

# A CHECKLIST OF THE CAVE FAUNA OF MEXICO. V. ADDITIONAL RECORDS FROM THE SIERRA DE GUATEMALA, TAMAULIPAS<sup>1</sup>

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## INTRODUCTION

The Sierra de Guatemala is the best-known high altitude karst region in México. It is also the richest with 159 species (27 troglobites) recorded in the first checklist of the fauna of this area (Reddell and Mitchell, 1971). Since publication of that list several important taxonomic papers (Hubbell, 1972; Causey, 1971; Mitchell and Kawakatsu, 1973; Muchmore, 1972) have been published. Several caves in the immediate vicinity of Gómez Fariás have been discovered and studied since 1971. This has resulted in the addition of many new species for the Sierra de Guatemala, bringing the total known to about 230. Many new records for previously published species are also now available.

The Sierra de Guatemala contains one of the more remarkable troglobite assemblages in North America. At the present time 35 species of troglobite are known. This includes 7 aquatic and 28 terrestrial species. The significance of this fauna has been briefly discussed by Mitchell and Kawakatsu (1973). They also include maps and descriptions of three of the more significant caves in the area (Cueva de la Mina, Cueva de la Capilla, and Cueva de las Perlas). The following list includes all of the troglobites now known from the Sierra de Guatemala.

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### Flatworms

- Dugesia barbarae* Mitchell and Kawakatsu
- D. typhlomexicana* Mitchell and Kawakatsu

### Ostracods

- Sphaeromicola cirolanae* Rioja

### Isopods

- Speocirolana bolivari* (Rioja)
- S. pelaezi* (Bolívar)
- Spherarmadillo cavernicola* Mulaik
- Brackenridgia bridgesi* (Van Name)

### Mysids

- Spelaeomysis quinterensis* (Villalobos)

### Scorpions

- Typhlochactas rhodesi* Mitchell

### Pseudoscorpions

- Aphrastochthonius major* Muchmore
- Tyrannochthonius troglobius* Muchmore
- Paravachonium superbum* Muchmore

### Spiders

- Euagrus cavernicola* Gertsch
- Cicurina (Cicurusta) mina* Gertsch
- Leptoneta capilla* Gertsch
- Metagonia capilla* Gertsch
- Theotima pura* Gertsch

### Opilionids

- Hoplobunus boneti* (Goodnight and Goodnight)
- H. inops* Goodnight and Goodnight

### Millipeds

- Glomeroides promiscus* Causey
- Strongylodesmus harrisoni* Causey
- Unculabes* sp.
- ? *Speodesmus* sp.

*Sphaeriodesmus* sp.

*Mexicambala blanda* Causey

*M. inopis* Causey

Collembola

*Pseudosinella strinatii* Christiansen

*Oncopodura prietoi* Bonet

Crickets

*Paracophus caecus* Hubbell

Beetles

*Antroforceps bolivari* Barr

*Mexaphaenops intermedius* Barr

*Mexisphodrus profundus* Barr

*Ptomaphagus (Adelops) troglomexicanus* Peck

*Stenopholea reddelli* Herman

Fish

*Astyanax* sp.

This supplementary checklist includes only those species for which new records or new important bibliographic citations are available or which have been the subject of recent taxonomic study. Previously published records are repeated only where there has been recent taxonomic study. An asterisk indicates that the species is an apparent troglobite. The cave names used follow those standardized by the Association for Mexican Cave Studies. All caves in which collections have been made are located on the accompanying map (Fig. 1).

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It is also appropriate here to thank Nell B. Causey, W.J. Gertsch, T.H. Hubbell, R.W. Mitchell, and W.H. Russell for their continued support and assistance in our studies of the fauna of the Sierra de Guatemala.

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We are also deeply grateful to the following systematists for providing us with identifications of the indicated taxa: D.M. Anderson, beetles; T.C. Barr, Jr., beetles; T.E. Bowman, isopods; G.W. Byers, flies; O.L. Cartwright, beetles; N.B. Causey, millipedes; K.C. Christiansen, collembolans; D.R. Davis, moths; W.E.

Duellman, frogs; O.S. Flint, odonata; R.C. Froeschner, hemipterans; R.J. Gagnè, flies; G.E. Gates, earthworms; W.J. Gertsch, uropygids, amblypygids, spiders; C.J. and M.L. Goodnight, opilionids; T.F. Halstead, hemipterans; L.H. Herman, beetles; H.H. Hobbs, Jr., ostracods; J.R. Holsinger, amphipods; T.H. Hubbell, crickets; Leslie Hubricht, snails; J.M. Kingsolver, beetles; J.P. Kramer, homopterans; P.M. Marsh, hymenopterans; W.B. Muchmore, pseudoscorpions; S.B. Peck, beetles; R.L. Smiley, mites; Paul Spangler, beetles; T.J. Spilman, beetles; G.C. Steyskal, flies; W.R. Suter, beetles; Sigurd Szerlip, hemipterans; P.G. Thompson, snails; W.W. Wirth, flies.

