

**A New Species of *Eutrombicula* (Acarina:
Trombiculidae) from Lizards of Nevado
de Colima, Jalisco, Mexico**

There are approximately 85 genera and subgenera, and more than 450 species of chiggers known from the Western Hemisphere. The second largest genus is *Eutrombicula* Ewing, which has more than 26 species, including 16 new species recently described by Brennan and Reed (1974).

A study of *Eutrombicula* larvae taken from lizards found above 2,012 m on Nevado de Colima in the Mexican state of Jalisco has revealed another new species, for which we propose the following name.

Eutrombicula bitarsala, n. sp.

Fig. 1

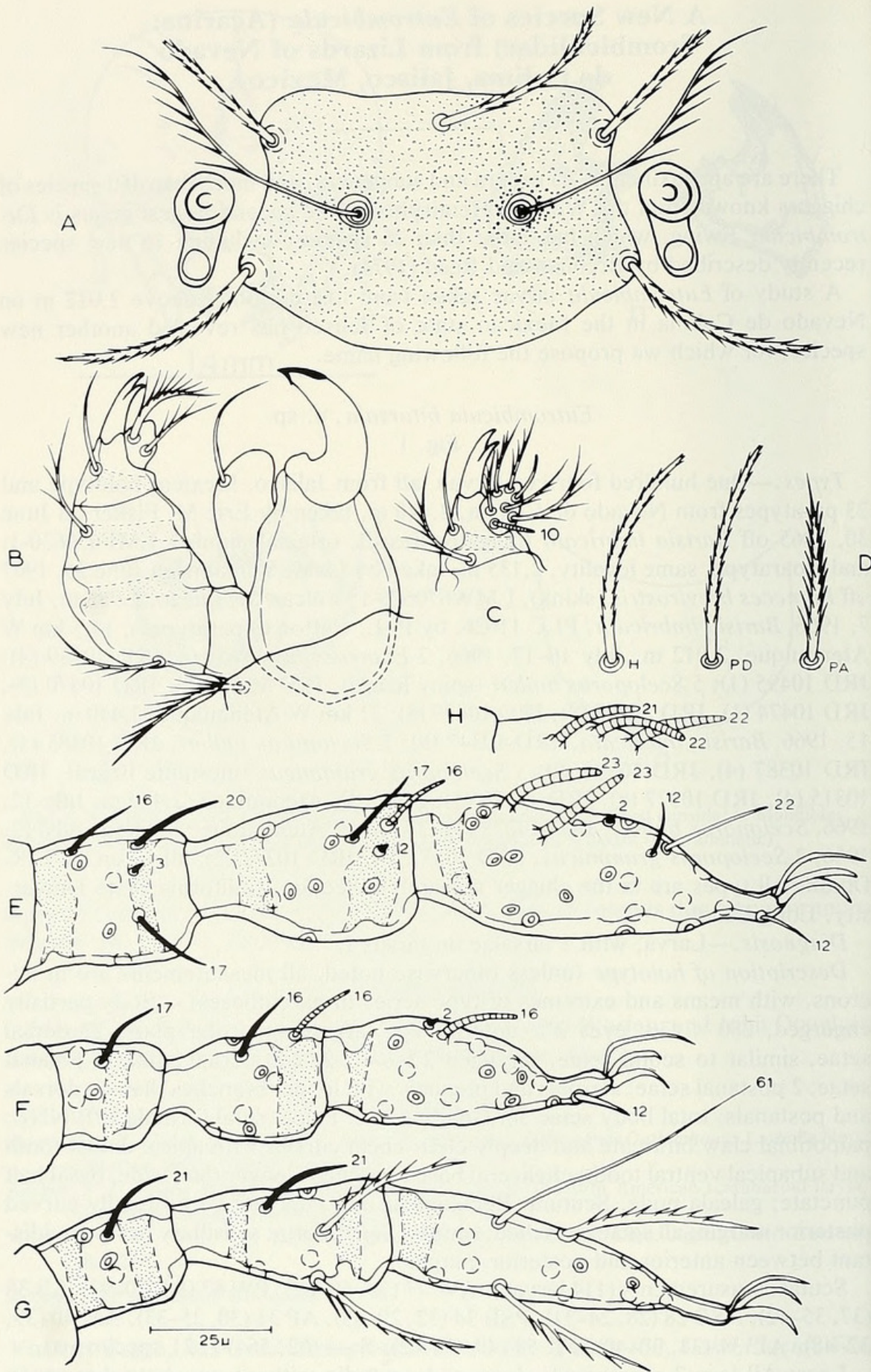
Types.—One hundred fourteen larvae, all from Jalisco, Mexico; holotype and 23 paratypes from Nevado de Colima, 2,440 m, taken by Eric M. Fisher on June 30, 1965 off *Barisia imbricata* (alligator lizard), original number EMF650630-1; and 1 paratype, same locality, 2,135 m, taken by L. M. Williams on June 26, 1967 off *Eumeces brevirostris* (skink), LMW670626-1; Volcan del Fuego, 2,988 m, July 7, 1966, *Barisia imbricata*, PLC 11026, by P. L. Clifton (8 paratypes); 14.5 km W Atenquique, 2,012 m, July 16–17, 1966, 2 *Eumeces brevirostris*, JRD 10439 (4), JRD 10495 (1); 5 *Sceloporus bulleri* (spiny lizard), JRD 10448 (4), JRD 10470 (3), JRD 10474 (1), JRD 10478 (8), JRD 10479 (8); 21 km W Atenquique, 2,440 m, July 15, 1966, *Barisia imbricata*, JRD 10347 (9); 3 *Sceloporus bulleri*, JRD 10385 (1), JRD 10387 (4), JRD 10388 (8); 3 *Sceloporus grammicus* (mesquite lizard), JRD 10315 (4), JRD 10377 (8), JRD 10379 (1); 24 km W Atenquique, 2,440 m, July 12, 1966, *Sceloporus bulleri*, JRD 10273 (8); 27 km W Atenquique, 2,866 m, July 12, 1966, 2 *Sceloporus grammicus*, JRD 10271 (7), JRD 10272 (2), all taken by J. R. Dixon. All types are in the chigger research collection, California State University, Long Beach.

