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A NEW *RHOPALOSIPHUM* ON CATTAIL (HOMOPTERA: APHIDIDAE)

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Abstract.—*Rhopalosiphum laconae* NEW SPECIES is described from adult females, both winged and wingless morphs. This aphid is endemic to the coastal plain of North Carolina, where its sole host is the cattail (*Typha* spp.). Photomicrographs of both life cycle morphs are provided.

Key Words.—Insecta, Aphididae, *Rhopalosiphum laconae* Taber NEW SPECIES

This paper describes a new species of aphid that was discovered in the insect collection of the Entomology Department of North Carolina State University, Raleigh, North Carolina. The specimens had been ironically misidentified as *Rhopalosiphum enigmae* Hottes & Frison. *Rhopalosiphum laconae* Taber, NEW SPECIES is endemic to the southern coastal plain of North Carolina (Fig. 1), a region with an abundance of swamps and freshwater marshes. Cattail (*Typha* spp.), or reed-mace, is a semiaquatic plant and the only host of *R. laconae.* The distinctive new aphid was taken at three localities on three different dates, spanning more than five years. The description of this new species is an essential part of the ongoing revision and reconstruction of phylogeny of the economically important aphid genus *Rhopalosiphum* Koch.

MATERIALS AND METHODS

Measurements were obtained with a Bausch and Lomb Galen phase contrast microscope equipped with ocular and stage micrometers. Photographs were obtained with an Olympus BH-2 phase contrast microscope equipped with a Pentax P3 35mm camera, a Diagnostic Instruments camera tube, and an Olympus NFK 2.5XLD 125 adapter lens. Prints were obtained from Kodak Ektachrome 160T tungsten color slides (2×2).

RHOPALOSIPHUM LACONAE TABER, NEW SPECIES (Figs. 1–10)

Types.—Holotype: female (apterous vivipara morph) (Fig. 2); data: USA. NORTH CAROLINA. *BRUNSWICK Co.:* Orton Plantation, 1 May 1959; deposited: United States National Museum of Natural History, Washington, D.C. Nine paratypes: same data as holotype, 1 adult apterous vivipara, 1 nymph, and 1 alate vivipara; NORTH CAROLINA. *CARTERET Co.:* Bogue, 26 Apr 1964, 2 apterous viviparae and 3 nymphs; *PENDER Co.:* Willard, 24 Apr 1964, 1 alate vivipara: one alate vivipara paratype deposited in USNM, the remaining paratypes deposited in the insect collection of the Entomology Department, North Carolina State University, Raleigh, North Carolina.

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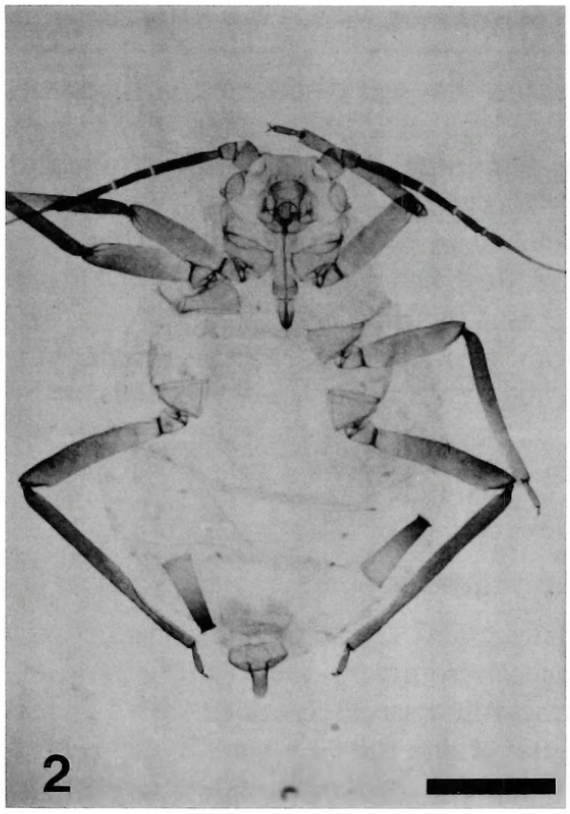