## PHYLUM PLATYHELMINTHES

### CLASS TURBELLARIA

#### Order Tricladida

##### Family Planariidae

*Dugesia* sp.

Bibliography—Mitchell and Kawakatsu, 1973.

\**Dugesia barbarae* Mitchell and Kawakatsu

Records—Cueva de la Capilla.

Bibliography—Mitchell and Kawakatsu, 1973.

Comment—This species was listed as *Dugesia* sp. II in the earlier listing.

*Dugesia guatemalensis* Mitchell and Kawakatsu

Records—Cueva de las Perlas.

Bibliography—Mitchell and Kawakatsu, 1973.

Comment—This species was listed as *Dugesia* sp. III in the earlier list.

\**Dugesia typhlomexicana* Mitchell and Kawakatsu

Records—Cueva de la Mina.

Bibliography—Mitchell and Kawakatsu, 1973.

Comment—This species was listed as *Dugesia* sp. I in the earlier list.

## PHYLUM ANNELIDA

### CLASS CLITELLATA

#### Order Oligochaeta

##### Family Lumbricidae

*Dendrobaena rubida* (Savigny) (det. G.E. Gates)

Records—Harrison Sinkhole.

Bibliography—Gates, 1973.

##### Family Octochaetidae

*Dichogaster* sp. (det. G.E. Gates)

Records—?Cueva de Tres Manantiales.

Comment—Specimens from this cave were too poorly preserved for positive identification, but probably belong to this genus.

## PHYLUM ARTHROPODA

### CLASS CRUSTACEA

#### Order Podogona

##### Family Entocytheridae

- \**Sphaeromicola cirolanae* Rioja (det. H.H. Hobbs)  
Records—Bee Cave and Sótano de El Molino.  
Bibliography—Hobbs and Hobbs, 1973.  
Comment.—This troglobitic ostracod was found associated with *Speocirolana pelaezi* (Bolívar).

#### Order Amphipoda

##### Family Hyallellidae

- Hyallella azteca* (Saussure) (det. J.R. Holsinger)  
Records—Hoya de Nubas.  
Comment.—This wide-spread amphipod was collected from the spring entrance to this small cave.

#### Order Isopoda

##### Family Cirolanidae

- \**Speocirolana bolivari* (Rioja)  
Bibliography—Hobbs and Hobbs, 1973.  
\**Speocirolana pelaezi* (Bolívar) (det. T.E. Bowman)  
Records—Sótano de El Molino, Cueva de Tres Manantiales, and Sótano de Vasquez.  
Bibliography—Hobbs and Hobbs, 1973.

#### Order Mysidacea

##### Family Lepidomysidae

- \**Spelaeomysis quinterensis* (Villalobos)  
Bibliography—Bowman, 1973.  
Comment.—The generic name was misspelled in the previous list.

### CLASS ARACHNIDA

#### Order Chelonethida

##### Family Chernetidae

- Hesperochnes* sp. (det. W.B. Muchmore)  
Records—Cueva de la Mina.  
Bibliography—Muchmore, 1972.  
? *Semeiochnes* sp. (det. W.B. Muchmore)  
Records—Crystal Cave.  
Comment.—Specimens from Crystal Cave are only tentatively placed in this genus.

##### Family Chthoniidae

- \**Aphrastochthonius major* Muchmore  
Records—Cueva de la Capilla.  
Bibliography—Muchmore, 1973.

##### *Mundochthonius mexicanus* Muchmore

- Records—Crystal Cave.  
Bibliography—Muchmore, 1973.  
Comment.—This species is also known from caves on Chipinque Mesa, Nuevo León.

##### Family Syarinidae

##### *Pachychitra similis* Muchmore

- Records—Cueva de los Vampiros.  
Bibliography—Muchmore, 1972.  
Comment.—In the previous list this species was cited as *Pachychitra* sp.

##### Family Vachoniidae

##### \**Paravachonium superbum* Muchmore

- Records—Sótano de Gómez Farías.  
Bibliography—Muchmore, 1972.  
Comment.—In the previous list this species was recorded as *Paravachonium* sp.

#### Order Uropygida

##### Family Thelyphonidae

- Mastigoproctus giganteus* Lucas (det. W.J. Gertsch)  
Records—Sumidero de El Jineo.

#### Order Schizomida

##### Family Schizomidae

- Schizomus mexicanus* Rowland  
Records—Sumidero de El Jineo and Cueva del Nacimiento del Río Frío.  
Bibliography—Rowland, 1973.

