

ERIOPHYID STUDIES C - 6

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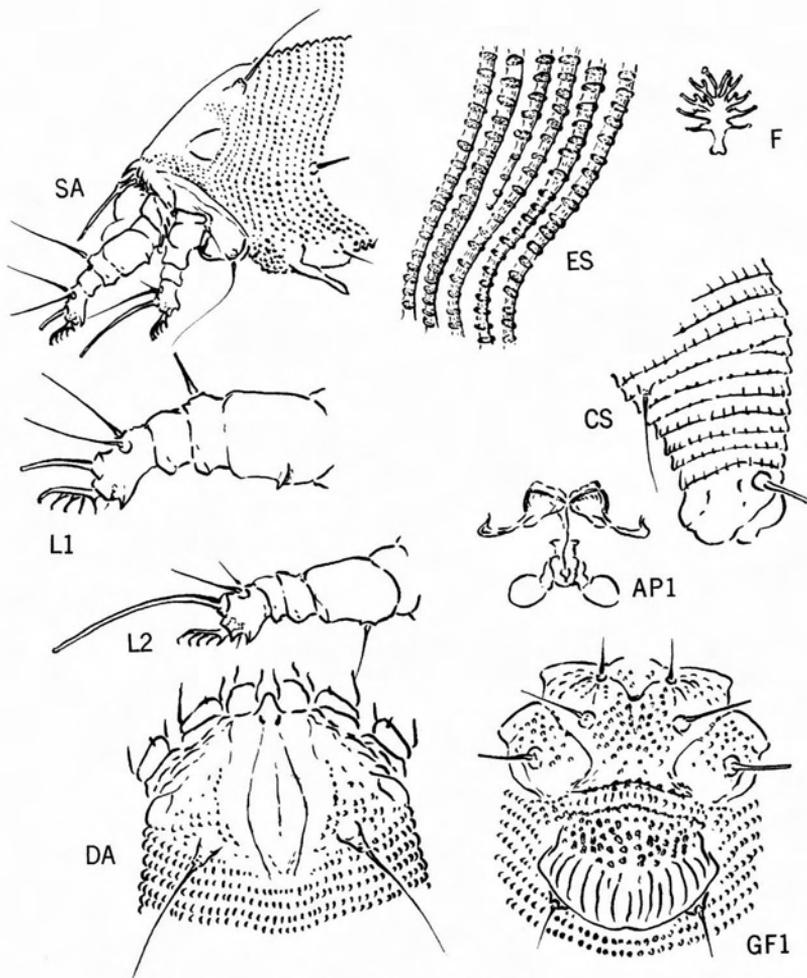


Plate 1 - *Acalitus anthonii*, new species

Acalitus anthonii, new species

Plate 1

This species is defined by three structures. One is the ridge across the underside of the forefemur. Another is the absence of the second leg patellar seta. The third is the extra long second leg claw. The species makes brown underside erineum patches on leaves of *Shorea*, a Diptero-carpaceous tree. The erineum consists of tangled filaments.

Females from 120 μ to 140 μ in length, about 30 μ thick, wormlike, probably light yellow color in life. Rostrum 18 μ long, projecting down; antapical seta not apparent. Shield 18 μ long by 22 μ wide, subsemicircular in anterior outline; with a short acuminate projection over rostrum base. Median shield line faintly indicated in center, and with a slight V-shaped mark at rear margin. Admedians complete from front margin, gently arching out and back to rear margin. Shield area in front of dorsal tubercles with some granules. Lateral granules on shield, and a prominent ocellar lobe at lateral rear angles. Dorsal tubercles 14 μ apart; dorsal setae 12 μ long, diverging to rear. Foreleg 17 μ long; tibia 3 μ long; tarsus 4.5 μ long; claw 5.5 μ long; featherclaw 4-rayed. Hindleg 15 μ long, tibia 2.5 μ long, tarsus 3.5 μ long, claw 12.5 μ long. Coxae ornamented with moderately coarse granules, the forecoxae hardly separated; first setiferous coxal tubercles pushed ahead almost to anterior coxal margin; second coxal tubercles well ahead of line across third coxal tubercles. Thanosome with about 66 rings, the rings entirely set with elliptical microtubercles that rest on ring margin. Lateral thanosomal seta 10 μ long, on ring 10 behind shield; first ventral seta 22 μ long, on ring 25; second ventral seta 21 μ long, on ring 44. Telosome with 7 rings, the microtubercles linear and elongate, pointed over margins; telosomal seta 10 μ long. Accessory seta not apparent. Female genitalia 12 μ long by 16 μ wide; coverflap basally with coarse granules, followed by 12 to 13 longitudinal ribs. genital seta 5 μ long.

Male about 100 μ long.

Type locality: Catchment area, Seletar Reservoir, Singapore

Collected: Mar. 10, 1971 by Mrs Ming Anthony, for whom I am pleased to name this rather unusual species.

Host: *Shorea*, near *gibbosa* Brandis (Dipterocarpaceae)

Relation to host: the mites make numerous erineum patches on the underside of the leaves, the spots turning brown with age. The erineum is composed of tangled filaments.

Type Material: a type slide, so designated, with the above data seven paratype slides, two sent to Mrs Anthony, and one to the Entomology Research Division, USDA, Beltsville, Maryland

There is also an envelope of dry leaves from which the above slides were made.

Copies of the 'C' Series are obtainable from -	
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Acalitus phoradendronis, new species

Plate 2

This species roughens the leaves of broad-leaved mistletoe, *Phoradendron*, by making subcircular infoldings in the undersurface, with a raised central hump. This member of *Acalitus* is not particularly close to other named species in the genus due to the central shield lines of coarse granules. It differs from *Acalitus sphaeralceae* K. (Eriophyid Studies, Cal. Dept. Agr. B-14:3, 1965) as *sphaeralceae* has solid central shield lines, and lacks longitudinal female coverflap ribs. The previous species, *anthoni*, differs by the forefemoral transverse ridge and the extra long second claw.

Female 170 μ to 185 μ in length, about 35 μ thick, wormlike, light yellow in life. Rostrum 20 μ long, projecting diagonally down; antapical seta minute. Shield 20 μ long by 18 μ wide, subsemicircular in anterior outline. Design mostly of lines of granules, but central lines solid on some examples. Median shield line present on rear 3/4. Admedian lines complete from chelicera base, gradually diverging to rear shield margin. A submedian line of granules from front edge of shield and ending just inside the dorsal tubercles. Shield laterally sprinkled with granules, the latter ones in vertical lines. Dorsal tubercles 14 μ apart; dorsal setae 31 μ long, diverging to rear. Foreleg 23 μ long; tibia 3 μ long; tarsus 6 μ long; claw 7 μ long; featherclaw 4-rayed. Hindleg 20 μ long, tibia 3 μ long, tarsus 6 μ long, claw 8 μ long. Coxae with coarse granules, forecoxae not separate centrally; first setiferous coxal tubercles pushed ahead to just behind anterior end of coxa; second setiferous tubercles slightly inside a line from first to third tubercles. Thanosome with about 64 rings, completely microtuberculate, these structures set ahead of ring margins and slightly pointed. Lateral seta 23 μ long, on ring 9 behind shield; first ventral seta 38 μ long, on ring 22; second ventral seta 43 μ long, on ring 40. Telosome with 6 to 7 rings, the microtubercles slightly pointed over margins; telosomal seta 16 μ to 17 μ long. Accessory seta minute. Female genitalia 14 μ long by 18 μ wide; coverflap basally with coarse granules, followed by about 6 to 8 ribs that tend to converge apically; genital seta 6 μ long.

Type locality: Plum Creek Concentration Camp, Tehama County, California

Collected: April 23, 1971 by D. Adams, and submitted under California Bureau of Entomology number 71D28-37

Host: *Phoradendron flavescens* var. *villosum* (Nutt.) (Loranthaceae) mistletoe. Host of the mistletoe likely oak.

Relation to host: the mites make partial galls on the underside of the leaves consisting of irregular channels surrounding a raised center. These deformities give the mites a sequestered location in which to live.

Type material: a type slide, so designated, with the above data five paratype slides, one of which is sent to the Entomology Research Division, USDA, Beltsville, Maryland

Note: another collection of this mite is on hand, under CDA #68E13-47, from mistletoe on cottonwood, collected at Victorville, Riverside County, Cal., May 9, 1968, by G. Harper of the Riverside County Agricultural Commissioner's office.

