

# ERIOPHYID STUDIES B-17

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California Department of Agriculture

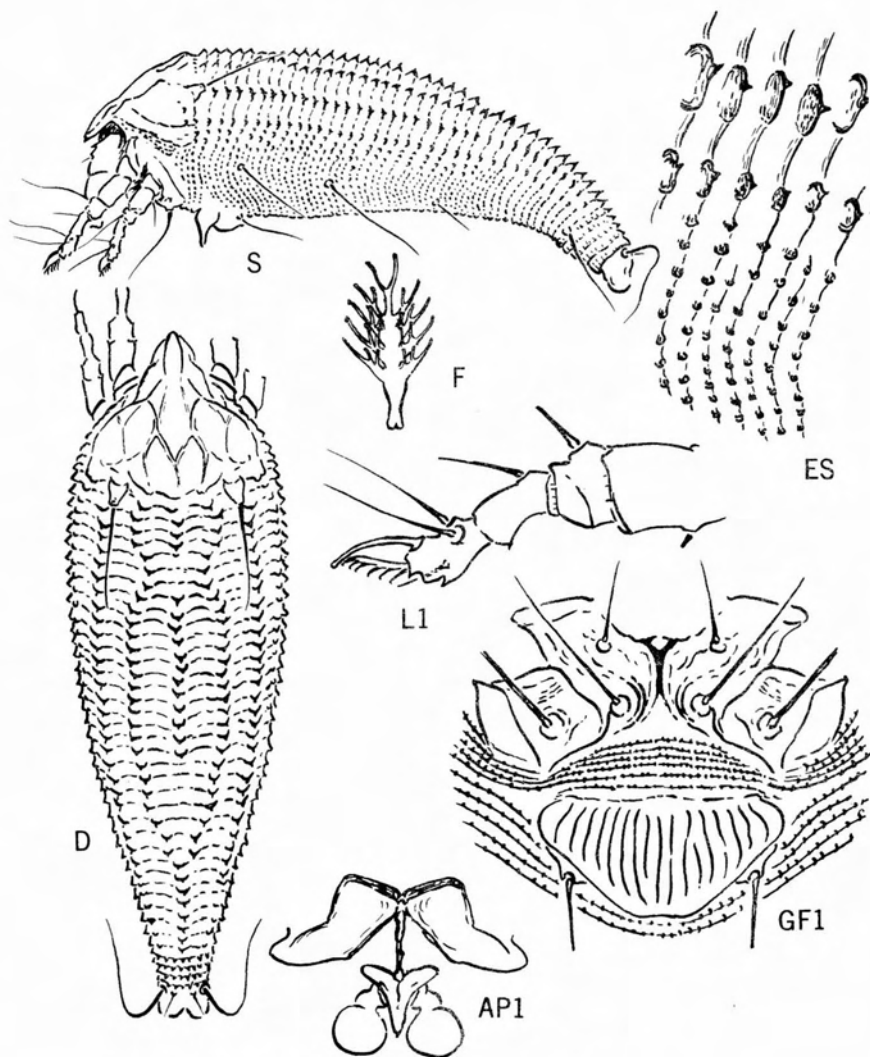


Plate 1 - *Echinacrus rhamnicroceae*, new species

*Echinacrus*, new genus

Body moderately robust and fusiform. Rostrum comparatively large, with short form oral stylet. Shield with prominent anterior lobe over rostrum; dorsal tubercles on rear shield margin, directing setae to rear. Legs with all standard setae, featherclaw simple. Abdomen divided along lateral line into tergites and sternites. Tergites with longitudinal rows of wax-bearing spines, each set on broad base: spines forming median longitudinal line from rear shield margin, absent on about tergites 5-8, then extending back to 21st of 24th tergite; subdorsal spines from just inside dorsal tubercle, curving centrad on about 5th to 7th tergites, then curving back and running to about 28th of 29th tergite, where each merges to a single line, ending above third ventral seta; supralateral line of spines from just below, or just behind dorsal tubercle, running back and ending ahead of ring with third ventral seta; a lateral line of smaller spiniferous tubercles from lateral shield angle to third ventral seta. All standard abdominal setae present. Genitalia a moderate distance behind coxae; coverflap with longitudinal ribs; internal genitalia with moderately extended anterior apodeme.

The generic name is an adaptation of *echinus* for the spines, plus a contraction of *acarus*. The definition of *Echinacrus* is based on the dorsal tubercles situated on the rear shield margin, plus longitudinal rows of wax-bearing dorsal abdominal spines arising from broad bases. In respect to the spines the genotype roughly resembles *Callynotrus schlectendali* Nal., 1894, but that species has the dorsal tubercles set ahead of the rear shield margin and the rows of abdominal spines come from smaller bases. In the writer's opinion no second species has yet been described that is congeneric with *schlectendali*.

Genotype - *Echinacrus rhamnicroceae*, new species

*Echinacrus rhamnicroceae*, new species

Plate 1

Female 145 $\mu$ -170 $\mu$  long, 48 $\mu$  wide, 45 $\mu$  thick; rather robust, fusiform; body color yellow, longitudinally lined with white wax on the tubercles. Rostrum 26 $\mu$  long, projecting down; antapical seta 3.5 $\mu$  long. Shield 34 $\mu$  long, 41 $\mu$  wide; subtriangular in anterior outline with prominent lobe over rostrum. Shield design not particularly clear: median line only slightly indicated to rear; admedians curving back from sides of lobe, producing lateral line at 1/4, curving back toward center and forking at about 2/3, the inner fork running back and toward center, meeting fork from other side and continued short distance as median line; outer fork of admedian running toward dorsal tubercle and indicating a slight fork in front of tubercle. Faint submedian line in front of tubercle. Upper and lower lateral shield lines with band of granules above coxae. Dorsal tubercles 23 $\mu$  apart, on rear margin; dorsal setae 16 $\mu$  long, projecting caudad. Forelegs 28 $\mu$  long; tibia 8 $\mu$  long, with 6 $\mu$  seta at 1/3; tarsus 6 $\mu$  long; claw 7.5 $\mu$  long; featherclaw 5-rayed. Hindleg 27 $\mu$  long, tibia 6 $\mu$  long, tarsus 7 $\mu$  long, claw 8 $\mu$  long. Coxae ornamented with some curved lines; anterior coxae moderately joined with short sternal line between the coxae projecting at a wide angle; first setiferous coxal tubercles farther apart than second and opposite anterior coxal approximation; second coxal tubercles slightly ahead of line across third. Abdominal thanosome with 39-41 tergites and about 53 sternites; sternites completely microtuberculate, the microtubercles on some specimens ahead of margins, reaching them on others. Lateral seta 17 $\mu$  long, on sternite 10; first ventral seta 40 $\mu$  long, on sternite 23; second ventral 10 $\mu$  long, on sternite 35. Telosome with 6 rings, spinuliferous; telosomal seta 19 $\mu$  long. Accessory seta 4 $\mu$  long. Female genitalia 20 $\mu$  wide, 14 $\mu$  long; coverflap with about 17 longitudinal ribs; seta 8 $\mu$  long.

Type locality: about 5 miles west of Rescue, El Dorado County, Cal.

Collected: August 25, 1965, by Magdalena L. Briones and the writer

Host: *Rhamnus crocea* Nutt. (Rhamnaceae) redberry buckthorn

Relation to host: the mites are undersurface leaf vagrants

Type material: a type slide with the above data  
four paratype slides  
leaves with mites in liquid (sugar-water-isopropanol)

Phyllocoptes davisii, new species

Plate 2

This small, light brown mite, that occurs on the underside of Rhododendron leaves, has 5 or 6-rayed featherclaws. In this respect it differs from Nalepa's description of his azaleae, which, he states, has a 4-rayed featherclaw.

