

# Three New Species of Eriophyid Mites from Georgia Coastal Islands (Acari: Eriophyoidea)<sup>1</sup>

Jan Boczek and Robert Davis<sup>2</sup>

Department of Applied Entomology, Agricultural University of Warsaw  
Warsaw, Poland

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**ABSTRACT** Three new species of eriophyid mites - *Platyphytoptus warkus* from *Pinus elliottii* Engelm. (Pinaceae), *Apodiptacus liquidambarus* from *liquidambar styraciflua* L. (Hamamelidaceae) and *Diptiloplatus pulaski* from *Rhus glabra* L. (Anacardiaceae) - are described. All species were collected from the coastal barrier islands near Savannah, GA, U.S.A.

**KEY WORDS** *Platyphytoptus warkus*, *Apodiptacus liquidambarus*, *Diptiloplatus pulaski*, Eriophyid Mites.

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During the summer of 1983, several field trips were made to the two coastal barrier islands of Wilmington and McQueens, near Savannah, GA, U.S.A., to search for plant feeding mites. Wilmington Island is a residential suburb of Savannah, and while typically coastal in much of its vegetation, numerous introduced plants are used in landscape and foundation plantings. Apparently, these introduced plants brought their mite fauna with them. McQueens Island is a National Park and the location of Fort Pulaski, an early 19th century coastal fortification. Early photographs show the island had a very limited variety of vegetation in the late 1800s; however, today it is covered in the typical coastal vegetation found on most barrier islands on the South Atlantic coast of the United States. Our collections revealed very few plant feeding mites on McQueens Island. Apparently this flora either lacks a rich mite fauna or the fauna has been slow to develop. Further investigations would be rewarding.

Type material has been deposited at the Department of Applied Entomology, Agricultural University of Warsaw, Warsaw, Poland and in the collections of the authors.

*Platyphytoptus warkus* n. sp. (Plate 1)

**FEMALE:** 182  $\mu$ m long (range of 12 specimens, 142-272  $\mu$ m); 56  $\mu$ m wide, fusiform. Rostrum 22  $\mu$ m long; chelicerae 19  $\mu$ m long, curved down. Shield 43  $\mu$ m long without lob over rostrum; shield pattern of only one admedian line and one short transverse line. Dorsal tubercles 16  $\mu$ m ahead of rear shield margin, 18  $\mu$ m apart; dorsal setae 6  $\mu$ m long pointed centrally. Foreleg 33  $\mu$ m long; tibia 6 mm

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<sup>2</sup> Stored-Product Insect Research and Development Laboratory, ARS-USDA, Savannah, GA 31403, USA

