

FOUR SPECIES OF *MICROTROMBICULA* (ACARINA:  
TROMBICULIDAE) FROM MEXICO AND NICARAGUA<sup>1</sup>

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**ABSTRACT:** Four species of the genus *Microtrombicula* Ewing are described: *M. nicaraguae* n. sp., host *Sciurus variegatoides* from Nicaragua; *M. paralius* n. sp., host *Pizonyx vivesi* from Baja California Norte, México; *M. phyllodactyli* n. sp., hosts *Phyllodactylus homolepidurus* and *P. tuberculosus* from Sinaloa and Sonora, México; and *M. tragulata* (Brennan and Jones) NEW COMBINATION (formerly *Euschoengastia tragulata*) is reported from Baja California, México and Nicaragua.

INTRODUCTION

Studies of North American chiggers of the genus *Microtrombicula* revealed three new species from México and Nicaragua, and a fourth species, *Euschoengastia tragulata* Brennan and Jones, is transferred to this genus.

All four species are described below and each new species is based upon the holotype and available paratypes. The terminology usually follows Wharton *et al.* (1951), Wharton and Fuller (1952), and Audy (1954). All measurements are in microns. Common and scientific names of the mammals are usually those of Hall and Kelson (1959).

Unless otherwise indicated, the specimens examined are in the chigger research collection, California State College, Long Beach. Paratypes will be deposited in the Rocky Mountain Laboratory, Hamilton, Montana, and in other appropriate institutions.

***Microtrombicula nicaraguae*, new species**

Figures 1 and 5

*Types.* — Larvae: Holotype and 4 paratypes from Finca Santa Cecilia, 6.5 km SE Guanacaste, 660 m, Granada, Nicaragua, host *Sciurus variegatoides*, variegated squirrel, original number RWT 267, taken 13 June 1966 by R. W. Turner.

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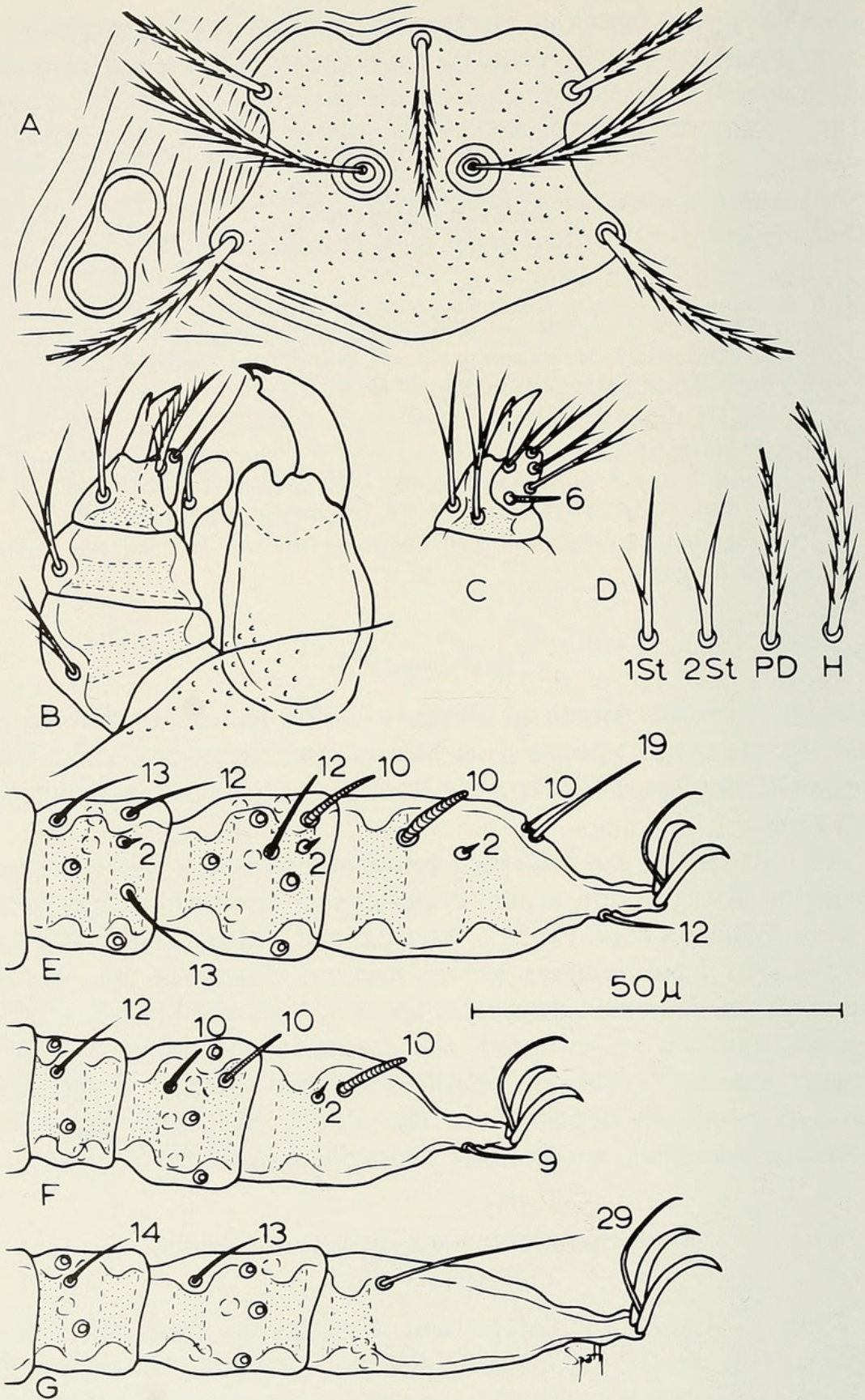


