

A new species of *Halictophagus* (Insecta: Strepsiptera: Halictophagidae) from Texas, and a checklist of Strepsiptera from the United States and Canada

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Abstract

A new species of Halictophagidae (Insecta: Strepsiptera), *Halictophagus forthoodiensis* Kathirithamby & Taylor, is described from Texas, USA. We also present a key to 5 families, and a check-list of 11 genera and 84 species of Strepsiptera known from USA and Canada.

Key words: Strepsiptera, *Halictophagus*, Texas, USA, Canada

Introduction

Five families and eighty three species of Strepsiptera have been recorded so far from USA and Canada of which thirteen are *Halictophagus*.

Key to the families of adult male Strepsiptera found in USA and Canada

1. Mandibles absent..... **Corioxenidae**
- Mandibles present 2
2. Legs with 2 tarsomeres **Elenchidae**
- Legs with 3–4 tarsomeres 4
3. Legs with 3 tarsomeres; antennae 6–7 segmented with lateral flabella on 3rd, 3rd–4th,

- 3rd–6th, or 3rd–7th segments **Halictophagidae**
- Legs with 4 tarsomeres; antennae 4–7 segmented with lateral flabellum on 3rd segment only 5
4. Antennae 4–6 segmented with broad flat flabella; metathorax with spoon-shaped subalar sclerite **Stylopidae**
- Antennae 7 segmented with narrow, rounded segments; metathorax without spoon-shaped subalar sclerite **Myrmecolacidae**

Family Halictophagidae Perkins 1905: 98

The family Halictophagidae was erected by Perkins (1905). Yang (1964) subdivided the family into two subfamilies: Halictophaginae and Tridactylophaginae. Kinzelbach (1970) erected a new subfamily Coriophaginae, and Kathirithamby (1989, 1992) added two more subfamilies, Dipterophaginae and Blattodeaphaginae. In 1985, Drew and Allwood erected a new family Dipterophagidae to incorporate the species *Dipterophagus daci* from Australia which parasitizes fruit flies (Diptera: Tephritidae). Kathirithamby (1989) argued that due to several synapomorphies shared with the family Halictophagidae that Dipterophagidae is a subfamily within this family. However, Drew and Allwood in 1996 re-elevated Dipterophagidae to family level on the basis that the male has 6 antennal segments with flabella on the 3rd segment and the female with a bell-shaped cephalothorax. However, male *D. daci* have: 3-segmented tarsi which lack claws; short mandibles that do not overlap; short 2-segmented maxilla; peaked VIIIth abdominal sternite and a hooked aedeagus. Female *D. daci* have: the head extended over the thorax and a large brood canal. These male and female characters are shared autapomorphic characters of the family Halictophagidae. Therefore, *D. daci* belongs to the family Halictophagidae. Drew & Allwood (1985) and Allwood & Drew (1996) erection of this species to a new family is incorrect.

Only one subfamily Halictophaginae, and one genus *Halictophagus*, has been found Canada and the USA.

Halictophaginae Perkins 1905: 98

Halictophagus Curtis 1831

Halictophagus forthoodiensis Kathirithamby & Taylor, new species

Type. Holotype ♂: USA, Texas, Coryell County, Fort Hood, UTM zone 14 R (NAD 1983) 607873mE 3451198mN, malaise trap (30.9.04 10am–1.10.04 2pm. J. Kathirithamby, S. J. Taylor, C. E. Perkins (deposited in Oxford Museum of Natural History, Oxford).

Locality Description: Vegetation at the site was savannah grassland (Fig. 1) dominated by King Ranch bluestem (*Bothriochloa ischaemum*), side-oats grama (*Bouteloua curtipendula*), Texas winter grass (*Nassella leucotrica*), and silver bluestem (*Bothriochloa laguroi-*

des) with scattered plateau live oak (*Quercus fusiformis*) mottes; drainage from a sediment control pond outlet, just upslope of the malaise trap, was dominated by sedge (*Carex* spp.) and short ragweed (*Ambrosia artemisiifolia*).



FIGURE 1. Malaise trap at type locality for *Halictophagus forthoodiensis* Kathirithamby & Taylor, at Fort Hood, Coryell County, Texas.

Description. Male. Total length, 1.12mm. Head width, 0.36mm, head length, 0.06mm. Antennae 7-segmented with 5 flagellomeres on segments 3–7. Scape and 2nd segment of equal length (0.03mm), flagellomeres on segments 3–5 (3rd & 4th = 0.21mm, 5th = 0.19mm, 6th & 7th = 0.13mm) (Fig. 2a).