Female 200 $\mu$ -225 $\mu$  long, about 60 $\mu$  thick; fusiform; color in life dull reddish-brown. Rostrum 33 $\mu$  long, projecting down; antapical rostral seta 8 $\mu$  long. Shield 50 $\mu$  long and 53 $\mu$  wide; subtriangular in anterior outline from above. Anterior shield lobe rather broad anteriorly and set with fine spinules. Median shield line absent; admedian lines complete, curving back from anterior lobe to about 1/4, at which point extending a line laterally then continuing back and gradually coming closer to midline until reaching 3/4 point between dorsal tubercles, then abruptly diverging diagonally back to rear margin, with slight recurving at margin. An obscure line ahead of dorsal tubercles; distinct lateral line above lateral shield granular area. Dorsal tubercles 23 $\mu$  apart; dorsal setae 11 $\mu$  long, projecting up. Forelegs 37 $\mu$  long; tibia 10 $\mu$  long, with 10 $\mu$  seta at 1/3; tarsus 8 $\mu$  long; claw 7.5 $\mu$  long, curved, with moderate knob; featherclaw either 5 or 6-rayed. Hindlegs 34 $\mu$  long, tibia 8 $\mu$  long, tarsus 6 $\mu$  long, claw 8 $\mu$  long. Anterior coxae widely divergent anteriorly, the sternal line short; first setiferous coxal tubercles anteriorly placed and well ahead of anterior coxal approximation; second setiferous coxal tubercles ahead of line across third tubercles. Thanosomal tergites about 37 in number, the microtubercles of varying clarity, when strong extending forward from rear margins. Thanosomal sternites about 62 in number, set with microtubercles tending to be ahead of ring margins ventrally and to be pointed ventrally toward rear. Lateral seta 25 $\mu$  long, on about sternite 11; first ventral seta 35 $\mu$  long, on sternite 24; second ventral 52 $\mu$  long, on sternite 38. Telosome of 5 rings, the seta 22 $\mu$  long. Accessory seta absent. Female genitalia 25 $\mu$  wide, 15 $\mu$  long; the coverflap granular anteriorly and with 10 or 11 longitudinal ribs; genital seta 16 $\mu$  long.

Type locality: Eureka, Cal., the mites taken in quarantine on a nursery plant shipped to Millbrae, Cal. C. D. A. #65110-2

Collected: Dec. 9, 1965, by William Davis, San Mateo County Inspector

Host: Rhododendron sp. (Ericaceae)

Relation to host: the mites are undersurface rust mites which discolor the leaves

Type material: a type slide with the above data  
nine paratype slides, six of which were collected on Dec. 8 and bear Cal. Dept. Agr. #6518-2, but are otherwise the same.

Thanosome and Telosome

These terms have been introduced into some of the descriptions in this installment to define two parts of the Eriophyoid abdomen. Thanosome (combination of phthano, meaning to come before, and soma, body) stands for the part of the abdomen extending from the rear of the cephalothoracic shield and coxae, to approximately the ring bearing the pair of setae called the third ventral setae. Telosome (from telos meaning end) is the part of the abdomen extending from the posterior end of the thanosome to the anal lobes. In this sense the third ventral seta becomes the telosomal seta. This seta is always near the beginning of the telosome, if not precisely on it. In some genera the differences between the thanosome and telosome are less evident, being marked by the position of the seta. In other genera there is a rather abrupt change in structure. The ventral microtubercles on the telosome are nearly always distinct, being usually noticeably elongate.

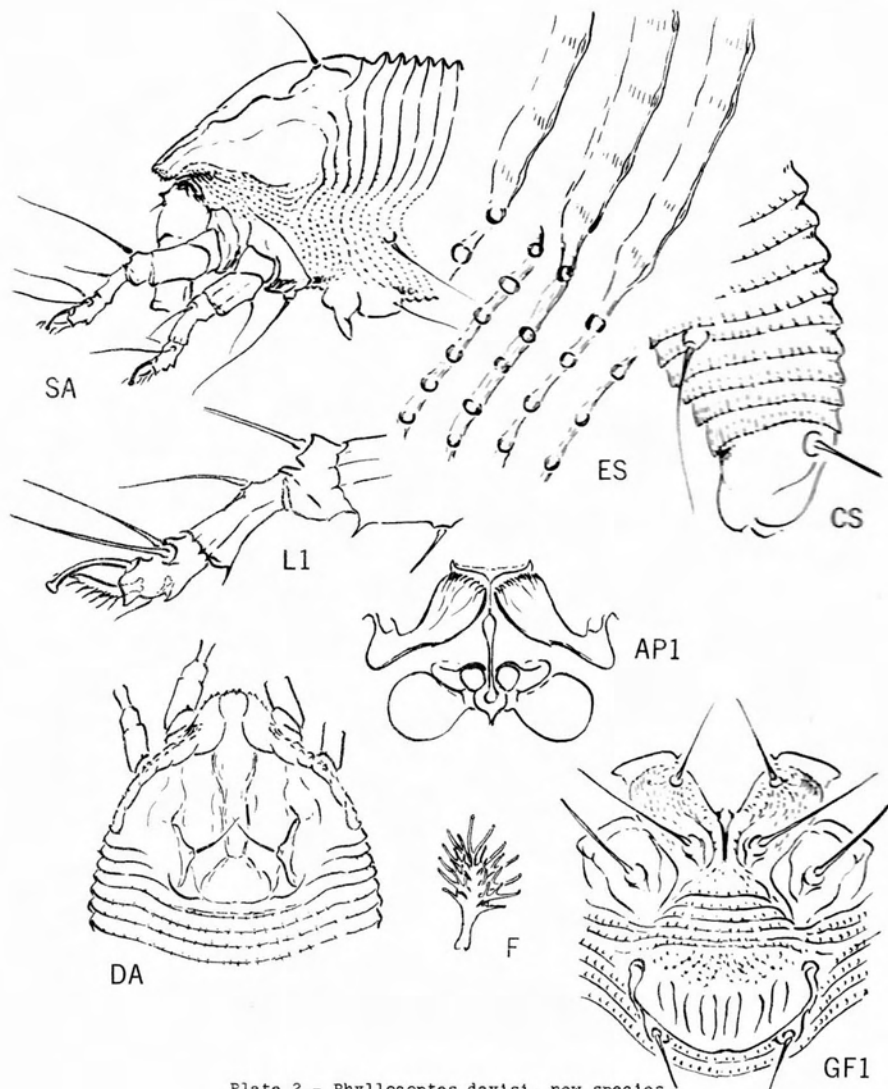


Plate 2 - *Phyllocoptes davisi*, new species

Phyllocoptes triacis, new species

Plate 3

The distinguishing feature of triacis is the three-spined anterior shield lobe. While this character might be the subject of a new genus that point is not followed up at this time. The species is deuteroagnous.

Female 190 $\mu$ -215 $\mu$  long, 64 $\mu$  thick; body robust-fusiform; color light yellowish-white. Rostrum 30 $\mu$  long, projecting down; antapical seta 6 $\mu$ -8 $\mu$  long. Shield 50 $\mu$  long, 55 $\mu$  wide, subtriangular anteriorly in dorsal view. Anterior shield lobe with three spines: a central spine, flanked on each side with a lower spine. Median shield line obscure, probably slightly indicated behind middle. Admedian shield lines complete, curving back from central anterior lobe spine and converging to about 1/5, arching again to about 1/2 and joining centrally, slightly diverging to rear 4/5 and meeting arches across from near dorsal tubercles which recurve to rear and meet centrally. A submedian shield line from sides of anterior lobe, curving out, then back toward dorsal tubercles and joining these tubercles as they curve inwardly at rear. Two lateral shield lines from anterior part of shield running back above coxae to partial rings below dorsal tubercles. A granular band above coxae. Dorsal tubercles near rear shield margin with their axes diverging anteriorly, 21 $\mu$  apart; dorsal setae 12  $\mu$  long, projecting up and central. Forelegs 34  $\mu$  long; tibia 7 $\mu$  long, with 9 $\mu$  seta at 1/3; tarsus 6 $\mu$  long; claw 7 $\mu$  long; featherclaw 7-rayed (6-8). Hindleg 31 $\mu$  long, tibia 6 $\mu$  long, tarsus 7 $\mu$  long, claw 9 $\mu$  long. Anterior coxae ornamented with lines and some granules, a broad, short sternal line between anterior coxae; first setiferous coxal tubercles farther apart than second and slightly ahead of anterior coxal approximation; second tubercles but little ahead of line across third setiferous tubercles. Abdominal thanosome with 65-70 rings, the rings subequal dorsoventrally and set with pointed microtubercles. Lateral seta 30 $\mu$  long, on ring 10 behind shield; first ventral seta 48 $\mu$  long, on ring 24; second ventral seta 37 $\mu$  long, on ring 44. Telosome with 6 rings, the microtubercles pointed; the seta 24 $\mu$  long. Accessory seta 5 $\mu$  long. Female genitalia 25 $\mu$  wide, 20 $\mu$  long; coverflap with about 12 longitudinal ribs and usually three transverse heavy cross lines basally; the seta 20 $\mu$  long.