Figure 1. *Microtrombicula nicaraguae* n. sp. A. Scutum and eyes. B. Dorsal aspect of gnathosoma. C. Ventral aspect of palpal tibia and tarsus. D. Representative body setae; 1 St, first sternal, 2 St, second sternal, PD, posterior dorsal, and H, humeral. E. Leg I, genu, tibia, and tarsus with specialized setae and measurements in microns, and bases of branched setae. F. Leg II, as above. G. Leg III, as above.



**Diagnosis.** — Larva, similar to *Microtrombicula carmenae* (Brennan and Jones) but differs in having palpotibial claw bifurcate (trifurcate in *M. carmenae*), sensilla with 12-14 branches (*M. carmenae* with 2-3 branches), and  $ASB < PSB$  ( $ASB \cong PSB$  in *M. carmenae*).

**Description of holotype** (with the mean and range of 5 types in parentheses). — Body engorged, 320 by 215; eyes 2/2, anterior larger and distinct, posterior lens and ocular plate indistinct.

Dorsal setae 2-6-6-6-4-4-2, total 30; measurements of humeral seta 30, anterior dorsal seta 27, posterior dorsal seta 22.

Ventral setae 2-2 (sternals) 4-4 + 22, total 40; measurements of anterosternal seta 19, posterosternal seta 17, posterior ventral seta 17.

Scutum: Subpentagonal, moderately punctate; sensilla flagelliform with 12-14 branches.

Scutal measurements: AW 43 (43, 42-44), PW 52 (53, 51-55), SB 13 (14, 13-14), ASB 19 (19, 19), PSB 24 (25, 23-26), AP 21 (22, 21-23), AM 24 (24, 23-26), AL 21 (22, 21-23), PL 32 (32, 30-34), S 37 (39, 36-43).

Gnathosoma: Cheliceral blade with tricuspid cap medium in size; cheliceral base and capitular sternum lightly punctate. Galeala nude. Palpal setae B/B/BBB (palpotibial setae nearly nude); palpotarsus with 1 nude and 5 branched setae, and tarsala 6; palpotibial claw bifurcate.

Leg I with 3 genualae and tarsala 10 (11, 10-12); leg II with tarsala 12 (12, 12) and pretarsala; leg III with coxa unisetose and 1 nude mastitarsala.

Leg measurements: I, 175 (175, 167-180); II, 151 (152, 145-157); III, 174 (174, 168-180); total, 500 (501, 492-506).

### ***Microtrombicula paralios*, new species**

Figures 2 and 5

**Types.** — Larva: Holotype from Puertecitos, Baja California Norte, Mexico, host *Pizonyx vivesi*, fish-eating bat, original number WJW630529-13, taken 25 May 1963 by R. Hardy and H. E. Childs.

**Diagnosis.** — Larva, similar to *Microtrombicula nicaraguae*, new species, but differing in scutal shape and having sensilla with 8-10 branches (12-14 branches in *M. nicaraguae*).

**Description of holotype.** — Body engorged, 435 by 240; eyes 2/2, anterior larger, lens and ocular plate distinct.

Dorsal setae 2-6-6-6-4-4-2, total 30; measurements of humeral seta 35, anterior dorsal seta 26, posterior dorsal seta 24.



