

The Spider Mites Of Arizona

(Acarina: Tetranychidae)

By

DONALD M. TUTTLE

Agricultural Experiment Station, University of Arizona, Yuma Branch Station,

And

EDWARD W. BAKER

Entomology Research Division, Agricultural Research Service, U. S. Department of Agriculture, Washington, D. C.

Authors' Preface

The family *Tetranychidae* contains the plant feeding spider mites of greatest economic importance, including a number of Arizona crop pests which frequently require chemical control treatments. Some species, such as the two-spotted spider mite and the desert mite, are general plant feeders while others have specific plant hosts.

This bulletin deals with the species of tetranychid mites known to occur in Arizona, including descriptions and illustrations of 14 new species. Although taxonomic details are emphasized, information is also included on the plant hosts, distribution, and biology of each species.

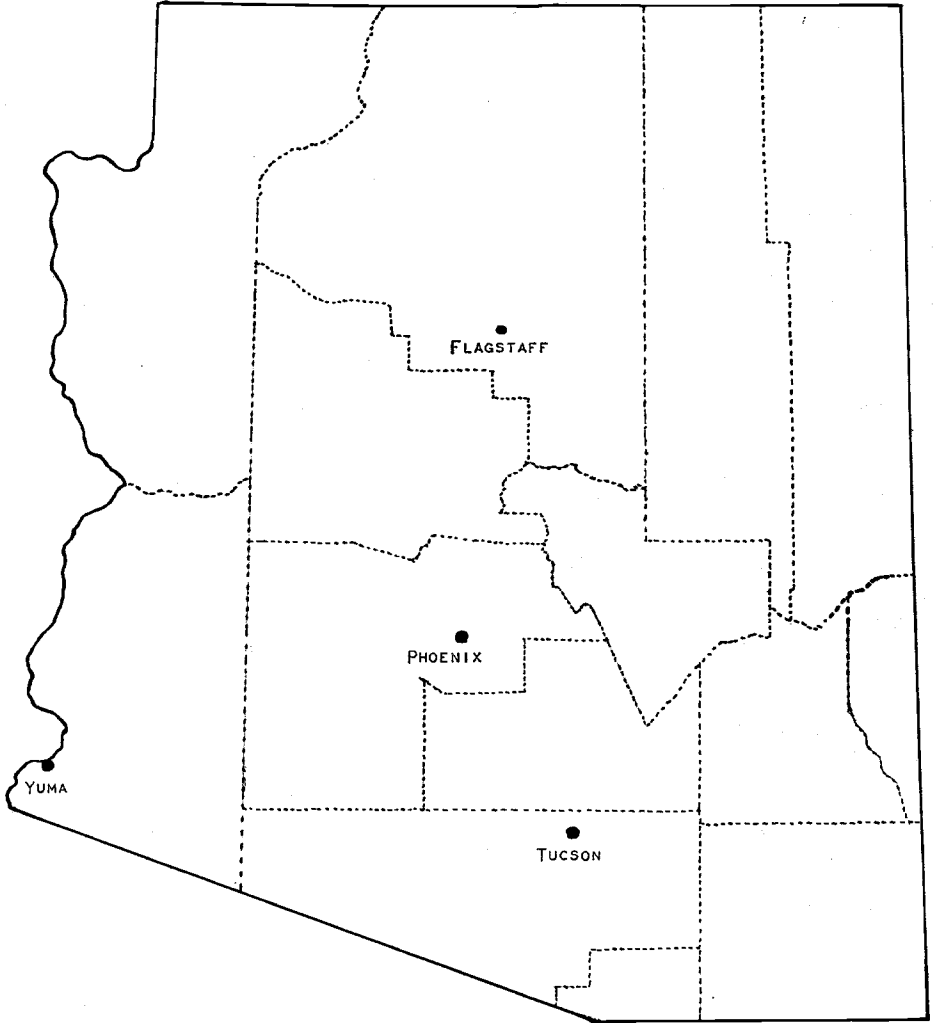
Keys have been omitted from this bulletin because a key to all Arizona genera is available in a recent comprehensive revision of the family *Tetranychidae*.¹

We are indebted to Dr. Charles T. Mason, Jr., Curator of the Herbarium, Department of Botany, University of Arizona, who determined many of the plant hosts mentioned in this bulletin.

D. M. T.
E. W. B.

January, 1963

¹Pritchard, A. E. and E. W. Baker. 1955. A Revision of the Spider Mites (Family *Tetranychidae*). Mem. Pacific Coast Ent. Soc., 2, 472 pp.



Map of Arizona Indicating Four of the Principal Areas from which Collections Were Made.

The

Spider Mites of Arizona

(Acarina: Tetranychidae)

by

Donald M. Tuttle

and

Edward W. Baker

The spider mites are serious pests of agricultural crops in Arizona. Extensive outbreaks of *Tetranychus telarius* (Linnaeus) in 1950 and 1951 caused the farmers of Yuma County to assess themselves ten cents per acre to obtain the services of a research entomologist for the area. Chemical control with acaricides is frequently necessary on cotton, alfalfa, melons, corn, and citrus. Ornamentals, likewise, are attacked by a number of species. Many less common species are encountered on desert vegetation.

Prior to 1952 only a few records and specimens of Tetranychidae were available for Arizona. Several of these early collections and records were obtained by Marvin H. Frost. During the year 1953-1959 many collections of plant mites were made through the efforts of F. F. Bibby; these were largely on agricultural crops, but some specimens of spider mites were taken on other plants. Specimens have also been provided periodically by G. D. Butler, Jr., University of Arizona. The majority of collections have been made by D. M. Tuttle and staff at the Yuma Experiment Station since 1952.

The most intensive search for Tetranychidae has been in Yuma County. Both Maricopa and Pima Counties are fairly well represented, and a few collections were made in Coconino County in 1961. Southern Arizona, comprising the irrigated agricultural areas of the state have, therefore, been fairly well covered. Tetranychoid mites from northern Arizona are not well known at present; however a few collections have been made at Flagstaff. Undoubtedly the forested areas and locations with rich flora will yield many additional interesting spider mites.

This manuscript treats 37 described species representing 9 genera of Tetranychidae. In addition, descriptions of 14 new species in 4 of these

Dr. Tuttle is an Associate Entomologist stationed at the Branch Experiment Station at Yuma, Arizona. Dr. Baker is an Entomologist with the Agricultural Research Service, U. S. Department of Agriculture, Washington, D. C., Entomology Research Division.

genera are included. These 51 species represent perhaps the most common spider mites of Arizona but certainly only a part of the total number of Tetranychidae for the state.

Genus *Bryobia* Koch, 1836

Bryobia Koch, 1836, Deuts. Crust. Myr. Arachn., 1:8,9.

Bryobia drummondi (Ewing)

Petrobia drummondi Ewing, 1926, Ent. News, 37:143.

Bryobia drummondi, Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:19.

Bryobia drummondi had previously been found in California and Texas on creosote bush, *Larrea tridentata* (DC.) Coville.

Arizona records for this species are: Palm Canyon (D. M. Tuttle), May 5, 1961 on *Larrea tridentata*, and March 16, 1962 on *Ephedra fasciculata* A. Nels. (joint-fir); Picacho (J. Warren), October, 1953 on *Larrea tridentata*; Toltec (J. Warren), September 21, 1953 on *Prosopis juliflora* (Swartz) DC. (mesquite); Yuma (D. M. Tuttle), August 20 and 26, 1959, and January 8, 1961 on *Larrea tridentata*, November 4, 1961 on *Cucurbita palmata* Wats. (coyote-melon), and August 26, 1959 on *Sorghum halepense* (L.) Pers. (Johnsongrass).

Bryobia praetiosa Koch

(clover mite)

Bryobia praetiosa Koch, 1836, Deuts. Crust. Myr. Arach., 1:8; Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:26.

Bryobia praetiosa is now considered to be a species infesting low-lying plants. This species occurs in Europe, Asia, Africa, North America, South America, and Australia.

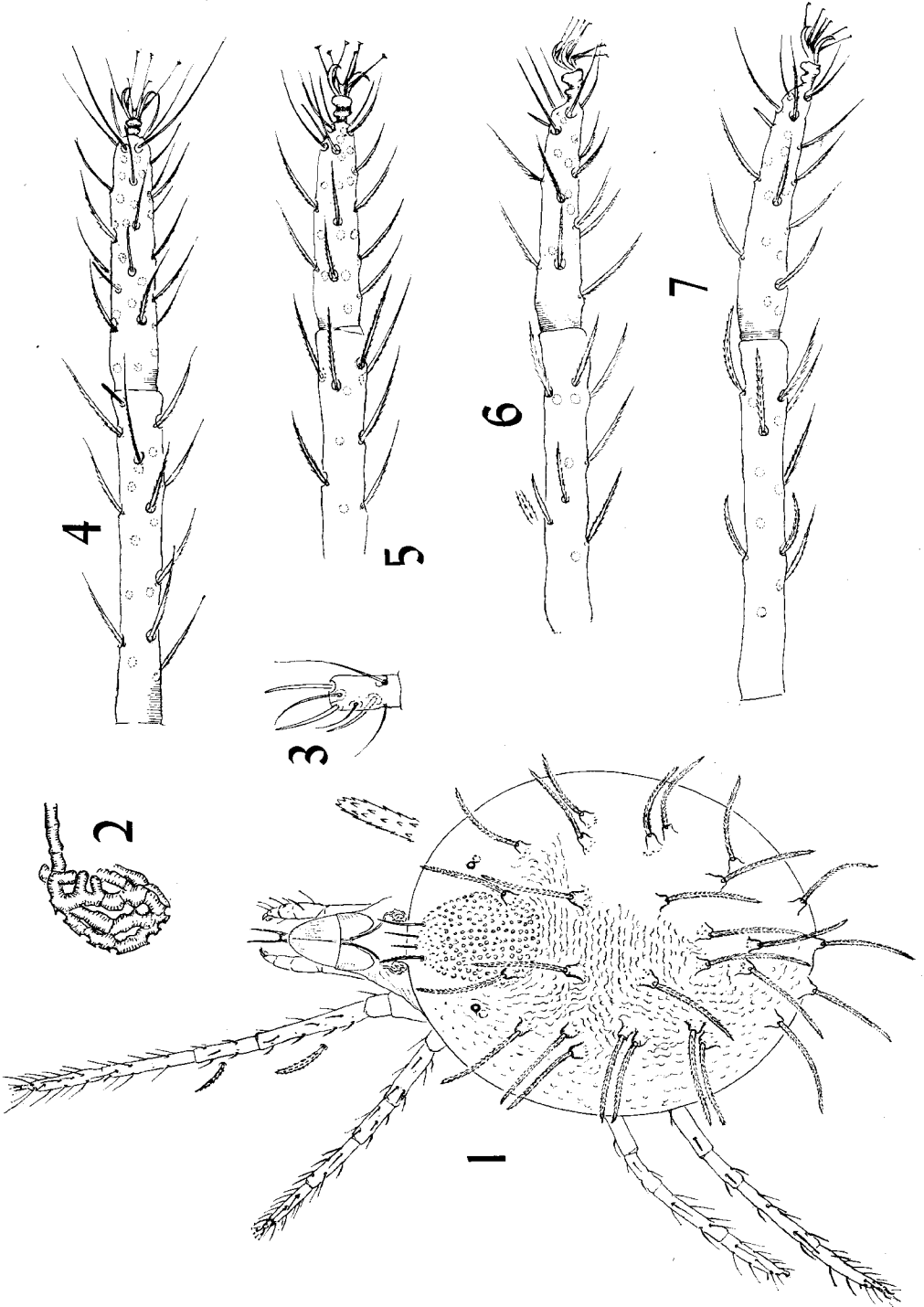
Many grasses, including wheat, rye, barley, and other grain crops serve as host plants. Clover and alfalfa are frequently infested. Many ornamentals including ivy and orchids are infested. Several weeds serve as favorable hosts.

Apparently, *Bryobia praetiosa* is widely distributed in Arizona, particularly in the agricultural areas. In the winter and spring of each year it is frequently reported invading houses, especially those surrounded by clover or rye lawns.

The following plants have been reported as hosts for this species in Arizona: *Brassica juncea* (L.) Cosson (Indian mustard), *Brassica* sp., *Cenchrus echinatus* L. (sand-bur), *Centaurea cyanus* L. (bachelors-button), *Chenopodium album* L. (lambs-quarters), *Chenopodium murale* L. (nettle-leaf goose-foot), *Convolvulus arvensis* L. (field bindweed), *Cucumis sativus* L. (cucumber), *Heterotheca subaxillaris* (Lam.) Britt. & Rusby (telegraph plant), *Impomoea* sp. (morning glory), *Lolium perenne* L. (perennial ryegrass), *Medicago sativa* L. (alfalfa), *Plantago insularis* Eastw. (Indian-wheat), *Portulaca oleracea* L. (purslane), *Pteridium aquilinum* (L.) Kuhn

On Facing Page —————>

Bryobia namae, new species. Fig. 1, dorsal view of body. Fig. 2, distal end of peritreme. Fig. 3, palpal tarsus. Fig. 4, tibia and tarsus I. Fig. 5, tibia and tarsus II. Fig. 6, tibia and tarsus III. Fig. 7, tibia and tarsus IV.



(Bracken), *Raphanus sativus* L. (radish), *Rumex crispus* L. (curly-leaf dock), *Spergularia* sp. (sand-spurry), *Trifolium dubium* Sibth. (clover "true shamrock"), and *Trifolium repens* L. (white clover).

Bryobia rubrioculus (Scheuten)

Sannio rubrioculus Scheuten, 1857, Arch. Naturg., 23:104.

This species, widely distributed on deciduous fruit trees throughout the world, has been collected from *Malus sylvestris* Mill. (apple), in Arizona at Willcox, Holbrook, and Sedona.

Bryobia namae, new species

(Figs. 1-7)

This species has no propodosomal tubercles. The long, serrate dorsal body setae set on strong tubercles and the tuberculate propodosomal shield are distinctive.

Female

Rostrum elongate, attaining distal end of femur I; stylophore rounded anteriorly, not cleft; palpal thumb as figured. Peritreme with round, complex distal enlargement, not free. Idiosoma with small tuberculate propodosomal shield; rest of dorsum weakly striate laterally, with wavy transverse striations dorsally; dorsal setae long, strong, serrate, borne on prominent tubercles. Legs with slightly lanceolate setae, all serrate; tarsus III and IV each with very short sensory seta and much longer (four times) tactile seta; leg I about as long as body, other legs shorter; all empodia short, padlike, with single pair of tenent hairs. Length of body 733 μ .

Male

Not known.

Holotype

Female, U.S. National Museum No. 2897, *ex Nama hispidum* Gray, Gila Bend, Arizona, March 24, 1960 (D. M. Tuttle).

Paratypes

Twenty females with data same as above.