Type locality: Gold Hill, Medford district, Oregon

Collected: May 24, 1965, by Ashley C. Browne

Host: Symphoricarpos rivularis Suksd. (albus) (Caprifoliaceae) snowberry

Relation to host: the mites are associated with an Eriophyes in leaf edgerolls and leaf folding. (The Eriophyes is described subsequently.)

Type material: a type slide with the above data  
seven paratype slides  
dry leaves with mummified mites from which the specimens came

Designations on plates -

- AP1 - Internal female genital structures
- CS - Telosome and anal lobes, side view of caudal section
- D - Dorsal view of mite
- ES - Side skin structures
- F - Featherclaw (empodium)
- GF1 - Female genitalia and coxae
- L1 - First left leg
- L2 - Second left leg
- S - Side view of mite
- SA - Side view of anterior section of mite

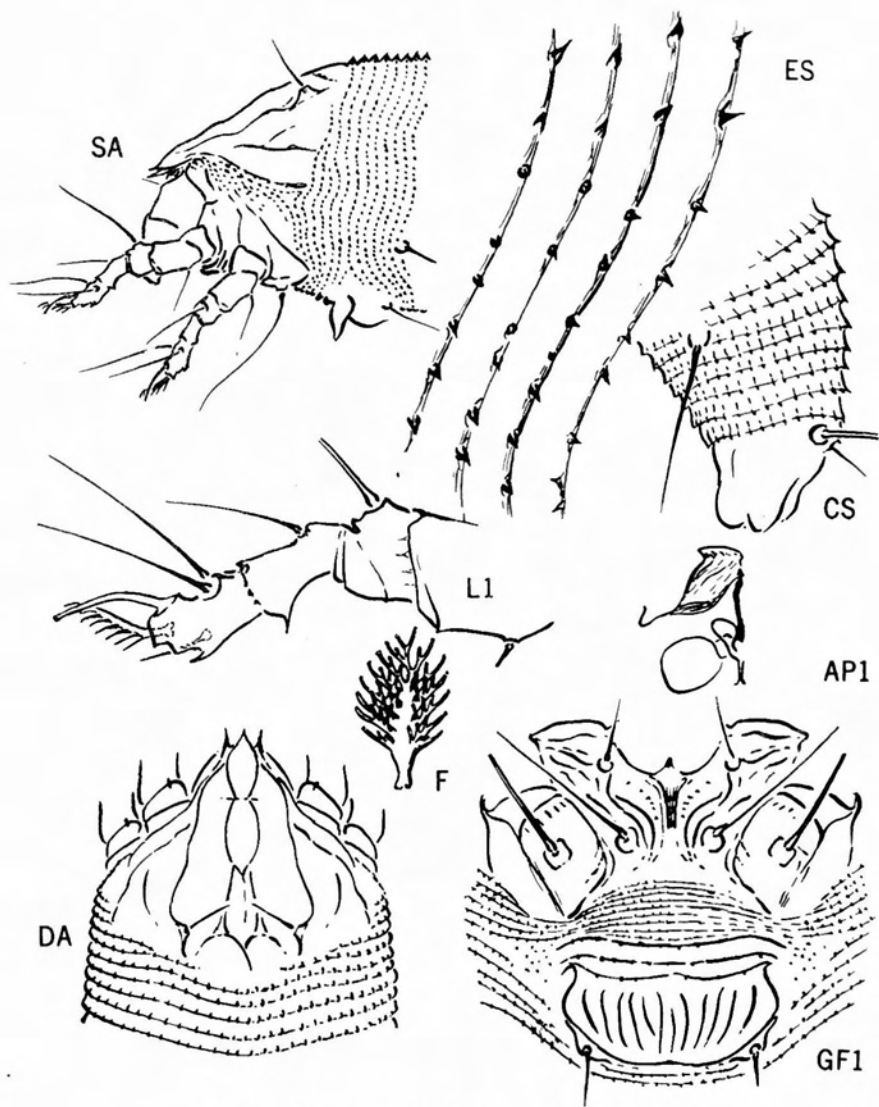


Plate 3 - *Phyllocoptes triacis*, new species

*Eriophyes browni*, new species

Plate 4

The combination of a 6-rayed featherclaw, plus pointed microtubercles projecting over ring margins, admedian lines not joined across center, and first setiferous coxal tubercles opposite anterior coxal approximation, characterize this mite. *Eriophyes caricis* K. (ES-XIV, 1944) has a 6-rayed featherclaw, but has the admedians joined across just back of middle of shield and the first coxal tubercles are somewhat ahead of anterior coxal approximation.

Female 185 $\mu$ -205 $\mu$  long, 41 $\mu$ -52 $\mu$  thick; wormlike; color light yellowish-white. Rostrum 27 $\mu$  long, projecting diagonally down; antapical seta 6 $\mu$  long. Shield 30 $\mu$  long, 42 $\mu$  wide; shield broad-semicircular in anterior outline. Median line on rear 3/4 of shield; admedians complete from base of chelicerae, gradually diverging to near rear margin, then abruptly diverging. Submedian line somewhat lateral to admedian, sinuate and broken, ending just outside dorsal tubercle. Two lateral lines along side and a granular area above coxae. Dorsal tubercles seta a little ahead of rear margin, axes approximately longitudinal, 19 $\mu$  apart; dorsal setae 12 $\mu$ -14 $\mu$  long, projecting up and centrad. Forelegs 31 $\mu$  long; tibia 5.5 $\mu$  long, with 7 $\mu$  seta at 1/3; tarsus 7 $\mu$  long; claw 7.5 $\mu$  long, curved down; featherclaw 6-rayed. Hind legs 29 $\mu$  long, tibia 5 $\mu$  long, tarsus 6 $\mu$  long, claw 9 $\mu$  long. Coxae ornamented with a moderate number of curved lines; the anterior coxae rather broad and divergent, with strong sternal line between. First setiferous coxal tubercles farther apart than second and opposite anterior coxal approximation; second tubercles well ahead of line across third coxal tubercles. Thanosome with about 62 rings, entirely microtuberculate, the microtubercles as pointed beads projecting over rear ring margins; caudally finer with elongate anterior line from each. Lateral seta 30 $\mu$  long, on about ring 8 behind shield; first ventral seta 51 $\mu$  long, on ring 22; second ventral 48 $\mu$  long, on ring 41. Telosome with about 6 rings, microtubercles as fine points on margins with anterior lines; seta 30 $\mu$  long. Accessory seta 5 $\mu$  long. Female genitalia 24 $\mu$  wide, 16 $\mu$  long; coverflap with about 10 longitudinal ribs; seta 17 $\mu$  long.

Type locality: Gold Hill, Medford district, Oregon

Collected: May 24, 1965, by Ashley C. Browne, for whom I am pleased to name the species.

Host: Symphoricarpos rivularis Suksd. (Caprifoliaceae) snowberry

Relation to host: the mites are found in the leaf edgerolls and presumably cause them, although Eriophyids of the rust mite type also occur in the rolls. Some of the rolls take the form of subcentral leaf rolls.