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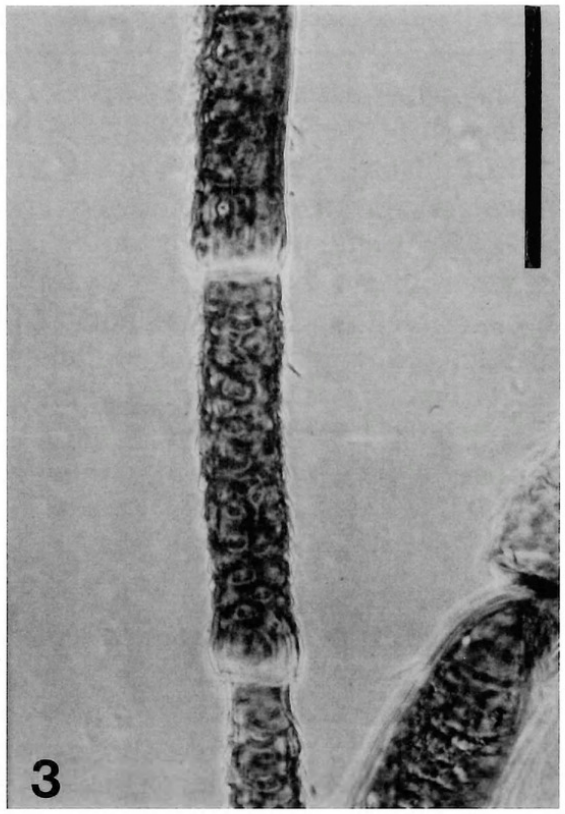

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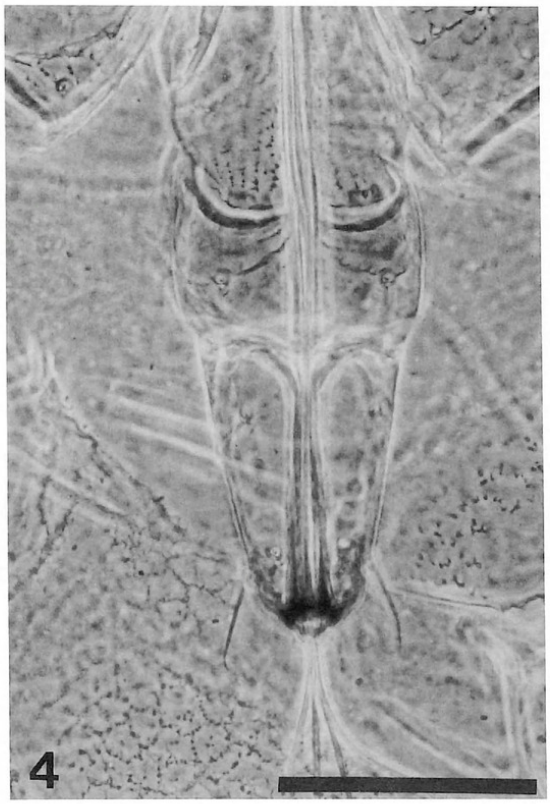
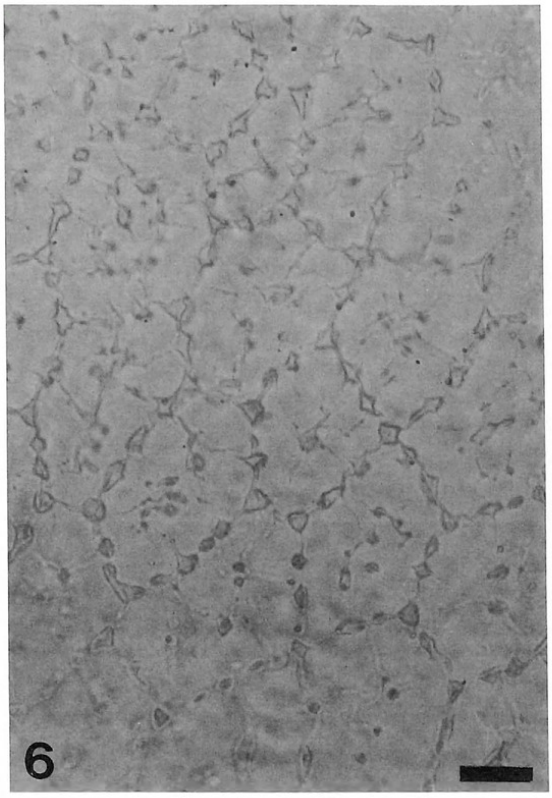
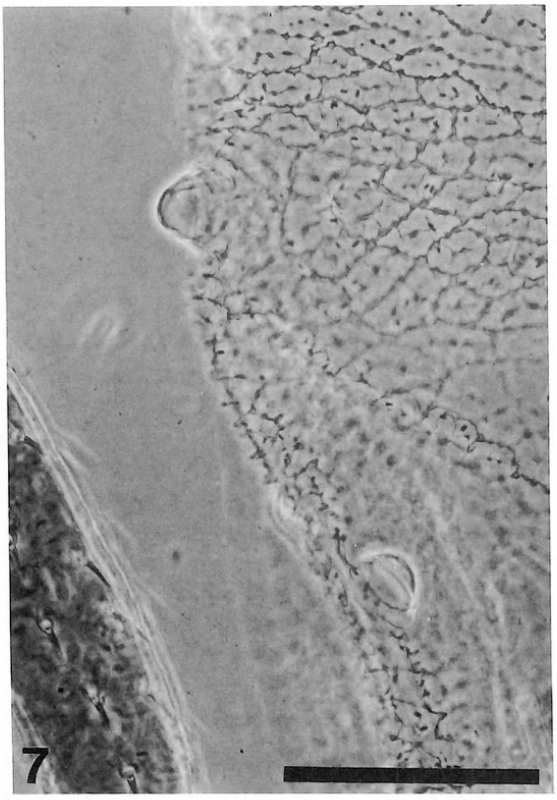
Figures 1–3. *Rhopalosiphum laconae* Taber NEW SPECIES. Figure 1. Distribution. Figure 2. Apterous vivipara (holotype) from *Typha* sp., scale = 0.5 mm. Figure 3. Antenna segment V and part of IV and VI (holotype), scale = 0.1 mm.

