

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.

Cuatro nuevas especies de *Aceratagallia* son descritas e ilustradas, *A. grandis* de Nicaragua y *A. brevis*, *A. minuta* y *A. aratra* de México. Los caracteres distintivos de 13 especies conocidas de *Aceratagallia* del suroeste de los Estados Unidos y de México son ilustrados; la distribución y la variación intraespecífica de estas especies y sus relaciones interespecíficas son discutidas. *Aceratagallia compacta* Oman es presentado como una sinonimia nueva de *Aceratagallia calcaris* Oman. *Aceratagallia sordida* es reportado por primera vez de Nicaragua. *Aceratagallia calcaris*, *A. curta*, *A. gilletti*, *A. nanella*, *A. nitidula*, *A. sordida* y *A. uhleri* son reportados por primera vez de México.

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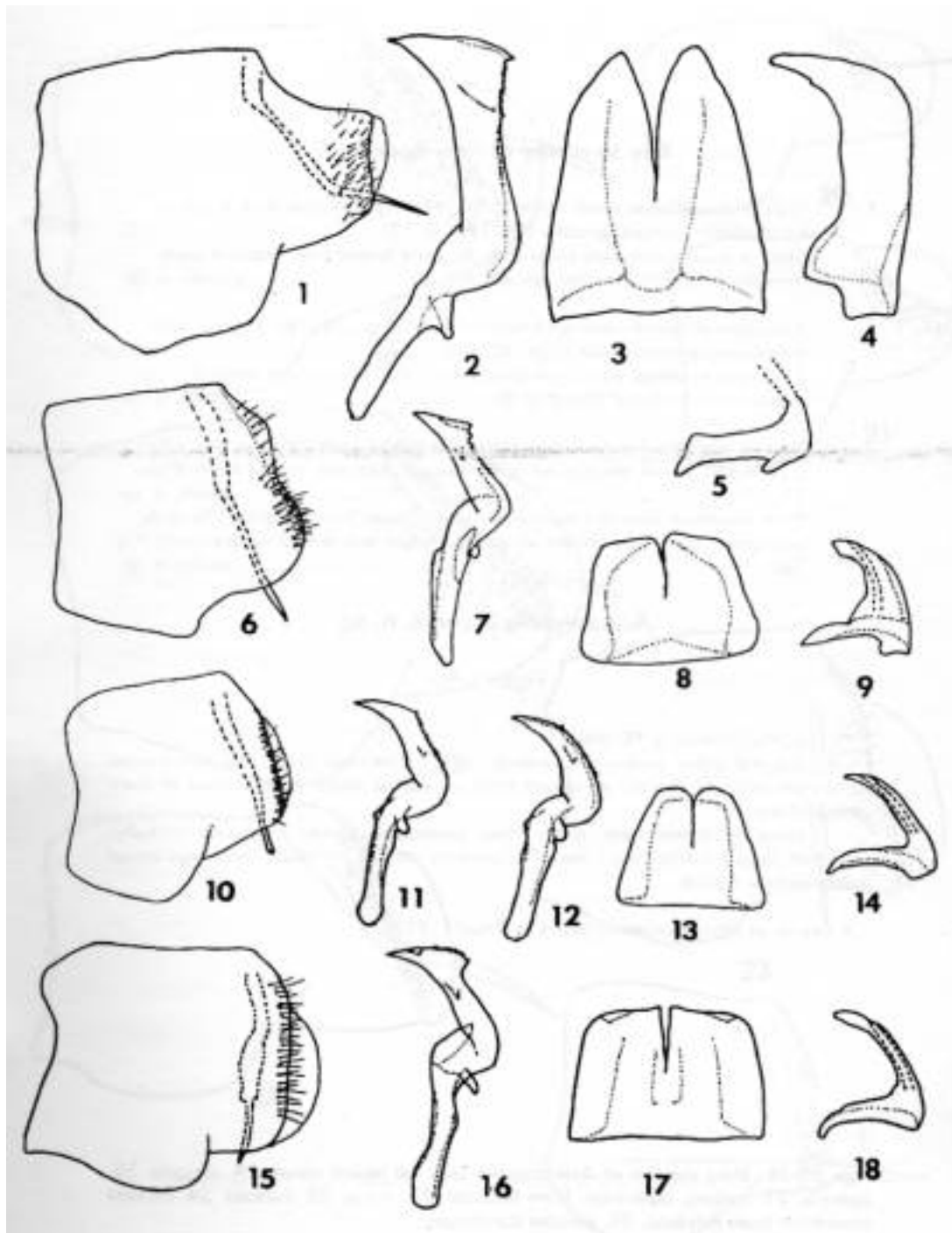
** Museo Entomológico, S.E.A., AP 527, León, Nicaragua.

