

FOUR NEW PREDACEOUS MITES (ACARINA, PHYTOSEIIDAE)

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In a study by McGregor of the mites found to occur on citrus in southern California, four species received special attention by Garman in the matter of identification. Accordingly the present paper has been prepared to appear in advance of the principal publication, so that established species names may be had for reference.

These phytoseiid mites are predaceous, and many of them are important enemies of the phytophagous tetranychid mites, or "spider mites," and hence are of economic importance.

Garmania lewisi new species

Plate 3, figs. 1, 2, 3.

MALE.—Dorsal setae in number and arrangement that of *Garmania bulbicola* (Oudemans), as figured by Nesbitt for the female, but the length of these setae is distinctly longer in the present species. The outline of the sterni-genital scutum is rather ill-defined in our species, but it has 5 pairs of setae and 4 angulations each side. The posterior boundary of the genital portion of this scutum is somewhat indistinct. The anal plate is expansive, occupying most of the area behind coxae IV; it is subcordate in outline, and distinctly sculptured; it bears 14 longish setae, 3 transverse rows of 4 each, and one each side marginally opposite anterior face of anus; one pair of setae on anus. Anterior appendages of hypostome with each external mala basally bearing internally two somewhat separated spines. The median hypostomal structure, between the malae, bearing laterally along its midregion a fringe of fine setae. Anterior pair of ventral hypostomal setae not stronger than others. Hypostomal teeth either lacking or extremely minute.

