ERIOPHYID STUDIES C - 16

by H. H. Keifer, Collaborator
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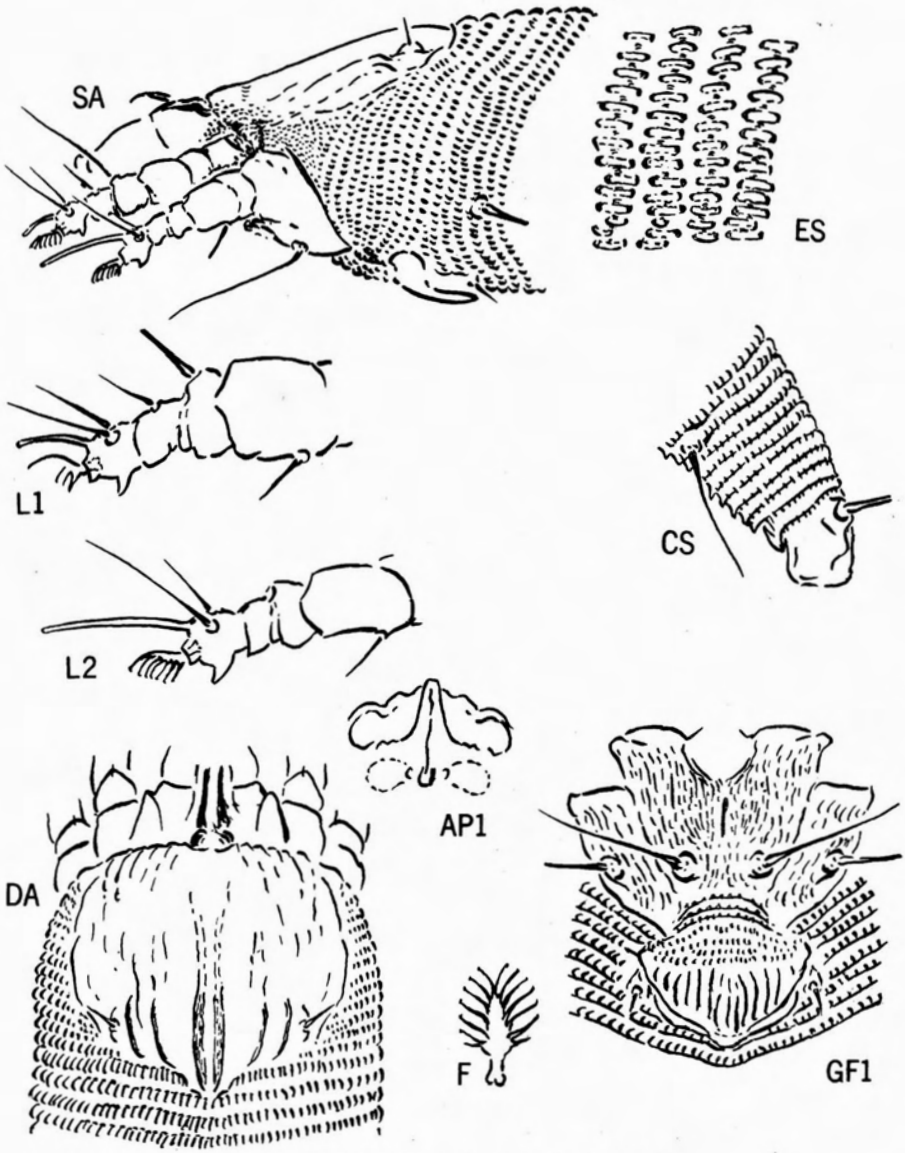

Plate 1 - Nacerimina gutierrezi, new species

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Nacerimina, new genus

In the key to the eriophyine genera, p. 572-573, Mites Injurious to Economic Plants, Jeppson, Keifer and Baker, U.C. Press, 1975, the type of this genus runs to the Phytoptini. The principal features of Nacerimina are the lack of the forecoxal setiferous tubercle plus the fact that the dorsal shield tubercles have longitudinal axes, directing the dorsal setae divergently ahead. The name of the genus is N as a contraction of neo, and Acerimina, an eriophyine genus also minus that tubercle.

Generic description: wormlike mites with short form oral stylet. Dorsal tubercles near rear margin of anterior shield but with longitudinal axes, directing dorsal setae outward and diagonally anteriorly. Legs with all usual segments but lacking rear patellar seta. Coxae lacking first pair of setiferous tubercles. Abdomen evenly ringed, the rings narrow; all usual abdominal setae present. Female genital coverflap rather appressed to coxae, the coverflap produced slightly to rear as a central lobe.

Type of genus: Nacerimina gutierrezi, new species.

Nacerimina gutierrezi, new species

Plate 1

Female from front of shield to rear lobes 120μ-135μ long, 31μ thick, wormlike, light yellowish-white in color. Gnathosome 18μ long, projecting ahead; antapical seta 3μ long. Shield 25μ long by 30μ wide, broad and rather truncate anteriorly, with central rear extension interrupting first complete ring. Shield with numerous longitudinal lines but with regular pattern obscured; centrally a close-set pair of heavy lines longitudinal on about rear half. Laterally the shield separated from band of granules above coxae by moderate line. Dorsal tubercles 17μ apart; dorsal setae 4μ long. Foreleg from trochanter base 20μ long; tibia 2.5μ long, with 3.5μ seta at 1/2; tarsus 4μ long; claw 6μ long; Featherclaw 7-rayed the rays slender. Hindleg 19μ long, tibia 2.5μ long, tarsus 3.5μ long, claw 9μ long. Hindleg patellar seta absent. Coxae heavily lined with numerous short dashes arranged longitudinally; sternal line short near front of central junction of forecoxae. First setiferous coxal tubercles and setae absent; second coxal tubercles in transverse line across third tubercles. Abdomen about evenly ringed dorsoventrally; completely microtuberculate, the microtubercles elongate irregularly, elongate-elliptical in shape. Lateral seta 21μ long, on ring 4 behind shield; first ventral seta 42μ long, on ring 15; second ventral 34μ long, on ring 29. Abdominal thanosome with about 50 rings. Abdominal telosome with 8-9 rings, the microtubercles small and extended over margins. Telosomal seta 15μ long. Accessory seta absent. Female genitalia 24μ wide by 12μ long, coverflap with about four transverse lines of granules basally; apically the coverflap with about 16 longitudinal ribs. Genital seta 3μ long.

Male not seen.

Type locality: Pago Pago, Tuituila, Samoa.

Collected: June 15, 1978 by Jean Gutierrez for whom I take pleasure in naming the species.

Host: Cocos nucifera L. (Palmae) coconut.

Relation to host: The mites live among the midrib hairs.

Type material: A type slide and three paratype slides. Mites in liquid in a vial.

Reference for Acerimina: Eriophyid Studies XXV, Bul.Cal.Dept.Agr. LVI(3):242, Nov.12, 1957.

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Type of genus: Nacerimina gutierrezi, new species.

Nacerimina gutierrezi, new species

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Male not seen.

Type locality: Pago Pago, Tuituila, Samoa.

Collected: June 15, 1978 by Jean Gutierrez for whom I take pleasure in naming the species.

Host: Cocos nucifera L. (Palmae) coconut.

Relation to host: The mites live among the midrib hairs.

Type material: A type slide and three paratype slides. Mites in liquid in a vial.

Reference for Acerimina: Eriophyid Studies XXV, Bul.Cal.Dept.Agr. LVI(3):242, Nov.12, 1957.

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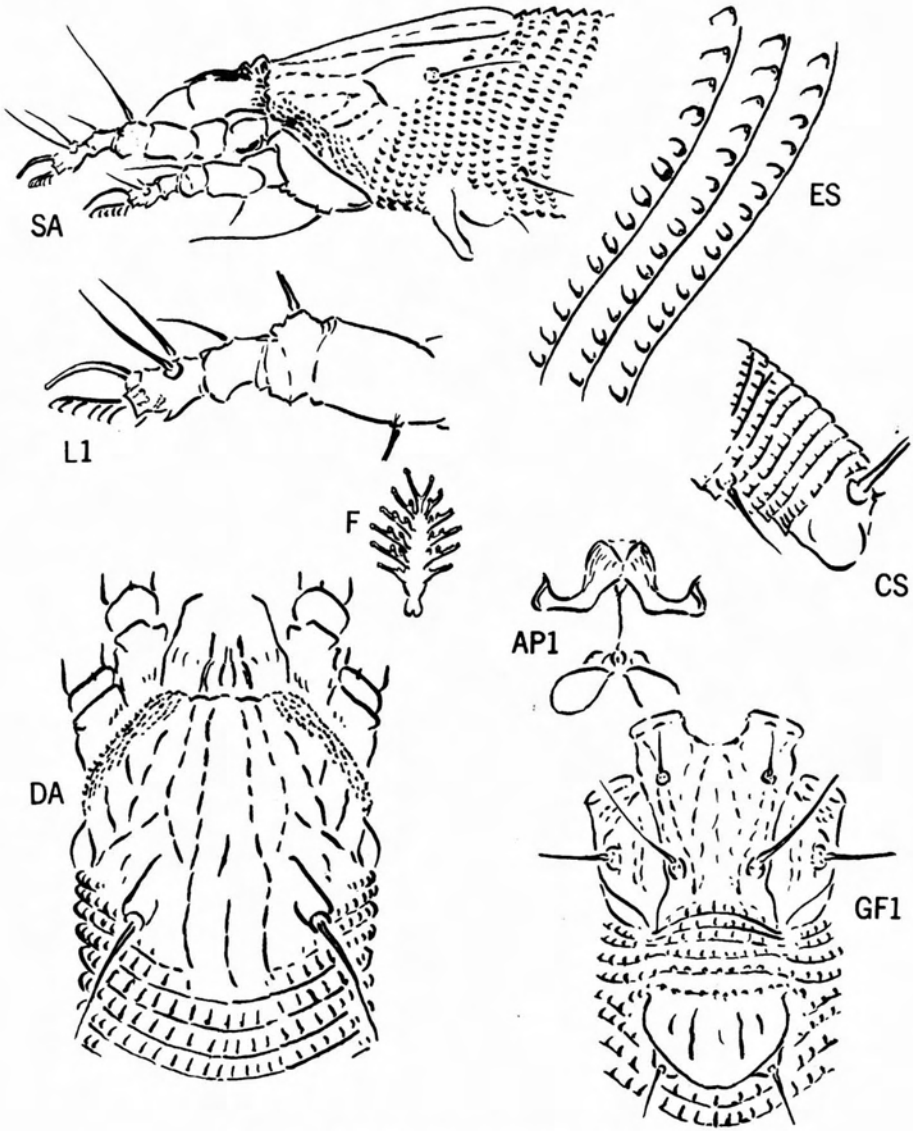