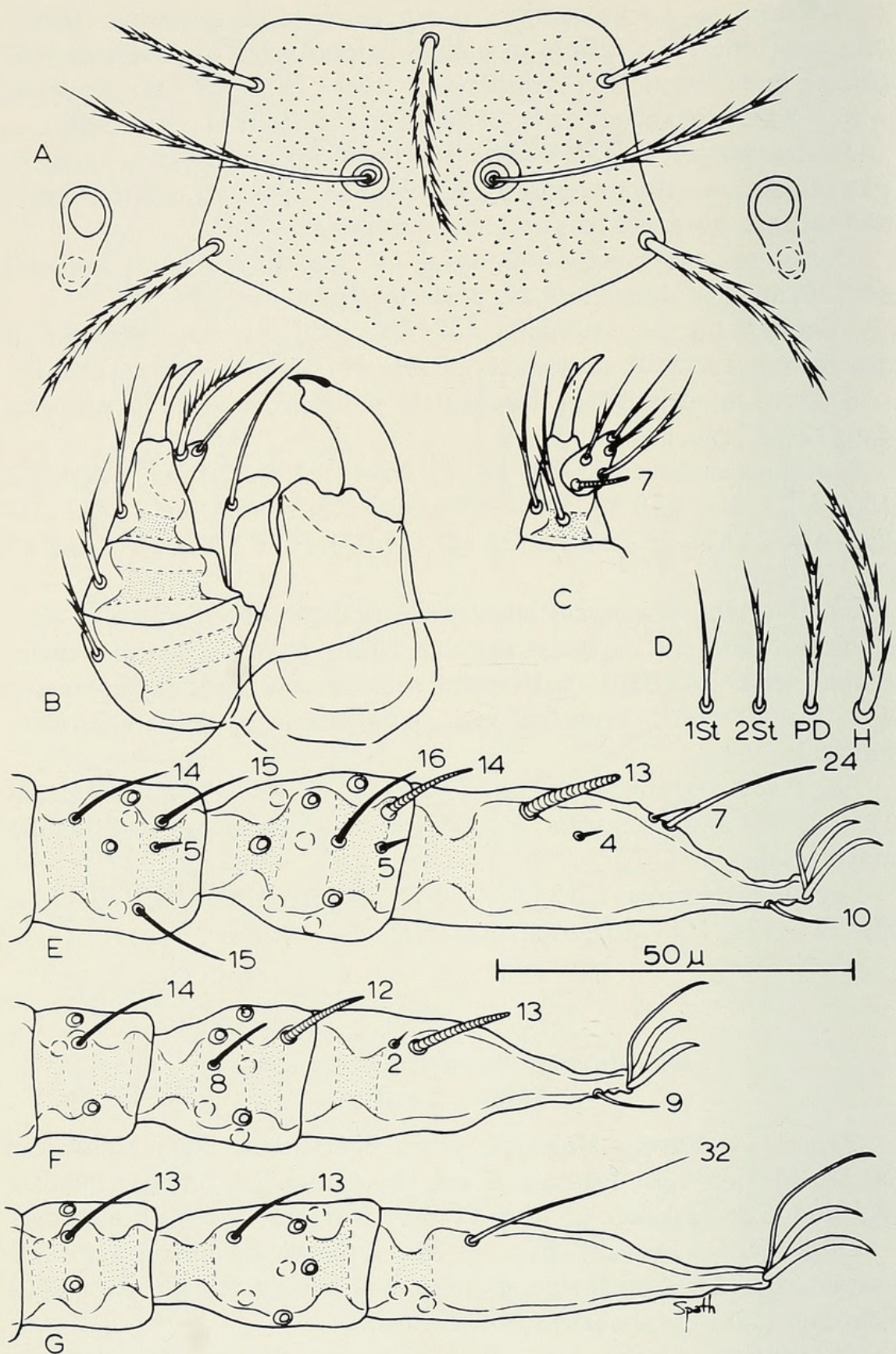


Figure 2. *Microtrombicula paralios* n. sp. A. Scutum and eyes. B. Dorsal aspect of gnathosoma. C. Ventral aspect of palpal tibia and tarsus. D. Representative body setae; 1 St, first sternal, 2 St, second sternal, PD, posterior dorsal, and H, humeral. E. Leg I, genu, tibia, and tarsus with specialized setae and measurements in microns, and bases of branched setae. F. Leg II, as above. G. Leg III, as above.



Ventral setae 2-2 (sternals) 4-6-2-6-4 + 14, total 40; measurements of anterosternal seta 19, posterosternal seta 21, posterior ventral seta 23.

Scutum: Subpentagonal, moderately punctate; sensilla flagelliform with 8-10 distal branches.