#### Order Amblypygida

##### Family Tarantulidae

- Tarantula fuscimana* (C.L. Koch) (det. W.J. Gertsch)  
Records—Resumidero de los Mangos, Sótano de El Molino, and Sótano de Vasquez.

#### Order Araneae

##### Suborder Mygalomorphae

##### Family Theraphosidae

- Schizopelma* sp. (det. W.J. Gertsch)  
Records—Harrison Sinkhole, Cueva de la Mina, and Wet Cave.  
Comment.—Specimens from Cueva de la Mina and Wet Cave were previously listed as *Aphonopelma* sp.

##### Suborder Araneomorphae

##### Family Agelenidae

- Cicurina (Cicurusta) iviei* Gertsch  
Records—Harrison Sinkhole and ?Cueva de la Mina.

- Bibliography—Brignoli, 1972.  
 Comment—Specimens from Cueva de la Mina are only tentatively identified as this species.  
 \**Cicurina (Cicurusta) mina* Gertsch  
 Bibliography—Brignoli, 1972.
- Family Argiopidae  
*Azilia vagepicta* Simon (det. W.J. Gertsch)  
 Records—Sótano del Caballo Moro and Sótano de los Pinos.  
*Leucauge venusta* (Walckenaer) (det. W.J. Gertsch)  
 Records—Sótano del Caballo Moro.
- Family Clubionidae  
*Phrurotimpus* sp. (det. W.J. Gertsch)  
 Records—Cueva de la Capilla.  
*Syrisca affinis* (Banks) (det. W.J. Gertsch)  
 Records—Cueva del Nacimiento del Río Frío.
- Family Ctenidae  
*Ctenus* sp. (det. W.J. Gertsch)  
 Records—Cueva de la Capilla.  
 Comment—These specimens were immature.
- Family Leptonetidae  
 \**Leptoneta capilla* Gertsch (det. W.J. Gertsch)  
 Records—Cueva de la Mina.  
 Bibliography—Brignoli, 1972.  
 Comment—Specimens from Cueva de la Mina were listed as *Leptoneta* sp. in the previous list. Brignoli erected the genus *Neoleptoneta* for all of the Mexican species, but Gertsch does not consider this to be valid.  
*Leptoneta rainesi* Gertsch (det. W.J. Gertsch)  
 Records—Wet Cave.  
 Bibliography—Brignoli, 1972.  
 Comment—This species was removed to the genus *Neoleptoneta* by Brignoli, but Gertsch does not consider this valid.
- Family Linyphiidae  
 Linyphiinae gen. et sp. (det. W.J. Gertsch)  
 Records—Cueva de las Perlas.  
 Comment—Specimens from this cave were too immature for further identification.  
*Eperigone tlaxcalana* Gertsch and Davis (det. W.J. Gertsch)  
 Records—Sótano de Vasquez.
- Family Nesticidae  
*Gaucelmus augustinus* Keyserling (det. W.J. Gertsch)  
 Records—Crystal Cave.  
*Nesticus pallidus* Emerton (det. W.J. Gertsch)  
 Records—Cueva de Tres Manantiales and Sótano de Vasquez.  
 Bibliography—Brignoli, 1972.
- Family Ochyroceratidae  
 \**Theotima pura* Gertsch (det. W.J. Gertsch)  
 Records—Cueva de los Vampiros.
- Bibliography—Gertsch, 1973.
- Family Pholcidae  
*Metagonia* sp. (det. W.J. Gertsch)  
 Records—Sótano de El Molino and Cueva de los Vampiros.  
 Comment—This genus is represented only by immature specimens in these caves.  
*Metagonia pura* Gertsch  
 Bibliography—Brignoli, 1972.  
*Metagonia suzanne* Gertsch (det. W.J. Gertsch)  
 Records—Sumidero de El Jineo.  
 Bibliography—Gertsch, 1973.  
*Modisimus* sp. (det. W.J. Gertsch)  
 Records—Sumidero de El Jineo.  
 Comment—Only immature specimens of this genus were collected in this cave.  
*Modisimus mckenziei* Gertsch (det. W.J. Gertsch)  
 Records—Bee Cave and Cueva de la Paloma.  
 Bibliography—Gertsch, 1973.
- Family Salticidae  
*Lyssomanes* sp. (det. W.J. Gertsch)  
 Records—Cueva de Tres Manantiales.
- Family Scytodidae  
*Loxosceles valdosa* Gertsch (det. W.J. Gertsch)  
 Records—Sótano de Vasquez.
- Family Theridiidae  
*Anelosimus studiosus* (Hentz) (det. W.J. Gertsch)  
 Records—Sótano del Caballo Moro.  
*Stemmops* sp. (det. W.J. Gertsch)  
 Records—Sumidero de El Jineo.  
 Comment—Specimens from this cave were immature.
- Family Uloboridae  
*Uloborus* sp. (det. W.J. Gertsch)  
 Records—Cueva de la Capilla.
- Family Zodariidae  
*Storena* sp. (det. W.J. Gertsch)  
 Records—Sumidero de El Jineo.
- Order Opiliona
- Family Cosmetidae  
*Cynorta jamesoni* Goodnight and Goodnight  
 Records—Cueva de la Mina, Grutas de El Puente, and Sótano de Vasquez.  
 Bibliography—Goodnight and Goodnight, 1973.
- Family Phalangodidae  
 \**Hoplobunus boneti* (Goodnight and Goodnight)  
 Records—Cueva del Remolino.  
 Bibliography—Goodnight and Goodnight, 1973.  
 \**Hoplobunus inops* Goodnight and Goodnight  
 Records—Sumidero de El Jineo, Cueva de Tres Manantiales, and Sótano de Vasquez.  
 Bibliography—Goodnight and Goodnight, 1973.

