The False Spider Mites of Northwestern and North Central Mexico (Acarina: Tenuipalpidae)

EDWARD W. BAKER, DONALD M. TUTTLE, and MICHAEL J. ABBATIELLO

SERIAL PUBLICATIONS OF THE SMITHSONIAN INSTITUTION

The emphasis upon publications as a means of diffusing knowledge was expressed by the first Secretary of the Smithsonian Institution. In his formal plan for the Institution, Joseph Henry articulated a program that included the following statement: "It is proposed to publish a series of reports, giving an account of the new discoveries in science, and of the changes made from year to year in all branches of knowledge." This keynote of basic research has been adhered to over the years in the issuance of thousands of titles in serial publications under the Smithsonian imprint, commencing with Smithsonian Contributions to Knowledge in 1848 and continuing with the following active series:

Smithsonian Annals of Flight
Smithsonian Contributions to Anthropology
Smithsonian Contributions to Astrophysics
Smithsonian Contributions to Botany
Smithsonian Contributions to the Earth Sciences
Smithsonian Contributions to Paleobiology
Smithsonian Contributions to Zoology
Smithsonian Studies in History and Technology

In these series, the Institution publishes original articles and monographs dealing with the research and collections of its several museums and offices and of professional colleagues at other institutions of learning. These papers report newly acquired facts, synoptic interpretations of data, or original theory in specialized fields. These publications are distributed by mailing lists to libraries, laboratories, and other interested institutions and specialists throughout the world. Individual copies may be obtained from the Smithsonian Institution Press as long as stocks are available.

S. DILLON RIPLEY
Secretary
Smithsonian Institution

The False Spider Mites of Northwestern and North Central Mexico (Acarina: Tenuipalpidae)

Edward W. Baker, Donald M. Tuttle, and Michael J. Abbatiello



SMITHSONIAN INSTITUTION PRESS
City of Washington
1975

ABSTRACT

Baker, Edward W., Donald M. Tuttle, and Michael J. Abbatiello. The False Spider Mites of Northwestern and North Central Mexico (Acarina: Tenuipalpidae.) Smithsonian Contributions to Zoology, number 194, 23 pages, 36 figures. dae.) Smithsonian Contributions to Zoology, number 194, 23 pages, 36 figures. 1975.—Seventy-one species of false spider mites representing five genera (Pseudoleptus, Aegyptobia, Tenuipalpus, Brevipalpus, and Priscapalpus) occurring in Mexico are recognized and discussed. Figures for 24 species are included, of which 21 are new. The following are new species: Aegyptobia cercidium, A. allionia, A. incarnata, Brevipalpus solanum, B. neohyptis, B. sida, B. chamaedorea, B. pseudophoenicis, B. celtis, B. bouchea, B. pluchea, B. cassia, B. frankenia, B. psilotrophe, B. viguiera, B. origanum, B. cercidium, B. filifolia, B. incanum, B. coldenia, and B. encelia.

OFFICIAL PUBLICATION DATE is handstamped in a limited number of initial copies and is recorded in the Institution's annual report, Smithsonian Year. SI Press NUMBER 5254. SERIES COVER DESIGN: The coral Montastrea cavernosa (Linnaeus).

Library of Congress Cataloging in Publication Data Baker, Edward William, 1914-

Baker, Edward William, 1914–
The false spider mites of northwestern and north central Mexico (Acarina, Tenuipalpidae).
(Smithsonian contributions to zoology, no. 194)
Supt. of Docs. no.: St 1.27:194

1. False spider mites. 2. Arachnida—Mexico. I. Tuttle, Donald Monroe, 1917– joint author.
II. Abbatiello, M., 1921 joint author. III. Title. IV. Series: Smithsonian Institution. Smithsonian contributions to zoology, no. 194. joint author.

Contents

	Page
Introduction	1
Genus Pseudoleptus Bruyant	
Genus Aegyptobia Sayed	
Genus Tenuipalpus Donnadieu	
Genus Brevipalpus Donnadieu	5
Genus Priscapalpus De Leon	22
Literature Cited	22

The False Spider Mites of Northwestern and North Central Mexico (Acarina: Tenuipalpidae)

Edward W. Baker, Donald M. Tuttle, and Michael J. Abbatiello

Introduction

This study, a continuation of previous ones by Baker and Tuttle (1964), and De Leon (1957, 1960, 1961, 1961a, 1962, and 1965), consists of a survey of plants for plant-feeding mites and their predators in the states of Sonora, Sinaloa, Nayarit, Jalisco, Zacatecas, Coahuila, and Chihuahua. A few other collections have been included. Plants were beaten over a United States Department of Agriculture #20 seed sieve into a funnel and vial, and the mites thus obtained were preserved in an AGA solution (alcohol, glycerin, and acetic acid) and mounted later. Mites were found on all plants sampled. Collections were made by D. M. Tuttle, M. J. Abbatiello, and E. W. Baker in 1970 unless otherwise stated.

We express our appreciation to Dr. Charles T. Mason, Jr., and Mrs. Caryl L. Sagar, Department of Botany, University of Arizona, for the determination of plants and review of plant names appearing in this study.

Genus Pseudoleptus Bruyant

Pseudoleptus Bruyant, 1911:340.—Pritchard and Baker, 1958: 184.

Edward W. Baker, United States Department of Agriculture, Beltsville, Maryland. Donald M. Tuttle, University of Arizona, Yuma, Arizona. Michael J. Abbatiello, State University of New York, Farmingdale, New York. This genus is characterized by four to five palpal segments; two pairs of dorsosublateral setae; a bifurcate rostral shield; ventral plate absent; and by a characteristic striation pattern on hysterosoma.

Type-Species.—Pseudoleptus arechavaletae Bruyant, monotypy.

Pseudoleptus palustria Pritchard and Baker

Pseudoleptus palustria Pritchard and Baker, 1952:7; 1958:185.

This species was originally described from Distichlis in California and was subsequently collected in Kansas. The Mexican specimens were collected on Sporobolus flexuosus (Thurber) Rydberg, Torreon, Coahuila, 5 August.

Genus Aegyptobia Sayed

Aegyptobia Sayed, 1950:1015.—Pritchard and Baker, 1958: 179.—Baker and Tuttle, 1964:3.

This genus is distinctive in having four pairs of dorsosublateral setae, a five-segmented palpus, and typically shaped genital and ventral plates.

The southwestern United States, and the areas collected in Mexico, are rich in species belonging to this genus. Without more collecting and further study we are not certain whether we are looking at species or variations—when in doubt we became conservative and placed the so-called variants under one name. The key to the species in Baker

and Tuttle (1964) is applicable to most of the Mexican species.

Type-Species.—Aegyptobia tragardhi Sayed, monotypy.

Aegyptobia flourensia Baker and Tuttle

Aegyptobia flourensia Baker and Tuttle, 1972:22.

This species was originally described from Flourensia cernua De Candolle, Portal, Arizona. It was collected on Hymenoclea monogyra Torrey and Gray, Chihuahua, 8 August.

Aegyptobia campsis Baker and Tuttle

Aegyptobia campsis Baker and Tuttle, 1964:17.

This mite was originally collected from Campsis radicans (Linnaeus) Seemann, Yuma, Arizona. The Mexican collections were made as follows: Ambrosia confertiflora (De Candolle) Rydberg, Hermosillo, 17 July; Solanum elaeagnifolium Cavara, Alamos, 20 July; Parthenium hysterophorus Linnaeus, Los Mochis, 24 July; Artemisia ludoviciana Nuttall, Chihuahua, 8 August; and Tridens pulchellus (Humboldt, Bonpland, and Kunth) Hitchcock, 80 miles south of Chihuahua, 8 August.

Aegyptobia cassiae Baker and Tuttle

Aegyptobia cassiae Baker and Tuttle, 1964:12.

This mite, originally collected on Solanum elaeagnifolium Cavara, Yuma, Arizona, was found on Spanish-moss (Tillandsia usneoides Linnaeus) from Puebla, Mexico, at the El Paso Quarantine Station by J. H. Cross, 25 January 1972.

Aegyptobia desertorum Baker and Tuttle

Aegyptobia desertorum Baker and Tuttle, 1964:23; 1972:18.

This species was originally collected on Atriplex canescens (Pursh) Nuttall, Yuma County, Arizona. A single specimen was found on Atriplex acanthocarpa (Torrey) Watson, Torreon, 5 August. The dorsal body setae are somewhat shorter than in the Arizona specimens, but otherwise the mites appear to be the same.

Aegyptobia crotonae Baker and Tuttle

Aegyptobia crotonae Baker and Tuttle, 1972:21.

This mite was described from specimens collected on Croton corymbulosus Engelmann at Portal, Arizona. It was also found on Ambrosia confertiflora (De Candolle) Rydberg at Riverside, California. The Mexican collections were made on the first-mentioned host at Cuencame, 4 August; on Crusea sp., Guadalajara, 31 July; and on Sida diffusa Humboldt, Bonpland, and Kunth at Chihuahua, 8 August.

