

A Revision of the Genus *Habrocestum* (Araneae, Salticidae) in North America

DAVID B. RICHMAN¹

ABSTRACT

The five North American species of *Habrocestum* are diagnosed and described. One new species, *H. xerophilum*, is described from Flori-

da. *Habrocestum inscriptum* Schenkel is transferred to *Tylogonus* and placed as a junior synonym of *T. morosus* (Peckham and Peckham).

INTRODUCTION

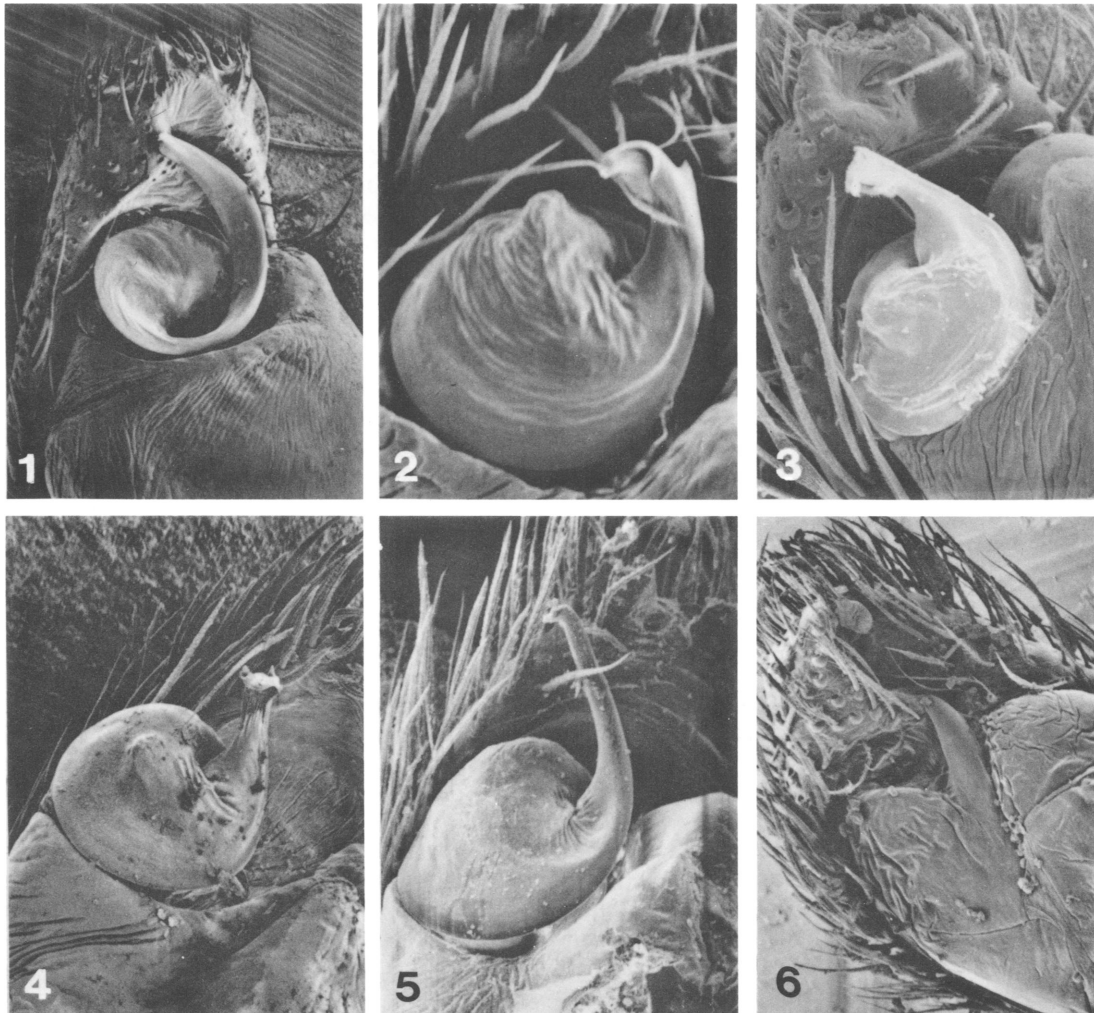
The genus *Habrocestum* Simon (1876) has, like many salticid genera, been poorly defined. Simon and later Peckham and Peckham (1885) characterized the genus as being similar to *Aelurops* (*Aelurillus*) but differing in having tibia plus patella III longer than tibia plus patella IV. Unfortunately, several species which lack this characteristic have been placed in *Habrocestum*. This was noted by Peckham and Peckham in 1909, but the genus was still not well defined. After examination of the species involved, it seems more reasonable to utilize palpal and genital structures as defining characters for the genus, with other morphological characteristics used as additional evidence.