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. Linnavuori (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.

* By correspondence from Dr. C.A. Viraktamath, dated 11 May 1992.



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. 10-14. *Aceratagallia minuta*, n. sp. 10. Male pygofer, lateral view. 11. Right style, dorsal view. 12. Same, dorsal view (slightly rotated). 13. Plate, ventral view. 14. 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.*

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|---|--|
| <p>1. Style in dorsal view small (Figs. 7, 11, 16); plate shorter than width at (Figs. 8, 13, 17).....2.</p> <p>- Style in dorsal view very large (Fig. 2); plate longer than width at base, rounded apically (Fig. 3).....<i>grandis, n. sp.</i></p> | <p>base, bluntly pointed apically</p> <p>truncate or bluntly</p> |
| <p>2. Aedeagus in lateral view with narrow shaft (Figs. 14, 18); pygofer with lobe (Figs. 10, 15).....3.</p> <p>- Aedeagus in lateral view with broad shaft (Fig. 9); pygofer without lobe (Fig. 6).....<i>brevis, n. sp.</i></p> | <p>membranous caudal</p> <p>membraneous caudal</p> |
| <p>3. Plate in ventral view narrowed distally to bluntly rounded apex (Fig. 13); smooth on apical margin with one ventral tooth (Figs. 11, 12).....<i>minuta, n. sp.</i></p> <p>- Plate in ventral view not narrowed distally, apex truncate (Fig. 17); style serrate on apical margin and with 2 ventral teeth (Fig. 16).....<i>aratra, n. sp.</i></p> | <p>style without heel,</p> <p>with prominent heel,</p> |

Aceratagallia grandis, n. sp.

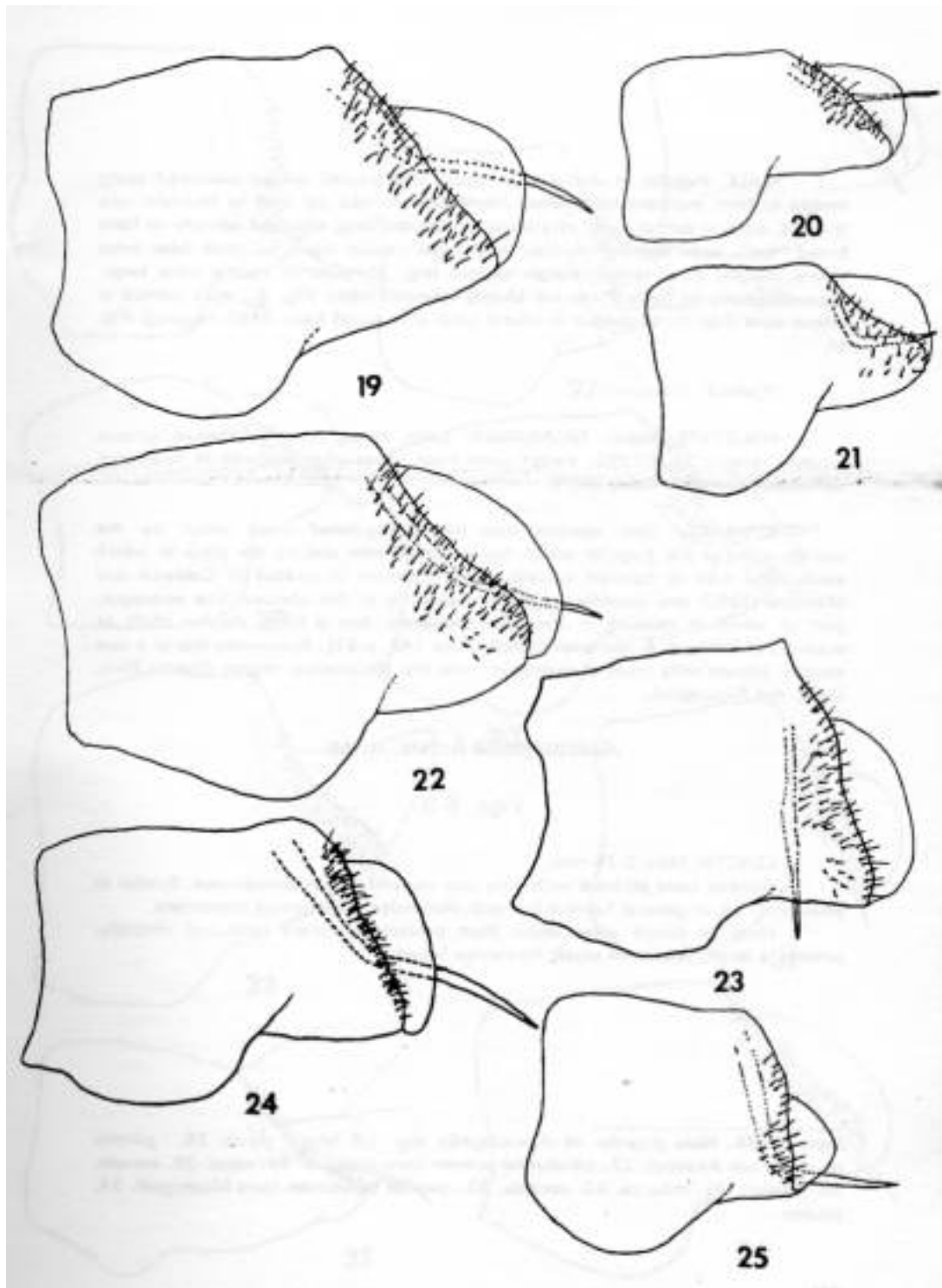
Figs. 1-5.