Order Acarina

Family Rosensteinidae

*Nycteriglyphus* sp. (det. R.L. Smiley)

Records—Cueva de la Mina.

CLASS DIPLOPODA

Order Glomerida

Family Glomeridae

\**Glomeroides promiscus* Causey (det. N.B. Causey)

Records—Sótano del Naranjo and Cueva de Tres Manantiales.

Order Chordeumida

Family Cleidogonidae

*Cleidogona* sp. (det. N.B. Causey)

Records—Cueva del Remolino.

*Cleidogona crystallina* Shear

Records—Cueva de la Capilla, Crystal Cave, Cueva Chica de la Perra, and Salamander Cave (=Cueva del Rancho del Cielo n. 3).

Bibliography—Shear, 1972.

Comment—All of the above records were previously listed as *Cleidogona* sp.

*Cleidogona pecki* Shear

Records—Cueva de la Mina.

Bibliography—Shear, 1972.

Comment—This record was previously cited as *Cleidogona* sp.

Order Polydesmida

Family Rhachodesmidae

*Strongylodesmus conspicuus* Causey

Records—Cueva del Rancho del Cielo n. 7 and Sótano de El Refugio.

Bibliography—Causey, 1973.

\**Strongylodesmus harrisoni* Causey

Records—?“Sinkhole” at Rancho del Cielo, ?Sótano de Gómez Farías, Sumidero de El Jineo, ?Sótano de la Joya de Salas, Sótano del León, Resumidero de los Mangos, Sótano de El Molino, Cueva de las Perlas, ?Cueva del Remolino, ?Salamander Cave, Sótano de Tres Cerritos, Cueva de Tres Manantiales, and ?Wet Cave.

Bibliography—Causey, 1973.

Comment—Records indicated by a question mark are not known by adult males and so are only tentatively assigned to this species.

\**Unculabes* sp. (det. N.B. Causey)

Records—Cueva de la Mina.

Bibliography—Causey, 1973.

Family Trichopolydesmidae

\*? *Speodesmus* sp. (det. N.B. Causey)

Records—Cueva del Remolino.

Comment—Trichopolydesmids from this cave are tentatively assigned to this genus, but may belong to an undescribed genus.

Family Xystodesmidae

*Rhysodesmus* sp. (det. N.B. Causey)

Records—Cueva del Remolino.

Order Spirobolida

Family Atopetholidae

Unidentified genus and species (det. N.B. Causey)

Records—Cueva del Remolino.

Order Spirostreptida

Family Cambalidae

\**Mexicambala blanda* Causey (det. N.B. Causey)

Records—Bee Cave, Crystal Cave, Sótano de Gómez Farías, Harrison Sinkhole, Sumidero de El Jineo, Sótano del León, Sótano de El Molino, Cueva del Nacimiento del Río Frío, Cueva de la Paloma, Grutas de El Puente, Cueva del Remolino, Sótano de Tres Cerritos, Cueva de Tres Manantiales, and Sótano de Vasquez.

Bibliography—Causey, 1971; 1973.

Comment—Some of the above records were previously listed as *Mexicambala* sp.

\**Mexicambala inopis* Causey (det. N.B. Causey)

Records—Cueva de la Capilla, Sótano de la Joya de Salas, Cueva de los Leones, and Cueva de la Mina.

Bibliography—Causey, 1971; 1973.

Comment—Some of the above records were previously cited as *Mexicambala* sp.