Scutal measurements: AW 48, PW 56, SB 15, ASB 22, PSB 26, AP 21, AM 26, AL 20, PL 32, S 38.

Gnathosoma: Cheliceral blade with medium sized tricuspid cap; cheliceral base and capitular sternum lightly punctate. Galeala nude. Palpal setae B/B/BBB; palpotarsus with 1 nude and 5 branched setae, and tarsala 7; palpotibial claw bifurcate.

Leg I with 3 genualae and tarsala (13); leg II with tarsala (13) and pretarsala; leg III with coxa unisetose, and 1 nude mastitarsala.

Leg measurements: I, 175; II, 146; III, 218; total, 539.

*Taxonomic remarks.* — This species name is from the Greek, *paralios*, meaning by or near the sea in reference to the type locality.

*Ecological notes.* — The fish-eating bat, *Pizonyx vivesi*, was taken from a rocky cliff crevice overlooking the Gulf of California. This same series of bats also yielded the types of *Speleocola cortezi* Loomis and Webb (1969). Although the single larva of *M. paralios* was recorded from the nasal passage, it may not be a regular intranasal resident.

### ***Microtrombicula phyllodactyli*, new species**

Figures 3 and 5

*Types.* — Larvae: Holotype and 17 paratypes from Topolobampo, Sinaloa, México, host 2 *Phyllodactylus h. homolepidurus*, original numbers WJW640801-1 (holotype and 4 paratypes) and WJW640801-2 (13), taken 1 Aug. 1964 by R. E. Dingman, R. B. Loomis, L. K. Tanigoshi, and W. J. Wrenn.

*Diagnosis.* — Larva, similar to those of *Microtrombicula crossleyi* (Loomis) and *M. trisetica* (Loomis and Crossley) but differing in having palpotibial claw trifurcate (bifurcate in *M. crossleyi* and *M. trisetica*), and dorsal and lateral palpotibial setae nude (branched in other two species).

*Description of holotype* (with the mean and range of 10 types, in parentheses, unless otherwise indicated). — Body engorged, 425 by 255; color in life, red-orange; eyes 2/2, anterior larger, posterior lens and ocular plate indistinct.

Dorsal setae 2-6-6-6-4-2-2, total 28; measurements of humeral seta 30, anterior dorsal seta 30, posterior dorsal seta 23.