Based on both genitalic and other morphological characteristics, it was necessary to remove (to *Tylogonus*) from the genus two North American species that had previously been placed in *Habrocestum* (see Richman and Cutler, 1978). These are *H. belli* Gertsch (1935), which was placed as a junior synonym of *Sidusa arizonensis* Banks (1904) by those authors, and *H. morosum* (Peckham and Peckham, 1888), which is here placed as a senior synonym of *H. inscriptum* Schenkel (1951), based on an examination of the type

specimen (new synonymy). These species are closely related (as noted by Gertsch, 1935) to *Tylogonus minutus* (F. O. P.-Cambridge, 1901). All of them differ from *Habrocestum sensu stricto* in having the male embolus (curved or spiral) attaching around a cavity on the distal bulb (fig. 1), in having tibia plus patella III shorter than tibia plus patella IV, in often having the male chelicerae strongly developed and excavate, and in usually having leg I (especially in males) the longest. The known *Habrocestum* from North America all lack the cavity on the distal bulb (figs. 2-6), and have tibia plus patella III equal to, or longer than, tibia plus patella IV. The chelicerae are weak and leg I is always shorter than leg III. After examination of the types of *H. belli*, *H. inscriptum*, *H. morosum*, *Sidusa arizonensis*, *Tylogonus auricapillus* Simon (1902; the type species of *Tylogonus*), and *Sidusa gratiosa* Peckham and Peckham (1895; the type species of *Sidusa*), the following arrangement of the western U.S. "*Habrocestum*" has been derived:

Tylogonus arizonensis (Banks, 1904), Arizona,
New Mexico, northern Mexico.

¹ Research Associate, Department of Entomology and Plant Pathology, New Mexico State University, Las Cruces, New Mexico 88003.



FIGS. 1-6. Scanning electron micrographs of embolar region of male palpi, ventral views. 1. *Tylogonus arizonensis* (Banks), 110 \times . 2. *Habrocestum pulex* (Hentz), 225 \times . 3. *H. acerbum* Peckham and Peckham, 250 \times . 4. *H. xerophilum*, new species, 225 \times . 5. *H. bufoides* Chamberlin and Ivie, 250 \times . 6. *H. parvulum* (Banks), 225 \times .

Tylogonus minutus (F. O. P.-Cambridge, 1901),
Arizona, Texas, Mexico.

Tylogonus morosus (Peckham and Peckham,
1888), California.

At least two other species of *Tylogonus* are known from Mexico. *Habrocestum* is thus restricted in North America to five species, *H. pulex* (Hentz), *H. acerbum* Peckham and Peckham, *H. xerophilum*, new species, *H.*

bufoides Chamberlin and Ivie, and *H. parvulum* (Banks).

The present study is based largely on the collection of the American Museum of Natural History (AMNH) and the Florida State Collection of Arthropods (FSCA). I am indebted to Drs. Norman I. Platnick of the former and Howard Weems and G. B. Edwards of the latter. Additional material was lent by Dr. H. W. Levi of the Museum of Compar-

ative Zoology (MCZ), the curators of the collections at the Muséum National d'Histoire Naturelle (MNHN), and the Muséum d'Histoire Naturelle Bale (Basel), Mr. Brian Carroll of the University of California at Riverside, Mr. Charles Griswold of the University of California at Berkeley, and Mr. James Cokendolpher of Texas Tech University, Lubbock. Dr. Charles Dondale of the Biosystematics Research Institute, Ottawa, Canada, examined specimens in the Canadian National Collection and sent a list of the data. The scanning electron micrographs were made by Mr. Henry Adams and I am indebted for these to him and to Dr. Joseph LaPointe of the Biology Department of New Mexico State University. I would also like to thank Drs. G. B. Edwards, Jon Reiskind, Bruce Cutler, James Zimmerman, and Ellis Huddleston for suggestions and assistance. All measurements are in millimeters.

HABROCESTUM SIMON

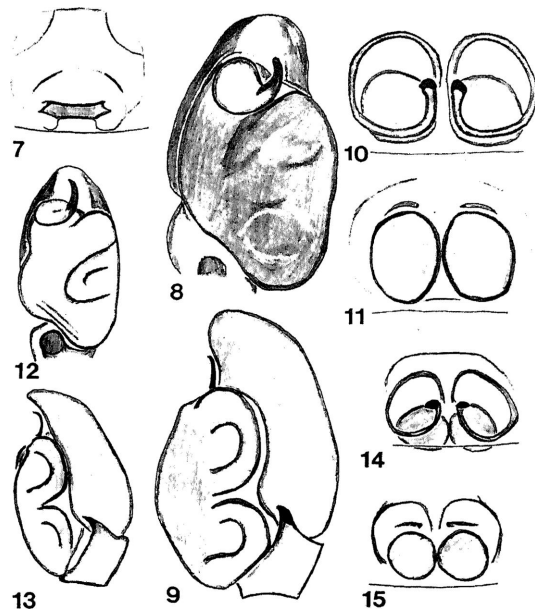
Habrocestum Simon, 1876, p. 131 (type species by original designation *Habrocestum pullatum* Simon). Roewer, 1954, p. 1117. Bonnet, 1957, p. 2063.

DIAGNOSIS: Specimens of *Habrocestum* may be recognized by their characteristic cryptic coloration, the longer third and fourth legs (tibia plus patella III \geq tibia plus patella IV), and the characteristic emboli of the males (figs. 2–6). Most North American species are small (less than 5 mm. long as adults) and are found in leaf litter, on stones, and on tree trunks.