Mandibles short (0.05mm) not meeting medially. Basal segment of maxilla one third length of palpi (base = 0.03mm, palpi = 0.09mm) (Fig 2b).

Prenotum length, 0.05mm; scutellum narrower (0.10mm) than postlumbium (0.13mm); postnouv long (0.55mm) and longer than rest of mesothorax (Fig 2c).

Wing length, 0.89mm. R₂ half the length of R₃; R₅; MA and CuA touching wing margin (Fig 2d).

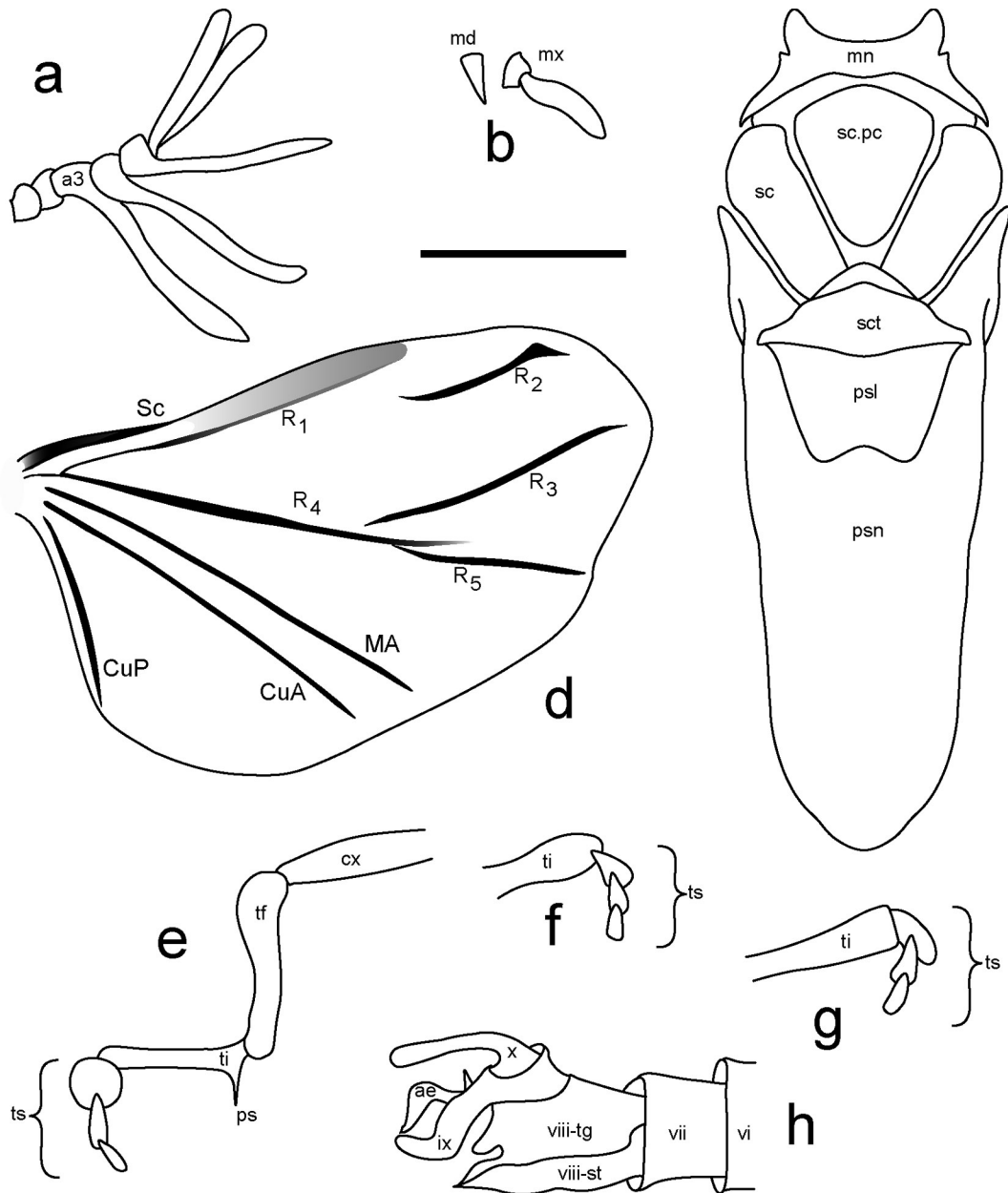


FIGURE 2. *Halictohagus forthooidiensis* Kathirithamby & Taylor, adult male.

a. antennae; b. mandible (left) maxilla (right); c. thorax (dorsal view); d. wing; e. foreleg with pseudoplatella on tibia; f. tarsus on mid leg; g. tarsus on hind leg; h. lateral view of VIII, IX and X abdominal segments. Scale 1a, b, e-h = 0.2mm; c, d = 0.3mm.

ae=aedeagus; a3=antennal segment III; cx=coxa; md=mandible; mn=mentum; mx=maxilla; pc=parascutum; ps=pseudoplatella; psl=postlumbium; psn=postnotum; sc=scutum; sct=scutellum; st=sternite; t=tergite; ti=tibia; tf= trochanterofemur; ts=tarsus; vi-x=6th -10th abdominal segments. Wing venation follows standard notation.