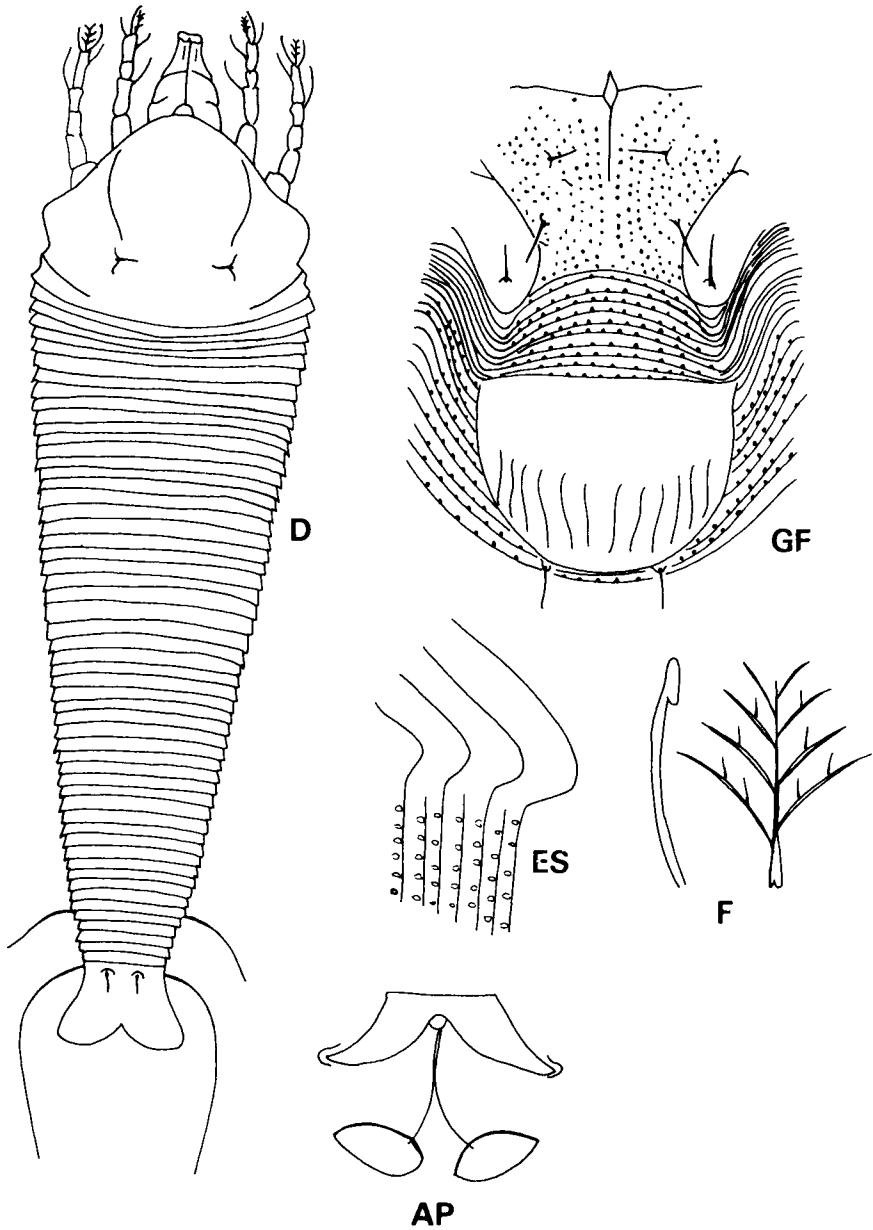


Plate 1. *Platyphytoptus warkus* n. sp. AP - internal female genital apodema; D - dorsum of mite; ES - lateral epidermal structures; F - claws; GF - female genitalia and coxae.

long; tarsus 12  $\mu\text{m}$  long; solenidion 6  $\mu\text{m}$  long, knobbed; empodium 4-rayed, 4  $\mu\text{m}$  long. Hindleg 24  $\mu\text{m}$  long; tibia 6  $\mu\text{m}$  long; tarsus 10  $\mu\text{m}$  long. Sternum 9  $\mu\text{m}$  long forked anteriorly. Forecoxae ornamented, hindcoxae smooth. First forecoxal setae 8 mm apart; second forecoxal setae 9 mm apart; hindcoxal setae 12  $\mu\text{m}$  apart, 23  $\mu\text{m}$  long. Opisthosoma of 64 smooth tergites and about 80 microtuberculate sternites. Lateral setae 10  $\mu\text{m}$  long, on sternite 5; first ventral setae 19  $\mu\text{m}$  long, on sternite 14; second ventral setae 21  $\mu\text{m}$  long, on sternite 46; third ventral setae 3  $\mu\text{m}$  long on sternite 6 from rear. Accessory setae 3  $\mu\text{m}$  long. Female genitalia 29  $\mu\text{m}$  wide; coverflap with distal longitudinal 12-14 striae, smooth basally genital setae 18  $\mu\text{m}$  apart, 4  $\mu\text{m}$  long.

MALE: 152  $\mu\text{m}$  long, 39  $\mu\text{m}$  wide; genitalia 16  $\mu\text{m}$  wide; shield 33  $\mu\text{m}$  long.

NYMPH II 137  $\mu\text{m}$  long, 40  $\mu\text{m}$  wide.