MISPLACED SPECIES: *Habrocestum belli* Gertsch, *H. inscriptum* Schenkel, and *H. morosum* (Peckham and Peckham) belong to *Tylogonus* (see Introduction and Richman and Cutler, 1978).

KEY TO SPECIES OF *HABROCESTUM* IN NORTH AMERICA

- 1. Males 2
- Females 6
- 2. Tibia plus patella III longer than tibia plus patella IV 3
- Tibia plus patella III equal to tibia plus patella IV 5



FIGS. 7–15. 7. *H. pullatum* Simon, epigynum, ventral view (scale ca. 1/2 other figures). 8–11. *H. pulex* (Hentz). 12–15. *H. acerbum* Peckham and Peckham. 8, 12. Palp, ventral views. 9, 13. Palp, retrolateral views. 10, 14. Epigynum, ventral views. 11, 15. Vulva, dorsal views.

- 3. Embolus of palpus thin and straight (figs. 5, 20); Georgia and Florida *bufoides*
- Embolus of palpus thick and curved 4
- 4. Dorsum of abdomen with two round bright white spots and a white streak; cephalic area bright red; Florida *xerophilum*
- Dorsum of abdomen with light shoulder patches and two lateral spots or a light bar-shaped marking, no central white stripe; cephalic area dark; Texas and northeastern Mexico *acerbum*
- 5. Embolus spur-shaped, bulb angulate (figs. 6, 24, 25); eastern North America *parvulum*
- Embolus curved, bulb rounded (figs. 2, 8); eastern North America *pulex*
- 6. Epigynum with two small lateral openings, no circular rims (figs. 27, 28) *parvulum*
- Epigynum with two circular or oval rims .. 7
- 7. Epigynal rims terminating midway up center of epigynal plate (figs. 10, 14) 8
- Epigynal rims terminating above spermathecae near anterior edge of epigynal plate (figs. 18, 22) 9

8. Total length less than 4 mm.; Texas, north-eastern Mexico *acerbum*
Total length about 5 mm.; eastern United States as far west as northern Texas .. *pulex*
9. Epigynal rims expanded toward termination (fig. 18); xeric Florida habitats .. *xerophilum*
Epigynal rims not especially expanded toward termination (fig. 22); mesic southeastern United States habitats *bufoides*

Habrocestum pullatum Simon

Figure 8

Attus agilis (misidentification): Simon, 1868, p. 539.

Habrocestum pullatum Simon, 1876, p. 132, pl. 11, fig. 8 (female holotype from the eastern Pyrenees, France, in MNHN, examined); 1937, pp. 1225, 1267, figs. 1972, 1973. Roewer, 1954, p. 1118. Bonnet, 1957, p. 2067.

Unfortunately only the female of *Habrocestum pullatum*, the type species of the genus, is known and the features of the epigynum (fig. 8) are not too distinct. It appears to have two lateral openings, similar to those of *H. parvulum* (fig. 27), and a trace of the epigynal rims found in the other North American species. Kulczyński (1903) in his illustration of the epigynum of *H. latifasciatum* (Simon) from Crete shows apparent epigynal rims. The general appearance of *H. pullatum* (see Simon, 1937, fig. 1972) is similar to *H. pulex*. The leg formula is 3412 and tibia plus patella III is longer than tibia plus patella IV.

Habrocestum pulex (Hentz)

Figures 2, 8–11; Map 1

Attus pulex Hentz, 1846, p. 361, pl. 22, fig. 3 (male and female syntypes from Alabama, destroyed).

Euophrys offuscata C. L. Koch, 1846, p. 218, fig. 1263 (female holotype from Pennsylvania, not examined).

Amphiraphe obfuscata: C. L. Koch, 1851, p. 67 (*lapsus*).

Cyrsa pulex: Keyserling, 1884, p. 509, pl. 13, fig. 15.

Saitis x-notata Keyserling, 1884, p. 510, pl. 13, fig. 16 (holotype female from Kentucky, in MCZ, examined).

Saitis pulex: Peckham and Peckham, 1888, p. 67, pl. 1, fig. 50, pl. 5, fig. 50.

