

## **The Planthopper Genus *Acanalonia* in Florida with Notes on a Recently Introduced Species, *A. excavata* (Hemiptera: Fulgoroidea: Acanaloniidae)**

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# THE PLANTHOPPER GENUS *ACANALONIA* IN FLORIDA WITH NOTES ON A RECENTLY INTRODUCED SPECIES, *A. EXCAVATA* (HEMIPTERA: FULGOROIDEA: ACANALONIIDAE)

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## ABSTRACT

*Acanalonia excavata* Van Duzee, described from Nicaragua, has been found at 4 localities in Florida. Although 6 species of *Acanalonia* have been reported from Florida, 2 species known from single disjunct records, *A. concinnula* Fowler and *A. virescens* Stål, are either in error, or finds have not been replicated. A key for the identification of the resulting 5 species known to occur in Florida is provided. The male and female genitalia of *A. excavata* are illustrated, and the placement of this species in the key to the United States species is indicated.

Key Words: *Acanalonia*, Fulgoroidea, *Acanalonia excavata*, new record, Florida

## RESUMEN

*Acanalonia excavata* Van Duzee, descrita de Nicaragua, fue encontrada en 4 sitios en la Florida. Aunque 6 especies de *Acanalonia* han sido reportadas en la Florida, 2 de estas especies son conocidas de un solo registro incongruente, *A. concinnula* Fowler y *A. virescens* Stål; estos pueden representar un error o hallazgos que no han sido replicados. Se provee una clave para la identificación de las 5 especies resultantes conocidas que se sabe ocurren en la Florida. Se ilustra la genitalia del macho y la hembra de *A. excavata*, y se indica la posición de esta especie en la clave para las especies en los Estados Unidos.

Six species of the planthopper genus *Acanalonia* (Hemiptera: Fulgoroidea: Acanaloniidae) have been recorded from Florida: *Acanalonia bivittata* (Say), *A. concinnula* Fowler, *A. conica* (Say), *A. pumila* Van Duzee, *A. servillei* Spinola 1839 (= *A. latifrons* (Walker 1851)), and *A. virescens* Stål (Metcalf 1954; Freund & Wilson 1995). A seventh species, *A. excavata* Van Duzee, has been collected in 4 sites in Florida and represents a new record for the United States. Freund & Wilson (1995) reviewed the species of *Acanalonia* known to occur in the United States. The purpose of this paper is to note the introduction of a species new to the United States, to provide a key to the Florida species that includes *A. excavata*, and to evaluate and correct published distribution records for Florida.

*Acanalonia excavata* was described from Nicaragua by Van Duzee (1933) and has not been reported from any other locality since its original description. This species recently has been collected on 4 occasions in south Florida. Data for these specimens are as follows: FLORIDA: Miami-Dade County, Kendall, 25 IV 1997, coll. J. R. Martin (1 female); Coral Gables, 6 V 2000, coll. J. Brambila (1 male); Florida City, 9 VI 2004, coll. E. T. Putland (1 female); Miami, 25 X 2004, coll. E. T.

Putland (1 female). Specimens are housed in the Florida State Collection of Arthropods, Division of Plant Industry, Florida Department of Agriculture and Consumer Services, Gainesville. *Acanalonia excavata* can be separated from the 18 species of United States *Acanalonia* by the produced head, pubescent frons, the presence of a strongly curved spine on the left side of the aedeagus, and the shape of the posterior margin of the female terminal abdominal sternite (Figs. 1, 2). This species will key to couplet 7 in Freund & Wilson's (1995) key to the *Acanalonia* species of the United States but can be separated from the similar species *A. conica*, *A. clypeata*, and *A. saltonia* by the characters of the head, aedeagus, and female venter. For comparative purposes, the male and female genitalia are illustrated in Fig. 2 from specimens with the following collecting data: NICARAGUA: 10-16 km W Managua, 18 X 1970, coll. E. Moore (male); Managua, 17 VII 1970, coll. L. H. Rolston (female). *Acanalonia excavata* is likely to be a recent introduction into Florida from Central America. Nothing is known about the biology of this planthopper; however, the other *Acanalonia* species that have been studied are widely polyphagous, particularly on woody plants (Wilson & McPherson 1980, 1981; Freund & Wilson 1995).