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
- I1 - Left anterior leg
- I2 - 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

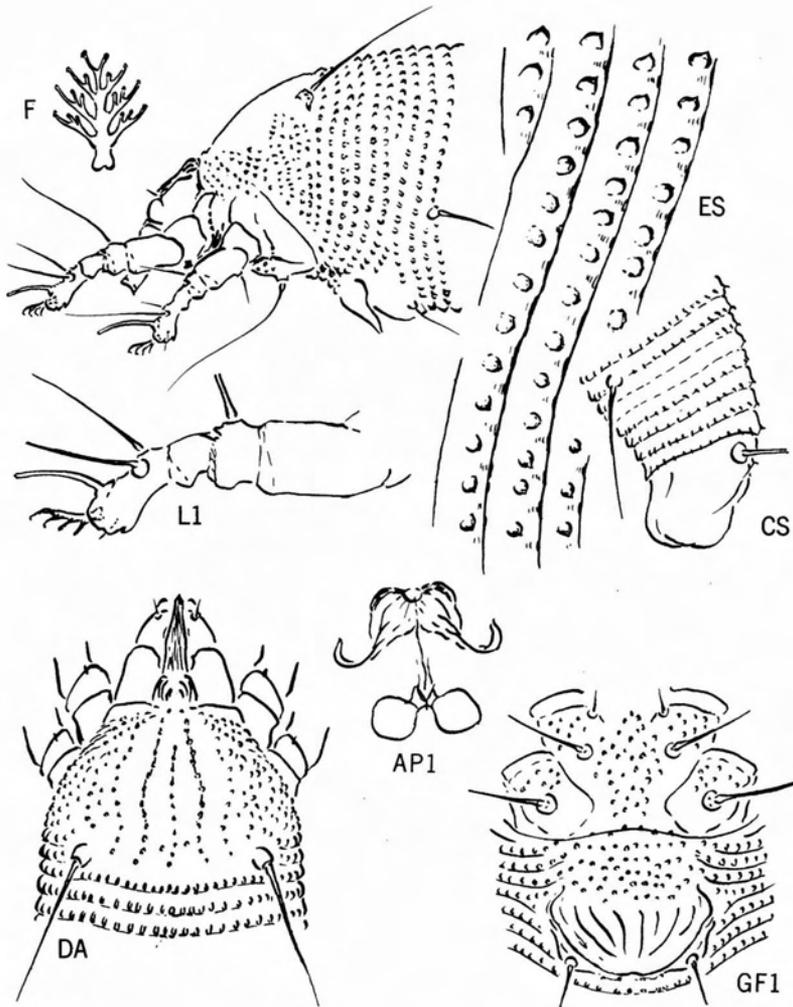


Plate 2 - *Acalitus phorodendronis*, new species

Cenaca, new genus

Body robust-wormlike, tapering to rear; shield broad and rounded anteriorly, with no anterior lobe over rostrum base; dorsal tubercles wide-spread, on rear margin, directing setae divergently to rear; thanosomal rings rather broad, the microtubercles elongate. Rostrum small, with short form oral stylet. Foreleg lacking forefemoral seta and foretibial seta; forecoxae broadly connate centrally, but with thin sternal line between; first setiferous coxal tubercle absent from forecoxae. Thanosomal rings with little dorsoventral differentiation in number. Female genitalia short longitudinally, but broad transversely; coverflap with coarse basal granules; internal genital apodeme of moderate anterior length.

Cenaca is close to *Acalitus* K., (Eriophyid Studies, Cal. Dept. Agr. B-14: 2, 1965) It differs from *Acalitus* in general shape, being less wormlike, but primarily distinguished by the lack of the first setiferous coxal tubercle and seta. The genus name is *Cenaca*, from *kenos*, meaning empty, and referring to the lack of coxal seta #1. *Aca* is short for *Acarus*.

Cenaca syzygioidis, new species

Plate 3

Female 120 μ to 135 μ long, about 37 μ thick; color in life probably light yellowish-white. Rostrum 17 μ long, projecting diagonally down; antapical seta absent. Shield 21 μ long, 33 μ wide, broadly arched in anterior outline but no anterior lobe. Shield without design, some slight granules anterior to rear margin, and granules and a partial ring at lateral rear angle. Dorsal tubercles 21 μ apart; dorsal setae 23 μ long, projecting divergently to rear. Foreleg 21 μ long; tibia 3 μ long, tarsus 5 μ long, claw 4 μ long, feather-claw 4-rayed. Hindleg 18 μ long, tibia 2 μ long, tarsus 4.5 μ long, claw 7 μ long. Coxae rather broad, the forecoxae broadly connate centrally, with thin sternal line between; second coxal setiferous tubercles just behind level of center of sternal line. Thanosome with about 40 moderately wide rings that have prominent microtubercles except on dorsal part of last 11 rings; microtubercles elliptical, tending to be ahead of ring margins, flat outwardly. Lateral seta 15 μ long, on ring 7 behind shield; first ventral seta 40 μ long, on ring 15; second ventral seta 35 μ long, on ring 28. Telosome with about 7 rings, with fine microtubercles, which are absent dorsally anteriorly, weak posteriorly; seta 14 μ long. No accessory seta. Female genitalia 14 μ long, 18 μ wide, entire area between genitalia and basal part of coxae with coarse granules. Female genital coverflap principally with faint minute granules partly in transverse irregular lines. Genital seta 13 μ long.

Male 98 μ long.

Type locality: MacRitchie Reservoir, Singapore

Collected: Dec. 12, 1971, by Mrs. Ming Anthony, #300

Host: *Eugenia syzygioides* (Miq.) Henderson (Myrtaceae)

Relation to host: the mites live in buds and cause a witches' broom on the twigs. They also occur in large numbers in leaf axils.

Type Material: a type slide, so designated, with the above data two paratype slides, one sent to Mrs. Anthony; the other sent to the Entomology Research Div., USDA, Beltsville, Md. there is also an envelope with dry twig parts and mummified mites from which the above slides were made.

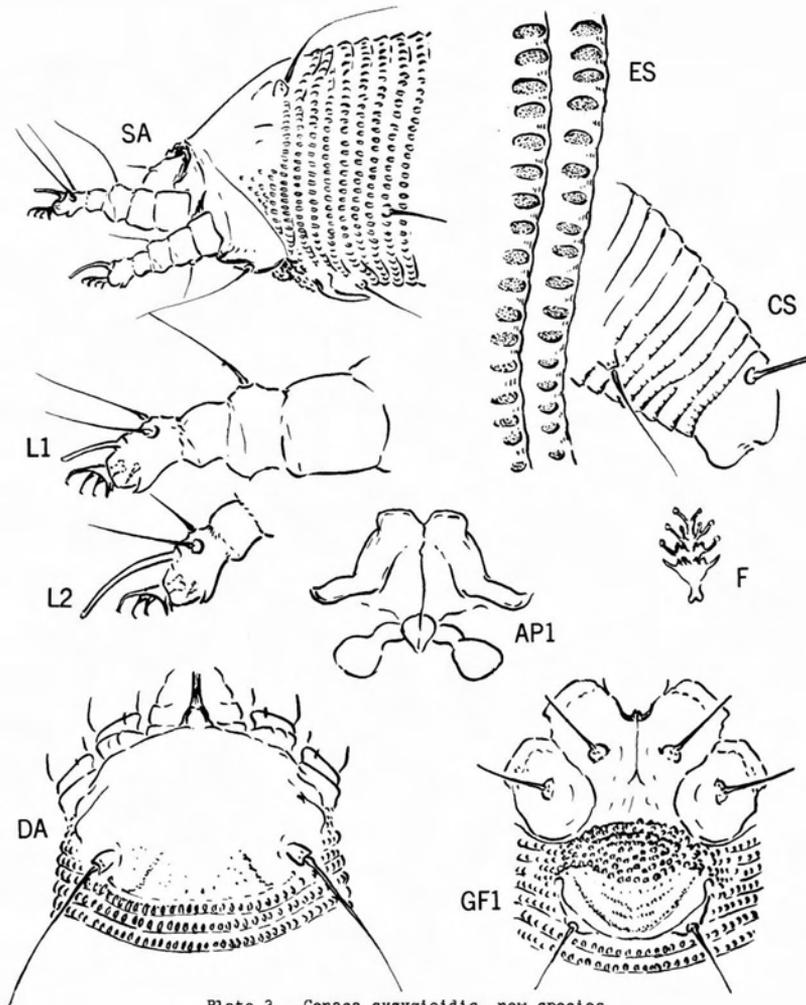


Plate 3 - *Cenaca syzygioidis*, new species

Eriophyes neolinderae, new species

Plate 4

Eriophyes linderae Corti, Zool. Anz. 27:427, 1904, makes pea-size leaf galls on Lindera pulcherrima L. The present new species makes undersurface leaf erineum on Lindera malaccensis Hook., in Singapore. The difference between leaf deformations which each respective species of Eriophyes makes is the principal item relied upon to designate the erineum population on L. malaccensis as distinct from linderae. A comparison at hand between two species on these lauraceous trees consists of listing differences between this Lindera erineum mite, and the next one to be described in this paper, Eriophyes litseae, n. sp. Neolinderae differs from litseae by having two or three complete submedian lines of granules, instead of one; the sternal line is shorter than on litseae, and the coxal granules are coarser. Otherwise neolinderae fits in with this lauraceous complex of Eriophyes spp. which are closely associated structurally with the linderae-xyrotraptus group. (For further notes see the description of litseae, which follows.)

