NEW SPECIES OF ACERATAGALLIA
FROM MEXICO AND CENTRAL AMERICA
WITH A REVIEW OF SPECIES IN
SOUTHWESTERN US AND MEXICO
(CICADELLIDAE: AGALLIINAE).

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ABSTRACT.

Four new species of *Aceratagallia, grandis* from Nicaragua and *brevis, minuta,* and *aratra* from Mexico, are described, illustrated and keyed. The diagnostic features of 13 known species of *Aceratagallia* from Southwestern United States and Mexico are illustrated with a discussion on distribution, species relationships and intraspecific variation. *Aceratagallia compacta* Oman is treated as a new synonym (junior) of *Aceratagallia calcaris* Oman.

RESUMEN.


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**Aceratagallia** Kirkaldy is a North American genus that includes many Nearctic species and a few Neotropical forms. Most of the species were described by Oman (1933). Caldwell and Martorell's (1952) redescription and illustration of *A. gillettei* (Osborn & Ball) from Puerto Rico appears to have based on a misidentified specimen. It is identical to a new species described herein from a Nicaraguan specimen. Linnauvori (1973) identified *A. gillettei* from 1 specimen from Cuba but it is likely that this specimen is also the new species referred above. The report of an *Aceratagallia sp.* from Pakistan by Mahmood (1977) is an error in generic determination. The illustrations, although incomplete for the pygofer, show that it belongs in the genus *Anaceratagallia* Zachvatkin and is probably *harrarensis* (Melichar) (Viraktamath, personal communication).*

No new taxa of *Aceratagallia* have been described since Oman's initial studies on the North American fauna. This paper describes 4 new species, one from Nicaragua and three from Mexico, with a key to those species. The types (holotypes, lectotype and cotypes) of 13 species from southwestern United States and Honduras were dissected and examined. The male genital structures are more fully illustrated to show species relationships and to further clarify the diagnostic features. All characters were illustrated from Holotype specimens except where noted. A discussion of intraspecific variation among some species is also presented. New records are included for some species. A membranous lobe on the caudal margin of the male pygofer, which appears to have some diagnostic value, is reported for the first time. *Aceratagallia compacta* Oman is treated as a junior synonym of *Aceratagallia calcaris* Oman.

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**Figs. 1-5.** *Aceratagallia grandis*, n. sp. 1. Male pygofer, lateral view. 2. Right style, dorsal view. 3. Plate, ventral view. 4. Same, lateral view. 5. Aedeagus, lateral view (distal part missing).

**Figs. 6-9.** *Aceratagallia brevis*, n. sp. 6. Male pygofer, lateral view. 7. Right style, dorsal view. 8. Plate, ventral view. 9. Aedeagus, lateral view.


**Figs. 15-18.** *Aceratagallia aratra*, n. sp. 15. Male pygofer, lateral view. 16. Right style, dorsal view. 17. Plate, ventral view. 18. Aedeagus, lateral view.
Key to males of new species.*

1. Style in dorsal view small (Figs. 7, 11, 16); plate shorter than width at base, bluntly pointed apically (Figs. 8, 13, 17)........................................2.
   - Style in dorsal view very large (Fig. 2); plate longer than width at base, truncate or bluntly rounded apically (Fig. 3)..........................grandis, n. sp.

2. Aedeagus in lateral view with narrow shaft (Figs. 14, 18); pygofer with membranous caudal lobe (Figs. 10, 15).........................................................3.
   - Aedeagus in lateral view with broad shaft (Fig. 9); pygofer without membranous caudal lobe (Fig. 6)...........................................brevis, n. sp.

3. Plate in ventral view narrowed distally to bluntly rounded apex (Fig. 13); style without heel, smooth on apical margin with one ventral tooth (Figs. 11, 12).............................................................minuta, n. sp.
   - Plate in ventral view not narrowed distally, apex truncate (Fig. 17); style with prominent heel, serrate on apical margin and with 2 ventral teeth (Fig. 16)..................................................aratra, n. sp.

Aceratagallia grandis, n. sp.

Figs. 1-5.

LENGTH: Male 2.10 mm.

General color piceous; forewing with ochraceous cells and ochraceous stripes on veins of clavus. A robust form similar to uhleri (Van Duzee) in male genital characters.

Head in dorsal view wider than pronotum; crown produced medially; pronotum large, overlapping base of forewings; scutellum small; forewings broad medially; face typical.

* A key to all other species is found in Oman (1933).