Aegyptobia ceibae De Leon

Aegyptobia ceibae De Leon, 1962:203.

This mite was collected from *Ceiba* sp., 12 miles south of Guadalajara, Jalisco, 13 March 1957.

Aegyptobia macswaini Pritchard and Baker

Pentamerismus macswaini Pritchard and Baker, 1952:8. Aegyptobia macswaini (Pritchard and Baker), 1958:180.— Baker and Tuttle, 1964:4.—Baker and Tuttle, 1972:21.—De Leon, 1962:204.

This mite is known from various hosts in Arizona and California. It was collected on *Abronia maritima* Nuttall and Watson, Hermosillo, 17 July. De Leon collected it on *Pectis arenaria* Bentham, from San Blas, Nayarit, April 1957.

Aegyptobia haplopappus Baker and Tuttle

Aegyptobia haplopappus Baker and Tuttle, 1972:25.

This species was originally collected on Haplopappus spinulosus (Pursh) De Candolle in Arizona and at Alpine, California, on Alopecurus aequalis Sobel. It was taken on Senecio sp. and Haplopappus tenuisectus (Greene) S. F. Blake at Fresnillo, 3 August.

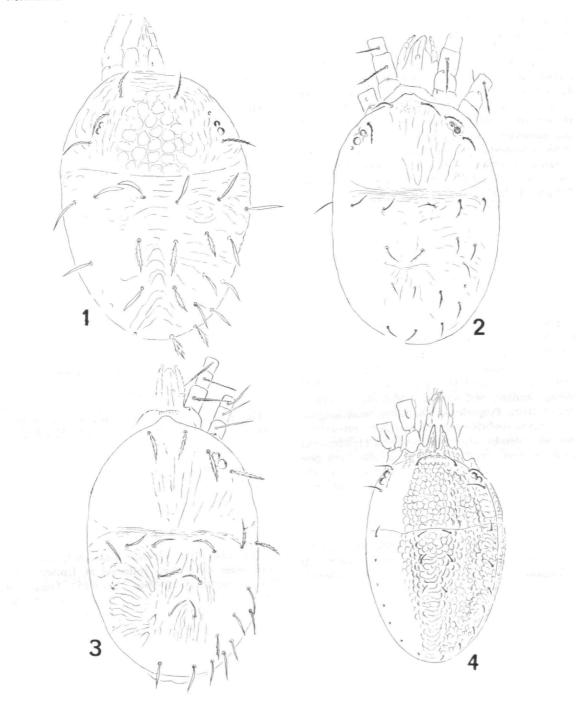
Aegyptobia cercidium, new species

FIGURE 1

This species is distinctive in having a reticulate pattern on the dorsum of the propodosoma.

FEMALE.—Rostrum elongate, reaching to distal

NUMBER 194



Figures 1-4.—Dorsum of female: 1, Aegyptobium cercidium, new species; 2, Aegyptobia allionia, new species; 3, Aegyptobia incarnata, new species; 4, Brevipalpus solanum, new species.

tip of tibia I. Dorsal setae of femora I and II slender and serrate; dorsal setae of genua missing; those of tibia I and II similar to those of femora; claws strongly uncinate. Rostral shield absent; anterior margin of propodosoma sometimes slightly indented; propodosoma with dorsal reticulate pattern as figured; setae slightly lanceolate and serrate. Hysterosoma with faint transverse striation pattern as figured; setae lanceolate-serrate and broader than those of propodosoma. Genital setae slender, faintly serrated; ventral plate not visible, area with transverse striae. Length of body including rostrum $287\mu m$; width $172\mu m$.

HOLOTYPE.—Female, USNM 3621, ex Cercidium floridum Bentham, Mazatlan, 26 July.

PARATYPES.—Eight females with the above data.

Aegyptobia allionia, new species

FIGURE 2

The claws are padlike, not hooked; the body is lightly striated; and the dorsal body setae are slender and with few serrations.

FEMALE.—Rostrum slender, reaching to distal end of genua I and II; setae of femora I and II strong, straight, and serrate. Tarsal claws padlike, not uncinate. Propodosoma with few, weak longitudinal striae, slightly indented anteriorly; propodosomal setae slender, with few serrations. Hysterosoma with few striae, those anterior transverse, those posterior longitudinal; setae of hysterosoma slender and with few striae as on propodosoma. Ventral plate with few longitudinal striae; genital plate with few longitudinal striae; genital plate with few longitudinal striae. Length of body including rostrum $382\mu m$; width $204\mu m$.

HOLOTYPE.—Female, USNM 3622, ex Allionia incarnata Linnaeus, 10 miles south of Chihuahua, 7 August.

Aegyptobia incarnata, new species

FIGURE 3

The padlike tarsal claws and strong dorsal body setae are distinctive.

FEMALE.—Rostrum slender, reaching to distal end of genu I. Dorsal setae of femora I and II and tibiae and genua I and II long, strong, and serrate. Tarsal claws padlike. Anterior margin of propo-

dosoma not emarginate. Dorsum of body with few, distinct striae (see figure). Dorsal body setae strong, strongly serrate. Ventral body setae strong and serrate; ventral plate present; with few transverse striae; genital plate similar. Length of body including rostrum $351\mu m$; width $191\mu m$.

HOLOTYPE.—Female, USNM 3623, ex Allionia incarnata Linnaeus, Hermosillo, 18 July.

PARATYPES.—Six females with the above data.

Genus Tenuipalpus Donnadieu

Tenuipalpus Donnadieu, 1875:111.—Pritchard and Baker 1958:235.—Baker and Tuttle 1964:73.—De Leon 1957:81.

This genus is characterized by a very broad podosoma and a narrow opisthosoma; the ventral plate is not a distinct entity; the number of palpal segments may vary; and usually there is a pair of long posterior whiplike setae.

Type-Species.—(Tenuipalpus palmatus Donnadieu) = T. caudatus (Dugès), by subsequent designation.

Tenuipalpus meekeri De Leon

Tenuipalpus meekeri De Leon, 1957:82.

This species was collected on a fern in a mangrove swamp at San Blas, Nayarit, 31 March 1957.

Tenuipalpus dasples Baker and Pritchard

Tenuipalpus dasples Baker and Pritchard, 1953:324.—De Leon 1957:92.

This species was described from Sabal megacarpa Small, 19 April 1950 and Sabal palmetto Loddiges, 27 December 1950, Florida. Mexican specimens of both sexes have been collected at United States Quarantine Station, San Antonio, Texas, on Chamaedorea sp., 11, 29 November 1966, 11 November 1971, 26 September 1972, 16 October 1972, and from Sabal sp. near Veracruz by De Leon 29 December 1956.

Tenuipalpus rhysus Baker and Pritchard

Tenuipalpus rhysus Baker and Pritchard, 1953:330.—De Leon 1957:92.

This species has been collected on Chaemadorea

NUMBER 194 5

sp. from Chiapas at San Antonio Quarantine Station. It differs from the preceding species in that the second propodosomal setae are small rather than large as in *T. dasples*. De Leon (1957:92) believes that *T. rhysus* and *T. argus* are variants of *T. bakeri* McGregor.

Tenuipalpus coyacus De Leon

Tenuipalpus coyacus De Leon, 1957:83.

This mite was collected by De Leon from "coco de aceite" (Cocos nuciferus Linnaeus) at San Blas and Aticama, Nayarit, 8 April 1957.

Tenuipalpus unimerus De Leon

Tenuipalpus unimerus De Leon, 1957:84.

This species is from "aquacate" or avocado (Persea americana Miller), San Blas, Nayarit, 31 March 1957.

Tenuipalpus tabebuiae De Leon

Tenuipalpus tabebuiae De Leon, 1957:85.

This species was collected from *Tabebuia* pentaphylla (Linnaeus) Hemsley, San Luis Potosi, 21 December 1956, and *Tabebuia* sp., San Blas, Nayarit, 28 March 1957.

Tenuipalpus tepicanus De Leon

Tenuipalpus tepicanus De Leon, 1957:85.

This species was collected on "capulincillo" at San Blas and Aticama, Nayarit, by De Leon, 28 March 1957 and 13 April 1957.

Tenuipalpus crescentiae De Leon

Tenuipalpus crescentiae De Leon, 1957:88.

This mite was collected from "coastecomate" (Parmentiera alata Miers) at San Blas, Nayarit, by De Leon, 8 April 1957.

Tenuipalpus sanblasensis De Leon

Tenuipalpus sanblasensis De Leon, 1957:89.

This mite was collected from "naranjilla" (Cap-

paris verrucosa Jacquin), San Blas, Nayarit, 6 April 1957.

Tenuipalpus uvae De Leon

Tenuipalpus uvae De Leon, 1962:205.