Diagnosis.—Larva, with 2 tarsalae on tarsus I.

Description of holotype (unless otherwise noted, all measurements are in microns, with means and extremes of type series in parentheses).—Body partially engorged, 280×430 ; eyes $2/2$, anterior eye larger, on ocular plate; 22 dorsal setae, similar to scutal setae, arranged 2-6-6-4-2-2; 2-2 sternal setae; 8 preanal setae; 2 postanal setae; sternals and preanals with longer branches than on dorsals and postanals; total body setae 36. Gnathosoma: Palpal setal formula B/B/NNB; palpotibial claw bifurcate and deeply cleft; chela curved with apical dorsal tooth and subapical ventral tooth; cheliceral base triangular, longer than wide, basal half punctate; galeala nude. Scutum: Rectangular and punctate with broadly curved posterior margin; all setae branched; sensilla flagelliform; sensillary bases equidistant between anterior and posterior margins.

Scutal measurements (114 larvae): AW 77 (75, 69–82), PW 87 (88, 70–93), SB 38 (37, 35–42), ASB 28 (28, 24–31), PSB 34 (32, 29–35), AP 31 (30, 25–33), AM 40 (39, 32–48), AL 34 (34, 30–40), PL 53 (49, 43–62), S — (62, 56–71, 21 specimens).

Legs: All legs 7 segmented; claws and empodia without onychotriches; coxa



each with 1B seta. Leg I with 3 genualae, microgenuala; 2 tibialae, microtibiala; 2 tarsalae (3 on left tarsus of holotype), subequal, 23 (23, 20–26), microtarsala, subterminala, parasubterminala, and pretarsala. Leg II with genuala; 2 tibialae; tarsala 16 (16, 15–19), microtarsala, and pretarsala. Leg III with genuala; tibiala; and long, nude, whiplike mastitarsala.

Taxonomic remarks.—Two tarsalae I are unique. All other described species of the genus, and virtually all described species of the family, possess a single tarsala I. *Eutrombicula bitarsala*, *E. alfreddugesi*, *E. lipovskyana*, *E. jenkinsi*, and *E. splendens* have a long nude mastitarsala III and no mastisetæ on tibia III. However, *E. alfreddugesi* has shorter scutal setae (means of 28 for AM, 29 for AL, and 40 for PL), *E. lipovskyana* has a larger scutum (means of 86 for AW, 100 for PW, and 44 for SB), *E. jenkinsi* has more than 6 setae in the first posthumeral row, and *E. splendens* has 24–28 dorsal setae. For more characteristics the reader should refer to Brennan and Reed (1974), Jenkins (1949), and Wolfenbarger (1953).

Ecological notes.—The following description of Nevado de Colima is taken largely from Baker and Phillips (1965). El Nevado de Colima, at an elevation of 4,340 m, rises at the western border of the Mexican interior basin in the state of Jalisco and dominates the westernmost part of the Transverse Volcanic Belt of central Mexico. The boreal and alpine environments of the upper slopes of this mountain are isolated from those of other nearby mountains. The base of El Nevado de Colima, at least to the southeast, consists of semiarid, subtropical country, mostly cleared for cultivation and pasturage, with field borders of thorn shrub. Pines, oaks, and broadleaf understory appear at approximately 1,661 m. Larvae of *E. bitarsala* from lizards were taken no lower than 2,012 m. In addition to *E. bitarsala*, larvae of *E. alfreddugesi* were taken from three *Sceloporus bulleri* at 2,012 m and one *Barisia imbricata* at 2,440 m. Firs appear first at 2,378 m and become the major forest species at approximately 2,683 m; whereas, the highest record for *E. bitarsala* is at 2,988 m. An open alpine zone begins at about 3,810 m.

The above information suggests that *E. bitarsala* is an isolated high mountain species of Nevado de Colima which overlaps with, but is separate from, *E. alfreddugesi*.

Specimens examined.—*Eutrombicula bitarsala* (114 larvae of the type series). *Eutrombicula alfreddugesi* (18): MEXICO, Jalisco: Nevado de Colima, 14.5 km W Atenquique, 2,012 m, July 16–17, 1966, 3 *Sceloporus bulleri* (17); 21 km W Atenquique, 2,440 m, July 15, 1966, *Barisia imbricata* (1).

Acknowledgments

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Fig. 1. Larva of *Eutrombicula bitarsala*: A. Scutum and eyes; B. Gnathosoma, dorsal view; C. Palpal tibia and tarsus, ventral view; D. Body setae: H, humeral; PD, posterior dorsal; PA, preanal; E. Leg I; genu, tibia, and tarsus, with bases of branched setae, nude setae, and measurements; F. Leg II; as above; G. Leg III; as above; H. Tarsus I and tarsalae of left leg of holotype showing variation.

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