Plate 2 - Eriophyes havenensis, new species

Eriophyes dioicae, new species

Plate 3

Characters useful in defining this new species are: 7-rayed featherclaw, lack of central lines on the cephalothoracic shield, curved lines and short median line at rear margin of shield between dorsal tubercles, rounded microtubercles on the abdominal rings, and the lack of longitudinal ribs on the female genital coverflap. This new species makes small bud galls on its host. In the Memoires de la Society Entomologique d'Egypte, Vol. 1, Fasc. 4, pp. 25-28, 1918, Bronislaw Dcbski names a series of Eriophyes spp. on Tamarix spp. Dcbski describes the galls these mites make on Tamarix twigs, but the structures of the actual eriophyids are omitted. The only one of the Eriophyes spp. that Dcbski associates with a bud is E. synchioides, n. sp., p. 28, on Tamarix tetragyna Ehr. Since Dcbski considers the bud gall inhabited by synchioides to have been initiated by a gall midge the probability of synchioides being the same as dioicae seems remote.

Female from gnathosome base to terminal lobes 190μ-205μ long, 60μ thick; body robust wormlike, color light yellowish. Gnathosome 22μ long, bent down; antapical seta 6μ long. Propodosomal shield 28μ long by 34μ wide, bulging laterally, subsemicircular across front. Shield design not evident; thin gland visible at rear center; a rear margin lobe just on inner side of each dorsal tubercle; two lateral lobes below tubercles and 4 or 5 partial rings. Dorsal tubercles 21μ apart; dorsal setae 34μ long, slightly diverging to rear. Foreleg from trochanter base 30μ long; tibia 5μ long, with 8μ seta from 2/3; tarsus 6.5μ long; claw 7μ long, curved down and tapering; featherclaw 7-rayed. Hindleg 26μ long, tibia 4.5μ long, tarsus 6μ long, claw 7.5μ long. Sternal line between forecoxae of moderate length, ending past second tubercles. First setiferous coxal tubercles near anterior end of forecoxae and on inner side; second coxal tubercles ahead of level of third tubercles. Coxal not ornamented. Abdominal thanosome with about 45 rings; rings entirely microtuberculate with most tubercles ahead of rear ring margins laterally and dorsally, the microtubercles subcircular and slightly ahead of rear ring margins. Ventrally the tubercles smaller, tending to reach margins midventrally and to be pointed over margins toward rear. Lateral seta 36μ long, on ring 5 behind shield; first ventral seta 54μ long, on ring 14; second ventral seta 37μ long, on ring 29. Abdominal telosome with about 9 rings; microtubercules small and pointed over margins except on first two rings dorsally where microtubercles similar to those on thanosome. Telosomal seta 41μ long. Accessory seta 4μ long. Female genitalia 14μ long by 19μ wide; coverflap subtriangular and lacking ribs; seta 40μ long.

Male 145μ-155μ long.

Type locality: Wazirabad, Pakistan.

Collected: Nov. 15, 1977 by Miss Rehana Habib and sent as Serial #13

Host: Tamarix dioica Roxb. (Tamaricaceae, Parietales) tamarisk.

Relation to host: The mites make small bud galls.

Type material: A folder with dry infested twigs.
Two slides from these twigs, one labelled type.

Designations on Plates -

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

Telosome- caudal abdominal section beginning with third ventral seta

Thanosome- abdomen from rear shield margin to telosome

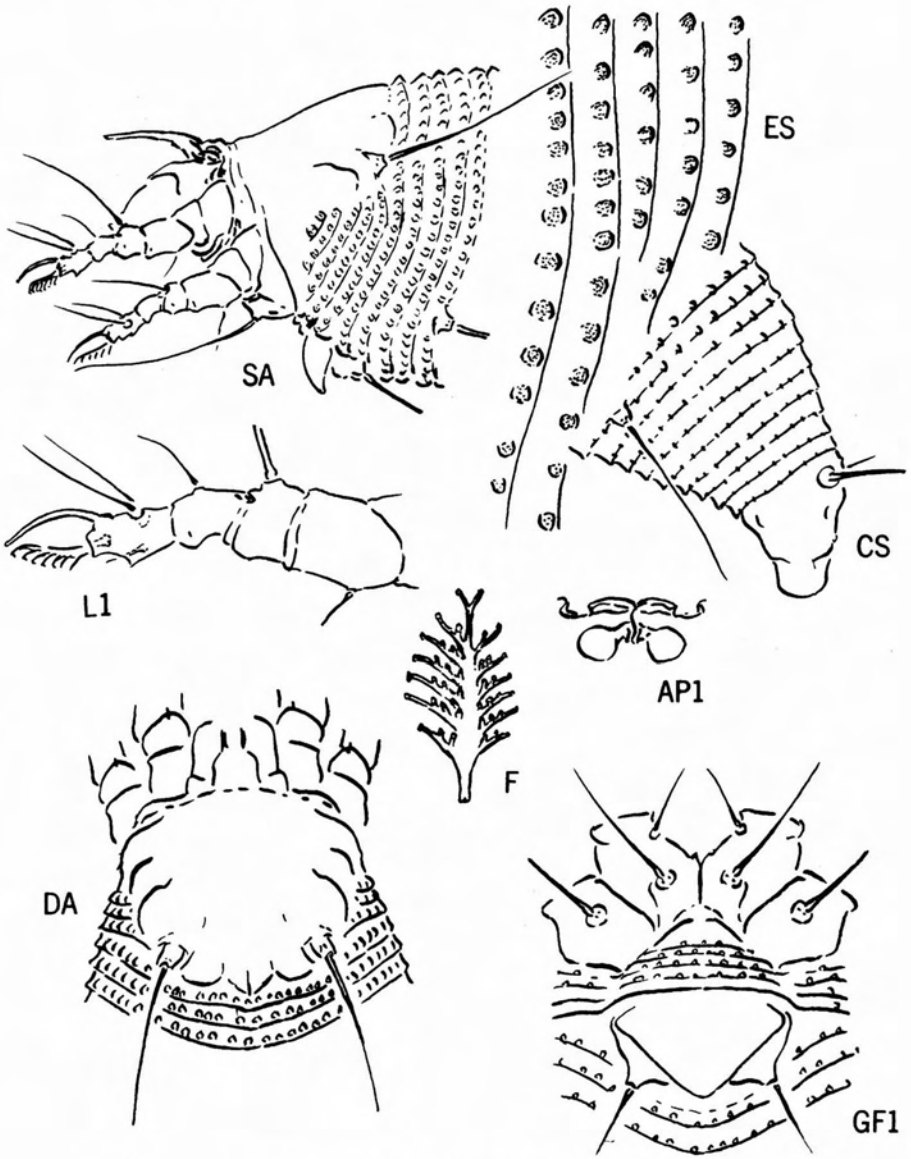


Plate 3 - Eriophyes dioicae, new species

Phytoptus altisonorae, new species

Plate 4

The peculiar feature of Phytoptus altisonorae is the rather disorganized series of lines between the dorsal tubercles on the rear part of the shield. The closest species to altisonorae is perhaps Phytoptus caricis (K.) from a sedge in the Sacramento Valley. In the case of caricis the rear part of the median lines are preserved distinctly in between the dorsal tubercles in contrast to the disorganization on altisonorae.

Female from front of shield to terminal lobes 185μ-200μ long, 54μ thick, wormlike and light yellowish. Gnathosome 23μ long, projecting down; antapical seta 6μ long. Shield 42μ long by 40μ wide, subtriangular with lateral partial rings extending up on rear sides of shield almost to dorsal tubercles. Median line unclear. Admedian lines present on anterior 3/5; forming curved lines and other disorganized lines on rear 2/5 of shield between dorsal tubercles. Dorsal tubercles 12μ apart, longitudinal axes; dorsal seta 10μ long. Foreleg from trochanter base 30μ long; tibia 7μ long with 7μ seta from 1/4; tarsus 7.5μ long; claw 8μ long, downcurved; featherclaw 6-rayed. Hindleg 28μ long, tibia 5.5μ long, tarsus 5μ long, claw 9μ long. Sternal line visible anteriorly, the forecoxae with short lines mostly following shape of coxae. First setiferous coxal tubercles slightly behind level of anterior end of sternal line and farther apart than second tubercles; second tubercles a little ahead of level of third tubercles. Abdominal thanosome with about 67 rings. Microtubercles slightly projecting over ring margins, more rounded anteriorly and more pointed posteriorly. Lateral seta 45μ long, on ring 7 behind shield; first ventral seta 35μ long, on ring 24; second ventral 12μ long, on ring 41. Abdominal telosome with 7 rings, the microtubercles fine and pointed over margins; telosomal seta 21μ long. Accessory seta 4μ long. Female genitalia 16μ long by 22μ wide; basally with four transverse lines of short dashes, apically the coverflap with 10-12 ribs; genital seta 13μ long.

