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Richard B. Loomis

Department of Biology, Long Beach State College, California

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A NEW SPECIES OF CHIGGER (ACARINA, TROMBICULIDAE) FROM LIZARDS OF WESTERN NORTH AMERICA

Richard B. Loomis¹

Studies of the chiggers taken from lizards in southwestern United States and northwestern Mexico revealed a new species of chigger which seems to be related to *Trombicula allredi* Brennan and Beck (1956). These larvae have been found only on lizards from the desert areas of Sonora, Mexico, California and Nevada. It was reported from Nevada as *Trombicula* sp. by Allred and Beck (1962:50).

Grateful acknowledgement is extended to many individuals who have generously provided chiggers, including Dr. Donald M. Allred, Brigham Young University (BYU) and Dr. James M. Brennan, Rocky Mountain Laboratory for the slides from Nye County, Nevada; Alan R. Hardy for the larvae from Clark County, Nevada; and Julius C. Geest, Kenneth D. Peyton and William J. Wrenn for many specimens from California and Mexico. Mr. Geest completed the drawings. Chiggers from Joshua Tree National Monument, California, were taken in the faunal surveys approved by Superintendent William R. Supernaugh.

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DESCRIPTION OF THE SPECIES

The specimens listed below are larvae, and are in the collection of the author, unless otherwise noted. All measurements are in microns. The terminology follows that of Warton, *et al* (1951), except for the use of tarsala (=spur) and microtarsala (=microspur).

Trombicula lacerticola, new species

(Figure 1)

TYPES.—Holotype and 17 paratopotypes from Cottonwood Spring, Joshua Tree National Monument, Riverside County, California, from *Uta stansburiana* Baird and Girard, Side-blotched Lizard, field number WJW610711-3, taken on 11 July 1961 by William J. Wrenn; and 7 paratopotypes from *Sceloporus magister* and *Uta stansburiana*, 11-12 July 1961 (4 larvae) and 6 August 1959 (3 larvae). The holotype and two paratypes will be deposited in the Rocky Mountain Laboratory, Hamilton, Montana, and paratypes will be distributed to the United States National Museum; the University of Kansas; Hooper Foundation, University of California Medical Center, San Francisco, and to other appropriate institutions and individuals.