Bryobia convolvulus, new species

(Figs. 8-12)

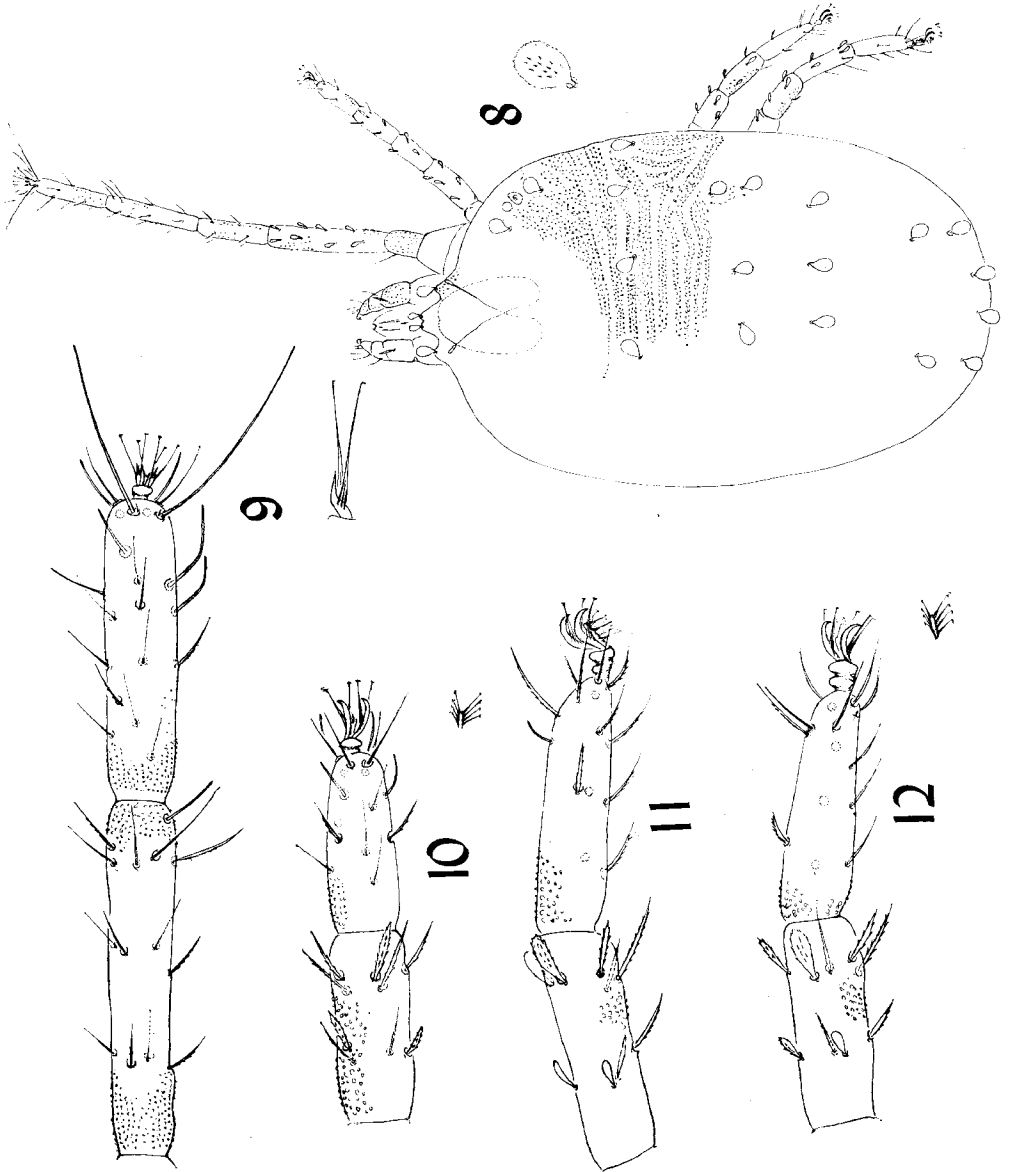
This species possesses the propodosomal protuberances. The peculiar tarsal claws on leg I and the setal pattern of tarsus III and tarsus IV are distinctive.

Female

Rostrum short, not reaching middle of femur I. Peritreme ending in a simple bulb. Idiosoma with praetiosa-type striae of broad, tuberculate wrinkles; with small, almost round dorsal body setae which have finely serrate edges and few strong surface serrations; anterior propodosomal protuberances weak. Legs with many proximal setae broadly spatulate, serrate; tarsus III with sensory and tactile setae of about equal length, but on tarsus IV sensory seta short, not more than one-third as long as tactile seta; empodium I short and with single pair of tenent hairs; other empodia

On Facing Page \longrightarrow

Bryobia convolvulus, new species. Fig. 8, dorsal view of body. Fig. 9, tibia and tarsus I, with detail of true claw. Fig. 10, tibia and tarsus II. Fig. 11, tibia and tarsus III. Fig. 12, tibia and tarsus IV, with detail of empodium.



with a row of four pairs of tenent hairs; tarsal I claws unique, not appearing to be clawlike upon close examination, since portion beyond tenent hairs is reduced, straight and not hooked; other legs with normal claws. Length of body 600 μ .

Male

Not known.

Holotype

Female, U. S. National Museum No. 2898, ex *Convolvulus arvensis* L. (field bind-weed), Dome, Yuma County, Arizona, April 3, 1961 (D. M. Tuttle).

Paratypes

Seventeen females with data same as above.

Genus *Hystrichonychus* McGregor, 1950

Hystrichonychus McGregor, 1950, Amer. Midl. Nat., 44(2):27.

Hystrichonychus gracilipes (Banks)

Tetranychus gracilipes Banks, 1900, U. S. Dept. Agric. Tech. Ser., 8:72.

Hystrichonychus gracilipes, Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:39.

This species was previously known from Arizona on *Sphaeralcea* spp., from California on *Sphaeralcea angustifolia* (Cav.) G. Don., and Texas on mallow.

At Yuma, Arizona, this species is very common and abundant on *Sphaeralcea orcuttii* Rose (globe-mallow). Other host plants from Yuma are *Sida hederacea* (Dougl.) Torr. (meloncilla) and *Malva parviflora* L. (mallow). Collections were made by F. F. Bibby from Luke Field and El Mirage, Arizona on *Sphaeralcea* sp.

Hystrichonychus sidae Pritchard and Baker

Hystrichonychus sidae Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:40.

Hystrichonychus sidae, which resembles *H. gracilipes* very closely, occurs on alkali mallow, *Sida hederacea* (Dougl.) Torr. in California. In Arizona, this species was found at Palm Canyon (Yuma County) on *Encelia farinosa* Gray (brittle-bush), November 18, 1961 (D. M. Tuttle) and at Scottsdale, on *Sphaeralcea ambigua* Gray, April 1, 1960 (R. S. Beal).

Specimens were also received from G. D. Butler, Jr. on *Sphaeralcea* sp., Pinacate Mountains, McDougal Crater, Sonora, Mexico, November 27, 1959.

Genus *Petrobia* Murray, 1887

Petrobia Murray, 1877, Econ. Ent. Aptera, London, p. 118.

Petrobia harti (Ewing)

Neophyllobius harti Ewing, 1909, Trans. Amer. Ent. Soc., 35:405.

Petrobia harti, Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:45.

Petrobia harti has been collected from scattered locations throughout the world on *Oxalis* spp.

This mite was abundant on *Oxalis pilosa* Nutt. (wood-sorrel) on the campus of the University of Arizona, Tucson, Arizona (D. M. Tuttle) May 10, 1962.

Petrobia latens (Müller)
(brown wheat mite)

Acarus latens Müller, 1776, Zool. Danicae Prodr., p. 187.

Petrobia latens, Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:51.

Petrobia latens is widely distributed throughout the world. It is known from North Africa, Australia, Europe, and North America. Although not reported until 1917 in the United States, it appears to be well established in the western and some of the eastern states.

This species inhabits grasses primarily and migrates to several vegetable and field crops.

The list of plant hosts from Arizona is numerous. These are *Abronia villosa* Wats. (sand-verbena), *Allium cepa* L. (onion), *Bebbia juncea* (Benth.) Greene (low shrub), *Bromus arizonicus* (Shear) Stebbins (brome), *Cichorium endivia* L. (endive), *Coldenia palmeri* Gray, *Convolvulus arvensis* L. (field bind-weed), *Cynodon dactylon* (L.) Pers. (bermudagrass), *Cucumis melo* L. (cantaloup), *Daucus carota* L. (carrot), *Ficus carica* L. (fig), *Gossypium hirsutum* L. (cotton), *Hordeum vulgare* L. (barley), *Lactuca sativa* L. (lettuce), *Lesquerella gordonii* (Gray) Wats. (bladder-pod), *Lupinus* sp. (lupine), *Medicago sativa* L. (alfalfa), *Oenothera clavaeformis* Torr. & Frem. (evening-primrose), *Phalaris minor* Retz. (canary-grass), *Potentilla norvegica* L. (cinquefoil), *Tragopogon porrifolius* L. (salsify), and *Triticum aestivum* L. (wheat).

These mites sometime invade homes in Arizona and elsewhere when they are abundant on plants nearby.

Petrobia phaceliae, new species
(Figs. 13-20)

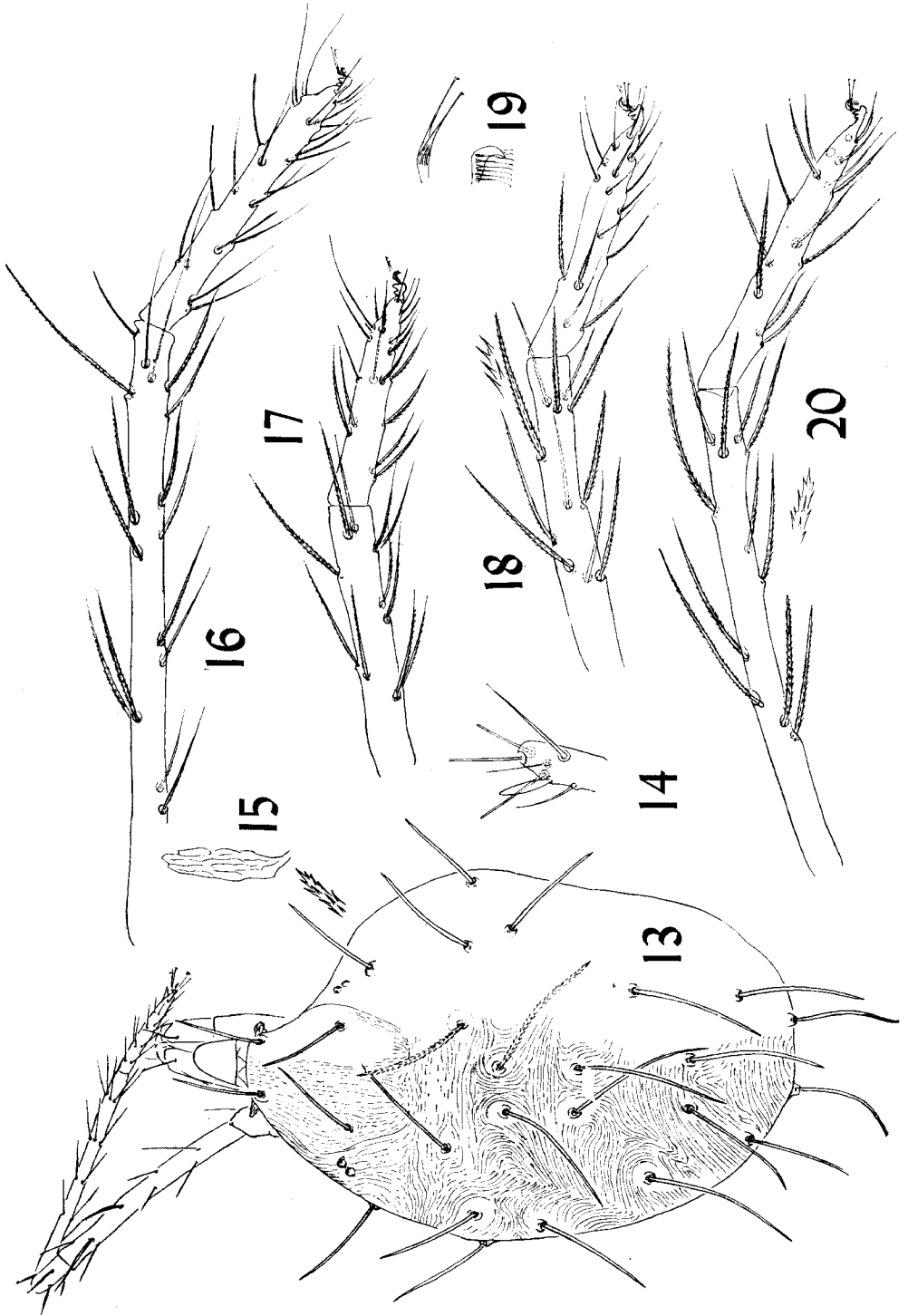
Petrobia phaceliae has the long free peritremes of *P. latens* but possesses long dorsal body setae; the empodial claw is strong, long, and sharply bent; and the dorsal body striae are longitudinal between the second and third pair of hysterosomal dorsocentral setae and irregularly longitudinal behind the inner sacral setae.

Female

Rostrum elongate but not reaching middle of femur I. Peritreme with elongate, free complex enlargement distally. Legs with tactile setae long, lanceolate, serrate; serrations of proximal leg setae strong; leg I about as long as body. Empodia relatively long, strong, sharply bent and claw-like, at least twice as long as padlike true claws, bearing five or six pairs of tenent hairs. Hysterosoma with dorsal striae more or less transverse except for short longitudinal pattern between second and third pair of hysterosomal dorsocentral setae, and except for an irregular longitudinal pattern just behind the inner sacral setae. Dorsal body setae long, slender, much longer than intervals between bases, not set upon tubercles. Length of body 890 μ .

On Following Page \longrightarrow

Petrobia phaceliae, new species. Fig. 13, dorsal view of body. Fig. 14, palpal tarsus. Fig. 15, distal end of peritreme. Fig. 16, tibia and tarsus I. Fig. 17, tibia and tarsus II. Fig. 18, tibia and tarsus III. Fig. 19, details of claws and empodium. Fig. 20, tibia and tarsus IV.



Male

Not known.

Holotype

Female, U. S. National Museum No. 2899, *ex Phacelia* sp., Tempe, Arizona, March 30, 1957 (F. F. Bibby).

Paratypes

Three females with data same as above.

Genus *Aplonobia* Womersley, 1940

Aplonobia Womersley, 1940, Trans. Roy. Soc. S. Australia, 64(2):252.

Aplonobia anisa Pritchard and Baker

Aplonobia anisa Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:64.

This mite was described from California on *Artemisia* sp.

Arizona records for *Aplonobia anisa* are Nogales (F. A. Allen and R. A. Alexander, September 9, 1959 on *Fraxinus* sp.; and Yuma (D. M. Tuttle), June 13, 1962, on *Dicoria canescens* Gray (a desert annual).

Aplonobia myops Pritchard and Baker

Aplonobia myops Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:63.

This species was described from California, where it was causing serious injury to a commercial field of asparagus.

One collection, consisting of two females and six nymphs, was found on *Distichlis stricta* (Torr.) Rydb. (saltgrass), Yuma, Arizona, May 2, 1960 (D. M. Tuttle).

Aplonobia deina Pritchard and Baker

Aplonobia deina Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:57.

This species was previously known only from Washington on *Balsomorrhiza sagittata* Nutt.

Six females were collected on *Franseria deltoidea* Torr. at Sells, Arizona, October 5, 1960 (D. M. Tuttle); and two nymphs on *Verbesina encelioides* (Cav.) Benth. & Hook. (crown-beard) from Yuma, May 4, 1962 (D. M. Tuttle).

Aplonobia euphorbiae, new species

(Figs. 21-26)

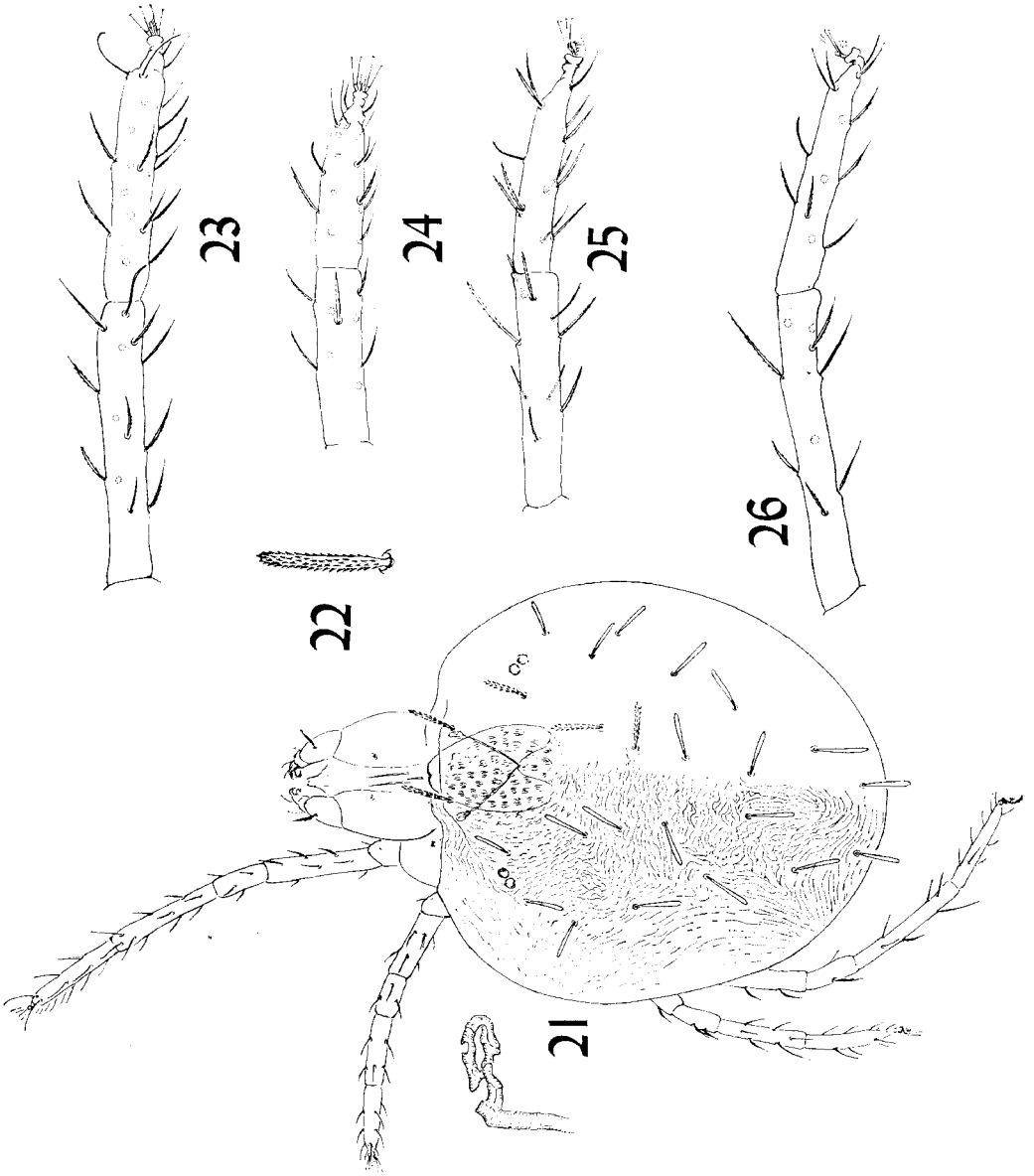
This species is easily recognized by the basket weave striation pattern within the propodosomal shield area and by the distal, complex enlargement of the peritreme.

