

A New Species of *Aclerda* from Georgia (Hemiptera: Coccoidea: Acleridae)¹

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Abstract The adult female and first instar of *Aclerda smithii*, n. sp., are described and illustrated from specimens collected from *Sporobolus* sp. in Tattnall Co., GA. The new species is most closely aligned with *Aclerda obscura* (Parrot) but can be differentiated by differences in the antennae and in body shape. A revised key is provided to distinguish it from closely related species.

Key Words Insecta, description, systematics, taxonomy, scale insects, Acleridae

The scale insect Family Acleridae contains three genera and 50 species worldwide with only one major work occurring for the family (McConnell 1953). Members of the Acleridae (the flat grass scales) feed primarily on monocotyledonous plants, chiefly in the Gramineae. Two species feed on Orchidaceae, one on a species of Cyperaceae. Two others are known from the Combretaceae (McConnell 1953), a dicotyledonous family, and one from Spanish moss, a member of the Bromeliaceae (Howell 1973). Specimens of an unidentified aclerid were collected from *Sporobolus*, a monocot, in Tattnall Co., GA. A description of this aclerid and a revised key to distinguish it from closely-related species follow.

All measurements in the following description are given in microns and were made using a Nikon phase contrast microscope with magnification ranging from 100x to 500x. The measurements in the text show the averages followed by the ranges in parentheses. Ten specimens were used for this description. For a detailed description of Acleridae morphology and terminology see McConnell (1953).

Aclerda smithii, n. sp.

The specimens collected for this study were identified as being members of the Family Acleridae by the presence of a single anal plate, a telescoping anal tube and spinose marginal setae. Specimens were then compared, morphologically, to other members of the family. The specimens of the unidentified aclerid did not correspond to morphological descriptions of any previously described member of the Acleridae.

Adult Female

General appearance. The body of the slide-mounted adult female (Fig. 1A) elongate, oval, 3585 (3550-3645) long and 1620 (1540-1680) wide. Lateral margins about parallel. Head area expanded only slightly anterior to antennae. Apex of abdomen

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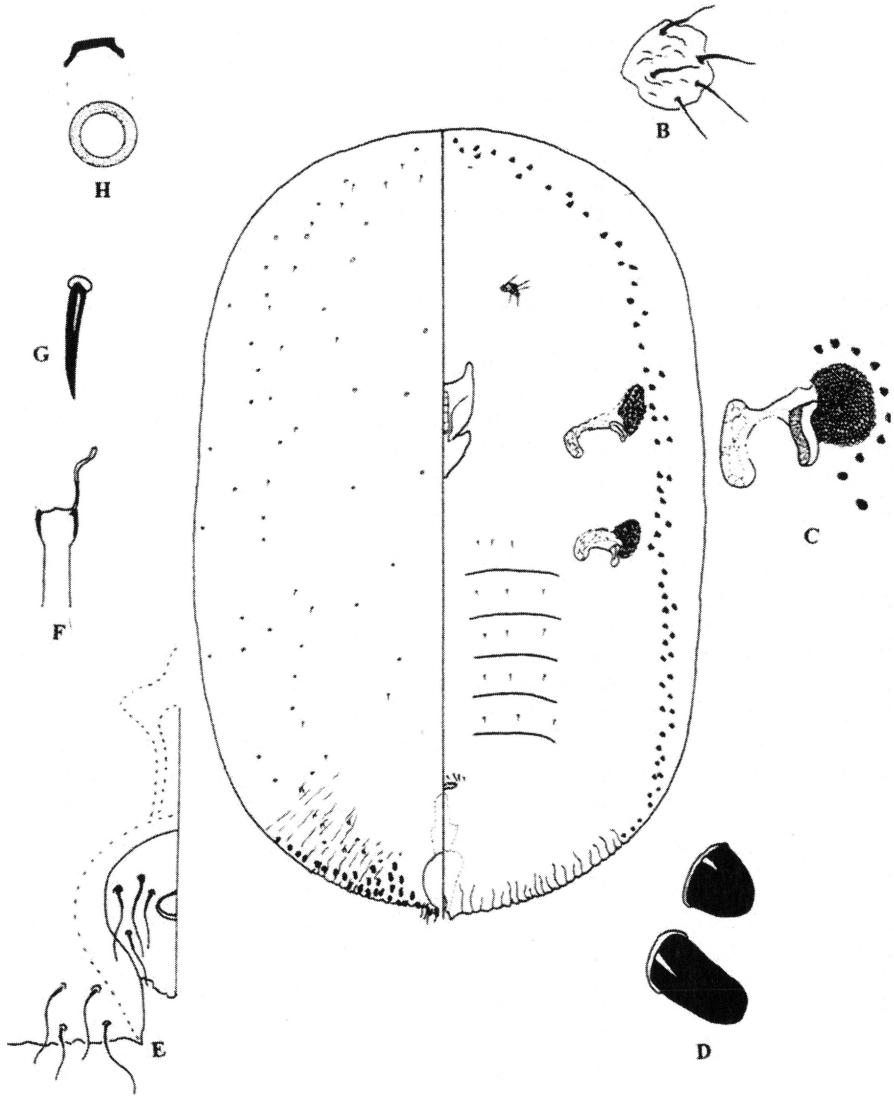


