

ERIOPHYID STUDIES C-7

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ARS USDA

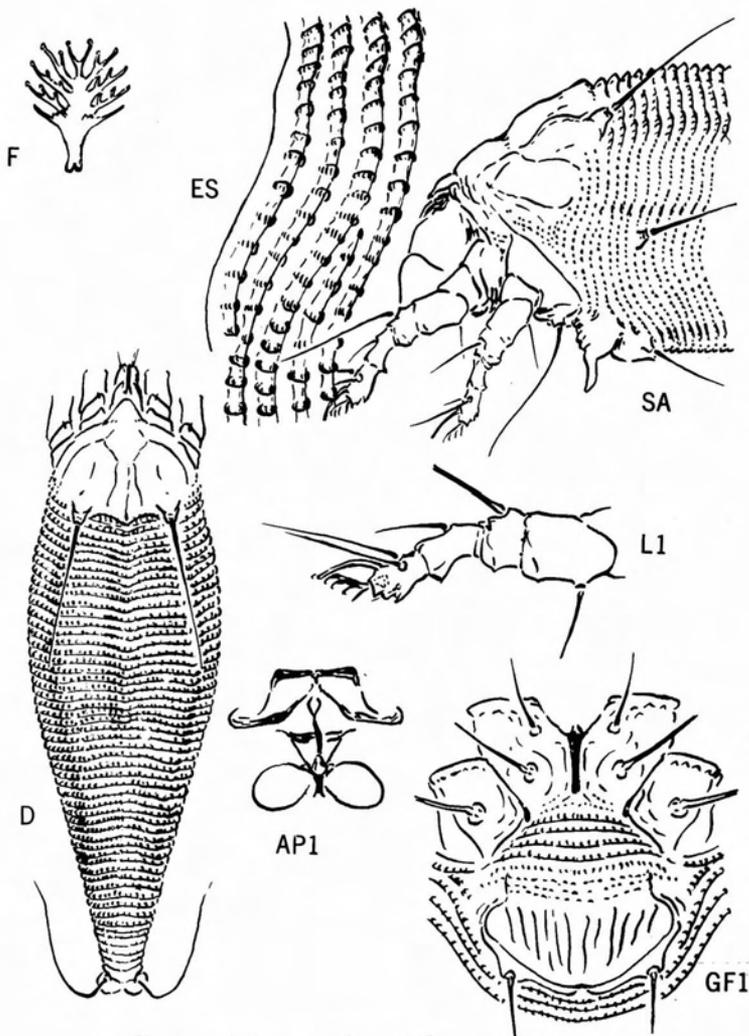


Plate 1 - *Abacarus ureutae*, new species

Purchased by the Agricultural Research Service
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Abacarus uruetae, new species

Plate 1

This new species is not close to any other broad-leaf infesting member of the genus by virtue of its having a completely microtuberculate abdomen. Other members of this species group in the genus lack dorsal microtubercles. Uruetae has five-rayed featherclaws, and, as well as the microtubercle feature, it has rather weak shield lines. The central longitudinal ridge in the dorsal thanosomal trough extends back from the rear shield margin about half the thanosomal length.

Females, from the front edge of the anterior shield lobe to the rear of the terminal lobes, 140 μ -145 μ in length. About 35 μ wide; 31 μ thick. Rostrum 22 μ long, projecting down; antapical seta 2 μ long. Shield 25 μ long, 33 μ wide; anterior lobe over rostrum rather small and acuminate, rounded off apically. Shield design of weak lines: median line present on rear 1/3, ending in a strong granule; admedian lines obscure anteriorly, first projecting out to anterior lateral line, then converging to about 1/2, from where they extend to rear, subparallel to median; these admedians somewhat sinuate, flaring out ahead of rear shield margin. Supralateral shield line ending at junction with partial rings below dorsal tubercle; below that the lateral line extends back, curves up at junction with partial rings. Between this line and coxae a series of lines of granules. Dorsal tubercles 25 μ apart; dorsal setae 31 μ long. Foreleg 28 μ long; tibia 6 μ long, with 5 μ seta at about 1/2; tarsus 5 μ long; claw 6 μ long; featherclaw 5-rayed. Hindleg 23 μ long, tibia 4 μ long, tarsus 5 μ long, claw 5.5 μ long. Strong sternal line between anterior coxae; coxae generally with sparse curved lines. First setiferous coxal tubercles ahead of second and equal with or slightly ahead of anterior coxal approximation. Second coxal tubercles well ahead of a cross line through third tubercles. Thanosomal rings about equal in number dorsoventrally, closely set with microtubercles, which microtubercles are weaker in dorsal trough, especially to rear. Abdominal ridge present in center from rear shield margin and extending caudad to end in trough about half length of thanosome; ridges flanking dorsal trough running from dorsal tubercles in subdorsal position and fading toward rear of thanosome. Lateral seta 15 μ long, on ring 9 behind rear shield edge; first ventral thanosomal seta 40 μ long, on ring 22; second ventral 7 μ long, on ring 39. Total thanosomal rings about 56. Telosome with 5 rings, rather abruptly dumbent; microtubercles on margins, weaker above. Telosomal seta 11 μ long; accessory seta 2 μ long. Female genitalia 12 μ long, 18 μ wide; coverflap with 10 to 12 longitudinal ribs; seta 12 μ long.

Male 115 μ long.

Type locality: Medellin, Colombia, elevation 1538

Collected: Oct. 10, 1972, by Dr. E. J. Urueta S., for whom I take pleasure in naming the species.

Host: Psidium guajava L. Myrtaceae, guava

Relation to host: the mites are vagrants on mature guava leaves, and to a lesser extent they live on emerging embryonic leaves

Type material: type slide, so designated, with the above data
two paratype slides, one sent to the Systematic Entomology
Laboratory, U. S. Agricultural Research Service, Beltsville,
Maryland

Copies of the 'C' Series are obtainable from -	
Bureau of Entomology	H. H. Keifer
California Department of Agriculture	1112 Swanston Drive
1220 N. St.	Sacramento, Cal.
Sacramento, Cal. 95814	95818

Aculops maroccensis, new species

Plate 2

Perhaps the mint leaf vagrant species that could be considered as closest to maroccensis is the thyme mite which Nalepa lists as Phyllocoptes thymi. The characters revealed by Nalepa's figures indicate that thymi can be assigned to Aculops. Nalepa's depiction of thymi shows a rust mite, or leaf vagrant that lacks a shield pattern, and lacks microtubercles dorsally. The new species, maroccensis has a pattern of lines formed by granules or short dashes, and dorsally the tergites have faint elongate microtubercles. The reference for thymi is: Nalepa, Denk. Ak. Wien, 68:206, 1899.

Female length from anterior shield lobe to end of terminal lobes ranges from 175 μ -190 μ . Thickness about 48 μ . Rostrum 24 μ long, projecting diagonally down; antapical seta 4 μ long. Shield 40 μ long, 43 μ wide; anterior lobe acuminate in dorsal view, ventrally truncate in side view. Shield design of well-spaced lines, mostly of granules or short dashes; median line present on rear 1/3; admedian lines complete, sinuate, curving out to anterior end of lateral line at about 1/3; extending diagonally back to central cross line at anterior end of median line, then diverging and slightly recurving to rear shield margin. Laterally the shield with a longitudinal line, bearing granules; lateral shield margin studded with granules, with granular area above coxae. Dorsal tubercles 27 μ apart; dorsal setae 24 μ long, gradually diverging. Foreleg 29 μ long; tibia 7 μ long, with 6.5 μ seta at 1/4; tarsus 6 μ long; claw 7 μ long; feather-claw 4-rayed. Hindleg 26 μ long, tibia 6 μ long, tarsus 6 μ long, claw 8 μ long. Coxae with strong sternal line between anterior coxae, forked to rear; coxae with lines and some granules. First setiferous coxal tubercles slightly farther apart than second and opposite anterior coxal approximation; second coxal tubercles somewhat ahead of third tubercles. Thanosome with about 23 tergites and 58 sternites; microtubercles on tergite coarse, on margins, faintly elongate ahead of margins. Sternal microtubercles numerous and small, in a line on each respective sternite, parallel to but ahead of margin, not elongate, more bead-like in shape. Lateral seta 13 μ long, on sternite 9; first ventral seta 38 μ long, on sternite 22; second ventral seta 12 μ long, on sternite 38. Telosome with anterior tergal-sternal division, the rings five in number above, 6 to 7 below. Telosomal microtubercles fine, on margins, elongate below. Telosomal seta 17 μ long. Accessory seta 2 μ long. Female genitalia 16 μ long, 20 μ wide; coverflap with about 10 longitudinal ribs and three anterior anteriorly concave cross lines. Genital seta 13 μ long.

Male about 136 μ long.