Female 148 μ to 188 μ in length, about 30 μ thick, wormlike in shape; color in life probably light yellowish-white. Rostrum 14 μ long, projecting diagonally down; antapical seta very tiny. Shield 21 μ long by 26 μ wide, subsemicircular in anterior outline. Shield surface heavily covered with moderately coarse granules which align themselves longitudinally. Median line of granules present only on rear 1/3 or 1/4. Admedian lines rather close, subparallel, slightly diverging to rear and a little sinuate, running from chelicera base to rear shield margin. About three submedian lines, fairly complete from front edge or near, ending in front of dorsal tubercles or just inward to them. Lines lateral to submedians extending back from anterior lateral areas, meeting partial rings below dorsal tubercle and curving downward as they join them. Some granules above rear coxae. Dorsal tubercles about 11 μ apart; dorsal setae 15 μ long, diverging to rear. Foreleg 28 μ long; tibia 3 μ long, with 2 μ seta from about 1/3; tarsus 4 μ long; claw 6 μ long; featherclaw 4-rayed. Hindleg 19 μ long, tibia 3 μ long, tarsus 4 μ long, claw 7 μ long. Coxae ornamented with rather coarse granules; forecoxae very narrowly connate centrally, the sternal line quite short but giving off diverging fork arms which are somewhat longer than line. First setiferous coxal tubercles well ahead of level of front end of sternal line; second coxal tubercles well ahead of level of third tubercles. Thamosome with about 61 rings; rings completely microtuberculate, the dorsal microtubercles elliptical, touching ring margins, about 1 μ long. Sternal microtubercles rounder, tending to be ahead of ring margins. Lateral seta 14 μ long, on ring 8 behind shield; first ventral seta 14 μ long, on ring 20; second ventral 18 μ long, on ring 37. Telosoma with about 6 rings, completely microtuberculate, the microtubercles fine, elongate, more dorsal ones pointed over margins. Telosomal seta 10 μ long, rather stiff. Accessory seta 2 μ long. Female genitalia 11 μ long, 15 μ wide; coverflap with scattered basal coarse granules, followed by about 10 short longitudinal ribs.

Type locality: Bukit Timah nature Reserve (Main Road), Singapore.

Collected: January 8, 1971, by Mrs. Ming Anthony #241

Host: Lindera malaccensis Hook. (Lauraceae)

Relation to host: the mites make irregular erineum patches on the underside of leaves, these erineal areas bulging out of upper leaf surfaces in an almost gall-like manner but are wide open below.

Type material: a type slide, so designated, with the above data. Three paratype slides, one sent to Mrs. Anthony, and one sent to Entomology Research Div., USDA, Beltsville, Md. There is also an envelope with dry leaves and erinea from which the slides were made.

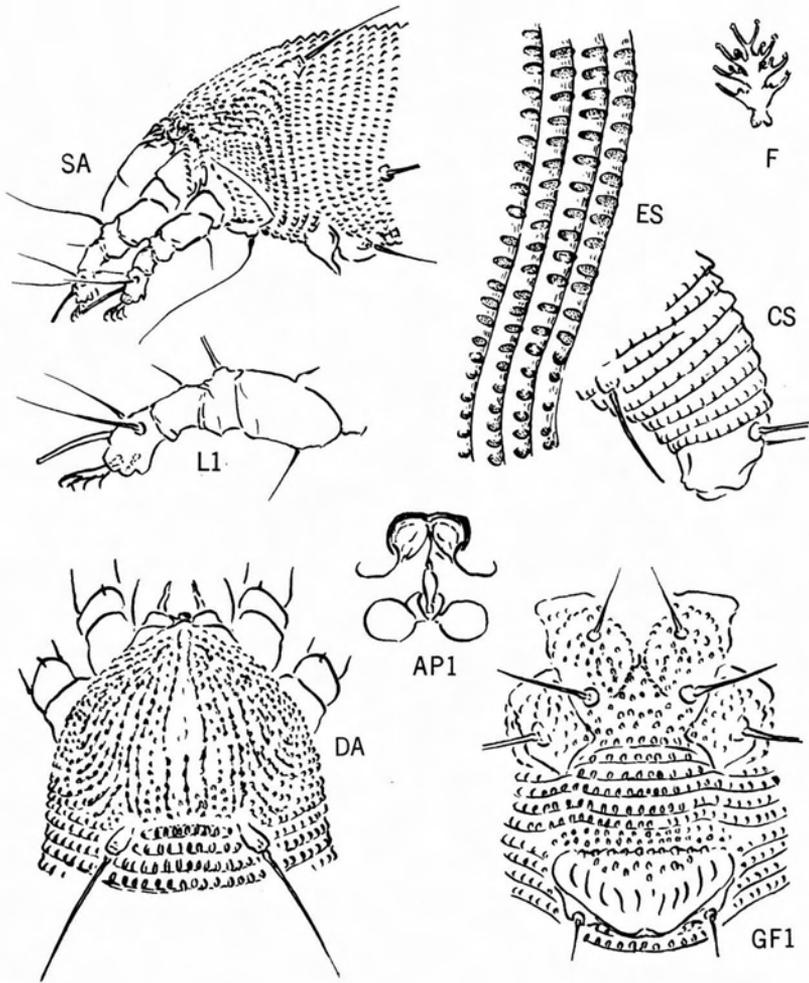


Plate 4 - *Eriophyes neolinderae*, new species

Eriophyes litseae, new species

Plate 5

This mite makes somewhat irregular globular leaf galls which are from 3mm to 5mm across, and full of irregular filaments and wall outgrowths. The gall opening protrudes on the underside as a blunt cone. The host as stated below is a Lauraceous tree, Litsea elliptica. There is a complex of gall and erineum makers on lauraceous trees in the genera Litsea and Lindera in southern Asia and adjacent islands. The prototype of these is Eriophyes linderae Corti, 1904, a leaf gall maker. Nalepa followed in 1918 with Eriophyes gyrograptus which makes erineum on leaves of Litsea polyantha Juss. Examples of an erineum maker on Litsea elliptica from the same area where the new species occurs is presumably the same as, or very similar to gyrograptus. The new species is very similar to it, and comparisons seem only to belabor the relationship. However, gyrograptus, as exemplified by the erineum mite on Litsea elliptica, has minute distinctions from the gall maker. These are: slightly longer antapical rostral seta, dorsal microtubercles about twice as long, slightly longer accessory setae, and shorter genital setae. The new species is being named mainly on the strength of the difference in attack on the host, since eriophyid species have salivary growth directors of specific significance.

Females from 155 μ to 190 μ in length, about 35 μ thick, wormlike; color in life light yellow-white. Rostrum 18 μ long, projecting diagonally down; antapical seta 2 μ long. Shield 21 μ long, 28 μ wide, generally semicircular in anterior outline. Shield entirely covered with a complex pattern of lines of granules: median line present on rear 2/3, with some granules at side on rear end; admedian lines complete, rather close, subparallel, somewhat sinuate, recurving at rear. First submedian line from front shield edge, subparallel to and close to admedian, running to inside of a series of granular lines that extend toward dorsal tubercle and turn inward in front of it. Six or 7 partial rings on rear lateral shield area above coxae that receive as many granular lines from lateral front area of shield, the granular lines curving down to join the partial rings. More lines present between the above lateral lines and coxae. Dorsal tubercles 15 μ apart; dorsal setae 10 μ to 12 μ long, diverging to rear. Foreleg 22 μ long; tibia 4 μ long, with 3 μ seta at 1/3; tarsus 4 μ long; claw 6 μ long; feather-claw 4-rayed. Hindleg 20 μ long, tibia 3 μ long, tarsus 4 μ long, claw 7.5 μ long. Coxae with some lines of granules, the forecoxae very narrowly connate centrally, the sternal line short. First setiferous coxal tubercles ahead of second, and well ahead of level of anterior sternal line end. Second coxal tubercles not far inside line between third and first coxal tubercles. Thanosome with about 73 rings, entirely microtuberculate. Dorsally the microtubercles elongate-elliptical, reaching ring margins; ventrally more beadlike, and just ahead of margins. Some short microtubercles between longer ones dorsally. Lateral seta 18 μ long, on ring 8 behind shield; first ventral seta 28 μ long, on ring 22; second ventral 23 μ long, on ring 40. Telosome with 6 rings, the microtubercles fine and elongate, pointed over ring margins; telosomal seta 9 μ -10 μ long. Accessory seta 2 μ long. Female genitalia 10 μ long, 17 μ wide; with some granules across base of coverflap, followed by about 10 short longitudinal ribs; seta 6 μ long. Male 130 μ long.

Type locality: Catchment area, Seletar Reservoir, Singapore

Collected: Feb. 28, 1971 by Mrs Ming Anthony and sent under #244-a-II

Host: Litsea elliptica (Bl.) Boerl. (Lauraceae)

Relation to host: the mites make large globular upper surface leaf galls 3mm to 5mm in diameter and filled with irregular filaments and wall growths.