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MALE: Pygofer in lateral view large, with caudal margin produced along middle to form truncate lobe; small membranous lobe on apex of truncate lobe (Fig. 1); style in dorsal view very large, apophysis long, enlarged apically to form broad "toe", apex slightly rounded with small ventral tooth on shaft near inner lateral margin, inner lateral margin serrate (Fig. 2); plate in ventral view large, tapered distally to form 2 narrow bluntly rounded lobes (Fig. 3), apex curved in lateral view (Fig. 4); aedeagus in lateral view with broad base (shaft missing) (Fig. 5).

FEMALE: Unknown.


REMARKS: This species can be distinguished from uhleri by the configuration of the pygofer which has a caudal lobe and by the plate in which each distal lobe is tapered apically. The specimen illustrated in Caldwell and Martorell (1952) and identified as gillettei belongs to this species. The aedeagus, part of which is missing in the type specimen, has a long, slender shaft as depicted in Caldwell & Martorell (1952, plate 14d, p.31). Apparently this is a rare species known only from 3 examples from the Neotropical region (Puerto Rico, Cuba, and Nicaragua).

**Aceratagallia brevis**, n. sp.

Figs. 6-9.

LENGTH: Male 2.75 mm.

General color piceous with cells and veins of clavus ochraceous. Similar to grandis, n. sp. in general habitus but with distinctive male genital characters.

Head in dorsal view wider than pronotum; crown produced medially; pronotum large, scutellum small; forewings broad.

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MALE: Pygofer in lateral view small, with broadly sinuate caudal margin, membranous lobe absent (Fig. 6); style in dorsal view small, apophysis short with narrow acutely pointed "toe", apical margin oblique, inner lateral margin serrate, ventral tooth near middle (Fig. 7); plate in ventral view short, as long as basal width, lateral margins slightly convergent distally, bilobed in distal 1/3, each nearly truncate apically (Fig. 8); aedeagus in lateral view short, with broad shaft in basal 2/3, gonopore subapical (Fig. 9).

FEMALE: Unknown.


REMARKS: This species can be easily separated from grandis by the smaller style and plate, and by the broader aedeagal shaft.

*Aceratagallia minuta*, n. sp.

Figs. 10-14.

LENGHT: Male 2.65 mm, female 2.60-2.80 mm.

General color ochraceous with 2 fuscous spots on margin of crown, fuscous markings on pronotum; veins of forewings fuscous. Similar to *brevis*, n. sp. in some male genital characters.

Head in dorsal view narrower than pronotum; crown produced medially, more so than in *brevis* or *grandis*; pronotum moderately large, scutellum small, forewing broad.

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MALE: Pygofer in lateral view small, caudal margin with long narrow membranous lobe occupying about 2/3 of caudal margin (Fig. 10); style small, apophysis short with tapered "toe", apical margin curved, inner lateral margin serrate, ventral tooth near middle of apophysis (Figs. 11, 12); plate in ventral view short, lateral margins converging distally, apical 1/3 bilobed, apices rounded (Fig. 13); aedeagus in lateral view short, with narrow shaft, gonopore subapical (Fig. 14).

FEMALE: Seventh sternum with broad excavation medially on caudal margin.


REMARKS: This species can be distinguished from brevis by the narrow shaft on the aedeagus, by the tapered plate and by the configuration of the style.

_Aceratagallia aratra_, n. sp.

Figs. 15-18.

LENGTH: Male 2.50 mm, female 2.70-2.80 mm.

General color testaceous with 2 fuscous spots on margin of crown, fuscous markings on pronotum and forewings. Similar to _minuta_ but with distinctive male genital characters.

Head in dorsal view wider than pronotum, crown produced medially; pronotum large; scutellum small; forewings broad.

MALE: Pygofer in lateral view small, caudal margin nearly truncate with moderately large membranous lobe, occupying about 2/3 of caudal margins (Fig. 15); style short, apophysis short, constricted subapically with distinct "toe" and "heel", apex serrate, 2 ventral teeth present, one near apex and one about middle of apophysis (Fig. 16); plate in ventral view subquadrate, wider than long, bilobed in distal half, caudal margin nearly truncate (Fig. 17); aedeagus small with narrow shaft, gonopore subapical (Fig. 18).


Figs. 73-74. Female seventh sternum (all ventral view). 73. _gillettei_. 74. _uhleri_.

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FEMALE: Seventh sternum with sinuate caudal margin.