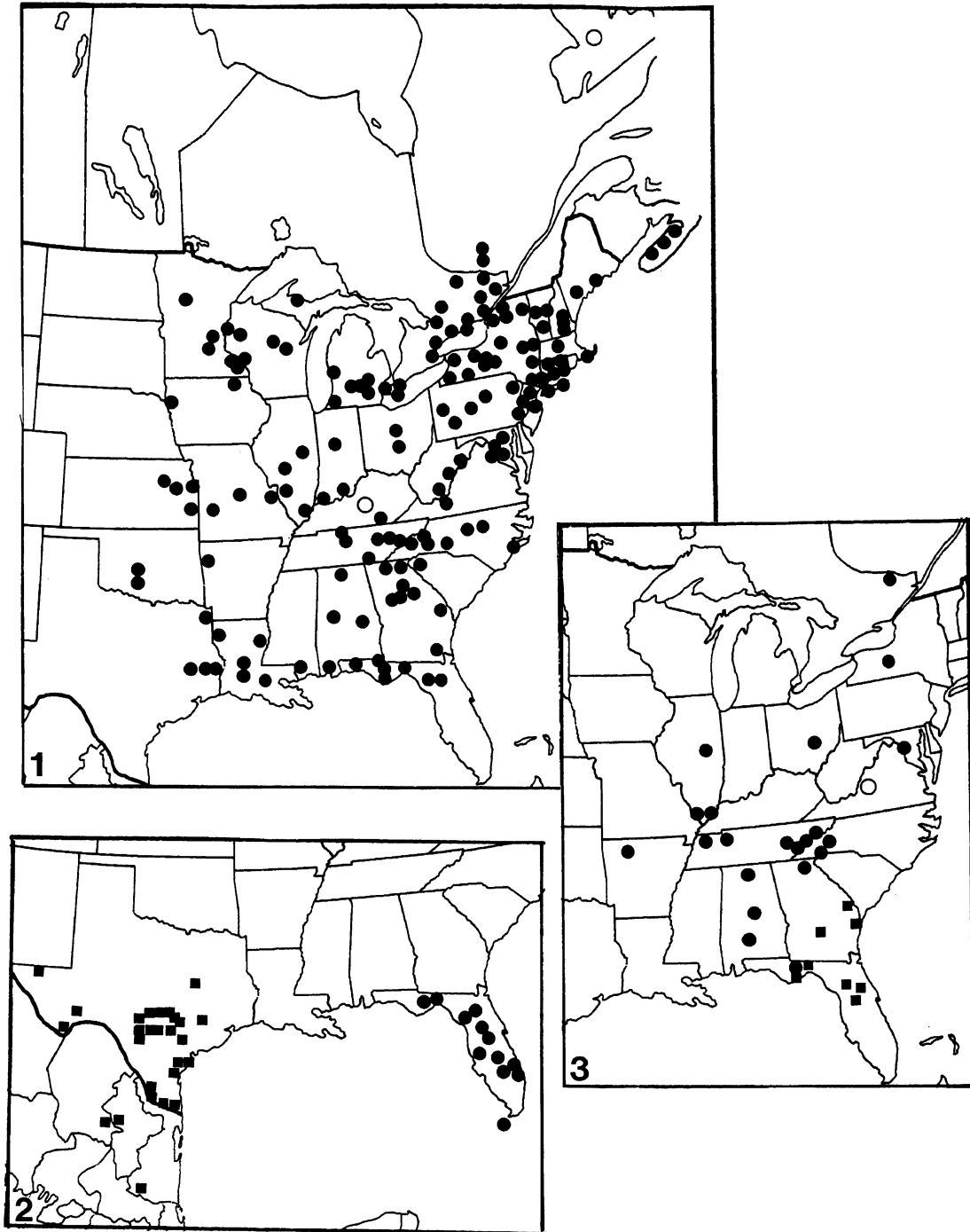
Habrocestum pulex: Simon, 1901, pp. 661, 665. Peckham and Peckham, 1909, p. 525, pl. 42, fig. 11, pl. 43, fig. 11. Roewer, 1954, p. 1120. Bonnet, 1957, p. 2066.

DIAGNOSIS: The larger size and palpal structure with a curved, truncated embolus (figs. 2, 8, 9) are diagnostic. The epigynal structure (figs. 10, 11) is similar to that of *H. acerbum*, from which this species differs by size and pattern.

MALE: Total length 4.03 ± 0.26 . Carapace 2.01 ± 0.13 long, 1.45 ± 0.05 wide. Tibia plus patella III 1.41 ± 0.11 , tibia plus patella IV 1.41 ± 0.11 . Ocular area 0.91 ± 0.04 long, 1.28 ± 0.07 wide anteriorly, 1.18 ± 0.07 wide posteriorly (10 specimens from Pelee Is., Ontario). PME slightly closer to PLE than ALE. Leg formula 4312. Eye region dark, coloration cryptic with yellowish bar-shaped mark *ca.* 0.4 wide posterior to mid-dorsum of abdomen. Sternum usually with longitudinal brown stripe, coxae with ventral brown stripes. Legs spotted and annulate.

FEMALE: Total length 5.36 ± 0.73 . Carapace 2.19 ± 0.17 long, 1.53 ± 0.12 wide. Tibia plus patella III 1.48 ± 0.10 , tibia plus patella IV 1.48 ± 0.10 . Ocular area 0.93 ± 0.04 long, 1.32 ± 0.07 wide anteriorly, 1.26 ± 0.08 wide posteriorly (10 specimens from Pelee Is., Ontario). PME and leg formula as in male. Coloration similar to that of male, but less distinct.