Type locality: Rabat, Maroc

Collected: during September, 1972, by Dr. F. S. Saba

Host: Mentha piperita L. (Labiatae) peppermint

Relation to host: the mites are presumably leaf vagrants, or rust mites

Type material: a type slide, so designated, with the above data
two paratype slides, as above
a vial with some mites in liquid from which vial the specimens that are on the slides, came.
One paratype slide sent to the Systematic Entomology Laboratory, U. S. Agricultural Research Service, Beltsville, Maryland

Designations on Plates

- AP1 - Internal female genital structures
- CS - Lateral caudal section of mite
- D - Dorsal diagram of mite
- DA - Dorsal view of anterior section
- ES - Lateral skin structures
- F - Empodium, or featherclaw
- GF1 - External female genitalia and coxae
- L1 - Left anterior leg
- L2 - Left second leg
- S - Side diagram of mite
- SA - Anterior side section of mite

Telosome - caudal abdominal section beginning with third ventral seta

Thanosome - abdomen from rear shield margin to telosome

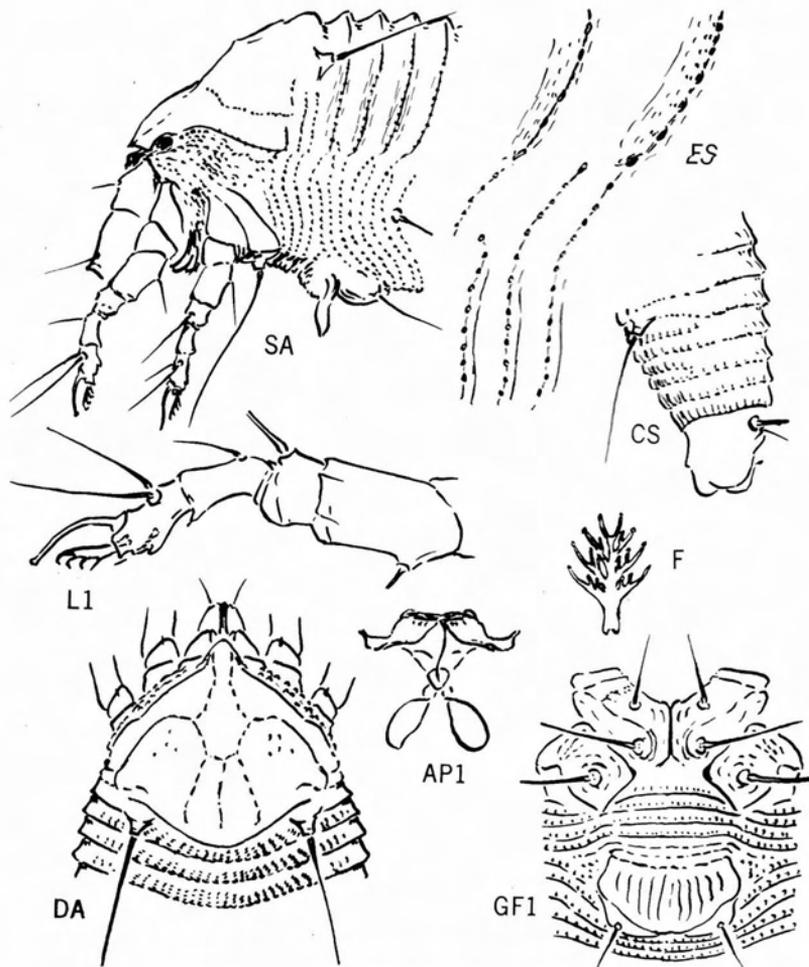


Plate 2 - *Aculops maroccensis*, new species

Aculops arabis, new species

Plate 3

One of the principal features of arabis is the 2-rayed featherclaw. One other North American member of Aculops is also so characterized. This species is calulmi (K.). Both species have a network shield pattern, the thanosomal rings are nearly equal dorsoventrally, and the microtubercles are pointed. Differences between the two species are: 1. calulmi has dorsal setae that are 100 μ long and the female genital coverflap lacks longitudinal ribs; 2. the new species has dorsal setae only 46 μ long, and the coverflap has longitudinal ribs. Ref. calulmi - Eriophyid Studies IX, Bul. Cal. Dept. Agr. 29:113, 1940

Females, measured from anterior shield lobe to end of terminal telosomal lobes, 155 μ to 175 μ in length; a stocky species about 56 μ thick. Body fusiform; color in life probably light yellowish-white. Rostrum 27 μ long, projecting mainly down; antapical rostral seta 5 μ long. Shield 35 μ long, 4 μ wide, with short anterior lobe over rostrum, subtriangular in dorsal view, with sides somewhat convex. Median shield line present only on rear 1/5; front end connected to admedians by diagonal transverse lines; ending in center of curved transverse line in front of first thanosomal ring. Admedians complete, but obscure anteriorly, running back to 1/3 and abruptly curving out to meet transverse line, then curving back to central cross lines at rear 1/5 and also connecting with lateral curved transverse line, the admedians continuing as outwardly convex lines to transverse line in front of first ring. Submedian line extending back from first transverse line at about 1/3, well separated from admedian and diverging to second transverse line at about 3/4 and continuing back just outside dorsal tubercle. Second submedian line running back from front shield edge and well spaced from central shield area, receiving two transverse lines from first submedian and ending at partial rings below dorsal tubercle. This second submedian also visible from side as supralateral line. Lines of granules above coxae. Dorsal tubercles 16 μ apart; dorsal setae 46 μ long, hardly diverging to rear. Foreleg 39 μ long; tibia 8 μ long, with 9 μ seta from 1/4 or 1/3; tarsus 9 μ long; claw 8 μ long; featherclaw 2-rayed. Hindleg 33 μ long, tibia 7 μ long, tarsus 8.5 μ long, claw 8 μ long. Moderate sternal line present between forecoxae, slightly forked to rear; coxae generally set with coarse granules, some connected by short lines. First setiferous coxal tubercles farther apart than second and slightly ahead of level of anterior coxal approximation; second tubercles ahead of level of third tubercles. Thanosome with about 59 rings, well set with microtubercles, these ring granules bearing short points laterally and ventrally, more rounded off dorsally. Microtubercles projecting over ring margins. Lateral seta 52 μ long, on ring 8 behind shield; first ventral seta 58 μ long, on ring 21; second ventral 22 μ long, on ring 35. Telosome with 7 rings; microtubercles fine and slightly elongate, pointed over ring margins. Telosomal seta 25 μ long; accessory seta 4 μ long. Female genitalia 16 μ long, 22 μ wide; coverflap with about 8 longitudinal ribs; genital seta 17 μ long.

Type locality: talus slope, 9000 to 10,000 feet elevation, south side of Virginia Lakes, east of Yosemite Valley, Mono County, Cal.

Collected: July 20, 1972, by H. K. Wagnon

Host: Arabis sp., probably lyallii Wats. (Cruciferae) a rock cress

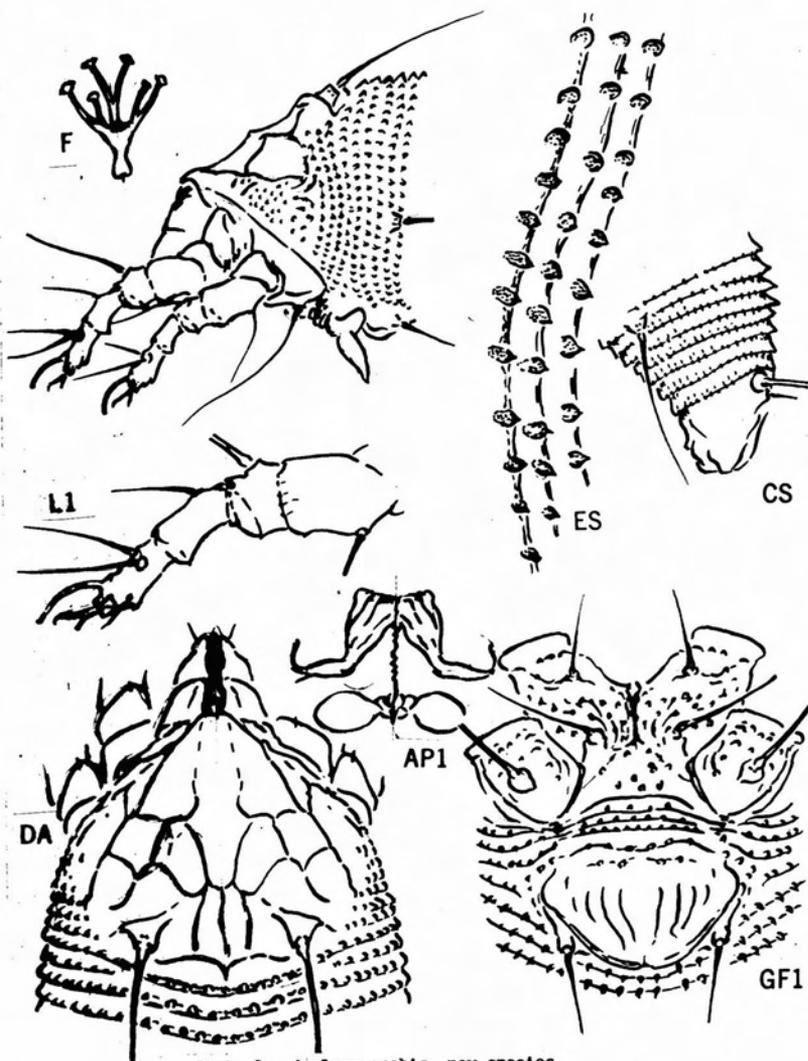
Relation to host: the mites cause leaf crumpling and upper surface lobing

Type material: a type slide, so designated, with the above data

three paratype slides, so labelled

a vial with leaves and mites in liquid

One paratype slide sent to the Systematic Entomology Laboratory, U. S. Agricultural Research Service, Beltsville, Md.