Female

Rostrum relatively short and stout, not reaching distal of femur 1; stylophore only slightly emarginate; peritreme ending in a complex enlargement distally. Leg I shorter than body; leg setae of medium length, lanceolate, with short serrations; empodia with five pairs of tenent hairs, only slightly longer than padlike claws. Idiosoma with basket weave in propodosomal shield area;

On Following Page —————>

Aplonobia euphorbiae, new species. Fig. 21, dorsal view of body with detail of peritreme. Fig. 22, dorsal body seta. Fig. 23, tibia and tarsus I. Fig. 24, tibia and tarsus II. Fig. 25, tibia and tarsus III. Fig. 26, tibia and tarsus IV.



hysterosoma with wavy, transverse striae except for area behind inner setae where striae are longitudinal; dorsal setae of medium length, clublike, with short serrations, not borne on tubercles. Length of body 670 μ .

Male

Specimens broken; legs long, slender, I, III, and IV longer than body. Dorsal setae small, serrate, about one-third size of those of female. Aedeagus long, slender, stretching longitudinally from behind coxae IV to posterior margin of body, and sheathed along posterior half. Length of body 333 μ .

Holotype

Female, U.S. National Museum No. 2900, *ex Euphorbia albomarginata* Torr. & Gray, Dome Valley, Yuma County, Arizona, May 23, 1961 (D. M. Tuttle).

Paratypes

Two males, two females, with the data same as above; one female *ex Polygonum argyrocoleon Steud.*, with data same as above.

Aplonobia prosopis, new species

(Figs. 27-30)

The strongly spatulate, serrate dorsal body setae, and the faint striation pattern are characteristic of this species.

Female

Rostrum short, reaching about middle of femur 1; peritreme ending in a free, complex structure distally. Legs short, not as long as body; empodia longer than padlike claws, with a double row of six tenent hairs; leg setae strong, lanceolate, serrate. Idiosoma with propodosomal shield only slightly differentiated from rest of body; striae weak, longitudinal on propodosoma and transverse on hysterosoma; dorsal setae of medium length, serrate, broadly spatulate, not borne on tubercles. Length of body 400 μ .

Male

Not known.

Holotype

Female, U.S. National Museum No. 2901, *ex Prosopis juliflora* (Swartz) DC. (common mesquite), San Luis, Arizona, June 2, 1954 (D. M. Tuttle).

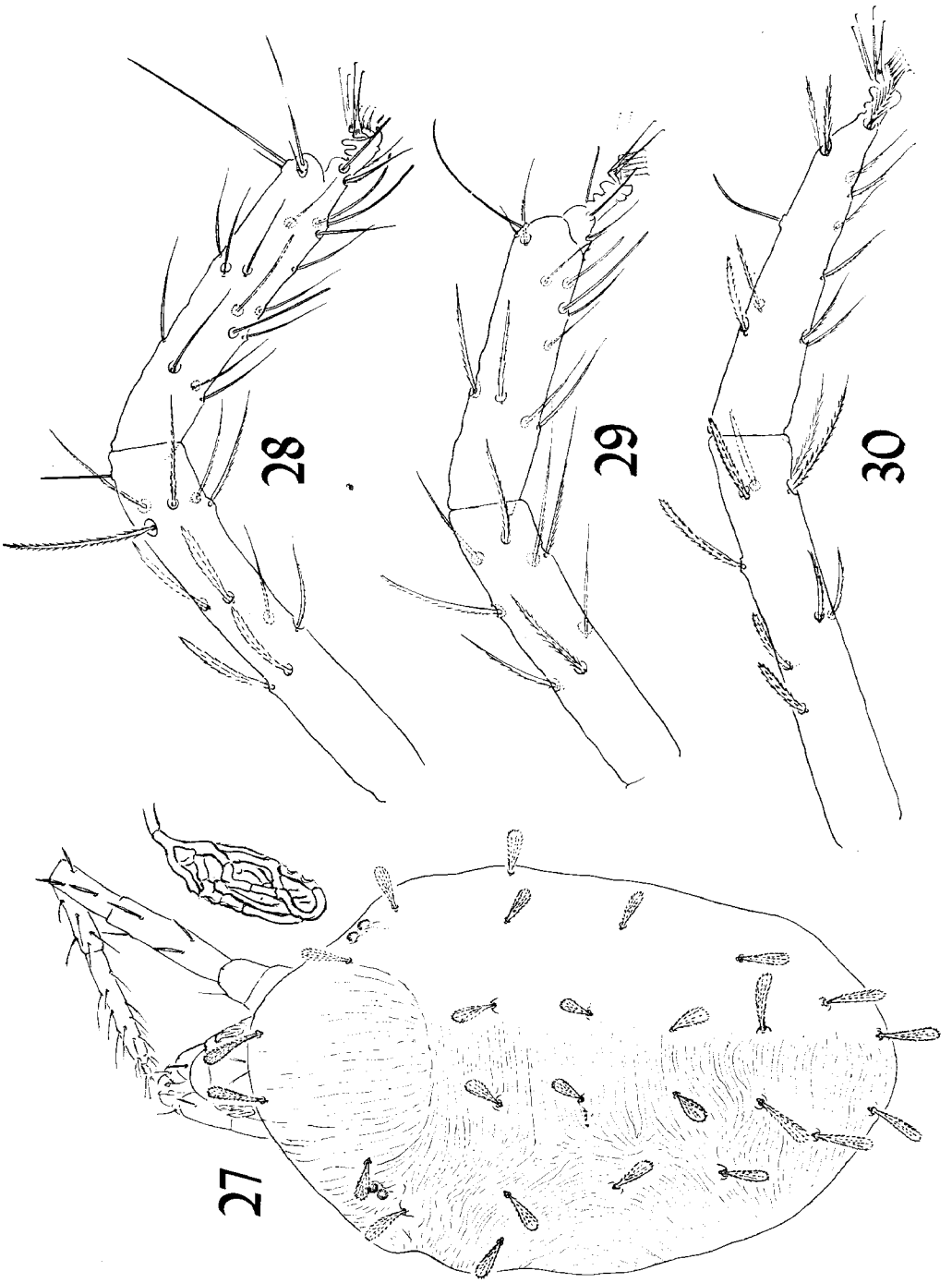
Paratypes

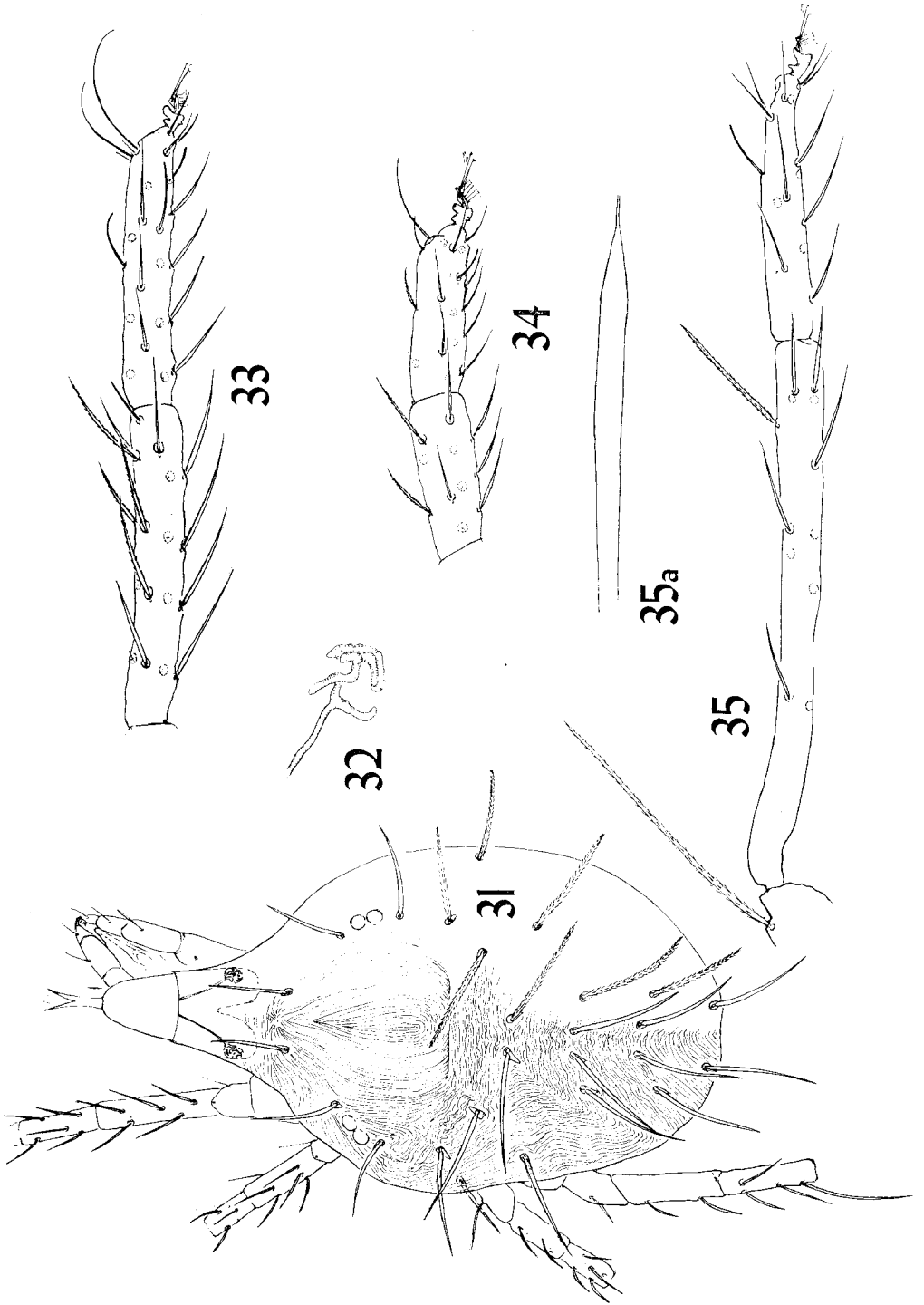
Female, *ex* mesquite twigs, Nogales, Arizona, May 11, 1956 (R. A. Alexander); seven females *ex* mesquite, Toltec, Arizona, September 21, 1953 (J. W. Warren).

Also examined was a nymph collected on *Prosopis juliflora*, Yuma, Arizona, August 31, 1959 (D. M. Tuttle), and six females from "shrub", White-water Canyon, California, July 7, 1958 (C. D. Brickhill).

On Following Page \longrightarrow

Aplonobia prosopis, new species. Fig. 27, dorsal view of body and detail of peritreme. Fig. 28, tibia and tarsus I. Fig. 29, tibia and tarsus II. Fig. 30, tibia and tarsus IV.





← On Previous Page

Aplonobia coldeniae, new species. Fig. 31, dorsal view of body. Fig. 32, detail of peritreme. Fig. 33, tibia and tarsus I. Fig. 34, tibia and tarsus II. Fig. 35, tibia and tarsus IV. Fig. 35A, aedeagus.

Aplonobia coldeniae, new species
(Figs. 31-35A)

This species is easily recognized by the long dorsal body setae, the weak propodosomal shield, and the elongate rostrum.

Female

Rostrum long, reaching past distal end of femur 1. Peritreme ending in small complex distally. Legs with empodial pad longer than padlike claws; empodia with double row of five tenent hairs; leg setae long, slender, lanceolate, serrate. Idiosoma with longitudinal striae on propodosoma, shield area barely differentiated from rest of body; striae of hysterosoma wrinkled, transverse. Dorsal body setae long, serrate, far surpassing in length distance between bases, strong, not set upon tubercles. Length of body 573 μ .

Male

Similar to female, but with longer legs; legs I and IV much longer than body. Body setae shorter than in female. Aedeagus long and stout. Length of body 413 μ .

Holotype

Female, U.S. National Museum No. 2902, *ex Coldenia palmeri* Gray (low, spreading shrub), Yuma, Arizona, August 24, 1959 (D. M. Tuttle).

Paratypes

Thirty-two females and five males with the above data; four females and one male from the same host and locality, but collected October 17, 1960 (D. M. Tuttle).

Genus *Monoceronychus* McGregor, 1945

Monoceronychus McGregor, 1945, Proc. Ent. Soc. Wash., 47 (4): 100.

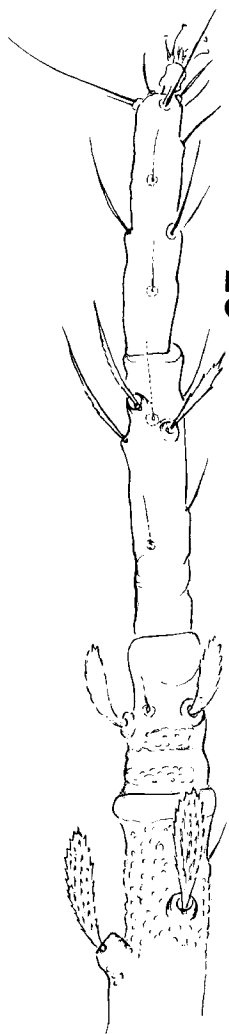
Monoceronychus californicus McGregor

Monoceronychus californicus McGregor, 1945, Proc. Ent. Soc. Wash., 47(4): 100; Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2: 83. Previously this species was known only from saltgrass in California.

Monoceronychus californicus in Arizona was first taken on *Distichlis stricta* (Torr.) Rydb. (saltgrass) November 3, 1960 (D. M. Tuttle). Since then it has been frequently observed on saltgrass in large numbers. This species often occurs on saltgrass having high populations of a tenuipalpid mite *Dolichotetranychus salinas* Pritchard and Baker.

On Facing Page →

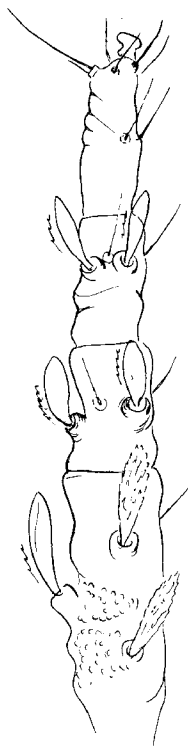
Monoceronychus muhlenbergiae, new species. Fig. 36, dorsal view of body. Fig. 37, leg I. Fig. 38, leg II. Fig. 39, leg III. Fig. 40, leg IV.



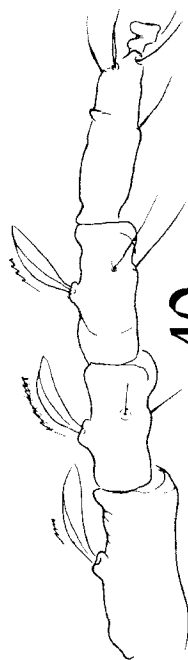
37



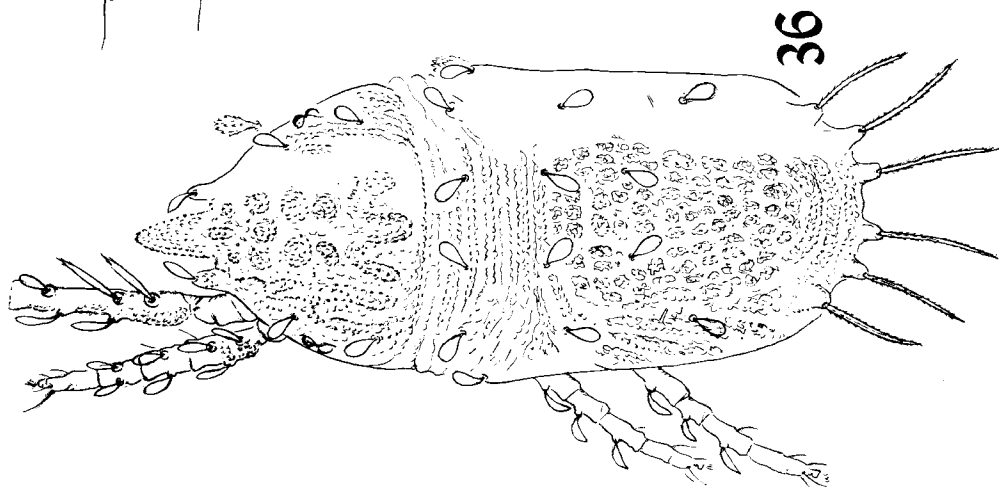
38



39



40



36

Monoceronychus muhlenbergiae, new species
(Figs. 36-40)

This species is similar to *Monoceronychus scolus* Pritchard and Baker, differing in having all but the posterior three pairs of caudal setae short and broadly lanceolate.