SELECTED RECORDS (* specimens not seen by author): **Canada:** NEWFOUNDLAND?: Labrador (Dar's Inlet). NOVA SCOTIA: Digby*, Greywood*, Kentville*. ONTARIO: Algonquin Prov. Park, Belleville*, Bloomfield*, Burleigh Falls*, Burlington*, Chaffey's Locks*, Chatterton*, Dwight*, Dundas, Fitzroy Township*, Gananoque*, Gley Tay*, Hepworth*, Kemptville*, Kincardine*, Lake Temagami, Newburgh*, Odessa*, Orilla*, Ottawa*, Outlet Prov. Park*, Oxford Mills*, Pelee Island, Port Credit, Port Cunningham*, Poverty Bay, Rednersville*, Rondeau Prov. Park*, St. Lawrence Islands National Park*, Toronto, Trenton*, Winsor*. QUEBEC: Bitobi Lake*, Brekenridge*, Gatineau Park*, Kazabazua*. **United States** (county records only): ALA-



MAPS 1-3. 1. Eastern North America, showing distribution of *Habrocestum pulex* (Hentz); open circles represent state or regional records. 2. Southeastern North America, showing distribution of *Habrocestum acerbum* Peckham and Peckham (squares) and *H. xerophilum*, new species (circles). 3. Eastern North America, showing distribution of *Habrocestum bufoides* Chamberlin and Ivie (squares) and *H. parvulum* (Banks) (circles).

BAMA: Madison, Mobile*, Tallapoosa*, Tuscaloosa*. ARKANSAS: Washington*. CONNECTICUT: Fairfield, Litchfield, Middlesex, New Haven, Tolland. DISTRICT OF COLUMBIA: Washington. FLORIDA: Alachua, Calhoun, Dixie, Gulf, Jackson, Leon, Liberty, Santa Rosa. GEORGIA: Charlton, Clarke, Dekalb, Fulton, Hall, Rabin, Screven, Union. ILLINOIS: Champaign, Madison, Pope, Sangamon. INDIANA: Crawford*, Posey, Tippecanoe. IOWA: Winneshiek*, Woodbury. KANSAS: Bourbon, Douglas, Riley*, Wyandotte. KENTUCKY: Whitley*. LOUISIANA: Caddo*, Evangeline, Madison, Rapides, St. Martin. MAINE: Cumberland, Hancock*. MARYLAND: Cecil, Montgomery, Prince Georges. MASSACHUSETTS: Barnstable, Worcester. MICHIGAN: Berrien, Calhoun, Jackson, Lenawee, Livingston, Marquette*, Muskegan*. MINNESOTA: Anoka, Clearwater, Hennepin, Houston, Winona. MISSISSIPPI: Pearl River*. MISSOURI: Boone, St. Clair, St. Louis. NEW HAMPSHIRE: Belknap, Carroll, Hillsboro. NEW JERSEY: Bergen, Hunterdon, Middlesex, Morris. NEW YORK: Albany, Allegany, Cayuga, Chatauqua, Clinton, Columbia, Cortland, Jefferson, Kings, Monroe, Niagara, Oneida, Orange, Queens, Rensselaer, St. Lawrence, Schuyler, Suffolk, Tomkins, Westchester. NORTH CAROLINA: Buncombe, Carteret, Durham, Haywood, Mecklenburg, Orange, Yancey. OHIO: Hocking, Knox. OKLAHOMA: Caddo, Comanche. PENNSYLVANIA: Allegheny, Bucks, Centre*, Lawrence, Lycoming, Pike. SOUTH CAROLINA: Oconee. TENNESSEE: Anderson, Davidson, Hamilton, Knox, Robertson, Sevier. TEXAS: Bowie, Jasper, Newton, San Jacinto, Tyler. VERMONT: Caladonia, Chittenden, Windham. VIRGINIA: Giles, Fairfax*. WEST VIRGINIA: Mercer, Pendleton, Pocahontas. WISCONSIN: Barron, Burnett, La Crosse, Marathon, Waupaca.

DISTRIBUTION: Eastern North America from Labrador to Florida, west to Minnesota, Kansas, and Texas (map 1).

NATURAL HISTORY: Males have been collected in February and from April through

October, females from March through October. Specimens have been collected on stone walls, in grass and litter, on the ground, and on dead and living tree trunks. The courtship is discussed by Richman (in press).

Habrocestum acerbum

Peckham and Peckham

Figures 3, 12–15; Map 2

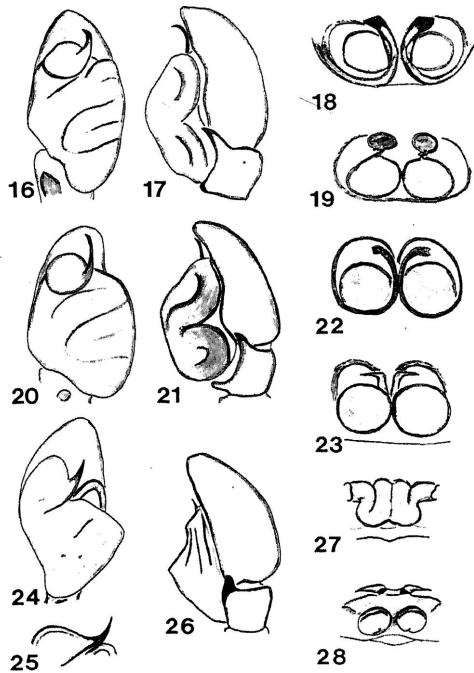
Habrocestum acerbum Peckham and Peckham, 1909, p. 522, pl. 44, figs. 1–1c (male and female syntypes from Austin, Travis County, Texas, in MCA, examined). Roewer, 1954, p. 1120. Bonnet, 1957, p. 2064.