Legs: Fore coxa as long as femur (0.12mm), tibia (0.0.8mm) with pseudoplatella (Fig. 2e), 1st tarsomere large and round (Fig 2f); mid femur slightly longer (0.15mm) than tibia (0.13mm); hind femur and tibia of equal length (0.15mm) (Fig. 2g). Fine hairs on tibia and tarsus.

Projection on VIIIth abdominal sternite large (0.11mm) (Fig 2h).

Abdominal segment IX long (0.15mm), and Xth nearly as long (0.12mm).

Aedeagus, as most other strepsipterans, crescent shaped with pointed apex.

Female: unknown.

Host: unknown.

Diagnosis. The pseudoplatella on the fore-tibia is present only in three species of *Halictophagus* described so far: *H. forthoodiensis* sp. n., *H. mackayi* Bohart (1937) from Canada and *H. languedoci* Abdul-Nour (1969) from France. *H. forthoodiensis* differs from *H. mackayi* and *H. languedoci* by the shape of the anterior margin of the head which on dorsal aspect is straight and not v-shaped; mandibles very short, not meeting medially; maxilla with a very short basal segment and long palpi (curved upwards); antennal flabella on segments 3 and 4 distinctly longer 6 and 7, 5 intermediate in length; postlumbium large and two thirds longer than width (at widest point); 1st tarsomere on foreleg rounded; VIII abdominal sternite with a ventral projection, and Xth and IXth segments both extend equidistant.

Etymology. This species is named for the type locality, Fort Hood, Texas.

List of Strepsiptera from U.S.A. and Canada, with distribution and host records

There has been no comprehensive list of Strepsiptera from USA and Canada since Kinzelbach (1971), and one is provided here.

Family Corioxenidae Kinzelbach 1970

Genus: *Floridoxenos* Kathirithamby & Peck 1994: 128

Genotype: *Floridoxenos monroensis* Kathirithamby & Peck

F. monroensis Kathirithamby & Peck 1994: 128 ♂

Host: unknown

Distribution: USA: Florida

Genus *Loania* Kinzelbach 1970: 99

Genotype: *Loania canadensis* Kinzelbach 1970

L. canadensis Kinzelbach 1970: 99 ♂

Host: *Kleidocerys* Stephens (Hemiptera: Lygaeidae)

Distribution: Canada: Ontario

L. cryophila (Johnston 1976: 581) ♂

Host: unknown

Distribution: USA: Georgia, Kentucky

Subfamily Triozocerinae Kinzelbach 1970: 105

Genus *Triozocera* Pierce 1909

Genotype: *Triozocera mexicana* Pierce

T. mexicana Pierce 1909: 86 ♂

Triozocera taxana Pierce 1911: 491

Triozocera paulstana Kogan 1958:421

Triozocera mexicana Khalaf 1968: 565

Triozocera mexicana Khalaf 1969: 565

Triozocera mexicana Shepard 1979: 217

Host: *Pangaeus bilineatus* (Say) (Hemiptera: Cydnidae) Johnson 1973, Smith & Pitts 1974

Distribution: USA: Alabama, Arizona, Florida, Kansas, Kentucky, Louisiana, Mississippi, Oklahoma, New Mexico, Texas

T. vernalis Kifune and Brailovsky 1987: 132 ♂

Host: unknown

Distribution: USA: Georgia, South Carolina; Mexico

Family Halictophagidae Perkins 1905: 98

Subfamily Halictophagidae Perkins 1905: 98

Genus *Halictophagus* Dale (in Curtis 1832: 433)

Genotype: *Halictophagus curtisi* Dale

H. acutus Bohart 1943a: 352 ♂, ♀, L1

Host: *Draeculacephala mollipes* Say, *D. monerva* (Ball) (Hemiptera: Cicadellidae) Johnston & Morrison 1979