CLASS INSECTA

Order Collembola

Family Entomobryidae

*Pseudosinella reddelli* Christiansen

Records—Bee Cave, Cueva de la Capilla, Cueva del Infiernillo, Cueva de la Mina, Cueva del Remolino, and Cueva de Tres Manantiales.

Bibliography—Christiansen, 1973.

\**Pseudosinella strinatii* Christiansen

Records—Crystal Cave and Cueva de la Paloma.

Bibliography—Christiansen, 1973.

Family Hypogastruridae

*Acherontiella sabina* Bonet (det. K.C. Christiansen)

Records—Crystal Cave and Cueva del Infiernillo.

Family Oncopoduridae

\**Oncopodura prietoi* Bonet (det. K.C. Christiansen)  
Records—Bee Cave.  
Comment—This species was previously cited as  
*Oncopodura* sp.

Order Odonata

Family Libellulidae

*Dythemis* sp. prob. *multipunctata* Kirby (det. O.S. Flint)  
Records—Sótano de El Molino.  
Comment—This species doubtless washed into the cave.

Order Saltatoria

Family Gryllidae

*Nemobius* sp. (det. T.H. Hubbell)  
Records—?Sótano del Caballo Moro.  
Comment—Immature specimens from this cave are tentatively placed in this genus.

*Paracophus apterus* Chopard (det. T.H. Hubbell)  
Records—"Cave" at Rancho del Cielo, Dry Cave, Sótano de Gómez Fariás, Cueva del Nacimiento del Río Frío, Grutas de El Puente, Cueva del Rancho del Cielo n. 3, Cueva de Tres Manantiales, and Cueva de los Vampiros.  
Bibliography—Hubbell, 1972.  
Comment—This species is the common cricket in the caves of the Sierra de El Abra and the lower elevation caves of the Sierra de Guatemala.

\**Paracophus caecus* Hubbell (det. T.H. Hubbell)  
Records—"Cave" at Rancho del Cielo, Bee Cave, Cueva de la Capilla, Crystal Cave, Sótano de Gómez Fariás, Harrison Sinkhole, Cueva del Infiernillo, Sótano de la Joya de Salas, Cueva de la Mina, Sótano de El Molino, Cueva del Nacimiento del Río Frío, Sótano de los Pinos, Cueva de Tres Manantiales, Cueva de los Vampiros, and Wet Cave.  
Bibliography—Hubbell, 1972.  
Comment—Many of the above records were previously listed as *Paracophus* sp.

*Paracophus placonotus* Hubbell (det. T.H. Hubbell)  
Records—Cueva de Tres Manantiales.

*Paracophus reddelli* Hubbell (det. T.H. Hubbell)  
Records—Bee Cave and Cueva del Nacimiento del Río Frío.

Bibliography—Hubbell, 1972.

Family Rhabdophoridae

*Exochodrilus caelestis* Hubbell  
Records—"Sinkhole" at Rancho del Cielo and Dry Cave.

Bibliography—Hubbell, 1972.

Comment—This species was previously listed as an undescribed genus and species of Rhabdophoridae.

*Exochodrilus forcipatus* Hubbell

Records—Cueva de la Capilla, Cueva de la Mina, and 2,000 Meter Cave.

Bibliography—Hubbell, 1972.

Comment—This species was previously listed as an undescribed genus and species of Rhabdophoridae.

Order Hemiptera

Family Belostomatidae

*Abedus signoreti* Mayr (det. R.C. Froeschner)

Records—Sótano de El Molino.

Family Enicocephalidae

*Systelloderes* sp. (det. R.C. Froeschner)

Records—Harrison Sinkhole.

Family Pyrrhocoridae

*Dysdercus* sp. (det. T.F. Halstead)

Records—Cueva del Nacimiento del Río Frío.

Family Tingidae

*Ceratocombus* sp. (det. R.C. Froeschner)

Records—Harrison Sinkhole.

Family Veliidae

*Microvelia* sp. (det. Sigurd Szerlip)

Records—Sótano del León.

Order Homoptera

Family Cixiidae

Unidentified genus and species (det. J.P. Kramer)

Records—Cueva de la Mina.

Comment—Nymphs of this family are frequently found in this cave.

Order Coleoptera

Family Anthicidae

*Anthicus* sp. (det. T.J. Spilman)

Records—Salamander Cave.

Family Carabidae

*Agonum (Platynus)* sp. (det. T.C. Barr)

Records—Resumidero de los Mangos.

\**Mexaphaenops intermedius* Barr

Records—Cueva de la Mina.

Bibliography—Vigna Taglianti, 1972.

*Tachys* (s.str.) sp. (det. T.C. Barr)

Records—Sumidero de El Jineo, Resumidero de los Mangos, Cueva de Tres Manantiales, and Sótano de Vasquez.