1. Department of Biology, Long Beach State College, California.

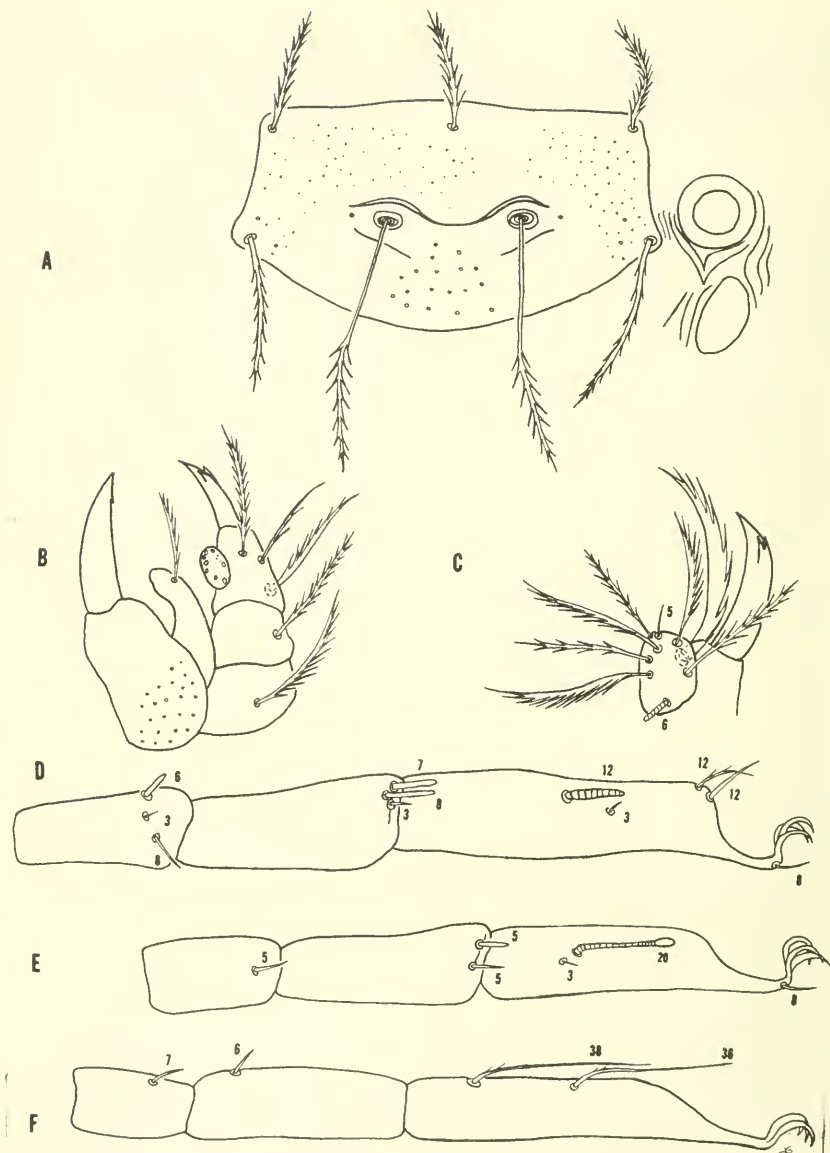


Figure 1

Trombicula lacerticola new species

- A. Scutum and eyes.
 B. Gnathosoma, dorsal aspect.
 C. Palpal tarsus and palpal claw.
 D. Leg I showing nude and specialized setae (numbers refer to measurements in microns).
 E. Leg II showing nude setae.
 F. Leg III showing specialized setae.

DIAGNOSIS.—Related to *Trombicula allredi* Brennan and Beck in having two mastitarsalae (with few basal barbs), elongate legs, branched sensillae, trifurcate palpal claw, scutum punctate with posterior margin convex, and parasubterminala branched; differing from this species in having palpal tarsal setal formula 7 B.S. (6 B.S. in *T. allredi*), two genualae I (three genualae I in *T. allredi*) and a distinct knob on tarsala II.

DESCRIPTION OF HOLOTYPE.—Body: Partly engorged, approximately 210 by 320, color in life orange; eyes 2/2, anterior larger, red in life, ocular plate indistinct.

Dorsal setal formula 2-6-6-4-2, total 20; humeral seta measuring 29, seta of first posthumeral row 24.

Ventral setal formula 2—2 +26, total 30, first sternal seta measuring 26, posterior ventral seta 21.

Scutum: Shape subpentagonal, with rounded posterior margin and numerous puncta (see Figure 1A). Sensillary bases parallel to bases of PL's. Sensillae with approximately 14 branches on distal half.

Scutal measurements of holotype, AW-58, PW-68, SB-18, ASB-21, PSB-18, AP-19, AM-19, AL-21, PL-28, S-51. Mean and extremes of 10 larvae (5 paratopotypes and 5 larvae from Guaymas, Sonora, Mexico): AW-59 (55-62), PW-70 (66-72), SB-18.5 (17-20), ASB-22.5 (20-24), PSB-17 (13-19), AP-19 (17-21), AM-18 (17-19), AL-19 (15-23), PL-26 (23-30) and S-53 (49-55).

Gnathosoma: Cheliceral blade with dorsal tricuspid cap and prominent ventral tooth; cheliceral base and capitular sternum punctate. Galeal seta branched. Palpal setal formula B/B/BBB; palpal tarsus with 7 branched setae, subterminala and tarsala (6 microns); palpal claw trifurcate.

Legs (specialized setae as follows): Leg I with 2 genualae, microgenuala, 2 tibialae, microtibiala, tarsala (12 microns), microtarsala, subterminala, parasubterminala branched, and pretarsala; leg II with genuala, 2 tibialae, tarsala (16 microns), with knob, microtarsala and pretarsala; leg III with genuala, tibiala and 2 mastitarsalae having several basal barbs. All legs with segments elongate and punctate, with each leg terminating in 2 claws and a clawlike empodium (Figure 1D-F).

REMARKS.—The generic allocation of *lacerticola* to *Trombicula* is tentative, as it is not *Trombicula, sensu stricto*. This species does not seem to belong to the genus *Neotrombiculoides* Vercammen-Grandjean (1960), nor to the subgenus *Squamicola* Audy and Vercammen-Grandjean (1961) currently placed in the genus *Eutrombicula*. The palpal tarsal setal formula of *lacerticola* is 7 B.S., which differs from that reported for *Neotrombiculoides* (7 B. or 6 B.S.) and although the palpal formula is the same as that of *Squamicola, lacerticola* has only two genualae (three genualae in *Squamicola*) in addition to other differences. The 13 species of *Squamicola* (including *Eutrombicula maura* Taufflieb and *E. meridialis* Taufflieb.