Plate 3 - *Aculops arabis*, new species

Aculops argyrhea, new species

Plate 4

In dorsal view the anterior shield lobe of *argyrhea* appears short, rounded off, somewhat acuminate. The shield design has no cross lines, and the thanosomal microtubercles are pointed from the ring margins, or are spine-like. The featherclaw of *argyrhea* is five-rayed. A survey of other California species of *Aculops* that have five-rayed featherclaws, plus pointed microtubercles, fails to disclose any species that is particularly near *argyrhea*. Part have pointed anterior shield lobes. The only species with an anteriorly rounded shield lobe is *cotyledonis*, and it has a network of shield lines, with cross lines. (*cotyledonis* (K.) - Bul. Cal. Dept. Agr. 28:487, 1939)

Female, measured from front of shield lobe, to end of terminal telosomal lobes, 160 μ to 180 μ in length; about 50 μ wide, 53 μ thick. Body fusiform; color in lifelight yellowish-white. Rostrum 17 μ long, projecting diagonally down; antapical rostral seta 4.5 μ -5 μ long. Shield 29 μ -32 μ long, 39 μ -44 μ wide; design composed of simple longitudinal lines, slightly sinuate. Median line nearly complete from base of anterior lobe, with no cross lines to admedian. Admedian lines complete from sides of narrow central part of anterior lobe, gradually diverging to just ahead of rear margin and slightly recurving at end. First submedian line extending from side of anterior lobe toward dorsal tubercle, and meeting short cross line of pointed granules in front of tubercle. Second submedian line, or supralateral line, from front edge of shield, extending back to spiny partial rings below dorsal tubercle, and with spinules along its rear half. Lateral shield line extending back to first partial ring, with spines to rear, and with a band of spiny granules above coxae. Anterior shield lobe in lateral view with transverse indentation. Dorsal tubercles 23 μ apart; dorsal setae 22 μ long, somewhat diverging to rear. Foreleg 25 μ long; tibia 5 μ long, with 4.5 μ seta at 1/3-1/2; tarsus 6 μ long; claw 7 μ long; featherclaw 5-rayed. Hindleg 22 μ long, tibia 3.5 μ long, tarsus 5 μ long, claw 8 μ long. Short sternal line between first coxae, the coxae ornamented with curved lines of fine granules. First setiferous coxal tubercles not as wide-spaced as second tubercles and slightly ahead of anterior coxal approximation. Second tubercles well ahead of level of third coxal tubercles. Thanosome with about 26 tergites and 63 sternites. All microtubercles projecting from margins, and more or less pointed or spiny. Lateral spinules strongest; sternal microtubercles smallest. Lateral seta 25 μ long, on sternite 9 behind shield; first ventral seta 48 μ long, on sternite 21; second ventral seta 11 μ long, on sternite 39. Telosome with 5 or 6 rings; microtubercles tiny, more or less pointed over ring margins; Tergites ahead of telosome, and dorsal telosomal rings, somewhat projecting as acute edges topped by spinules. Telosomal seta 28 μ long; accessory seta 3 μ long. Female genitalia 13 μ long, 20 μ wide; coverflap with about 8 longitudinal ridges; seta 18 μ long, 14 μ -150 μ long, about 47 μ wide.

Type locality: near Silver Creek, at west base of Highland Peak, Alpine Co., Cal. (The locality south of Markleville)

Collected: July 28, 1971, by J. P. Keifer and the writer

Host: *Eupatorium occidentale* Hook. (Compositae) eupatory

Relation to host: the mites are underside leaf vagrants; no damage was noted

Type material: type slide, so designated, with the above data

five paratype slides with above data

a vial containing leaves and mites in liquid, with above data
One slide sent to Systematic Entomology Laboratory, U. S. Agr.
Research Service, Beltsville, Maryland

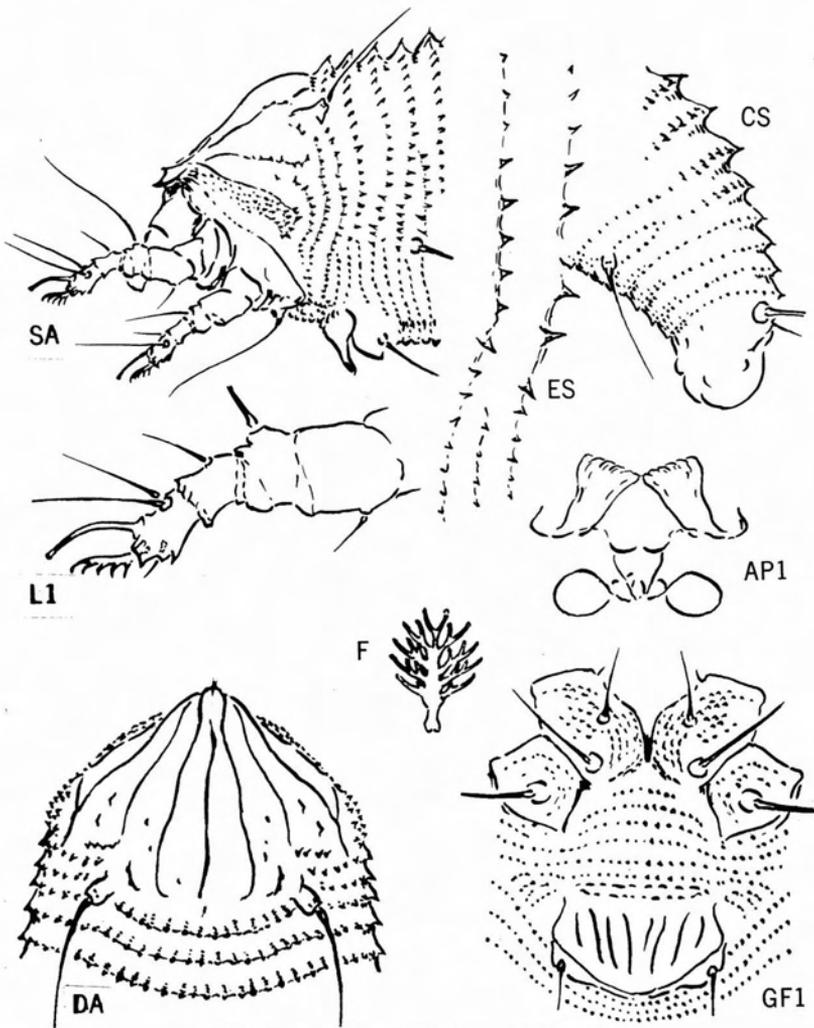


Plate 4 - *Aculops rivargenta*, new species

Phyllocoptes exochordae, new species

Plate 5

This *Phyllocoptes*, which is presumably an import from Asia, along with its host, is characterized by a six-rayed featherclaw, shield pattern which is of lines of granules, and rounded microtubercles on the rings. Comparison of this species with other six-rayed species does not disclose any particularly close relatives. Perhaps *Phyllocoptes silicis* K. (E-5:20, 1962 on *Quercus falcata* Michx.) comes closest, with its granular shield lines, but the microtubercles on silicis are more elliptical. The thin anterior lobe, and rather faint rounded microtubercles suggest that the specimens available for description might be deutogynes, but the granular shield pattern does not seem to bear out that possibility.

Female, measured from anterior end of shield lobe, to rear of terminal lobes is from 200 μ to 215 μ long; 45 μ wide, 40 μ thick, spindleform. Rostrum 26 μ long projecting down; antapical seta 7 μ long. Shield 43 μ long, 47 μ wide, subtriangular. Shield design mostly of lines of granules: median line present only just ahead of rear margin; admedian lines complete from sides of anterior lobe, sinuate, giving off the first submedian line at base of anterior lobe, running back to about rear 7/9 and forking (between dorsal tubercles), one side going to median line, the other ending just inside dorsal tubercle; first submedian line diverging, with gradual curves, from admedian, to front end of dorsal tubercle; second submedian line and lateral shield line granular, ending in partial rings below dorsal tubercle. Dorsal tubercles elongate, framing shield center, 20 μ apart; dorsal setae 11 μ long, projecting diagonally ahead and toward center. Foreleg 40 μ long; tibia 8 μ long, with 8 μ seta at 1/3; tarsus 8 μ long; claw 7.5 μ long; featherclaw 6-rayed. Hindleg 35 μ long, tibia 7 μ long, tarsus 8 μ long, claw 8 μ long. Strong but rather short sternal line between anterior coxae, the anterior coxae with faint curved lines on surfaces. First setiferous coxal tubercles slightly farther apart than second and even with anterior coxal approximation. Second tubercles somewhat ahead of line of third tubercles. Thelosome with about 53 rings, dorsally and ventrally: rings with rounded microtubercles, usually slightly ahead of margins, but closer dorsally. These microtubercles fainter dorsally and especially to rear dorsally. Lateral seta on about ring 9 behind shield, 38 μ long; first ventral seta 55 μ long, on ring 21; second ventral 42 μ long, on about ring 36. Telosome with 5 or 6 rings, the microtubercles fine, on margins, weak or absent dorsally, elongate ventrally to rear. Telosomal seta 32 μ long; accessory seta 4 μ long. Female genitalia 14 μ long, 21 μ wide; coverflap with about 10 longitudinal ribs, these ribs somewhat converging to rear. Genital seta 58 μ .