Family Dytiscidae

*Hydroporus belfragei* Sharp (det. Paul Spangler)

Records—Cueva de la Capilla.  
 Bibliography—Sbordoni and Argano, 1972.  
 Comment—This species was previously listed as an unidentified genus and species. It is an abundant troglophile in pools in this cave.

Family Euglenidae  
*Ariotus* sp. (det. T.J. Spilman)  
 Records—Sótano de Vasquez.

Family Leiodidae  
*Aglyptinus* sp. (det. J.M. Kingsolver)  
 Records—Harrison Sinkhole.  
*Dissochaetus aztecus* Szymczakowski  
 Records—Cueva de la Mina.  
 Bibliography—Peck, 1973.  
*Ptomaphagus (Adelops)* sp.  
 Records—Cueva de la Mina.  
 Bibliography—Peck, 1973a.  
 Comment—This is apparently an undescribed species.  
*Ptomaphagus (Adelops) elabra* Peck (det. S.B. Peck)  
 Records—Sótano del León, Cueva de la Paloma, and Grutas de El Puente.  
 Bibliography—Peck, 1973; 1973a; Sbordoni and Argano, 1972.  
 \**Ptomaphagus (Adelops) troglomexicanus* Peck  
 Bibliography—Peck, 1973; 1973a; Sbordoni and Argano, 1972; Vigna Taglianti, 1972.

Family Oedemeridae  
 Unidentified genus & species (det. D.M. Anderson)  
 Records—Cueva de la Mina.  
 Comment—A larva of this family was collected in this cave.

Family Pselaphidae  
 Unidentified genus & species (det. T.C. Barr)  
 Records—Sumidero de El Jineo.

Family Scaphidiidae  
*Scaphisoma* sp. (det. J.M. Kingsolver)  
 Records—Harrison Sinkhole.

Family Scarabaeidae  
*Aphodius* sp. (det. O.L. Cartwright)  
 Records—Wet Cave.

Family Scydmaenidae  
 “*Connophron*” sp. nr. *proximum* Casey (det. W.R. Suter)  
 Records—Sótano del León.  
 Comment—This probable new species will certainly be located in a different genus once revisionary work in this family is completed.

Family Staphylinidae  
 Aleocharinae genus and species (det. L.H. Herman)  
 Records—Sótano de El Porvenir.  
*Anotylus* sp. (det. L.H. Herman)  
 Records—Harrison Sinkhole.

*Erchomus* sp. (det. L.H. Herman)  
 Records—Sótano de El Molino.  
*Homaeotarsus* sp. (det. L.H. Herman)  
 Records—Sótano del Caballo Moro, Sumidero de El Jineo, and Resumidero de los Mangos.  
*Philonthus* sp. (det. L.H. Herman)  
 Records—Salamander Cave.  
*Stilicolina condei* Jarrige (det. L.H. Herman)  
 Records—Harrison Sinkhole.

Family Tenebrionidae  
*Zopherus* sp. nr. *nodulosus* Solier (det. T.J. Spilman)  
 Records—Sótano de los Pinos.

#### Order Lepidoptera

Family Tineidae  
*Episcardia* sp. (det. D.R. Davis)  
 Records—Salamander Cave.  
 Comment—Only alcoholic material was available for study.

#### Order Diptera

Family Chironomidae  
 Unidentified genus and species (det. W.W. Wirth)  
 Records—Sótano del Caballo Moro.

Family Dolichopodidae  
*Chrysotus* sp. (det. G.C. Steyskal)  
 Records—Salamander Cave

Family Drosophilidae  
*Drosophila* sp. (det. W.W. Wirth)  
 Records—Cueva de las Perlas.  
 Comment—This species was present in enormous swarms on the ceiling of this cave.

Family Muscidae  
 Unidentified genus and species (det. R.J. Gagné)  
 Records—?Sótano del León and ?Cueva de la Paloma.  
 Comment—Larvae from these caves are tentatively identified as belonging to this family.  
*Fannia canicularis* (L.) (det. R.J. Gagné)  
 Records—Salamander Cave.  
*Phaonia* sp. (det. R.J. Gagné)  
 Records—Crystal Cave and Salamander Cave.

Family Mycetophilidae  
*Mycetophila* sp. (det. R.J. Gagné)  
 Records—Cueva de las Perlas.