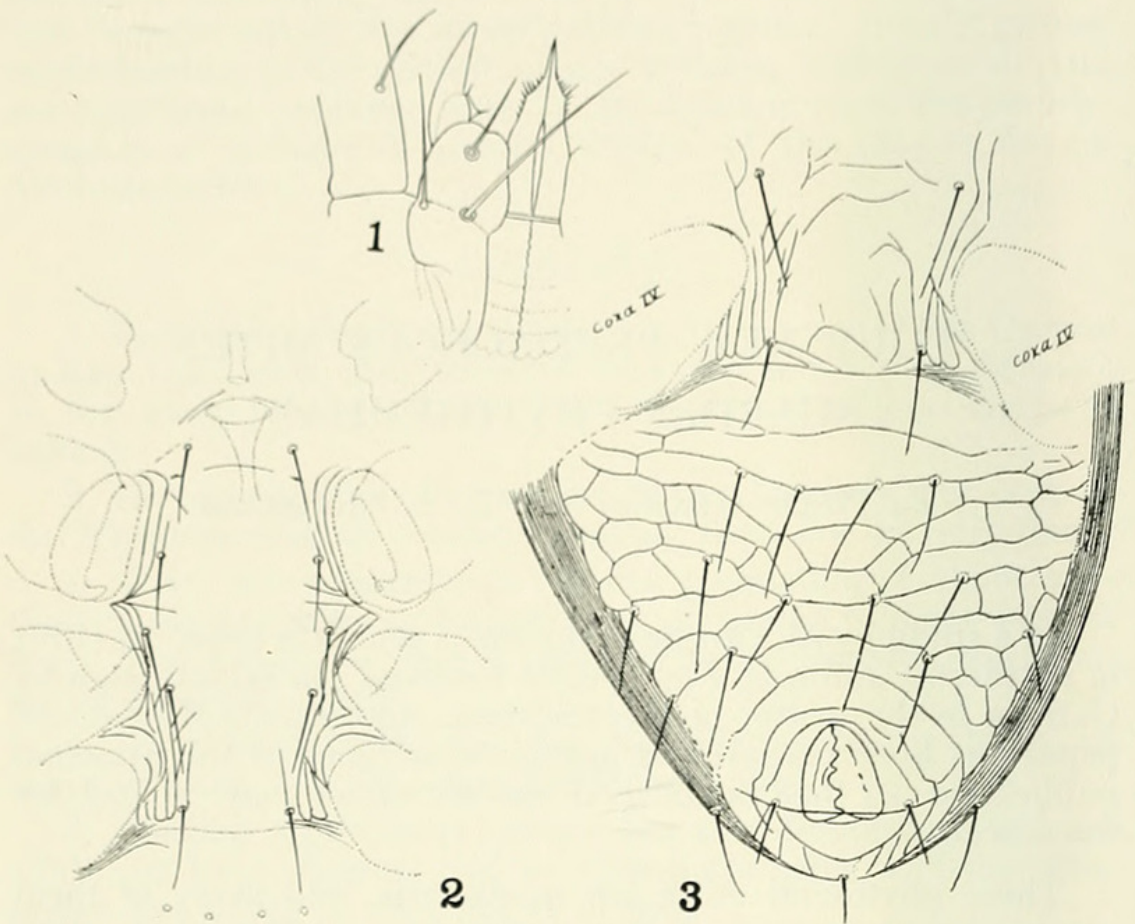


PLATE 3

Garmania lewisi n. sp.: fig. 1, ventral view of hypostome; fig. 2, sternal-genital plate and coxal bases; fig. 3, posterior venter and associated setae.

HOLOTYPE MALE.—No. 8-21-54, on orange, Irvine, Calif., Aug. 16, 1954, collected by H. Lewis. Deposited in the collection of the Los Angeles County Museum. Also on slide 9-8-54, on orange, Irvine, Calif., Aug. 24, 1954, collected by Lewis.

***Typhlodromus citri* new species**

Plate 4, figs. 1, 2, 3, 4, 5, 6

FEMALE.—Resembling *T. conspicuus* (Garman), but differing in several particulars, as confirmed by E. W. Baker. With 8 pairs of marginal setae on dorsal shield, mostly short; seta M-2 and L-8 the longest; seta M-2 not paired with any other seta, nearly equidistant from D-5 and L-8. An interscutal seta laterad of seta