HOST: *Pinus elliottii* Engelm. (Pinaceae)

RELATION TO HOST: The mites occur in sheaths of needles causing some discoloration of needle bases.

TYPE MATERIAL: holotype, female on slide; Fort Pulaski National Park, McQueens Island, GA, U.S.A.; 8-VII-1983. Paratypes (12): eleven females and one male on slides, same data as holotype.

This species is close to *Platyphtoptus multisternatus* K. (Keifer 1939) but can be distinguished by the shape and pattern of the shield, the presence of a sternum and by the shape of the genital apodeme. The dorsal shield of *P. multisternatus* is subtriangular with a distinct lobe over the rostrum and without a shield pattern, the sternum is minute and the base of the genital apodeme is narrow and laterally indented. In the new species the dorsal shield is suboval with one pair of admedian lines and a short transverse line with lateral lobes; sternum present; base of the genital apodeme wide and lateral margin extending evenly posterad. The specific name warkus is taken from Warka, Poland, the birthplace of Count Pulaski.

*Apodiptacus liquidambarus* n. sp. (Plate 2 and Figure 1).

FEMALE: 162  $\mu\text{m}$  long (range of 10 specimens, 160-202  $\mu\text{m}$ ); 59  $\mu\text{m}$  wide, 64  $\mu\text{m}$  thick, spindleform with dense white wax threads (Fig. 1). Rostrum 40  $\mu\text{m}$  long, antapical seta 12  $\mu\text{m}$  long; chelicerae 53  $\mu\text{m}$  long abruptly bent down. Shield 41  $\mu\text{m}$  long (40-47), subtriangular, rear shield margin forming a short rounded lobe projecting over first two tergites; anterior shield lobe broad, distinctly incised anteriorly. Dorsal tubercles slightly ahead of rear shield margin 25  $\mu\text{m}$  apart; dorsal setae 8  $\mu\text{m}$  long pointing antero-centrally. Foreleg 50  $\mu\text{m}$  long; tibia 9  $\mu\text{m}$  long with seta 5  $\mu\text{m}$  long; tarsus 8  $\mu\text{m}$  long; solenidion 5  $\mu\text{m}$  long, knobbed; empodium divided, 5-rayed. Hindleg 31  $\mu\text{m}$  long; tibia 7  $\mu\text{m}$  long; tarsus 7  $\mu\text{m}$  long; solenidion 5  $\mu\text{m}$  long. Forecoxae joined anteriorly, forming 4  $\mu\text{m}$  long sternum.