Family Phoridae  
 Unidentified genus and species (det. W.W. Wirth)  
 Records—Salamander Cave.  
*Conicera dauci* Meigen (det. W.W. Wirth)  
 Records—Sumidero de El Jineo.  
*Dohrniphora* sp. (det. W.W. Wirth)

Records—Crystal Cave.  
*Puliciphora* sp. (det. W.W. Wirth)  
 Records—Sótano del León.  
 Family Psychodidae  
 Unidentified genus and species (det. R.J. Gagné)  
 Records—Sótano del Caballo Moro.  
 Family Sciaridae  
*Bradysia* sp. (det. R.J. Gagné)  
 Records—Crystal Cave, Sótano del Caballo Moro, and Harrison Sinkhole.  
*Bradysia coprophila* (Lintner) (det. R.J. Gagné)  
 Records—Sótano del Caballo Moro.  
*Sciara* sp. (det. R.J. Gagné)  
 Records—Sótano del Caballo Moro.  
 Family Sphaeroceridae  
*Archiborborus* sp. (det. G.C. Steyskal)  
 Records—Sótano de El Porvenir.  
 Comment—This apparently represents an undescribed species.  
*Leptocera* sp. (det. G.C. Steyskal)  
 Records—Sótano del Caballo Moro, Sótano de El Porvenir, and Salamander Cave.  
 Family Tipulidae  
*Teucholabis* sp. (det. G.W. Byers)  
 Records—Sótano del Caballo Moro and Cueva de la Mina.

Order Hymenoptera

Family Scelionidae  
 Unidentified genus and species (det. P.M. Marsh)  
 Records—Cueva de la Mina.

PHYLUM MOLLUSCA

CLASS GASTROPODA

Order Basommatophora

Family Physidae  
*Physa* sp. (det. Leslie Hubricht)  
 Records—Sótano de la Joya de Salas.  
 Family Planorbidae  
*Helisoma trivolvis* (Say) (det. Leslie Hubricht)

Records—Sótano de la Joya de Salas.

Order Mesogastropoda

Family Cyclophoridae  
*Aperostoma mexicanum palmeri* (Bartsch and Morrison) (det. F.G. Thompson)  
 Records—Harrison Sinkhole.

Order Geophila

Family Spiraxidae  
*Euglandina* sp. (det. F.G. Thompson)  
 Records—Cueva Chica de la Perra.  
*Spiraxis* sp. (det. F.G. Thompson)  
 Records—Harrison Sinkhole.  
 Comment—An apparently undescribed species was collected in this cave, but the material is inadequate for description.  
*Streptostyla bartschi* (Dall) (det. F.G. Thompson)  
 Records—Crystal Cave and Cueva de la Mina.  
 Comment—This is an abundant species in these caves.

Family Urocoptidae

*Coelocentrum* sp. (det. F.G. Thompson)  
 Records—Harrison Sinkhole and Sótano de El Porvenir.  
 Comment—This apparently undescribed species is represented only by juvenile or broken material.

Family Xanthonychidae

*Xanthonyx* sp. (det. F.G. Thompson)  
 Records—Cueva de la Capilla.  
 Comment—This is apparently an undescribed species.