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).



Figs. 19-25. Male pygofer of *Aceratagallia* spp. (all lateral view). 19. *abrupta*. 20. *calcaris*. 21. *calcaris* (specimen from Mexico). 22. *curta*. 23. *curvata*. 24. *curvata* (specimen from Arizona). 25. *gillettei* (Lectotype).

MALE: Pygofer in lateral view large, with caudal margin produced along middle to form truncate lobe; small

membraneous 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.

HOLOTYPE (male): NICARAGUA: León, Finca escuela "Manuel Ignacio Lacayo Terán", 31.X.1989, swept from bean (*Phaseolus vulgaris*) in bean-corn associated crops, J. Telléz (SEA).

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).

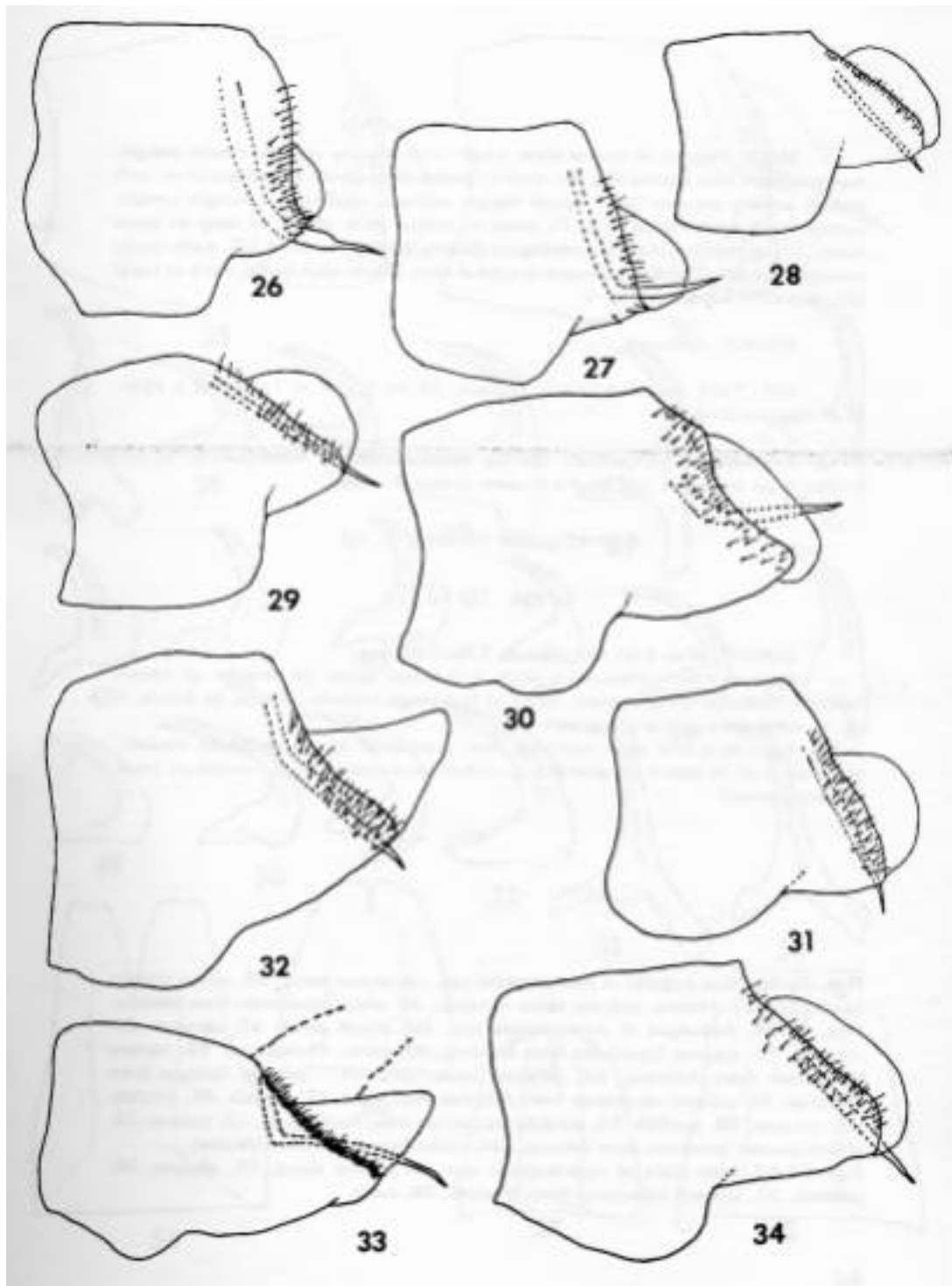
Aceratagallia brevis, n. sp.

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.



Figs. 26-34. Male pygofer of *Aceratagallia* spp. (all lateral view). 26. *gillettei* (cotype from Arizona). 27. *gillettei* (specimen from Arizona). 28. *nana*. 29. *nanella*. 30. *nitidula*. 31. *robusta*. 32. *sordida*. 33. *sordida* (specimen from Nicaragua). 34. *texana*.

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.

HOLOTYPE (male): MEXICO: Nayarit, 74 mi. South of Tepic, 18.X.1981, M.W. Nielson (CAS).