These mites were collected from a large tree (with pinnate leaves and small white flowers in racemes) called "uva" by the inhabitants, San Blas, Nayarit, 21 May 1957 (D. De Leon).

Tenuipalpus cedrelae De Leon

Tenuipalpus cedrelae De Leon, 1957:90.

This species was collected on *Cedrela* sp., San Blas, Nayarit, 28 March and 19 April 1957.

Tenuipalpus annonae De Leon

Tenuipalpus annonae De Leon, 1957:91.

This species was collected on Annona sp., San Blas, Nayarit, 28 March 1957.

Tenuipalpus bakeri McGregor

Tenuipalpus bakeri McGregor, 1949:7.

De Leon (1957:93) found this species on an unknown host at San Blas, Nayarit, 29 March 1957.

Genus Brevipalpus Donnadieu

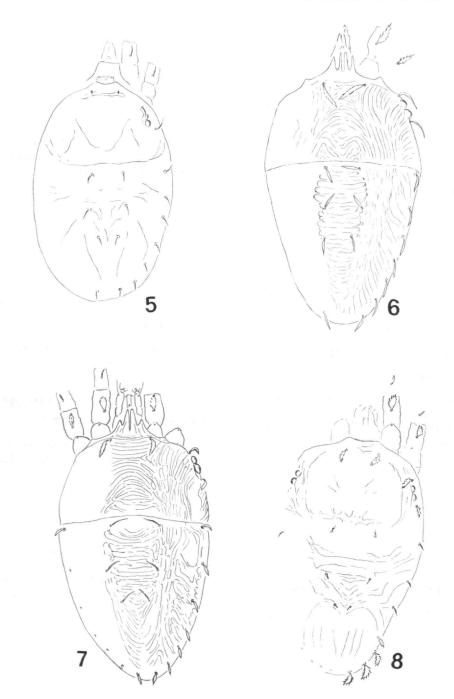
Brevipalpus Donnadieu, 1875:116.—Pritchard and Baker, 1958:196.—Baker and Tuttle, 1964:30.

This genus is distinctive in usually having a foursegmented palpus, in lacking dorsosublateral hysterosomal setae, and in having distinct genital and ventral plates. Usually the dorsum of the adult has a reticulate pattern. Although the bodies of males and females may be dissimilar, the reticulate pattern and type of setae remain similar.

Type-Species.—Brevipalpus obovatus Donnadieu, by subsequent designation.

Group I

This group of *Brevipalpus* contains those species which have only a single solenidion on tarsus II of



FIGURES 5-8.—Brevipalpus solanum, new species: 5, nymph I (molting to II). Brevipalpus allenrolfia Baker and Tuttle: 6, female taken from Suaeda sp.; 7, female taken from Allenrolfia sp.; 8, nymph taken from Allenrolfia sp.

NUMBER 194

the female, three distal setae on the palpus, and six pairs of hysterosomal marginal setae.

Brevipalpus lagasceae De Leon

Brevipalpus lagasceae De Leon, 1960:176.

This species was collected from Lagascea angustifolia De Candolle, Jalisco, 24 March 1957.

Brevipalpus tubercellus De Leon

Brevipalpus tuberellus De Leon, 1960:177.

This species was collected from a "lauraceous" tree and *Nectandra tabascensia* Lundell at Nayarit. No dates available.

Brevipalpus formosus De Leon

Brevipalpus formosus De Leon, 1960:177.

This mite was collected from *Licaria* sp., Nayarit, 8 April 1957.

Brevipalpus albus De Leon

Brevipalpus albus De Leon, 1960:179.

This species was collected from Quercus aristata Hooker and Arnott, Nayarit, 24 March 1957.

Brevipalpus oreopanacis De Leon

Brevipalpus oreopanacis De Leon, 1960:180.

This species was collected from *Oreopanax* peltatum Linden, Nayarit, 24 March 1957.

Brevipalpus perseae De Leon

Brevipalpus perseae De Leon, 1960:182.

This species was collected from *Persea hintonii* C K. Allen, Nayarit, 25 March 1957.

Brevipalpus testudinalis De Leon

Brevipalpus testudinalis De Leon, 1960:186.

This species was collected from an "unknown tree," Nayarit, 23 April 1957.

Brevipalpus solanum, new species

FIGURES 4, 5

The dorsal reticulate pattern of the female, the slender dorsal setae, and the short dorsal setae of the nymph are distinctive.

Female.—Rostrum elongate, reaching to distal end of femur I; palpus with three distal setae; rostral shield sculptured. Tarsus II with a single solenidion; tarsal claws uncinate; femoral setae small, slender, and lightly serrate. Propodosoma entirely covered with rounded areolae; mediolateral grooves broad; setae relatively long, slender, and lightly serrate. Hysterosoma with areolae; posterior to second pair of dorsocentral setae pattern transverse; mediolateral groove broad; hysterosomal setae small, slender, and slightly serrate. Genital and ventral plates with rounded areolae; area anterior to ventral plate similar; area between metapodosomal setae punctate. Length of body including rostrum $287\mu m$; width $147\mu m$.

MALE.—In general, similar to female in reticulate pattern and setae. Length of body including rostrum $255\mu m$; width $115\mu m$.

NYMPH I.—All dorsal body setae short and slightly serrate; those on propodosoma somewhat longer than those on hysterosoma; setae of femora I and II similar to those on propodosoma; body with few striae.

HOLOTYPE.—Female, USNM 3624, ex Solanum elaeagnifolium Cavara, Alamos, 20 July.

PARATYPES.—Eight females, male, and nymph with above data.

Other specimens were collected as follows: ex Solanum verbascifolium Linnaeus, Topolobampo, 24 July; ex Cynodon dactylon (Linnaeus) Persoon, Cd. Obregon, 23 July; ex Waltheria americana Linnaeus, Mazatlan, 26 July, and ex Sida sp., Mazatlan, 24 July; ex Tephrosia talpa S. Watson, Tequila, 26 July; ex Ambrosia confertifolia (De Candolle) Rydberg, Tepic, 26 July; ex Psilostrophe tagetina (Nuttall) Greene, Torreon, 5 August; and ex Cirsium wheeleri (Gray) Petrak, Chihuahua, 8 August.

Brevipalpus allenrolfia Baker and Tuttle

FIGURES 6-8

Brevipalpus allenrolfia Baker and Tuttle, 1964:49.

This mite was first described from specimens col-

lected on Allenrolfia occidentalis (Watson) Kuntze, Dome Valley, Arizona. Mexican specimens were collected from Atriplex polycarpa (Torrey) Watson and Suaeda torreyana Watson, Hermosillo, 18 July; Allenrolfia occidentalis (Watson) Kuntze at Topolobampo, 24 July; and the same host at Los Mochis, 24 July.

This appears to be a variable species, the setae and striation pattern varying as figured in Baker and Tuttle (1964) to those figured here. The Arizona specimens possess narrowly lanceolate dorsal setae; in the Mexican specimen the setae become progressively broader as figured; in the nymphs from *Atriplex* from Hermosillo, the marginal setae are small to large.

Brevipalpus hypti De Leon

Brevipalpus hypti De Leon, 1960:175.

This species was originally described from *Hyptis albida* Kunth, Ixtlan del Rio, Nayarit, 24 March 1957. Our specimens, all females, are from *Hyptis* sp., Tequila, 26 July and *Sida* sp., Guadalajara, 31 July.

Brevipalpus neohyptis, new species

FIGURE 9

This species is distinctive in having broad, strongly serrate femoral and anterior propodosomal setae. It is close to *Brevipalpus insinuatus* De Leon from *Quercus* in Chiapas and Morelia. It differs in that the ventral plate possesses transverse striae, not areolae.

FEMALE.—With a single tarsal II solenidion; with three distal setae on palpus, and with six pairs of hysterosomal marginal setae. Rostrum short and broad, reaching about halfway to distal end of femur I. Dorsal setae of femora I and II broadly lanceolate and strongly serrate; dorsal genual setae of legs I and II slender and barely serrate; claws uncinate. Rostral shield with areolae. Propodosoma with dorsum evenly areolate, areolae small and rounded; anterior propodosomal setae broadly lanceolate and strongly serrate; second pair of propodosomals not as broadly lanceolate; third pair barely lanceolate. Hysterosomal pattern essentially similar to that of propodosoma, except for trans-

verse pattern laterally; hysterosomal pores present; with deep longitudinal furrow mediolaterally; dorsocentral and marginal setae much smaller than those of the propodosoma, slender, and serrate. Venter lightly areolate. Length of body including rostrum $268\mu m$; width $140\mu m$.

HOLOTYPE.—Female, USNM 3625, ex Hyptis sp., Zapotlanejo, 30 July.

PARATYPE.—Female with the above data.

Brevipalpus sida, new species

FIGURE 10

The small dorsal areolae, the small smooth dorsal setae, and the entire venter covered with small areolae, except for the ventral and genital plates, which possess transverse striae, are distinctive.

