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Source: *Journal of the Kansas Entomological Society*, Vol. 57, No. 1 (Jan., 1984), pp. 127-129

Published by: [Allen Press](#) on behalf of [Kansas \(Central States\) Entomological Society](#)

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A Revised Key to the Species of *Culumana* (Homoptera: Cicadellidae: Gyponinae) and Descriptions of Two New Species

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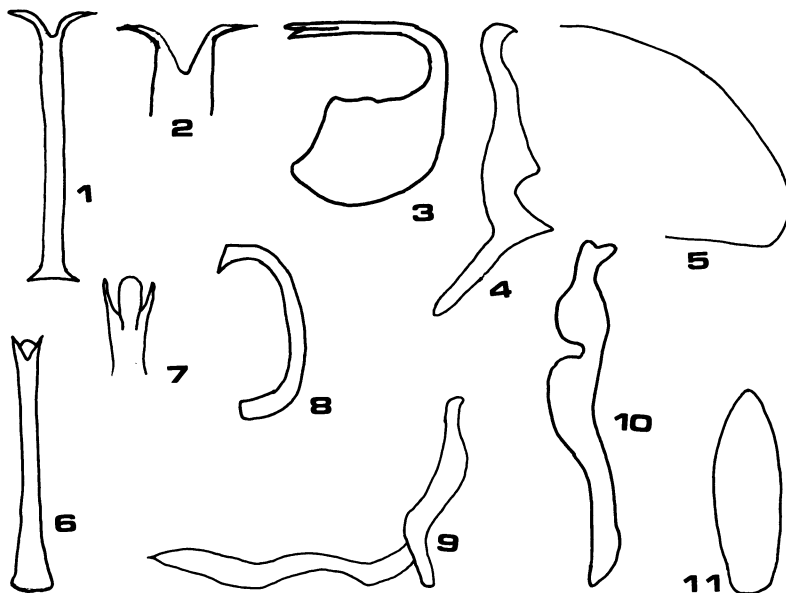
ABSTRACT: Two new species of *Culumana*, *C. proba*, n. sp. (Peru) and *C. parvula*, n. sp. (Costa Rica) are described and a revised key is prepared for the identification of the 14 described species.

The genus *Culumana* was described by DeLong and Freytag (1972a) and a synopsis of the genus treating 8 species was published (1972b). Four additional species were added by DeLong (1979). A revised key to species is prepared and 2 new species are described in this paper. The types are in the Snow collection, University of Kansas.

Revised Key to the Species of *Culumana*¹

1. Style with ventral or dorsal margin deeply notched or concavely rounded near base or at middle 2
- 1'. Style not deeply notched or concavely rounded on ventral margin near base of blade 13
- 2(1). With prominent notch on dorsal margin of style at $\frac{2}{3}$ its length (Fig. 10) *parvula*, n. sp.
- 2'. Without notch on dorsal margin of style 3
- 3(2'). Style with ventral margin of blade deeply notched 4
- 3'. Style with ventral margin of blade not deeply notched 6
- 4(3). Aedeagus with 2 rather long terminal processes extending laterally *turba* DeL. & Frey.
- 4'. Aedeagus with 4 or 6 short lateral processes extending caudally 5
- 5(4'). Aedeagal shaft with 4 short lateral processes *concava* DeLong
- 5'. Aedeagal shaft with 6 short lateral processes *incida* DeL. & Frey.
- 6(3'). Aedeagal shaft appearing to have a V-shaped or U-shaped notch at apex formed by the caudally protruding processes 7
- 6'. Shaft appearing produced or truncate at apex without caudally protruding processes 9
- 7(6). Notch or excavation distinctly V-shaped (Fig. 1) *proba*, n. sp.
- 7'. Notch or excavation U-shaped 8
- 8(7'). Pygofer elongate, 3 × as long as broad, apical half narrowed, tapered *torqua* DeL. & Frey.
- 8'. Pygofer shorter and broader, apex narrowed, rounded *fascia* DeL. & Frey.

¹ Descriptive material is in the 1972 publications.