Female

Rostrum nearly attaining proximal third of femur I. Stylophore broadly angulate anteriorly, not indented. Legs not as long as body; leg I longest; dorsal setae of femur and genua, and tibiae of legs II-IV short, serrate, and broadly lanceolate. Empodial pad longer than true claws and with a double row of tenent hairs. Propodosoma and part of hysterosoma with an irregular pattern of tubercles. All but three pairs of posterior caudal body setae short, serrate, broadly lanceolate; the three pairs long, slender, serrate. Length of body 472 μ .

Male

Not known.

Holotype

Female, U.S. National Museum No. 2903, ex *Muhlenbergia pulcherrima* Scribn., Flagstaff, Arizona, September 1, 1961 (D. M. Tuttle).

Paratypes

One female, with the data same as above.

A nymph, with data same as above is also in the collection.

Monoceronychus pulcherrimae, new species
(Figs. 41-45)

This species is similar to *Monoceronychus boreus* Krantz, but differs in having a shorter propodosomal projection, and in having a much wider hysterosomal shield.

Female

Rostrum reaching proximal fourth of femur I. Stylophore sharply acuminate anteriorly; ventrally the anterior portion is broadly rounded and cleft. Anterior leg longest, but not as long as body. Dorsal setae of femur and genu of leg I, and of femora, genua, and tibiae of legs II-IV short, serrate, lightly lanceolate; other setae as figured. Propodosoma with small anterior median projection; shield tuberculate; anterior pair of setae large, lanceolate, serrate; other setae smaller. Anterior portion of hysterosoma with smooth, transverse striae; posterior dorsal surface with longitudinal tuberculate striation pattern; setae small, lanceolate, serrate; the three pairs of posterior setae three to four times larger than others. Length of body 465 μ .

Male

Not known.

Holotype

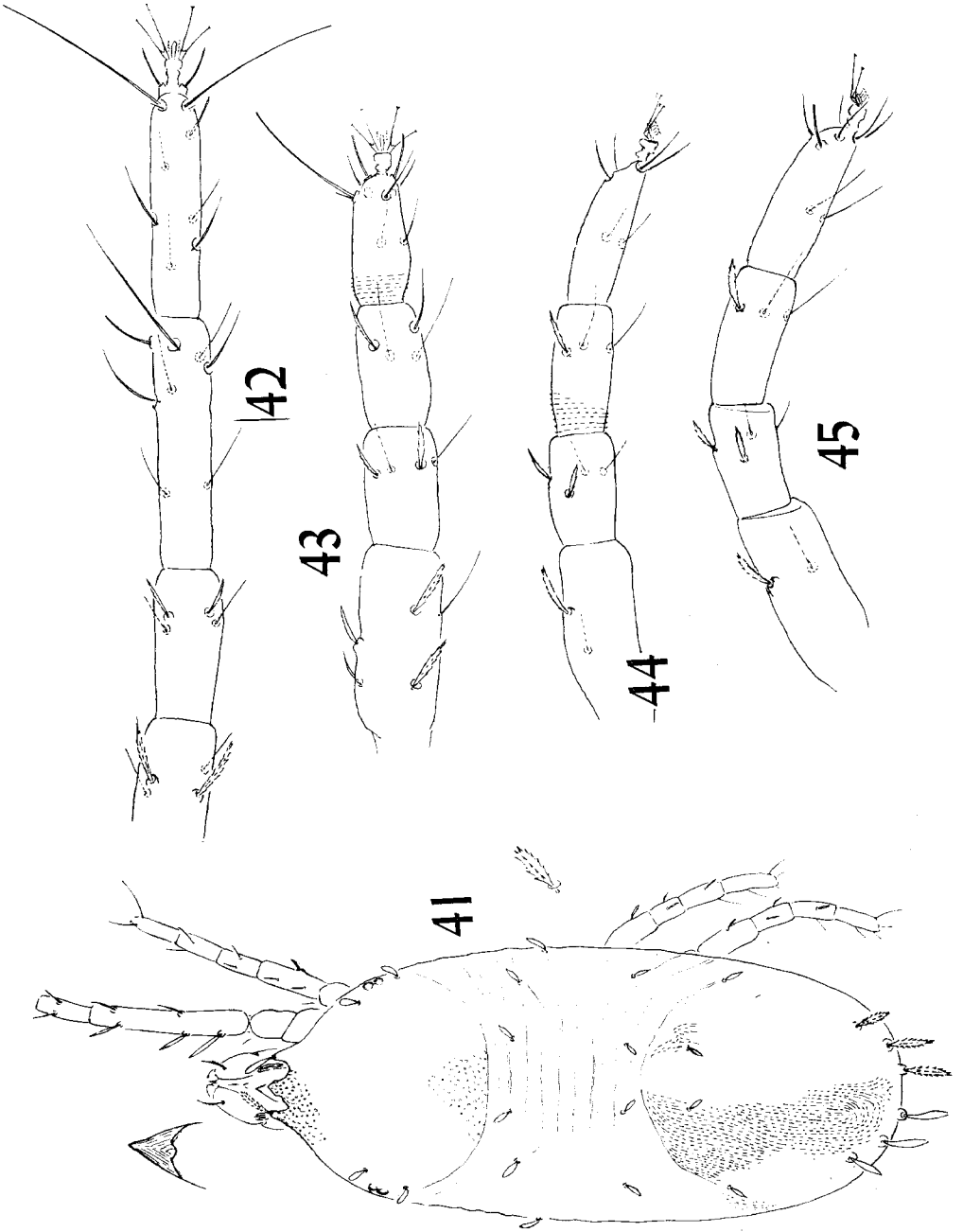
Female, U.S. National Museum No. 2094, ex *Muhlenbergia pulcherrima* Scribn., Flagstaff, Arizona September 2, 1961 (D. M. Tuttle).

Genus *Eotetranychus* Oudemans, 1931

Eotetranychus Oudemans, 1931, Ent. Ber., 8(178):224.

On Facing Page \longrightarrow

Monoceronychus pulcherrimae, new species. Fig. 41, dorsal view of body with detail of stylophore. Fig. 42, leg 1, Fig. 43, leg II. Fig. 44, leg III. Fig. 45, leg IV.



Eotetranychus libocedri (McGregor)

Tetranychus libocedri McGregor, 1936, Ann. Ent. Soc. Amer., 29(4):771;
McGregor, 1950, Amer. Midl. Nat., 44:289.
Eotetranychus libocedri, Pritchard and Baker, 1955, Mem. Pac. Coast Ent.
Soc., 2:154.

This mite is known from California, Washington, Utah, and Texas on Arizona cypress, Italian cypress, cypress, juniper, and *Libocedrus decurrens* Torr. (incense-cedar).

Collections in Arizona were from Yuma (D. M. Tuttle), December 15, 1959, on *Juniperus communis* L. (common juniper) and September 14, December 15, 1959, and April 18, 1962 on *Thuja occidentalis* L. (arborvitae); and Nogales (Valcarce), March 25, 1954, on *Cupressus arizonica* Greene (Arizona cypress), and on *Tamarix* sp. (tamarisk).

Eotetranychus weldoni (Ewing)

Tetranychus weldoni Ewing, 1913, Ann. Ent. Soc. Amer., 6:457.
Eotetranychus weldoni, Pritchard and Baker, 1955, Mem. Pac. Coast Ent.
Soc., 2:191.

Eotetranychus weldoni occurs on willow and poplar in California, Kansas, and Colorado.

This mite was found on both willow and poplar at Yuma, Arizona August 21 and September 9, 1959 (D. M. Tuttle) on *Salix gooddingii* Ball (Goodding willow); December 28, 1959 (D. Muse) on *Salix gooddingii*; October 15, 1953 (Czajkowski and McCain) on *Populus fremontii* Wats.; and August 31, 1959 (D. M. Tuttle) on *Populus fremontii*. It was also collected at Hyder (Yuma County) April 27, 1962 (D. M. Tuttle) on *Populus fremontii*.

Eotetranychus malvastris (McGregor)

Tetranychus malvastris McGregor, 1950, Amer. Midl. Nat., 44(2):290.
Eotetranychus malvastris, Pritchard and Baker, 1955, Mem. Pac. Coast Ent.
Soc., 2:192.

This mite was previously known only Southern California on *Malvastrum* sp., *Malva* sp., and *Adenostema fasciculatum* H. & A.

Specimens determined from Arizona were found at Tuscon, November 26, 1953 (L. A. Carruth), on *Cassia* sp.; Yuma County (Dome Valley), November 4, 1961 (D. M. Tuttle) on *Croton californicus* Muell. Arg.; Yuma County (Palm Canyon), May 5 and November 18, 1961 (D. M. Tuttle) on *Ditaxis lanceolata* (Benth.) Pax & Hoffmann; Yuma County (Gila Valley), April 14, 1960 (D. M. Tuttle) on *Sphaeralcea orcuttii* Rose, May 4, 1962 (D. M. Tuttle) on *Sphaeralcea ambigua* Gray (desert-mallow); and Luke Field, March 10 and May 12, 1957 (F. F. Bibby) on *Sphaeralcea* sp.

Eotetranychus yumensis (McGregor)

Tetranychus yumensis McGregor, 1934, Proc. Ent. Soc. Wash., 36:256
McGregor, 1950, Amer. Midl. Nat., 44(2):304.
Eotetranychus yumensis, Pritchard and Baker, 1955, Mem. Pac. Coast Ent.
Soc., 2:199.

Eotetranychus yumensis is known from citrus in Arizona and California.

Although the Yuma spider mite occurs throughout the year at Yuma, Arizona, it is more abundant in the spring and fall months. These reddish mites appear to prefer orange and tangerine to other citrus.

They feed primarily on the foliage, preferring the underside, and spin

considerable webbing. The latter sometimes becomes conspicuous on the outside rows of a grove because dirt becomes enmeshed in it. Feeding causes discoloration and "blotching" of the leaves. Extensive damage results in defoliation, particularly during periods of high winds. In some cases fruit has a "bleached" appearance which lowers the grade.

The Yuma spider mite has been collected extensively at Yuma on citrus, including lemon, tangerine, grapefruit, orange, and citrange (D. M. Tuttle). In addition, it was found on castor bean (D. M. Tuttle), grain sorghum (D. C. McCain), and grape (D. M. Tuttle) at Yuma.

Eotetranychus frosti (McGregor)

Tetranychus frosti McGregor, 1952, Proc. Ent. Soc. Wash., 54:142.

Eotetranychus frosti, Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:199.

This mite was originally described from rosebush in Arizona. Subsequently it has been taken on blackberry in California and raspberry in Louisiana, Missouri, and North Dakota.

Eotetranychus sexmaculatus (Riley)

(six-spotted mite)

Tetranychus 6-maculatus Riley, 1890, Insect Life, 2:225.

Eotetranychus sexmaculatus, Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:202.

This species is primarily a pest of citrus in California and Florida. It seems to be restricted to the underside of the foliage. Specimens from California have been collected from *elaegnus*, royal paulonia, *pyracantha*, azalea, camphor, maple, lemon, and other citrus.

Eotetranychus sexmaculatus was reported by a federal survey crew in 1945 on citrus in Arizona.

Eotetranychus lewisi (McGregor)

(Lewis spider mite)

Tetranychus lewisi McGregor, 1943, Proc. Ent. Soc. Wash., 45:127.

Eotetranychus lewisi, Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:205.

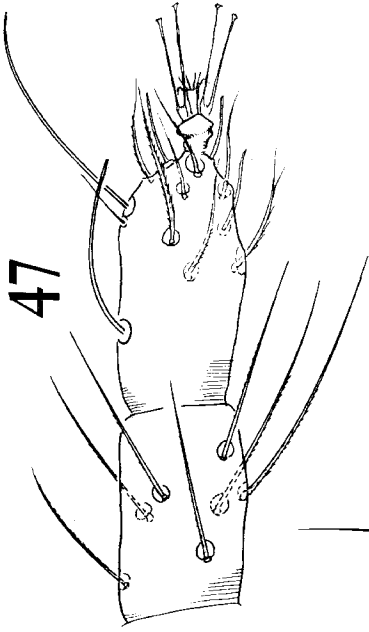
The Lewis spider mite infests citrus, bur-clover, castor bean, *Ceanothus*, olive, and Poinsettia in California. It is a pest of greenhouse Poinsettia in Washington and occurs on several plants throughout Mexico and Central America.

It occurs on a number of plants in Arizona: *Aplopappus spinulosus* (Pursh) DC., *Ditaxis lanceolata* (Benth.) Pax & Hoffman, *Encelia frutescens* Gray, *Jatropha cardiophylla* (Torr.) Muell. Arg. (limberbush), *Prunus persica* (L.) Batsch. (peach) *Scirpus californicus* (C. Meyer) Steud. (reed), *Solanum elaeagnifolium* Cav. (white horse nettle), and *Sphaeralcea orcuttii* Rose (globe-mallow).

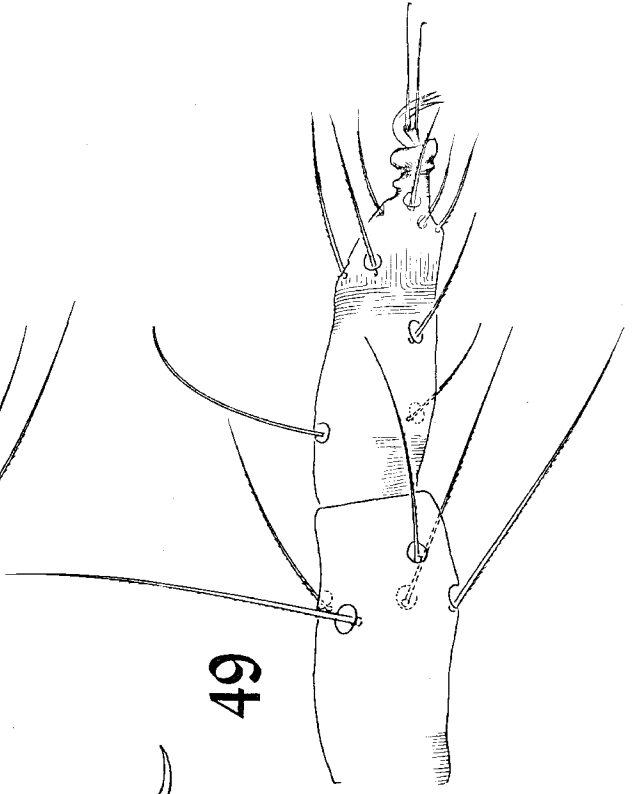
Plates on Next Two Pages —————>

Eotetranychus prosopis, new species. Fig. 46, Tibia and tarsus I, male. Fig. 47, tibia and tarsus II, male. Fig. 48, tibia and tarsus III, male. Fig. 49, tibia and tarsus IV, male. Fig. 49a, aedeagus. Fig. 50, tibia and tarsus I, female. Fig. 51, tibia and tarsus II, female. Fig. 52, tibia and tarsus III, female. Fig. 53, tibia and tarsus IV, female.