Males numerous, about 150μ long.

Type locality: Sonora Pass, Tuolumne County, Cal. 9600 feet elevation.

Collected: July 20, 1968 by the writer.

Host: a species of Carex. (Graminae) sedge.

Relation to host: the mites live in basal blade sheaths.

Type material: Two slides, one designated type.
An envelope with dry grass parts and with dry mites.

Reference: Phytoptus caricis (K.), Eriophyid Studies XIV, Bul. Cal. Dept. Agr. XXXIII(1):22, March 1944.

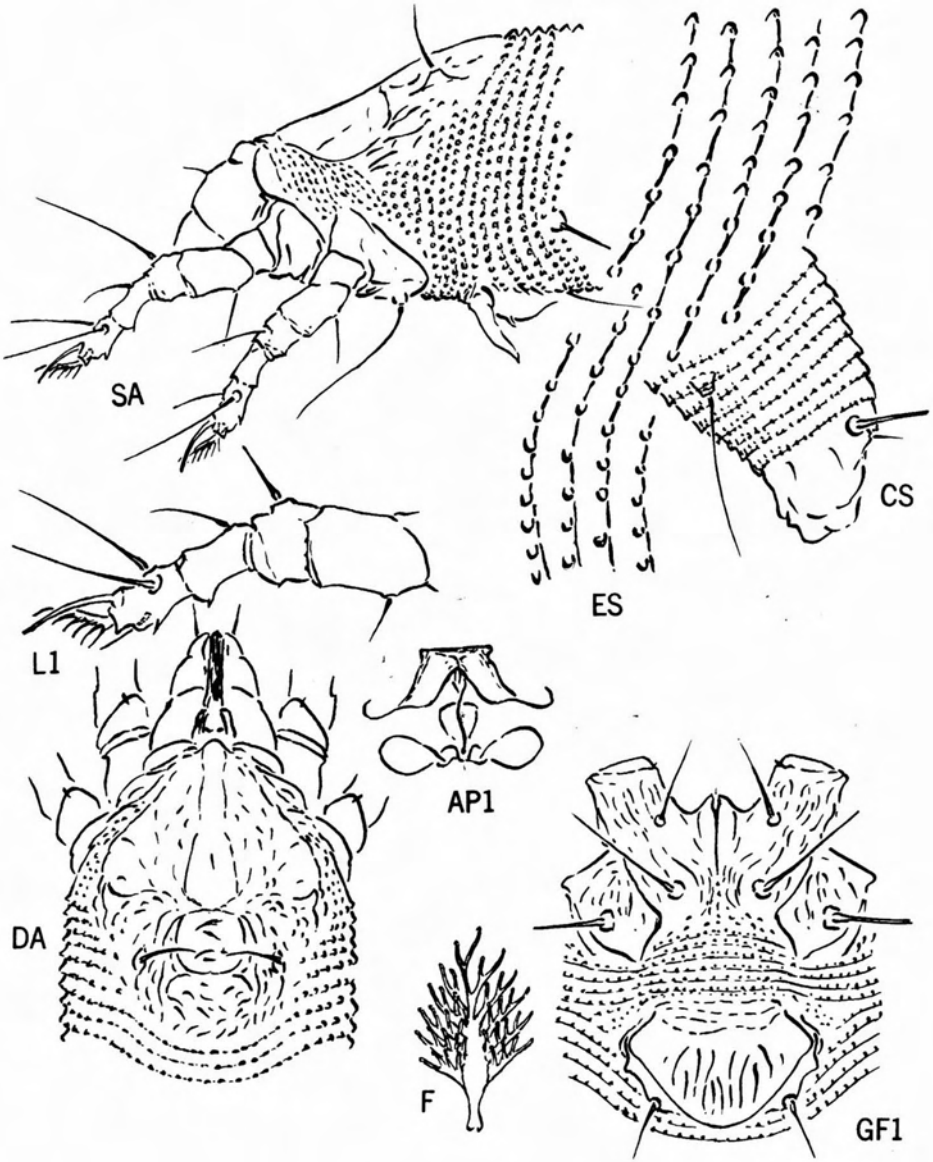


Plate 4 - Phytoptus altisonorae, new species

Flechtmannia, new genus

Flechtmannia is similar to the South American Dicrothrix by having the moderately long bifurcate antapical gnathosomal setae, dorsal tuberclea set ahead of the rear shield margin, by the large hemispherical terminals on the claws. Dicrothrix differs from Flechtmannia by the convoluted shield, possession of the femoral seta on both legs, the anteriorly humped abdomen, and absence of second ventral seta.

Generic description: Rather robust fusiform eriophyids, with short-form oral stylet in gnathosome; moderately large, bifurcate antapical setae on gnathosome. Cephalothoracic shield with short, broad, anterior projection over ganthosome base; dorsal tubercles set ahead of rear shield margin, the tubercle axes elongate; dorsal setae short and pointing up. Legs moderately long and slender, lacking femoral setae; foretibial seta from about 1/4 on inner side; rather long inner tarsal seta. Female claw short, terminal bulb hemispherical and large; smaller terminals on male. Featherclaw on both sexes simple. Abdomen divided laterally into broader dorsal tergites and more numerous ventral sternites; middorsal longitudinal rather broad ridge, fading to rear. Microtubercles almost entirely confined to sternites. Abdominal thanosome with lateral, first ventral, and second ventral setae. Female genitalia with broad anterior internal apodeme.

Type of genus: Flechtmannia eichhorniae, new species

Flechtmannia eichhorniae, new species

Plate 5

Female length 195μ-210μ; thickness 72μ. Rostrum 38μ long, projecting down; antapical bifurcate setae 12μ long. Shield 50μ long by 58μ wide; broad anteriorly and with large lateral convexities. Shield design a network: central lines less strong, almost complete median line; admedian lines sinuate, meeting cross lines at base of anterior lobe, at just before 1/2, and branching to median between dorsal tubercles. Laterally the lines are longitudinal. Dorsal tubercles 15μ apart; dorsal setae 4μ long. Foreleg from trochanter base 35μ long; tibia slender, 10μ long, with 2.5μ seta at inner 1/4; tarsus 6μ long; claw 6μ long; featherclaw 4-rayed. Hindleg 33μ long, tibia 8μ long, tarsus 7μ long, claw 5.5μ long. Coxae with some irroration and forecoxae with longitudinal lines; no definite sternal line. First coxal setae moved to near anterior end of forecoxae; second coxal setae slightly behind line across through third coxal setae. Abdominal thanosome with about 32 tergites and 67 sternites. Lateral seta 7μ long, on sternite 6 behind shield; first ventral seta 12μ long, on sternite 21; second ventral seta 6μ long, on sternite 49. Abdominal telosome with 5 rings, microtubercles weaker or absent dorsally. Female genitalia 13μ long by 24μ wide; coverflap lacking longitudinal ribs; genital seta 6μ long.

Male about 140μ long.

Type locality: Piracicaba, Sao Paulo, Brasil.

Collected: May 21, 1978 by Carlos H. W. Flechtmann, for whom the genus is named.

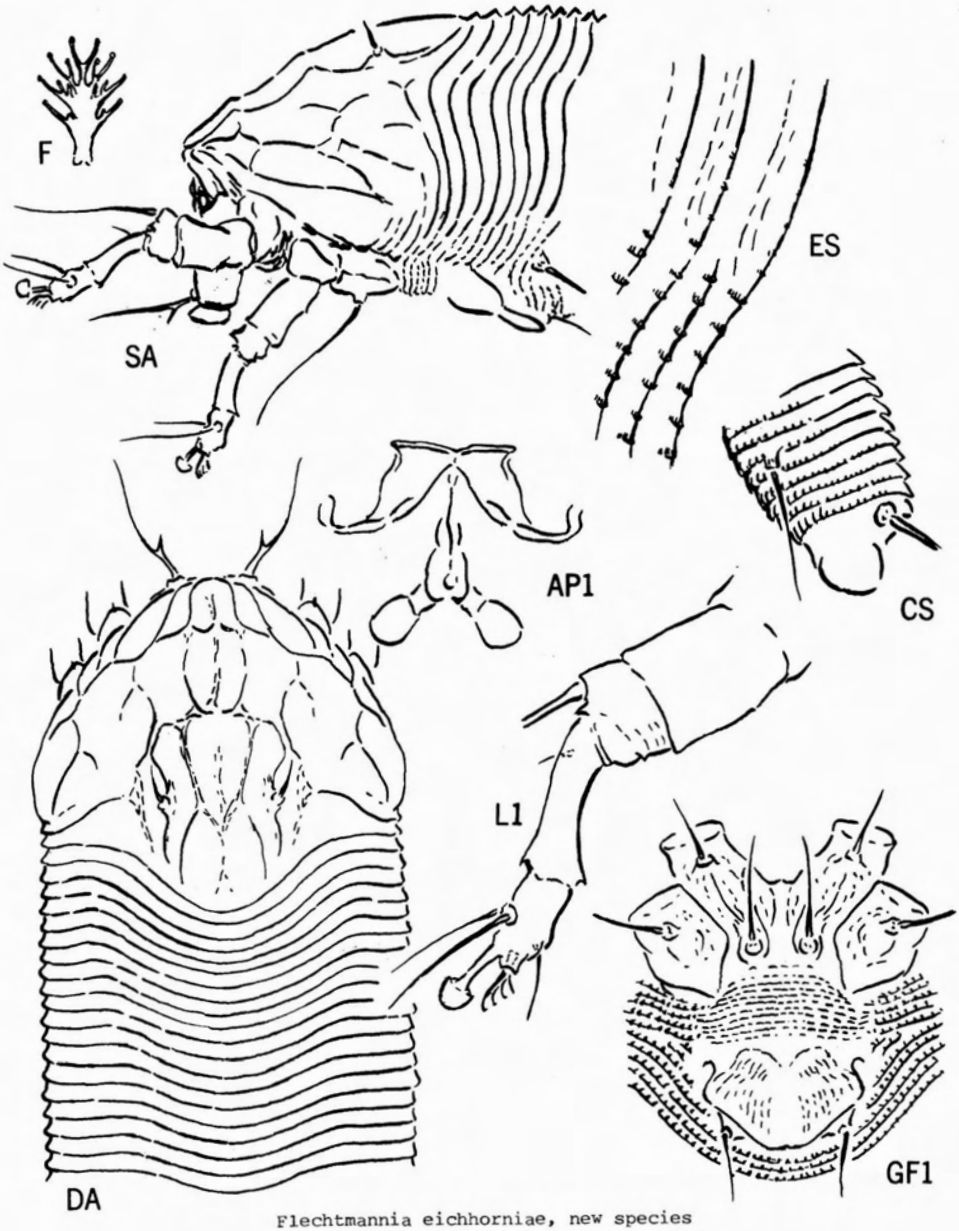
Host: Eichhornia crassipes Solms. (Pontederiaceae) water hyacinth.