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

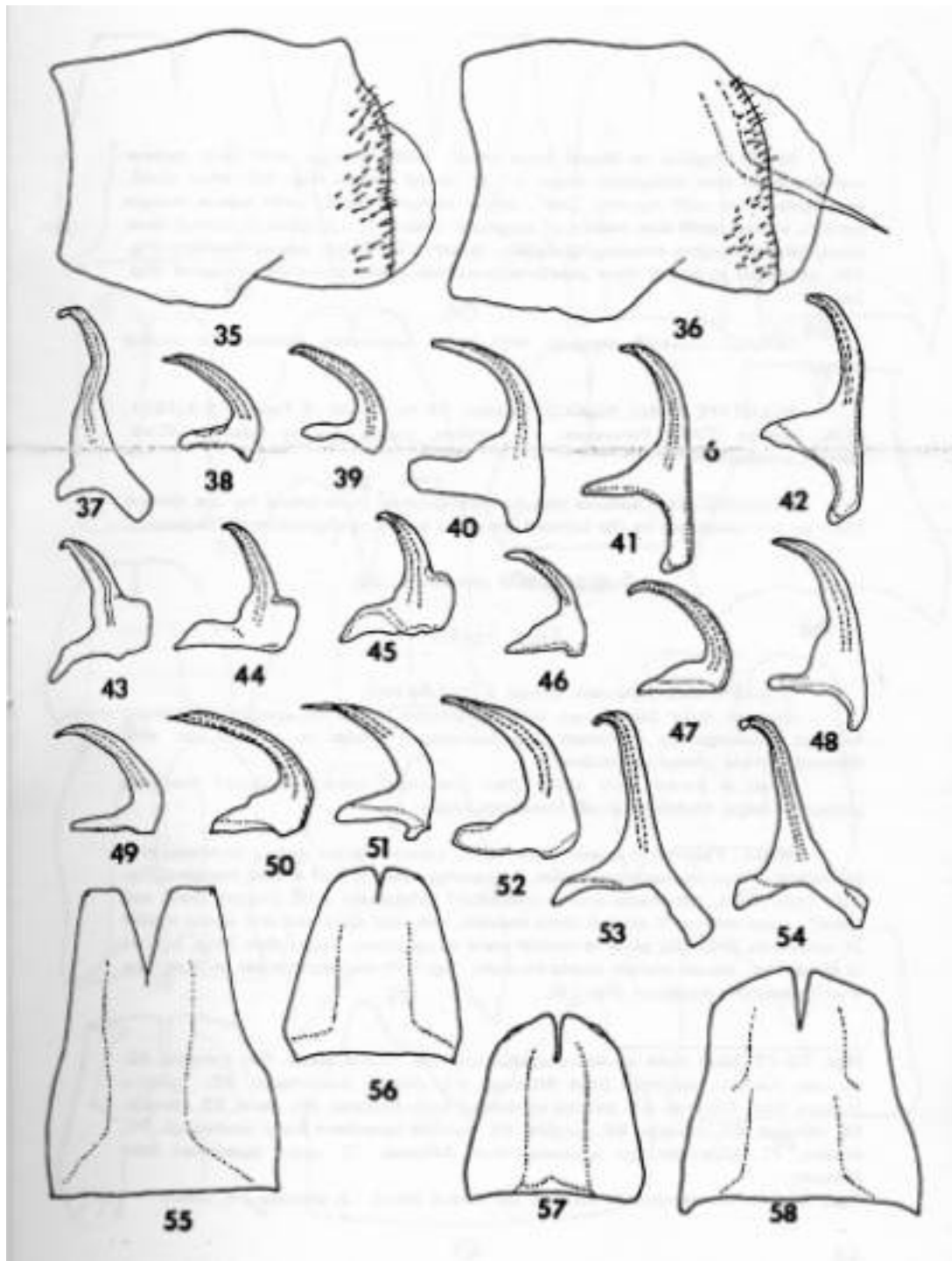
***Aceratagallia minuta*, n. sp.**

Figs. 10-14.

LENGTH: 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.



Figs. 35-36. Male pygofer of *Aceratagallia* spp. (all lateral view). 35. *uhleri* (cotype specimen from Arizona, pygofer spine missing). 36. *uhleri* (specimen from Mexico).

Figs. 37-54. Aedeagus of *Aceratagallia* spp. (all lateral view). 37. *abrupta*. 38. *calcaris*. 39. *calcaris* (specimen from Mexico). 40. *curta*. 41. *curvata*. 42. *curvata* (specimen from Arizona). 43. *gillettei* (Lectotype). 44. *gillettei* (cotype from Arizona). 45. *gillettei* (specimen from Arizona). 46. *nana*. 47. *nanella*. 48. *nitidula*. 49. *robusta*. 50. *sordida*. 51. *sordida* (specimen from Nicaragua). 52. *texana*. 53. *uhleri* (cotype specimen from Arizona). 54. *uhleri* (specimen from Mexico).

Figs. 55-58. Male plate of *Aceratagallia* spp. (all ventral view). 55. *abrupta*. 56. *calcaris*. 57. *calcaris* (specimen from Mexico). 58. *curta*.

MALE: Pygofer in lateral view small, caudal margin with long narrow membraneous 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.

HOLOTYPE (male): MEXICO: Nayarit, 74 mi. South of Tepic, 18.X.1981, M.W. Nielson (CAS). Paratypes, 13 females, same data as holotype (CAS, Nielson's collection).