Type material: a type slide with the above data  
two paratype slides  
dry leaves with rolled edges and with mites

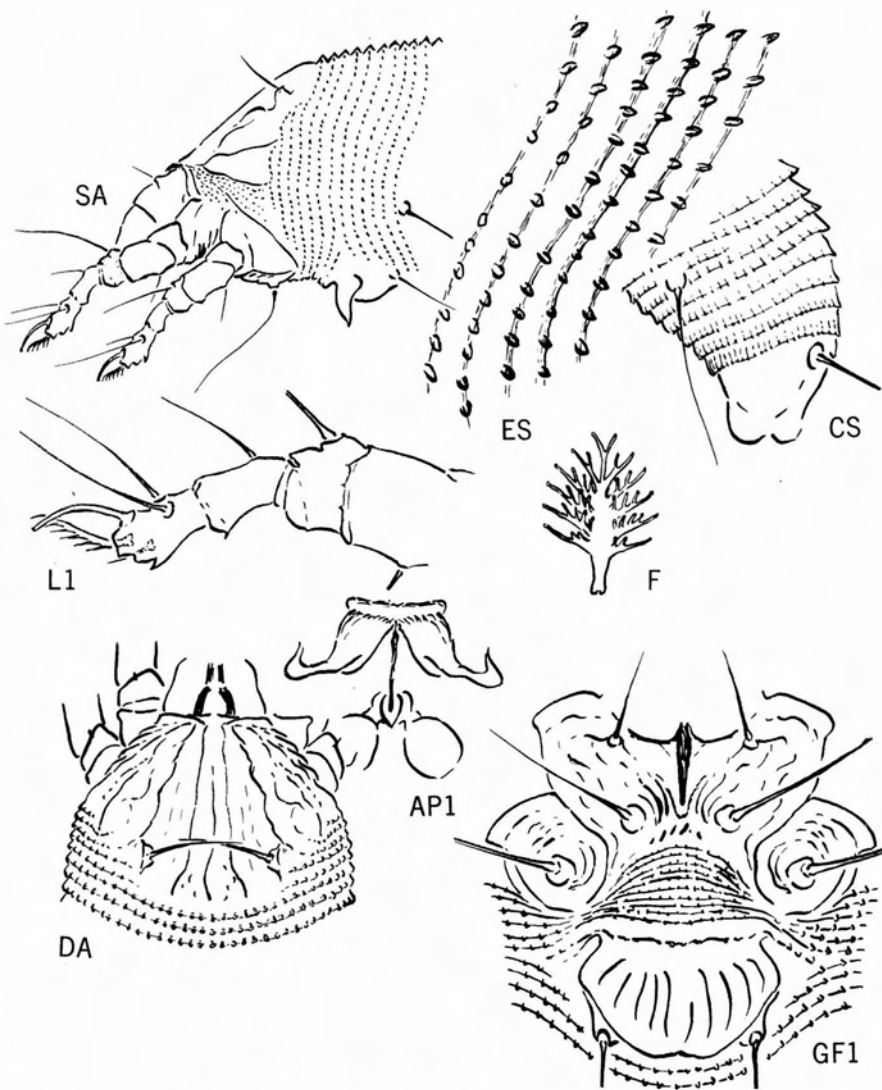


Plate 4 - *Eriophyes brownei*, new species



*Aceria ambrosioides*, new species

Plate 5

Just about the same as *caborcensis* K. (B-13, p. 7) but with a 6-rayed featherclaw. *Caborcensis* has a 4-rayed structure. There are two sizes of females that appear in the preparations. The smaller and thinner are presumably those that have not started to reproduce.

Female 190 $\mu$ -280 $\mu$  long, 40 $\mu$ -70 $\mu$  thick; elongate-wormlike; color light cream-white. Rostrum 21 $\mu$  long, curved down; Antapical seta 5 $\mu$  long. Shield 38 $\mu$  wide, 30 $\mu$  long; subtriangular in anterior outline. Median line present on rear 2/3; admedian lines complete, close anteriorly, diverging when following median, somewhat sinuate. First submedian line from chelicera base, diverging from admedian, forking in front of dorsal tubercle, the inner branch recurving outward past tubercle. The lower submedian branch meeting two lateral lines below dorsal tubercle in an acute point. Shield with band of granules above coxae and partial rings below tubercle. Dorsal tubercles 24 $\mu$  apart; dorsal setae 38 $\mu$  long, diverging. Forelegs 30 $\mu$  long; tibia 5 $\mu$  long, with 7 $\mu$  seta from about 1/2; tarsus 7 $\mu$  long; claw 10.5 $\mu$  long; featherclaw 6-rayed. Hindleg 26 $\mu$  long, tibia 4 $\mu$  long, tarsus 6.5 $\mu$  long, claw 10.5 $\mu$  long. Coxae ornamented with lines, the anterior coxae connate centrally, the sternal line moderately long; first setiferous coxal tubercles a little farther apart than second and slightly behind anterior coxal approximation; second tubercles well ahead of line across third tubercles. Abdomen with about 58-60 rings from shield to ring bearing third ventral seta, these rings completely microtuberculate, these structures produced into a fine spine. Lateral seta 19 $\mu$  long, on ring 8-9 behind shield; first ventral seta from ring 21, 41 $\mu$  long; second ventral 8 $\mu$  long, from ring 35-38; third ventral 25 $\mu$  long, from ring 6-7 ahead of rear. Accessory seta 5 $\mu$  long. Female genitalia 20 $\mu$  wide, 15 $\mu$  long; coverflap with about 12 longitudinal ribs; seta 14 $\mu$  long.

Male about 160 $\mu$  long.

Type locality: 18 miles west of Casa Grande, Arizona

Collected: December 8, 1959, by D. M. Tuttle

Host: *Franseria ambrosioides* Cav. (Compositae) creeping ragweed

Relation to host: the mites form irregular leaf galls

Type material: a type slide, so designated, with the above data  
eight paratype slides  
dry plant parts with the above data, bearing mites

In addition there is also on hand material from two other Arizona locations, the host being the same: Black Canyon Highway, Maricopa County, collected October 2, 1957, by F. F. Bibby, and sent under USDA #57-16127; Horse Tanks, Castle Dome Mts., Yuma County, collected February 7, 1961, by D. M. Tuttle.