Relation to host: The mites are leaf vagrants or rust mites.

Type material: Two slides, one labelled type.

References: Dicrothrix anacardii K. new genus and species, Eriophyid Studies B-18:7, Cal.Bur.Ent., April 22,1966.

Key to Dicrothrix - Jeppson et al. Mites Injurious to Economic Plants, UC Press p. 578, 1975.



Flechtmannia eichhorniae, new species

Spinacus, new genus

The dorsal spines at the rear of the shield separate Spinacus from all other genera, particularly in the Phyllocoptinae. See the generic key to eriophyid genera on p. 58? in- Mites Injurious to Economic Plants by Jeppson, Keifer, and Baker, U. C. Press, 1975. Aside from the dorsal spines the absence of the foretibial seta and the slight lateral longitudinal furrow on the tergites are distinguishing features.

Generic description: Oral stylet of the short form. Anterior dorsal shield with prominent projecting anterior lobe; dorsal setae on rear shield margin transformed into dorsal spines which point up and divergently to rear, the spines short and acuminate. Legs with all standard segments and setae except for absence of foretibial seta. Featherclaw undivided. Coxae with usual three pair of setiferous tubercles. Abdominal thanosome divided laterally into moderately broad tergites and narrow sternites, the tergites evenly arched dorsally except for weak longitudinal furrow above lower tergal ends; tergites somewhat humped at rear junction with telosome. Sternites narrow. Female genitalia of usual form.

Type of genus: Spinacus pagonis, new species

Spinacus pagonis, new species

Plate 6

Female 150μ-160μ long, 42μ thick, fusiform, tapering, light amber in color; probably a waxy secretion laterally in life. Rostrum 26μ long, projecting down; antapical seta 13μ long, strong, abruptly bending in above base. Shield 5μ long by 52μ wide, subtriangular with rather bulging sides; anterior shield lobe bulbous in dorsal view, slightly emarginate on front edge centrally. Central disc of shield with subquadrate enclosure at about 3/4. Dorsal spines 22μ apart, 10μ long. Foreleg from trochanter base 31μ long; tibia 8μ long, lacking seta, but with tubercle marked by slight frontal ridge; tarsus 5μ long; claw 6μ long, with strong knob; featherclaw 6-rayed. Hindleg 28μ long, tibia 7μ long, tarsus 6μ long, claw 6μ long. Forecoxae narrowly separated. First setiferous coxal tubercles ahead of second and slightly behind level of anterior coxal approximation; second coxal tubercles a little ahead of level of third tubercles. Abdominal thanosome with about 20 tergites and 44 sternites. Microtubercles mot indicated on tergites, but present midventrally on sternites from about middle of thanosome to rear. Lateral seta 21μ long, on sternite 8 behind shield; first ventral seta 35μ long, on sternite 21; second ventral seta 10μ long, on sternite 33. Abdominal telosome with about 6 rings, wider above and anteriorly raised to meet rear thanosomal hump. Microtubercles on telosome absent above, but elongate ventrally. Telosomal seta 16μ long. Accessory seta absent. Female genitalia 14μ long by 22μ wide; genitalia basally with about 3 transverse concave broken lines, apically with about 12-14 longitudinal ribs. Genital seta 8μ long.

Male not seen.

Type locality: Pago Pago, Tuituila, Samoa.

Collected: June 14, 1978 by Jean Gutierrez.

Host: Mangifera indica L. (Anacardiaceae) mango

Relation to host: The mites are leaf vagrants.

Type material: A type slide and a paratype slide.
Mites in a vial in liquid.

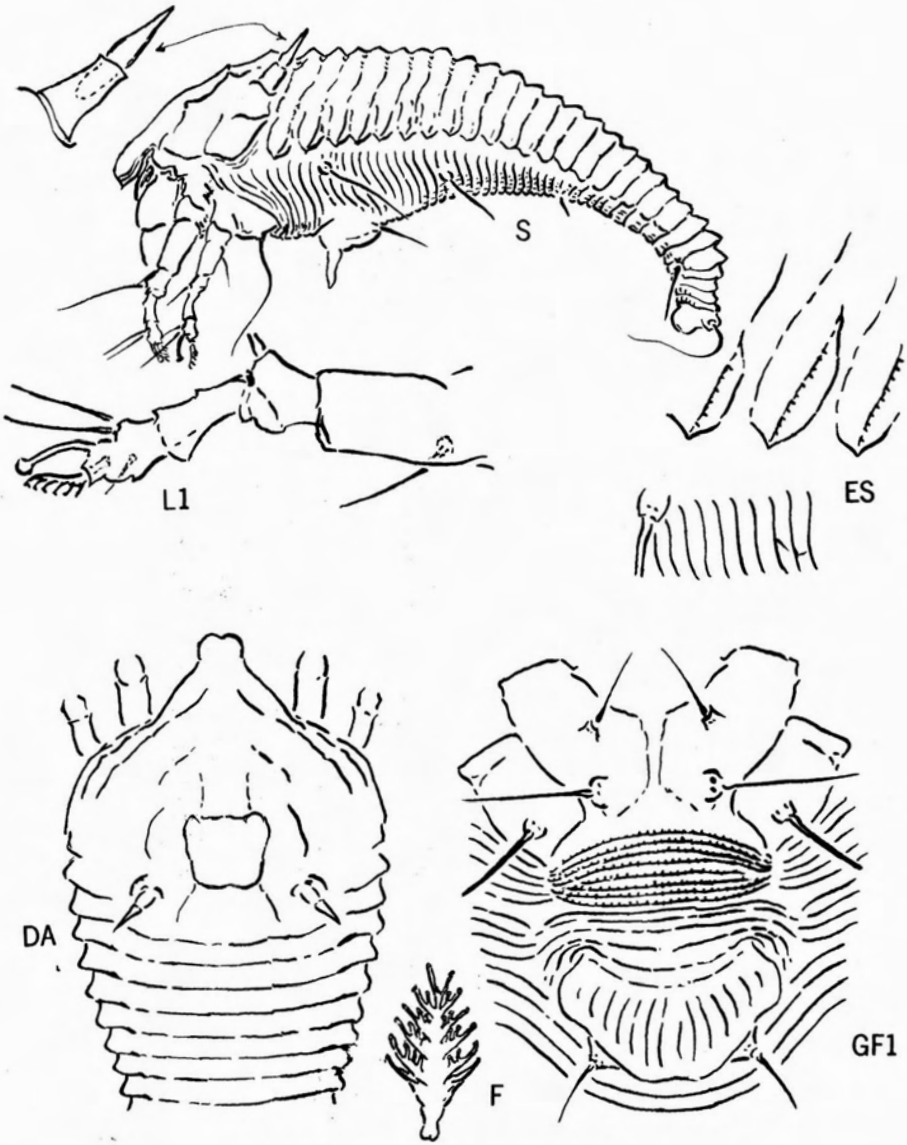


Plate 6 - Spinacus pagonis, new species

Cenalox conyssae Styer and Keifer, new species

Plate 7

This new species has certain characters in common with Phyllocoptruta arga Styer and K. 1977. These are: Absence of the sternal line, rather wide separation of the forecoxae, second coxal tubercle near a line between the first and third coxal tubercles, and basal lobular areas on the female genital coverflap.

From Cenalox nyssae K. 1951 the new species differs by having more linear microtubercles on the abdominal thanosome, a different shield pattern, and by having the basal lobular areas on the female genital coverflap. The leaf galls made by the two Cenalox species are also different. The leaf galls of C. nyssae, which were not known at the time the species was first named, are small erineum-like pockets along the midrib at the lateral vein angles. Those of conyssae are more elongate and open galls, filled with hard lobes. Both types of galls show slightly on the upper surface of the leaves.