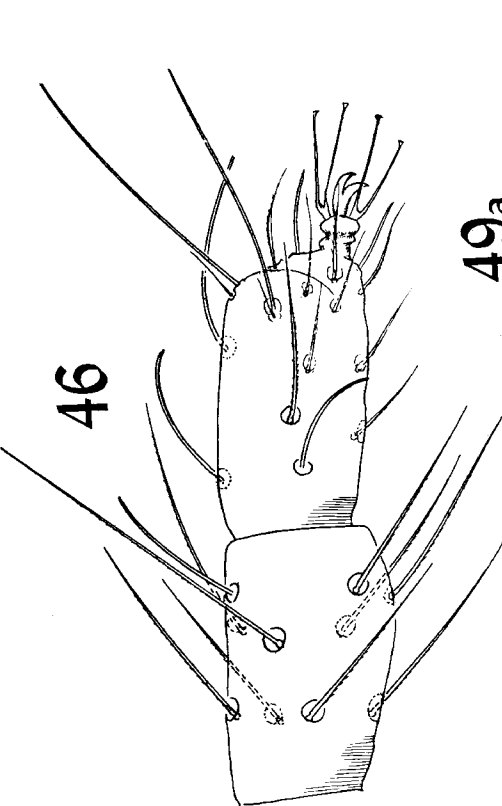
47



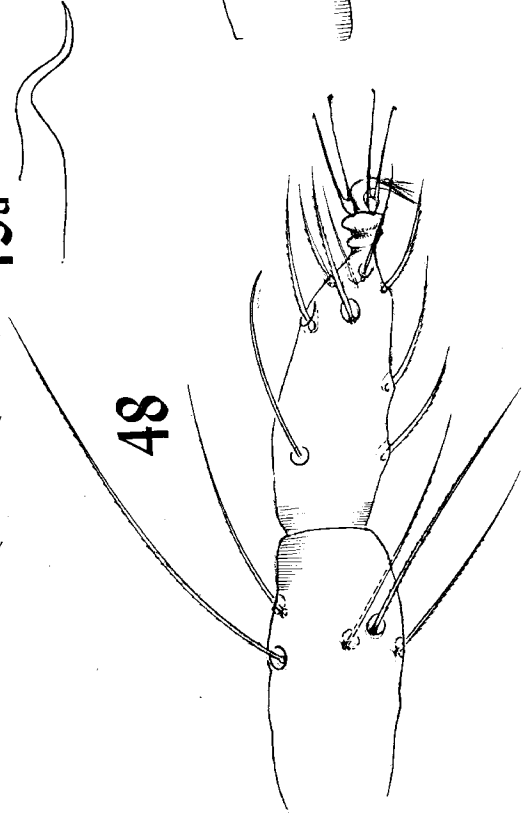
49



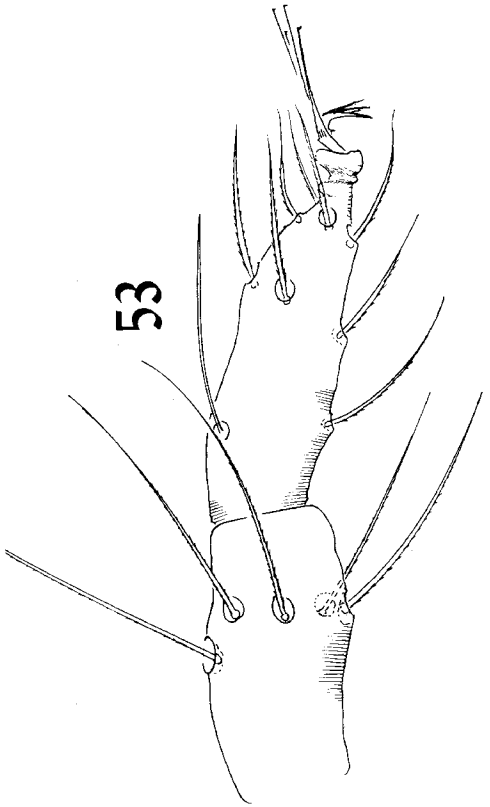
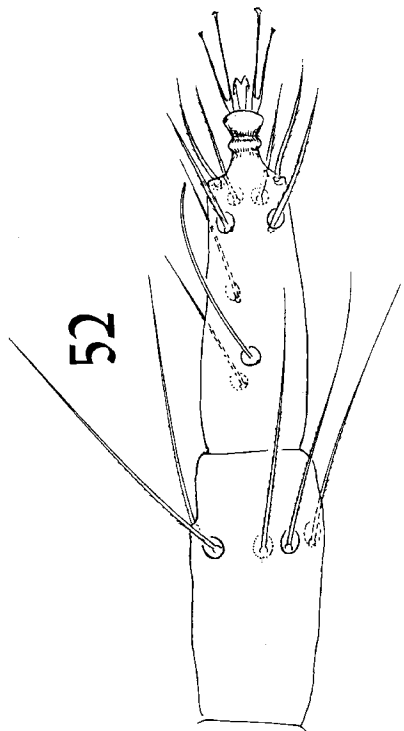
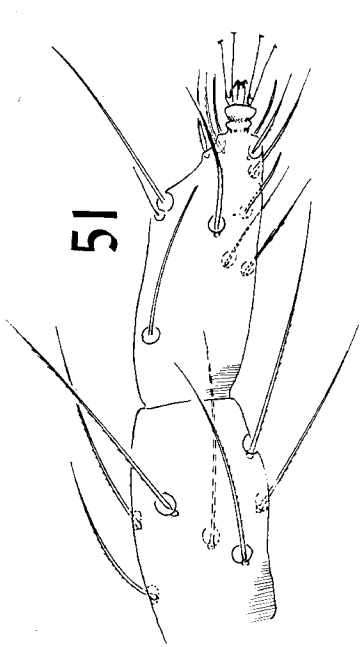
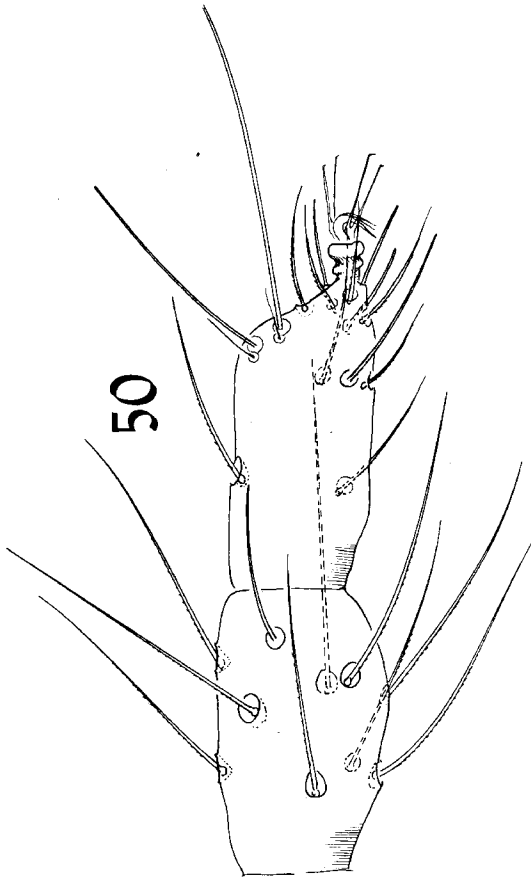
46



49a



48



Eotetranychus prosopis, new species

(Figs. 46-53)

This species is near *Eotetranychus clitus* Pritchard and Baker, but is separated by the shape of the aedeagus, and in having the terminal sensillum of the male palpus small, conical, and about as tall as wide.

Male

Terminal sensillum of palpus small, conical, about as tall as wide. Peritreme hooked distally. Body setae longer than interval between rows. Tarsus I with two tactile and three sensory setae proximal to duplex setae; tibia I with nine tactile and one sensory setae. Tarsus II with one tactile and one long sensory setae proximal to duplex setae, the ventral distal pair posterior to duplex setae as in tarsus I; tibia II with seven tactile setae. Tibia III and IV each with five tactile setae; tarsus III and IV each with eight tactile and one long sensory setae. Aedeagus bent ventrad and sigmoid. Length of body 333 μ .

Female

Terminal sensillum of palpus about twice as long as wide. Peritreme hooked distally. Dorsal setae longer than distances between bases. Genital and pregenital area striae transverse. Tarsus I with two tactile and one sensory setae, tibia I with nine tactile and one sensory setae. Tibia II and IV each with five tactile setae, tarsus III and IV each with eight tactile and one long sensory setae. Length of body 400 μ .

Holotype

Male, U.S. National Museum No. 2905, *ex Prosopis juliflora* (Swartz) DC. (common mesquite), Yuma, Arizona, January 12, 1960 (D. M. Tuttle).

Eotetranychus salix, new species

(Figs. 54-58)

This species, represented by a single female, is distinguished by the setal pattern of the legs. It is close to *Eotetranychus clitus* Pritchard and Baker, but differs in having four instead of five proximal setae on tarsus I, and in having a much shorter sensory seta on tibia I, and tarsus III and IV.

Female

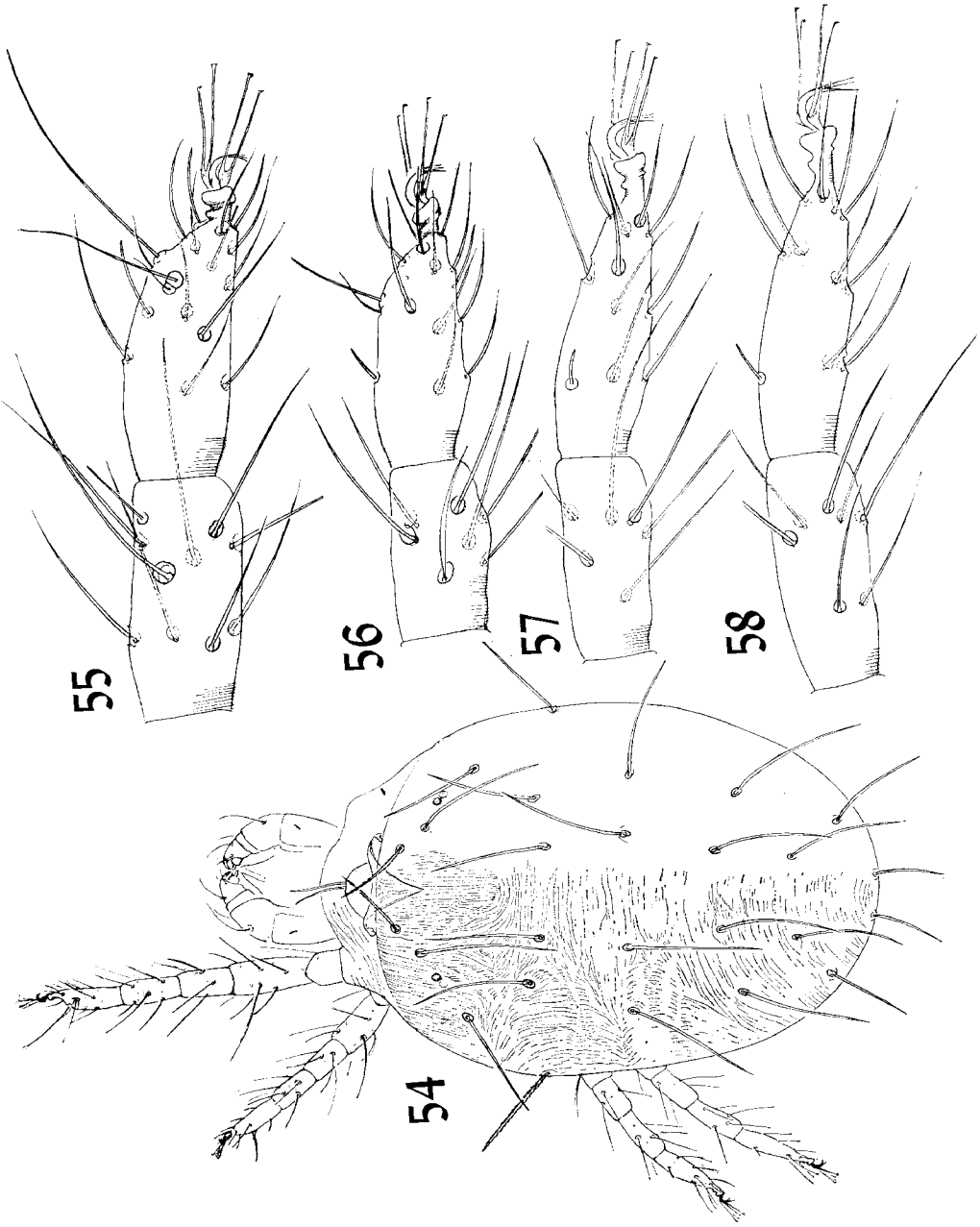
Terminal sensillum of palpus about twice as long as wide. Peritreme hooked distally, but not strongly so (see figure 54). Dorsal body setae long, slender, surpassing distance between rows; clunal setae shorter than sacral setae. Striae of genital flap transverse, that of pregenital area irregular (as in *Pallidus* group). Tarsus I with four tactile and one sensory setae proximal to duplex setae; tibia I with nine tactile and one short sensory setae. Tarsus II with three tactile and one very short sensory setae proximal to duplex setae; tibia II with seven tactile setae. Tarsus III and IV each with ten tactile and one short sensory setae; tibia III with seven tactile setae. Length of body 493 μ .

Male

Not known.

On Facing Page \longrightarrow

Eotetranychus salix, new species. Fig. 54, dorsal view of female. Fig. 55, tibia and tarsus I, female. Fig. 56, tibia and tarsus II, female. Fig. 57, tibia and tarsus III, female. Fig. 58, tibia and tarsus IV, female.



Holotype

Female, U.S. National Museum No. 2906, *ex Salix gooddingii* Ball, Yuma, Arizona, January 7, 1960 (D. M. Tuttle).

Eotetranychus fremonti, new species
(Figs. 59-69)

This species is distinctive in the shape of the aedeagus, in the hooked peritreme which is simple in the male and somewhat ornate in the female, and in the distinctive setal pattern of the legs.

Male

Terminal sensillum of palpus small, conical, about as high as wide. Peritreme hooked distally. Tarsus I with four tactile and three sensory setae proximal to the duplex setae; tibia I with nine tactile and two sensory setae. Tarsus II with three tactile and one sensory setae proximal to the duplex setae; tibia II with eight tactile setae. Tarsus III and IV each with a sensory seta and eight tactile setae, the sensory seta of tarsus III longer than that of IV, tibia III and IV each with six tactile setae. Aedeagus bent ventrad, similar to that of *Eotetranychus multidigituli* (Ewing), but with a shorter head. Length of body 293 μ .

Female

Terminal sensillum of palpus about one and a half times as long as wide. Peritreme hooked distally, with several fingerlike projections. Tarsus II with three tactile setae proximal to duplex setae, sensory seta on a line between paired duplex setae; tibia I with nine tactile and one slender sensory setae. Tarsus II with two tactile and one sensory setae proximal to the duplex setae, the anterior ventral pair of setae also posterior to the duplex setae; tibia II with eight tactile setae. Tarsus III and IV each with eight tactile and one long slender sensory setae; tibia III with six and tibia IV with seven tactile setae. Length of body 400 μ .

Holotype

Male, U.S. National Museum No. 2907, *ex Populus fremontii* Wats. (cottonwood tree), Yuma, Arizona, August 31, 1959 (D. M. Tuttle).

Paratypes

Four males and five females with the above data. Six males and seven females from the same host, Tempe, Arizona, March 25, 1960 (R. S. Beal).

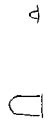
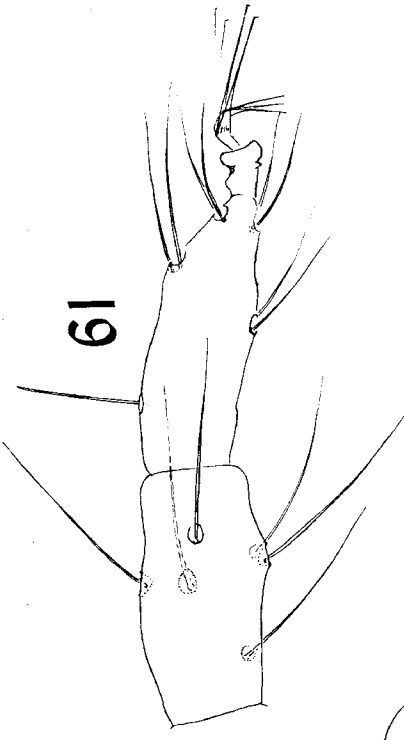
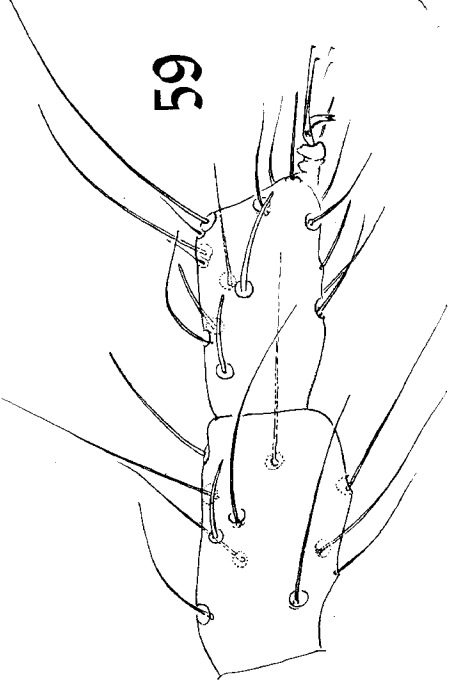
Eotetranychus siccus (Pritchard and Baker), new combination
(Figs. 70-74)

Neotetranychus siccus Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:219; Bibby and Tuttle, 1959, Jour. Econ. Ent. 52(2):187.