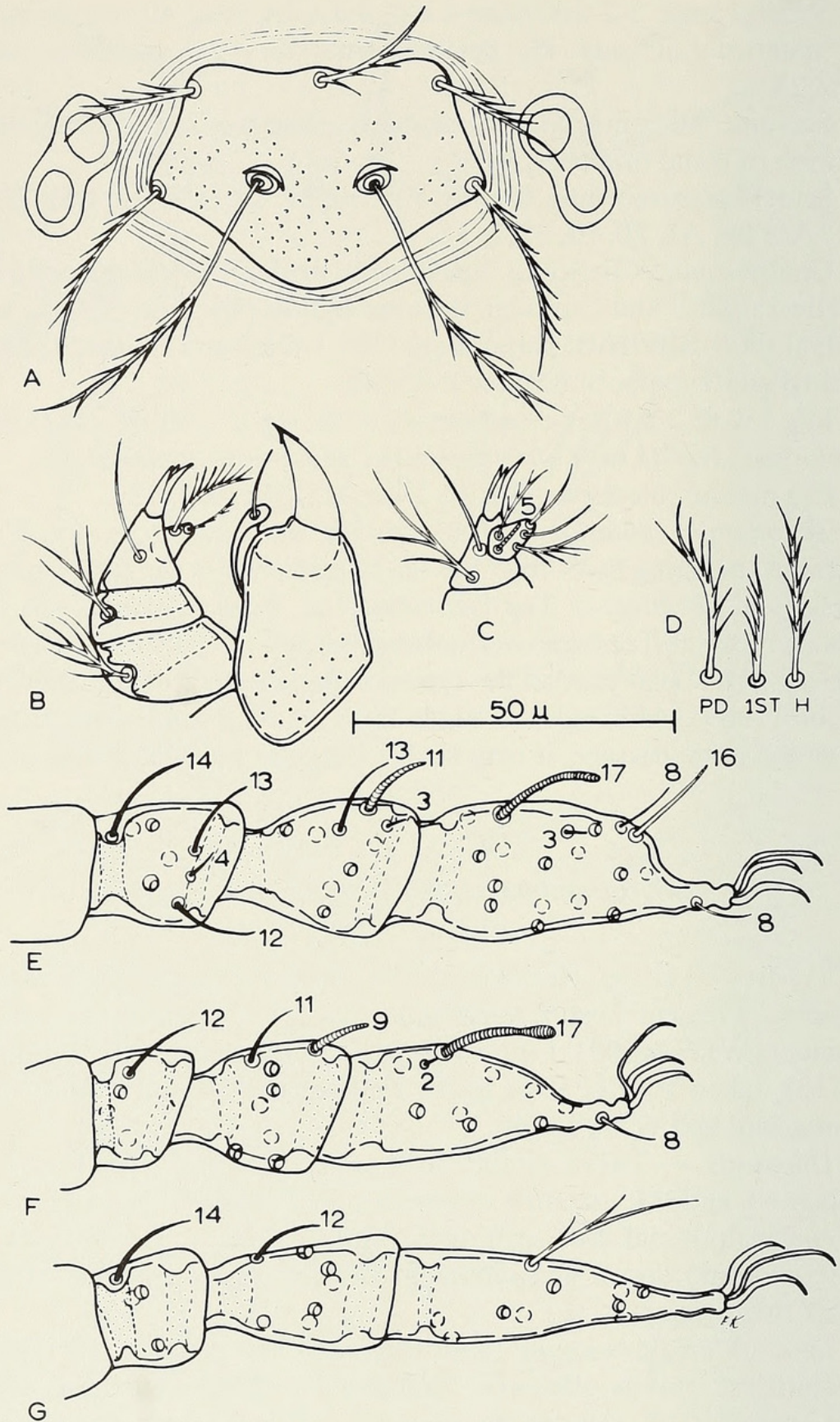


Figure 3. *Microtrombicula phyllodactyli* n. sp. A. Scutum and eyes. B. Dorsal aspect of gnathosoma. C. Ventral aspect of palpal tibia and tarsus. D. Representative body setae; PD, posterior dorsal, 1 St, first sternal, and H, humeral. E. Leg I, genu, tibia, and tarsus with specialized setae and measurements in microns, and bases of branched setae. F. Leg II, as above. G. Leg III, as above.