REMARKS: This species can be separated from minuta by the subquadrate plate and configuration of the style.

New records.

The following species were collected (Nielson) in Mexico and now can be added to their known distribution in the United States: Aceratagallia calcaris Oman, A. curta Oman, A. gillettei (Osborn & Ball), A. nanella Oman, A. sordida Oman and A. uhleri (Baker). Aceratagallia sordida was also collected (Maes) in Nicaragua.

Species relationships.

Similarities in the configuration and size of diagnostic features of several species of Aceratagallia are discussed. The following two pair of species have similar pygoferes: abrupta (Fig. 19) vs. curta (Fig. 22) and calcaris (Fig. 20) vs. nana (Fig. 28). Four pair of species show similarities in configuration of the aedeagus: abrupta (Fig. 37) vs uhleri (Fig. 53); calcaris (Fig. 38) vs. nana (Fig. 46); curta (Fig. 40) vs. nitidula (Fig. 48) and nanella (Fig. 47) vs. robusta (Fig. 49). It should be noted here that calcaris and nana also have similar features in the pygofer but they can be separated by characters in the plate and style.

Three pair of species exhibited similar characters in the plate: calcaris (Fig. 56) vs. nanella (Fig. 65); curvata (Fig. 59) vs. uhleri (Fig. 71) and nana (Fig. 64) vs. robusta (Fig. 67). Paired species can be distinguished by features in the pygofer, aedeagus and style.

Figs. 75-93. Right style of Aceratagallia spp. (all dorsal view). 75. abrupta. 76. calcaris. 77. calcaris (specimen from Mexico). 78. curta. 79. curvata. 80. curvata (specimen from Arizona). 81. curvata (specimen from California). 82. gillettei (Lectotype). 83. gillettei (cotype from Arizona). 84. gillettei (specimen from Arizona). 85. nana. 86. nanella. 87. nitidula. 88. robusta. 89. sordida. 90. sordida (specimen from Nicaragua). 91. texana. 92. uhleri (cotype specimen from Arizona). 93. uhleri (specimen from Mexico).
Configuration of the style was similar in *abrupta* (Fig. 75), *nitidula* (Fig. 87) and *texana* (Fig. 91); and in *nana* (Fig. 85) vs. *robusta* (Fig. 88). Each group can be distinguished by characters in the pygofer, plate and aedeagus. All of the structures in the new species were unique except for some similarities in the aedeagus of *minuta* (Fig. 14) and *aratra* (Fig. 18) vs. *nanella* (Fig. 47).

**Intraspecific variation.**

Variation within 4 male genital structures (pygofer, aedeagus, plate, style) was found in specimens of five species. In *calcaris*, differences were noted in the pygofer (Figs. 20 & 21), in the aedeagus (Figs. 38 & 39), in the plate (Figs. 56 & 57) and in the style (Figs. 76 & 77). In *curvata*, variation was found in the pygofer (Figs. 23 & 24), in the aedeagus (Fig. 41 & 42), in the plate (Figs. 59 & 60) and in the style (Figs. 79, 80 & 81). In *gillettei*, differences were evident in the pygofer (Figs. 25, 26 & 27), in the aedeagus (Figs. 43, 44 & 45), in the plate (Figs. 61, 62 & 63) and in the style (Figs. 82, 83 & 84). In *sordida*, variation was noted in the pygofer (Figs. 32 & 33), in the aedeagus (Figs. 50 & 51), in the plate (Figs. 68 & 69) and in the style (Figs. 89 & 90). In *uhleri*, variation was evident in the pygofer (Figs. 35 & 36), in the aedeagus (Figs. 53 & 54), in the plate (Figs. 71 & 72) and in the style (Figs. 92 & 93).

Nearly all of the variability was geographical. However, these species as well as those discussed above that had similarities among them in some structures, appear to be good species based on the collective usage of the four major male genital characters. Secondary chartacters such as the pygofer spine was deemed too variable to be of diagnostic value.

**New synonymy.**

*Aceratagallia compacta* Oman (Figs. 94, 95, 96, 97) is considered a junior synonym of *Aceratagallia calcaris* Oman (Figs. 20, 38, 56, 76) based on similarities of four male genital characters. The structures of the holotype male of *A. compacta* were mounted on a slide which caused some distortion (flattening) of these structures, but the basic features were essentially identical.

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The types are in the Museo Entomológico, S.E.A., León, Nicaragua (SEA) and the California Academy of Sciences, San Francisco (CAS).

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Literature cited.