This species is known from Arizona on *Olneya tesota* Gray (ironwood), Phoenix (F. F. Bibby); and Yuma (D. M. Tuttle), on *Atriplex semibaccata* R. Br. (Australian salt-bush).

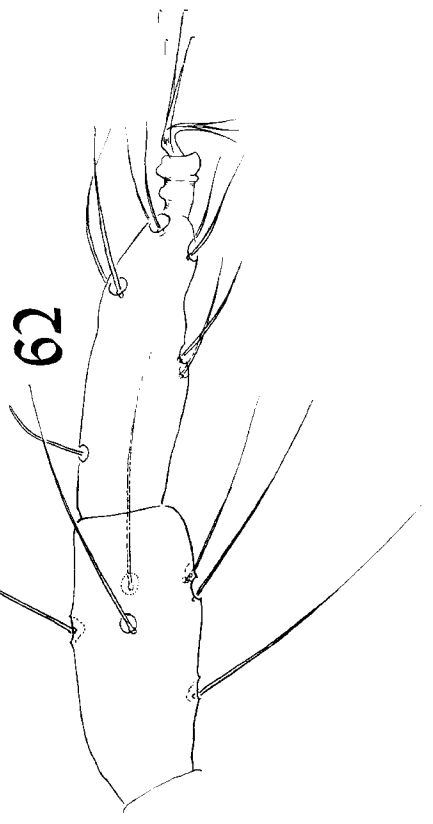
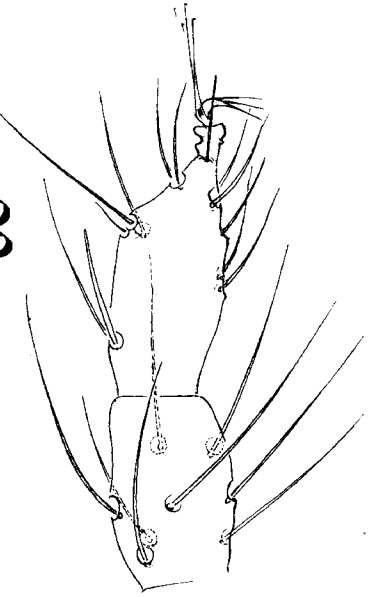
Plates on Next Two Pages \longrightarrow

Eotetranychus fremonti, new species. Fig. 59, tibia and tarsus I, male. Fig. 60, tibia and tarsus II, male. Fig. 61, tibia and tarsus III, male. Fig. 62, tibia and tarsus IV, male. Fig. 63, terminal sensillum of female and male palpus. Fig. 64, aedeagus. Fig. 65, detail of peritreme, female. Fig. 66, tibia and tarsus I, female. Fig. 67, tibia and tarsus II, female. Fig. 68, tibia and tarsus III, female. Fig. 69, tibia and tarsus IV, female.

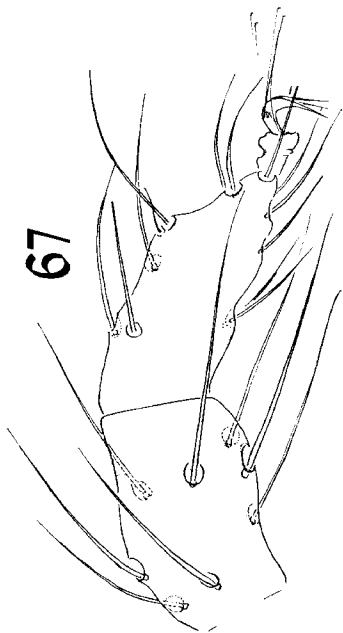


60

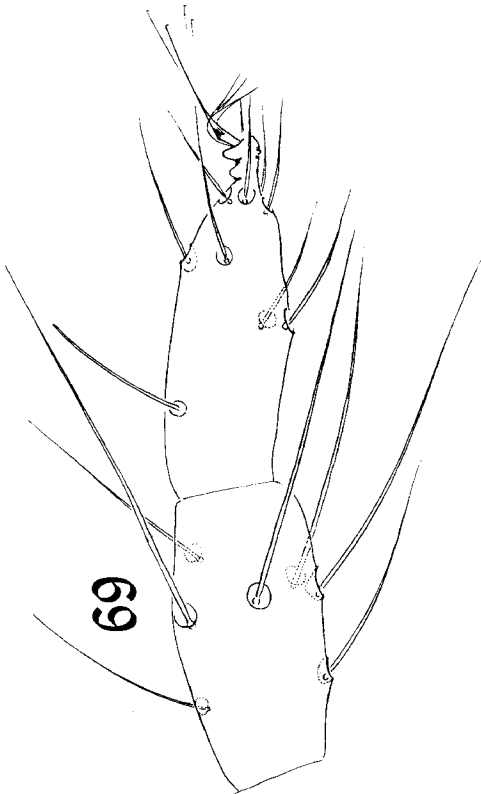
64



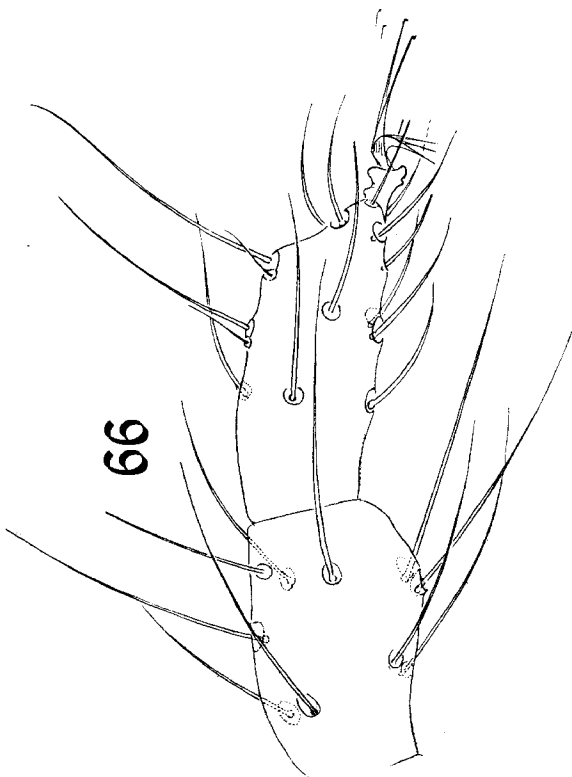
67



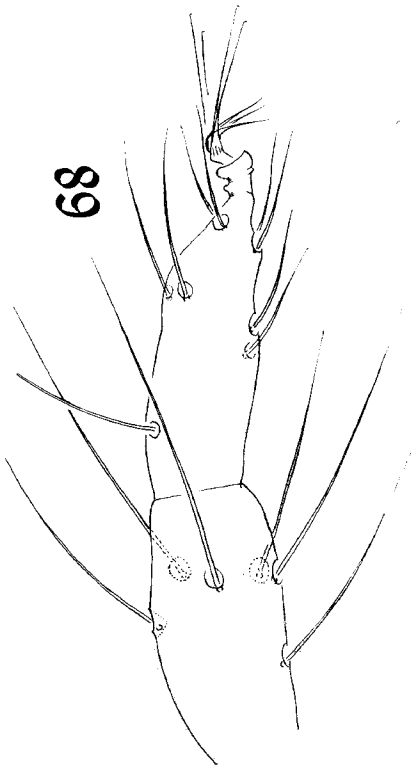
69

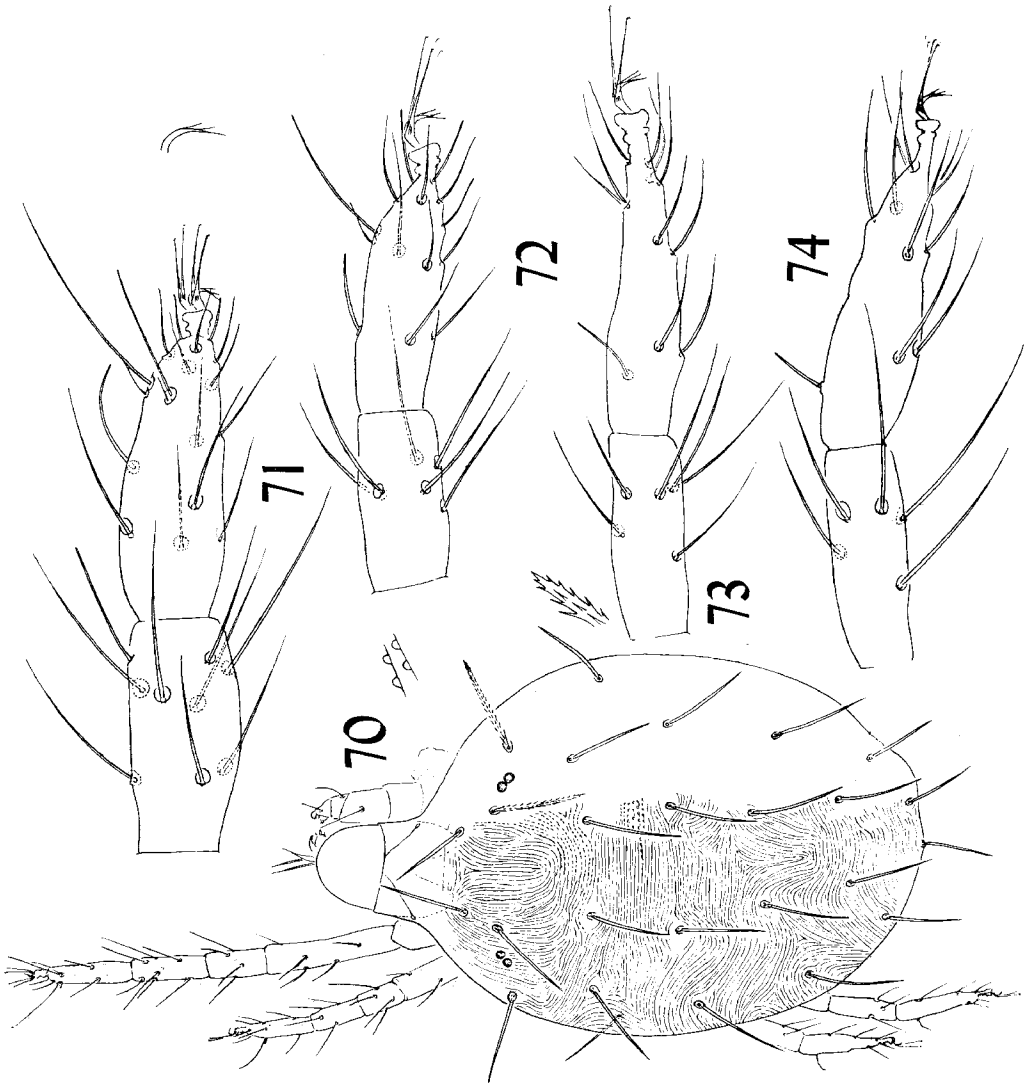


66



68





Eotetranychus siccus
 (Pritchard & Baker).
 Fig. 70, dorsum of female.
 Fig. 71, tibia and tarsus I,
 and detail of empodium, female.
 Fig. 72, tibia and tarsus III,
 female. Fig. 74, tibia and
 tarsus IV, female.

Eotetranychus juniperus, new species
(Figs. 75-79)

Only the male is known. This species is near *Eotetranychus deflexus* (McG.), but differs in the angle of the aedeagus, and in having longer and more slender sensory setae on the tibiae and tarsi, and the relatively longer leg setae.

Female

Not known.

Male

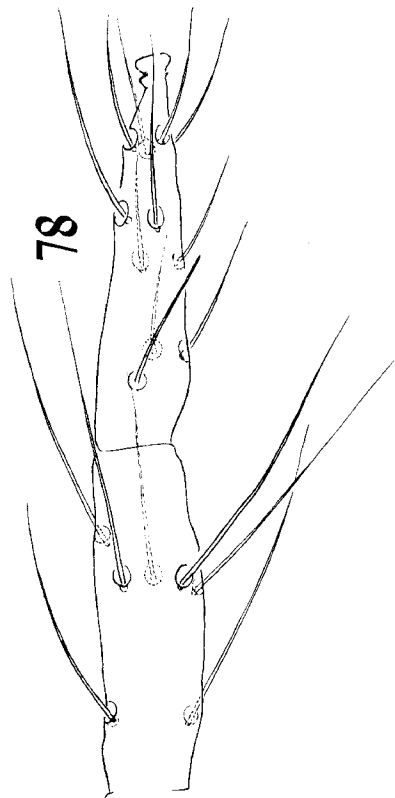
Terminal sensillum of palpus rudimentary; the mediodorsal, tapering sensilla of the palpal tarsus are long and subequal in length. Peritreme ending in a small, simple bulb. Tarsus I with four tactile and three sensory setae proximal to the duplex setae; empodium I clawlike; Tibia I with nine tactile and four sensory setae, three sensory setae of medium length and one about twice as long as others. Tarsus II with three tactile and one sensory setae proximal to duplex setae; tibia II with eight tactile setae. Tarsus III with one sensory and ten tactile setae; tibia III with six setae. Tarsus IV with ten tactile one sensory setae; tibia IV with seven tactile setae. Dorsal body setae slender, longer than intervals between longitudinal bases. Aedeagus similar to that of *Eotetranychus deflexus* (McG.), but more gently curved. Length of body 351 μ .

Holotype

Male, U.S. National Museum No. 2908, *ex Juniperus deppeana* Steud. (alligator juniper), Flagstaff, Arizona, September 7, 1961 (D. M. Tuttle).

On Facing Page \longrightarrow

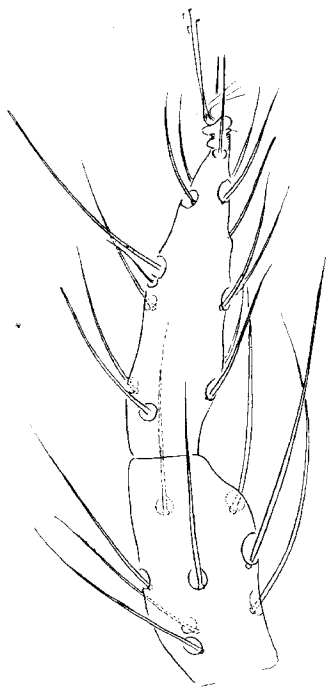
Eotetranychus juniperus, new species. Fig. 75, tibia and tarsus I, male. Fig. 76, tibia and tarsus II, male. Fig. 77, tibia and tarsus III, male. Fig. 78, tibia and tarsus IV, male. Fig. 79, aedeagus.



78



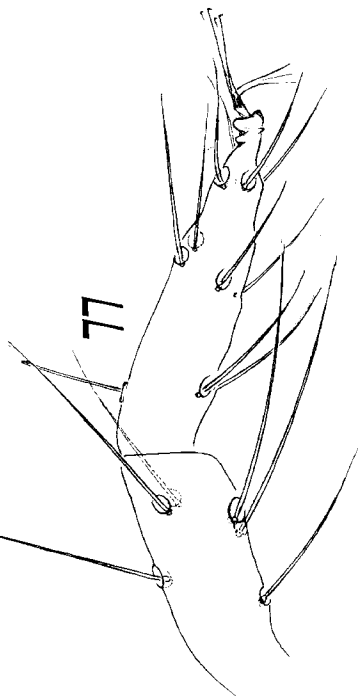
79



76



75



77

Eotetranychus potentillae, new species

(Figs. 89-87)

This species is distinct in having the aedeagus upturned and sigmoid. The tarsal sensory setae are short in both sexes.

Male

Palpus with terminal sensillum small, conical, slightly taller than wide; mediodorsal sensilla slender, one-fourth longer than other; fusiform sensillum shorter and thicker than other sensilla. Peritreme hooked distally. Tibia I with eight tactile and four short sensory setae; tarsus I with five tactile and three short sensory setae proximal to duplex setae. Tibia II-IV each with five tactile setae. Tarsus II with two tactile and two short sensory proximal to duplex setae. Tarsus III with one short sensory seta and nine tactile setae. Tarsus IV similar to III. Empodium I clawlike; empodia II-IV rayed. Aedeagus upturned and sigmoid. Dorsal body setae long, pubescent. Length of body 345 μ .

Female

Holotype

Male, U.S. National Museum No. 2909, *ex Potentilla hippiana* Lehm. (cinquefoil), Flagstaff, Arizona, September 4, 1961 (D. M. Tuttle).

Paratypes

Two males and five females with data same as above.

Genus *Schizotetranychus* Trägårdh, 1915

Schizotetranychus Trägårdh, 1915, Stockholm Lantbr.-Akad. Handl., 54:277.