References - Phyllocoptruta arga Styer and Keifer, Eriophyid Studies C-14, USDA, p. 11, August 26, 1977.
Cenalox nyssae K., Eriophyid Studies B-5, Cal. Dept. Agr. p. 7, May 22, 1961

Female from frontal lobe of the propodosomal shield to the terminal telosomal lobes 130μ-140μ long, 32μ thick. Body whitish in color, fusiform. Gnathosome 22μ long, projecting down; antapical gnathosomal seta 2.5μ long. Shield 40μ long by31μ wide, subtriangular in dorsal view. Anterior shield lobe curved down. Shield pattern obscure: median line absent; admedian lines present on rear half of shield, diverging to inner side of dorsal tubercles and abruptly projecting inward to rear margin. Laterally the shield with partial ocellar spot, some granules and a partial sternite. Dorsal tubercles 16μ apart, about on rear margin;dorsal setae 18μ long, directed to rear.Foreleg from trochanter base 24μ long; tibia 5μ long, with 5μ seta from about 1/2; tarsus 6μ long; claw 4.5μ long; featherclaw 3-4 rayed. Hindleg 22μ long, tibia 4μ long, tarsus 5.5μ long, claw 7.5μ long. Sternal line absent. Forecoxae well separated. First setiferous coxal tubercles ahead of line across closest approximation of forecoxae,and closer to eachother than second tubercles. Second coxal tubercles almost in a line between first and third tubercles.Abdominal thanosome with about 23 tergites and 42 sternites. Tergites becoming wider to rear. Microtubercles absent on tergites above lateral groove. Microtubercles on tergites below lateral groove elongate and thin, extended over rear margins as fine points; microtubercles on sternites wider.Lateral thanosomal seta 12μ long, on sternite 6 behind shield;first ventral seta 31μ long, on sternite 15; second ventral 6μ long, on sternite 26.Abdominal telosome with 6 rings; microtubercles faint or absent above and weak below.Telosomal seta 15μ long. Accessory seta absent. Female genitalia 13μ long by 21μ wide; basal area of coverflap with lines enclosing two lobular-shaped areas. Genital seta 8μ long.

Male 112μ-125μ long.

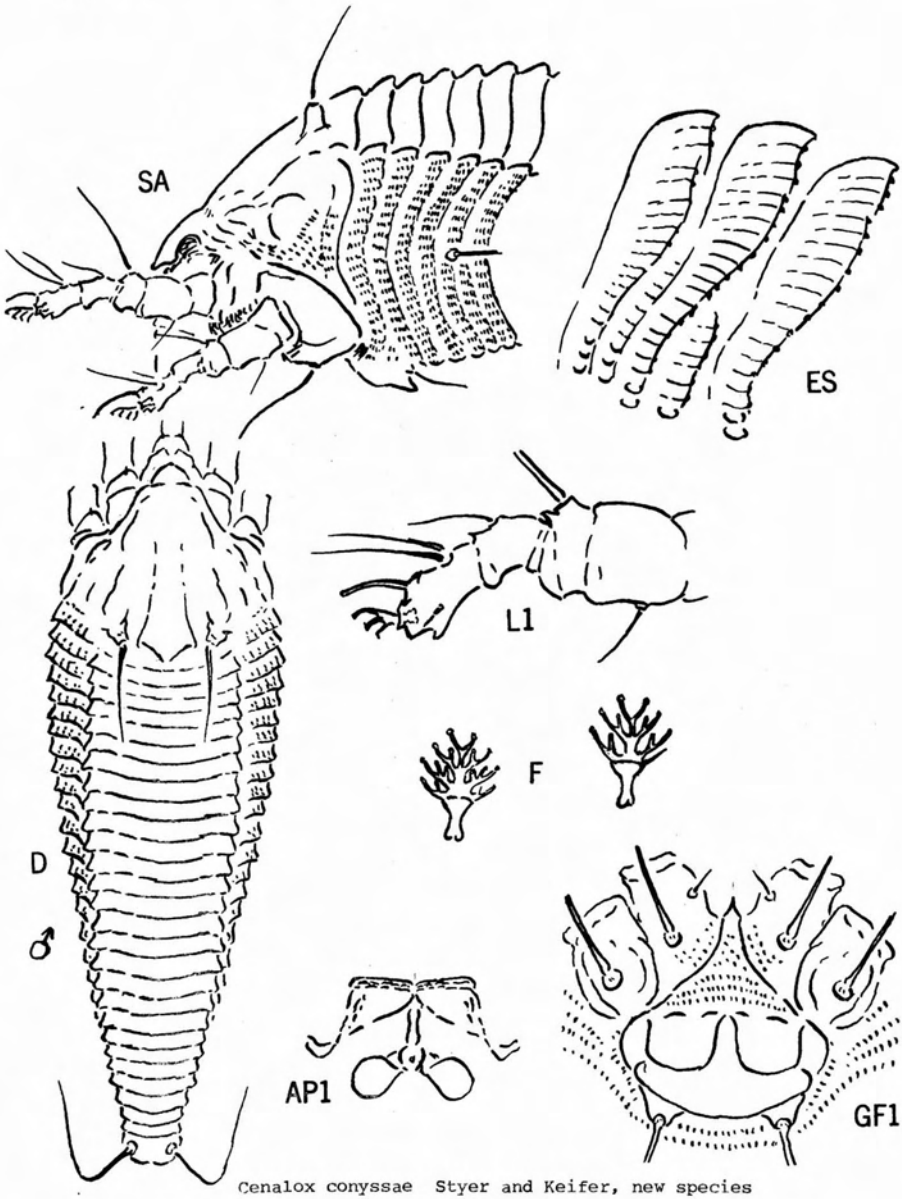
Type locality: Tuscarawa County, Ohio.

Collected: July 13, 1977 by W. E. Styer.

Host: Nyssa sylvatica Marsh (Nyssaceae) tupelo gum.

Relation to host: the mites make rough undersurface leaf galls, filled with hard lobes that are found along veins. The galls project slightly onto upper surface of leaves.

Type material: Dry leaves with vein galls and mites and with above data. Six slides from galls with above data, one designated as type.



Cenalox conyssae Styer and Keifer, new species

W. E. Styer works in the Department of Entomology, Ohio Agricultural Research and Development Center, Wooster, Ohio. He has published the descriptions of several new eriophyid mites.

Aculus capellae, new species

Plate 8

Aculus capellae inhabits the hairless leaves of one of the subspecies of Rhamnus californica. It is quite similar to Aculus rhamnivagrans (K.) which lives on the hairy leaves of another subspecies of californica, but differs by having admedian shield lines curved centrad to meet just ahead of the rear shield margin, and in having weaker tergal microtubercles than rhamnivagrans. A third Rhamnus-infesting species in the west is Aculus amandae (K.) which lives on the leaves of the more northern Rhamnus purshiana DC. Aculus capellae differs from the protogyne of amandae by having solid shield lines, whereas amandae has lines of granules. Each of these three species has four anterior spinules projecting ahead from the underside of the anterior shield lobe.

Female from front of anterior shield lobe to terminal lobes 140μ-150μ long, about 48μ thick. Body spindleform and yellowish. Gnathosome 28μ long, projecting down; antapical seta 5μ long. Shield subtriangular, with outcurved sides and very prominent anterior lobe, the lobe bearing four points underneath. Median shield line weak on rear or absent, and suggesting a Y-shaped mark on rear 1/4. Admedian lines complete, sinuate, originating on sides of anterior lobe, meeting weak cross line at base of lobe, meeting second cross line at 1/8, outcurving at about 2/3 and then recurving to meet centrally ahead of rear margin. A weak submedian line running back toward dorsal tubercle from the 1/3 cross line; a line from in front of dorsal tubercle curving centrad between tubercles. Laterally the shield with about three cells above coxae, followed by granular area edged above by longitudinal line with rear coxae below. Dorsal tubercles 25μ apart; dorsal setae 13μ long. Foreleg from trochanter base 31μ long; tibia 7μ long, with 5μ seta at 1/3; tarsus 7μ long; claw 6.5μ long, knobbed; featherclaw 4-rayed. Hindleg 28μ long, tibia 6μ long, tarsus 6.5μ long, claw 7μ long. Sternal line between forecoxae moderately strong, divided anteriorly. First setiferous coxal tubercles opposite anterior end of sternal line and farther apart than second tubercles. Second tubercles a little ahead of line across third tubercles. Coxae generally granulate. Thanosomal tergites tending to have prominent ridges. About 24 tergites and 51 sternites. Microtubercles elongate on tergites, rather faint, reaching tergal margins; on sternites bead-like and tending to be just back of rear margins. Lateral setae 13μ long, on sternite 9; first ventral seta 48μ long on 22nd sternite; second ventral seta 15μ long, on sternite 36. Telosome with 5-6 rings, microtubercles fine, on margins and extending ahead as fine lines. Telosomal seta 20μ long. Accessory seta 6μ long. Female genitalia 12μ long by 19μ wide; about three curved transverse lines of granules basally; the flap with 10-12 longitudinal ribs. Genital seta 15μ long.

Males numerous, about 140μ long and 40μ thick.

Type locality: Capell Creek just south of Lake Beryessa, Napa County, Cal.

Collected: May 10, 1962 by the writer.

Host: Rhamnus californica californica Esch. (Rhamnaceae) coffeeberry.

Relation to host: the mites are undersurface leaf vagrants.

Type material: One type slide and six paratype slides.

References: Aculus rhamnivagrans (K.), Eriophyid Studies VI, Bul. Cal. Dept. of Agriculture XXXVIII(6):419, Aug. 10, 1939.

Aculus amandae (K.), Eriophyid Studies C-3, USDA, p.5, Oct. 15, 1969.

Aculus purshivagrans K., p. 7 of this reference - - the protogyne.