DIAGNOSIS: The embolus of the male (figs. 3, 12) separates this species from all but *H. xerophilum*, from which it differs in lacking white round spots and a white central stripe on the dorsal abdomen. SEM photographs show little difference in the emboli (figs. 3, 4). The female epigynum (figs. 14, 15) separates this species from all but *H. pulex*, from which it differs by its small size and the light patches on the shoulders of the abdomen.

MALE: Total length 2.76 ± 0.12 . Carapace 1.45 ± 0.07 long, 1.02 ± 0.06 wide. Tibia plus patella III 0.95 ± 0.04 , tibia plus patella IV 0.87 ± 0.03 . Ocular area 0.63 ± 0.05 long, 1.01 ± 0.05 wide anteriorly, 0.98 ± 0.05 wide posteriorly (10 specimens from southern Texas). PME slightly closer to PLE than ALE. Leg formula 3412. Eye region dark, abdomen with light cream patches on anterior shoulders, large chevron or bar with dark notch posterior to abdominal midsection; legs banded and spotted.

FEMALE: Total length 3.37 ± 0.25 . Carapace 1.61 ± 0.09 long, 1.16 ± 0.06 wide. Tibia plus patella III 1.06 ± 0.08 , tibia plus patella IV 1.03 ± 0.11 . Ocular area 0.69 ± 0.07 long, 1.08 ± 0.05 wide anteriorly, 1.05 ± 0.05 wide posteriorly (10 specimens from 8 mi. north of Sinton, San Patricio Co., Texas). PME and leg formula as in male. Coloration similar to male, but often less distinct.

RECORDS: **United States** (county records only): TEXAS: Aransas, Bastrop, Brazos, Brewster, Cameron, Comal, Culberson, Dewitt, Hays, Hidalgo, Kendall, Kerr, Kimble,



FIGS. 16–28. 16–19. *H. xerophilum*, new species. 20–23. *H. bufoides* Chamberlin and Ivie. 24–28. *H. parvulum* (Banks). 16, 20. Palp, ventral views. 17, 21, 26. Palp, retrolateral views. 18, 22, 27. Epigynum, ventral views. 19, 23, 28. Vulva, dorsal views. 24. Palp of male from Florida, ventral view. 25. Embolus of male from Tennessee.

Llano, Mason, McLennan, Nueces, Real, San Patricio, Starr, Terrell, Travis, Uvalde, Zapata. MEXICO: COAHUILA: Gloria. NUEVO LEON: 25 mi. W Monterrey. TAMAULIPAS: San Pedro, Arroyo la Chorena.

DISTRIBUTION: Texas and northeastern Mexico (map 2).

NATURAL HISTORY: Males have been collected in every month but February, females in every month but February and December. The species is apparently associated with oak and juniper woodlands.

***Habrocestum xerophilum*, new species**

Figures 4, 16–19; Map 2

TYPES: Male holotype and female paratypes from open scrub at Central Tower,

Ocala National Forest, Marion County, Florida (April 1, 1976; G. B. Edwards), deposited in FSCA; male and female paratypes from Ocala National Forest deposited in AMNH and MCZ.

ETYMOLOGY: The name is derived from the Greek *xeros* (meaning dry) and *philos* (meaning loving), which reflects the habitat preference of this species.

DIAGNOSIS: *Habrocestum xerophilum* resembles *H. acerbum* in palpal structure (figs. 4, 16), but differs in color pattern. The female epigynum (figs. 18, 19), with expanded terminations of the rims, is diagnostic.

MALE: Total length 2.49 ± 0.21 . Carapace 1.37 ± 0.05 long, 0.96 ± 0.02 wide. Tibia plus patella III 0.94 ± 0.03 , tibia plus patella IV 0.80 ± 0.04 . Ocular region 0.64 ± 0.02 long, 0.96 ± 0.02 wide anteriorly, 0.88 ± 0.03 wide posteriorly (10 specimens from Ocala National Forest, Marion Co., Florida). PME slightly closer to PLE than to ALE. Leg formula 3421. Eye region bright red when alive, fading to brownish in alcohol. Dorsal carapace with two lateral white stripes above PLE and central white triangle on last third. Abdomen with white anterior central stripe 0.50 long, ending before middorsum, two lateral bright white spots *ca.* 0.16 in diameter posterior to middorsum. Palpi black with white hairs on dorsum of cymbium and tibia.