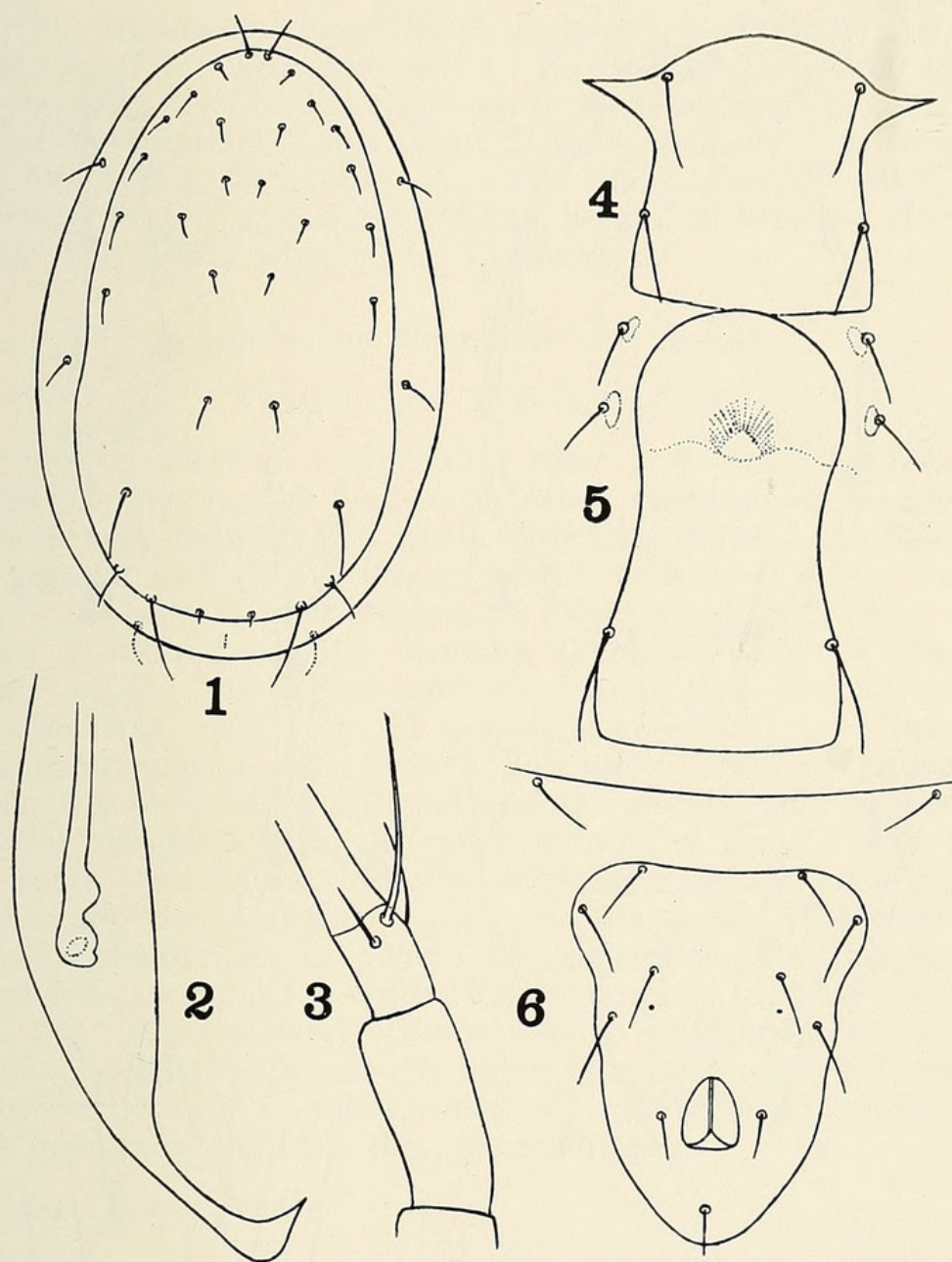


PLATE 4

Typhlodromus citri n. sp.: fig. 1, dorsum showing setal details; fig. 2, peritremal plate; fig. 3, setae on base of tarsus IV; fig. 4, sternal plate; fig. 5, genital and metapodal plates; fig. 6, ventrianal plate.

L-4, and one well behind L-6. Sternal scutum roughly rectangular, with 2 pairs of setae, and with humeral angles prominently pointed. Two pairs of metapodal plates, each with a seta. Genital plate thimble-shaped, gently convex behind, with a pair of setae. Anal plate sagittate, broadest anteriorly, somewhat wider than genital scutum, with 4 pairs of pre-anal setae; a fine pore behind each second inner seta. Peritreme reaching anteriorly to seta D-1, recurved posteriorly like the head and neck of a bird. Tarsus IV with a rather long seta.