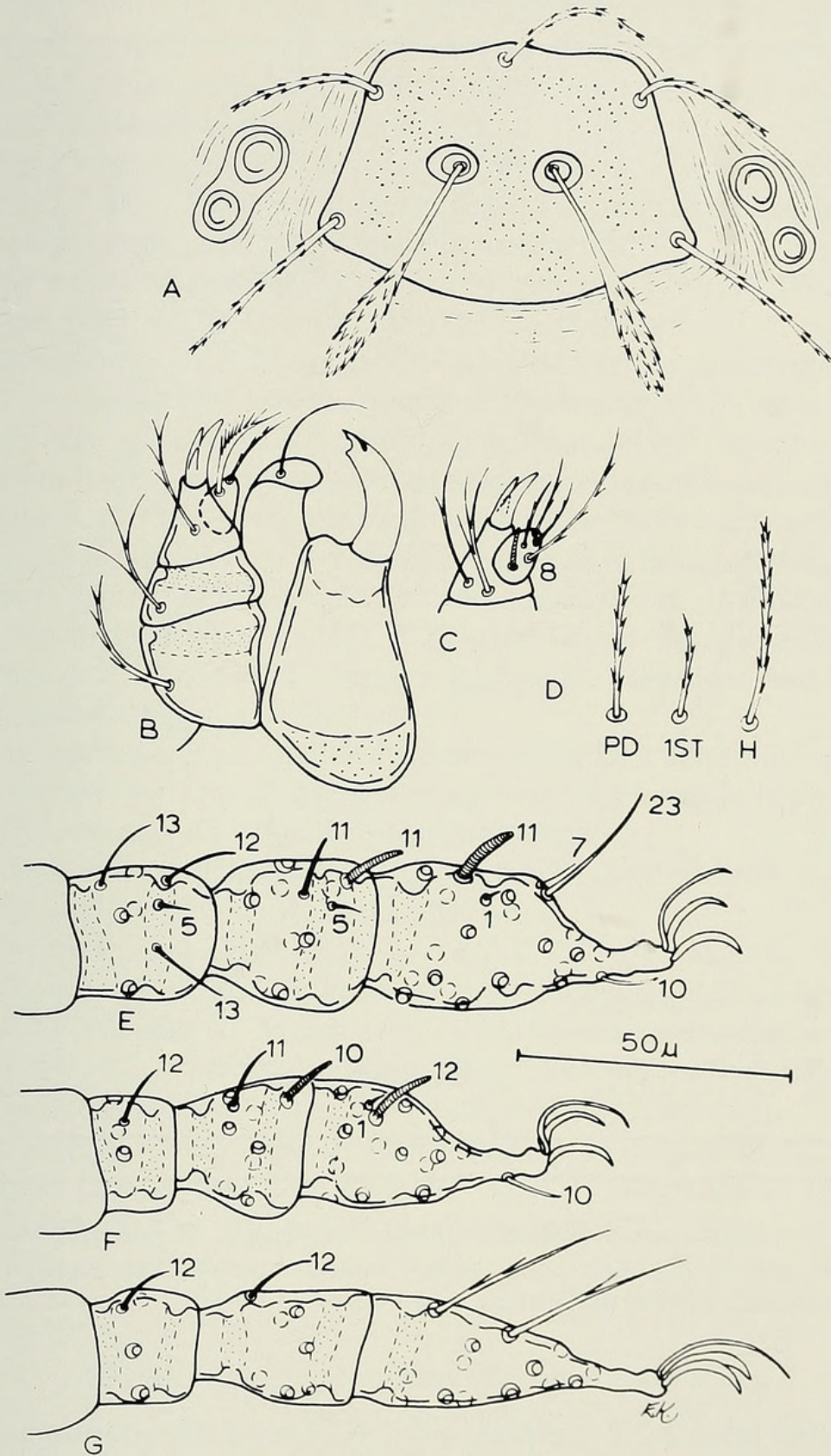


Figure 4. *Microtrombicula tragulata* (Brennan and Jones). A. Scutum and eyes. B. Dorsal aspect of gnathosoma. C. Ventral aspect of gnathosoma. D. Representative body setae; PD, posterior dorsal, 1 St, first sternal, and H, humeral. E. Leg I, genu, tibia, and tarsus with specialized setae and measurements in microns, and bases of branched setae. F. Leg II, as above. G. Leg III, as above.