Type material: a type slide, so designated, with the above data three paratype slides, one sent to Mrs. Anthony, another sent to The Entomology Res. Div., USDA, Beltsville, Md. there is also an envelope with dry leaves and galls from which the above slides were made

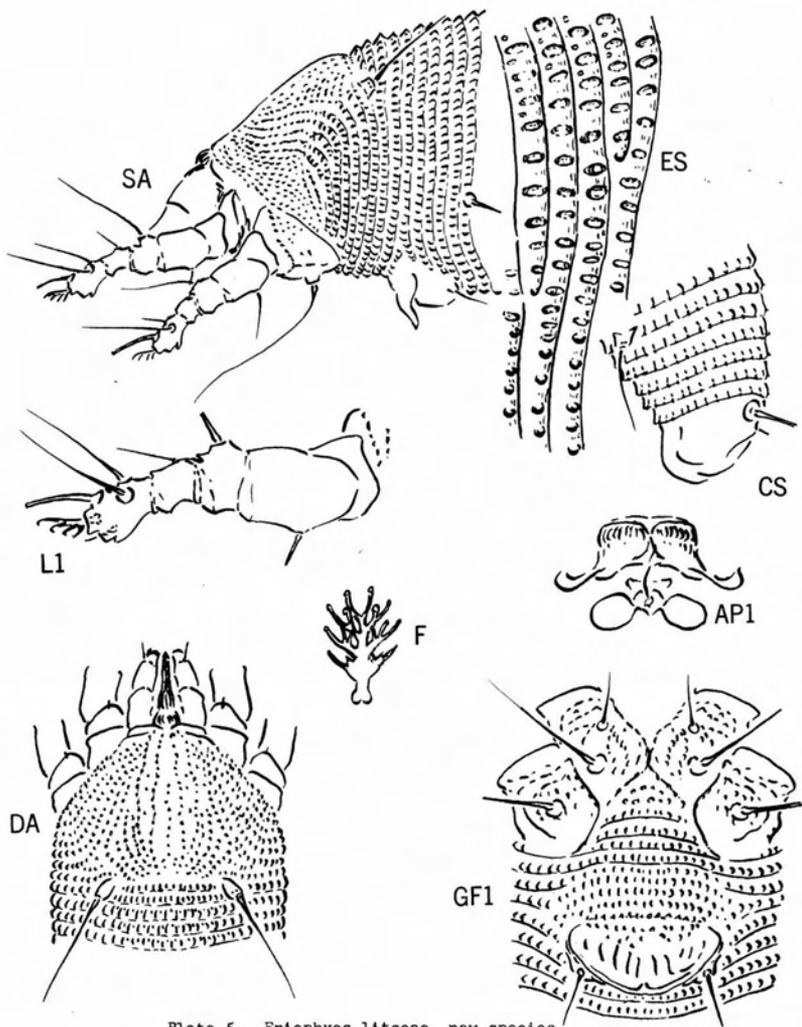


Plate 5 - *Eriophyes litseae*, new species

Notalox sapii, new species

Plate 6

The structural features of *Notalox* (see Eriophyid Studies, Cal. Dept. Agr. B-3:5, 1961, genotype *rubigator* K.) are: 1. pointed anterior shield lobe; 2. dorsal tubercles positioned at rear shield margin and directing the short dorsal setae up and centrad or ahead; 3. a broad dorsal longitudinal thanosomal trough with short central ridge extending back 6 to 8 tergites from rear shield margin. *Phyllocoptura* (genotype) *oleivora* Ashm.) has the broad dorsal thanosomal trough, but the anterior shield lobe is rounded, the dorsal tubercles are ahead of the rear shield margin, and there is no short central ridge. All species referable to both genera have rust mite structures and *rubigator* rusts the undersides of maple leaves in temperate eastern North America. The new species, *sapii*, has moved away from typical rust mite habit by causing leaf deformation and edgerolling over the upper surface. It may still cause some rusting. The remarkable feature of *sapii* is that it has structural characters of *Notalox* but occurs in the Indo-Malaysian tropics at Singapore on the other side of the world from temperate eastern North America. Perhaps this is more a case of anatomical convergence rather than actual relationship between two species.

The genotype, *rubigator*, has the following characters which differentiate it from *sapii*: 1. 5-rayed featherclaws; 2. the anterior shield lobe is moderately thick and not downturned; 3. the dorsal tubercles have longitudinal axes and direct the short setae up and centrad; 4. the general shield surface is not granular. On the other hand, *sapii* has 6-rayed featherclaws, the anterior shield lobe is thin and downturned, the dorsal tubercles are more tubular and direct the dorsal setae diagonally up and ahead, and the shield surface is generally granular.

Female 160 μ -180 μ long, 45 μ wide and thick; color of dry specimens light amber-yellow; body fusiform. Rostrum curving down, 21 μ long; ant-apical seta 9 μ long. Shield 36 μ long by 45 μ wide; anterior lobe over rostrum acuminate and coming to a point. Shield design somewhat obscure, but consisting of granules and lines of granules. Median line slightly indicated from 1/4 to 1/2, and again toward rear. Admedian lines complete, curving back from sides of anterior lobe, meeting cross line at 1/4, extending straight back to 1/2 and meeting second cross line, extending back to fork between dorsal tubercles and then flaring to rear margin. Admedians becoming more granular toward rear, with posterior granules coarser; inner forking branches meeting at rear. Cross line at 1/4 extending toward lateral shield areas. Shield laterally rounded out and with curved pattern of lines and granules on lateral lobes. Lines of granules above coxae. General shield shape subtriangular. Dorsal tubercles 19 μ apart, pointing ahead from rear margin; dorsal setae 5.5 μ long pointing diagonally centrad and up. Foreleg 28 μ long; tibia 9 μ long, with 6 μ seta from 1/2-1/3 position; tarsus 5.5 μ long; claw 6 μ long; featherclaw 6-rayed. Hindleg 25 μ long, tibia 5.5 μ long; tarsus 4.5 μ long; claw 6 μ long. Coxae generally with granular lines; sternal line not quite extending back to second tubercles; first setiferous tubercles farther apart than second, and opposite anterior end of sternal line; second coxal tubercles a little ahead of line across third tubercles. Thanosome with about 37 tergites and 62 sternites. The broad central trough ends shortly before telosome. Short central longitudinal ridge extending back from center rear of shield and running posteriorly about 6 tergites. Thanosome generally microtuberculate, the microtubercles with rear resting on ring margins; microtubercles more bead-like on sternites, elongate on tergites. Lateral thanosomal seta 4.5 μ long, on sternite 8 behind shield; first ventral seta 37 μ long, on sternite 22; second ventral 10 μ long, on sternite 40. Telosome with 5 to 6 rings, ventrally microtuberculate, but less so dorsally. Telosomal seta 16 μ long. Accessory seta absent. Female genitalia 17 μ long, by 21 μ wide; coverflap basally with 4 or 5 transverse lines of granules; 13 to 14 longitudinal ribs on rear part.

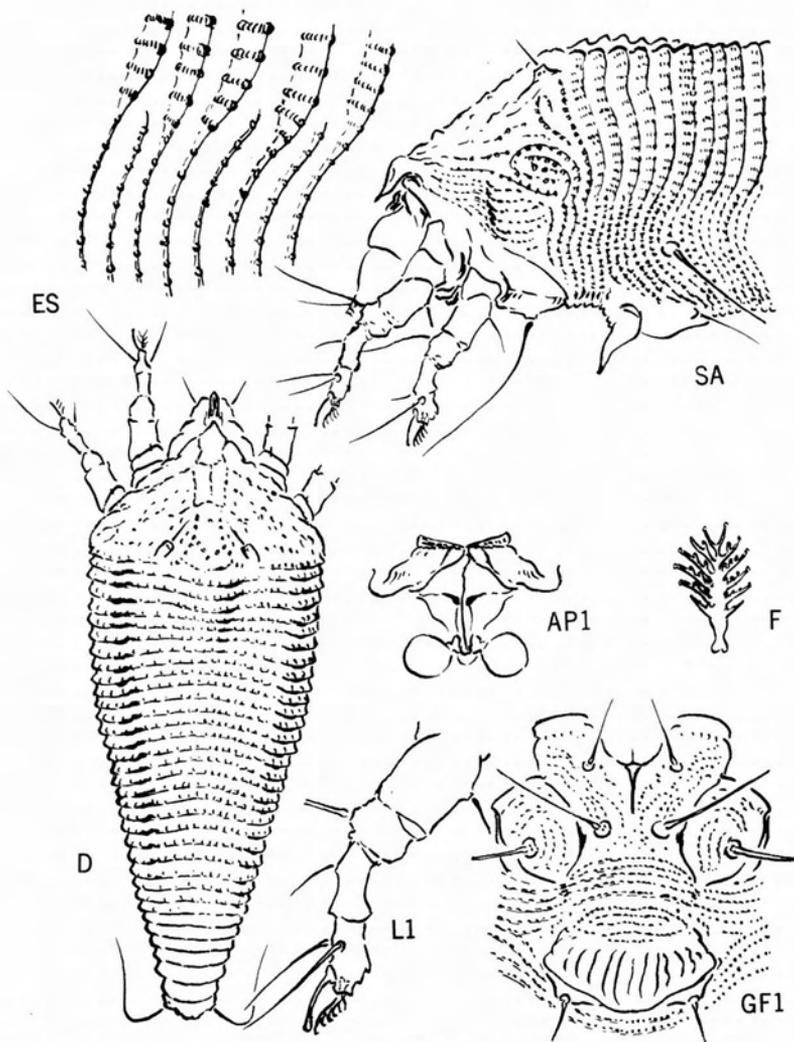


Plate 6 - *Notalox sapii*, new species

Tegolophus ipomoeifoliae, new species

Plate 7

This new species, which attacks sweet potato in Brasil, may come closest to another Brazilian species, *Tegolophus pfaffiae* K.1963 (Eriophyid Studies, Cal. Dept. Agr. B-10:15). *Tegolophus pfaffiae* has a 5-rayed featherclaw, an obscure shield pattern, and a few granules on shield surface. The new species has a 4-rayed featherclaw, the shield has some anterior lines, there are considerable lateral shield areas with granules, and the dorsal setae are shorter. Both species belong to the group with rounded anterior lobes on the shield.