Distribution: USA: New Mexico, Georgia, Kentucky

H. americanus Perkins 1905: 105 ♀

Agalliaphagus americanus Pierce 1908: 80

Agallipahgus uhleri Pierce 1918: 479

Host: *Aceratagallia quadrinotata* (Prov.), *A. uhleri* (Van Duzee), *A. sanguinolenta* (Prov.), *A. helveola* (Oman), *A. accola* Oman, *A. vastitatus* Oman, *A. fuscohirtus* Oman, *A. californica* (Bak.), *A. curta* Oman, *Eutettix tenellus* (Bak.) (Hemiptera: Cicadellidae)

Distribution: USA: Arizona, California, Colorado, Georgia, Idaho, Kansas, Maryland, Missouri, Ohio, Oregon, Utah

H. barberi (Pierce 1908: 84) ♂

Anthericomma barberi Pierce 1908: 84

Host: unknown

Distribution: USA: New Mexico

H. bidentatus Bohart 1941: 147 ♂

Host: *Athysanella utahne* Osborne, *A. taxana* Osborne, *Deltocephalous affinis*, G. & B., *Eucelis frigidus*, *Flexamia flexulosa* Ball, *F. picta* Osborne, *Graminella mohri* Delong, *Parabolocratus* sp. (Hemiptera: Cicadellidae).

Distribution: USA: Alabama, Arkansas, North Carolina, South Carolina, Georgia, Louisiana, Maryland, Mississippi, Oklahoma, Tennessee, Texas; Canada

H. callosus Bohart 1943a: 350 ♀, L₁

Host: *Idiocerus* sp. (Hemiptera: Cicadellidae)

Distribution: USA: Washington

H. forthoodiensis Kathirithamby & Taylor, sp. n. ♂

Host: unknown

Distribution: USA: Texas

H. insularum (Pierce 1908: 84) ♂, ♀

Dioxocera insularium Pierce 1918: 466

Halictophagus insularium Bohart 1941: 148

Diozocera insularum vincenti Pierce 1941: 4

Diozocera argentinae Pierce 1941: 5

Diozocera comstocki Pierce 1941: 6

Diozocera comstocki elsegundinis Pierce 1941: 10

Host: *Xerophloea viridis* (Fabricius), *X. vanduzeei* Lawson, *Dorycephalus* sp. (Hemiptera: Cicadellidae)

Distribution: USA: California, Utah

H. jordani (Pierce 1952: 5) ♂, ♀, L₁

Membracixenos jordani Pierce 1952: 5

Host: *Spissistylus festinus* (Say) (Hemiptera: Membracidae)

Distribution: USA: Louisiana, Texas

H. mackayi (Bohart 1937a: 103) ♂, ♀, L₁

Host: *Aconura* sp., *Athysanella acuticauda* (Bak.), *Deltocephalous affinis* G&B, *Endria inimical* Say., *Flexamia* spp., *Gramminella mohri* Delong, *Laeviccephalaus uhleri* Oman, *Macrosteles fascifrons* Stal, *Messamia colouradensis* (G&B) (Hemiptera: Cicadellidae)

Distribution: Canada: Saskatchewan; USA: Kansas

H. omani Bohart 1943a: 345 ♂, ♀, L₁

Host: *Oncometopia lateralis* (F.) (Hemiptera: Cicadellidae)

Distribution: USA: Arizona, California, Kansas, Louisiana, New Mexico, Texas

H. oncometopiae (Pierce 1918: 473) ♂

Dacyrtocara oncometopiae Pierce 1918: 473

Dacyrtocara undata Pierce 1918: 474

Halictophagus omcometopiae Bohart 1941: 150

Host: *Oncometopia undata* (F.) (Hemiptera: Cicadellidae)
 Distribution: USA: Georgia

H. philaroniae Bohart 1946: 202 ♂, ♀
 Host: *Philaronia bilineata* (Say) (Hemiptera: Cercopidae)
 Distribution: USA: Nebraska

H. uhleri Pierce 1909: 169 ♀
 Host: *Pentagramma vittifrons* Uhler (Hemiptera: Delphacidae), *Paraphlepsius irroratus* (Say)
 (Homoptera: Cicadellidae)
 Distribution: USA: Kansas, North Dakota, South Dakota.