1960) have been found only in Africa, and with the exception of one species, they have been recovered only from lizards. These species of *Squamicola* and *T. lacerticola* possess an expanded tip on tarsala II, which may indicate close relationship; however, at least four other species of chiggers, including two species in another subfamily, also possess this modification. These species are *Odontacarus arizonensis* (Ewing) from North American lizards and *Odontacarus agamae* Taufflieb (1960) from North African lizards, in subfamily Leeuwenhoekiinae, and *Euschoengastia longitarsala* Powder and Loomis (1962) taken only from lizards in California and *Sauriscus ewingi* Lawrence from South African lizards. The genus *Sauriscus* was discussed by Audy and Veracammen-Grandjean (1961:138) who state that "This chigger is obviously derived from the same stem as *Squamicola* and indeed might well be regarded as a sister subgenus." It is suggested that the expanded tip of this chemoreceptor plays a role in the detection of the lizard hosts.

Nymphs and adults of *T. lacerticola* have been reared and will be studied and described in detail. Comparison of the postlarval stages of this species and members of *Squamicola* should help to determine if they have a close relationship.

The larvae of this species were found attached in the axillary and groin areas, and in the "mite pockets" which are located above the front limbs of the saurian hosts.

The seasonal occurrence of the attached larvae seems to be limited to the summer months, as most of the records are between the first of June and the end of August. Many of the records from California were from lizards taken in or near rocky habitats.

SPECIMENS EXAMINED.—Total 197 larvae as follows: NEVADA. Clark County: 3 mi. SE Riverside on Virgin River, 4 August 1961, *Uta stansburiana* (10) and *Sceloporus magister* (4). Nye County: 14 to 30 mi. N Mercury, 26 August 1959, *Cnemidophorus tigris* (1-BYU), *Crotaphytus wislizeni* (1-BYU) and *Phrynosoma platyrhinos* (1-BYU), 6 Sept. 1959, *Uta stansburiana* (2-BYU). CALIFORNIA. Kern County: Ridgecrest, 30 June 1957, *Callisaurus draconoides* (5). Riverside County: Snow Creek Canyon, 14 June 1961, *Uta stansburiana* (5); 1.7 mi. N of Joshua Tree National Monument Entrance on Old Dale Road, 4 June 1961, *Crotaphytus collaris* (2); (all of the following localities in Joshua Tree National Monument)—Belle Campground, 3800', 5 Aug. 1959, *Sceloporus magister* (11); Cottonwood Spring, 11-12 July 1961, *Sceloporus magister* (4) and *Uta stansburiana* (18, including type series); and 6 August 1959, *Uta stansburiana* (3); Lost Horse Valley, 4200'. 19-22 July 1961, *Crotaphytus wislizeni* (8), *Sceloporus occidentalis* (3) and *Uta stansburiana* (20); 6 August 1959, *Sceloporus occidentalis* (2); 6 mi. NW Old Dale Junction 2400', 30 May 1960, *Uta stansburiana* (4); Piñon Wells, 3900', 7 August 1959, *Uta stansburiana* (9); Squaw Tank, 3700'. 7 August 1959, *Uta stansburiana* (1); Queens Valley, 2 July 1960, *Phrynosoma platyrhinos* (2); 4 mi. S, 1 mi. E Squaw Tank, 6 August 1959, *Sceloporus magister*

(3). San Bernardino County: (all in Joshua Tree National Monument)—49 Palms road, 0.6 mi. SW of Monument Entrance. 5 August 1961, *Crotaphytus collaris* (8); 4 mi. S Twentynine Palms, 0.3 mi. S Monument Entrance. 11 July 1961, *Crotaphytus wislizeni* (3). MEXICO. Sonora. 9-11 mi. NW Guaymas, 4-6 July 1960, *Callisaurus draconoides* (28) *Uta taylori* (2) and *Urosaurus ornatus* (8), 9 June 1961, *Crotaphytus collaris* (18) and *Holbrookia maculata* (11).

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