Female 175 μ to 190 μ in length, 65 μ wide, 55 μ thick; spindleform; color in life probably yellowish. Rostrum 25 μ long, projecting down; antapical seta 10 μ long. Shield 55 μ long, 62 μ wide, subtriangular in anterior shape; the anterior lobe being somewhat acuminate, but apically rounded; laterally this lobe somewhat thick and with transverse ridges around termen. Median shield line absent, a faint central furrow on rear half. Admedian shield lines present anteriorly; curving back from sides of front lobe to lobe base where there is a cross line, the lines then arching and running back to a lateral submedian branch at just before 1/2, then curving diagonally inward to anterior end of faint furrow. Some lines ahead of dorsal tubercle. Sides of shield below dorsal tubercle sprinkled with coarse granules; lateral line from side of anterior lobe base extending back to rear margin and granular on edge; a granular area between lateral longitudinal line and coxae; some partial rings just behind second coxae. Dorsal tubercles 33 μ to 35 μ apart; dorsal setae 5 μ long, projecting back and up. Foreleg 38 μ long; tibia 10 μ long, with 4.5 μ seta at 1/3; tarsus 8 μ long; claw 6 μ long, with prominent knob; featherclaw 4-rayed the terminal pair elongate from base. Hindleg 35 μ long, tibia 8 μ long, tarsus 7 μ long, claw 6 μ long. Coxae rather broad and dotted with small granules; sternal line thin but extending back to second tubercles where it divides. First setiferous coxal tubercles slightly farther apart than second and a little behind level of anterior end of sternal line. Second coxal tubercles somewhat ahead of level of third setiferous coxal tubercles. Thano-some with about 23 tergites, and 48 sternites. The tergites are set with fine elongate microtubercles anteriorly, which fade posteriorly; a sublateral extension of tergites contains elongate darker microtubercles. Microtubercles on sternites beadlike on margins, and with small anterior extensions. Lateral seta 35 μ long, on sternite 5 behind shield; first ventral seta 48 μ long, on sternite 17; second ventral seta 16 μ long, on sternite 34. Telosome with 5 rings, laterally and ventrally microtuberculate, these structures linear and pointed over margins. Dorsally the telosomal rings are apparently without microtubercles. Telosomal seta 21 μ long. Accessory seta absent. Female genitalia 22 μ long, 25 μ wide; coverflap basally with elongate dashes, enlarged at rear ends, followed by about 12 longitudinal subapical coverflap ribs; genital seta 19 μ long.

Type locality: Monte Mor, Sao Paulo, Brasil

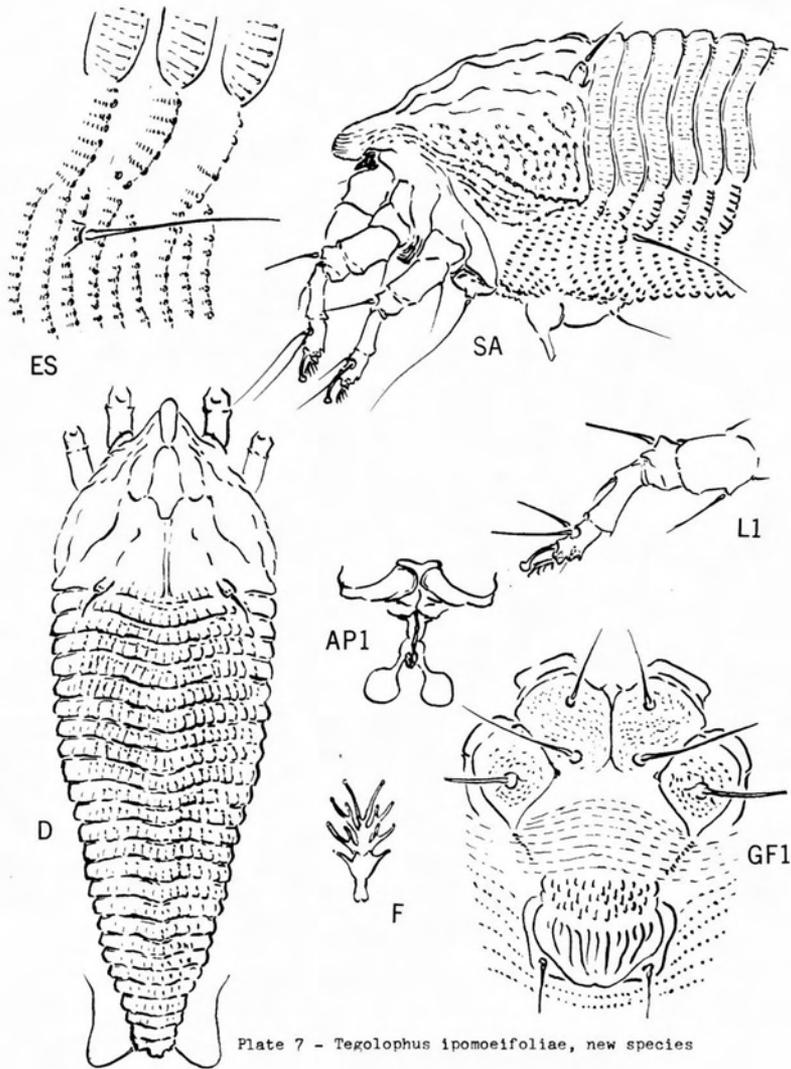
Collected: August 12, 1971, by Drs. Maria H. Calabiori and submitted by Dr. Adilson D. Paschoal.

Host: *Ipomoea batatas* Lam. (Convolvulaceae) sweet potato

Relation to host: the mites curl the edges of the leaves up, and cause discoloration.

Type material: a type slide, so designated, with the above data
a paratype slide, sent to the Entomology Research Division
USDA, Beltsville, Maryland
a vial with some mites in liquid

Note: a second collection of this mite, from Monte Mor, was secured on Aug. 23, 1971, by Sergio Batista and submitted by C. J. Rosseto



Aculops monardivagrans, new species

Plate 8

The distinguishing features of monardivagrans are the smooth shield with a small anterior spine on the anterior lobe, the slight longitudinal supra-lateral furrow on the tergites, and the lack, or almost complete lack of microtubercles on the tergites. Otherwise this new species belongs in general with the species that have rounded shield lobes. There are a number of species named that, like monardivagrans, have hardly any lines on the shield, but none seem to come close to this new one. Actually the slight subdorsal longitudinal furrow on monardivagrans' tergites cause the species to approach Tegolophus. With the intensifying of that subdorsal furrow the species would then transfer to Tegolophus.

Female 160 μ to 192 μ long, about 45 μ wide, 50 μ thick; a light yellowish robust mite, generally fusiform. Rostrum 28 μ long, projecting down; antapical seta 5 μ long. Shield 43 μ long, 40 μ wide, with moderately acute anterior lobe over rostrum, the lobe with a small anteriorly projecting spine from front. Shield design absent; a lateral line from side of base of anterior lobe running back to rear lateral angle, and below this a supracoxal band of granules. Foreleg 30 μ long; tibia 7 μ long, with 6 μ seta from 1/4-1/3; tarsus 7 μ long; claw 8 μ long, with a slight knob; featherclaw 4-rayed. Hindleg 25 μ long, tibia 6 μ long, tarsus 5 μ long, claw 8 μ long. Coxae ornamented with curved lines and short dashes, sternal line between forecoxae of moderate length, reaching past second tubercles and with slight fork; first setiferous coxal tubercles slightly farther apart than second and even with anterior end of sternal line; second coxal tubercles slightly ahead of level of third, and these second tubercles with strong curved lines on inner side. Thanosome with about 20 tergites and 64 sternites. Tergites with faint elongate microtubercles laterally, otherwise lacking these structures; a supralateral furrow, quite shallow, extends along sides of tergites, fading to rear. Microtubercles on sternites bead-like on margins and perhaps slightly pointed. Lateral seta 14 μ long, on sternite 9 behind shield; first ventral tharosomal seta 32 μ long, on sternite 24; second ventral 17 μ long, on sternite 43. Telosome with about 6 rings, the rings continuing to some extent the ventral increase in number from the thanosome; microtubercles on margins, elongate below, with slight points over margins; seta 19 μ long. Accessory seta 4 μ long. Female genitalia 19 μ long by 21 μ wide; coverflap basally with 3 or 4 transverse convex lines of granules, followed by about 12 longitudinal ribs; genital seta 21 μ long.

Male 14 μ to 150 μ in length.

Type locality: west base of Highland Peak, above Silver Creek, Alpine County, Cal.

Collected: July 30, 1971, by J. P. Keifer and H. H. Keifer

Host: Monardella odoratissima Benth. (Labiatae)

Relation to host: the mites are innocuous undersurface leaf vagrants.

Type material: a type slide, so designated, with the above data six paratype slides, one of which is sent to the Entomology Research Division, USDA, Beltsville, Maryland. a vial of leaves and mites in liquid from which the above examples came.