Family Elenchidae Perkins 1905: 98

Subfamily Elenchinae Perkins 1905: 106

Genus *Elenchus* Curtis 1831: 385

Genotype: *Stylops walkeri* Curtis (= *Elenchus tenuicornis* (Kirby))

E. koebelei Pierce 1908: 81 ♂

Elenchus tenuicornis Baumert 1959: 400

Elenchinus heidemanni Pierce 1918: 481

Host: *Liburnia* sp., *Prokelisia marginata* (Van Duzee), *Prokelisia dolus* Wilson, *Sogatella kolophon*
 (Kirkaldy) (Hemiptera: Delphacidae)

Distribution: USA: Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Ohio, South
 Carolina

Family Myrmecolacidae Saunders 1872: 20

Genus: *Caenocholax* Pierce 1909: 88

Genotype: *Caenocholax fenyesei* Pierce 1909

C. fenyesei texensis Kathirithamby & Johnston 2004: S6 ♂

Caenocholax fenyesei Pierce 1909: 89

Caenocholax fenyesei Khalaf 1968: 567

Caenocholax fenyesei Khalaf 1969

Caenocholax fenyesei Kathirithamby & Johnston 1992

Host: *Solenopsis invicta* Buren (Hymenoptera: Formicidae)

Distribution: USA: Alabama, Arizona, California, Florida, Georgia, Louisiana, Mississippi, Texas;
 Mexico

Family Stylopidae Kirby 1813: 100

Subfamily Stylopinae Kirby: 1813: 100

Genus *Crawfordia* Pierce 1908: 60

Genotype: *Crawfordia pulvinipes* Pierce

C. californica Pierce 1918: 460 ♂

Host: *Panurginus californicus* Cresson (Hymenoptera: Andrenidae)

Distribution: USA: California

C. cockerelli Pierce 1909: 155 ♀

Host: *Panurginus ornatipes* Cresson (Hymenoptera: Andrenidae)

Distribution: USA: New Mexico

C. labrosiformidis Pierce 1918: 460 ♂

Host: *Panurginus labrosiformidis* Robertson (Hymenoptera: Andrenidae)

Distribution: USA: Illinois

C. pulvinipes Pierce 1904: 167 ♂, ♀, L₁

Host: *Pseudopanurgus innuptus* (Cockerell), *P. labrosus* Robt., *P. rudbeckiae* Robt., *P. solidaginis* Robt. (Hymenoptera: Andrenidae)

Distribution: USA: Illinois, Nebraska

Genus *Halictoxenos* Pierce 1908: 82

Genotype: *Halictoxenos jonesi* Pierce

H. crawfordi Pierce 1909: 148 ♀, L₁

Halixenos graenicheri Pierce 1909: 148

Halixenos zephyri Pierce 1909: 148

Halixenos versati Pierce 1909: 148

Halixenos sparsi Pierce 1909: 148

Host: *Halictus bruneri* Crawford, *H. albipennis* Robt., *H. versatus* Robt., *H. zephyrus* Robt., *H. incompletes* Crawford, *H. punctariventris* Crawford aff. *H. nevadensis* Cockerell (Hymenoptera: Halictidae)

Distribution: USA: Alabama, California, Illinois, Nebraska, North Carolina, Oklahoma, Wisconsin

H. jonesi Pierce 1908 ♂

Host: *Dialictus imitatus* (Hymenoptera: Halictidae)

Distribution: USA: Louisiana, Texas

H. nymphaeri Pierce 1911: 496 ♀

Host: *Halictus nymphaerum* Robt. (Hymenoptera: Halictidae)

Distribution: USA: Illinois

H. schwarzi (Pierce 1908: 83) ♂

Apractelytra schwarzi Pierce 1909: 83

Host: *Halictus geminus* Sandhouse (Hymenoptera: Halictidae)

Distribution: USA: District of Columbia

H. viridulae Pierce 1911: 496 ♀

Host: *Augochlora viridula* Smith (Hymenoptera: Halictidae)
Distribution: USA: Illinois

Genus *Hylecthrus* Saunders 1850: 57

Genotype: *Hylecthrus rubi* Saunders

H. californicus Bohart 1941: 140 ♂, ♀, L₁

Host: *Hylaeus* sp. (Hymenoptera: Colletidae)

Distribution: USA: Arizona, California Colorado,

Genus *Eurostylops* Bohart 1943a: 12

Pseudostylops Bohart 1943b: 134

Genotype: *Eurostylops desertorum* Bohart

E. desertorum (Bohart 1941: 134) ♀, L₁

Host: *Halictoides boregoensis* Michener (Hymenoptera: Halictidae)

Distribution: USA: California

E. conanthalicti Kinzelbach 1971: 165 ♀, L₁

Host: *Conanthalictus retito* Ger., *Conanthalictus* sp. (Hymenoptera: Halictidae)

Distribution: USA: California

E. sierrensis Bohart 1978: 101 ♀

Host: *Dufourea trochantera* Bohart (Hymenoptera: Halictidae)

Distribution: USA: California

E. tetonensis Bohart 1943b: 13 ♀

Host: *Halictodes maurus* Cresson (Hymenoptera: Halictidae)