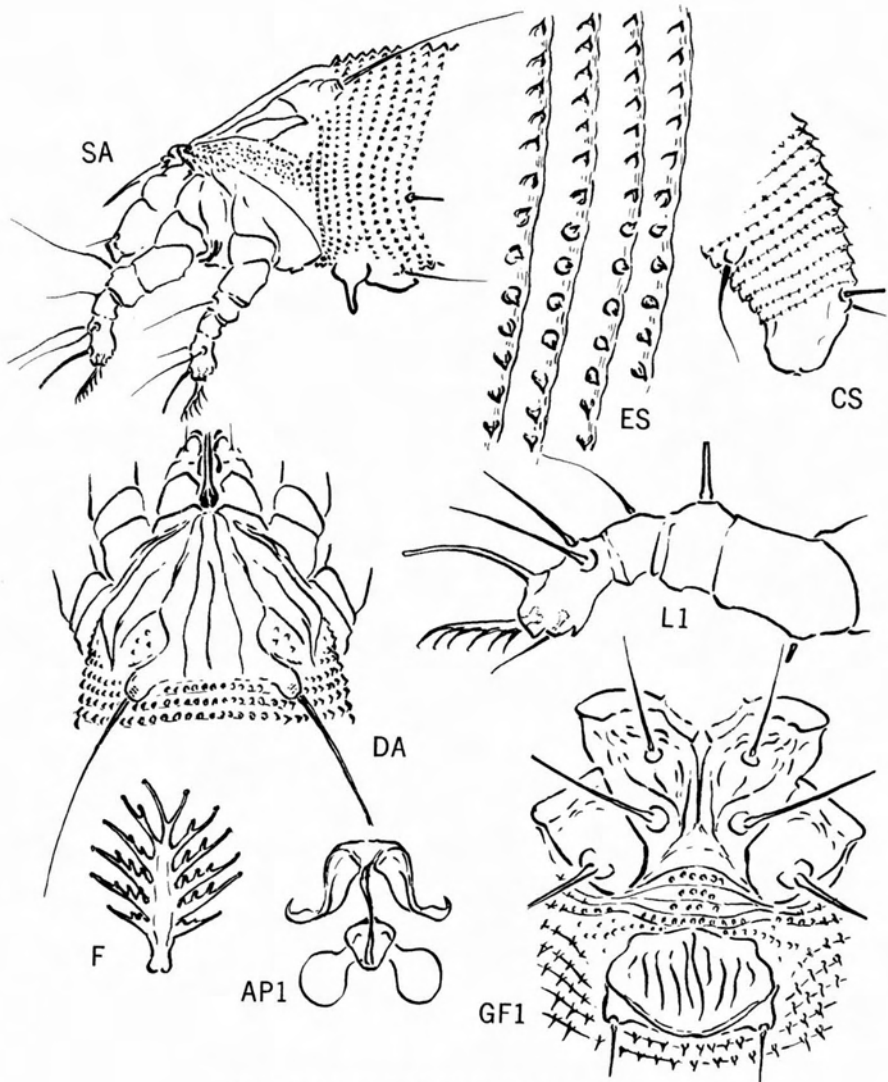


Plate 5 - *Aceria ambrosioides*, new species

*Aceria oreadis*, new species

Plate 6

Oreadis has a 5-rayed featherclaw, median shield line ending in an apodeme-like mark at shield rear, obscure second submedian lines, and shield sides covered with short dashes that extend across in front of dorsal tubercles. The microtubercles are bead-like. The rear shield margin apodeme is distinctive and separates the species from two other 5-rayed featherclaw *Artemisia* species: *abalis* K. and *pycnocephalae* K. The former further differs by having the microtubercles extended into sharp points, and the latter is distinctive by lacking short dashes in front of dorsal tubercles.

Female 155<sub>μ</sub>-180<sub>μ</sub> long, about 40<sub>μ</sub> thick; wormlike; color light yellowish white. Rostrum 18<sub>μ</sub>-23<sub>μ</sub> long, curved down; antapical seta 3<sub>μ</sub> long. Shield 23<sub>μ</sub> long, 33<sub>μ</sub> wide, broad-semicircular in anterior outline. Median shield line complete, ending in apodeme spot under rear margin of shield; admedian lines complete, subparallel to median, diverging slightly to rear and slightly recurved at rear. First submedian shield line from sides of chelicerae base, extending back and diverging from admedian, but ending slightly recurved obliquely inside and ahead of dorsal tubercle. Second submedian from side of first at anterior margin, arching back and recurving to first at almost 1/2, giving off a lateral fork before recurving. A line from middle of fork, partly of dashes, curving out and running back across in front of dorsal tubercle. Shield laterally with lines of granules and dashes, the dashes extending across in front of dorsal tubercles. Dorsal tubercles 24<sub>μ</sub> apart; dorsal setae 32<sub>μ</sub> long, strongly diverging. Forelegs 23<sub>μ</sub> long; tibia 4.5<sub>μ</sub> long, with 4<sub>μ</sub> seta at 1/3; tarsus 5.5<sub>μ</sub> long; claw 8.5<sub>μ</sub> long, featherclaw 5-rayed. Hindleg 31<sub>μ</sub> long, tibia 4<sub>μ</sub> long, tarsus 5<sub>μ</sub> long, claw 10<sub>μ</sub> long. Coxae ornamented with lines of dashes; first setiferous coxal tubercles farther apart than second and behind the anteriorly extended coxal approximation; second tubercles well ahead of line across third tubercles. Abdomen with about 50-55 rings to ring bearing third ventral seta; rings completely microtuberculate, the microtubercles bead-like, a little more elongate dorsally and touching ring margins, laterally and ventrally rounder and tending to pull ahead of margins. Lateral seta 20<sub>μ</sub> long, on ring 7 behind shield; first ventral seta 35<sub>μ</sub> long, on ring 17; second ventral 12<sub>μ</sub> long, on ring 31; third ventral 25<sub>μ</sub> long, on ring 7 from rear. Accessory seta 7<sub>μ</sub> long. Female genitalia 20<sub>μ</sub> wide, 14<sub>μ</sub> long; coverflap with about 13-15 longitudinal ribs; seta 13<sub>μ</sub> long.

Type locality: eight miles south of Markleville, Alpine County, California, on the Carson River

Collected: August 12, 1952, by the writer

Host: *Artemisia tridentata* Nutt. (Compositae) common sagebrush

Relation to host: the mites frequent the buds and leaf bases

Type material: a type slide, so designated, with the above data  
four paratype slides  
dry plant parts from which the mites on the slides came.

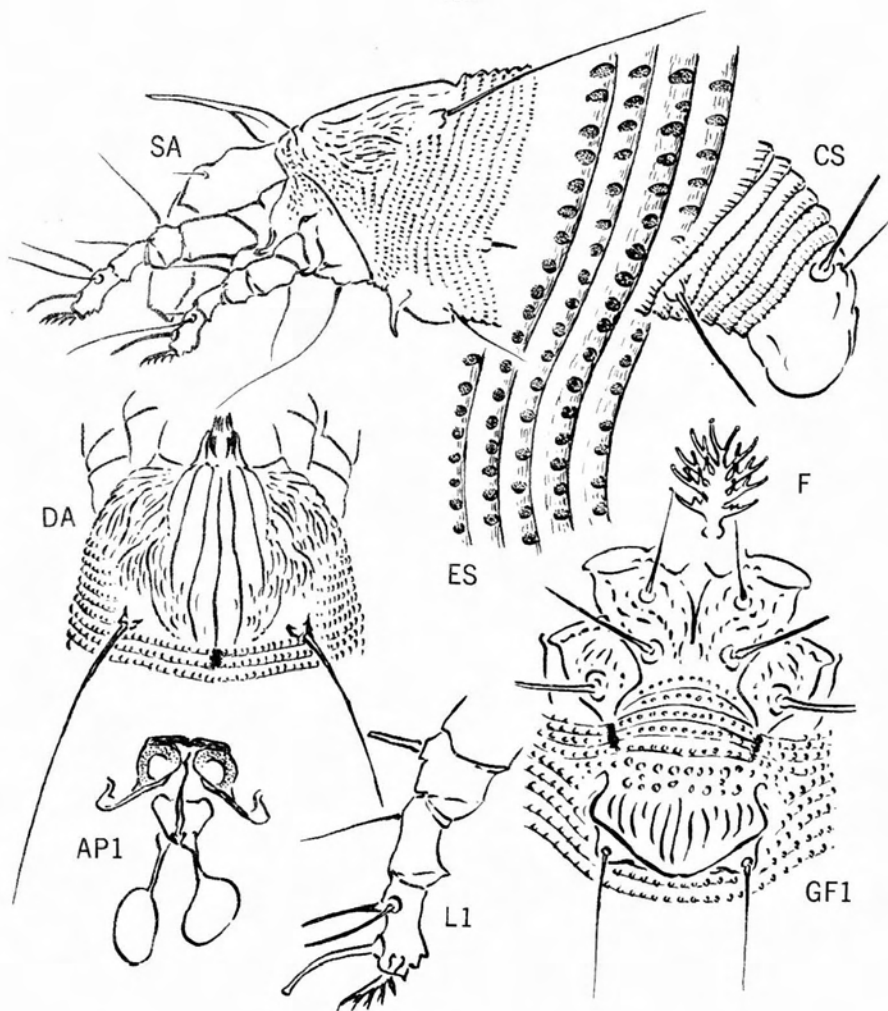


Plate 6 - *Aceria oreadis*, new species

*Aceria trinema*, new species

Plate 7

This is an erineum former of the 3-rayed featherclaw oak group. It is near *Aceria triplacis* K., a mite which forms erineum pockets on the underside of the leaves of *Quercus alba* L., but *triplacis* has solid median and admedian shield lines.  has the median line less well developed, but the admedians are lines of granules.