Notalox sapii, n. sp. - continued from page 11

Type locality: Seletar Reservoir, Catchment area, Singapore

Collected: March 10, 1971, by Mrs. Ming Anthony, #255

Host: Sapium discolor Muell. (Euphorbiaceae)

Relation to host: the mites roll leaf edges upward, and also seem to cause some rusting.

Type material: a type slide with the above data five paratype slides, one of which is sent to the Entomology Research Division, USDA, Beltsville, Md. an envelope with dry leaves and mites, from which the described specimens originated.

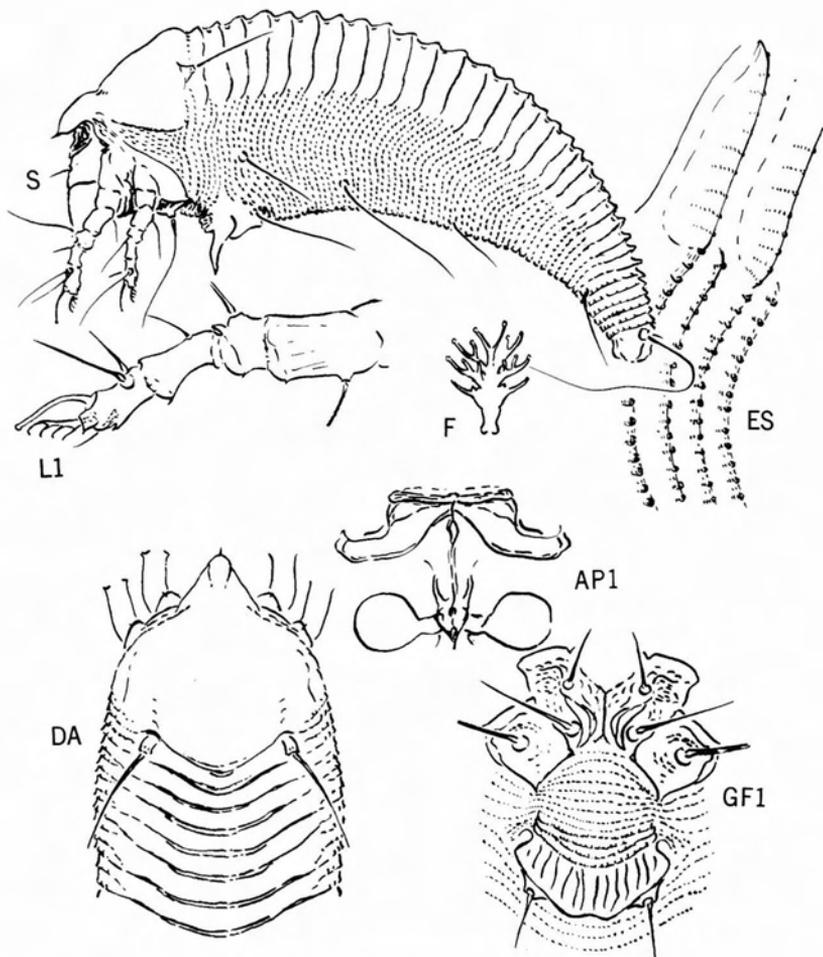


Plate 8 - *Aculops monardivagrans*, new species

Aculops saratogae, new species

Plate 9

This new species, which lives on the underside of *Ceanothus thyrsiflorus* leaves in the California coastal mountains, may come closest to another *Ceanothus* infesting eriophyid, *Aculops pritchardi* (K.) (Bul. Cal. Dept. Agr. 42(2):68, 1953, ES-XXI), but *pritchardi* has a 5-rayed featherclaw, which is one ray more than on *saratogae*. The dorsal tubercles are closer to each other on the new species, than on *pritchardi*. *Aculops saratogae* has a slight subdorsal longitudinal furrow on the tergites, as does *monardivagrans*. So in this species also there is a development toward the structure of the genus *Tegolophus*.

Female 160 μ -180 μ long, 55 μ wide, 45 μ thick; color light yellowish; body fusiform in shape. Rostrum 25 μ long, projecting down; antapical seta 5.5 μ long. Shield 54 μ long by 52 μ wide. Shield semicircular in anterior outline, with anterior lobe abruptly projecting from front and bluntly rounded off. Shield design with moderately distinct admedian lines, but other lines not prominent. Median line practically absent except for slight indication to rear, a pair of centrally converging diagonal lines just ahead of rear margin in center. Admedian lines complete: curving back from sides of anterior lobe, giving off a lateral line at lobe base, extending back to center of shield at which point there is a slight diagonal line from center, followed outwardly by a lateral branch; admedians curving gently back to rear margin and curving a short distance centrad. Obscure forked lines ahead of dorsal tubercle. Laterally on shield two more or less distinct longitudinal lines, and granular band above coxae. Dorsal tubercles about 22 μ apart and with transverse axes, directing the 10 μ setae straight back. Foreleg 31 μ long; tibia 7 μ long, with 5 μ seta at 1/4; tarsus 7 μ long; claw 7 μ long and knobbed; featherclaw 4-rayed. Hindleg 28 μ long, tibia 5.5 μ long, tarsus 5 μ long, claw 5.5 μ long. Coxae ornamented with short lines, the sternal line ending ahead of second tubercles. First setiferous coxal tubercles slightly farther apart than second and slightly behind anterior end of sternal line; second tubercles ahead of line across third tubercles. Thanosome with about 19 tergites and 51 sternites. Microtubercles not prominent dorsally, elongate on tergites. On sternites the microtubercles slightly elongate, but resting on sternite margins. Lateral seta 27 μ long, on sternite 7 behind lateral shield angle. First ventral seta 55 μ -60 μ long, on 18th sternite; second ventral seta 6 μ long, on sternite 37. Telosome with 6 rings, entirely microtuberculate; telosomal seta 25 μ long; accessory seta absent. Female genitalia 18 μ long, by 22 μ wide; coverflap basally with 3 transverse broken lines and with 8 to 10 apical longitudinal ribs.

Type locality: a short distance west of road junction on Skyline Blvd. which is known as 'Saratoga Gap', in the coast range of Santa Cruz County, California.

Collected: July 22, 1967, by J. P. Keifer and H. H. Keifer

Host: *Ceanothus thyrsiflorus* Esch. (Rhamnaceae) blue brush

Relation to host: the mites are innocuous undersurface leaf vagrants.

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

four paratype slides, one sent to the Entomology Research Division, USDA, Beltsville, Maryland.

Note: the *saratogae* male is about 135 μ long.

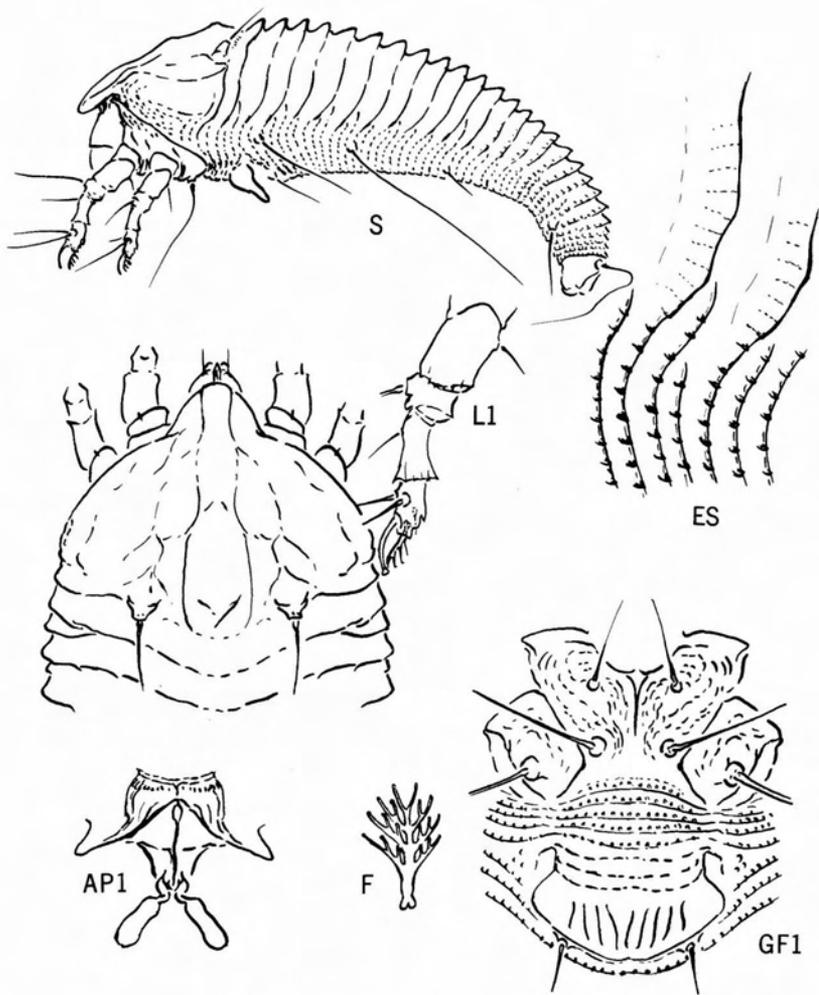


Plate 9 - *Aculops saratogae*, new species

Aculops thyrsoflori, new species

Plate 10

This species occurs in company with saratogae on leaf undersurfaces on Ceanothus thyrsoflorus a mile west of Saratoga Gap, Santa Cruz County. Neither species does any detectable damage to its host. The new species, thyrsoflori, differs from saratogae by having one more featherclaw ray, by having a thinner and shorter anterior shield lobe, the dorsal setae are more divergent, and the tergites have prominent microtuberculation.