Schizotetranychus cynodonis McGregor

Schizotetranychus cynodonis McGregor, 1950, Amer. Midl. Nat., 44:309;

Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:229.

Previously, *Schizotetranychus cynodonis* has been known only from California on bermudagrass and saltgrass.

One female and four nymphs were collected from Dome Valley (Yuma County), Arizona (D. M. Tuttle), on *Distichlis stricta* (Torr.) Rydb. (saltgrass), May 23, 1961.

Schizotetranychus eremophilus McGregor

Schizotetranychus eremophilus McGregor, 1950, Amer. Midl. Nat., 44:311;

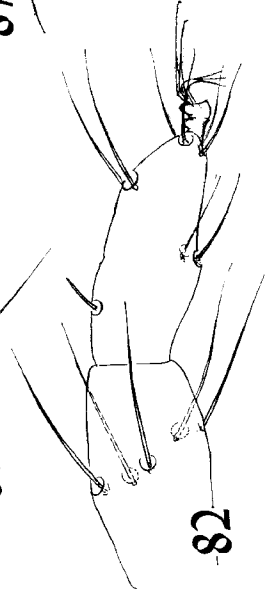
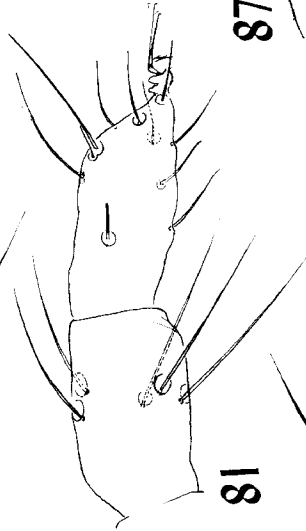
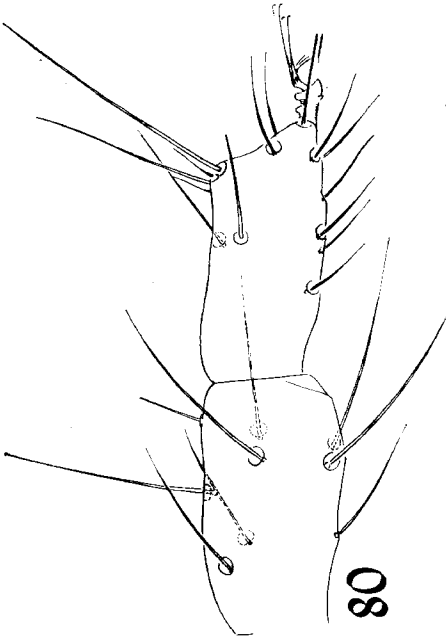
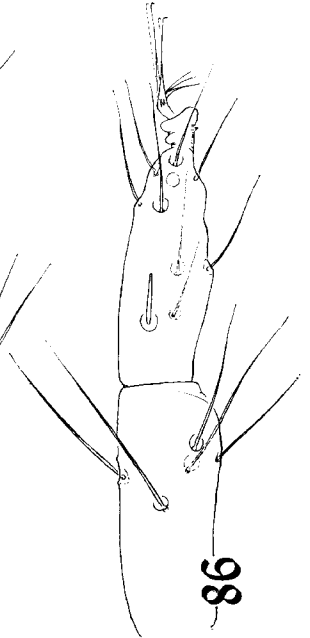
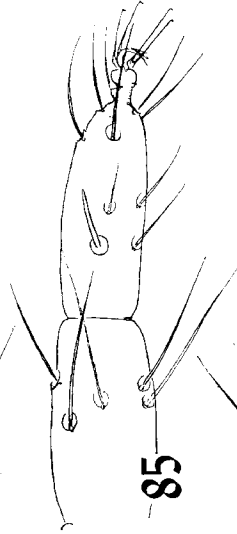
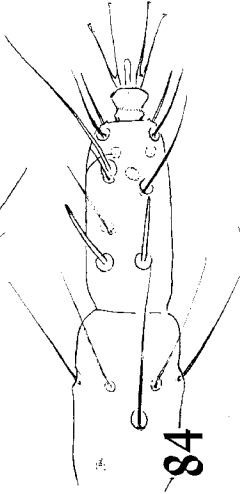
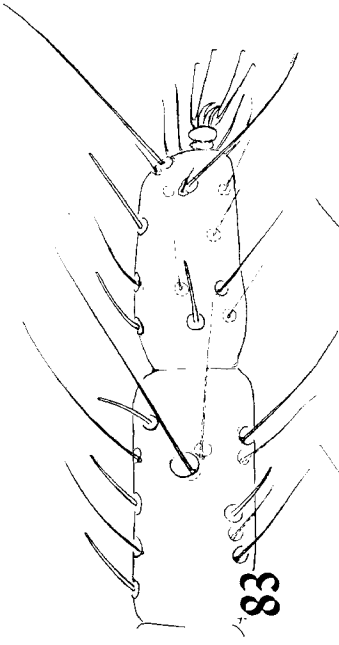
Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:251.

This mite has been recorded from California on bermudagrass.

Several collections of this mite were made at Yuma, Arizona (D. M. Tuttle) on bermudagrass during September, October, and November. Other hosts of *Schizotetranychus eremophilus* in Arizona are: *Aristida glabrata* (Vasey) Hitchc. (three-awngrass), Gila Bend and Yuma (D. M. Tuttle), *Bouteloua barbata* Lag. (six-weeks gramagrass), Yuma (D. M. Tuttle), in August and November; *Distichlis stricta* (Torr.) Rydb. (saltgrass), Yuma (D. M. Tuttle), in January; and *Tridens pulchellus* (H. B. K.) Hitchc. (fluffgrass), Gila Bend (D. M. Tuttle), in April, and Casa Grande (D. M. Tuttle), in December.

On Facing Page \longrightarrow

Eotetranychus potentillae, new species. Fig. 80, tibia and tarsus I, female. Fig. 81, tibia and tarsus II, female. Fig. 82, tibia and tarsus IV, female. Fig. 83, tibia and tarsus I, male. Fig. 84, tibia and tarsus II, male. Fig. 86, tibia and tarsus IV, male. Fig. 87, aedeagus.



Schizotetranychus elymus McGregor

Schizotetranychus elymus McGregor, 1950, Amer. Midl. Nat., 44(2):310;
Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:254.

This species has been collected on *Elymus* sp., *Agrostis* sp., bermuda-grass, and grass in California and Utah.

Schizotetranychus elymus was found on two species of grass in Arizona. Yuma (D. M. Tuttle) April 10, 1960, on *Distichlis stricta* (Torr.) Rydb. (saltgrass); and Casa Grande (D. M. Tuttle) December 14, 1960, on *Tridens pulchellus* (H. B. K.) Hitchc. (fluffgrass).

Schizotetranychus lycurus, new species
(Figs. 88-91)

Only the female is known. This species is distinctive in that the dorsal setae of the female are relatively short and subequal in length and in that the tarsi are elongate and not blunt distally.

Female

Terminal sensillum of palpus of moderate size, not more than two times as long as broad; mediadorsal sensilla slender and subequal in length; proximal fusiform sensillum slender. Peritreme straight distally, ending in slight bulb. Tibia I with seven tactile and one long, slender sensory setae; tarsus I with three tactile and one sensory setae proximal to duplex setae. Tibia II with five tactile setae. Tarsus III with a long sensory seta and seven tactile setae; tibia III with five tactile setae. Tarsus and tibia IV similar to III. Length of body 382 μ .

Holotype

Female, U.S. National Museum No. 2910, *ex Lycurus phleoides* H. B. K. (wolf-tail), Flagstaff, Arizona, August 28, 1961 (D. M. Tuttle).

Paratypes

Three females with data same as above.

Genus *Oligonychus* Berlese, 1886

Oligonychus Berlese, 1886, Acari Dann. Piante Coltiv., p. 24.

Oligonychus ununguis (Jacobi)
(spruce spider mite)

Tetranychus ununguis Jacobi, 1905, Naturw. Zts. Land-Forstw., 3:239.

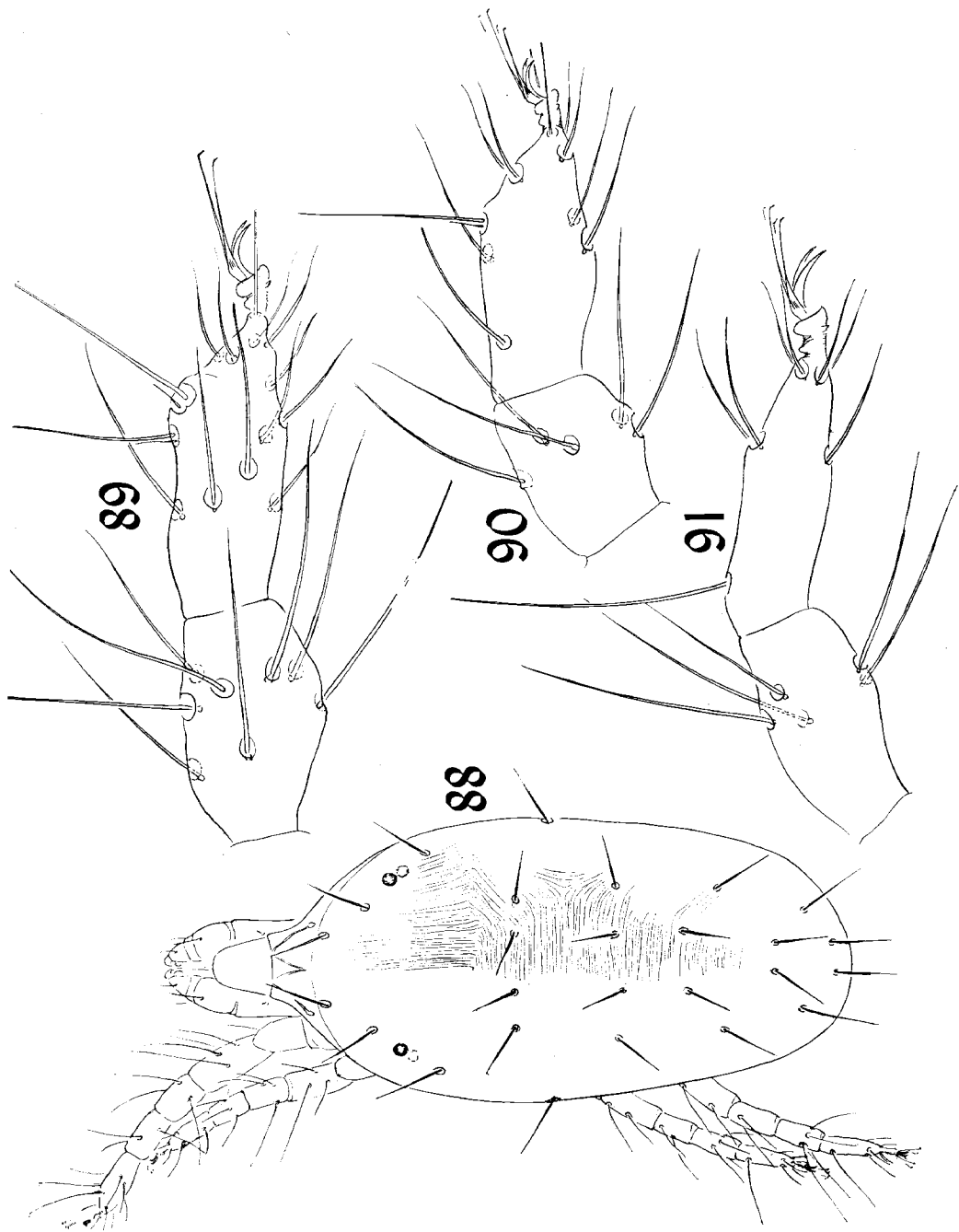
Oligonychus ununguis, Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:319.

Oligonychus ununguis is widely distributed throughout the United States and Europe. The following genera of conifers are preferred hosts: *Juniperus*, *Cupressus*, *Thuja*, *Chamaecyparis*, *Libocedrus*, and *Picea*. Specimens have been collected on redwood and Sequoia in California.

Records of this mite in Arizona are as follows: Tucson (G. D. Butler, Jr.), on *Cupressus arizonica* Greene (Arizona cypress), and *Cupressus sempervirens* L. (Italian cypress); Yuma (D. M. Tuttle), on *Cupressus sem-*

On Following Page \longrightarrow

Schizotetranychus lycurus, new species. Fig. 88, dorsal view of female. Fig. 89, tibia and tarsus I, female. Fig. 90, tibia and tarsus II, female. Fig. 91, tibia and tarsus IV, female.



pervirens, and *Thuja occidentalis* L. (arborvitae); Flagstaff (D. M. Tuttle), on *Picea pungens* Engelm. (blue spruce); Phoenix (C.D.L.) on *Thuja occidentalis*; and Tucson (R. Simpson), on *Thuja occidentalis*.

Oligonychus coniferarum (McGregor)

Paratetranychus coniferarum McGregor, 1950, Amer. Midl. Nat., 44:338.

Oligonychus coniferarum, Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:328.

This species was previously known from Texas and Florida on arborvitae, Pfitzer juniper, and "other conifers".

Oligonychus coniferarum has been collected in Arizona at Mesa (L. Hopkins) March and April 1955, on *Cupressus sempervirens* L. (Italian cypress); Tempe (R. S. Beal) March, 1960, on *Thuja occidentalis* L. (arborvitae); and Yuma (D. M. Tuttle) September, 1959, on *Thuja occidentalis*.

Oligonychus milleri (McGregor)

Paratetranychus milleri McGregor, 1950, Amer. Midl. Nat., 44:343.

Oligonychus milleri, Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:280.

This species has been reported from California, Idaho, Utah, Wisconsin, Louisiana, Florida, North Carolina, Delaware, Virginia, and Arizona on various species of pines.

In Arizona *Oligonychus milleri* has been collected at Nogales, April 4, 1954 on *Photinia arbutifolia* (Ait.) Lindl. (Chinese photinia) by Valcarce and Ehringer, on *Evonymus* sp. (Valcarce, Kaiser), on *Olea europaea* L. (olive) by Valcarce, and *Pinus* sp. (Valcarce); and Flagstaff (D. M. Tuttle), on *Asclepias speciosa* Torr. (milkweed), September 3, 1961, and on *Antennaria arida* E. Nels. (pussy-toes), August 30, 1961.

Oligonychus platani McGregor

Paratetranychus platani McGregor, 1950, Amer. Midl. Nat., 44:349.

Oligonychus platani, Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:304.

Oligonychus platani is a pest of sycamore in California, where it also occurs on London plane tree, loquat, toyon, coast live oak, valley oak, cork oak, and *Pyracantha*.

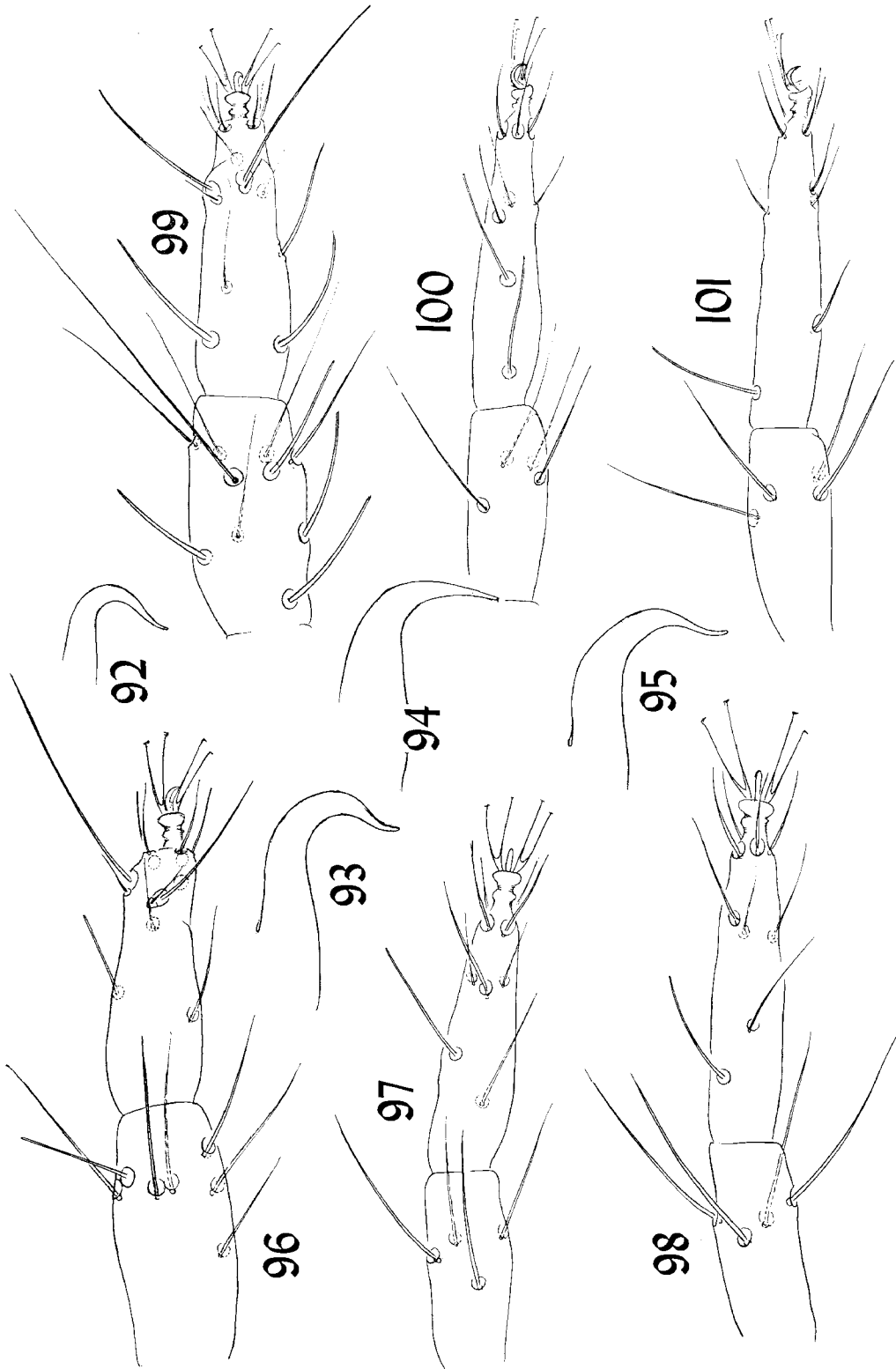
This species has been collected at Tucson, Arizona on *Pyracantha coccinea* Roem. (firethorn), May 9, 1952 (Willsey) and March, 1954 (G. D. Butler, Jr.); and *Eriobotrya japonica* (Thunb.) Lindl. (loquat) April 26, 1962 (D. M. Tuttle).