PHYLUM CHORDATA

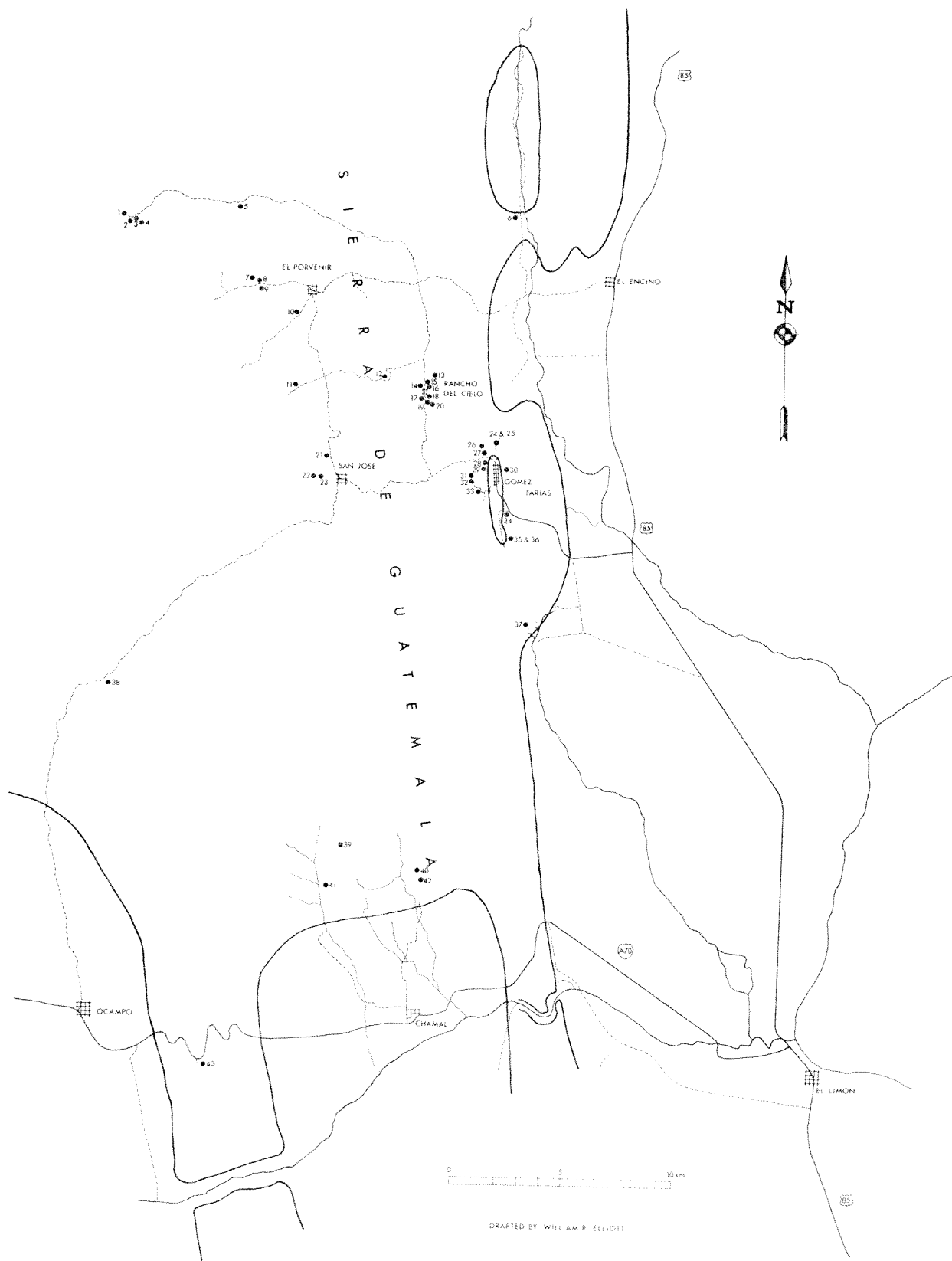
CLASS TELEOSTEI

Order Cypriniformes

Family Characidae  
 \**Astyanax* sp. (det. R.W. Mitchell)  
 Records—Sótano del Caballo Moro, Sótano Es-

Fig. 1. Map of Sierra de Guatemala, Tamaulipas, México, showing caves for which biological records are available. Key to caves: 1. Sótano de la Joya de Salas; 2. Cueva de los Leones; 3. Cueva de la Escuela; 4. Cueva de los Pinos; 5. 2000 Meter Cave; 6. Cueva del Río Sabinas; 7. Cueva Chica de la Perra; 8. Cueva de las Perlas; 9. Cueva de la Capilla; 10. Sótano de El Porvenir; 11. Agua Linda (cave); 12. Cueva de la Mina; 13. Sótano de Harrison; 14. Cueva del Rancho del Cielo n. 7; 15. Balanced Rock Cave; 16. Cueva del Rancho del Cielo n. 3; 17. Harrison Sinkhole; 18. Crystal Cave; 19. Wet Cave; 20. Dry Cave; 21. Casa Piedras (cave); 22. Cueva del Remolino; 23. Cueva del Infiernillo; 24. Sótano El Fin; 25. Sótano del Camino; 26. Sótano de El Triunfo; 27. Cueva del Plan; 28. Sumidero de El Jineo; 29. Sótano de El Molino; 30. Cueva de la Paloma; 31. Sótano del Naranja; 32. Resumidero de los Mangos; 33. Sótano Escondido; 34. Sótano de Gómez Fariás; 35. Cueva del León; 36. Sótano del León; 37. Cueva del Nacimiento del Río Frío; 38. Sótano de El Refugio; 39. Cueva de Tres Manantiales; 40. Cueva de los Vampiros; 41. Sótano del Caballo Moro; 42. Bee Cave; 43. Sótano de Vásquez.





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condido, Sumidero de El Jineo, Sótano de El Molino, and Sótano de Vasquez.

## CLASS AMPHIBIA

### Order Anura

#### Family Leptodactylidae

*Eleutherodactylus decoratus decoratus* Taylor (det. W.E. Duellman)

Records—Small cave near El Refugio sawmill.

*Syrrophus longipes* (Baird) (det. W.E. Duellman)

Records—Cueva de la Capilla.

## CLASS AVES

### Order Psittaciformes

#### Family Psittacidae

*Ara militaris* L.

Records—Sótano de El Refugio.

Comment—Several Military Macaws were observed flying in the entrance to this spectacular sótano; they apparently nest in the cave.

## CLASS MAMMALIA

### Order Chiroptera

#### Family Vespertilionidae

*Myotis nigricans dalquesti* Hall and Alvarez

Records—Grutas de El Puente.

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