Female.—As above; propodosoma not reaching to distal end of femur I; femur I with moderately broad, lanceolate, and serrate seta, that on femur II only slightly lanceolate and serrate; genual setae small and only slightly lanceolate, and serrate. Rostral shield not marked. Dorsum of body with small rounded areolae; dorsomedial portion depressed; marginal area raised and with more or less transverse pattern. Dorsal groove of hysterosoma broad but definite (see figure). Dorsal body setae small, slender, smooth, and slightly serrate. Venter of body except for plates covered with small areolae; plates with transverse striae. Length of body including rostrum $268\mu m$; width $127\mu m$.

HOLOTYPE.—Female, USNM 3626, ex Sida sp., Tequila, 26 July. Only a single female was collected. This may be a contaminant on the plant.

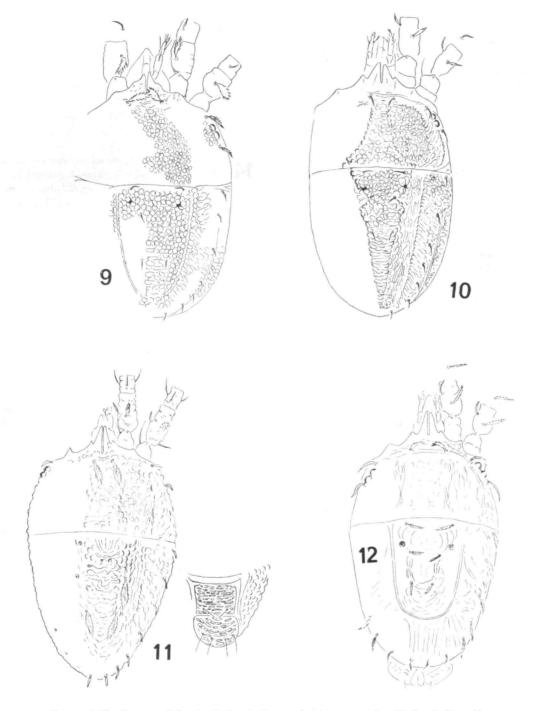
Brevipalpus chamaedorea, new species

FIGURE 11

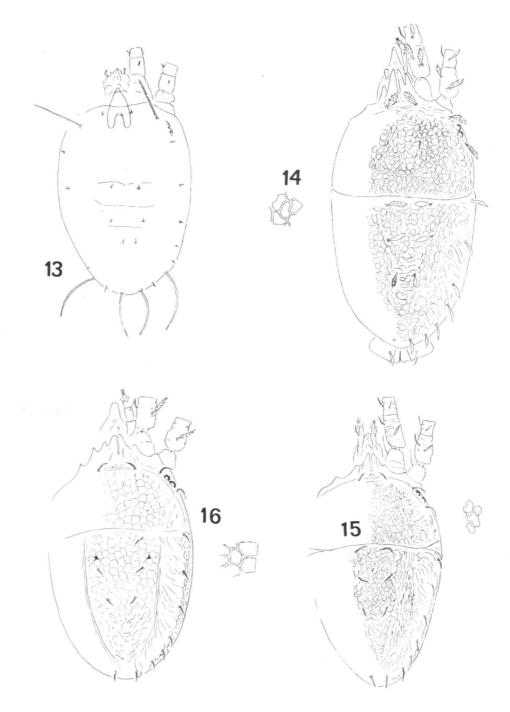
The dorsal body pattern of strongly raised tubercles and striae as figured is distinctive.

FEMALE.—As above; rostrum short and not broad, reaching about the middle of femur I; rostral shield lightly pebbled. Dorsal setae of femora I and II broadly lanceolate and strongly serrate; setae of genua small, slender. Dorsum of propodosoma with strong rounded tubercles; marginal area with longitudinal design. First pair of propodosomal setae very strong, broadly lanceolate, and serrate; second

NUMBER 194



FIGURES 9-12.—Dorsum of female: 9, Brevipalpus neohyptis, new species; 10, Brevipalpus sida, new species; 11, Brevipalpus chamaedorea, new species; 12, Brevipalpus pseudophoenicis, new species.



FIGURES 13-16.—Dorsum of female: 13, Brevipalpus pseudophoenicis, new species; 14, Brevipalpus celtis, new species; 15, Brevipalpus bouchea, new species; 16, Brevipalpus pluchea, new species.

NUMBER 194 11

and third pairs much smaller. Hysterosoma with dorsomedian pattern transverse; mediolateral groove present; marginal pattern in general transverse. Dorsocentral setae similar to first pair of propodosomals; marginal setae short and serrate. Venter of body with small areolae except for area between metapodosomal setae which is punctate; ventral plates with areolae arranged in transverse pattern, Length of body including rostrum $338\mu m$; width $185\mu m$.

MALE.—Body ornamentation and setae similar to that of female. Length of body including rostrum $286\mu m$; width $185\mu m$.

HOLOTYPE.—Female, USNM 3627, ex Chamaedorea sp., Mexico at San Antonio Quarantine Station, 21 May 1973 by D. Johnston.

Brevipalpus pseudophoenicis, new species

FIGURES 12, 13

The striation pattern is distinct, forming scallops on the propodosoma and a U-pattern on the hysterosoma.

FEMALE.—Rostrum not reaching to distal end of femur I; with three setae on distal segment of palpus. Tarsal claws uncinate; dorsal femoral setae strong, slightly lanceolate, and serrate; genual setae more slender. Propodosomal setae strong, lanceolate, and serrate; rostral shield with few striae; propodosoma dorsomedially similar to Brevipalpus phoenicis in having a scalloped pattern, with few striae laterally. Hysterosoma with six pairs of marginal setae similar to those of propodosoma; both dorsocentral and marginal setae becoming smaller posteriorly; striation pattern unique, consisting of a U-shaped groove containing the dorsocentral setae and a few marginal striae; pores prominent and funnel shaped. Genital and ventral plate with broken transverse striae; area between ventral metapodosomal setae punctate. Length of body including rostrum $300\mu m$; width $160\mu m$.

MALE.—Solenidion on tarsi long, slender; tarsal claws uncinate; femoral setae similar to those of female; genua setae similar. Body lightly marked, with more or less longitudinal striae. Dorsal body setae slender, serrate; posterior two pairs of hysterosomal setae smaller than others; hysterosomal pores strong as in female. Length of body including rostrum $242\mu m$; width $115\mu m$.

NYMPH.—Distinctive in setal pattern; propodosomal setae one and three minute, two long, serrate. Hysterosomal dorsocentral setae minute; marginal setae, one, two, three, and five minute; marginals four and six long and serrate as figured.

HOLOTYPE.—Female, USNM 3628, ex Sida sp., Zapotleneja, 31 July.

Paratypes.—Five females, two males, and one nymph with the above data.

Brevipalpus celtis, new species

FIGURE 14

The dorsal femoral and body setae are all large, broadly lanceolate; the areolae are large, rounded, and cover the dorsum.

FEMALE.—Rostrum reaching to distal end of femur I; rostral shield lightly marked basally; palpus with three distal setae. Tarsal claws uncinate; tarsus II with single solenidion; dorsal femoral I and II setae broadly lanceolate, serrate; genual setae less so. Propodosoma with crenulate reticulate pattern (as figured); dorsal setae as on femora. Hysterosomal setae as on propodosoma but becoming smaller posteriorly; reticulate pattern as on propodosoma but tending to form transverse pattern posterior to second pair of dorsocentral setae; longitudinal pattern in mediolateral groove and and more or less transverse pattern on margin. Ventral plate with well-defined transverse striae, slightly wider posteriorly; ventral and genital plates with transverse striae area around ventral metapodosomal setae with rounded areolae; without pattern between setae. Length of body including rostrum $389\mu m$; width $178\mu m$.

HOLOTYPE.—Female, USNM 3629, ex Celtis pallida Torrey, Torreon, 5 August.

Brevipalpus bouchea, new species

FIGURE 15

The nymphal setal pattern is distinctive; the reticulate pattern of the female is crenulate, the dorsal leg and body setae are slender, lanceolate, and serrate.

FEMALE.—Rostrum reaching about halfway to distal end of femur I; with three setae on distal palpal segment; rostral shield without obvious

pattern. Tarsal claws uncinate; tarsus II with single solenidion; femora I and II with small, lanceolate, and serrate setae; dorsal setae of genua small, slender, and faintly serrate. Propodosoma with crenulate striation pattern as figured; setae small, lanceolate, and serrate. Hysterosomal setae similar to those of propodosoma; striation pattern crenulate; mediolateral groove broad with longitudinal pattern; marginal pattern tending to be transverse. Genital and ventral plates with transverse striae; area between metapodosomal setae lightly areolate. Length of body including rostrum $242\mu m$; width $137\mu m$.

NYMPH.—Setal pattern distinctive; setae of propodosoma small, lanceolate and slightly longer than those of hysterosoma; hysterosomal setae small except for the posterior pair, which are obviously larger.