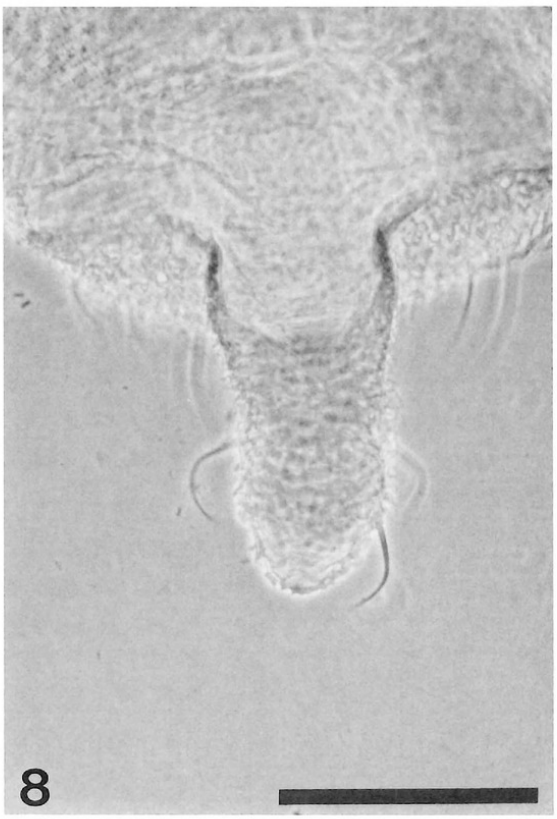
Description.—Adult apterous vivipara: Color in life: "greenish-red bronze" (from microscope slide data), color in macerated specimens; antenna segments dark brown except segments I and II light brown. Apex of siphunculus dark brown. Apex of tibia light brown, base dark brown; distal one-half of femur dark brown, basal one-half lighter; tarsi dark brown. Anal plate dark brown. Remainder of appendages light brown. Body pale, tinged with brown. *Head:* Antenna densely imbricated, giving rugous appearance; antenna setae extremely short, robust, and strongly capitate (Fig. 3). Setae of lateral frontal tubercle, median frontal tubercle, and cephalic disk like those of antenna; cephalic disc with 6 setae, 1 anterior and 2 posterior pairs. Rostrum reaching mesothoracic coxa; ultimate rostrum segment robust (Fig. 4). *Thorax:* Prothoracic tubercles extremely large; prothorax with 6 setae, 1 pair near each tubercle, 1 pair located mesally. All second tarsi very robust (Fig. 5); all hind tibia setae very short and capitate except distal ventral setae, many of which are blunt or acute; capitate setae