Type locality: State College, Pennsylvania

Collected: September 30, 1969, by Dr. A. J. MacDonald

Host: *Exochorda racemosa* Rehder, Rosaceae

Relation to host: the mites make irregular upper surface elongate evaginations out of this surface, and equally invaginated below.

Type material: a type slide, so designated, with the above data
five paratype slides, one sent to the Systematic Entomology
Laboratory, U. S. Agricultural Research Service, Beltsville,
Maryland

There is also dry material from which the slides were made

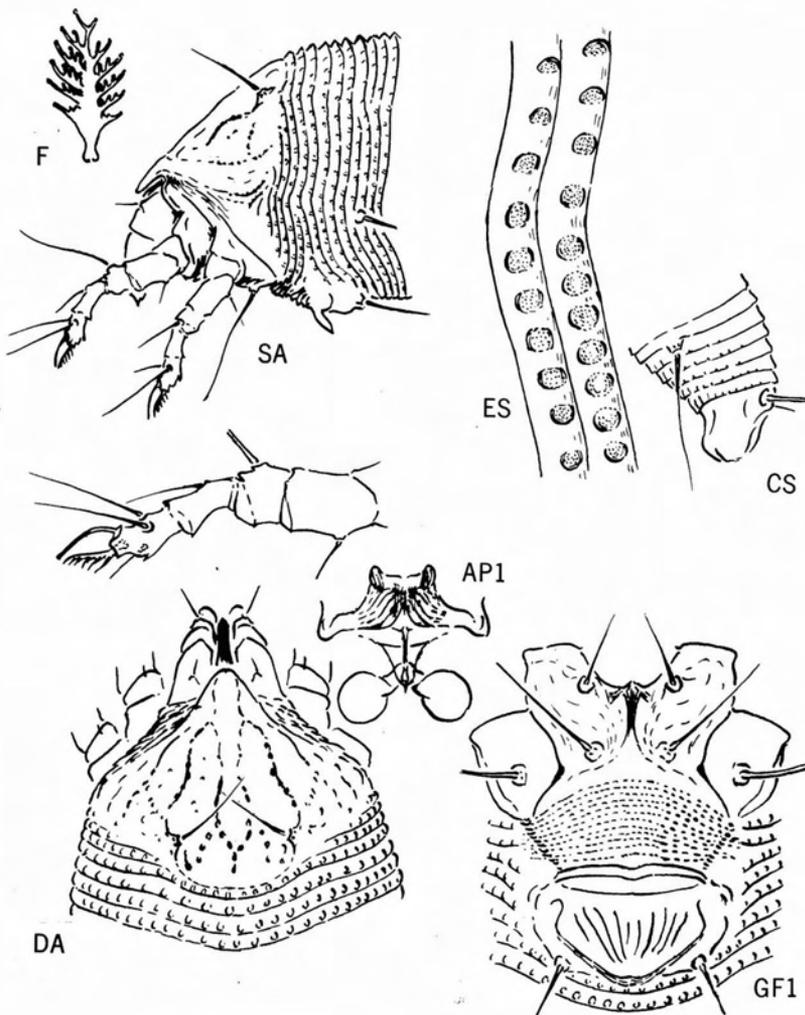


Plate 5 - *Phyllocoptes exochordae*, new species

Phyllocoptes chorites, new species

Plate 6

The new mite is similar to *P. adalius* K. (Bul. Cal. Dept. Agr. 28:487, 1939), by having a host in the same plant genus, and by having a six-rayed feather-claw. *Chorites* differs from *adalius* by having the central shield lines composed of short dashes, and by having only one pair of lines connecting the admedians to the median line. In addition *adalius* has pointed microtubercles, whereas *chorites* has mostly rounded microtubercles, or at most weakly pointed.

Females, measured from front end of anterior shield lobe to end of terminal lobes, from 140 μ to 176 μ in length. About 45 μ to 50 μ thick; body weakly fusiform. Rostrum 27 μ long, projecting down and slightly ahead; antapical rostral seta 8 μ long. Shield 38 μ long, 44 μ wide; design of clear longitudinal lines. Median line represented by short dashes, present only just ahead of rear margin, connected to admedians by a diagonal line joining the front tip of the median. Admedian lines from sides of the narrow central acuminate anterior shield lobe, extending back, subparallel to rear 4/5, forking at that point, the inner fork meeting anterior end of median, the outer fork curving out and back to rear margin, between dorsal tubercles. The admedians also of short dashes. First submedian line solid, extending back from lateral sides of anterior lobe, gently curving out to center of shield, then running back slightly to fork in front of, and around, dorsal tubercles. A more or less visible supralateral longitudinal line; lateral shield margin bearing granules; rather wide area with granular lines above coxae. Dorsal tubercles 20 μ apart, approximately on rear shield margin, but with axes principally longitudinal, directing dorsal setae diagonally to rear, and centrad. Dorsal setae 13 μ long. Foreleg 31 μ long; tibia 6.5 μ long, with 8 μ seta from about 1/3; tarsus 7.5 μ long; claw 9 μ long; featherclaw 6-rayed. Hindleg 28 μ long, tibia 4 μ long, tarsus 7 μ long; claw 9 μ long. Anterior coxae with strong sternal line between, ending at level of second tubercles; coxae ornamented with curved lines of granules. First setiferous coxal tubercles farther apart than second and slightly ahead of anterior coxal approximation. Second tubercles a little ahead of level of third tubercles. Thanosome with about 36 tergites and 50 sternites. Sternites and tergites completely microtuberculate, these microtubercles resting on margins; tergal microtubercles strong, but not extending ahead to any extent, obtusely pointed laterally; sternal microtubercles round and bead-like. Lateral seta 18 μ -22 μ long, on sternite 9; first ventral seta 48 μ long, on sternite 22; second ventral 37 μ long, on sternite 36. Telosome with 5 rings; microtubercles beadlike on margins, thread-like anterior extensions, longer ventrally. Telosomal seta 21 μ long, accessory seta 5 μ long. Female genitalia 14 μ long, 21 μ wide; coverflap with 8 to 10 longitudinal ribs; seta 20 μ -25 μ . Males 120 μ -135 μ long.

Type locality: Cuyamaca State Park, San Diego County, California

Collected: Sept. 18, 1972, by K. Sims, and submitted for identification under Cal. Dept. Agr. number 72I120-16

Host: *Rosa* sp. a native rose

Relation to host: the mites are leaf vagrants

Type material: a type slide, so designated, with the above data

Three paratype slides, one sent to the Systematic Entomology Laboratory, U. S. Agricultural Research Service, Beltsville, Maryland

There is also a vial with leaves and mites from which the mites on the slides were taken.