Female 150 $\mu$ -215 $\mu$  long, 35 $\mu$ -40 $\mu$  thick; wormlike; color in life probably a dull yellowish-white. Rostrum 23 $\mu$  long, projecting forward and diagonally down; antapical seta 5 $\mu$  long. Shield 23 $\mu$  long, 31 $\mu$  wide; subsemicircular in anterior outline, slightly acuminate centrally at front. Shield lines of granules: median line irregular; admedians complete, slightly sinuate, diverging a little to rear, then recurved; faint lines ahead of dorsal tubercles. Shield laterally with some granules above coxae and with three partial rings below dorsal tubercles. Dorsal tubercles 18 $\mu$  apart; dorsal setae 14 $\mu$  long, subparallel. Foreleg 25 $\mu$  long; tibia 5 $\mu$  long, with 5 $\mu$  seta at 1/3; tarsus 7 $\mu$  long; claw 6.5 $\mu$  long, but slightly curved; featherclaw 3-rayed. Hindleg 22 $\mu$  long; tibia 4 $\mu$  long; tarsus 6 $\mu$  long, claw 7 $\mu$  long. Coxae with some rather large granules irregularly placed; sternal line of moderate length; first setiferous coxal tubercles ahead of second and slightly ahead of anterior coxal approximation; second tubercles well ahead of line across third. Thanosome with about 47 rings which are completely microtuberculate, the microtubercles tending to be rather large and irregularly rounded, set ahead of ring margins. Lateral seta 22 $\mu$  long, on ring 5 behind shield; first ventral seta 33 $\mu$  long, on ring 16; second ventral 10 $\mu$  long, on ring 28. Telosome with 5 rings, the microtubercles tending to fade on some specimens; seta 18 $\mu$ -20 $\mu$  long. Accessory seta 6 $\mu$  long. Female genitalia 19 $\mu$  wide, 14 $\mu$  long; coverflap with irregularly placed rather large granules. Genital seta 4.5 $\mu$  long.

Type locality: Madison, Wisconsin

Collected: June 25, 1965, by D. H. Custer

Host: *Quercus rubra* L. (Fagaceae) northern red oak

Relation to host: the mites form undersurface erineum patches on the leaves

Type material: a type slide with the above data  
three paratype slides  
dry leaves with erineum containing mites

For the above deletion  
read - *Trinema*

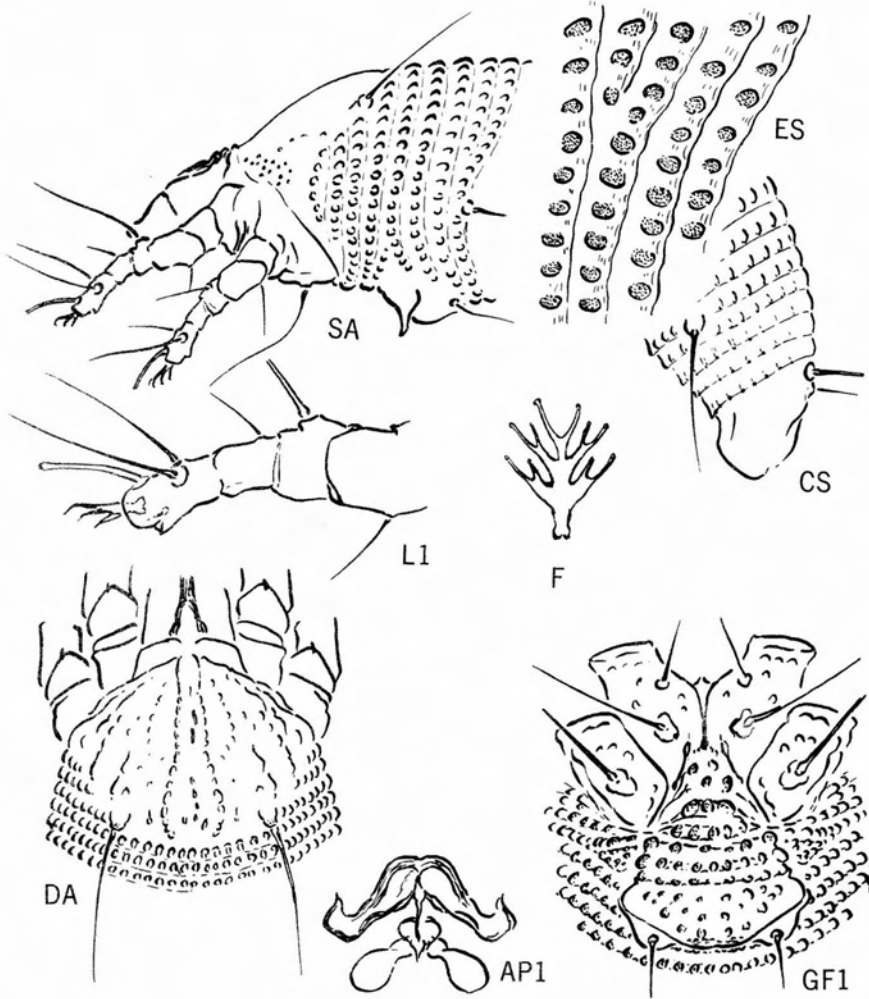


Plate 7 - *Aceria trinema*, new species

*Aceria picturi*, new species

Plate 8

*Picturi* is distinguished by the enlarged rear section of the abdomen which begins several rings ahead of the telosomal seta, by the complex of three curved lines on the side of the shield, and by the heavily lined coxae.

Female 144 $\mu$ -180 $\mu$  long, 36 $\mu$  thick; wormlike in shape; color apparently dull yellowish-white. Rostrum 18 $\mu$  long, curved down; antapical seta 3.5 $\mu$  long. Shield 25 $\mu$  long, 29 $\mu$  wide; subsemicircular in anterior outline. Median shield line present on rear 1/2; admedians complete, close anteriorly, sinuate, slightly diverging to rear, farthest apart at about 2/3; first submedian line complete, close to admedian to which it is subparallel; second submedian leaving anterior margin just lateral to first, recurving back to form an elongate ellipse with third submedian, the second broken at 2/3 and continuing as a curved line diagonally in front of dorsal tubercle; a lateral line subparallel third submedian meets it at rear shield margin. A granular area above coxae; partial rings below dorsal tubercle. Dorsal tubercles 13 $\mu$  apart; dorsal setae 32 $\mu$  long, diverging. Forelegs 30 $\mu$  long; tibia 6 $\mu$  long, with seta 5 $\mu$  long at 1/3; tarsus 6 $\mu$  long; claw 5.5 $\mu$  long; featherclaw 5-rayed. Hindleg 25 $\mu$  long, tibia 5 $\mu$  long, tarsus 5 $\mu$  long, claw 6 $\mu$  long. Coxae heavily lined longitudinally; anterior coxae with long sternal line at junction; first setiferous coxal tubercles farther apart than second and behind anterior coxal approximation; second tubercles not far ahead of line across third tubercles. Thanosome with about 53 rings, completely set with small rounded microtubercles that touch rear ring margins; last 4 or 5 rings noticeably enlarged and blending with telosome, the microtubercles reduced to small beads on ring margins. Lateral seta 12 $\mu$  long, on ring 7 behind shield; first ventral seta 44 $\mu$  long, on ring 19; second ventral 10 $\mu$  long, on ring 33. Telosome of 5 rings, the reduced microtubercles with slight anterior lines; telosomal seta 22 $\mu$  long. Accessory seta 3.5 $\mu$  long. Female genitalia 18 $\mu$  wide, 14 $\mu$  long; coverflap with about 12-14 sinuate longitudinal ribs; seta 12 $\mu$  long.

Type locality: Guinobatan, Albay Province, Philippines

Collected: April 17, 1963, by Magdalena Eriones

Host: *Pipturus arborescens* (Link.) (Urticaceae) the Damos

Relation to host: the mites form small hairy bead galls on the leaves

Type material: a type slide with the above data  
four paratype slides  
dry leaves with galls and mites from which the type series came.