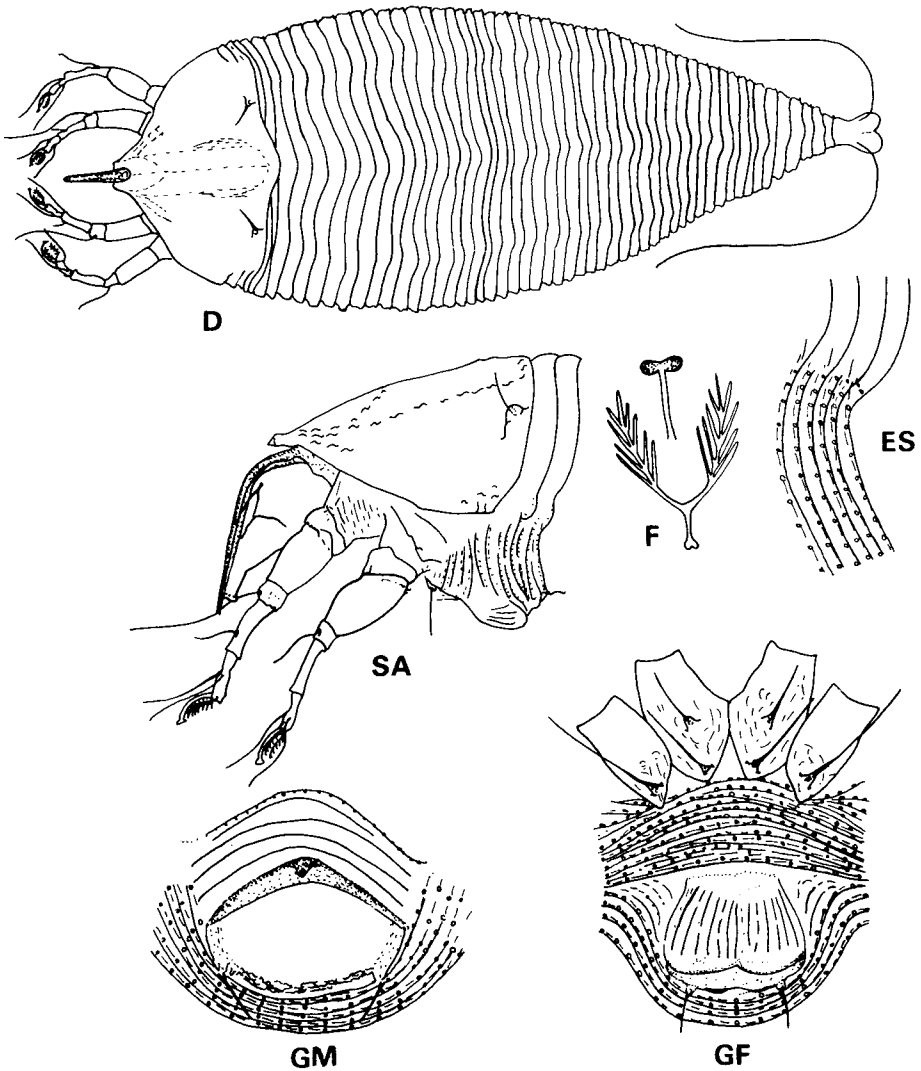


Plate 2. *Apodipticus liquidambarus* n. sp. D - dorsum of mite; ES - lateral epidermal structures; F - claws; GF - female genitalia and coxae; GM - male genitalia; SA - anterior, lateral view.

First forecoxal setae 13  $\mu\text{m}$  apart, second setae 7  $\mu\text{m}$  apart; hindcoxal setae 26  $\mu\text{m}$  apart. Opisthosoma of 50 smooth tergites and about 86 microtuberculate sternites. Tergites forming three low longitudinal ridges bearing wax filaments (Fig. 1). Lateral setae 8  $\mu\text{m}$  long, on sternite 14; first ventral setae 16  $\mu\text{m}$  on sternite 34; second ventral setae 16  $\mu\text{m}$  long on sternite 53, their tubercles 41  $\mu\text{m}$  apart; third ventral setae 10  $\mu\text{m}$  on sternite 7 from rear. Accessory setae missing. Female genitalia 23  $\mu\text{m}$  wide, 18  $\mu\text{m}$  long, coverflap with 14 longitudinal unbroken and broken striae; genital setae 9  $\mu\text{m}$  long.