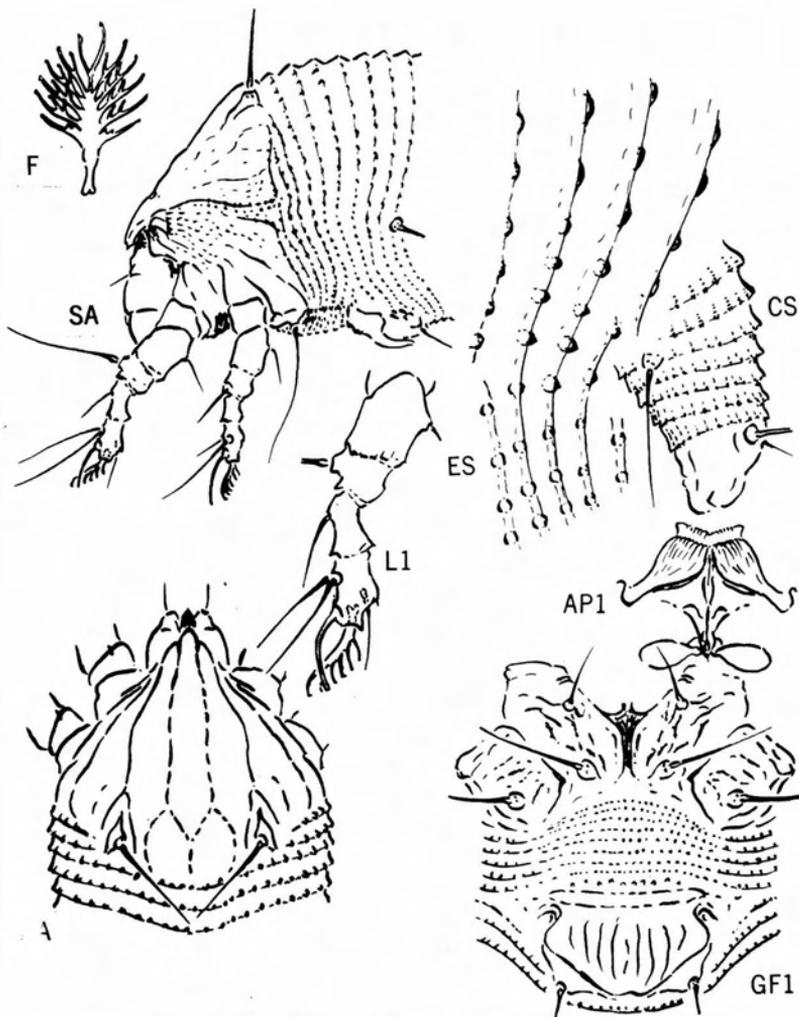


Plate 6 - *Phyllocoptes chorites*, new species

Acaricalus hydrophylli, new species

Plate 7

The more curious members of this genus, which include hydrophylli, have anterior thanosomal humps just behind the shield, followed by various longitudinal ridges. The characters of Acaricalus include divided featherclaws, and a central longitudinal thanosomal ridge that ends in the dorsal trough. This new species is very similar to A. hederæ (K.) (Bul. Cal. Dept. Agr. 28:490, 1939) but differs in having a featherclaw with one less ray, the anterior shield lobe is centrally emarginate, and the anterior thanosomal humps are larger. (Acaricalus K., Bul. Cal. Dept. Agr. 29:164, 1940)

Females 190 μ -205 μ long, 60 μ -70 μ wide, 60 μ thick; strongly fusiform; color amber. Rostrum 38 μ long, projecting down; antapical seta 10 μ long. Shield 60 μ long, 67 μ wide, subtriangular with bulging sides. Anterior shield lobe narrowly emarginate centrally in front. Design a confused series of central thick lines with curves; median line obscure. Admedians thick, extending diagonally back from about anterior lobe base, recurving across to meet each other at about 1/3, then extending back to become obscured just inside dorsal tubercles, with a centrally curved broad line between tubercles. Various shield convolutions laterally, and sides of shield with longitudinal rows of coarse granules, including lateral edge. Anterior lobe in lateral view with emargination across front edge. Dorsal tubercles near rear shield edge but with longitudinal axes, 27 μ apart; dorsal setae 5 μ long, projecting up. Foreleg 37 μ long, with 4 μ seta at 1/3-1/2 on 11 μ tibia; tarsus 7 μ long; claw 5.5 μ long, large terminal knob; featherclaw with three rays terminally and a subbasal projection with two rays. Hindleg 32 μ long, tibia 9 μ long, tarsus 7 μ long, claw 6 μ long. Strong sternal line between forecoxae, ending even with second tubercles; coxal ornamentation consisting of some scattered granules. First setiferous coxal tubercles slightly farther apart than second, and opposite anterior coxal approximation; second tubercles ahead of level of third tubercles. Dorsal thanosomal hump receiving turned in front end of lateral ridge at side, this anterior hump extending back about 8 tergites; central longitudinal ridge extending back 18-20 tergites, followed by 8-9 thanosomal tergites. Anterior microtubercles below hump coarse, rounded off, followed laterally by low ridge. Microtubercles on rear 3/4 of abdomen present below, weak or absent on upper areas, sometimes present on central ridge, the microtubercles rounded off. Thanosome with about 72 sternites below 36 tergites. Lateral seta 9 μ long, on about sternite 4-6 behind shield; first ventral seta 4.5 μ long, on sternite 29; second ventral 14 μ long, on sternite 53. Telosome with 6 rings, with microtubercles generally distributed, touching rear margins as on thanosome; telosomal seta 20 μ long; accessory seta 2 μ long. Female genitalia 20 μ long, 22 μ wide; basally the coverflap with a granular area, followed by about 10 irregular ribs; seta 6 μ long.

Type locality: Sacramento, Cal.

Collected: September 18-25, 1972, collected by the writer

Host: Ilex aquifolium L. (Aquifoliaceae) holly

Relation to host: the mites are harmless upper surface leaf vagrants, found mostly on newer terminal leaves

Type material: a type slide, so designated, with the above data
five paratype slides, as above

One paratype slide sent to the Systematic Entomology Laboratory, U. S. Agricultural Research Service, Beltsville, Maryland

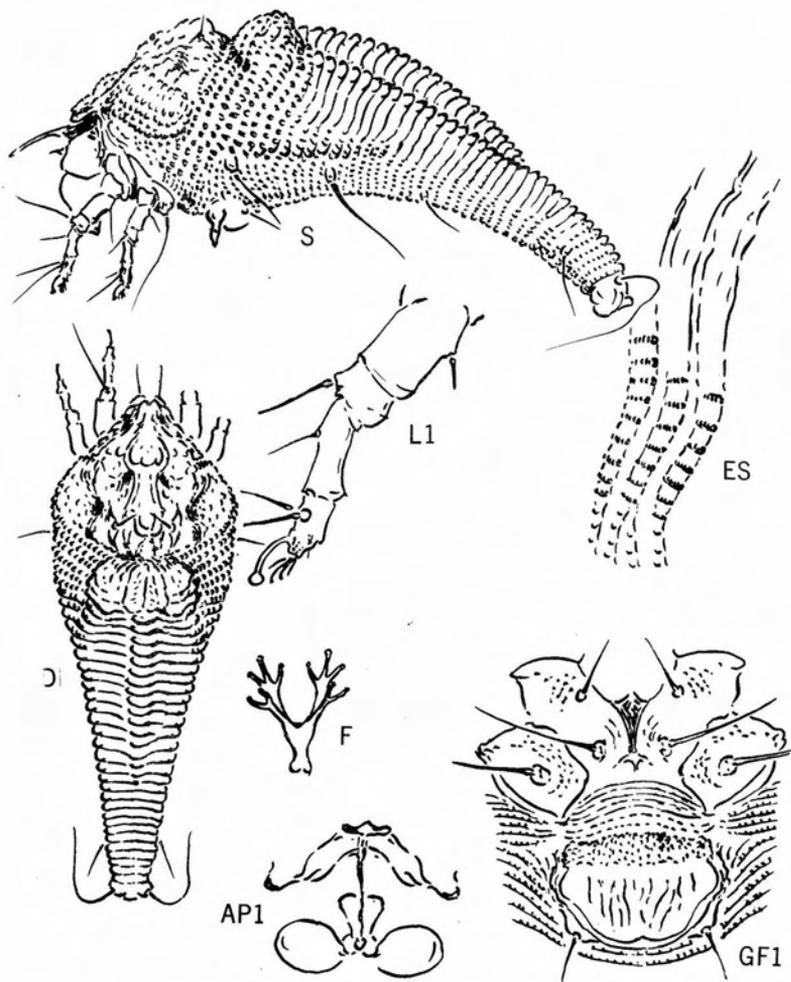


Plate 7 - *Acaricalus hydrophylli*, new species

Eriophyes marshalli, new species

Plate 8

This species makes patches of tiny bead galls, which galls project from the upper surface of leaves of big-leaf maple, Acer macrophyllum Pursh. Up to the time of discovery of these galls this type of minute bead gall was unknown on any native North American maple. The discovery was made on the south end of Vancouver Island, British Columbia. Galls of this type are common on European maple leaves, but are the work of eriophyids that, by virtue of having a thin anterior shield projection over the rostrum, belong to the genus Artacris. Artacris macrorhynchus (Wal.), on European sycamore maple, and A. cephaloneus (Wal.) on hedge maple, are exemplary. When first discovered (the writer was present at the first collection), it was expected that the engendering mite would be another species of Artacris. It was therefore a surprise to observe, upon placing the mites on slides, that these mites had no anterior shield projection. This places them in Eriophyes proper. This big-leaf maple mite has 4-rayed featherclaws. A search through the characters of over thirty Eriophyes spp. which have 4-rayed featherclaws, mainly western American, fails to disclose any with a granular shield pattern, such as on the new species. It is therefore not possible to disclose any species that is closely related to This big-leaf maple mite. Artacris - C-4:9, 1970

Females, measured from the front end of the shield, to the end of the terminal lobes, 110 μ to 140 μ in length. Thickness about 37 μ . Rostrum 30 μ long, tapering, downcurved; antapical rostral seta minute. Shield 28 μ long, 40 μ wide, subsemicircular in dorsal view outline. Shield design of granules: median line present on rear 1/2, obscurely joined to admedians at front end by broken cross lines; admedians obscure on anterior 1/5, but running back subparallel from that point, gradually diverging around median line; first and second submedian lines present on rear half of shield, the first ending in front of dorsal tubercles. Laterally the shield with moderately wide granular band which ends in partial rings below dorsal tubercle. Dorsal tubercles 16 μ apart; dorsal setae 14 μ -16 μ long, diverging to rear. Foreleg 25 μ long; tibia 5 μ long, with 4 μ seta from 2/5-1/2; tarsus 5.5 μ long; claw 7.5 μ long; feather-claw 4-rayed. Hindleg 24 μ long, tibia 4 μ long, tarsus 6 μ long, claw 7.5 μ long. Sternal line between coxae apparently absent, the forecoxae obscurely meeting in middle; coxae generally ornamented with coarse granules. First setiferous coxal tubercles farther apart than second, at about midpoint on coxae; second tubercles somewhat ahead of level of third coxal tubercles. Thansome with about 47 rings; microtubercles rounded, large above, and ahead of ring margins, smaller below and closer to margins. Lateral seta 16 μ long, on ring 6-7 behind shield; first ventral seta 40 μ long, on ring 17; second ventral 9 μ long, on ring 30. Telosome with 6 rings, the microtubercles present as beads on margins, narrowly extended ahead; ventral microtubercles longer. Telosomal seta 15 μ long; accessory seta 2 μ long. Female genitalia 16 μ long, 21 μ wide; coverflap with about 8 longitudinal ribs, the ribs irregularly thickened. Genital seta 5 μ -6 μ long.