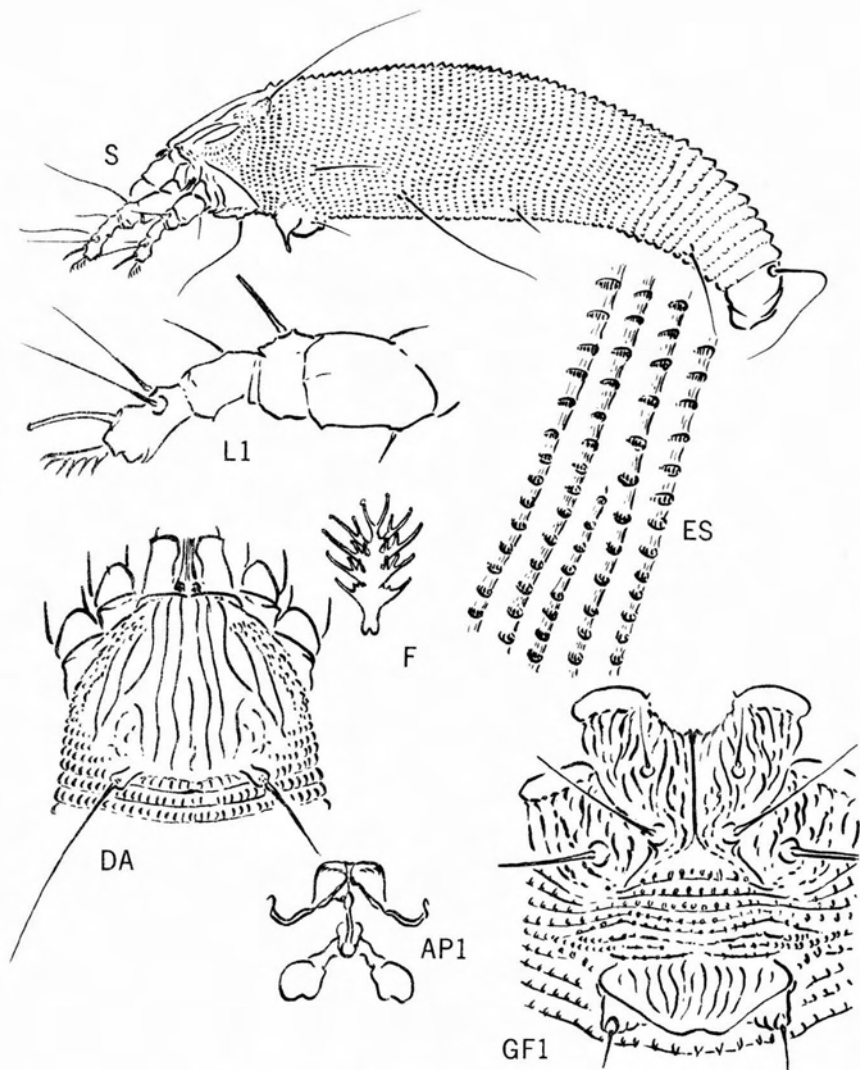


Plate 8 - *Aceria picturi*, new species



*Nalepella octonema*, new species

Plate 9

*Octonema* has broad tergites as has the genotype, *tricerus* Börner, but that species has a 5-6-rayed featherclaw whereas *octonema* has an 8-rayed structure and *octonema* has fewer tergites.

Female 200 $\mu$ -220 $\mu$  long, width 95 $\mu$ , thickness 85 $\mu$ . Body fusiform. Body color probably light yellowish-white in life. Rostrum 60 $\mu$  long, projecting diagonally down; antapical seta 15 $\mu$  long. Shield 90 $\mu$  wide, 65 $\mu$  long, with prominent lobe over rostrum base. Shield design obscure centrally; median line but slightly indicated to rear; admedians present between dorsal tubercles, starting about in center area, running back to rear margin, convex and somewhat angulate centrally on outside, joining across center behind median line by means of a short backwardly angulate cross line; a curved transverse line from behind dorsal tubercle reaching rear of admedian. A transverse line at rear of anterior lobe not reaching across center; a transverse diagonal line not reaching across center but extending across in front of dorsal tubercle and continuing to lateral rear shield angle, this line meeting another diagonal line running backward past dorsal tubercle on inside and ending at lateral angle of admedian line. Sides of shield with a prominent lobe below each dorsal tubercle. Dorsal tubercles large, somewhat ahead of rear shield margin, 50 $\mu$  apart; dorsal setae 90 $\mu$  long. Central anterior shield seta 31 $\mu$  long. Foreleg 45 $\mu$  long; tibia 15 $\mu$  long, with 8 $\mu$  seta at 2/3 and 13 $\mu$  anterolateral spur with slight knob; claw 10 $\mu$  long; featherclaw 8-rayed. Hindleg 43 $\mu$  long, tibia 14 $\mu$  long, tarsus 8 $\mu$  long, claw 10 $\mu$  long. Coxae unornamented except for lobes on each side of junction of anterior coxae, this junction short with anterior coxae divergent; first setiferous coxal tubercles set well ahead of anterior coxal approximation and a little closer than second tubercles; second tubercles somewhat ahead of line across third tubercles. Abdominal thanosome with 13-14 broad tergites with lateral lobes and fine partly obscure microtubercles present as points on rear tergal margins with fine lines extending ahead. Sternites of thanosome about 78 in number with fine microtubercles on margins. Lateral seta about 50 $\mu$  long, on about sixth sternite; first ventral seta 55 $\mu$  long, on sternite 28; second ventral 50 $\mu$  long, on sternite 44. Telosome with about 7 rings, the anterior 3-4 rings being covered by the last broad tergite; telosomal seta 40 $\mu$  long. Accessory seta 4 $\mu$ -6 $\mu$  long. Female genitalia 26 $\mu$  wide, 22 $\mu$  long; coverflap without markings; seta 45 $\mu$  long.

Type locality: Wooster, Ohio

Collected: August 23, 1964, by D. M. Tuttle

Host: *Abies mariesii* Mast. (Pinaceae) a northern Japanese fir

Relation to host: the mites are probably needle vagrants

Type material: a type slide with the above data  
five paratype slides  
mites in liquid with the above data

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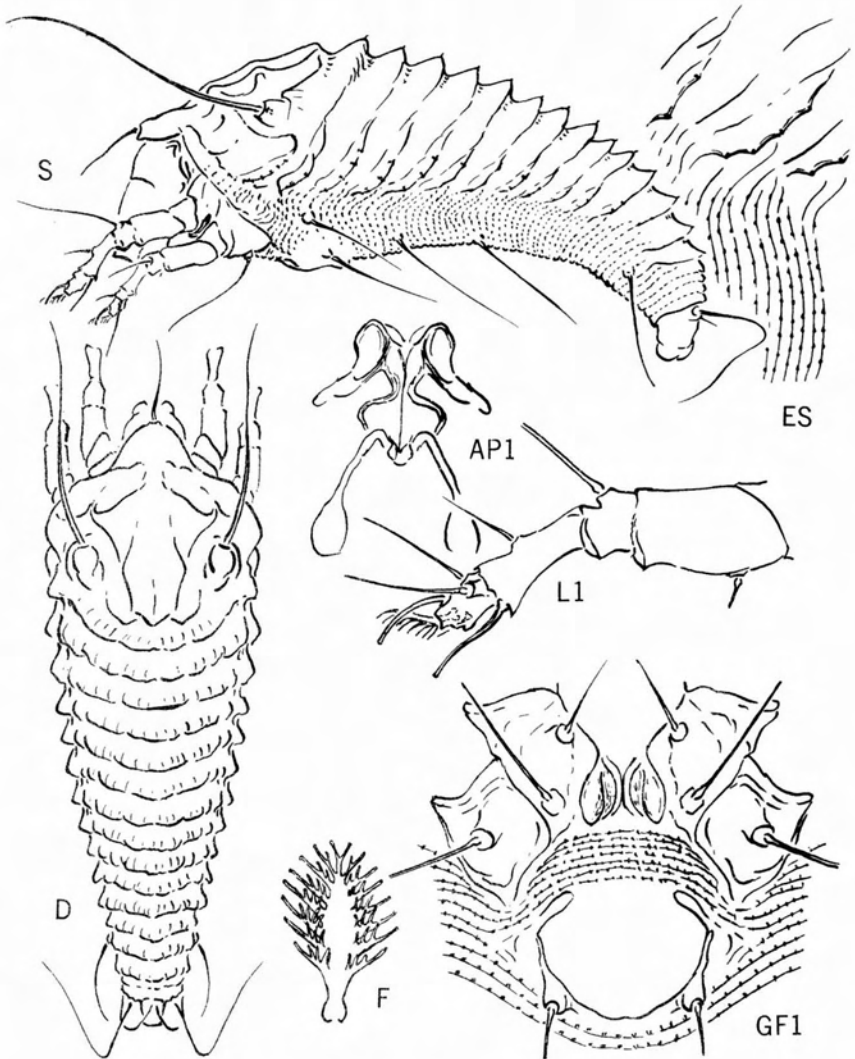