Female 148 μ -168 μ long, 42 μ wide, 40 μ thick; body fusiform; color in life light yellowish. Rostrum 24 μ long, curved down; antapical seta 7 μ long. Shield 33 μ long by 38 μ wide; subsemicircular in anterior outline, with short and thin anterior shield lobe, the lobe rounded off. Shield lines consisting of prominent admedians and a lateral line. Median line indicated on rear half of shield, connected to admedians by anterior V-shaped lines, and V-shaped lines just ahead of rear margin. Admedian lines rather faint anteriorly, but originating just behind anterior shield lobe, arching outward on rear half, and slightly flaring just before rear margin. Faint lines ahead of dorsal tubercle. A prominent lateral line well above coxae and band of granules below it. Dorsal tubercles 21 μ apart with dorsal setae 22 μ long and diverging to rear. Foreleg 26 μ long; tibia 7 μ long, with 5 μ seta from 1/3; tarsus 6 μ long; claw 7 μ long with slight knob; featherclaw 5-rayed. Hindleg 23 μ long, tibia 5 μ long, tarsus 4.5 μ long, claw 7 μ long. Coxae ornamented with lines of granules, curved lines of granules on inner side of second tubercles. First setiferous coxal tubercles slightly farther apart than second, opposite anterior end of short sternal line; second tubercles a little ahead of third setiferous coxal tubercles. Thanosome with about 33 tergites and 50 sternites. Tergites with prominent oval microtubercles, with wider part on margins, fading to rear. Sternites with smaller microtubercles also reaching margins. Lateral seta 20 μ long, on sternite 8 behind shield; first ventral seta 36 μ long, on sternite 20; second ventral seta 11 μ long, on sternite 34. Telosome with five rings, with faint microtubercles dorsally or these structures absent. Telosomal seta 20 μ long. Accessory seta 4.5 μ long. Female genitalia 16 μ long, by 22 μ wide; coverflap with 3 or 4 transverse lines of granules basally, and 8 or 10 longitudinal ribs apically. Genital seta 18 μ long.

Type locality: one mile west of Saratoga Gap, Santa Cruz County, Cal.

Collected: July 22, 1967, by J. P. Keifer and H. H. Keifer

Host: Ceanothus thyrsoflorus Esch. (Rhamnaceae) blue bush

Relation to host: the mites are innocuous underside leaf vagrants.

Type material: a type slide, so designated, with the above data four paratype slides, one of which is sent to the Entomology Research Division, USDA, Beltsville, Md.
a vial of leaves and mites in liquid from which the described examples were taken

Note: the two species, saratogae and thyrsoflori, are mixed on the slides. They are easily distinguished by the dorsal microtuberculation of thyrsoflori. Saratogae lacks noticeable dorsal microtubercles.

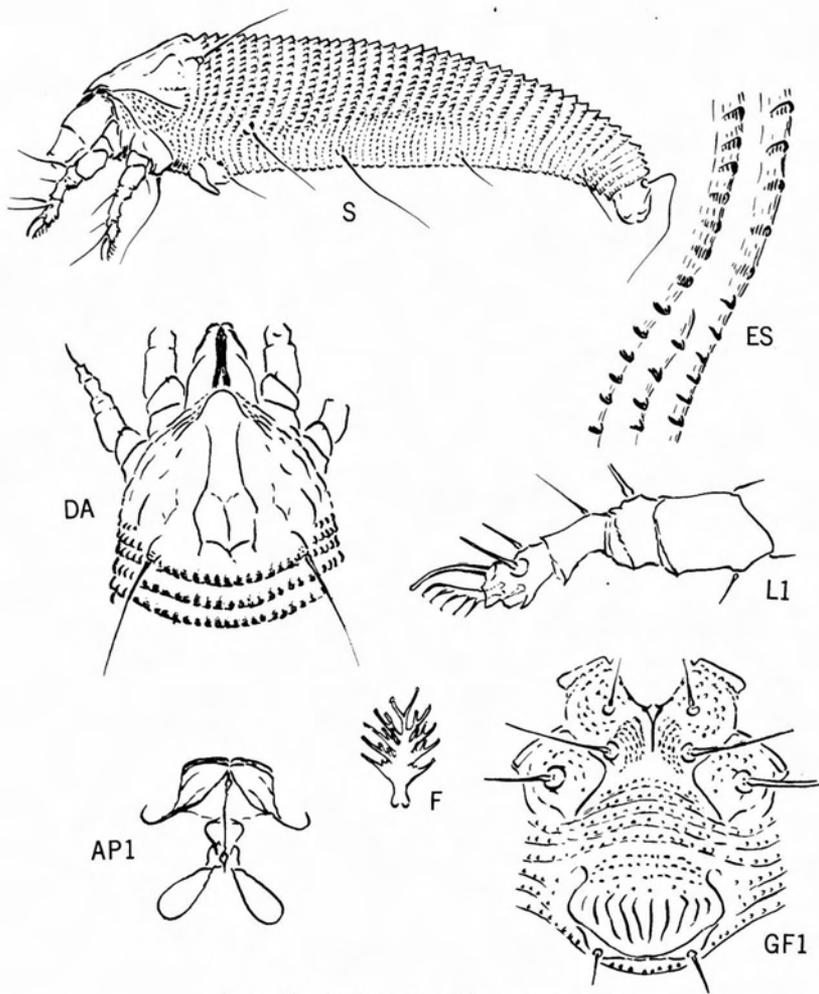


Plate 10 - *Aculops thyrsoflori*, new species

Aculops fuchsiae, new species

Plate 11

The short and acuminate anterior shield lobe over the rostrum, which is truncate underneath, plus the granules on the shield surface that obscure the shield pattern on the rear part of the shield, characterize this species. While there is a minimum of differentiation between the tergites and sternites, there is a noticeable increase in ring number on the thanosome from dorsum to venter. This mite belongs in a general way to the species group in the genus that has a pointed anterior shield lobe. The species in this group are many and varied and the new species is not close to any of them. An Arizona species, *Aculops mentzeliae* (K.) (Eriophyid Studies, Cal. Dept. Agr. B-15:17, 1965), has a 5-rayed featherclaw like the new species, and a relatively small anterior shield lobe, but *mentzeliae*, unlike the new species, has a solid central line system on the shield.

Female 200 μ to 25 μ in length, 55 μ to 60 μ thick, body more wormlike than fusiform; color in life light yellowish-white. Rostrum 24 μ long, projecting diagonally down; antapical seta 16 μ -18 μ long. Shield 40 μ long, 48 μ wide; anterior shield lobe short and acuminate; general shield shape subsemi-circular in anterior outline. Shield mostly covered with granules, the design obscure: median line only indicated by confused granules; admedian lines entirely of granules, sinuate, curving inward from sides of anterior lobe, arching outward at 1/3 and recurving to 1/2, diverging from there toward rear margin, and disappearing in granules in rear area. Submedian shield areas granular, and some partial rings on lateral rear of shield. Dorsal tubercles 33 μ apart; dorsal setae 16 μ -18 μ long, projecting almost laterally. Foreleg 39 μ long; tibia 10 μ long, with 7 μ seta at 1/5; tarsus 7 μ long; claw 7 μ long, with slight knob; featherclaw 5-rayed. Hindleg 37 μ long, tibia 8 μ long, tarsus 7 μ long, claw 7 μ long. Coxae with some scattered granules; sternal line extending back to between second setiferous coxal tubercles. First coxal setiferous tubercles farther apart than second and on level with anterior end of sternal line; second tubercles well ahead of line across third tubercles. Thanosome with about 54 tergites and 72 sternites, little general dorsoventral differentiation. Microtubercles beadlike on ring margins, a little larger dorsally, tending to move ahead of margins ventrally. Lateral seta 12 μ long, on sternite 9; first ventral seta 6 μ long, on sternite 26; second ventral seta 15 μ long, on sternite 48. Telosome with about 6 rings; microtubercles fine, more or less elongate, especially elongate ventrally, pointed over margins; telosomal seta 22 μ -26 μ long. Accessory seta 3 μ -5 μ long. Female genitalia 18 μ long, by 22 μ wide; with a basal transverse line or two on coverflap, followed by about 10 partially broken longitudinal ribs; seta 15 μ long.

Type locality: Campinas, Estado São Paulo, Brasil

Collected: Nov. 10, 1971 by Carlos Jorge Rossetto, Instituto Agronomico

Host: *Fuchsia* sp. (Onagraceae)

Relation to host: the mites develop in large number on the leaves and rust and deform them.

Type material: a type slide, so labelled, sent to Dr. Rossetto

Three paratype slides, one of which is sent to the Entomology Research Division, USDA, Beltsville, Maryland a vial with leaves and mites in liquid, from which the above slides were made.