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.**

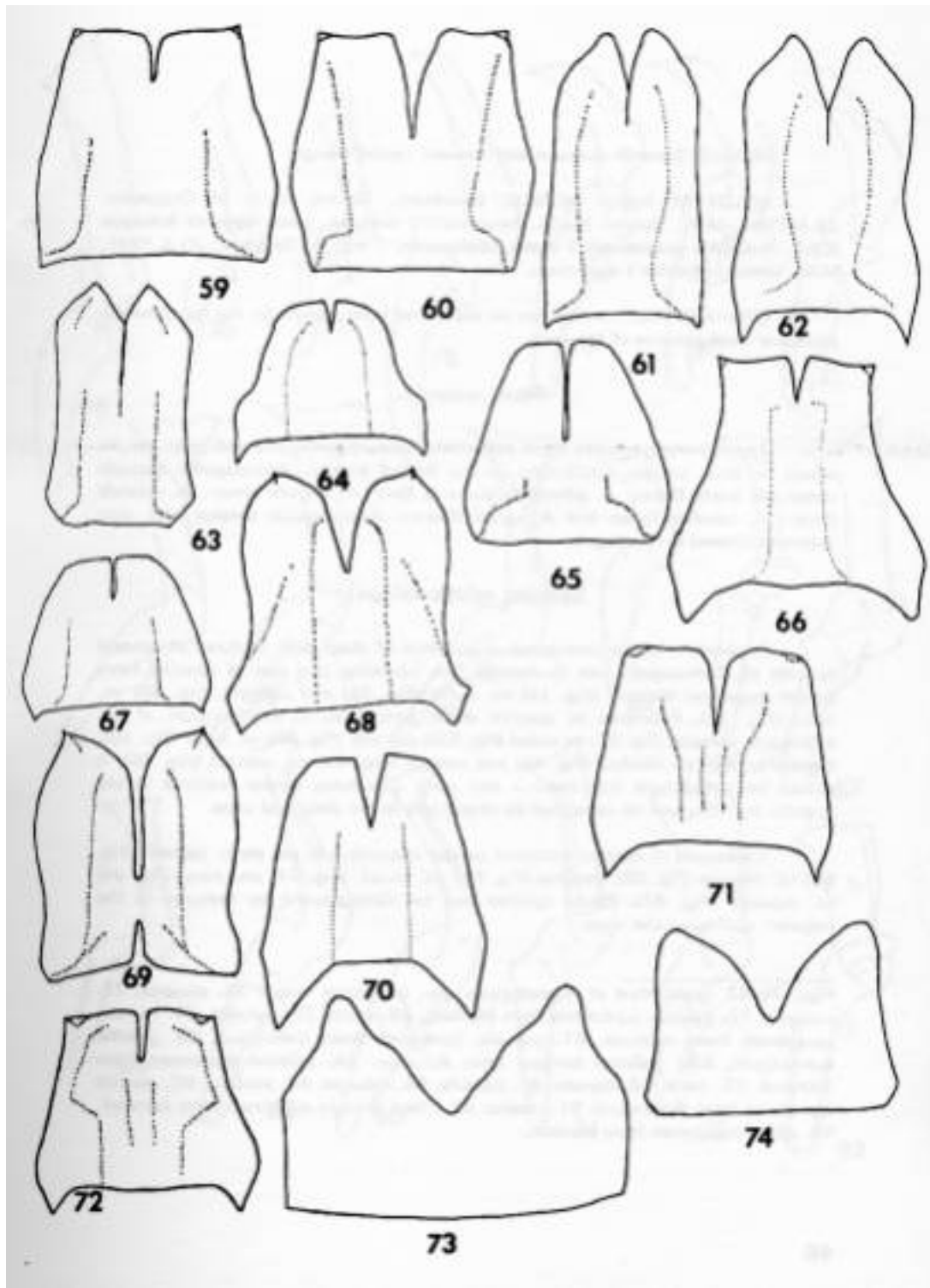
Figs. 15-18.

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 membraneous 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. 59-72. Male plate of *Aceratagallia* spp. (all ventral view). 59. *curvata*. 60. *curvata* (Cotype specimen from Arizona). 61. *gillettei* (Lectotype). 62. *gillettei* (cotype from Arizona). 63. *gillettei* (specimen from Arizona). 64. *nana*. 65. *nanella*. 66. *nitidula*. 67. *robusta*. 68. *sordida*. 69. *sordida* (specimen from Nicaragua). 70. *texana*. 71. *uhleri* (cotype specimen from Arizona). 72. *uhleri* (specimen from Mexico).

Figs. 73-74. Female seventh sternum (all ventral view). 73. *gillettei*. 74. *uhleri*.

FEMALE: Seventh sternum with sinuate caudal margin.

HOLOTYPE (male): MEXICO: Queretaro, 10 mi. North of Queretaro, 24.X.1981, M.W. Nielson (CAS).

Paratypes: 2 females, same data as holotype (CAS, Nielson's collection); 1 male, Michoacan, 7 mi. E. Sahuayo, 20.X.1981, M.W. Nielson (Nielson's collection).