Distribution: USA: Wyoming

Genus *Stylops* Kirby 1802: 112

Genotype: *Stylops melitte* Kirby

S. apicalis Bohart 1937a: 54 ♀, L₁

Host: *Andrean saccata* Viereck (Hymenoptera: Andrenidae)

Distribution: USA: California, Oregon

S. bipunctatae Pierce 1909: 98 ♀

Host: *Andrena bipunctata* Cresson (Hymenoptera: Andrenidae)

Distribution: USA: Indiana, Nebraska, Wisconsin

S. bisaligidis Pierce 1918: 446 ♀

Host: *Andrena bisalidis* Viereck (Hymenoptera: Andrenidae)

Distribution: USA: Alabama, North Dakota

- S. bruneri* Pierce 1909: 98 ♀
Stylops hartfordensis Pierce 1909: 103
Stylops nasoni Pierce 1909: 104
Stylops andreoides Pierce 1911: 493
Stylops salictariae Pierce 1918: 449
Host: *Andrean salictaria* Robt., *A. ililnoiensis* Robt., *A. nasoni* Robt., *A. andreoides* Cresson
(Hymenoptera: Andrenidae)
Distribution: USA: Alabama, Indiana, Nebraska, Wisconsin
- S. californicus* Pierce 1909: 99 ♀
Host: *Andrena subtilis* Smith (Hymenoptera: Colletidae)
Distribution: USA: California
- S. claytoniae* Pierce 1909: 99 ♀
Stylops imitatrix Pierce 1909: 104
Stylops vierecki Pierce 1909: 110
Host: *Andrena imitatrix* Cresson, *A. claytonae* Robt. (Hymenoptera: Andrenidae)
Distribution: USA: Alabama, Georgia, Illinois, Oklahoma, Texas
- S. cornii* Pierce 1909: 100 ♀, L₁
Stylops graenicheri Pierce 1909: 103
Host: *Andrena commoda* Smith, *A. nivailis* Smith (Hymenoptera: Andrenidae)
Distribution: USA: Wisconsin
- S. crawfordi* Pierce 1909: 100 ♂, ♀
Host: *Andrena crawfordi* Viereck (Hymenoptera: Andrenidae)
Distribution: USA: Texas
- S. cressoni* Pierce 1909: 102 ♀, L₁
Host: *Andrena cressoni* Robt. (Hymenoptera: Andrenidae)
Distribution: USA: Maine
- S. cuneiformis* Bohart 1936: 16 ♂
Host: *Andrena* (Hymenoptera: Andrenidae)
Distribution: USA: California
- S. elongata* Bohart 1937a: 53 ♀, L₁
Host: *Andrena oenothera* Timberlake, *A. blaisdelli* Cockerell
Distribution: USA: California
- S. heterocingulata* Bohart 1937a: 55 ♀, L₁
Host: *Andrena pensilis* Timberlake, *A. angustitarsata huardi* Viereck, *A. opaciventris* Cockerell
(Hymenoptera: Andrenidae)
Distribution: USA: California, Oregon
- S. hippotes* Pierce 1909: 103 ♀
Host: *Andrena hippotes* Robt. (Hymenoptera: Andrenidae)
Distribution: USA: Ohio

- S. medionitans* Pierce 1918: 450 ♀
Host: *Andrena medionitans*, Cockerell, *A. scurra* Viereck, *Andrena* sp. (Hymenoptera: Andrenidae)
Distribution: USA: California, Oregon, Colorado
- S. moestae* Pierce 1918: 443 ♀
Host: *Andrena moesta* Smith (Hymenoptera: Andrenidae)
Distribution: USA: Washington
- S. multiplicatae* Pierce 1909: 104 ♀
Host: *Andrena multiplicata* Cockerell (Hymenoptera: Andrenidae)
Distribution: USA: Wisconsin
- S. neonanae* Pierce 1918: 454 ♀
Host: *Andrena nernana* Vierbeck (Hymenoptera: Andrenidae)
Distribution: USA: Georgia
- S. nubeculae* Pierce 1909: 105 ♀
Host: *Andrena nubecula* Smith (Hymenoptera: Andrenidae)
Distribution: USA: Colorado
- S. nuda* Pierce 1911: 495 ♀
Host: *Andrena nuda* Robt. (Hymenoptera: Andrenidae)
Distribution: USA: Illinois
- S. oklahomae* Pierce 1909: 110 ♀
Host: *Andrena flavoclypeata miserabilis* Cresson (Hymenoptera: Andrenidae)
Distribution: USA: Oklahoma
- S. packardi* Pierce 1909: 105 ♂
Host: *Andrena placida* Smith (Hymenoptera: Andrenidae)
Distribution: USA: Massachusetts
- S. pacificus* Bohart 1936: 15 ♂, ♀, L₁
Host: *Andrena complexa* Viereck, *A. suavis* Timberlake, *A. cuneilabris* Viereck, *Panurginus melanocephalus* (Cochrell) (Hymenoptera: Andrenidae)
Distribution: USA: California, Oregon
- S. salicifloris* Pierce 1909: 106 ♀
Stylops centroclarus Bohart 1937a: 50
Host: *Andrena salicifloris* Cockerell, *A. quintilormis* Viereck (Hymenoptera: Andrenidae)
Distribution: USA: California, Washington
- S. shannoni* Pierce 1918: 457 ♂
Stylops shannoni Kenner 2002: 160 ♂, ♀, L₁