Male about 100 μ long.

Type locality: Beacon Hill, Victoria, Vancouver Island, British Columbia

Collected: June 21, 1972, and Aug. 27, 1972, by Valin G. Marshall, of the Canadian Forestry Service. I am pleased to name the mite for Marshall.

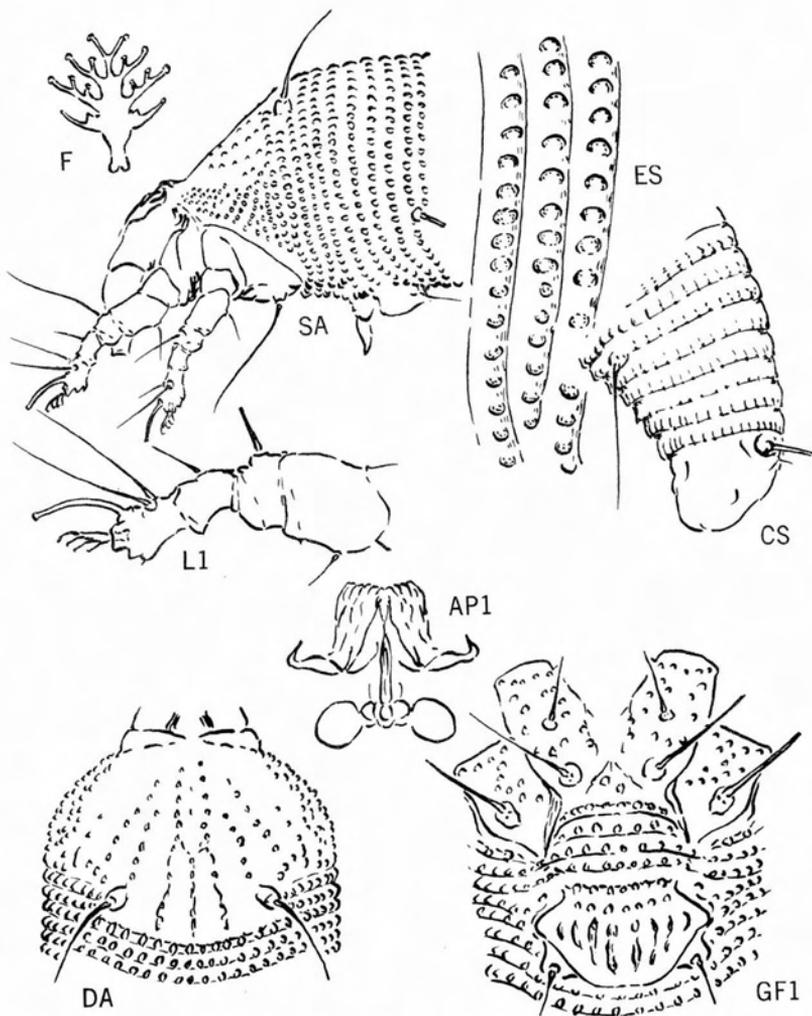
Host: Acer macrophyllum Pursh. (Aceraceae) big-leaf maple

Relation to host: the mites make patches of tiny bead galls that protrude out of the upper leaf surface

Type material: a type slide, and five paratype slides, so designated and bearing the above data

Type slide, and two paratype slides, sent to Marshall

A paratype slide sent to Systematic Entomology Laboratory, U. S. Agricultural Research Service, Beltsville, Maryland

Plate 8 - *Eriophyes marshalli*, new species

Eriophyes caulicecis, new species

Plate 9

This is one of a complex of *Eriophyes* spp. infesting various *Lycium* spp. in the southwestern deserts of the United States. Two *Eriophyes* spp. already named that attack certain lyciums are: 1. *E. pallida* (K.) which makes leaf blisters on *Lycium pallidum* Miers, in Arizona. *Pallida* has a 6-rayed feather-claw, pointed microtubercles on the rings, but lacks female coverflap ribs. (*pallida* - *Eriophyes* Studies, B-12:3, 1964). 2. *E. macrodonis* (K.), which makes leaf blisters on *Lycium macrodon* Gray in Arizona. *Macrodonis* has 5 and 6-rayed featherclaws, longitudinal ribs on the female coverflap, but the microtubercles are bead-like and rounded. (*macrodonis* - B-16:13, 1965). The new species causes stem galls on *Lycium andersonii* Gray in California. It has 6-rayed featherclaws and the combination of pointed microtubercles with the female coverflap having longitudinal ribs. Some females are extra large.

Females, measured from the front end of the shield to the end of the terminal lobes, 184 μ to 280 μ in length. Thickness 55 μ -70 μ ; wormlike. Rostrum 23 μ long, projecting ahead and down; antapical rostral seta 5 μ long. Shield 29 μ long, 36 μ wide, partially rounded anteriorly; shield design almost obsolete, admedian lines represented by short centrally curved lines on rear 1/4; some partial rings and small spines below the dorsal tubercle. Dorsal tubercles 22 μ apart; dorsal setae 27 μ long, gradually diverging. Foreleg 34 μ long; tibia 8 μ long, with 8 μ -9 μ seta at about 1/3; tarsus 8 μ long; claw 10 μ long; featherclaw 6-rayed. Hindleg 30 μ long, tibia 6 μ long, tarsus 8 μ long, claw 10.5 μ long. Strong sternal line between forecoxae, undivided posteriorly; coxae with some short lines, and granules. First setiferous coxal tubercles slightly ahead of anterior coxal approximation, and about as far apart as second tubercles; second tubercles somewhat ahead of level of third tubercles. Thanosome with about 55 rings; microtubercles ahead of ring margins and pointed. Lateral seta on ring 7 behind shield, 31 μ long; first ventral seta 60 μ long, on ring 18; second ventral 55 μ long, on ring 28. Telosome with 5 rings; microtubercles fine and pointed over margins, slight anterior extensions. Telosomal seta 25 μ long; accessory seta 8 μ long. Female genitalia 15 μ long, 20 μ wide; coverflap with about 8 weak and broken longitudinal ribs; seta 16 μ .

Type locality: San Felipe, San Diego County, Cal.

Collected: Type 8, 1972 by J. Garcia, and submitted for identification through Cal. Dept. Agr. number 72F16-6

Host: *Lycium andersonii* Gray (Solanaceae) a box thorn

Relation to host: the mites make irregular hollow galls, about 1/8 to 3/16 inch in size, along stems and on spines, especially at leaf bases. These galls contain numerous mites.

Type material: a type slide, so designated, with the above data four paratype slides, one sent to the Systematic Entomology Laboratory, U. S. Agricultural Research Service, Beltsville, Maryland