FEMALE: Total length 3.32 ± 0.37 . Carapace 1.44 ± 0.08 long, 1.10 ± 0.05 wide. Tibia plus patella III 1.12 ± 0.09 , tibia plus patella IV 1.03 ± 0.07 . Ocular region 0.67 ± 0.04 long, 1.04 ± 0.05 wide anteriorly, 0.97 ± 0.04 wide posteriorly (10 specimens from Marion and Putnam cos., Florida). PME and leg formula as in male. Coloration cryptic, brownish, lacking red on carapace, with yellowish stripe down middle of dorsal carapace. Abdomen with herringbone pattern, or with pattern similar to male, but spots less bright.

RECORDS: United States (county records only): FLORIDA: Alachua, Broward, Highlands, Lake, Leon, Levy, Liberty, Marion, Martin, Monroe, Pasco, Polk, Putnam, St. Lucie, Wakulla.

DISTRIBUTION: Florida (map 2).

NATURAL HISTORY: Males have been collected from January through October, females from March through December. This species is found in xeric habitats throughout Florida, Primarily in turkey oak–longleaf pine, sand pine scrub, and mixed scrub. It has usually been collected in leaf litter. The courtship display (under the name *Habrocestum*, new species) is described by Richman (in press).

Habrocestum bufoides Chamberlin and Ivie
Figures 5, 20–23; Map 3

Habrocestum bufoides Chamberlin and Ivie, 1944, p. 196, figs. 214, 215 (male holotype, from 1 m. north of Sylvania, Screven County, Georgia, in AMNH, examined).

DIAGNOSIS: The long thin embolus of the male (figs. 5, 20) and the female epigynal structure (figs. 22, 23) are diagnostic.

MALE: Total length 2.22 ± 0.21 . Carapace 1.29 ± 0.07 long, 0.98 ± 0.07 wide. Tibia plus patella III 0.85 ± 0.06 , tibia plus patella IV 0.75 ± 0.05 . Ocular area 0.57 ± 0.07 long, 0.98 ± 0.07 wide anteriorly, 0.92 ± 0.07 wide posteriorly (10 specimens from northcentral Florida). PME slightly closer to PLE than to ALE. Leg formula 3412. Ocular area black, surrounded with whitish hairs and scales. Abdomen with two white spots posterior to middorsum. Legs spotted, annulate.

FEMALE: Total length 3.06 ± 0.23 . Carapace 1.38 ± 0.10 long, 1.04 ± 0.06 wide. Tibia plus patella III 1.02 ± 0.08 , tibia plus patella IV 0.92 ± 0.08 . Ocular area 0.58 ± 0.07 long, 1.04 ± 0.06 wide anteriorly, 0.96 ± 0.05 wide posteriorly (10 specimens from northcentral Florida). PME and leg formula as in male. Coloration cryptic, duller than male, brownish, mottled. Two patches on abdomen posterior to middorsum, followed by several small chevrons toward spinnerets.

RECORDS: **United States** (county records only): FLORIDA: Alachua, Leon, Liberty, Marion, Putnam. GEORGIA: Chatham, Crisp, Screven.

DISTRIBUTION: Georgia and Florida (map 3).

NATURAL HISTORY: Males were collected

in January, March through May, August, and November, females from March through June, August, and November. These have been usually found in mesic leaf litter in Florida. The courtship behavior is described by Richman (in press).

Habrocestum parvulum (Banks)

Figures 6, 24–28; Map 3

Saitis parvulus Banks, 1895, p. 101 (holotype male from a cold swamp at Ithaca, Tompkins County, New York, in MCZ, examined).

Habrocestum parvulum: Peckham and Peckham, 1909, p. 524. Jones, 1946, p. 27, figs. 1–4. Roewer, 1954, p. 1120. Bonnet, 1957, p. 2066.

DIAGNOSIS: The spur-shaped embolus of the male (figs. 6, 24, 25) and the two lateral openings of the female epigynum (fig. 27) are diagnostic.

MALE: Total length 2.50 ± 0.24 . Carapace 1.41 ± 0.14 long, 1.08 ± 0.11 wide. Tibia plus patella III 0.88 ± 0.10 , tibia plus patella IV 0.88 ± 0.09 . Ocular area 0.66 ± 0.04 long, 1.08 ± 0.11 wide anteriorly, 1.00 ± 0.10 wide posteriorly (nine specimens from Torreya Ravine, Liberty Co., Florida). PME slightly closer to PLE than ALE. Leg formula 4312. Ocular area black, white patch behind each PLE, abdomen with white band or spot on dorsal anterior edge and two white spots lateral and posterior to middorsum; sometimes with whitish patches anterior and posterior to these spots. Legs yellowish, except for I and occasionally II, which are slightly darker.

FEMALE: Total length 2.83 ± 0.28 . Carapace 1.50 ± 0.10 long, 1.16 ± 0.08 wide. Tibia plus patella III 0.96 ± 0.04 , tibia plus patella IV 0.97 ± 0.04 . Ocular area 0.69 ± 0.04 long, 1.16 ± 0.08 wide anteriorly, 1.09 ± 0.08 wide posteriorly (10 specimens from Torreya Ravine). PME and leg formula as in male. Coloration similar to male, but lacking white spots.