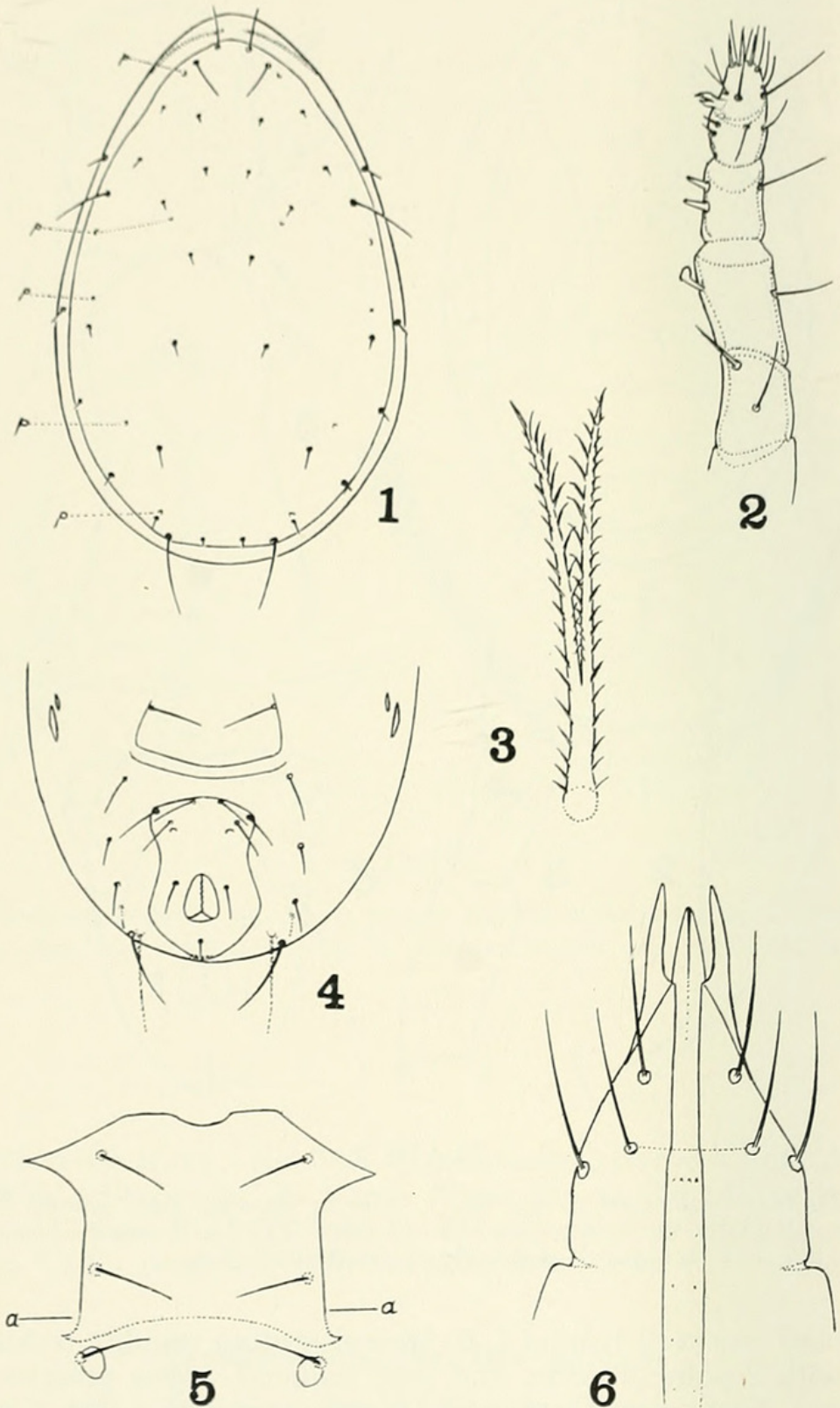


PLATE 5

Amblyseius limonicus n. sp.: fig. 1, dorsum showing setal details; fig. 2, palpus; fig. 3, tritosternum; fig. 4, posterior venter, showing ventrianal scutum and associated setae and parapodal plates; fig. 5, sternal scutum and metapodal plates; fig. 6, hypostome.

HOLOTYPE FEMALE No. 4-18-52, on lemon, N. Whittier Heights, Calif., April 18, 1952, collected by F. Munger. Deposited in the collection of the Los Angeles County Museum. Also No. 9-27-53, on lemon, Whittier, Calif., Sept. 27, 1953, collected by Munger; also No. 54-2-1, on lemon, Camarillo, Calif., Dec. 17, 1953, collected by H. Lewis; and No. 4-23-54, lemon, N. Whittier Heights, Calif., May 1953, collected by F. Munger.

Amblyseius limonicus new species

Plate 5, figs. 1, 2, 3, 4, 5, 6.