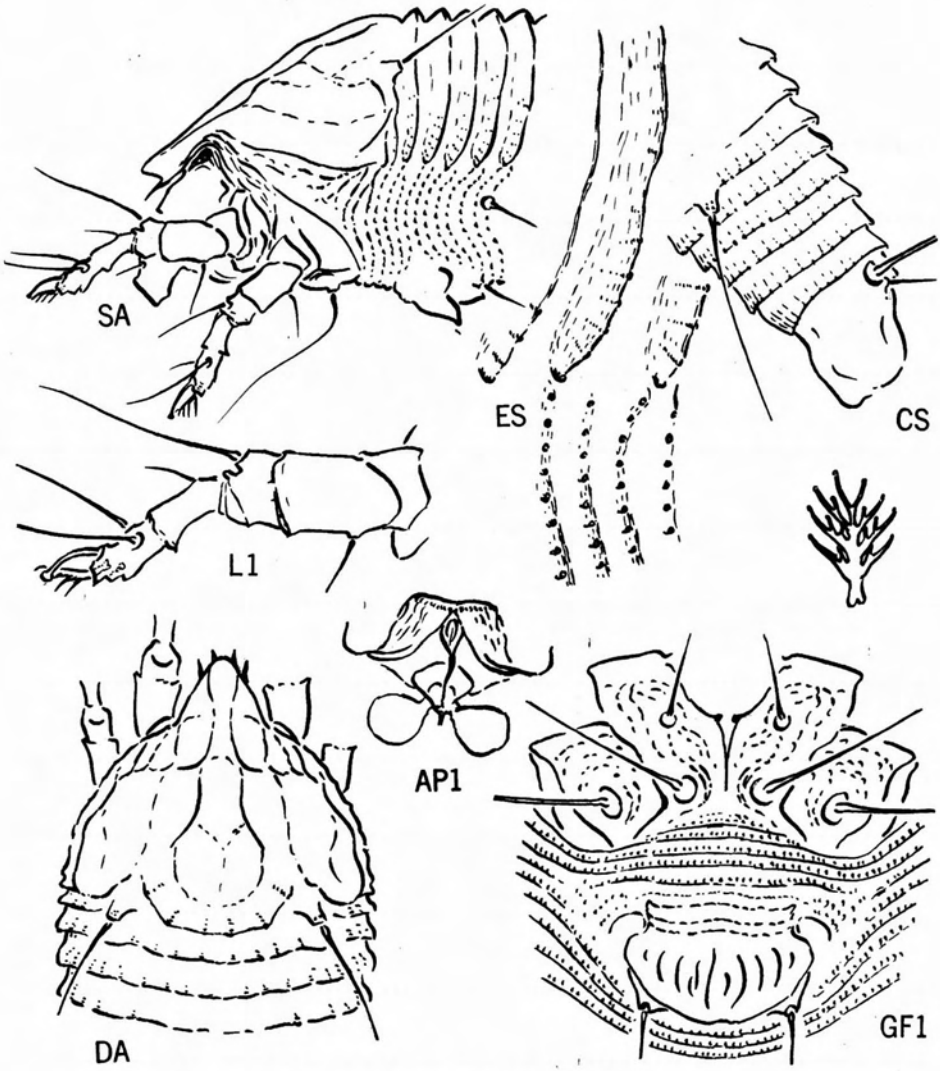


Plate 8 - Aculus capellae, new species

Aculops amnis, new species

Plate 9

The 6-rayed featherclaw plus the shield design separate this leaf vagrant on willow from other species with similar habitat on willow. The specific name, amnis, is one of the Latin terms for river, since this species occurs on its host beside the Sacramento River.

Female 150μ-170μ long, 45μ wide, 45μ thick. A fusiform species, light yellowish-brown in color. Rostrum 33μ long, strong, projecting down; antapical seta 7μ long. Shield 42μ wide by 44μ long, subtriangular in shape, with central area showing a design of heavy lines and 'cells.' Anterior shield lobe projecting forward and pointed. Median line present only on rear 1/5 of shield. Admedian line complete and sinuate, curving back from sides of anterior lobe point, curving out to cross line at about 1/3, extending back to second cross line at about 1/4, which line reaches diagonally inward to anterior end of median line, and on lateral side extending back to rear part of first submedian. Admedian line ending just ahead of rear shield margin where it extends weakly toward center. First submedian line thin anteriorly, joining heavily outlined cell ahead of and a little inward from dorsal tubercle, which cell gives off a short line toward dorsal tubercle, this line joining diagonally inward line running past dorsal tubercle generally along rear shield margin and meeting anteriorly convex line just beyond end of admedian line. Ahead of dorsal tubercle and laterally the lines thinner, forming a line of rather obscure cells; granular area above coxae. About 4 partial rings below dorsal tubercle. Dorsal tubercles on rear margin and 24μ apart, directing 32μ long dorsal setae somewhat divergently to rear. Foreleg from trochanter base 32μ long; tibia 9μ long, with 7μ seta from 1/4; tarsus 7.5μ long; claw 8.5μ long; featherclaw 6-rayed. Hindleg 29μ long, tibia 6.5μ long, tarsus 7μ long, claw 8μ long. Sternal line between forecoxae moderately strong, not definitely divided at rear, ending just past second coxal tubercles. Coxae with lines of fine granulations. First setiferous coxal tubercles a little farther ahead of anterior end of median or sternal line, and slightly farther apart than second tubercles. Second coxal tubercles not far ahead of third tubercles. Abdominal thanosome with 18-21 tergites and about 51 sternites. Ridges on tergites sharp, the tergal ridges prominently projecting up in side view. Sternites fine. Microtubercles on tergites somewhat elongate, projecting slightly over tergal margins, tending to be pointed laterally. Microtubercles on sternites small, rounded, slightly ahead of sternal margins. Lateral seta 3μ long, on sternite 7 behind shield; first ventral seta 41μ long, on sternite 20; second ventral seta 23μ long, on sternite 34. Abdominal telosome with 6 rings, the microtubercles present as fine lines extending ahead from margins. Telosomal seta 31μ long. Accessory seta 3.5μ long. Female genitalia 20μ wide, 16μ long; female genital coverflap with 8-10 ribs. Genital seta 24μ long.

Male 150μ-160μ long.

Type locality: Sacramento, Cal.

Collected: June 30, 1976 and August 20, 1976, by H. H. Keifer.

Host: Salix gooddingii Ball (Salicaceae, Salicales)
Black or Gooding willow.

Relation to host: The mites seem to be innocuous leaf vagrants, perhaps causing slight rusting throughout the season. They are found on both leaf surfaces and on other green parts of twigs.

Type material: five slides bearing the June 30 date and a type labelled
There are also slides dated Aug. 20 and dry leaves with mite mummies.

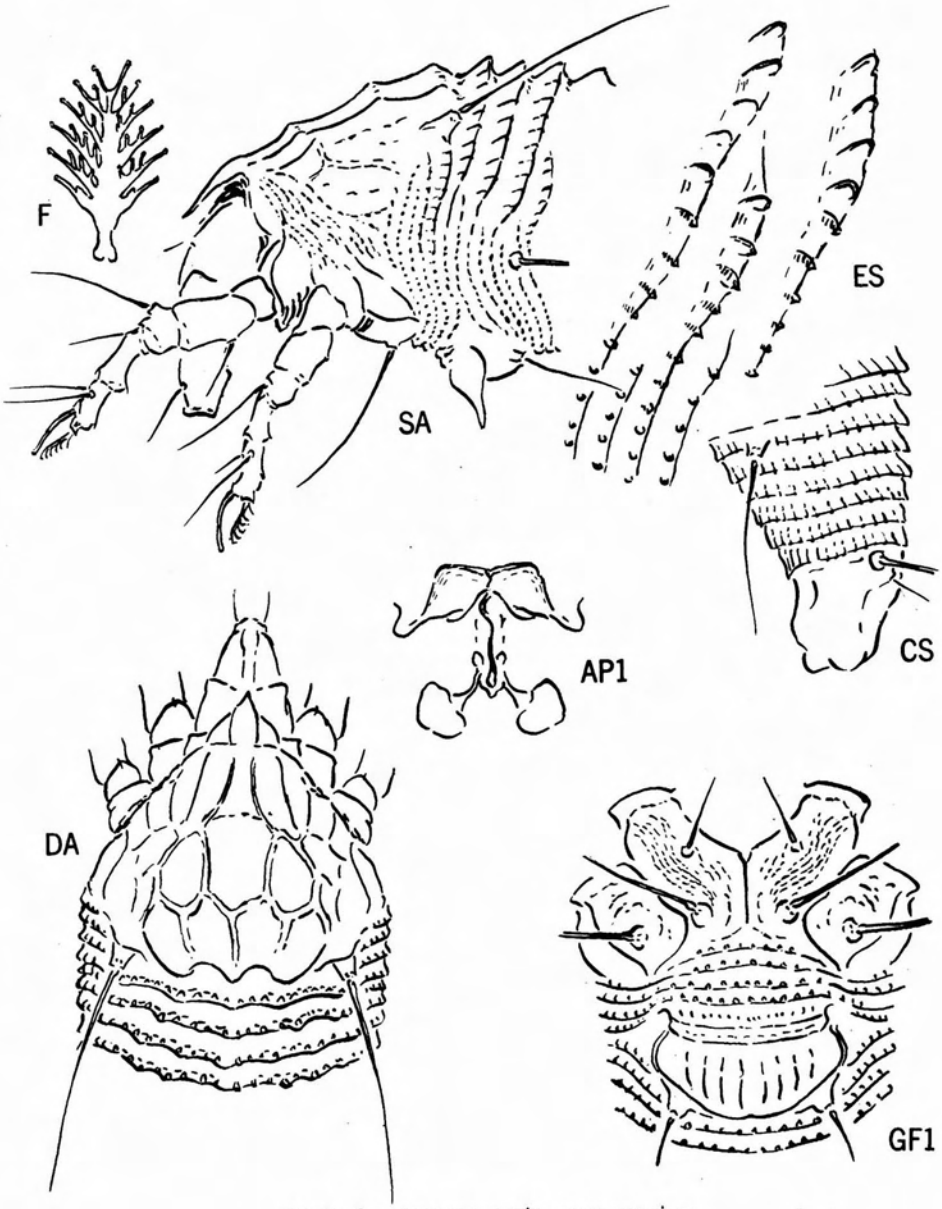


Plate 9 - Aculops amnis, new species

Aculops daleae, new species

Plate 10

There are many species of Aculops with 7 and 8-rayed featherclaws that have pointed anterior shield lobes and with prominent shield patterns. In the case of daleae the shield pattern is more simplified than that on nearly all other species known to the writer. The submedian lines on most of the species are quite heavy, whereas on daleae such lines are absent.