Oligonychus subnudus (McGregor)

(Figs. 92-101)

On Facing Page \longrightarrow

Oligonychus subnudus (McGregor). Fig. 92, aedeagus, Oxnard, California. Fig. 93, aedeagus, Richmond, California. Fig. 94, aedeagus, Keen Camp, California. Fig. 95, aedeagus, Arizona. Fig. 96, tibia and tarsus I, female, Arizona. Fig. 97, tibia and tarsus III, female, Arizona. Fig. 98, tibia and tarsus IV, female, Arizona. Fig. 99, tibia and tarsus I, male, Arizona. Fig. 100, tibia and tarsus III, male, Arizona. Fig. 101, tibia and tarsus IV, male, Arizona.



Paratetranychus subnudus McGregor, 1950, Amer. Midl. Nat., 44:355.
Oligonychus subnudus, Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:281.

Known previously from California on pine and red fir, this species has been taken in Arizona at Flagstaff (D. M. Tuttle), August and September 1961, on *Pinus ponderosa* Lawson (ponderosa pine), *Pinus edulis* Engelm. (pinyon pine), *Asclepias speciosa* Torr. (milkweed), and *Antennaria arida* E. Nels. (pussy-toes).

This species, as now understood, either is quite variable or consists of a complex. There is some variation in the setal count of the legs, in the lengths of the dorsal body setae, and in the shape of the aedeagus (figures 92-101).

Oligonychus pratensis (Banks)
(Banks grass mite)

Tetranychus pratensis Banks, 1912, Proc. Ent. Soc. Wash., 14:97; Ewing, 1913, Ann. Ent. Soc. Amer., 6:459.

Oligonychus pratensis, Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:349.

This species has been known previously as the date mite in southern California. It occurs commonly on grasses in the United States, namely: wheat, bermudagrass, *Panicum* sp., sugar cane, paragrass, smutgrass, and broomgrass. One other record includes aspen (Utah).

All of the collections of *Oligonychus pratensis*¹ in Arizona are from grasses except two: Dome Valley, Yuma County (D. M. Tuttle), on *Cucurbita palmata* Wats. (coyote-melon); and Yuma (D. M. Tuttle), on *Cyperus alternifolius* L. (umbrellaplant). The records from Gramineae include: Yuma (D. M. Tuttle) on *Bouteloua barbata* Lag. (six-weeks grama), *Cynodon dactylon* (L.) pers. (bermudagrass), *Echinochloa colonum* (L.) Link (tiger-grass or jungle-rice), *Eriochloa lemmoni* Vasey & Scribn. (cupgrass), *Paspalum dilatatum* Poir. (Dallisgrass), *Phalaris minor* Retz. (canarygrass), *Phragmites communis* Trin. (carrizo), and *Sorghum vulgare* Pers. (grain sorghum); Casa Grande (D. M. Tuttle) on *Bouteloua barbata*; Tolleson and Yuma (D. C. McCain), on *Cynodon dactylon*; Gila Bend (D. M. Tuttle) on *Echinochloa colonum* and *Sorghum halepense* (L.) Pers.; Sunnyslope (L. Hopkins), on *Sorghum vulgare* Pers.; Gilbert (I. McMahan), on *Sorghum vulgare*; Peoria, Phoenix, and Roll (H. Brown), on *Sorghum vulgare*; Scottsdale (J. Hartsig), on *Sorghum vulgare*; Tucson (G. D. Butler, Jr.) on *Sorghum vulgare*; and Safford (R. B. Streets), on *Zea mays* L. (maize).

Oligonychus stickneyi (McGregor)

Paratetranychus stickneyi McGregor, 1919, Proc. Ent. Soc. Wash., 41:253.
Oligonychus stickneyi, Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:344; Beer and Lang, Univ. Kan. Sci. Bull. 38, Pt. 11(15):1245.

McGregor listed several genera of grasses as hosts from Arizona and California: *Arundo*, *Bouteloua*, *Cenchrus*, *Chloris*, *Cynodon*, *Digitaria*, *Echinochloa*, *Eragrostis*, *Setaria*, *Sorghum*, and *Sporobolus*. Two collections from

¹The identification of *Oligonychus modestus* in the report by the Arizona Commission for Agriculture and Horticulture, 1936-37, on *Zea mays* L. (sweet corn) is doubtful. The species was probably *O. pratensis*.

Mexico have been recorded: Morelos, on maize; and Mexico City, on grass (R. E. Beer).

All of the Arizona collections of *Oligonychus stickneyi* were found on Gramineae: Yuma (D. M. Tuttle), on *Bouteloua barbata* Lag. (six-weeks grama), *Chloris virgata* Swartz (feather fingergrass), *Cynodon dactylon* (L.) Pers. (bermudagrass), *Eriochloa lemmoni* Vasey & Scribn. (cupgrass), and *Paspalum dilatatum* Poir. (Dallisgrass); Tucson (G. D. Butler, Jr.), on *Cynodon dactylon*; Sunnyslope, Phoenix, and Litchfield Park (L. Hopkins), on *Sorghum vulgare* Pers. (grain sorghum); and Maricopa County (H. Brown) and Tempe (J. Hartsig), on *Zea mays* L. (sweet corn).

Genus *Tetranychus* Dufour, 1882

Tetranychus Dufour, 1832, Ann. Sci. Nat. Paris, 25:276.

Tetranychus atlanticus McGregor
(strawberry spider mite)

Tetranychus atlanticus McGregor, 1941, Proc. Ent. Soc. Wash., 43:26; Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:424.

Tetranychus atlanticus is found throughout the United States, particularly in the West. It is a serious pest of many crops, such as cotton, alfalfa, beans, melon, clover, strawberry, parsley, eggplant, and sunflower. Sometimes it occurs on pear, peach, apple, lemon, walnut, and violet. Several weeds serve as plant hosts. Specimens were collected on red raspberry at Bay City, Michigan (D. M. Tuttle) in August, 1961.

This mite is abundant in Arizona and has been collected extensively: Yuma (D. M. Tuttle) on *Convolvulus arvensis* L. (field bind-weed), *Cucumis sativus* L. (cucumber), *Daucus carota* L. (carrot), *Dicoria canescens* Gray, *Franseria confertiflora* (DC.) Rydb. (bursage), *Gossypium hirsutum* L. (upland cotton), *Heterotheca subaxillaris* (Lam.) Britt. & Rusby (telegraph plant), *Medicago sativa* L. (alfalfa), *Polygonum argyrocoleon* Steud. (knotweed), *Solanum elaeagnifolium* Cav. (white horse-nettle), and *Zea mays* L. (sweet corn); Buckeye and Marinette (B. Zimmer), on *Gossypium hirsutum* (cotton); Coolidge and Goodyear (F. F. Bibby), on *Glycine max* (L.); Merr. (soybean); Somerton (G. D. Bulter, Jr.) on *Medicago sativa* (alfalfa); and Gilbert (P. D. Gerhardt), on *Ricinus communis* L. (castorbean).

Tetranychus telarius (Linnaeus)
(two-spotted spider mite)

Acarus telarius Linnaeus, 1758, Syst. Nat., 10:616.

Tetranychus telarius, Duges, 1834, Ann. Sci. Nat., Paris, (ser. 2), 1:15; Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:403; Boudreaux, 1956, Ann. Ent. Soc. Amer., 49(1):46; Boudreaux and Dosse, 1962, Advances in Acarology, Cornell Univ. Press, Ithaca, N. Y. (in press).

This mite is a general feeder, having numerous plant hosts. It is a serious pest on plants and is common in United States, Europe, Israel, Turkey, Argentina, and Japan.

The list of plant hosts in Arizona from which *Tetranychus telarius* has been collected and determined are: *Althaea rosea* (L.) Cav. (hollyhock), *Apium graveolens* L. (celery), *Aralia* sp., *Atriplex lentiformis* (Torr.), Wats. (quail-brush), *Atriplex semibaccata* R. Br. (Australian salt-bush), *Beta vulgaris* L. (sugar beet), *Brassica oleracea* L. (cauliflower), *Calendula officinalis* L. (pot-marigold), *Capsicum frutescens* L. (pepper), *Carthamus*

tinctorius L. (safflower), *Chrysanthemum* sp., *Cirtullus vulgaris* Schrad. (watermelon), *Citrus* sp., *Convolvulus arvensis* L. (field bind-weed), *Cucumis sativus* L. (cucumber), *Cucurbita pepo* L. (summer squash), *Ficus carica* L. (fig), *Fragaria chiloensis* Duchesne (strawberry), *Galium stellatum* Kellogg (bedstraw), *Gladiolus hortulanus* Bailey (gladiolus), *Glycine max* (L.) Merr. (soybean), *Gossypium hirsutum* L. (upland cotton), *Hedera helix* L. (English ivy), *Ipomoea* sp. (morning-glory), *Lactuca longifolia* Lam. (Romaine lettuce), *Lactuca sativa* L. (lettuce), *Lonicera* sp. (honeysuckle), *Lupinus argenteus* Pursh. (lupine), *Lycopersicon esculentum* Mill. (tomato), *Malus sylvestris* Mill. (apple), *Malva parviflora* L. (mallow), *Medicago sativa* L. (alfalfa), *Morus rubra* L. (red mulberry), *Musa nana* Lour. (dwarf banana), *Nicotiana* sp. (tobacco), *Phaseolus acutifolius* A. Gray (bean), *Philodendron* sp., *Physalis wrightii* Gray (ground cherry), *Populus* sp. (cottonwood), *Prunus armeniaca* L. (apricot), *Pyracantha* sp. (pyracantha), *Pyrus communis* L. (pear), *Raphanus sativus* L. (radish), *Ricinus communis* L. (castor-bean), *Rosa centifolia* L. (rose), *Rosa dilecta* Rehd. (hybrid tea rose), *Sapindus* sp. (soapberry), *Tagetes erecta* L. (dwarf marigold), *Thalictrum fendleri* Engelm. (meadowrue), *Tribulus terrestris* L. (puncture-vine), *Viola* sp. (violet), and *Zea mays* L. (sweet corn).

Tetranychus desertorum Banks
(desert spider mite)

Tetranychus desertorum Banks, 1900, Tech. Bull. U.S. Dept. Agr. Div. Ent., 8:76; Baker and Pritchard, 1953, Hilgardia, 22(7):229; Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:403.

The desert spider mite has been collected in the Southern United States from Texas, California, Arizona, New Mexico, Oklahoma, Louisiana, Mississippi, Georgia, Florida, South Carolina, and North Carolina. It has been identified from Tamulipas and Coahuila in Mexico. Specimens have also been studied from Peru and Argentina in South America. Besides being an important pest of cotton, it infests melons, cantaloups, cucumber, celery, carrots, turnips, and alfalfa as well as wild hosts.

Tetranychus desertorum is very common in southern Arizona and is found in abundance on numerous plants. Specimens have been collected from *Apium graveolens* L. (celery), *Aster spinosus* Benth. (spiny aster), *Atriplex elegans* (Moq.) D. Dietr., *Baileya multiradiata* Harv. & Gray (desert-marigold), *Baileya pleniradiata* Harv. & Gray (desert-marigold), *Beta vulgaris* L. (sugar beet), *Citrullus vulgaris* Schrad (watermelon), *Cressa truxillensis* H.B.K., *Cucumis melo* L. (cantaloup), *Cucurbita digitata* Gray (gourd), *Datura stramonium* L. (Jimson-weed), *Ditaxis serrata* (Torr.) Heller, *Fragaria chiloensis* Duchesne (strawberry), *Franseria ambrosioides* Cav. (bur-sage), *Glycine max* (L.) Merr. (soybean), *Gossypium hirsutum* L. (upland cotton), *Hymenoclea pentalepis* Rydb. (burro-brush), *Lactuca sativa* L. (lettuce), *Lantana camara* L. (lantana), *Larrea tridentata* (DC.) Coville (creosote-bush), *Lathyrus odoratus* L. (sweet pea), *Lupinus* sp. (lupine), *Malva parviflora* L. (mallow), *Medicago sativa* L. (alfalfa), *Mentzelia pumila* (Nutt.) Torr. & Gray (stick-leaf) *Nama hispidum* Gray, *Simmondsia chinensis* (Link) Schneid. (deer-nut), *Sorghum vulgare* Pers. (grain sorghum), *Sphaeralcea* sp. (globe-mallow), *Stephanomeria pauciflora* (Torr.) A. Nels. (stick-weed), *Suaeda torreyana* Wats. (seep-weed), *Tribulus terrestris* L. (puncture-vine),

Xanthium saccharatum Wallr. (cockle-bur), *Zea mays* L. (sweet corn), and *Zinnia elegans* Jacq. (zinnia).

Tetranychus gigas Pritchard and Baker

Tetranychus gigas Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:405.

This species is known from cotton, Sahuarita and Yuma, Arizona, and from cotton in Texas.

Tetranychus canadensis (McGregor)

(four-spotted spider mite)

Septanychus canadensis McGregor, 1950, Amer. Midl. Nat., 44(2):319.

Tetranychus canadensis, Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:393.

Tetranychus canadensis occurs throughout the eastern and southwestern United States and southeastern Kansas. Occasionally, it is a pest on apple, plum, and cotton. Other host plants include elm, linden, horse chestnut, osage orange, poplar, rose, umbrella tree, *Asclepias* sp. (milk weed), and *Viburnum opulus* L. (European cranberry-bush).

The four-spotted spider mite appears to be common in Arizona. Collections have been obtained from Yuma (D. M. Tuttle), on *Atriplex canescens* (Pursh.) Nutt. (4-wing salt-bush), *Cryptantha angustifolia* (Torr.) Greene (nievitas), *Echinochloa colonum* (L.) Link (tigergrass or jungle-rice), and *Fraxinus velutina* Torr. (Arizona ash); Gila Bend (D. M. Tuttle), on *Atriplex polycarpa* (Torr.) Wats.; Tempe (L. Hopkins), on *Melia azedarach* L. (china-berry or umbrella tree); and Nogales (Alexander, Kaiser, and Wilson), on *Fraxinus velutina* (Arizona ash).

Tetranychus mcdanieli McGregor

Tetranychus mcdanieli McGregor, 1931, Proc. Ent. Soc. Wash., 33:193; Pritchard and Baker, 1955, Mem. Pac. Coast Ent. Soc., 2:386.

This species was first known from Michigan on raspberry. It is now recognized as a serious pest of apple, plum, prune, and raspberry. The distribution of *Tetranychus mcdanieli* in the United States is Washington, Utah, California, Montana, North Dakota, Michigan, New York, and Arizona. It also occurs in British Columbia, Canada.

Two collections of this mite were made in Arizona: Tucson (G. D. Butler, Jr.) on *Morus* sp. (mulberry), April 14, 1954; and Christopher Creek, Gila County (C. R. Ash), on a leguminous weed, July 20, 1958.

Notes

Notes

Notes