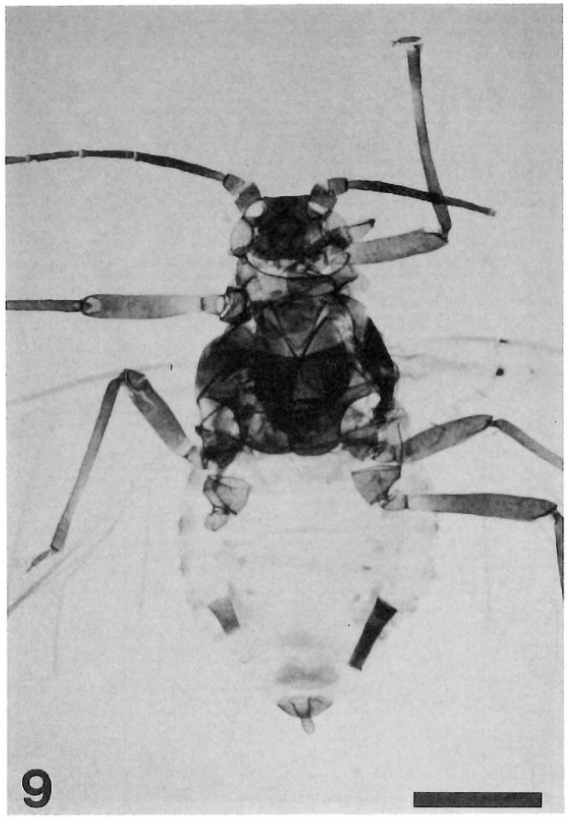


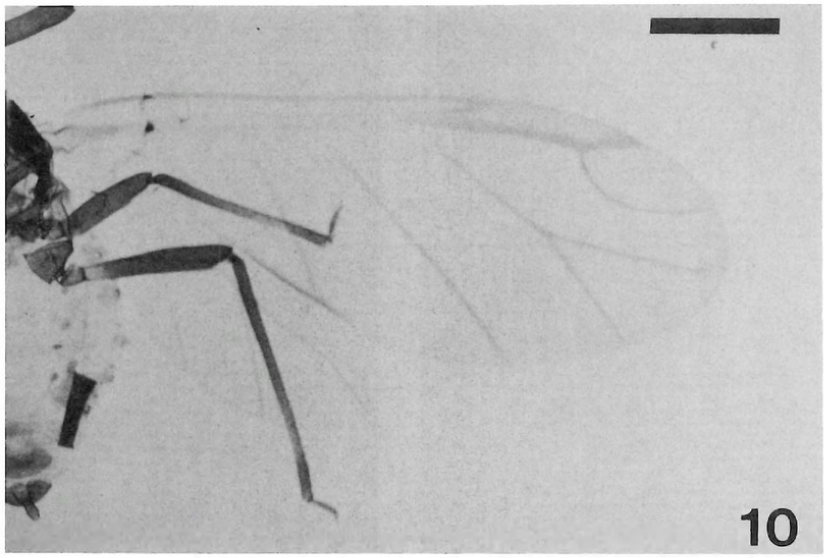




Figures 4–7. *Rhopalosiphum laconae* (holotype). Figure 4. Ultimate rostrum segment, scale = 0.1 mm. Figure 5. Hind tarsi, scale = 0.1 mm. Figure 6. Dorsal polygonal reticulation (synapomorphy for the genus), scale = 0.01 mm. Figure 7. Lateral abdominal tubercles (autapomorphy for this species), scale = 0.1 mm.







Figures 8–10. *Rhopalosiphum laconae.* Figure 8. Cauda (holotype), scale = 0.1 mm. Figure 9. Alate vivipara (paratype), scale = 0.5 mm. Figure 10. Alate vivipara (paratype); forewing, scale = 0.5 mm.

frequently with apical spur. *Abdomen:* Dorsum of each thoracic and abdominal segment (except VII and VIII) with small but distinct muscle attachment sclerites; dorsum of abdomen covered with strongly developed polygonal reticulation, polygons containing several to many spinules (Fig. 6). All dorsal abdominal setae very short and strongly capitate; dorsum of eighth abdominal segment with 2 setae. Metathorax and abdominal segments I–VII with very large lateral tubercles (basal diameter of tubercle VII, 0.04–0.05 mm) (Fig. 7). Siphunculus cylindrical or only slightly swollen, densely imbricated, imbrications small, coarse, and strongly spiculose; flange strongly developed. Cauda elongate, coarsely spiculose basally but weakly spiculose distally (Fig. 8); cauda with four setae, two on each side.