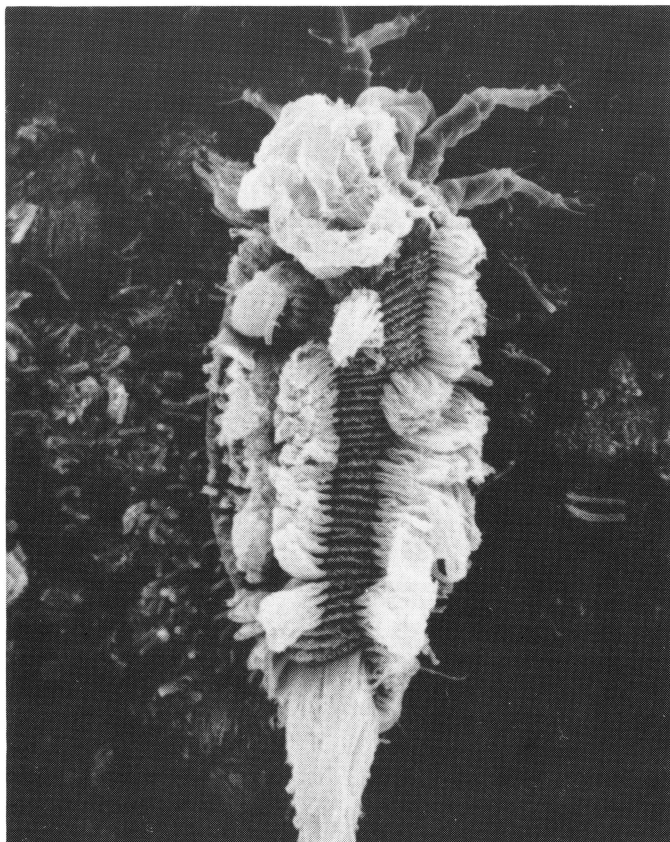


Fig. 1. Female *Apodiptacus liquidambarus* n. sp. showing dense white wax filaments.

MALE: 128  $\mu\text{m}$  long, 58  $\mu\text{m}$  wide; shield 35  $\mu\text{m}$  long; dorsal tubercles 20  $\mu\text{m}$  apart; genitalia 24  $\mu\text{m}$  wide.

HOST: Sweetgum, *Liquidambar styraciflua* L. (Hamamelidaceae)

TYPE MATERIAL: holotype, female on slide, Wilmington, Island, GA., U.S.A.; 2-VI-1983; paratypes (10): nine females and one male, same data as holotype.

This new species is close to *Apodiptacus cordiformis* K. (Keifer 1960), but it can be distinguished by the shape of the body, forecoxae, genital coverflap and shield lobe. In *A. cordiformis* the body is elongate-fusiform, shield lobe narrowed at base with apical indentation, basal section of coverflap with numerous longitudinal lines; forecoxae separated. In the new species the body is broadest over ventral setae I; shield lobe broad at base; genital coverflap with longitudinal, partially broken striae; forecoxae joined anteriorly forming a distinct sternum. The host families (Juglandaceae and Hamamelidaceae, respectively) of the two species are quite unrelated, however, Davis (1964) reported *A. cordiformis* from *Prunus persica* (Rosaceae), *Liquidambar styraciflua* (Hamamelidaceae), *Morus alba* (Moraceae), and *Quercus phellos* (Fagaceae), showing a diverse host range of this species. This is the second species known for *Apodiptacus*.

*Diptiloplatus pulaski* n. sp. (Plate 3, figs. 2 and 3).

FEMALE: 176  $\mu\text{m}$  long (range of 10 specimens, 148-221  $\mu\text{m}$ ); 75  $\mu\text{m}$  wide, spindlelike. Rostrum 38  $\mu\text{m}$  long with antapical seta 20  $\mu\text{m}$  long; chelicerae 62  $\mu\text{m}$  long, abruptly bent down. Shield (Fig. 2) 34  $\mu\text{m}$  (33-40) long, rhomboidal, with netlike pattern of about 20 fields. Lobe 6  $\mu\text{m}$ , anteriorly rounded. Dorsal tubercles 24  $\mu\text{m}$  apart, 4  $\mu\text{m}$  ahead of rear shield margin; dorsal setae minute, 3  $\mu\text{m}$  long, pointing centrally. Foreleg 44  $\mu\text{m}$  long; tibia 13  $\mu\text{m}$  long; seta 9  $\mu\text{m}$  long; tarsus 6  $\mu\text{m}$  long; solenidion 6  $\mu\text{m}$  long, knobbed, empodium divided, 6-rayed. Hindleg 38  $\mu\text{m}$  long; tibia 12  $\mu\text{m}$  long; tarsus 7  $\mu\text{m}$  long; solenidion 7  $\mu\text{m}$  long. Forecoxae joined, forming 7  $\mu\text{m}$  long sternum. First forecoxal tubercles 13  $\mu\text{m}$  apart, setae 18  $\mu\text{m}$  long; second forecoxal tubercles 12  $\mu\text{m}$  apart, setae 24  $\mu\text{m}$  long; hindcoxal tubercles 25  $\mu\text{m}$  apart, setae 60  $\mu\text{m}$  long. Opisthosoma of 75 microtuberculate rings evenly arched, slightly flattened dorsally. Lateral setae 28  $\mu\text{m}$  long on large tubercles on sternite 19; first ventral setae 50  $\mu\text{m}$  long on sternite 37; second ventral setae 50  $\mu\text{m}$  long on sternite 57; third ventral setae 72  $\mu\text{m}$  long on sternite 10 from rear. Accessory setae missing. Female genitalia 22  $\mu\text{m}$  wide, genital seta 28  $\mu\text{m}$  long, genital coverflap with 9-12 longitudinal striae (Fig. 3).