Figs. 1-5. *Culumana proba*, n. sp.: 1, aedeagus ventrally; 2, aedeagus, apical portion, ventrally; 3, aedeagus laterally; 4, style ventrally; 5, pygofer laterally, apical portion.

Figs. 6-11. *C. parvula*, n. sp.: 6, aedeagus ventrally; 7, aedeagus, apical portion, ventrally; 8, aedeagus laterally; 9, style laterally; 10, style ventrally; 11, plate ventrally.

9(6').	Aedeagal shaft with 2 subapical spines near apex	10
9'.	With 4 apical or subapical spines	12
10(9).	Apex of aedeagal shaft slender, sharply pointed, with 2 anteapical processes	<i>vitta</i> DeL. & Frey.
10'.	Apex of aedeagal shaft terminating in 2 short proximal pointed teeth or a bluntly rounded apex, with 2 subapical processes	11
11(10').	Aedeagal shaft terminating in 2 short proximal pointed teeth, with 2 long apical processes extending laterocaudally	<i>spinella</i> DeLong
11'.	Aedeagal shaft terminating in a blunt, apically rounded apex with 2 subapical processes	<i>tormina</i> DeL. & Frey.
12(9').	Aedeagal shaft with 4 apical spines	<i>excava</i> DeL. & Frey.
12'.	Aedeagal shaft with 4 subapical spines	<i>bacula</i> DeLong
13(1').	With 2 long apical spines extending caudally	<i>dualana</i> DeLong
13'.	With 2 subapical spines extending caudally	<i>pilana</i> DeL. & Frey.

Culumana proba, n. sp.

(Figs. 1-5)

Length of male 12.5 mm, female unknown. Crown short, broadly rounded, $2\frac{1}{2}$ times as wide between eyes at base as long at middle. Ocelli equidistant between eyes and median line. Color, crown dull brown, anterior margin yellowish. Pronotum dark brown, irregular yellowish spots behind each eye and along lateral margins. Scutellum dark brown, a small yellow spot in each basal angle and at

middle along each side margin. Forewings brownish subhyaline with darker brown spots on corium and a dark brown spot on first claval vein at commissure.

Male genital plates twice as long as wide at middle, apex narrowed, rounded. Style roundly notched near base, apex rounded. Aedeagal shaft slender in ventral view with a V-shaped excavation at apex and 2 apical processes extending laterally. In lateral view broad basally and recurved. Pygofer rounded apically.

Holotype male, Huanuco, Peru, 3000 m, Nov. 11–23, 1937, F. Woytkowski coll.

C. proba is related to *C. torqua* DeLong & Freytag (1972, p. 406) and can be separated by the V-shaped excavation at the apex of the aedeagal shaft, and by the aedeagal terminal processes which extend laterally on each side of excavation.

Culmana parvula, n. sp.

(Figs. 6–11)

Length of male 7 mm, female unknown. Crown short broadly rounded, more than 3 times as wide between eyes at base as long at middle. Ocelli equidistant between eyes and median line. Color, crown pale brownish, a small dark brown spot behind each ocellus at base. Pronotum pale brownish, with a few irregular darker brownish markings along basal margin and a dark brown spot behind each eye at half length of pronotum. Scutellum pale brownish, basal angles slightly darker brown. Forewings brownish subhyaline with 2 dark brown spots on clavus and 2 on corium. Veins dark brown.

Male genital plates 3 times as long as wide at middle, apices bluntly pointed. Style curved, apex curved laterally and pointed. Aedeagal shaft slender, curved, apex rounded, with a pointed process each side extending beyond the rounded portion. Pygofer narrowed apically, apex bluntly pointed.

Holotype male, Piedras Blancas, Costa Rica, 9½ mi. S.E. Aug. 6 1966, J. B. Karren coll.

C. parvula is related to *C. tormina* DeLong & Freytag (1972, p. 412) from which it can be separated by the smaller size, the short, rounded apex of the aedeagus and the uniform width of the style.

Acknowledgments

I wish to express my appreciation to Dr. Charles Michener, University of Kansas, for the loan of this gyponine material, and to Dr. Derrick Blocker, Kansas State University who sorted the unidentified material and selected the specimens which were sent to me for study.

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