Fig. 1. Adult female of *Aclerda smithii*. A-body, B-antennae, C-spiracles, D-marginal setae, E-anus, F-macrotubular ducts.

with a very short acute protrusion. Derm almost entirely membranous except for the caudal area becoming slightly more sclerotized and pigmented with age.

Dorsum. Marginal setae tuberculate (Fig. 1D) in a row of 5 to 7 setae across at posterior most point near caudal area, diminishing in number to 1 to 2 wide as row wraps around body margin. Tuberculate setae 14 (12-17) long, widest at base, tapering near tip, some more pointed than others (see illustration). A few conventional setae scattered across posterior of abdomen. Invaginated setae restricted primarily to

the caudal sclerotized area, though a few extend slightly beyond this area, about 35 to 45 on each side. Other body setae fairly numerous on dorsum and venter. Those along margins and submargins sharply pointed, those more medially positioned small, thinner, sharply pointed. Macrotubular ducts (Fig. 1F) on dorsal surface only, in a cluster at caudal end of body, numbering 12 to 15 on each side. Microtubular ducts in a narrow submarginal ventral band 3 to 4 pores wide interrupted by spiracles, and a few (6-8) in a loose cluster at the base of the beak. Simple disc pores absent from their usual positions near spiracles. Anal complex (Fig. 1E). Anal cleft short 12 (11-17). Anal plate oval, 58 (52-64) long, 23 (20-29) wide, base rounded with 5 setae on each side, tapering slightly to apex, with no notch. Anal ring apodeme prominent, about 3 to 4 times as long as anal plate, arms slender, with anterior and spear shaped.

Venter. Antennae (Fig. 1B) short, relatively flat unsegmented plates, with 8 to 10 stout stage and 3 to 4 minute setae on derm near base. Legs absent. Clypeolabral shield 130 (122-143) long and 112 (103-122) wide, setae absent. Labium one segmented, 39 (35-43) long, width 45 (42-53) with setae absent. Spiracles 48 (46-62) long, atrium width 12 (10-16).

First Instar

General appearance. Body (Fig. 2A) elongate, 622 (606-638) long, 263 (259-267) wide. Derm membranous.

Dorsum. Marginal setae (Fig. 2B) 13 911-15) long, spade-shaped, distribution: 10 between eyes, 5 between eye and anterior spiracular furrow, 5 between anterior spiracular furrow and posterior spiracular furrow, 19 on posterior of body. Three dorsal anal lobe setae present. Dorsal body setae (Fig. 2C) 5 (4-8) long, slender, hair-like, distribution: 1 seta located just above level of clypeo-labral shield submedially, 1 located on metathoracic segment submedially, 1 seta located just below level of antennal scape submedially. Dorsal disc pores absent. Anal lobe (Fig. 2D) slightly sclerotized, with one long seta arising from posterior margin of anal lobes.