MALE: not seen.

RELATION TO HOST: This mite is an undersurface leaf vagrant causing some discoloration.

TYPE MATERIAL: holotype female on slide, 15-VII-1983, Fort Pulaski National Park, McQueens Island, GA, U.S.A.; paratypes (10) females having the same data.

This new species is close to *Diptiloplatus megagrastis* K. (Keifer 1975) but can be distinguished by the number of tergites, structure of the shield lobe and genital coverflap. In *D. megagrastis* the opisthosoma consists of 21 tergites and about 60 sternites, dorsally forming a broad, shallow longitudinal trough; shield lobe thick, anteriorly stout; genital coverflap with row of short striae across the base. In the new species, the opisthosoma consists of about 75 subequal microtuberculate

rings. The dorsum is slightly flattened; shield lobe thin, anteriorly acute; genital coverflap with longitudinal, 9-12 long striae. The host families (Anacardiaceae and Poaceae, respectively) of the two species are quite unrelated. A third species of *Diptiloplatus* is also known. Xin, Jie-Liu and Dong, Hui-Quing (1983) described *D. sacchari* from *Saccharum officinarum* from China. The new species is named for Pulaski National Park.

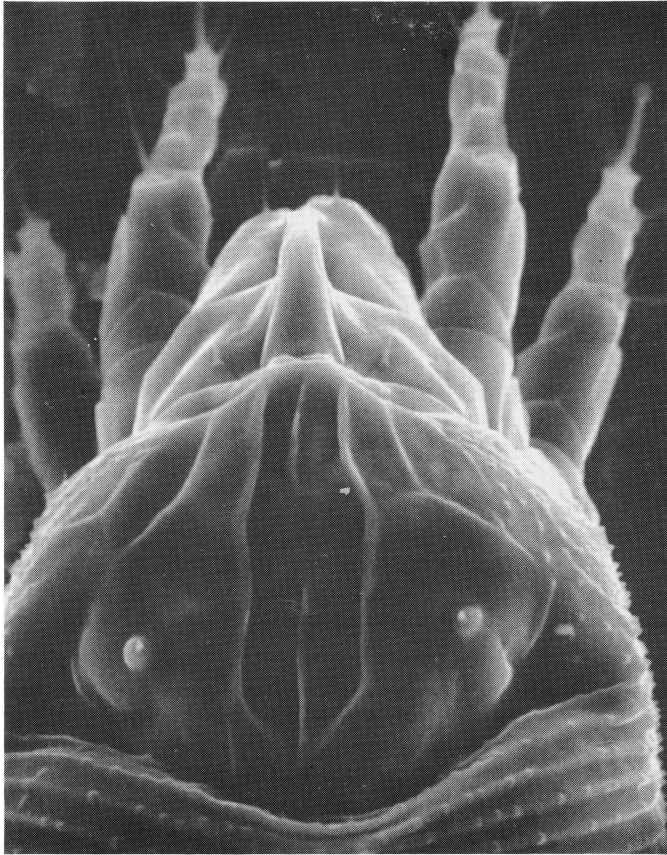
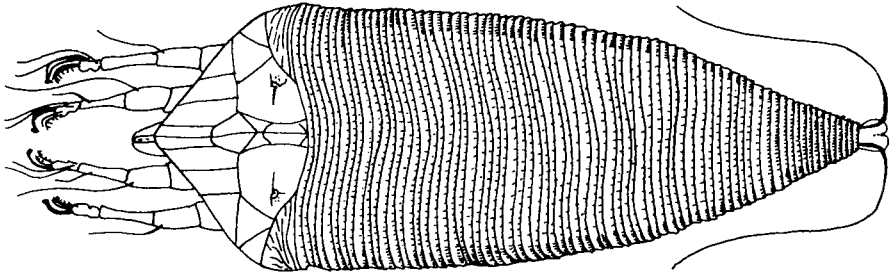
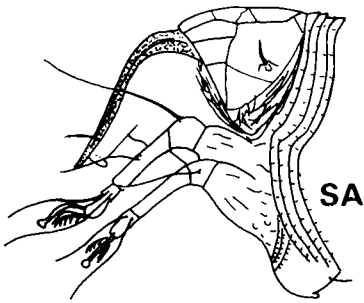