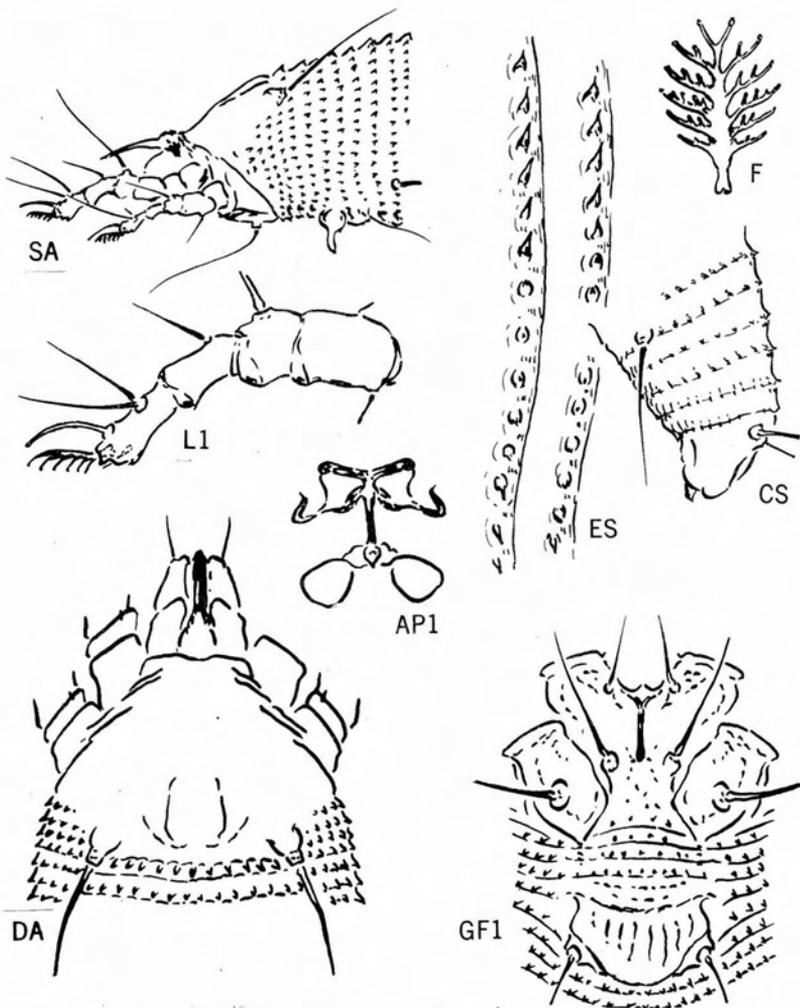


Plate 9 - *Eriophyes caulicecis*, new species

Eriophyes avicenniae, new species

Plate 10

Two species in this genus which have five-rayed featherclaws, and also a dart-shaped mark at the end of the median line, in which respects they resemble *avicenniae*, are *E. sheldoni* Ewing, the citrus bud mite, and *E. ficus* Cotte, the fig bud mite. But *avicenniae* differs from the fig bud mite by not having the first submedian line forking in front of the dorsal tubercle, and from the citrus bud mite by having a much plainer shield pattern.

Females, measured from the front end of the shield to the rear of the terminal lobes, 160 μ -175 μ long; about 40 μ thick; body wormlike. Rostrum 22 μ long, projecting ahead and down; antapical rostral seta 6.5 μ long. Shield 28 μ wide, 23 μ long. Shield design of central, well-defined longitudinal lines, and with broad lateral granular area. Median shield line present only on rear 1/5, ending in dart-shaped mark. Sinuate admedians beginning near front of shield, curving in and out and farthest apart around median line, recurring slightly to rear shield margin. First submedian line subparallel to admedian and ending ahead of dorsal tubercle. Laterally the shield with many granules, changing into partial rings below dorsal tubercles. Dorsal shield tubercles 10 μ apart; dorsal setae 18 μ -20 μ long, somewhat diverging. Foreleg 25 μ long; tibia 4.5 μ long, with 4.5 μ seta at 1/3; tarsus 6.5 μ long; claw 7.5 μ long; feather-claw 5-rayed. Hindleg 24 μ long, tibia 4 μ long, tarsus 6.5 μ long, claw 8.5 μ long. Coxae ornamented with rather coarse granules; sternal line faintly divided to rear. First setiferous coxal tubercles a little farther apart than second, and slightly ahead of anterior approximation of anterior coxae. Second coxal tubercles ahead of transverse line across third tubercles. Thanosome with about 50 rings, about equal dorsoventrally; microtubercles bead-like, rounded, more or less ahead of ring margins, larger dorsally. Lateral seta 28 μ long, on ring 5-6 behind rear shield margin; first ventral seta 4.5 μ long, on ring 17; second ventral 9 μ long, on ring 29. Telosome with 6 rings; microtubercles prominent, somewhat elongate, touching margins. Telosomal seta 17 μ long; accessory seta prominent, upcurved, 6.5 μ long. Female genitalia 10 μ long, 17 μ wide, with 8 or 9 longitudinal ribs; seta 11 μ long.

Males from 155 μ to about 175 μ in length.

Type locality: Miami, Florida

Collected: August 28, 1972, by P. Fullara, and submitted by H. A. Denmark

Host: *Avicennia nitida* Jacq. (Verbenaceae) Black mangrove

Relation to host: the sites form more or less coalescing lower surface erinose patches, that are brown in color, form shallow depressions, and appear as upper surface bulges.

Type material: a type slide, so designated, with the above data
Four paratype slides, with the above data. One slide sent to H. A. Denmark
Another slide sent to the Systematic Entomology Laboratory, U. S. Agricultural Research Service, Beltsville, Md.
There is also a vial with leaves and mites in liquid that was the source of the above slides.

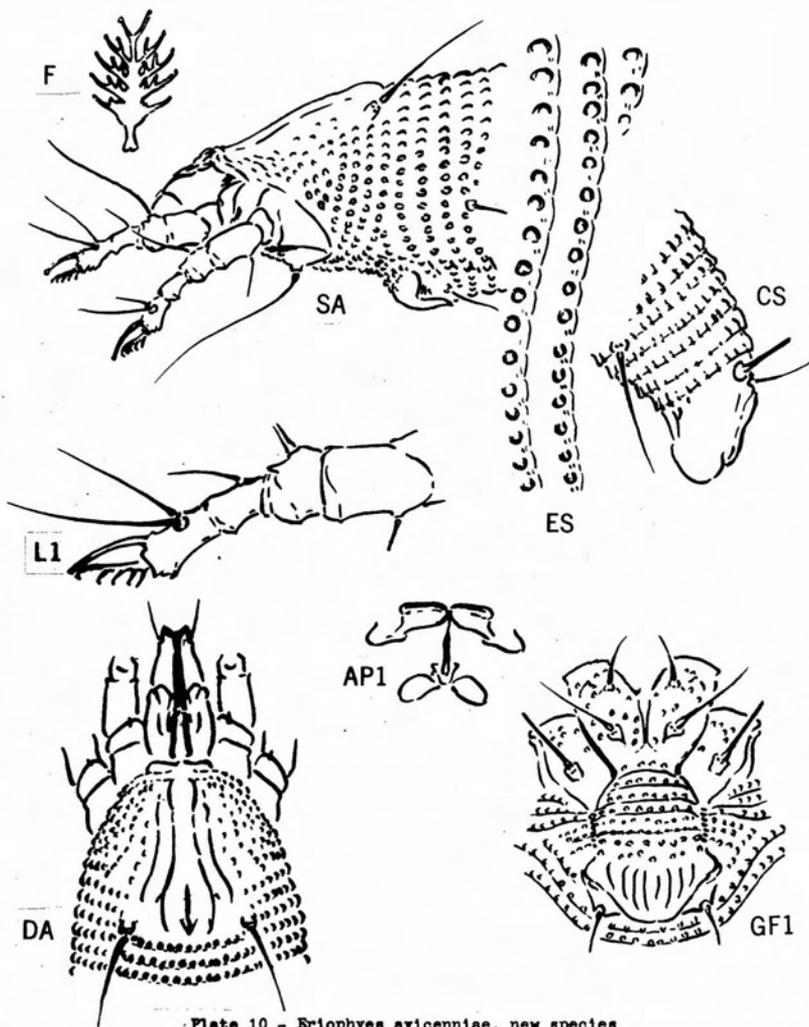


Plate 10 - *Eriophyes avicenniae*, new species

Phytoptus matisiae, new species

Plate 11

This South American mite has a three-rayed featherclaw, which as far as known is a most unusual feature to be on a species with characters of the genus. In addition there is a prominent ocellar spot or lobe at each lateral shield angle.

Females, measured from the front end of the shield to the end of the terminal lobes, from 230 μ to 260 μ in length. Thickness 40 μ to 55 μ ; body worm-like; color in life presumably light yellowish-white. Rostrum 20 μ long, projecting ahead and down; antapical rostral seta minute. Shield 23 μ long, 35 μ wide, subtriangular, acuminate over shield, with sides rather straight. Median line present on rear 1/2. Admedian lines rather close and subparallel, somewhat sinuate, slightly diverging at rear, complete. Submedian lines obscured for the most part by short dashes and granules. Laterally the shield with granular bands; ocellar spot 4.5 μ in diameter, interrupting partial rings below dorsal tubercles. Dorsal tubercles 12 μ apart; directed ahead from rear margin; dorsal setae 20 μ long, pointing up and forward. Foreleg 26 μ long; tibia 5 μ long, with 2 μ seta at 1/3 and located on outside; tarsus 6 μ long; claw 7.5 μ long; featherclaw 3-rayed. Hindleg 25 μ long, tibia 4 μ long, tarsus 5.5 μ long, claw 7 μ long. Prominent sternal line between forecoxae, forked both in front and to rear; coxae ornamented with short curved dashes and some coarse granules on hind coxae. First setiferous coxal tubercles ahead of second and opposite anterior coxal approximation; second tubercles somewhat ahead of level of third tubercles. Thanosome with 60-65 rings. Microtubercles elliptical above, more bead-like laterally and below, the granules rounded off, ahead of ring margins; dorsal microtubercles with dark spot near rear end. Lateral seta on ring 8 behind shield, 11 μ -13 μ long; first ventral seta 20 μ -25 μ long, on ring 23; second ventral 16 μ long, on ring 41. Telosome with 9 or 10 rings; microtubercles short, reaching ring margins. Telosomal seta 14 μ long; accessory seta 3 μ long. Female genitalia 10 μ long, 21 μ wide; cover-flap with 9 or ten unevenly thickened longitudinal ribs; genital seta 3 μ long. Males 180 μ to 200 μ long.