Measurements: body length 1.93–2.27 mm, width 1.18–1.38 mm. Head length 0.20–0.25 mm, width 0.48–0.54 mm. Length of antenna segments: I, 0.08–0.10 mm; II, 0.07–0.09 mm; III, 0.24–0.30 mm; IV, 0.13–0.16 mm; V, 0.13–0.16 mm; VI [base], 0.09–0.10 mm; VI [processus terminalis], 0.35–0.48 mm; total antennal length 1.10–1.32 mm; width of base of antenna segment III, 0.03 mm; ratio of length of VI [processus terminalis]/VI [base], 4.00–4.95; length of longest seta on III, 0.01 mm. Length of ultimate rostrum segment 0.12–0.13 mm, width 0.08–0.09 mm. Length of longest lateral frontal tubercle seta 0.01 mm; length of longest cephalic disc seta 0.01 mm. Length of hind tibia 0.83–0.96 mm; length of hind tarsus II, 0.10–0.13 mm. Length of siphunculus 0.32–0.33 mm, width [at base] 0.12–0.13 mm. Length of longest seta on abdominal segment VIII, 0.02 mm. Length of cauda 0.15–0.16 mm, width 0.11–0.12 mm.

Adult alate vivipara (Fig. 9): Color in life: "Greenish-red bronze" (from microscope slide data), color in macerated specimens; head, thorax (except mesal portions of tibia are light brown or pale), and siphunculus dark brown. Cauda, anal plate, genital plate light brown. Abdomen pale. *Wing:* Media of forewing with 2 forks (distal fork small and near margin) (Fig. 10). *Head:* Number of sensoria on antenna segments: III, 12–15; IV, 1–3; V, 0. *Abdomen:* Huge lateral abdominal tubercles present on segments I–VII (basal diameter of tubercle VII, 0.03–0.06 mm); setae on dorsum of abdomen all very short and strongly capitate; dorsum of abdomen without polygonal reticulation; muscle attachment sclerites much larger and more distinct than on apterae; cauda with distinct mesal constriction. *Measurements*: body length 1.70–2.07 mm, width 0.81–0.99 mm. Head length 0.21–0.24 mm, width 0.47–0.49 mm. Length of antenna segments: I, 0.10–0.11 mm; II, 0.08 mm; III, 0.36 mm; IV, 0.20–0.21 mm; V, 0.20 mm; VI [base], 0.11 mm; width of base of antenna segment III, 0.02 mm; length of longest seta on III, 0.01 mm. Length of ultimate rostrum segment 0.13 mm, width 0.07–0.08 mm. Length of longest lateral frontal tubercle seta 0.01 mm; length of longest cephalic disc seta 0.01 mm. Length of hind tibia 0.92–0.98 mm; length of hind tarsus II, 0.10–0.12 mm. Length of siphunculus 0.28–0.30 mm, width [at base] 0.08–0.10. Length of longest seta on abdominal segment VIII, 0.02 mm. Length of cauda 0.13–0.15 mm, width 0.09–0.10 mm.

Diagnosis.—*Rhopalosiphum laconae* NEW SPECIES is easily separated from its 11 congeners by the enormous lateral abdominal tubercles possessed by both female morphs (Figs. 5, 7). The new species is most likely to be confused with *R. padi* (L.) and *R. enigmae.* It differs from *R. padi* by both the size and number of lateral abdominal tubercles: in *R. padi,* abdominal tubercles are found only on segments I and VII, and they are very small. It differs from *R. enigmae* by the size of the lateral tubercles: the average basal diameter of tubercle VII of *R. laconae* apterae is 0.05 mm, whereas the average is 0.02 mm for an equal number of *R. enigmae* apterae from Pennsylvania and Florida. The average diameters for alatae are 0.04 mm and 0.02 mm, respectively. Furthermore, the ultimate rostrum segment and the second tarsi of *R. enigmae* are more slender than those of *R. laconae.* These differences are not due to an artifact of slide preparation.

Etymology.—From "Lacone" (lady of the lake); virgin water goddess of ancient Sparta (Graves 1960). This name was chosen because the aphid is parthenogenetic and restricted to a semiaquatic plant.

Material Examined.—See types.

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