J. Gertsch) (AMNH). *Nuevo León*: Cueva del Chorros de Agua, 19 June 1969 (S. and J. Peck, R. Norton), 1 juvenile (det. W. J. Gertsch) (AMNH). TAMAULIPAS: Cueva de San Rafael de los Castros, 10 April 1966 (J. Fish, D. McKenzie), 1 female (det. W. J. Gertsch) (AMNH).

U.S.A.: TEXAS: *Val Verde County*: Litterbarrel Cave, 1 Sept. 1974 (M. Reaka, S. Sweet), 2 juveniles

(det. W. J. Gertsch) (AMNH).

Vaejovis n.sp. (*nitidulus* group)

Records.—MEXICO: OAXACA: Cueva del Lencho Virgen (Soleglad, 1975). *Veracruz*: Cueva del Volcancillo (Soleglad, 1975).

New record.—MEXICO: OAXACA: Sótano de Yusuhillo, Putla de Guerrero, 7 Jan. 1990 (T. Raines), 1 subadult male.

Comment.—Soleglad (1975) originally identified the specimens from Cueva del Lencho Virgen and Cueva del Volcancillo as *Vaejovis gracilis*.

Vaejovis carolinianus (Beauvois)

Record.—U.S.A.: ALABAMA: *Jackson County*: Sheldons Cave (Peck, 1989).

New record.—U.S.A.: ALABAMA: *Dekalb County*: Mose's Tomb. Dec. 1985 (A. Grubbs), 1 pedipalp.

Comment.—This common species is an accidental.

Vaejovis sp. nr. *chisos* Sissom

New records.—MEXICO: COAHUILA: Pozo del Hongo, 1540 m N of Los Llanitos, 5 km NW of Mesa de Las Tablas, Ejido de Potrero, 2450 m, 16-17 July 1993 (P. Sprouse), 1 juvenile female; Cueva de Los Llanitos, 5 km NW Mesa de las Tablas, 2540 m, 3 Sept. 1995 (A. Cobb), 1 female.

Comment.—These specimens are very close to *Vaejovis chisos*, known from the Chisos Mountains of Big Bend National Park, Texas. Unfortunately, males are not known from the Mexican localities, and it is very difficult to say with certainty whether they are actually *V. chisos* or a new species. The species is possibly a troglophile.

Vaejovis davidi Soleglad and Fet

Records.—MEXICO: PUEBLA: Cueva de la Barranca (Soleglad and Fet, 2005); Grutas de Jonotla (Soleglad and Fet, 2005).

Comment.—This species with slightly reduced eyes was erroneously reported as *V. gracilis* by Soleglad (1975). It is possibly a troglobite.

Vaejovis gracilis Gertsch and Soleglad

Records.—MEXICO: VERACRUZ: Cueva de Atoyac (Gertsch and Soleglad, 1972; Soleglad, 1975); Cueva del Cabrito (Sissom and González-Santillán, 2004); Sótano de las Golondrinas (Sissom, 1986); Gruta

del Ojo de Agua, Paraje Nuevo (Sissom and González-Santillán, 2004); Cueva del Ojo de Agua de Tlilapan (Volschenk and Prendini, 2008).

Comments.—This species was described from a small juvenile. Soleglad (1975) published a re-description of the species based on adults from Oaxaca, Puebla, and Veracruz. These specimens have since been demonstrated not to be *V. gracilis* (Sissom 1986). The specimens from Puebla were recently described as *V. davidi*. Sissom (1986) re-described *V. gracilis* based on a male from nearby Sótano de las Golondrinas.

Vaejovis intermedius Borelli

Record.—MEXICO: CHIHUAHUA: Clarines Mine, 5 mi. NW Santa Barbara (Sissom, 1991).

New record.—U.S.A.: TEXAS: *Brewster County*: Inside highway tunnel NW of Boquillas del Carmen, May 1987 (Peter Sprouse), 1 female.

Comments.—This accidental is widespread in western Texas and southwestern Mexico. It is not known if the specimen from Clarines Mine was taken from within the mine.

Vaejovis mexicanus C.L. Koch

Record.—MEXICO: MORELOS: Cueva del Diablo (Palacios-Vargas and Morales-Malacara, 1983).

Comments.—*Vaejovis mexicanus* is widespread in forested, montane habitats in the states of Distrito Federal and Mexico. Its appearance in caves is probably accidental.

Vaejovis minckleyi Williams

Record.—MEXICO: COAHUILA: Cave 5.3 km NW of Cuatro Ciénegas (Williams, 1968).

Comments.—The holotype was collected “inside a cave, 20 meters from the entrance on an exposed wall” (Williams, 1968). It is also known from the surface in Coahuila. It is possibly a troglophile.

Vaejovis mitchelli Sissom

Record.—MEXICO: SAN LUIS POTOSÍ: Cueva de Cristián (Sissom, 1991).

Comment.—This possible troglophile is also known from epigeal localities in Querétaro.

Vaejovis nigrescens Pocock

New record.—MEXICO: SAN LUIS POTOSÍ: Cueva de Las Rusias, 5 Aug. 1966 (J. Reddell, J. Fish), 2 juvenile females (det. W. J. Gertsch) (AMNH).

Comment.—This is probably an accidental. The specimen was not found at the AMNH and the identification could not be verified.

Vaejovis norteno Sissom and González-Santillán

Records.—MEXICO: COAHUILA: Cueva de Los Llanitos (Sissom and González-Santillán, 2004). *Nuevo León*: Hoya Aporrear (Sissom and González-Santillán, 2004); Cueva Oyamal (Sissom and González-Santillán, 2004); Cueva San Francisco de Asís (Sissom and González-Santillán, 2004).

Comment.—This species is known only from caves but is a troglophile.

Vaejovis rossmani Sissom

Records.—MEXICO: TAMAULIPAS: Cueva de la Boca (Sissom, 1989); Sistema Purificación (Cueva de Oyamel Section) (Sissom, 1989).

New record.—MEXICO: TAMAULIPAS: Cueva de Mas Cable, Nov. 1994 (S. Lasko), 1.

Comment.—This troglophile is otherwise known from the surface in Nuevo León and Tamaulipas, Mexico.

Vaejovis rubrimanus Sissom

Record.—MEXICO: NUEVO LEÓN: Gruta Sur de San Bartolo (Sissom, 1991).

Comment.—This probable accidental was also taken on slopes in the same canyon.

Vaejovis sprousei Sissom

Records.—MEXICO: NUEVO LEÓN: Cueva del Escorpión (González-Santillán, Sissom, and Pérez, 2004); Cueva del Mono (González-Santillán, Sissom, and Pérez, 2004).

Comment.—This is a probable troglophile; it has also been found in surface habitats in the Purificación area, Nuevo León and Tamaulipas.

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