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

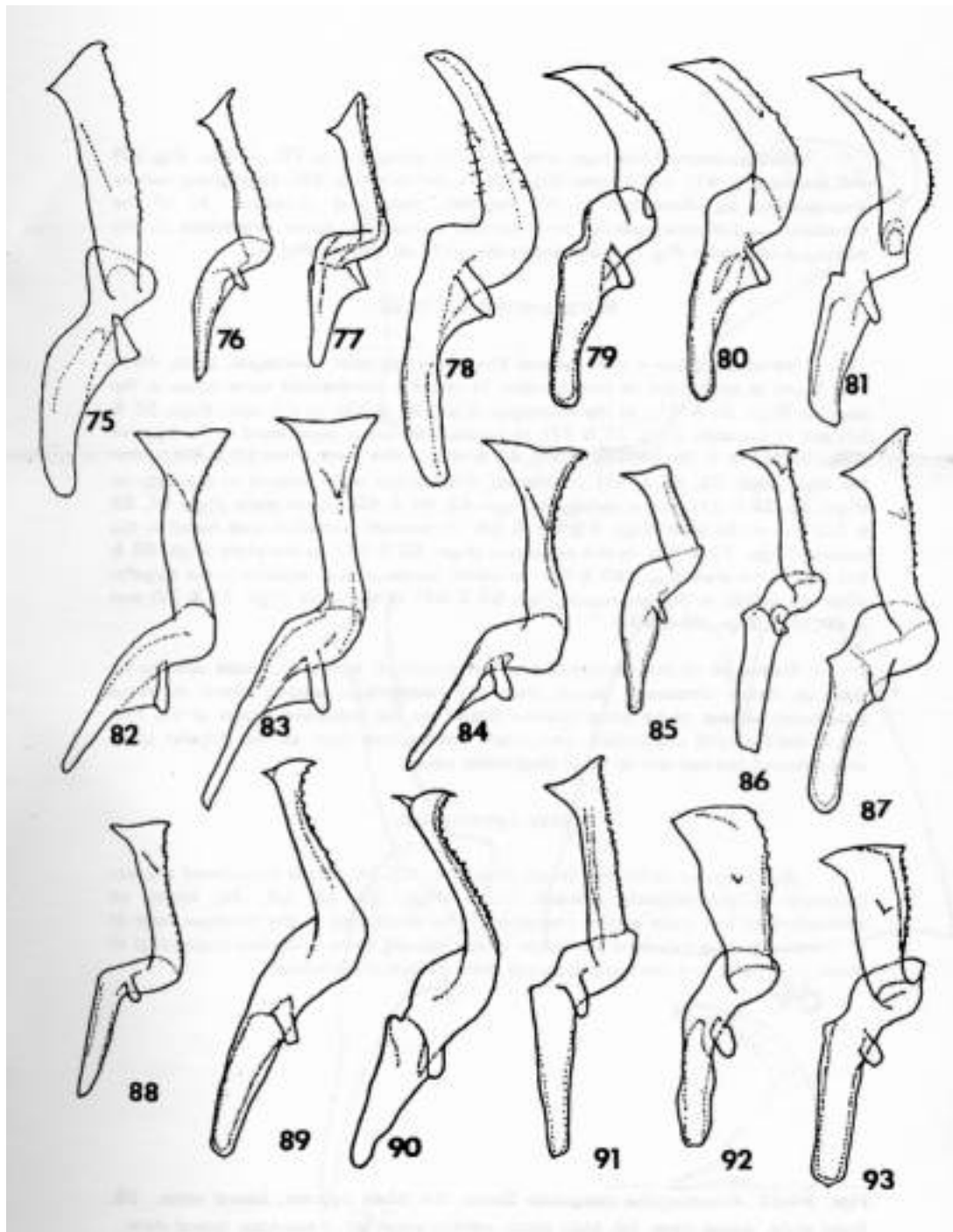
New records.

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. nitidula* 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 pygofer: *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).