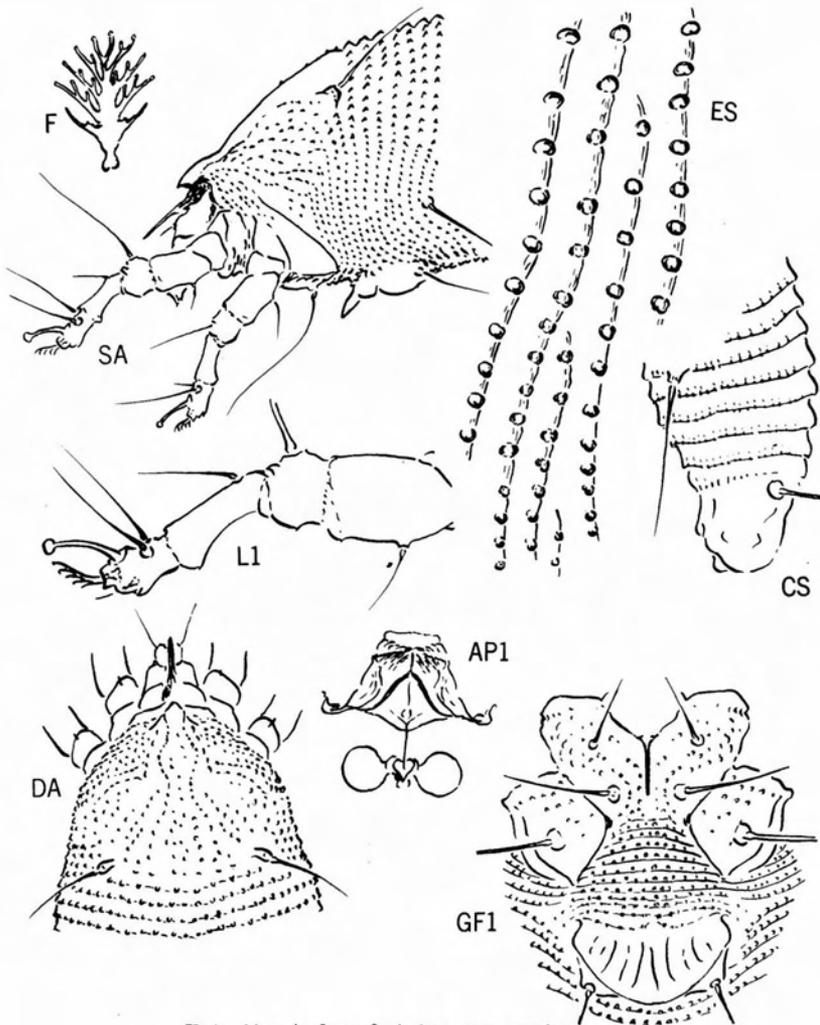


Plate 11 - *Aculops fuchsiae*, new species

Aculops flechtmani, new species

Plate 12

This is one of the species that has a definite anterior shield lobe over the rostrum, but the abdomen is hardly fusiform, being rather wormlike. The abdomen has no definite differentiation between what should be tergites, and ventral sternites. There are a considerable number of leaf variants, or of sequestering species that have this anterior lobe character, plus the wormlike abdomen. One such is *Aculops massalongoi* (Wal.) on lilac, *Marcellia* 21:94, 1924. The new species is generally similar to *massalongoi*, but this latter mite has a 4-rayed featherclaw, whereas the new species has a 6-rayed structure.

Female 190 μ to 225 μ in length, about 44 μ thick, body hardly fusiform, being more wormlike with no particular dorsoventral differentiation. Color in life light yellow-white. Rostrum 21 μ long, projecting down; antapical seta 3.5 μ long. Shield 35 μ long, by 38 μ wide; subtriangular in general shape, with short suprarostreal anterior lobe, narrowly rounded apically. Shield pattern of lines of granules. Median line complete from base of anterior lobe, receiving V-shaped joining lines at 1/3, just after 1/2, and a little ahead of rear margin. Admedian lines complete from sides of narrow acuminate anterior lobe, gradually diverging to rear, meeting lines from median, as indicated, and receiving cross lines from submedian line at 1/3 and 1/2. Submedian line from anterior lobe base, subparallel to admedian, receiving cross lines at 1/3 and 1/2, ending in front of dorsal tubercle. Laterally the shield with branched and curved lines of granules, and about 3 partial rings below dorsal tubercles. Dorsal tubercles 14 μ apart; dorsal setae 17 μ long, diverging to rear. Foreleg 30 μ long; tibia 7 μ long, with 7 μ seta from 1/3; tarsus 7 μ long; claw 8 μ long, with slight knob; featherclaw 6-rayed. Hindleg 28 μ long, tibia 6 μ long, tarsus 6 μ long, claw 8.5 μ long. Coxae ornamented with granules and short lines; sternal line short, not quite reaching level of second tubercles. First setiferous coxal tubercles a little farther apart than second, slightly ahead of anterior end of sternal line; second coxal tubercles well ahead of level of third tubercles. Thanosome with about 55 rings, mostly beadlike on margins, somewhat elongate ahead, tending to move ahead of margins on lower side of thanosome. Lateral seta 26 μ long, on ring 9 behind shield; first ventral seta 57 μ long, on ring 13; second ventral seta 13 μ long, on ring 32. Telosome with 5 to 7 rings, the microtubercles fine and elongate, tending to be pointed over margins; telosomal seta 24 μ long. Accessory seta 4.5 μ long. Female genitalia 15 μ long, 20 μ wide; coverflap with a series of transverse dashes basally, followed apically by about 12 to 14 longitudinal ribs that converge slightly. Genital seta 20 μ long.

Male about 180 μ long.

Type locality: Piracicaba, Estado São Paulo, Brasil

Collected: November 27, 1971, by Carlos H. W. Flechtmann, for whom I am pleased to name the species.

Host: *Bollinia* sp. (Anonaceae) "fruta-do-conde, pinha, ata"
a commercially grown fruit.

Relation to host: the mites bronze flower petals, heavy infestations cause flower drop. On fruit the mites rust the surface and produce necrotic areas that suberate. These barky areas are often invaded by Tenuipalpid mites. This new species also occurs on leaves.

Type material: a type slide, so labelled, with the above data,
and sent to Flechtmann.
four paratype slides, one of which is sent to the
Entomology Research Division, USDA, Beltsville, Maryland.
a vial with a few mites in liquid, from which vial the
slides were made.

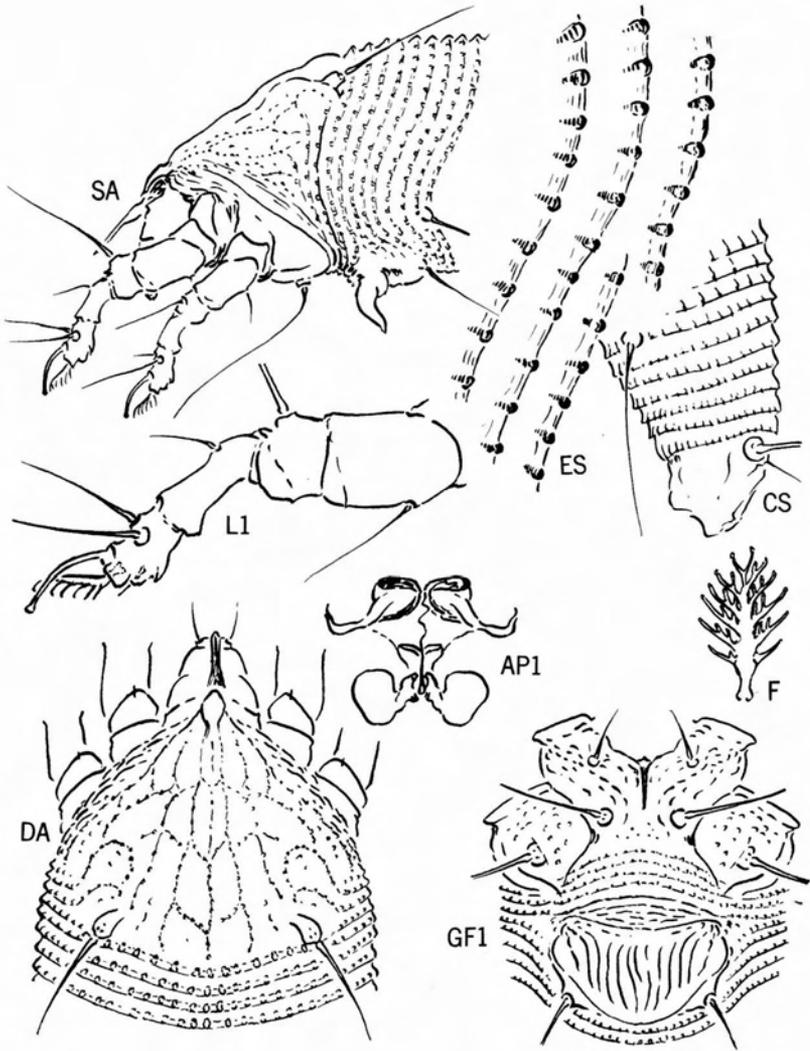


Plate 12 - *Aculops flechtmanni*, new species