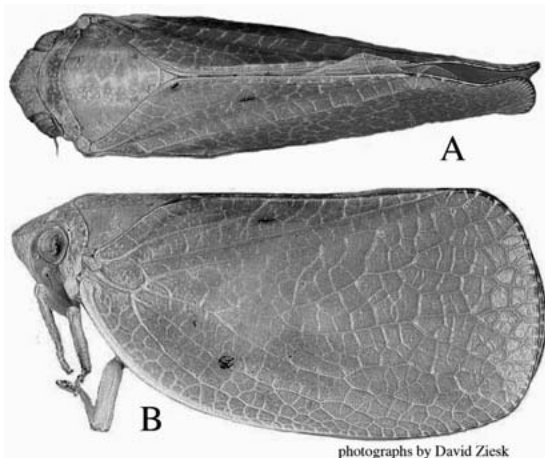


Fig. 1. *Acanalonia excavata*. A. Habitus, dorsal view. B. Habitus, lateral view.

*Acanalonia concinnula* was described from Mexico by Fowler (1900) and reported from Venice, Florida by Ball (1933). The single male specimen, upon which the Florida record was based (housed at the National Museum of Natural History, Smithsonian Institution, Washington, D. C.), was misidentified, as determined by comparison of China's illustrations of the holotype (housed at the Museum of Natural History, London, UK) published by Doering (1932). The Florida specimen is actually a pale form of *A. bivittata*. Thus, there is no evidence that this Mexican species occurs in Florida. *Acanalonia concinnula* is known from the states of Jalisco, Guerrero, Sinoloa, and Puebla in Mexico (Metcalf 1954, L.B.O., unpublished data). *Acanalonia concinnula* was recorded from Texas by Melichar (1901) whose specimens are supposed to be housed in museums in Stockholm, Paris, and Brussels. We know of no US specimens of this species in any collections in the United States.

*Acanalonia virescens* was described from Mexico by Stål (1864) and reported from Marco, Florida by Ball (1933). The male specimen upon which this record is based has not been found; thus, the presence of this species in Florida cannot be verified. Doering (1932) recorded this species only from Texas. There is no evidence that *A. virescens* occurs in Florida.

There has been taxonomic confusion about the status of *A. latifrons* (described from New Orleans LA, USA) and *A. servillei* (described from Philadelphia PA, USA). Fennah (1971) determined that the type of *A. latifrons* corresponded to the description of *A. servillei*. However, it is doubtful that Fennah was able to examine the type of *A. servillei* because it was housed in Spinola's castle of Tassarolo until 1979 when it was moved to the Museo Regionale di Scienze Naturali in Turin, Italy (Casale 1981). Doering (1932) and Metcalf &

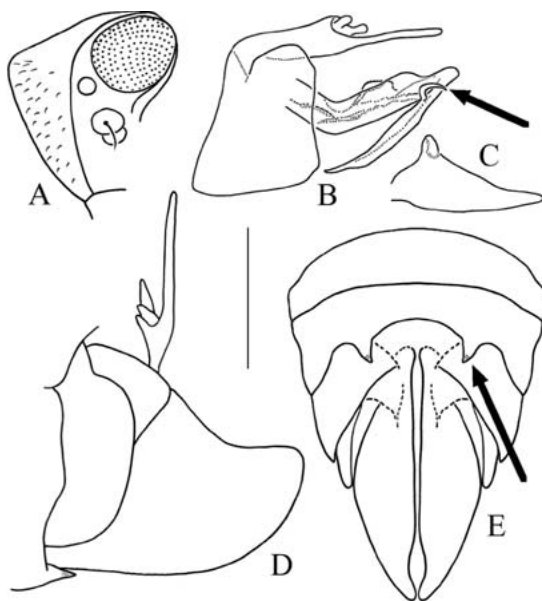


Fig. 2. *Acanalonia excavata*. A. Head, lateral view. B. Male, pygofer, anal tube, and aedeagus, left lateral view. C. Male, genital style, left lateral view. D. Female, terminal segments of abdomen, lateral view. E. Female, terminal segments of abdomen, ventral view. Arrows indicate diagnostic features (see text). Bar = 1 mm. Drawing by Stephen W. Wilson.

Bruner (1930) used a specimen from Cuba as the basis for their concept of *A. servillei* (Fennah 1971). Fennah believed that this specimen was too large (13-15 mm) to be what Spinola described as *A. servillei*, which was 8.5 mm long. According to Fennah's (1971) description and key, the *A. servillei* of Metcalf & Bruner (1930) and Doering (1932) probably was *A. ingens* (Fennah). Ball (1933) also synonymized *A. servillei* and *A. latifrons* stating "[there] is certainly but a single large blunt-headed species of this genus occurring in the United States." He compared specimens from Philadelphia, the type locality of *A. servillei*, with specimens from New Orleans, the type locality of *A. latifrons*, and found them to be the same species. However, he did not examine the types. He also synonymized *A. servillei* with a species from "Hayti", which was later found to be distinct. Metcalf (1954) apparently ignored the synonymy. It is likely that Fennah (1971) was correct in his synonymy of *A. latifrons* with *A. servillei* (Freund & Wilson 1995); however, it would be necessary to compare specimens with the type of *A. servillei* to be absolutely certain. For the time being, we treat the Florida species as *A. servillei*.