Venter. Antennae (Fig. 2E) six segmented, 116 (114-119) long. Distance between antennal bases 59 (57-62) long. Scape 21 (20-21) long, 18 (16-20) wide. Segments II to VI: 10 (9-10); 29 (26-30); 16 (15-17); 15 (14-17); 25 (23-26) long, respectively. Terminal segment with 2 stout and 6 slender setae. Setae and pores on other segments: I, 1 short slender seta; II, 2 short slender setae and one sensory pore; III, 3 long slender setae; IV, 1 long slender seta; V, 2 long slender setae. Clypeolabral shield 99 (95-105) long, 57 (52-62) wide. Labium 51 (47-56) long, 53 (52-54) wide with 4 hair-like setae present. Legs 208 (192-210) long. Tarsal digitules 30 (29-32) long. Prothoracic set with one digitule setose and one capitate. Mesothoracic and metathoracic sets with both digitules capitate. Ventral submarginal setae (Fig. 2F) 6 (4-8) long, hair-like, distribution: 2 located at apex of head, one pair located on each abdominal segment. Interantennal setae 12 (11-14) long, slender hair-like. Ventral submedian setae 12 (11-13) long, hair-like, distribution: 1 pair located on 5 most posterior abdominal segments. Spiracles (Fig. 2G) 16 (15-17) long, 13 (12-14) wide. Atrium, cup shaped with 2 spiracular pores (Fig. 2H), one pore being quinquelocular and one pore being multilocular. Microtubular ducts (Fig. 2I) 2 (2-3) wide, distribution: one between each of the ventral submarginal setal pairs located on abdomen. Microspines present on median portion of last four abdominal segments. Anal lobes (Fig. 2D) sclerotized with reticulations on the dorsum derm, 29 (28-32) long and 18 (17-20) wide.