HOLOTYPE.—Female, USNM 3630, ex *Bouchea prismatica* (Linnaeus) Kuntze, Guadalajara, 31 July.

PARATYPES.—Eight females and one nymph with the above data.

Brevipalpus pluchea, new species

FIGURES 16, 17

The large polygonal reticulate pattern, the very strong femoral setae, and small dorsal body setae are distinctive.

FEMALE.—Rostrum broad, strong, and reaching distal end of femur I; palpus with three distal setae; rostral shield with faint pattern. Tarsus II with one solenidion; tarsal claws strongly uncinate; femoral setae strongly lanceolate, serrate. Dorsal body reticulations large and even. Propodosomal setae slender and slightly serrate; hysterosomal setae shorter and apparently nude. Marginal area of hysterosoma with irregular transverse striae; mediolateral groove narrow; small pores present. Genital plate with broadly transverse striae; ventral plate with transverse reticulate pattern; area anterior to ventral plate reticulate; area between metapodosomal setae lightly reticulate. Length of body including rostrum $268\mu m$; width $128\mu m$.

NYMPH.—All dorsal body setae short, lanceolate. Holotype.—Female, USNM 3631, ex *Pluchea odorata* (Linnaeus) Cassini, Topolobampo, 24 July.

Paratypes.—Twenty females with the same data and ten females from Los Mochis, 23 July.

Brevipalpus cassia, new species

FIGURE 18

The dorsal reticulate pattern of the propodosoma and hysterosoma are distinctive.

FEMALE.—Rostrum elongate; reaching to distal end of femur I; with three distal palpal setae; rostral shield lightly striate proximally. Tarsus II with a single solenidion; claws uncinate; femoral I and II setae broadly lanceolate, and serrate. Propodosomal pattern large polygonal; not meeting medially; propodosomal setae broadly lanceolate and serrate, more or less similar to the dorsal setae of femora. Hysterosomal setae much more slender and serrate, becoming shorter posteriorly; reticulate pattern more or less similar to propodosomal pattern, strong mediolaterally with weak transverse striae dorsocentrally and laterally. Genital plate with few large areolae; anterior to ventral plate a few areolae; area between metapodal setae without design. Length of female including rostrum $300\mu m$; width $134\mu m$.

HOLOTYPE.—Female, USNM 3632, ex Cassia crotolarioides Kunth, Fresnillo, 3 August.

PARATYPES.—Two females with the above data.

Brevipalpus essigi Baker

FIGURE 19

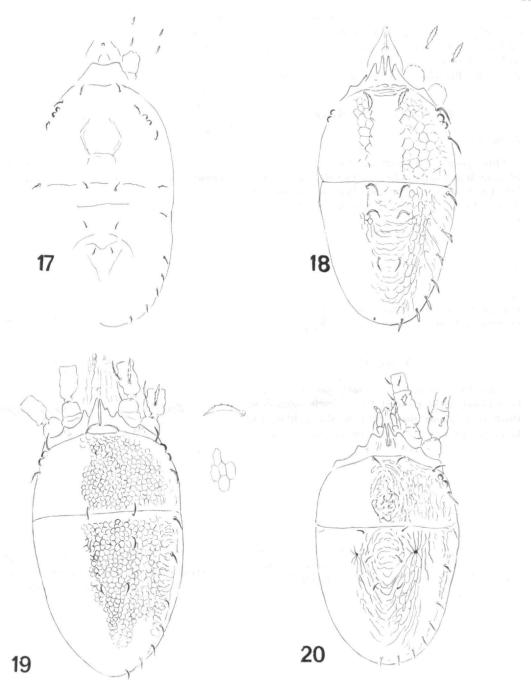
Brevipalpus essigi Baker, 1949:367.

This species was originally described from Acuba sp., Berkeley, California. It was collected on orchid plant from Guadalajara at Nogales Quarantine station, 15 May 1949 by Ray Allen. The mite is recognized by the tarsal/palpal/setal count and by the even reticulate pattern which covers the dorsum of the body. Ventrally the genital plate possesses transverse striae, the ventral plate is areolate, the area anterior to the ventral plate has small areoli, and the area between the metapodosomal setae is without a design.

Brevipalpus lewisi McGregor

Brevipalpus lewisi McGregor, 1949:17.—Baker and Tuttle 1964:33.

This is a widespread species found on various hosts throughout the world. It was collected on NUMBER 194



FIGURES 17-20.—Brevipalpus pluchea, new species: 17, dorsum of nymph. Brevipalpus cassia, new species: 18, dorsum of female. Brevipalpus essigi Baker: 19, dorsum of female. Brevipalpus ardesiae DeLeon: 20, dorsum of female.

Amorpha fruticosa Linnaeus at Alamos, 2 July; on Asclepias curassavica Linnaeus, at Cd. Obregon, 22 July; on Abutilon sp. at Topolobampo, 24 July; and on Parthenocissus tricuspidata (Siebold and Zuccarini) Planchon at Chihuahua, 7 August.

Brevipalpus lilium Baker

Brevipalpus lilium Baker, 1949:369.—De Leon 1965:74.

This species has been collected from various hosts in Washington, Oregon, Florida, and Hawaii. De Leon collected it in British Guiana on Montrichardia arborescens Schott (= M. aculeata Schott), Synedrella nodiflora Gaertner, and Corchorus olitorius Linnaeus. We have collected it on Abutilon sp. and Hyptis sp., Tepic, Nayarit, 28 July.

This is a variable species, possibly a variant of *Brevipalpus californicus* (Banks). The dorsal reticulate pattern of the propodosoma may be entirely or irregularly reticulate.

Group II

This group includes only one species, which is here described. Tarsus II has a single solenidion, there is only one distal seta on the palpus, and there are six pairs of hysterosomal margin setae.

Brevipalpus frankenia, new species

FIGURES 21-24

The body setae are small, ovate, and serrate.

FEMALE.—Rostrum long, reaching distal end of genu I; palpus unique in having only three segments and a single distal seta (solenidion); rostral shield with pattern. Tarsus II with single solenidion; tarsal claws strongly uncinate; dorsal setae of femora I and II and genua I and II broadly ovate and serrate. Propodosoma with reticulate pattern as figured; setae broadly ovate, serrate. Hysterosoma with transverse pattern mediodorsally, longitudinal mediolaterally, and transverse marginally; setae broadly ovate and serrate. Genital plate with few transverse striae; ventral plate similar; few transverse striae anterior to ventral plate; anterior and posterior metapodosomal setae

short and of equal length. Length of body including rostrum $306\mu m$; width $140\mu m$.

MALE.—Similar to female in setal pattern. Striation pattern as figured. Length including rostrum $230\mu m$; width $108\mu m$.

NYMPH.—The second stage nymph with typical striation pattern. Dorsal body setae as in adults but becoming smaller posteriorly.

HOLOTYPE.—Female, USNM 3633, ex Frankenia palmeri S. Watson, Hermosillo, 17 July.

PARATYPES.—Twenty-five females, nine males, and twenty nymphs with the above data.

Group III

This group of mites is characterized by having a single solenidion on tarsus II of the female, two distal setae on the palpus, and six pairs of marginal hysterosomal setae.

Brevipalpus pocillator De Leon

Brevipalpus pocillator De Leon, 1961:47.

This species was collected from *Verbesina?* and *Ficus?*, Jalisco, 22 March 1957.

Brevipalpus psilotrophe, new species

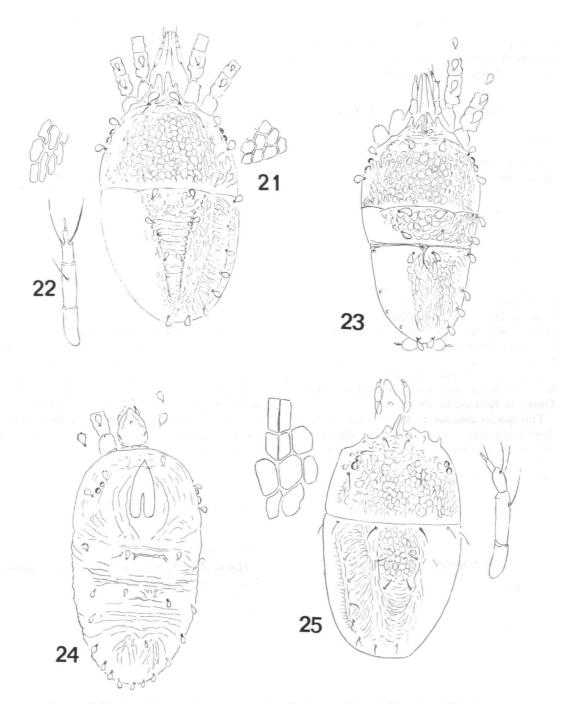
FIGURE 25

The striation pattern distinguishes this species from the preceding one.