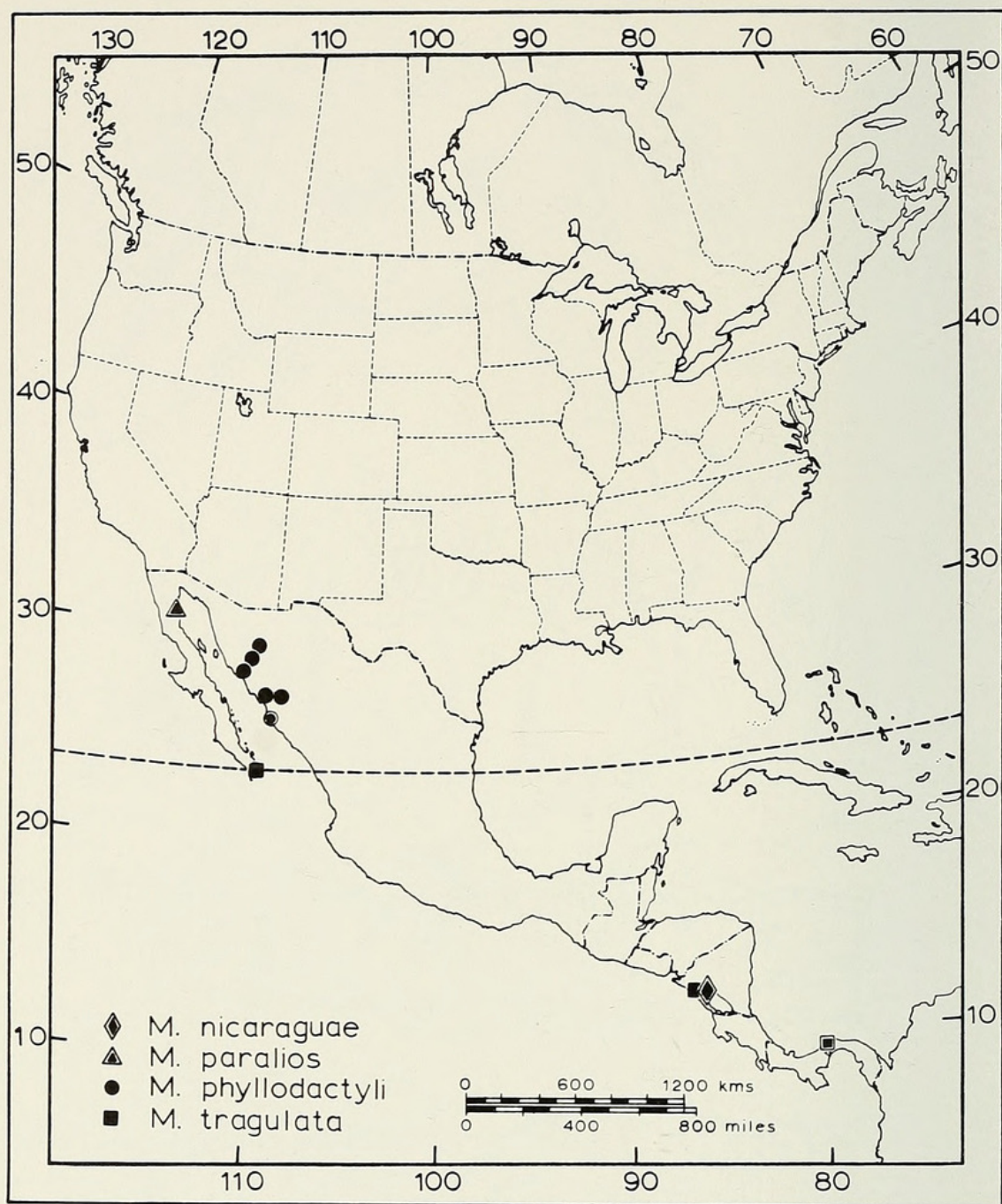


Figure 5. Distribution of *Microtrombicula nicaraguae*, *M. paralios*, *M. phyllodactyli*, and *M. tragulata*. Solid symbols indicate specimens examined and the symbol within a symbol designates a type locality.

Ventral setae 2-2-2 (sternals) 4-4-4 + 14, total 32; measurements of anterosternal seta 20, posterosternal seta 22, posterior ventral seta 21.

Scutal measurements: AW 49 (48, 45-51), PW 62 (61, 59-63), SB 20 (19.5, 17-21), ASB 22 (21, 19-23), PSB 21 (21, 19-23), AP 20 (21, 19-22), AM 20 (22, 20-23; 8), AL 23 (22, 20-24; 9), PL 35 (36, 34-38), S 46 (49, 44-52; 7).



Gnathosoma: Cheliceral blade with small tricuspid cap; cheliceral base and capitular sternum moderately punctate. Galeala nude. Palpal setae B/B/NNB; palpotarsus with 2 nude and 4 branched setae, and tarsala 6; palpotibial claw trifurcate.

Leg I with 3 genualae and tarsala 17 (16, 13-19; 9); leg II with tarsala 17 (16, 13-20) and pretarsala; leg III with coxa unisetose, and 1 nude or nearly nude mastitarsala in medial whorl.

Leg measurements: I, 189 (183, 166-198); II, 171 (166, 161-172); III, 196 (187, 180-197); total, 556 (537, 508-556).

*Ecological notes.* — Larvae of *M. phyllodactyli* have been recovered from two species of leaf-toed geckos, *Phyllodactylus homolepidurus* and *P. tuberculosus*, which according to Dixon (1964) occupy similar niches in rock outcroppings, cliffs, boulders, and stone bridges. Twelve specimens of *P. h. homolepidurus* taken from rocky areas in Sinaloa and Sonora, and 20 *P. tuberculosus saxatilis* from limestone ledges and mines in southeastern Sonora each had numerous *M. phyllodactyli* all over the body. Eighteen other *P. t. saxatilis* from buildings, bridges, culverts, and trees had no chiggers. Larvae are recorded from March, April, June, August, and December.

This species has an expanded tip on tarsala II, a condition reported by Loomis (1964) for chiggers of five genera which regularly parasitize lizards in Africa, the United States, and México.

*Geographic distribution.* — Known from central and southern Sonora, and northwestern Sinaloa, México.

*Specimens examined* (93). — MEXICO. SINALOA: Topolobampo, 1 Aug. 1964, 2 *Phyllodactylus homolepidurus* (18). SONORA: 13 km SE Alamos, 28 March 1961, 4 *Phyllodactylus tuberculosus* (3), 17 April 1962, *P. tuberculosus* (6), 4 Dec. 1964, 4 *P. tuberculosus* (30); 10 km S Hermosillo, 2 Dec. 1964, *P. homolepidurus* (4); 55 km S Hermosillo, 17 June 1967, *P. homolepidurus* (4); La Aduana, 5 Aug. 1963, *P. tuberculosus* (2), 25 Aug. 1963, *P. tuberculosus* (2); San Carlos Bay, 31 Dec. 1964, 3 *P. homolepidurus* (24).