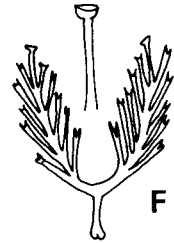
Fig. 2. Female *Diptiloplatus pulaski* n. sp. showing dorsal shield.



D



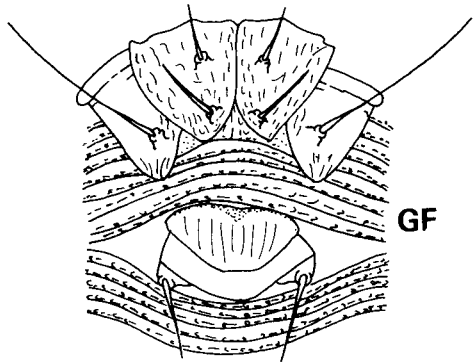
SA



F



ES



GF

Plate 3. *Diptiloplatus pulaski* n. sp. D - dorsum of mite; ES - lateral epidermal structures; F - claws; GF - female genitalia and coxae; SA - anterior, lateral view.



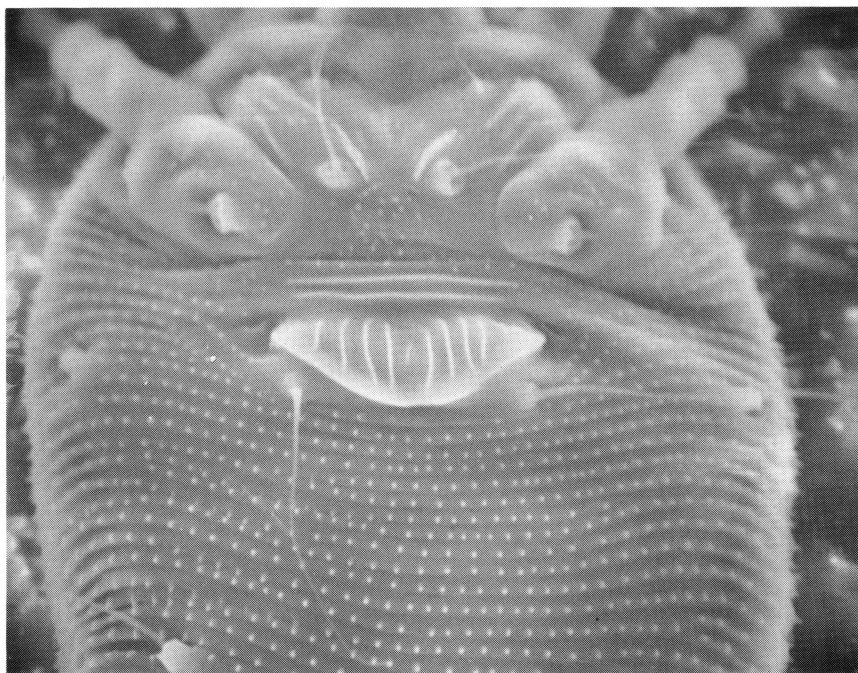


Fig. 3. Female *Diptiloplatus pulaski* n. sp. showing genital coverflap with longitudinal striae.

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