Female.—Rostrum reaching distal end of femur I; palpus with two distal setae; rostral shield with basal pattern. Tarsal claws uncinate; tarsus II with single solenidion; dorsal setae of femora and genua small, slender, similar to body setae, without obvious serrations. Propodosoma with reticulate pattern covering entire dorsum as figured; setae as on legs. Hysterosomal setae as on propodosoma; reticulate pattern in area of dorsocentrals one to three; transverse striae pattern otherwise; mediolateral groove broad; with six pairs of marginal setae. Genital and ventral plate with transverse striae, those of ventral plate forming a V-pattern; area anterior to plates with transverse striae; area between metapodosomal setae with light transverse striae. Length of body including rostrum $300\mu m$; width $153\mu m$.

HOLOTYPE.—Female, USNM 3634, ex Psilostrophe tagetima (Nuttall) Greene, Chihuahua, 8 August.

NUMBER 194 15



FIGURES 21-25.—Brevipalpus frankenia, new species: 21, dorsum of female; 22, palpus of female; 23, dorsum of male; 24, dorsum of nymph. Brevipalpus psilostrophe, new species: 25, dorsum of female.

Group IV

This species group has two solenidia on the distal portion of tarsus II, three distal palpal setae, and six pairs of marginal hysterosomal setae.

Brevipalpus encinarius De Leon

Brevipalpus encinarius De Leon, 1961:42.

This species was collected from Quercus sp., Michoacan, 11 March 1957.

Brevipalpus ardesiae De Leon

FIGURE 20

Brevipalpus ardesiae De Leon, 1961:42.

This mite was described by De Leon (1961) from material collected near Tepic, Nayarit, on Ardisia revoluta Humboldt, Bonpland, and Kunth, 29 March 1957. We collected it at Los Mochis, 24 July on Parthenium hysterophorus Linnaeus, Sphaeralcea angustifolia (Cavara) G. Don, Datura stramonium Linnaeus, and Abutilon californicum Bentham. It was also found on Fraxinus velutina Torrey at Hermosillo, 18 July.

This species keys out to *Brevipalpus californicus* (Banks) but differs in having an irregular crenulate pattern dorsomedially on the propodosoma.

In the original description of this species, De Leon misspelled the genus of the host plant using Ardesia, whereas the name is correctly spelled Ardisia. He then assigned the species name B. ardesiae.

Brevipalpus aepi De Leon

Brevipalpus aepi De Leon, 1961:43.

This species was collected on Verbesina sp., Nayarit, 25 March 1957.

Brevipalpus cochlospermi De Leon

Brevipalpus cochlospermi De Leon, 1961:43.

This mite was collected on *Cochlospermum* sp., Nayarit, 21 May 1957.

Brevipalpus alternatus De Leon

Brevipalpus alternatus De Leon, 1961:46.

This species was collected on *Conocarpus erecta* Linnaeus, Nayarit, 28 March, 1957.

Brevipalpus trinidadensis Baker

Brevipalpus trinidadensis Baker, 1949:381.—Pritchard and Baker, 1958:217.—De Leon 1961:46.

This mite was found common on a cultivated shrublike tree—"agualama"—in San Blas, Nayarit, by De Leon. No collection dates available.

Brevipalpus viguiera, new species

FIGURES 26, 27

This species is distinguished by the reticulate pattern of the female and the enlarged marginal setae of the nymph.

FEMALE.—Rostrum short, broad, not reaching to distal end of femur I; rostral shield not obviously ornamented; distal segment of palpus with three setae. Femora I and II each with a strong broadly lanceolate serrate seta; tarsal claws strongly uncinate. Propodosomal and hysterosomal setae short, lanceolate, and serrate. Propodosomal reticulate pattern rounded, complete as figured; that of hysterosoma longitudinal in broad mediolateral groove and transverse on dorsomedial area posterior to second pair of dorsocentral setae. Genital plate and ventral plate normal. Length of body including rostrum $293\mu m$; width $140\mu m$.

NYMPH.—All marginal setae broadly lanceolate and strongly serrate; dorsocentral hysterosomal setae small, lanceolate, and serrate.

HOLOTYPE.—Female, USNM 3635, collected on Viguiera sp., Los Mochis, 23 July.

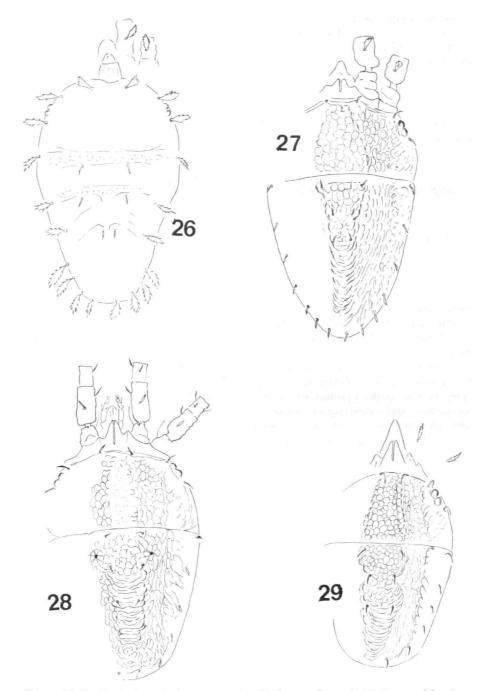
PARATYPES.—Fifty-five females and three nymphs with the above data.

Brevipalpus californicus (Banks)

Tenuipalpus californicus Banks, 1904:55.

Brevipalpus californicus.—Pritchard and Baker, 1958:216.—
Baker and Tuttle, 1964:32.

This mite has been collected on Datura stramonium Linnaeus, and Parthenium hysterophorus LinNUMBER 194



FIGURES 26–29.—Brevipalpus viguiera, new species: 26, dorsum of nymph; 27, dorsum of female. Brevipalpus origanum, new species: 28, dorsum of female. Brevipalpus cercidium, new species: 29, dorsum of female.

naeus, Los Mochis, 24 July. De Leon collected it on *Ficus carica* Linnaeus, Guadalajara, and *Musa paradisiaca sapietum* (Linnaeus) Kuntze, San Blas, Nayarit; no collection dates given.

Group V

This group has one solenidion on tarsus I, three distal setae on the palpus, and five pairs of marginal setae.

Brevipalpus origanum, new species

FIGURE 28

The reticulate pattern is distinctive.

FEMALE.—Rostrum short, broad, not reaching to distal end of femur I; palpus with three distal setae; rostral shield not ornamented. Tarsal claws strongly uncinate; tarsus II with a single solenidion; dorsal femoral setae short, lanceolate, and serrate; genual setae small and faintly lanceolate. Propodosoma with mediolateral reticulate pattern; dorsocentral area punctate; propodosomal setae as on femora. Hysterosoma with reticulate pattern between first and second pair of dorsocentrals; hyssterosomal pore present; pattern posterior to second pair of hysterosomals transverse; pattern in dorsolateral groove longitudinal; hysterosomal setae small and lanceolate. Ventral plate with transverse areolae; genital plate similar; area anterior to ventral plate with areolae, area between metapodosomal setae punctate. Length of body including rostrum $287\mu m$; width $172\mu m$.

HOLOTYPE.—Female, USNM 3636, ex *Origanum* sp., Mexico at San Antonio Quarantine Station, 26 May 1973 by D. Johnston.

Group VI

This group contains those *Brevipalpus* with two solenidia on tarsus II of the female, three distal setae on the palpus, and five pairs of hysterosomal marginal setae.

Brevipalpus phoenicis (Geijskes)

Tenuipalpus phoenicis Geijskes, 1939:23.

Brevipalpus phoenicis.—Pritchard and Baker, 1958:233.—De Leon, 1961:48.

This species was collected by De Leon on Psidium sp., Byrsonima sp., and Anthurium sp., Nayarit; no collection dates given. We have collected it as follows: ex Hymenoclea monogyra Torrey and Gray, Cd. Obregon, 22 July; Pluchea purpurasens (Swartz) De Candolle, Zinnia pumila Gray, and Viguiera sp., Los Mochis, 23 July; Parthenium hysterophorus Linnaeus and Populus Fremontii Watson, Los Mochis, 24 July; Cissus sicyoides Linnaeus, Marah sp., and Lycium Andersonii Gray, Topolobampo, 24 July.

This appears to be a variable species, especially among the immatures that vary in setal pattern.

Brevipalpus cercidium, new species

FIGURE 29

This species is distinctive in having small dorsal body setae, a short rostrum, and the venter entirely covered with a reticulate pattern.