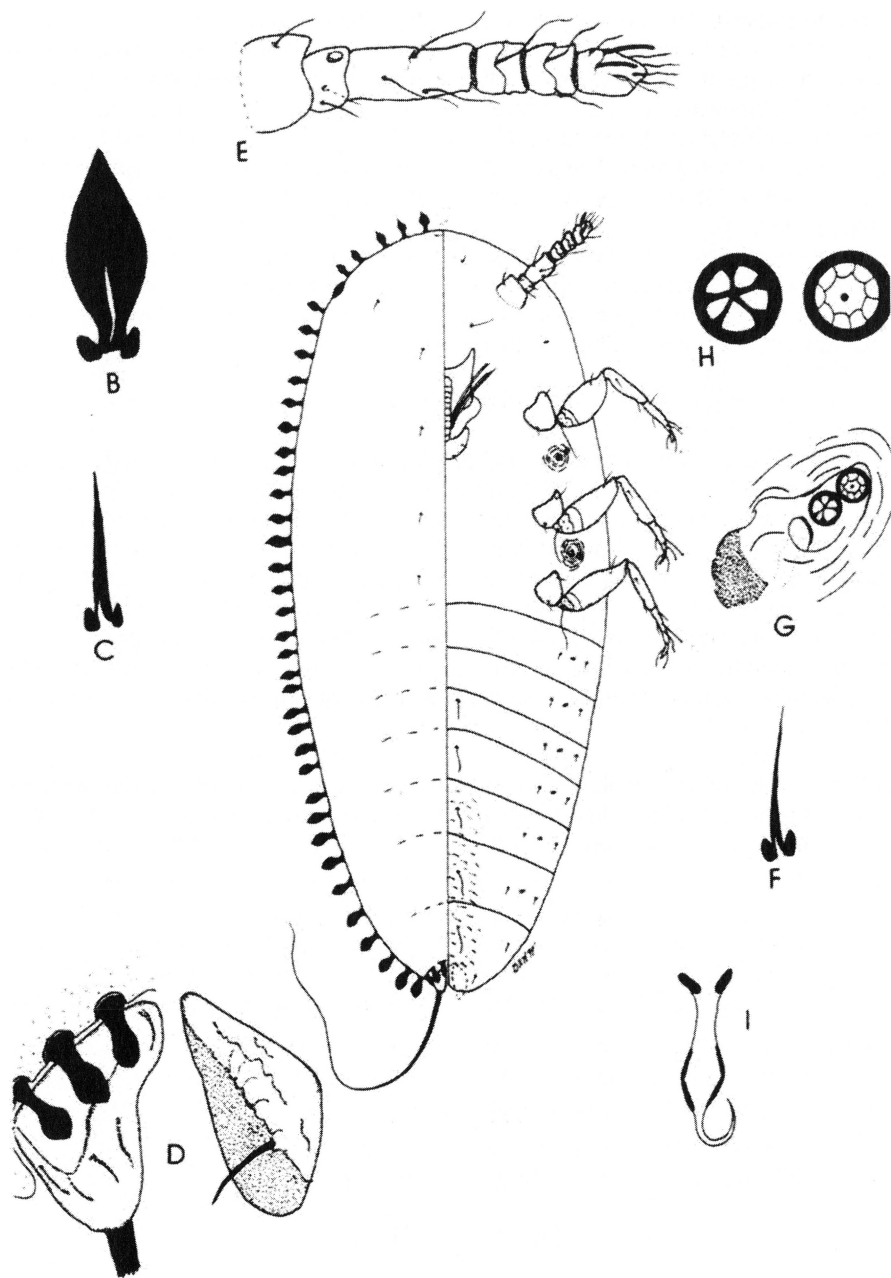


Fig. 2. First instar *Aclerda smithii*. A-body, B-marginal setae, C-dorsal body setae, D-anal lobe, E-antennae, F-ventral submarginal setae, G-spiracle, H-spiracular pore, I-microtubular ducts.

Type-material. The holotype and 3 paratype adult females (HHT-1-76A-D) on *Sporobolus* sp. deposited in the U.S. National Museum of Natural History (Coccoidea Collection); 1 paratype adult female (HHT-1-76E) on 1 slide deposited in the British Museum (Natural History), 1 paratype adult female (HHT-1-76G) on 1 slide deposited in the Virginia Polytechnic Institute and State University Collection in Blacksburg, VA, 3 paratype adult females on 3 slides (HHT-1-76H-K) and two paratype first instars on 2 slides (HHT-1-76L, M) deposited in the University of Georgia Coccoidea Collection in Athens, GA.

Etymology. The name for this species is in honor of Ms. Sue Smith. Ms. Smith was a dedicated technician who worked with the Coccoidea in the 1970's for the Department of Entomology on the University of Georgia College of Agricultural and Environmental Sciences Griffin Campus.

Discussion

This new species of *Aclerda* has characteristics found in the adult female that closely follow other members of the family in that it shares the following characters: (1) a single anal plate, (2) telescoping anal tube, (3) presence of an anal cleft, (4) tubular ducts with an broad inner ductile and (5) spinose or truncated marginal setae. Similarly, the characteristics of the first instar share characteristics of previous descriptions (Howell 1973): (1) distinct anal cleft, (2) two triangular anal plates, (3) distinct spinose marginal setae and (4) six segmented antenna. This species more closely resembles *A. obscura*, based on the lack of ventral macroducts and the similarity in position of posterior tuberculate setae. It fits into McConnell's key (1953) as follows:

- 33 (32). Ventral macrotubular ducts absent or only a few present; dorsal macrotubular ducts 6 to 10 in number, these at the anterior and posterior ends of the body; marginal tuberculate setae in a band 3 to 4 wide, dome shaped, wider than long(34)
- Ventral macrotubular ducts in a band 1 to 2 irregular rows wide; dorsal macrotubular ducts in a scattered band 1 to 2 ducts wide entirely around the body; marginal tuberculate setae in a band 1 to 2 irregular rows of setae wide, fusiform in shape, one and one-half times as long as wide*A. xalapenseae*
- 34 (33). Antennae long, elongate tubercles, without any evidence of segmentation; dorsal macrotubular ducts at both anterior and posterior ends of the body; body shape narrowly elliptical*A. obscura*
- Antennae short, unsegmented plates; dorsal macrotubular ducts present only at posterior end of body; body shape broadly oval*A. smithii*

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