*Microtrombicula tragulata* (Brennan and Jones),  
New Combination  
Figures 4 and 5

*Euschoengastia tragulata* Brennan and Jones, 1961: 110, type from Barro Colorado Island, Canal Zone, Panama, host *Nasua narica*, Nov. 1956; Brennan and Yunker, 1966: 235.

*Diagnosis.* — Larva, similar to *Microtrombicula carmenae* (Bren-



nan and Jones) but differing in having an expanded, lanceolate, sensilla (flagelliform in *M. carmenae*) and cheliceral blade with a prominent dorsal projection (absent in *M. carmenae*).

*Description of species* (Based upon holotype, after Brennan and Jones, 1961, and 2 paratopotypes, in parentheses, unless otherwise noted). — Body slightly engorged, 225 by 155; eyes 2/2, anterior larger, ocular plate evident.

Dorsal setae 2-6-6-6-4-2, total 26; measurements (2 paratopotypes) of humeral seta (35, 36), anterior dorsal seta (28, 29), posterior dorsal seta (24, 28).

Ventral setae 2-2 (sternals) 2-4-4-4-4-4, total 26; measurements of anterosternal seta (17, 19), posterosternal seta (19, 19), anterior ventral seta (19, 19) posterior ventral seta (22, 24).

Scutum: Subpentagonal, moderately punctate; sensilla lanceolate and sparsely covered with setules.

Scutal measurements: AW 50 (45, 48), PW 60 (58, 60), SB 21 (20, 22), ASB 22 (23, 23), PSB 24 (24, 27), AP 26 (24, 27), AM 34 (27, 27), AL 23 (21, 22), PL 33 (32, 34), S 43 (41, 43). Scutal measurements with the mean and extremes of 10 larvae from Nicaragua: AW 46, 42-49; PW 59, 56-63; SB 19, 16-23; ASB 22, 17-24; PSB 24, 22-26; AP 25, 22-26; AM 28, 23-31; AL 22, 15-24; PL 35, 29-37; S 43.5, 43-44; 2. Baja California larva: AW 49, PW 66, SB 20, ASB 23, PSB 28, AP 28, AM 34, AL 24, PL 36, S 16 (inc.).

Gnathosoma: Cheliceral blade with small tricuspid cap; cheliceral base and capitular sternum moderately punctate. Galeala nude. Palpal setae B/B/BN (ventral palpotibial seta nude in one paratopotype and forked in other); palpotarsus with 1 nude and 5 branched setae, and tarsala; palpotibial claw trifurcate.

Leg I with 3 genualae and tarsala 12 (12, 12); leg II with tarsala 13 (12, 12), and pretarsala; leg III with coxa unisetose, and 1 nude mastitarsala. Tarsala I and II measurements with the mean and ranges of 10 larvae from Nicaragua: T I, 11, 10-12; T II, 12, 12. Baja California specimen: T I, 13; T II, 13.

Leg measurements of 2 paratopotypes: I, 161, 197; II, 139, 158; III, 162, 180; total, 462, 535. Baja California larva: I, 201; II, 179; III, 198; total, 578.

*Remarks.* — Only four of 13 examined specimens of *M. tragulata* had at least one entire sensilla and five had only the basal segment of one shaft remaining.

*Ecological notes.* — Ten larvae of *M. tragulata* were recovered from a kinkajou, *Potos flavus*, captured in a tropical deciduous forest in



Nicaragua. One larva was taken off a ringtail, *Bassariscus astutus*, collected in a pine-oak meadow habitat, 1670 meters, in Baja California Sur. The type series from a coati, *Nasua narica*, was obtained from Barro Colorado Island where the vegetation was reported as primarily evergreen or semievergreen seasonal forest. The known hosts are medium sized mammals consisting of a porcupine, opossum, and three procyonid carnivores. Larvae have been taken in February, June, July, and November.

*Geographic distribution.* — Known from the Cape Region of Baja California, México, Nicaragua, and the Canal Zone.

*Specimens examined* (13). — MEXICO. BAJA CALIFORNIA SUR: La Laguna, 8 July 1967, *Bassariscus astutus* (1). NICARAGUA. GRANADA: 6.5 km SE Guanacaste, 13 June 1966, *Potos flavus* (10). PANAMA. CANAL ZONE: Barro Colorado Island, Nov. 1956, *Nasua narica* (2 paratypes, RML).

*Additional records* (Brennan and Yunker, 1966). — PANAMA. CANAL ZONE: Piña, 16 Feb. 1962, *Didelphis marsupialis* (1); Pedro Miguel River, 21 Feb. 1962, 5 *Coendou rothschildi* (33).

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