FEMALE.—Rostrum short, not reaching to midpoint of femur I; palpus with three distal setae; rostral shield not ornamented. Tarsus II with uncinate claws; with two solenidia; dorsal setae on femora I and II stronger than body setae and lanceolate-serrate. Hysterosoma with reticulate pattern between dorsocentrals, transverse pattern posterior to dorsocentrals; mediolateral groove broad and with longitudinal pattern; hysterosomal setae similar to those of propodosoma. Venter of body covered with reticulate pattern; genital plate with transverse striation pattern; ventral plate with small transverse areolae; area between metapodosomal setae with small areolae. Length of body including rostrum 230µm; width 121µm.

NYMPH.—With all body and leg setae small, those of hysterosoma smaller.

HOLOTYPE.—Female, USNM 3637, Cercidium floridum Bentham, Mazatlan, 24 July.

Nymph with the same data but collected 26 July. Other specimens collected from *Brickellia californicum* (Torrey and Gray) Gray, Fresnillo, 3 August, and *Ambrosia confertiflora* (De Candolle) Ryberg, Hermosillo, 17 July.

Brevipalpus obovatus Donnadieu

Brevipalpus obovatus Donnadieu, 1875:116.—Pritchard and Baker, 1958:231.—Baker and Tuttle, 1964:32.

NUMBER 194 19

A single specimen was collected from *Anemopsis* sp., Zacatecas at El Paso Quarantine Station, 21 September 1972, by J. F. Karpat.

Group VII

This group of *Brevipalpus* possesses a single solenidion on tarsus II of the female, two distal setae on the palpus, and six pairs of hysterosomal marginal setae.

Brevipalpus artemisia Baker and Tuttle

Brevipalpus artemisia Baker and Tuttle, 1964:65.

This species, originally described from Artemisia tridentata Nuttall and Grindelia aphanactis Rydberg in Arizona, was collected on the first host near El Sueco (Rancho Grande), Chihuahua, 4 August.

Brevipalpus parthenium Baker and Tuttle

Brevipalpus parthenium Baker and Tuttle, 1972:29.

This species was originally described from Parthenium incanum Humboldt, Bonpland, and Kunth from Arizona. It was found on the same host at Chihuahua, 8 August.

Brevipalpus portalis Baker and Tuttle

Brevipalpus portalis Baker and Tuttle, 1972:30.

This species was originally described from Parthenium incanum Humboldt, Bonpland, and Kunth. It was collected in Mexico on the same host at Fresnillo, 3 August, and at Torreon, 6 August.

Brevipalpus filifolia, new species

FIGURES 30, 31

The broadly spatulate, barely serrate, dorsal body setae of the female and nymph are distinctive.

FEMALE.—Rostrum long, slender, reaching nearly to end of femur I; palpus with two distal setae; rostral shield with little ornamentation. Tarsus II with one solenidion; tarsal claws strongly uncinate; dorsal femoral setae strong, lanceolate and

with weak serrations; genual setae similar. Propodosomal pattern of strong reticulations covering mediodorsal area; elongate in mediolateral groove area; setae similar to those of femora. Hysterosomal reticulate pattern entire dorsocentrally and transverse posterior to second pair of hysterosomal setae; hysterosomal setae similar to propodosomal setae; with six pairs of marginal setae. Genital plate with transverse striae; ventral plate with transverse pattern of areolae; area between metapodosomal setae punctate. Length of body including rostrum $332\mu m$; width $127\mu m$.

NYMPH I.—Rostrum broad, short. Dorsal body setae broadly ovate and with faint serrations.

HOLOTYPE.—Female, USNM 3638, ex Artemisia filifolia Torrey, Agua, South of Cd. Juarez, 8 August.

A nymph was also collected with the above data.

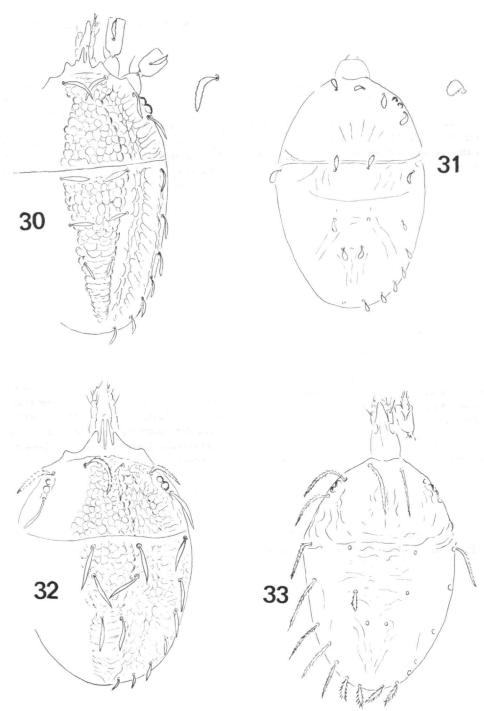
Brevipalpus incanum, new species

FIGURES 32, 33

This species is similar to *Brevipalpus filifolia*, new species, in the general appearance of the female. It differs in that the setae are more slender and more strongly serrate, and in that the nymph possesses long, strong marginal setae and short lanceolate dorsocentral hysterosomal setae.

FEMALE.—Rostrum long, reaching to distal end of femur I; palpus with two distal setae; rostral shield without obvious ornamentation. Tarsus II with one solenidion; tarsal claws uncinate; femoral I and II setae strong, lanceolate, and serrate. Propodosoma covered with reticulate pattern, that of mediolateral depressed areas elongate; setae as long as distance between bases, slightly lanceolate, and serrate. Hysterosoma with reticulate areolae pattern in area between dorsocentral setae one and two; transverse patterns posterior to this area; all hysterosomal setae similar to those of propodosoma; marginal setae becoming progressively smaller posteriorly. Genital plate with areolae; ventral plate with transverse pattern; area anterior to ventral plate with areolae; area between metapodosomal setae punctate. Length of body including rostrum $306\mu m$; width $178\mu m$.

NYMPH I.—Rostrum elongate. Femoral setae strong, lanceolate, and serrate. All marginal body setae long, strong, serrate, and the posterior two



FIGURES 30-33.—Brevipalpus filifolia, new species: 30, dorsum of female; 31, dorsum of nymph. Brevipalpus incanum, new species: 32, dorsum of female; 33, dorsum of nymph.

NUMBER 194 21

pairs much smaller than others. Only one dorsocentral seta present—short and broadly lanceolate.

HOLOTYPE.—Female, USNM 3639, ex *Parthenium incanum* Humboldt, Bonpland, and Kunth, Fresnillo, 3 August.

PARATYPES.—Twenty-four females and two nymphs, from above host, Chihuahua, 8 August.

Brevipalpus coldenia, new species

FIGURE 34

The small crenulate dorsal reticulate pattern, the strong femoral and propodosomal setae, and the transverse striae on the venter in the metapodosomal setal region are distinctive.

FEMALE.—Rostrum elongate, reaching to distal end of genu I; palpus with two distal setae; rostral shield with reticulate pattern. Tarsus II with one solenidion; claws uncinate; dorsal setae of femora I and II long, strong, and serrate. Propodosomal reticulate pattern small and crenulate, longitudinal in dorsolateral depressed area; setae long, slender, serrate, and becoming progressively shorter pos-

teriorly. Hysterosomal reticulate pattern transverse dorsomedially; longitudinal in dorsolateral groove; dorsocentral setae slender, slightly lanceolate, and serrate; marginal setae shorter and similar. Genital and ventral plates with transverse pattern of areolae; area between metapodosomal setae with strong closely approximate transverse striae. Length of body including rostrum $255\mu m$; $127\mu m$.

MALE.—Similar to female in dorsal reticulate design and setal patterns. Length of body including rostrum $233\mu m$; width $96\mu m$.

NYMPH.—Setal pattern as in female.

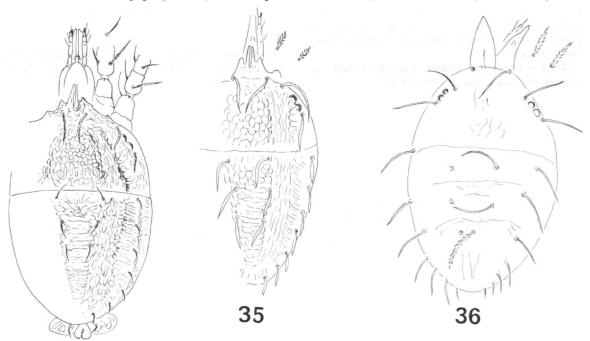
HOLOTYPE.—Female, USNM 3640, ex Coldenia greggi (Torrey) Gray, Jimenez, Chihuahua, 4 August.

PARATYPES.—Thirty-one females and sixteen males with the same data.

Brevipalpus encelia, new species

FIGURES 35, 36

The long rostrum and long dorsal body setae



FIGURES 34-36.—Brevipalpus coldenia, new species: 34, dorsum of female. Brevipalpus encelia, new species: 35, dorsum of female; 36, dorsum of nymph.

of the female and the long dorsal setae of the nymphal stage are distinctive. The female is similar to *Brevipalpus incanum*, new species, but the marginal setae are not progressively smaller. The dorsocentral setae of the nymph of *B. encelia* are long and slender, similar to the marginal setae.