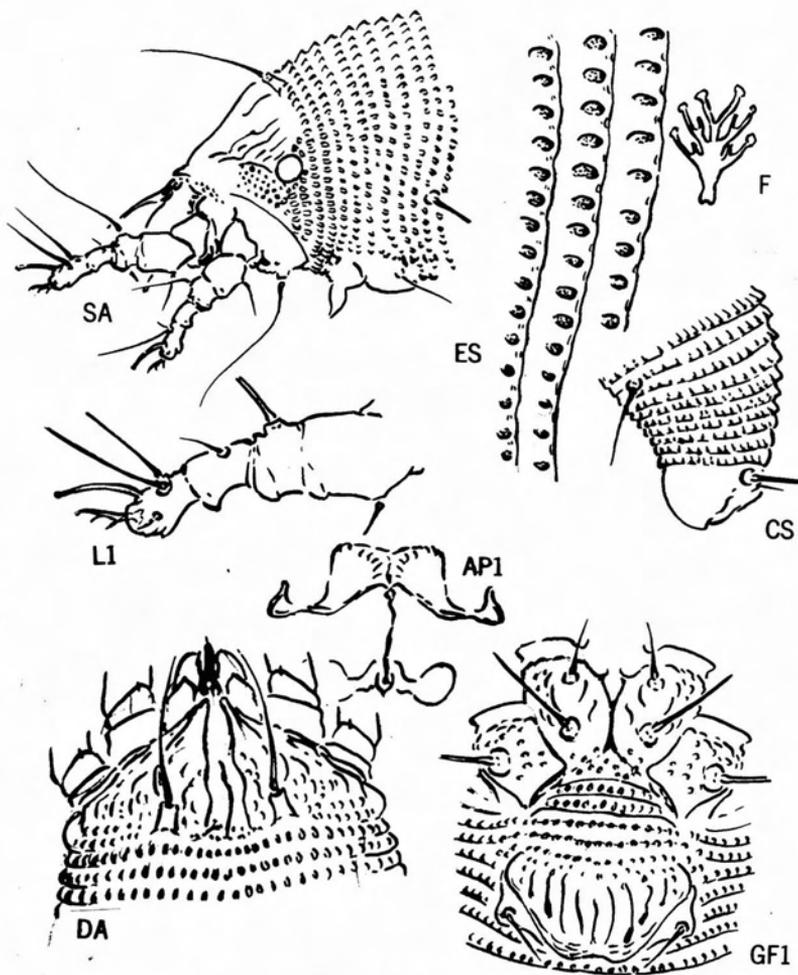
Type locality: Medellin, Colombia

Collected: May 17, 1972, by Dr. E. J. Urueta S.

Host: Matisia cordata H. & B. (Bombacaceae) zapote

Relation to host: the mites make large underside erineum patches that bulge out of the upper surfaces of the leaves, and turn black when they dry out. Often these patches coalesce, killing large leaf areas.

Type material: a type slide, so designated, with the above data
 three paratype slides
 an envelope with dry leaves and erineum from which the slides were made
 one paratype slide sent to the Systematic Entomology Laboratory, U. S. Agricultural Research Service, Beltsville, Maryland

Plate 11 - *Phytoptus matisiae*, new species

Setoptus flexilis, new species

Plate 12

The large pine needle infesting Malepellids of the genus *Setoptus* that have come to hand so far are all very similar. Aside from variations in microtubercle size and shape, and the spines on the foretibiae, there is little to distinguish the different species. The present new species, *flexilis*, is a white pine infestor that lives in needle sheaths until they shatter during the summer, and then depends on the proximity of needle bases until new needles appear the next spring. The new species on hand has two foretibial spines at the apical margin, and the microtubercles are ahead of the lateral margins on the sides. These microtubercles are drawn out into narrow spinules, more noticeably so laterally. The genotype, *jonesi*, differs by having microtubercles that are larger basally, more apt to be on ring margins, and not as spinulate. The species, *strobacae*, has microtubercles more like *jonesi*, but the foretibiae have more ventral spines. The species, *jonesi*, lives on pitch pines which have needles that retain their sheaths throughout the year.

Female length, from the front edge of the shield to the end of the terminal lobes, 240 μ -288 μ . Thickness 55 μ -60 μ . Rostrum 70 μ -75 μ long, strongly down-curved; antapical rostral seta 11 μ long. Shield 45 μ -48 μ long, 50 μ wide; with sparse granules, otherwise unmarked; dorsal tubercles lateral, well ahead of rear margin, 32 μ apart; dorsal setae 65 μ -75 μ long; anterior central seta 25 μ long. Foreleg 55 μ long; tibia 11 μ long, with 13 μ seta at about 1/3; tarsus 9 μ long; claw 16 μ long; featherclaw 10-rayed. Hindleg 50 μ long, tibia 9 μ long, tarsus 10 μ long, claw 18 μ long. Sternal line between anterior coxae not well defined; anterior coxae with some spinules along anterior margins and centrally; first setiferous coxal tubercles ahead of second and slightly farther apart; second coxal tubercles a little ahead of line across third tubercles. Thanosome with from 65 to 75 rings, the number increasing ventrad; rings set with microtubercles which are produced into fine spinules, especially laterally, these microtubercles ahead of ring margins laterally, closer dorsally. Lateral seta 35 μ long, on ring 3 behind rear shield margin; first ventral seta 70 μ -90 μ long, on ring 16; second ventral 80 μ long, on ring 33. Telosome with five rings; with microtubercles as fine granules along ring margins dorsally and laterally, elongate ventrally on last two or three rings. Telosomal seta 28 μ long. Accessory seta 12 μ long. Female genitalia 20 μ long, 27 μ wide. Female coverflap lacking ribs. Female genital seta 24 μ long.
Male 230 μ -245 μ long.

Type locality: Arboretum of planted pines at Institute of Forest Genetics, Camino district, El Dorado County, Cal., elev. about 3000 feet.

Collected: September 19, 1972, by the writer

Host: *Pinus flexilis* James, limber pine, a white pine.

Relation to host: the mites live either in basal needle sheaths, or, after the sheaths become shattered the mites live in spaces between needle bases. No needle damage was observed.

Type material: a type slide, so designated, with the above data five paratype slides; one sent to the Systematic Entomology Laboratory, U. S. Agricultural Research Service, Beltsville Maryland.

The normal range of limber pine in California is far above the elevation of the Institute arboretum. Limber pine grows at 7-8000 foot elevations and not below.

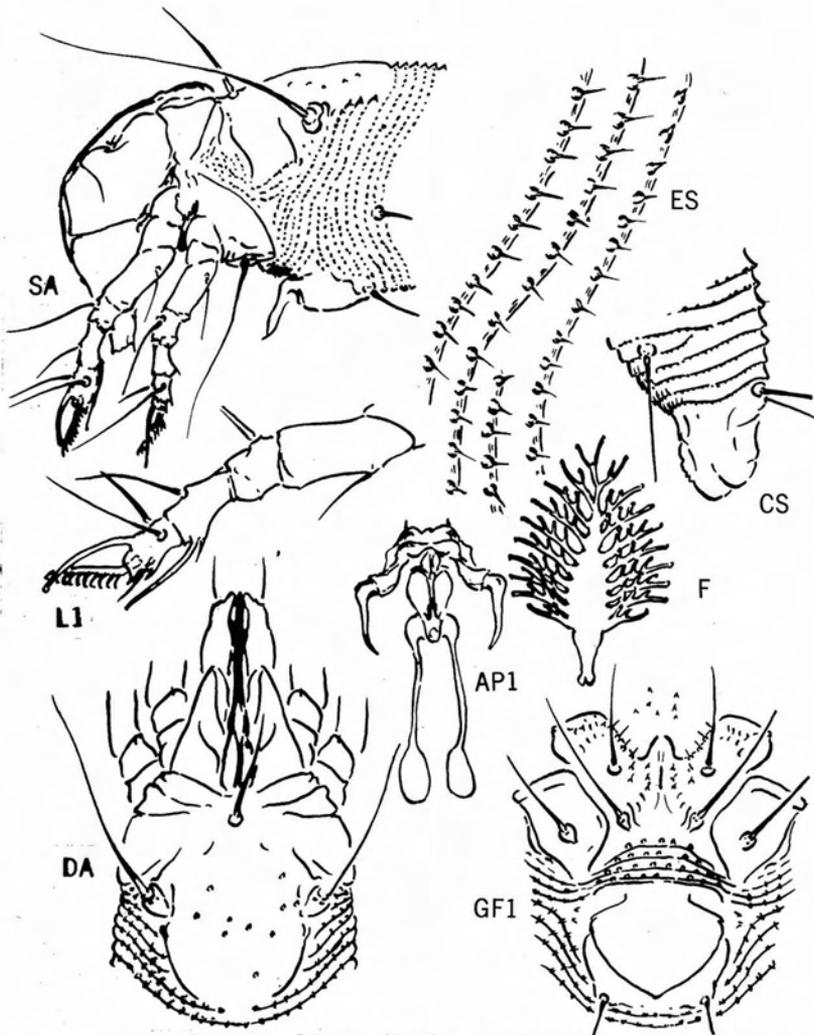


Plate 12 - *Setoptus flexilis*, new species