RECORDS (* specimens not seen by author): **Canada:** ONTARIO: Ottawa*. **United States** (county records only): ALABAMA: Conecuh, Coosa, Madison. ARKANSAS: Newton. DISTRICT OF COLUMBIA: Washington. FLORIDA: Liberty. GEOR-

GIA: Union. ILLINOIS: Champaign, Pope. NEW YORK: Cayuga, Tomkins. NORTH CAROLINA: Buncombe, Macon. OHIO: Hocking. TENNESSEE: Benton, Blount, Cocke, Obion, Roane, Sevier. VIRGINIA: NW part of state.

DISTRIBUTION: Eastern North America, from Ontario to northern Florida, west to Arkansas (map 3).

VARIATION: Males differ somewhat in the shape of the emboli (figs. 23, 24), with Florida specimens having a wider attachment to the bulb. Males also differ, as noted in the

description, in the number and shape of spots on the abdomen. Females differ somewhat in the visibility of the spermathecae through the epigynal plate (see Jones 1946, p. 28, fig. 2), most being less distinct than the specimen figured here.

NATURAL HISTORY: Males and females have been collected from April through October and in mesophytic leaf litter at Torreya Ravine, Liberty County, Florida. This species seems to be associated with swamps and swampy areas.

LITERATURE CITED

- Banks, Nathan
1895. Some new Attidae. Canadian Ent., vol. 27, pp. 96–102.
1904. New genera and species of Nearctic spiders. Jour. New York Ent. Soc., vol. 12, pp. 109–119.
- Bonnet, Pierre
1957. Bibliographia Araneorum. Toulouse, vol. 2, pt. 3, pp. 1927–3026.
- Cambridge, Frederick Octavius Pickard-
1901. Arachnida—Araneida. In Godman, F. D., and O. Salvin, Biologia Centrali-Americana. London, vol. 2, pp. 193–312.
- Chamberlin, Ralph V., and Wilton Ivie
1944. Spiders of the Georgia Region of North America. Bull. Univ. Utah, vol. 35, no. 9, pp. 1–267.
- Gertsch, Willis J.
1935. Spiders from the southwestern United States with descriptions on new species. Amer. Mus. Novitates, no. 792, pp. 1–31.
- Hentz, Nicholas M.
1846. Descriptions and figures of the Araneides of the United States. Jour. Boston Soc. Nat. Hist., vol. 5, pp. 352–370.
- Jones, Sarah E.
1946. Description of *Habrocestum parvulum* (Banks). Psyche, vol. 53, pp. 27–29.
- Keyserling, Graf Eugen Von
1884. Neue Spinnen aus Amerika. Teil 6. Verh. Zool. Bot. Ges. Wien, vol. 34, pp. 489–534.
- Koch, Carl L.
1846. Die Arachniden. Nürnberg, vol. 13, pp. 1–234.
1851. Uebersicht des Arachniden systems. Nürnberg, vol. 5, pp. 1–104.
- Kulczyński, Wladyslaw
1903. Araneorum et opilionum species in insula Creta a comite dre carola attens collectae. Bull. Acad. Cracovie, pp. 32–58.
- Peckham, George W., and Elizabeth G. Peckham
1885. On the genera of the family Attidae. Proc. Nat. Hist. Soc. Wisconsin, vol. 1, pp. 257–342.
1888. Attidae of North America. Trans. Wisconsin Acad. Sci., vol. 7, pp. 1–104.
1895. Spiders of the *Homalattus* group of the family Attidae. Occas. Papers Nat. Hist. Soc. Wisconsin, vol. 2, pp. 159–178.
1909. Revision of the Attidae of North America. Trans. Wisconsin Acad. Sci., vol. 16, pp. 335–646.
- Richman, David B.
[In press] Epigamic display in jumping spiders (Araneae: Salticidae) and its use in systematics. Jour. Arachnol.
- Richman, David B., and Bruce Cutler
1978. A list of the jumping spiders (Araneae: Salticidae) of the United States and Canada. Peckhamia, vol. 1, pp. 82–110.
- Roewer, Carl F.
1954. Katalog der Araneae. Bremen, vol. 2, pt. 2, pp. 927–1751.
- Schenkel, Ehrenfried
1951. Spinnentiere aus dem westlichen Nordamerika. Verhandl. Naturf. Gesell., vol. 62, pp. 24–62.
- Simon, Eugène
1868. Monographie des espèces européennes

- de la famille des Attides (Attidae Sundevall—Saltigradae Latreille). *Ann. Soc. Ent. France*, ser. 4, vol. 37, pp. 529–726.
1876. *Les Arachnides de France*. Paris, vol. 3, pp. 1–360.
1901. *Histoire naturelle des Araignées*, 2nd ed. Paris, vol. 2, pt. 3, pp. 381–668.
1902. *Description d'Arachnides nouveaux de la famille des Salticidae (Attidae)*. *Ann. Soc. Ent. Belgique*, vol. 46, pp. 24–54.
1937. *Les Arachnides de France*. Paris, vol. 6, pt. 5, pp. 979–1298.