So far, *A. excavata* is known only from Miami-Dade County. *Acanalonia servillei*, *A. pumila*, and *A. conica* appear to be distributed widely in Florida. FSCA distribution records are disjunct, prob-

ably representing localities of collecting activities rather than actual distribution of the insects. In general, based on FSCA specimens, *A. bivittata* may be a northern species that ranges into north-

ern Florida, whereas *A. pumila* may be a Caribbean species that also occurs in peninsular Florida. However, Metcalf (1954) lists North Carolina as a location for *A. pumila*.

#### KEY TO THE *ACANALONIA* SPECIES OF FLORIDA

- 1a. Vertex with a prominent median longitudinal carina ..... *Acanalonia servillei* Spinola
- 1b. Vertex without a prominent median longitudinal carina ..... 2
- 2a. Dorsum with a pair of dark longitudinal stripes ..... *Acanalonia bivittata* (Say)
- 2b. Dorsum without a pair of dark longitudinal stripes ..... 3
- 3a. Body less than 7 mm long; forewings hemispherical ..... *Acanalonia pumila* (Van Duzee)
- 3b. Body greater than 7 mm long; forewings trapezoidal ..... 4
- 4a. Head extended anteriorly beyond the lateral carina greater than the horizontal length of an eye, in lateral view; frons with length/width ratio greater than 0.65; head declivent at most 10°; frons sparsely pubescent ..... *Acanalonia conica* (Say)
- 4b. Head extended anteriorly beyond the lateral carina less than the horizontal length of an eye, in lateral view; frons with length/width ratio less than 0.65; head declivent about 30°; frons densely pubescent ..... *Acanalonia excavata* (Van Duzee)

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#### REFERENCES CITED

- BALL, E. D. 1933. Notes on the Fulgoridae with some new species. *Psyche* 40: 145-150
- CASALE, A. 1981. Cataloghi. II. Collezione emitterologica di Massimiliano Spinola. Museo Regionale di Scienze Naturali, Torino, pp. 1-120.
- DOERING, K. C. 1932. The genus *Acanalonia* in America north of Mexico (Fulgoridae, Homoptera). *Annals of the Entomological Society of America* 25:758-786.
- FENNAH, R. G. 1971. Fulgoroidea of the Cayman Islands and adjacent areas. *J. Natural Hist.* 5:299-342.
- FOWLER, W. W. 1900. Order Rhynchota. Suborder Hemiptera-Homoptera. *Biologia Centrali-Americana* 1: 49-56.
- FREUND, R., AND S. W. WILSON. 1995. The planthopper genus *Acanalonia* in the United States (Homoptera: Issidae): male and female genitalic morphology. *Insecta Mundi* 9: 195-215.
- MELICHAR, L. 1901. Monographie der Acanaloniiden und Flatiden (Homoptera). *Annalen des Kaiserlich Koenigliches Naturhistorischen Hofmuseum in Wien* 16: 178-258.
- METCALF, Z. P. 1954. General Catalogue of the Homoptera. Fascicle IV, Part 14. Acanaloniidae. North Carolina State College, Raleigh. 64 pp.
- METCALF, Z. P., AND C. BRUNER. 1930. Cuban Fulgorina, the families Tropicuchidae and Acanaloniidae. *Psyche* 37: 393-424.
- STÅL, C. 1864. Hemiptera mexicana enumeravit speciesque novas descripsit (continuatio). *Stettinen Entomologische Zeitung* 25: 49-86.
- VAN DUZEE, E. P. 1933. The Templeton Crocker Expedition of the California Academy of Science, 1932. No. 4. Characters of the twenty-four new species of Hemiptera from the Galapagos Islands and the coast and islands of Central America and Mexico. *Proc. California Acad. Sci.* 21: 25-40.
- WILSON, S. W., AND J. E. MCPHERSON. 1980. A list of the host plants of the Illinois Acanaloniidae and Flatidae (Homoptera: Fulgoroidea). *Trans. Illinois State Acad. Sci.* 73: 21-29.
- WILSON, S. W. AND J. E. MCPHERSON. 1981. Life histories of *Acanalonia bivittata* and *A. conica* with descriptions of immature stages. *Ann. Entomol. Soc. America* 74: 289-298.