Host: *Andrena hippotes* Robertson (Hymenoptera: Andrenidae)
Distribution: USA: Maryland; Canada

S. solidulae Pierce 1909: 107 ♂, ♀
Host: *Andrena solidula* Viereck (Hymenoptera: Andrenidae)
Distribution: USA: Washington

S. sparsipilosae Pierce 1909: 108 ♀
Host: *Andrena sparsipilosa* Viereck (Hymenoptera: Andrenidae)
Distribution: USA: Maine

S. subcandidae Pierce 1909: 108 ♀, L₁
Host: *Andrena subcanidida* (Hymenoptera: Andrenidae)
Distribution: USA: California

S. swenki Pierce 1909: 108 ♀, L₁
Stylops asteridis Pierce 1911: 494
Host: *Andrena asteris* Robertson, A. aff. *lincolnella* Cockerell (Hymenoptera: Andrenidae)
Distribution: USA: Illinois, Nebraska, Pennsylvania

S. timberlakei Bohart 1936: 14 ♂, ♀
Host: *Andrena macrocephala* Cockerell (Hymenoptera: Andrenidae)
Distribution: USA: California

S. vandykei Bohart 1936: 11 ♂, ♀, L₁
Host: *Andrena perimelas* Cockerell, A. *carliniformis* Cockerell (Hymenoptera: Andrenidae)
Distribution: USA: California, Oregon

Subfamily Xeninae Saunders 1872: 20

Genus *Pseudoxenos* Saunders 1872: 44
Gentotype: *Pseudoxenos schauimi* Saunders

P. arvensidis Pierce 1911: 499 ♀
Host: *Odynerus (Rygdium) arvensis* Saussure, *O. (Rygdium) sulphurous* Saussure (Hymenoptera: Vespidae)
Distribution: USA: Illinois, California

P. bishoppi (Pierce 1909: 139) ♀, L₁
Monobiphila bishoppi Pierce 1909: 139
Host: *Monobia quadridens* (L) (Hymenoptera: Vespidae)
Distribution: USA: Texas

P. erynnidis Pierce 1911: 499 ♀
Host: *Pachodynerus erynnys* (Lepeletier) (Hymenoptera: Vespidae)
Distribution: USA: Florida

P. foraminati Pierce 1911: 499 ♀

Host: *Rygiium foraminatum* (Saussure) (Hymenoptera: Vespidae)

Distribution: USA: New Jersey

P. hookeri (Pierce 1909: 139) ♀, L₁

Leionotoxenos hookeri Pierce 1909: 139

Host: *Rygiium annulatum annulatum* (Say) (Hymenoptera: Vespidae)

Distribution: USA: California, Illinois, Texas

P. jonesi (Pierce 1909: 138) ♀

Leionotoxenos jonesi Pierce 1909: 138

Host: *Stenodynerus fulvipes* (Saussure) (Hymenoptera: Vespidae)

Distribution: USA: Louisiana, North Carolina, Texas,

P. louisianae (Pierce 1909: 138) ♀, L₁

Leionotoxenos louisianae Pierce 1909: 138

Pseudoxenos histrionis Pierce 1911: 500

Pseudoxenos pedestridis Pierce 1911: 500

Host: *Stenodynerus histrio* (Lepeletier), *S. pedestris* (Saussure), *S. vagus* (Saussure) (Hymenoptera: Vespidae)

Distribution: USA: Nebraska

P. neomexicanaus Pierce 1918: 463 ♂

Host: *Stenodynerus taos* (Cresson) (Hymenoptera: Vespidae)

Distribution: USA: New Mexico

P. roberstoni Pierce 1911: 501 ♀

Host: *Stenodynerus annonia histrionalis* (Robertson) (Hymenoptera: Vespidae)