FEMALE. Dorsum with lateral setae 1, 4 and 9 longer than others, though not as long as in other members of the genus. Dorsals very minute, two small scapulars; pores as in figure 1. Integument smooth. Chelicerae with 7 to 9 teeth on fixed arm. Palpi each with a spatulate seta on the inside of segment 3. Epistome of usual form—the cornicles slender, somewhat approximate. Leg IV with longer setae on genual, tibia and first tarsal segment. Anal plate (fig. 4) expanded anteriorly, with forward setae grouped somewhat as in *T. finlandicus*, but the spacing between the setae more unequal and the middle pair nearer the anterior margin. Two lunate pores as in fig. 4. Sternal plate with two setae each side and an almost circular metapodal plate behind caudo-lateral angle on each side. Parapodal plates consisting of a slender, almost needle-like pair each side, the smaller about $1/5$ as long as the larger. Peritreme plate blunt at posterior end, but not as squarely truncate as in some members of the genus. Tracheae each side extending forward to coxa I or almost in line with seta D¹. Genital armature semicircular in appearance, with lines radiating from the anterior margin.

MALE not available.

FEMALE, *Measurements*. Length .198-.240 mm., width .135 mm., leg IV .255-.285 mm., seta L⁹ .048-.056 mm.

HABITAT. Found on orange and lemon, California, presumably feeding on Tetranychidae. Santa Ana, Sept. 20, 1940, McBurnie Coll.; Carpinteria, Nov. 11, 1954, Lewis Coll.; Goleta, Oct. 4, 1953, Hall Coll.; Chula Vista, Aug. 5, 1935, Jones Coll.

HOLOTYPE Santa Ana slide; Garman Lot 40-21386. Deposited in the Connecticut Agricultural Experiment Station collection. Also a slide, McGregor Lot 11-9-54.

NOTES. The anal plate of this species strongly resembles that of *Typhlodromus finlandicus*, but there is a noticeable difference in the spacing of the setae in relation to one another. There is also an importance difference in the length of the tracheae, which extend much farther forward than those of *finlandicus*. In addi-