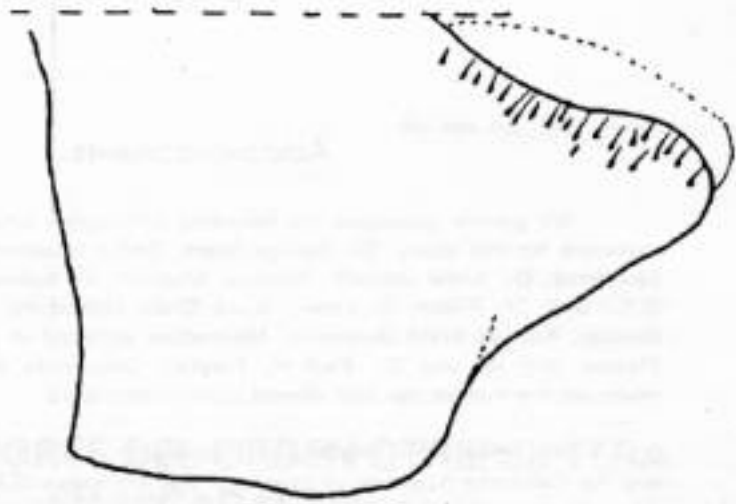
Intraspecific variation.

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).

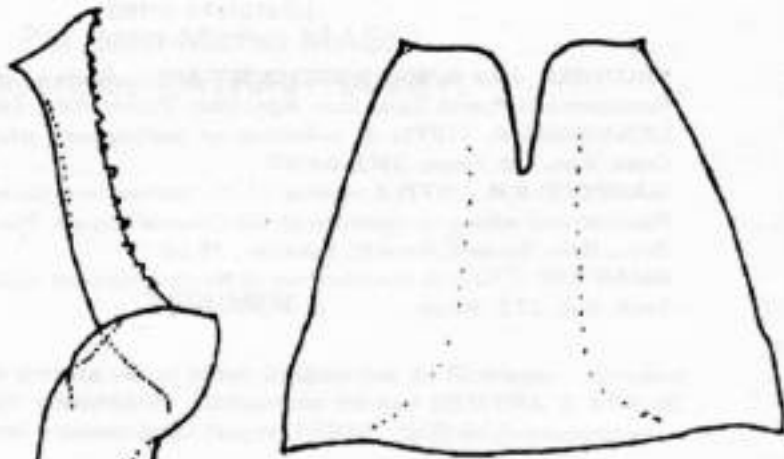
Nearly all of the variability was geographical. However, these species as well as those discussed above that had similarities among them in some structures, appear to be good species based on the collective usage of the four major male genital characters. Secondary characters such as the pygofer spine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

New synonymy.

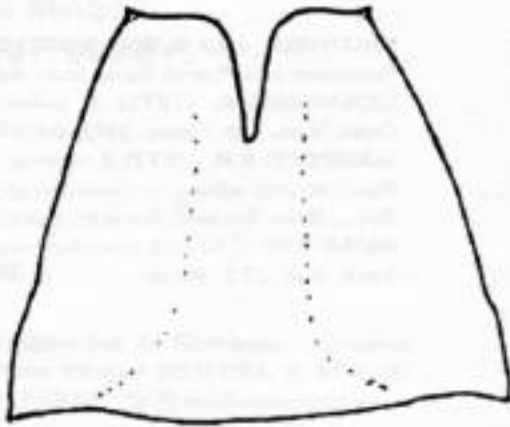
Aceratagallia compacta Oman (Figs. 94, 95, 96, 97) is considered a junior synonym of *Aceratagallia calcaris* Oman (Figs. 20, 38, 56, 76) based on similarities of four male genital characters. The structures of the holotype male of *A. compacta* were mounted on a slide which caused some distortion (flattening)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



94



95



96



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Figs. 94-97. *Aceratagallia compacta* Oman. 94. Male pygofer, lateral view. 95. Right style, dorsal view. 96. Male plate, ventral view. 97. Aedeagus, lateral view.

Acknowledgments.

We greatly appreciate the following colleagues who graciously loaned type materials for this study: Dr. George Byers, Snow Museum, University of Kansas, Lawrence; Dr. Chris Dietrich, National Museum of Natural History, Washington, D.C.; and Dr. Robert E. Lewis, Iowa State University, Ames. Dr. H. Derrick Blocker, Kansas State University, Manhattan assisted in collecting material from Mexico and he and Dr. Paul H. Freytag, University of Kentucky, Lexington reviewed the manuscript and offered useful comments.

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

This research was supported in part by Endowment Funds from the Monte L. Bean Life Science Museum, Brigham Young University, for which we are grateful.

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