FEMALE.—Rostrum long, slender, reaching past base of genu I; palpus with two distal setae; rostral shield with some basal sculpturing. Tarsus II with single solenidion; claws uncinate; dorsal femoral setae short, broadly lanceolate, and serrate. Propodosomal setae longer than distance between bases, slightly lanceolate, and serrate; body reticulations somewhat crenulate, completely covering dorsocentral region of propodosoma; pattern longitudinal in area of dorsolateral groove. Hysterosoma with reticulate pattern between first and second pairs of dorsocentral setae, transverse pattern in area posterior to this; longitudinal pattern in mediolateral groove area; dorsocentral setae as long as distance between bases, lanceolate, and serrate; marginal setae not as long and becoming progressively smaller toward posterior. Genital and ventral plates with transverse pattern of small areolae, areolae anterior to plates; metapodosomal area punctate. Length of body including rostrum $319\mu m$; width $178\mu m$.

MALE.—Similar to female. Length of body including rostrum $268\mu m$; width $134\mu m$.

NYMPH I.—All dorsal setae long, slender; hyssterosomal marginal setae becoming progressively smaller posteriorly.

HOLOTYPE.—Female, USNM 3641, ex Encelia farinosa Gray, Hermosillo, 18 July.

PARATYPES.—Male and nymph with the above data.

A nymph was also collected on Viguiera sp., Hermosillo, 19 July.

Genus Priscapalpus De Leon

Priscapalpus De Leon, 1961a:93.

"Priscapalpus resembles Brevipalpus in dorsal chaetotaxy, but unlike Brevipalpus it bears an enlarged ventral plate and a rudimentary genital plate, the palpus is two segmented, and the legs are long in proportion to the length of the body."

Type-Species.—Priscapalpus macropilis De Leon, by original designation.

Priscapalpus macropilis De Leon

Priscapalpus macropilis De Leon, 1961:93.

This species was taken on the undersides of leaves of "sapodilla," which is probably *Achras zapota* L. von Royen, a Sapotaceae, in Jalisco, 29 May 1957.

Literature Cited

Baker, E. W.

1949. The Genus Brevipalpus (Acarina: Pseudoleptidae). American Midland Naturalist, 42:850–402.

Baker, E. W., and A. E. Pritchard

1953. A Review of the False Spider Mite Genus Tenuipalpus Donnadieu (Acarina: Phytoptipalpidae). Annals Entomological Society of America, 4:317-336.

Baker, E. W., and D. M. Tuttle

1964. The False Spider Mites of Arizona. University of Arizona Technical Bulletin, 163:1-80.

1972. New Species and Further Notes on the Tetranychoidea Mostly from the Southwestern United States (Acarina: Tetranychidae and Tenuipalpidae). Smithsonian Contributions to Zoology, 116:1-36.

Banks, N.

1904. Four New Species of Injurious Mites. Journal of the New York Entomological Society, 12:43-56.

Bruyant, L.

1911. Pseudoleptus arechavalatae n. gen., n. sp., Nouvelle Acarien Cheletine de l'Uruguay. Zoologischen Anzeiger, 38:340-345. De Leon, D.

- 1957. The Genus Tenuipalpus in Mexico (Acarina: Tenuipalpidae). The Florida Entomologist, 40(3): 81–93.
- 1960. The Genus Brevipalpus in Mexico, Part I (Acarina: Tenuipalpidae). The Florida Entomologist, 43(4): 175–187.
- 1961. The Genus Brevipalpus in Mexico, Part II (Acarina: Tenuipalpidae). The Florida Entomologist, 44(1): 41-59
- 1961a. A New False Spider Mite Genus from Mexico (Acarina: Tenuipalpidae). The Florida Entomologist, 44(2):93-94.
- 1962. Two New False Spider Mites from Mexico and a New Distribution Record (Acarina: Tenuipalpidae). Proceedings of the Entomological Society of Washington, 64(3):293-205.
- 1965. New Tenuipalpids (False Spider Mites) from British Guiana. Notes on Four Described Species. The Florida Entomologist, 48 (1):65-75.

Donnadieu, A. L.

1875. Recherches pour servir a l'histoire des Tetranyques. Annales de la Societe Linneenee de Lyon, 12:1-131. [Also published in 1876, Annals de la Societe Linneenne de Lyons, new series, 22(1875):34-163.]

Geijskes, D. C.

1939. Beitrage zur Kenntnis der europaischen Spinnmilben (Acari, Tetranychidae), mit besonderer Berucksichtigung der niederlandischen Arten. Mededeelingen van de Landbouwhoogeschool te Wageningene (Nederland), 42(4):1-68.

McGregor, E. A.

1949. Neartic Mites of the Family Pseudoleptidae.

Memoirs of the Southern California Academy of Sciences, 3(2):1-45.

Pritchard, A. E., and E. W. Baker

- 1952. The False Spider Mites of California (Acarina: Phytoptipalpidae). University of California Publications in Entomology, 9(9):1-94.
- 1958. The False Spider Mites (Acarina: Tenuipalpidae). University of California Publications in Entomology, 14(3):175-274.

Sayed, M. T.

1950. On the Taxonomy of Tetranychid and Allied Genera. A New Family and Two New Subfamilies in Acarina. Proceedings of the Eighth International Congress of Entomology, pages 1012-1017.

Publication in Smithsonian Contributions to Zoology

Manuscripts for serial publications are accepted by the Smithsonian Institution Press, subject to substantive review, only through departments of the various Smithsonian museums. Non-Smithsonian authors should address inquiries to the appropriate department. If submission is invited, the following format requirements of the Press will govern the preparation of copy.

Copy must be typewritten, double-spaced, on one side of standard white bond paper, with $1\frac{1}{2}$ " top and left margins, submitted in ribbon copy with a carbon or duplicate, and accompanied by the original artwork. Duplicate copies of all material, including illustrations, should be retained by the author. There may be several paragraphs to a page, but each page should begin with a new paragraph. Number consecutively all pages, including title page, abstract, text, literature cited, legends, and tables. The minimum length is 30 pages, including typescript and illustrations.

The title should be complete and clear for easy indexing by abstracting services. Taxonomic titles will carry a final line indicating the higher categories to which the taxon is referable: "(Hymenoptera: Sphecidae)." Include an abstract as an introductory part of the text. Identify the author on the first page of text with an unnumbered footnote that includes his professional mailing address. A table of contents is optional. An index, if required, may be supplied by the author when he returns page proof.

Two headings are used: (1) text heads (boldface in print) for major sections and chapters and (2) paragraph sideheads (caps and small caps in print) for subdivisions. Further headings may be worked out with the editor.

In taxonomic keys, number only the first item of each couplet; if there is only one couplet, omit the number. For easy reference, number also the taxa and their corresponding headings throughout the text; do not incorporate page references in the key.

In synonymy, use the short form (taxon, author, date:page) with a full reference at the end of the paper under "Literature Cited." Begin each taxon at the left margin with subsequent lines indented about three spaces. Within an entry, use a period-dash (.—) to separate each reference. Enclose with square brackets any annotation in, or at the end of, the entry. For references within the text, use the author-date system: "(Jones, 1910)" and "Jones (1910)." If the reference is expanded, abbreviate the data: "Jones (1910:122, pl. 20: fig. 1)."

Simple tabulations in the text (e.g., columns of data) may carry headings or not, but they should not contain rules. Formal tables must be submitted as pages separate from the text, and each table, no matter how large, should be pasted up as a single sheet of copy.

Use the metric system instead of, or in addition to, the English system.

Illustrations (line drawings, maps, photographs, shaded drawings) can be intermixed throughout the printed text. They will be termed Figures and should be numbered consecutively; however, if a group of figures is treated as a single figure, the components should be indicated by lowercase italic letters on the illustration, in the legend, and in text references: "Figure 9b." If illustrations (usually tone photographs) are printed separately from the text as full pages on a different stock of paper, they will be termed Plates, and individual components should be lettered (Plate 9b) but may be numbered (Plate 9: figure 2). Never combine the numbering system of text illustrations with that of plate illustrations. Submit all legends on pages separate from the text and not attached to the artwork. An instruction booklet for the preparation of illustrations is available from the Press on request.

In the bibliography (usually called "Literature Cited"), spell out book, journal, and article titles, using initial caps with all words except minor terms such as "and, of, the." For capitalization of titles in foreign languages, follow the national practice of each language. Underscore (for italics) book and journal titles. Use the colon-parentheses system for volume, number, and page citations: "10(2):5-9." Spell out such words as "figures," "plates," "pages."

For free copies of his own paper, a Smithsonian author should indicate his requirements on "Form 36" (submitted to the Press with the manuscript). A non-Smithsonian author will receive 50 free copies; order forms for quantities above this amount with instructions for payment will be supplied when page proof is forwarded.