Distribution: USA: Illinois

P. tigridis Pierce 1911: 501 ♀

Host: *Odynerus tigris* Saussure (Hymenoptera: Vespidae)

Distribution: USA: Illinois

Genus *Xenos* Rossi 1793: 49

Genotype: *Xenos vesparum* Rossius

X. hunteri (Pierce 1909: 130) ♂, ♀

Acroschismus hunteri Pierce 1911a: 130

Host: *Polistes* sp. (Hymenoptera: Vespidae)

Distribution: USA: Texas

X. kifunei Cook & Mathison 1997: 256 ♂

Host: *Polistes comanchus navajoe* (Hymenoptera: Vespidae)

Distribution: USA: Arizona

X. pallidus Brues 1903: 246 ♂, ♀

Acroschismus hubbardi Pierce 1908: 84

Acroschismus pallidus texensis Pierce 1909: 127

Host: *Polistes* sp., *Polistes canadensis annularis* (Linnaeus) (Hymenoptera: Vespidae)

Distribution: USA: Alabama, Nebraska, South Carolina, Texas

X. pecki Kirby 1813: 100 ♂

Xenos wheeleri Pierce 1908: 80

Xenos bruesi Pierce 1909: 124

Acroschismus pecosensis Pierce 1909: 128

Acroschismus bowditchi Pierce 1909: 130

Acroschismus texani Pierce 1909: 132

Acroschismus maximus Pierce 1909: 132

Xenos auriferi Pierce 1911: 498

Xenos californicus Pierce 1918: 489

Host: *Polistes fuscatus* (F.), *Polistes metricus* Say (Hymenoptera: Vespidae)

Distribution: USA: Alabama, Georgia, Hawaii, South Carolina

X. rubiginosi (Pierce 1909: 132) ♀

Acroschismus rubiginosi Pierce 1909: 132

Host: *Polistes rubiginosus* Lepeletier (Hymenoptera: Vespidae)

Distribution: USA: Louisiana

Subfamily Paraxeninae Kinzelbach 1971: 162

Genus *Paraxenos* Saunders 1872: 45

Genotype: *Paraxenos erberi* Saunders

P. auripedis (Pierce 1911: 503) ♀

Ophthalmochlus auripedis Pierce 1911: 503

Host: *Isodontia auripes* (Fernald) (Hymenoptera: Sphecidae)

Distribution: USA: Pennsylvania, Maryland

P. duryi (Pierce 1908: 83) ♂

Ophthalmochlus duryi Pierce 1908: 83

Host: *Prionyx atratus* (Lepeletier) (Hymenoptera: Sphecidae)

Distribution: USA: Ohio, Louisiana

P. luctusae (Pierce 1911: 502) ♀

Eupathocera luctusae Pierce 1911: 502

Host: *Podalonia argentiformis* (Cresson), *P. violaceipennis* (Lepeletier), *P.v. luctusae* (Smith)
(Hymenoptera: Sphecidae)

Distribution: USA: Maryland

P. lugubris (Pierce 1908: 83) ♂

Eupathocera lugubris Pierce 1908: 83

Eupathocera pruinosa Pierce 1909: 143
Eupathocera pictipennidis Pierce 1911: 502
Eupathocera vulgardis Pierce 1911: 503
 Host: *Sphex* sp. (Hymenoptera: Sphecidae)
 Distribution: USA: Colorado, Illinois, Ohio

P. westwoodi (Templeton 1841: 51) ♂
Xenos westwoodi Templeton 1841
Xenos smithii Heyden 1867: 398
Paraxenos westwoodi Saunders 1872
Hamilops westwoodi Pierce 1908
Hamilops bishoppi Pierce 1909: 146
Hamilops ashmeadi Pierce 1909: 146
 Host: *Sphex ichneumoneus* (Linnaeus) (Hymenoptera: Sphecidae)
 Distribution: USA: California, Georgia, Illinois, North Carolina, Ohio, Texas

Acknowledgements

We thank John D. Cornelius (Natural Resources Branch, Fort Hood, Texas) for facilitating the field work for this study, Charles E. Pekins (Natural Resources Branch, Fort Hood, Texas) for his enthusiastic help with the field work, and for help with the new species locality description, and Jean K. Krejca (Zara Environmental, LLC, Buda, Texas) for providing 4x4 transportation, a field microscope, and other resources. Support for this research was provided, in part, by the U.S. Army Engineer Research and Development Center and the Illinois Natural History Survey, both in Champaign, Illinois and the Astor Travel Fund, University of Oxford.

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