Plate 9 - *Nalepella octonema*, new species

Phytoptus swalesi, new species

Plate 10

Swalesi has a long slender featherclaw (empodium), 9-rayed outwardly and 8-rayed on inner side; the outer terminal ray is especially long. It further has a minute foretibial seta lying on the inner side, and a tiny dorsal seta. This species is the tenth *Phytoptus* found on Cyperaceous grasses. The list includes seven in northern Europe, one in Spain, and one in California. One that is found on *Scirpus* is the only exception to the apparent preference for *Carex*. *Swalesi* would appear to be closest to *Phytoptus caricis* (Lehtola), 1940, which lives on *Carex goodenowii* Gay, but that species is described as having simply an 8-rayed featherclaw, although the injury to the host is probably similar. A description of *caricis* with enough information to make an adequate comparison is not available. A Philippine coconut Phytoptid, *Acastrix trimatus* K. 1962, has similar featherclaws to *swalesi* and also has a minute dorsal seta.

Female 300 $\mu$ -350 $\mu$  long, 55 $\mu$ -60 $\mu$  thick; elongate, wormlike; color light yellowish-white. Rostrum small, 23 $\mu$  long, slightly curved down; antapical seta 4 $\mu$  long. Shield 40 $\mu$  long, 45 $\mu$  wide, subsemicircular in anterior outline. Shield design partly obscure: Median line present on rear 2/3, with an admedian on each side, slightly curved in at both ends. A submedian shield line from side of rostrum base running back past inner side of anterior setiferous tubercle and ending well in front of dorsal tubercle, flanked at rear end by short sinuate lines on each side. An inwardly convex line past inner side of dorsal tubercle. Some lateral lines on shield outside of anterior setiferous tubercle, and small granulations above rear coxa. Anterior shield seta 18 $\mu$  long; dorsal tubercles 21 $\mu$  apart; dorsal setae 3 $\mu$  long, usually inclined to rear. Foreleg 36 $\mu$  long; tibia 6 $\mu$  long, with 3 $\mu$  seta on inner side, spur lateral and 9 $\mu$  long; tarsus 7 $\mu$  long; claw 9 $\mu$  long, curved and tapering; featherclaw attenuate, 16 $\mu$  long, 9-rayed outwardly, 8-rayed inwardly, the apical ray long and curved. Hindleg 31 $\mu$  long, tibia 5 $\mu$  long, tarsus 6 $\mu$  long, claw 9 $\mu$  long. Coxae long and ornamented with some lines; anterior coxae broadly connate centrally, the sternal line long and strong, forked posteriorly; first setiferous coxal tubercles well ahead of and further apart than second tubercles, slightly ahead of anterior coxal approximation; second tubercles slightly ahead of line across third tubercles. Abdominal thanosome with about 68 microtuberculate rings, the microtubercles numerous, narrow and elongate, ending ahead of ring margins. Subdorsal seta 60 $\mu$  long, on ring 9-10; lateral seta 35 $\mu$  long on ring 7; first ventral seta 70 $\mu$  long, on ring 22; second ventral 12 $\mu$  long, on ring 43. Telosoma of about 11 rings, the microtubercles absent from or obscure on the last five rings dorsally and laterally, with the lateral suppression of microtubercles extending ahead to second ring. Telosomal seta 29 $\mu$  long. Accessory seta 6 $\mu$  long. Female genitalia 23 $\mu$  wide, 23 $\mu$  long; coverflap unornamented except for obscure short lines anteriorly; seta 14 $\mu$  long.

Type locality: 150 miles north of the Arctic Circle near Inuvik, Northwest Territory, Canada. The grasses were in a damp roadside ditch near Dolomite Lake. The precise location is 68°, 39' N., 133°, 62' W., near the mouth of the Mackenzie River.

Collected: July 14, 1965, by Dr. Dorothy E. Swales, for whom I am pleased to name the species.

Host: *Carex lugens* Holm (Cyperaceae) a sedge

Relation to host: the mites attack the flower heads and apparently destroy the seed, then filling the otherwise vacant perigynium. No unusual enlargement of this structure has been apparent in the few flower heads examined so far. Numerous mites are present in the flower heads sent me.

Type material: a type slide with the above data  
seven paratype slides  
dry flower heads with numerous mite mummies, as above.

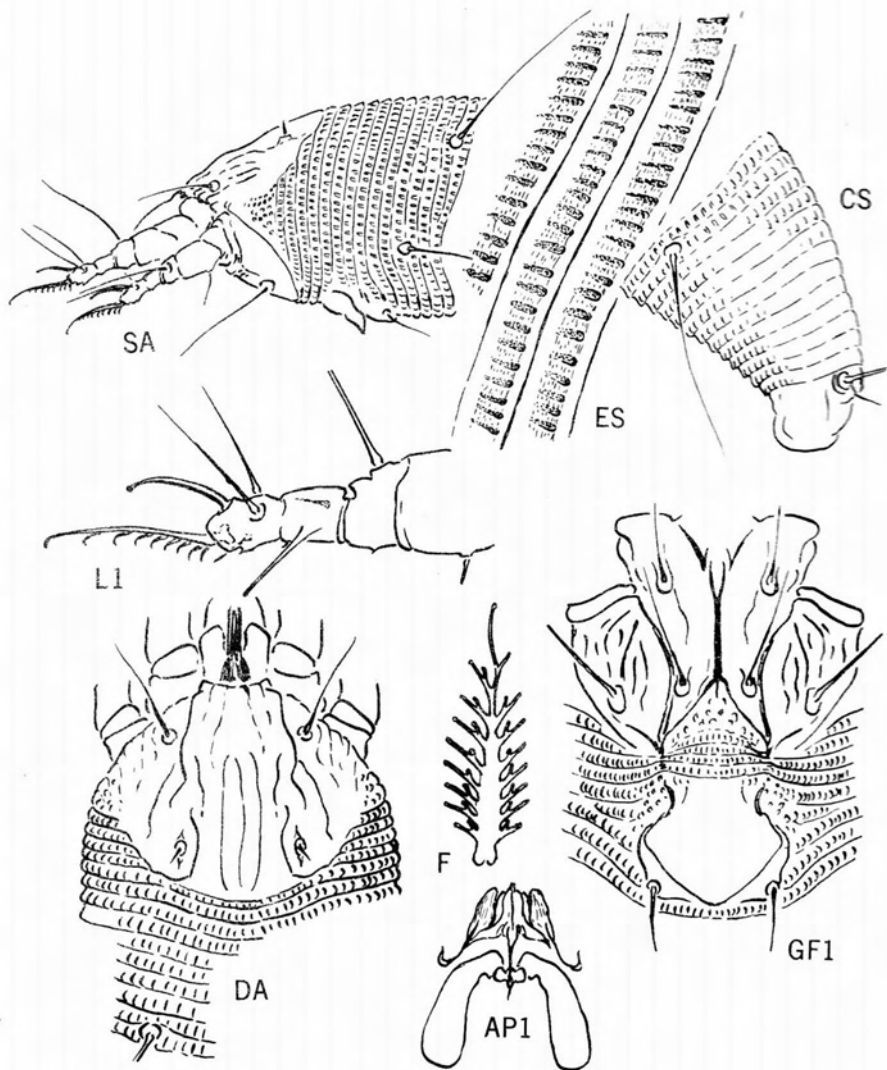


Plate 10 - *Phytoptus swalesi*, new species