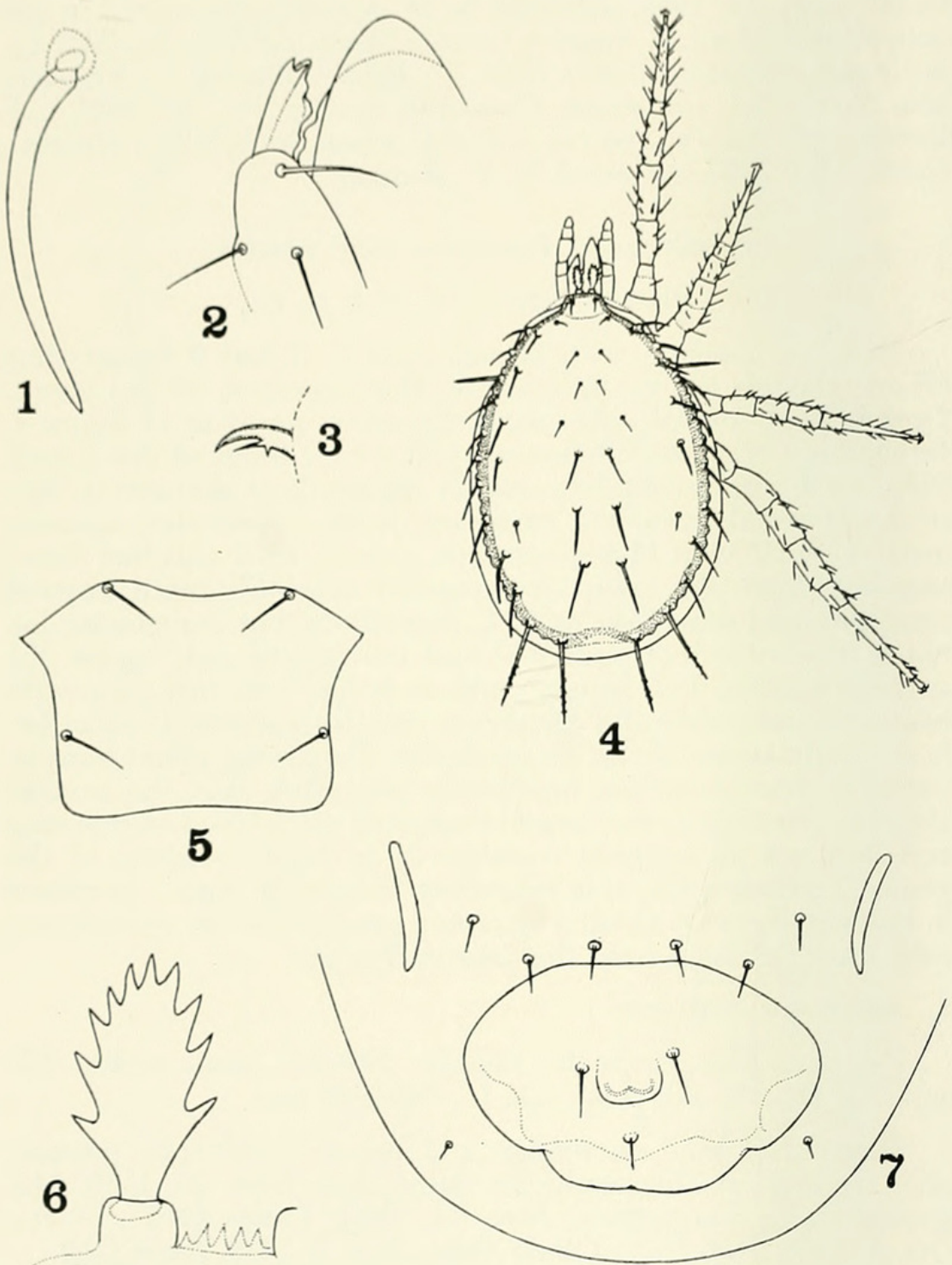


PLATE 6

Ameroseius californicus n. sp.: fig. 1, seta D⁵, fig. 2, ventral view of right side of hypostome; fig. 3, forked seta on palp-tarsus; fig. 4, dorsal view of mite; fig. 5, sternal plate; fig. 6, one of the leaflike setae at front apex of body; fig. 7, posterior venter, showing ventrianal scutum, parapodal plates, and associated setae.

tion, the chelicerae bear a conspicuous row of teeth, not seen in *finlandicus*. The greater length of the lateral setae, as mentioned above, and the small size of the dorsals, places it in *Amblyseius*.

***Ameroseius californicus* new species**

Plate 6, figs. 1, 2, 3, 4, 5, 6, 7.

The senior author examined this mite and concluded that it probably belongs in the genus *Ameroseius*, and is probably undescribed.

FEMALE.—Dorsum evidently with 11 pairs of lateral setae; L^8 and L^9 are shorter than L^{10} . There appear to be 7 pairs of interscutal (?) setae anterior to setae L^8 . The median dorsal setae (or spines) increase gradually in length from front to rear. Most of the body setae are thick-lanceolate, with weak secondary pectinations. A pair of plumate setae borne at front tip of body. Dorsal integument mosaic. Sternal scutum sub-rectangular, bearing 2 pairs of setae, with humeral angles rather prominent. Metapodal plates ovate, rather acutely pointed mesad. Parapodal plates one each side, banana-shaped. Ventri-anal scutum ovate, much wider than long, posterior margin scalloped, bearing one pair of paraanal setae, and a post-anal seta. A row of 4 setae immediately in front of anterior margin of ventri-anal scutum. One seta mesad of each parapodal plate. Forked sensory seta of pedipalp with a small secondary spur on inner spine. Chelicera with 3 rounded teeth on the fixed arm. All legs with only short setae. Peritreme extending anteriorly to seta D^1 .

This species differs from Berlese's *hirsutus* in the chaetotaxy of the posterior venter, outline of the anal plate, shape of the metapodal and parapodal plates, and in the length of the various dorsal and lateral setae.

HOLOTYPE FEMALE No. 3-31-55, citrus, near Stanton, Calif., March 31, 1955, Collected McGregor. Deposited in the collection of the Los Angeles County Museum. Four mites (*Typhlodromus* sp.) also on this slide.





1956. "Four new predaceous mites (Acarina Phyto-seiidae)." *Bulletin of the Southern California Academy of Sciences* 55, 7–13.

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