Female from anterior lobe point to terminal lobes 150μ-165μ long; 40μ thick; spindleform; light amber. Gnathosome 24μ long, projecting diagonally down;antapical seta 6μ long. Shield 40μ long by 46μ wide; subtriangular with prominent anterior lobe, the lobe bearing a point. Shield design simple: median line plain only on rear 1/4; admedian lines complete from sides of anterior lobe, sinuate, somewhat flaring outward on rear 1/4. Submedian lines absent. Lateral line from 1/3, running from admedian line to lateral rear angle of shield. Granular band above coxae. Dorsal tubercles 24μ apart; dorsal setae 15μ long, somewhat divergent to rear. Foreleg from trochanter base 27μ long; tibia 8μ long, with 7μ seta from 1/2; tarsus 6μ long; claw 10μ long; featherclaw 7-rayed. Hindleg 25μ long, tibia 6μ long, tarsus 6μ long, claw 8μ long. Sternal line strong anteriorly, ending between second coxal tubercles. Coxae lined with granules and short dashes, curving to conform with surfaces. First setiferous coxal tubercles farther apart then second tubercles, almost ahead of anterior end of sternal line. Second coxal tubercles slightly ahead of level of third tubercles. Abdominal thanosome with about 41 tergites and 61 sternites;tergite ridges tending to be prominent. Microtubercles pointed or present as spinules,projecting over margins, more pointed to rear. Sternites narrow. Lateral seta 24μ long, on sternite 11; first ventral seta 41μ long, on sternite 18; second ventral seta 15μ long, on sternite 34. Abdominal telosome with 5-6 rings; microtubercles fine, on margins, pointed, extending ahead of margins as fine lines.Telosomal seta 19μ long. Accessory seta 5μ long. Female genitalia 16μ long by 24μ wide, basally with 2 or 3 transverse lines of granules or short dashes; apically the coverflap with about 12 longitudinal ribs. Genital seta 16μ long.

Male not seen.

Type locality: Gila Bend, Arizona.

Collected: October 27, 1967, by D. M. Tuttle.

Host: Dalea perryi Torrey and Gray (Leguminosae).

Relation to host: The mites are leaf vagrants.

Type material: Four paratype slides and one type.
A vial with mites in liquid.

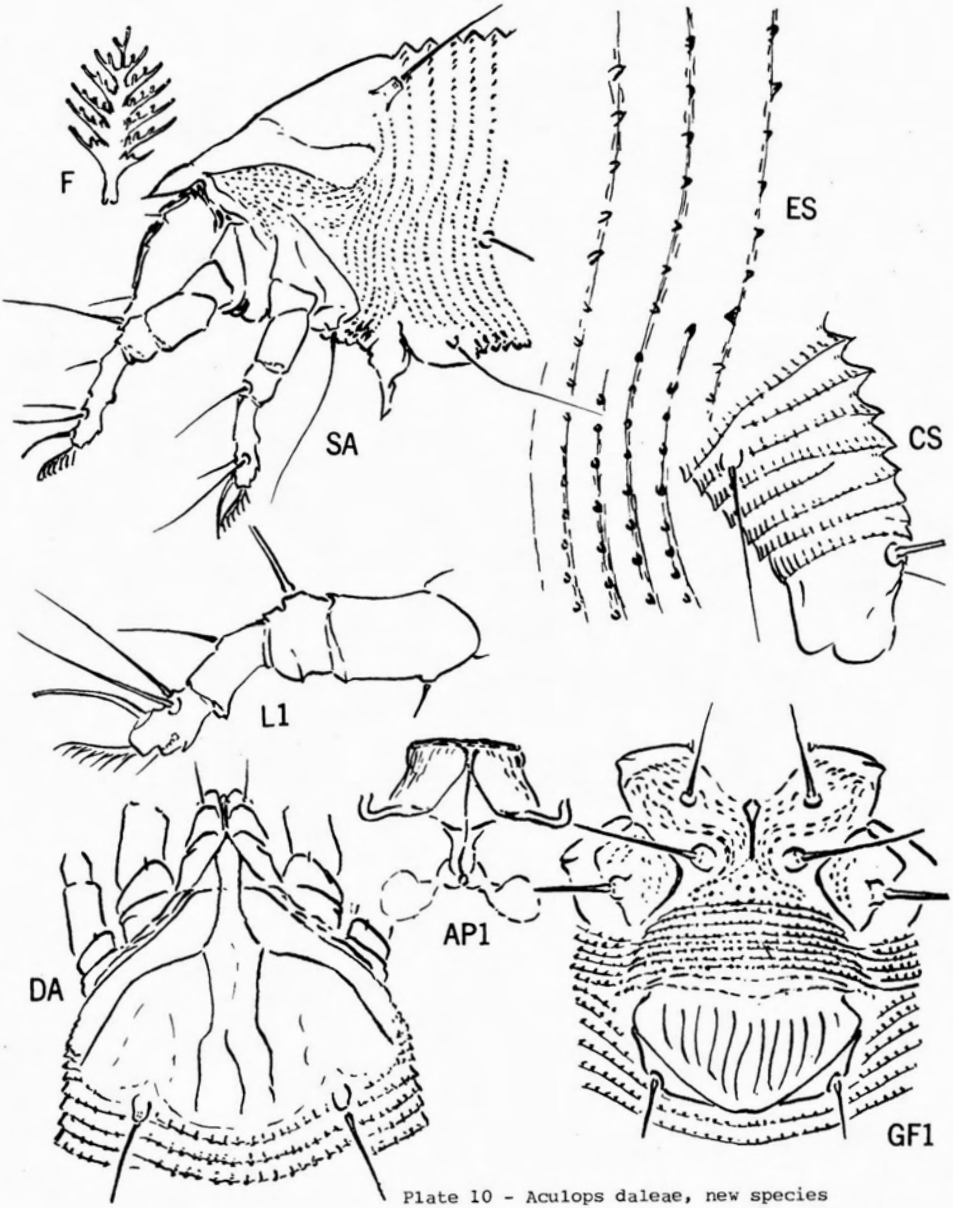


Plate 10 - Aculops daleae, new species

Aculops chihuahuae, new species

Plate 11

Female a spindleform, light amber mite, 165μ-175μ long, about 48μ thick. Rostrum 25μ long, projecting down; antapical seta 5μ long. Shield 45μ long by 47μ wide, anterior lobe broad and broadly rounded, sides fairly straight. Shield design not prominent, central area, or disc, with obscure markings, side of disc outlined laterally evenly with dorsal tubercle, the anterior line of the disc curving outward from central base of anterior lobe, the line extending over to lateral margin. Laterally the shield with strong lateral line, between it and coxae some granules and short lines. Dorsal tubercles 23μ apart, on rear margin; dorsal setae 9μ long extending divergently backward. Foreleg from trochanter base 32μ long; tibia 7.5μ long, with 3μ seta at 1/3; tarsus 7μ long; claw 7μ long; featherclaw 4-rayed. Hindleg 29μ long, tibia 8.5μ long, tarsus 7μ long, claw 7μ long. Sternal line short, ending before second coxal tubercles; coxal surfaces with some short lines following contours; first setiferous coxal tubercles farther apart than second and on about level with anterior end of sternal line; second coxal tubercles not far ahead of level of third tubercles. Abdominal thanosome with about 22 tergites and 50 sternites. Tergites moderately broad and except for lateral ends devoid of microtubercle indications. On sternites the microtubercles elliptical and slightly pointed over margins. Lateral seta 15μ long, on about sternite 10 behind rear shield margin; first ventral seta 41μ long, on sternite 23; second ventral seta 12μ long, on sternite 36. Abdominal telosome with 5-6 rings, the microtubercles elongate below but weak or absent above; seta 19μ long. Accessory seta absent. Female genitalia 15μ long by 21μ wide, basally with about three transverse lines of granules or short dashes, apically with 10-12 longitudinal ribs; seta 12μ long.

Male 145μ-155μ long.

Type locality: Chihuahua, Mexico.

Collected: Aug. 8, 1970 by D. M. Tuttle, M. J. Abbatiello, E. W. Baker.

Host: Menodora scabra Gray (Oleaceae).

Relation to host: The mites are leaf vagrants.

Type material: A type slide and four paratype slides.
A vial with mites in liquid.

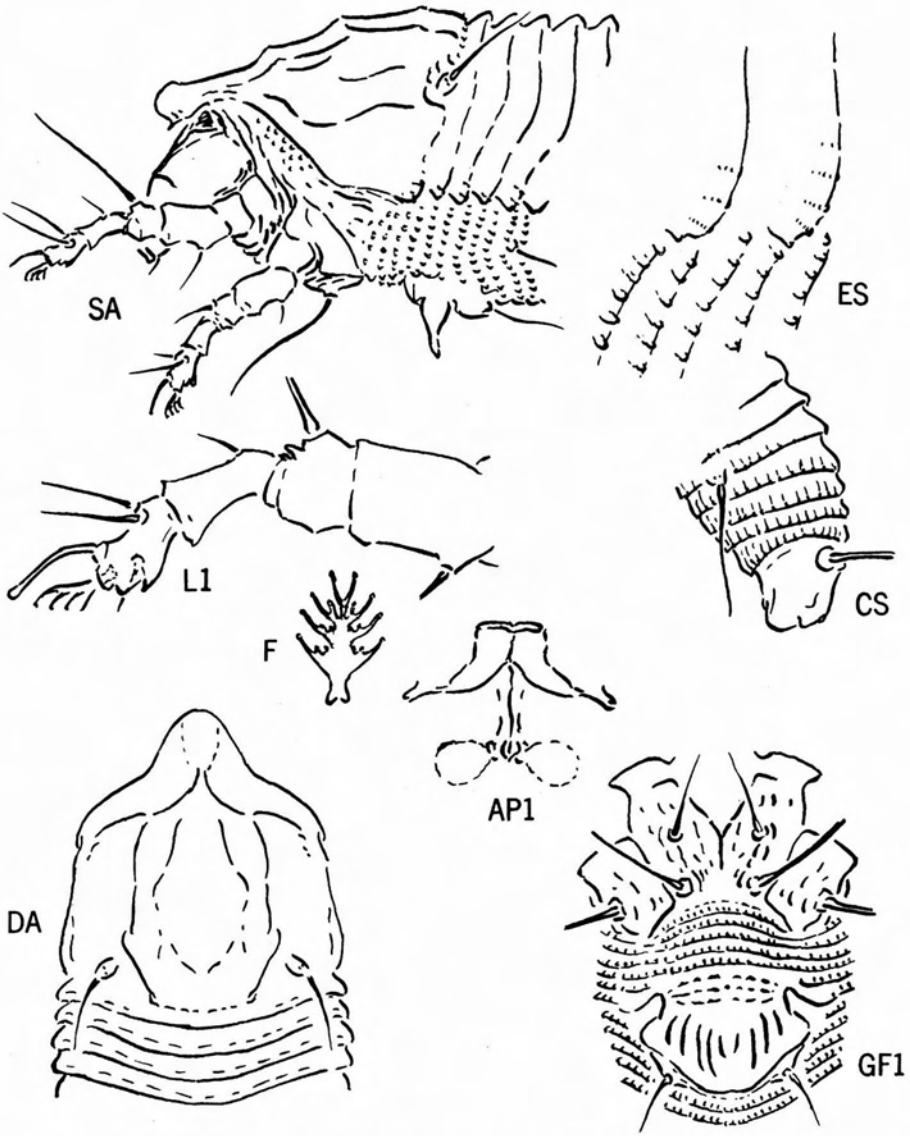


Plate II - Aculops chihuahuae, new species

Aculops capsibaccati, new species

Plate 12

The fusion of the forecoxae across the midline seems to be a so far unique character in the genus Aculops. No other species in the genus is known to possess such a feature as does capsibaccati.

Female 155μ-165μ long, 36μ thick; spindleform and yellowish. Gnathosome 15μ long, downcurved; antapical seta 3μ long. Shield 28μ wide by 27μ long, triangular with very short acuminate lobe overhanging gnathosome base. Shield design an open network: Median line present only as disorganized short lines; admedians complete, sinuate, meeting cross line at about 1/3, and tending to outcurve at rear margin. Submedian lines in front of dorsal tubercles sinuate. Laterally an ocellar spot above rear coxae, with dashes and granules curving around rear and lower edges, bordered above by longitudinal line. Dorsal tubercles 21μ apart on rear margin; dorsal setae 19μ long, projecting to rear. Foreleg from trochanter base 22-23μ long; tibia 3.5μ long, with 3μ seta from inner 1/3; tarsus 4μ long; claw 4.5μ long; featherclaw 6-rayed. Hindleg 22μ long, tibia 3μ long, tarsus 6μ long, claw 7μ long. Coxae with setiferous tubercles nearly in diagonal line, directed gently inward anteriorly; forecoxae fused centrally and not clearly separated from oral plate, generally irrorated with granules. Abdominal thanosome with about 56 rings, not differentiated dorsoventrally and set with elliptical microtubercles. Lateral seta 13μ long, on ring 9 behind rear shield margin; first ventral seta 14μ long, on ring 21; second ventral seta 16μ long, on ring 37. Abdominal telosome with 7-8 rings, margined with very fine microtubercles, or microtubercles absent; seta 13μ long. Accessory seta 2μ long. Female genitalia 14μ long by 16μ wide; coverflap with basal area set with granules and short dashes and margined to rear by convex lines on each side. Coverflap with about 10-12 longitudinal ribs. Genital seta 7μ long.

Type locality: Santa Barbara, Antioqua, Colombia, South America.

Collected: Sept. 25, 1978 by E. J. Urueta S., of the Sanidad Agropecuaria.

Host: Capsicum baccatum L. (Solanaceae) Aji de la pajarito, a pepper.

Relation to host: The mites are surface vagrants or rust mites.

Type material: A type slide and two paratype slides as indicated. Mites and leaves in liquid with the above data.

A Substitute for Gum Arabic in Water Soluble Mounting Media

A relatively newly available organic chemical, benzophenone tetracarboxylic dianhydride, otherwise known as BTDA, when chemically combined with a sugar, sorbitol, forms a thick, light amber, very sticky syrup, that is entirely transparent and is water soluble. It serves as a stable substitute for gum arabic (acacia) and is much better in resisting recrystallization of other media ingredients than the gum. To make the new compound use a 50 ml. beaker and dissolve 10 grams of sorbitol powder into 2 mls. each of glycerin and water by gentle boiling. When this has become clear add 5 or 6 grams of BTDA powder to the solution and continue gentle boiling for an hour or more until all particles of BTDA have gone into solution. Stir occasionally and add a little more water in the course of boiling. If there is some dirt in the mixture dissolve the sugar-BTDA syrup in 75% isopropyl alcohol in water, allow the dirt to precipitate, and pour off the clean solution into an evaporation dish. As cool syrup is difficult to handle warm gently to soften, measure out a little less than the desired amount, and fill in the non-crystalline part of the medium with sorbitol powder. The dianhydride, BTDA, is available from Eastman Chemicals, #14671, and from Aldrich Chemicals #B975-0.

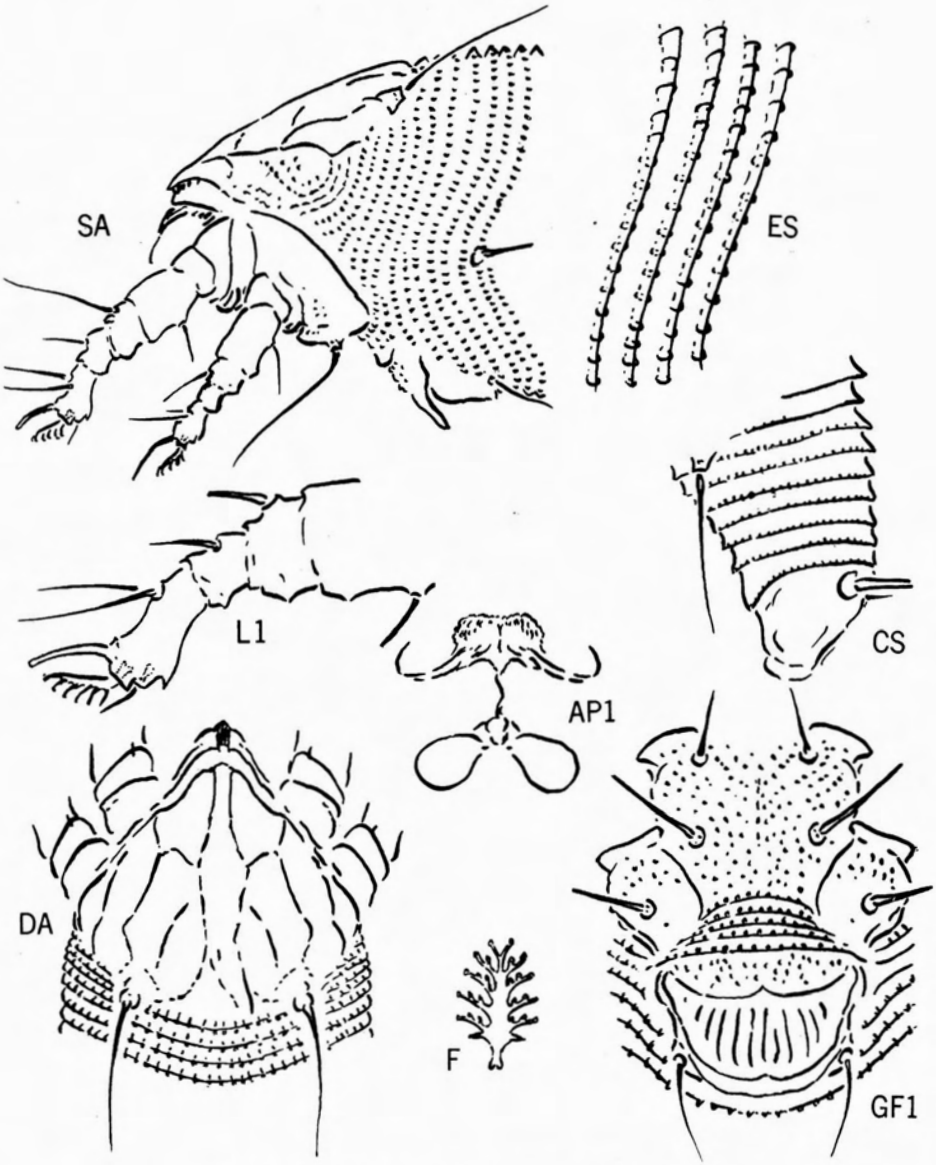


Plate 12 - Aculops capsibaccati, new species