

THE GENUS *ATANUS* (HOMOPTERA: CICADELLIDAE)
IN NORTH AMERICA

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Abstract.—Eight species of *Atanus* which are known to occur in the United States or Mexico, *Atanus rubralineus* (DeLong), *A. texanus* n. sp., *A. laminus* n. sp., *A. gracilis* n. sp., *A. atascasus* (Ball), *A. perspicillatus* (Osborn & Ball), *A. tenuis* n. sp., and *A. mexicanus* n. sp. are treated.

Atanus is primarily a Neotropical genus with some 20 described South and Central American species. The genus was erected by Oman (1938) and *Eutettix dentatus* Osborn was made the genotype. Two North American species, *Thamnotettix perspicillatus* Osborn and Ball and *Doleranus atascasus* Ball were placed in *Atanus* by Oman (1949). A brightly colored form from Florida, described as a variety, *Thamnotettix perspicillatus rubralineus* DeLong, was made a synonym of *perspicillatus* by Oman (1949).

Recently, while working with South American *Atanus*, the internal genital structures of the North American forms were examined to determine if the described species were distinct genitally. This study has revealed eight distinct genitalic patterns of species occurring in the United States and Mexico. The two species previously listed as *Atanus* by Oman, *A. perspicillatus* and *A. atascasus*, although very closely related, are considered species, the varietal form, *rubralineus*, synonymized by Oman is a distinct species and five new species, *A. texanus* n. sp. from Texas, *A. laminus* n. sp. from Florida and Georgia, *A. gracilis* n. sp. from Tennessee, *A. tenuis* n. sp. from Indiana and *A. mexicanus* n. sp. from Iguala, Mexico are described.

All of the North American species are closely related, having similar types of male genitalia and similar color patterns. The female specimens cannot be separated by the seventh sternum which is also similar in all known species. The male plates are triangular, elongate, with narrow tapered apices in all species. The styles likewise are not sufficiently different to be diagnostic. The aedeagus in all the species in the United States is divided dorsoventrally at apex, each side bearing dorsally pointed or blunt dorsal apices. The size and shape of the apical portion affords good specific characters for separation. The absence or presence and the nature of the lateral or apical processes, if present, offer other specific differences.

The color patterns of all U.S. species except *rubralineus*, which is brightly marked with red, are the same but vary in intensity; consequently certain spots or lines may be scarcely visible or may disappear on some specimens.

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The Genus *Atanus* Oman

Rather small leafhoppers, 3–5 mm in length. Anterior margin of head bluntly angled, margin thick, median length greater than length next to eyes, length of crown one-half to one-third the width at base between eyes. Forewing with appendix. Male plates elongate, triangular, apices slender, tapered. Aedeagus irregularly V-shaped in lateral view. The species occurring in the United States usually with lateral or apical processes.

Key to Species

1. Head and pronotum with two broad, red, longitudinal stripes (Fig. 25) *rubalineus* (DeLong) 2
 - Without red coloration 2
2. Aedeagus without lateral or apical processes, either tubular or plate-like (Figs. 3, 17) 3
 - Apical or median dorsal portion of aedeagus with either tubular or leaf-like lateral processes protruding laterally at apex or dorsally from aedeagal shaft (Figs. 5, 7, 19) 4
3. Apical portion as broad as aedeagal shaft, sharply pointed dorsally (Fig. 3) *texanus* n. sp.
 - Apical portion very small, less than half width of aedeagal shaft (Fig. 17) *tenuis* n. sp.
4. A pair of triangular leaf-like plates arising on median ventral portion of aedeagal shaft, extending dorsally (Fig. 5) *laminus* n. sp.
 - Aedeagal processes not leaf-like, usually tubular or narrow (Figs. 7, 19) 5
5. Aedeagal processes lateral and tubular (Fig. 7), apical portion of aedeagus divided dorsoventrally 6
 - Aedeagal processes arising apically, extending laterally, apical portion of aedeagus not divided dorsoventrally (Fig. 19) *mexicanus* n. sp.
6. Apical paired structures comparatively small and short (Fig. 7) *gracilis* n. sp. 7
 - Apical paired structures larger and longer (Figs. 11, 13) 7
7. Apical curved portion of paired apical structures almost uniform in width (Fig. 11) *atascasus* (Ball)
 - Apical curved portion of paired apical structures distinctly broadened at middle, apices spine-like (Fig. 13) *perspicillatus* (Osborne & Ball)

Atanus rubralineus (DeLong)
(Figs. 1, 2, 25)

Thamnotettix perspicillatus var. *rubralineus* DeLong 1926:64.

Length 3.5–4 mm. Crown bluntly angled, almost two-thirds as long as basal width between eyes. The dark brown markings are similar to those on *perspicillatus* but the markings on the base of the crown are either very faint or missing in *rubralineus*. A portion of the Y-shaped brown markings on median portion of crown is usually present. The brown spots on the pronotum are usually prominent. Two rather broad red longitudinal bands extend from the margin of crown to the basal angles of the scutellum.

Female seventh sternum with posterior margin angularly produced about one-third length of segment. Male plates elongate, triangular, apices slender. Style with apophysis short, curved outwardly, apex pointed. Subapical portion of aedeagal shaft bent dorsally, subapically, apex small, bluntly pointed dorsally. A pair of processes arise on ventrodorsal margin and extend dorsally then basad on dorsal margin of apical portion of shaft.

This species is known only from Florida. The material studied included specimens from the U.S. National Museum, the University of Kansas collection and the type specimens in the DeLong collection.

Atanus texanus n. sp.
(Figs. 3, 4)

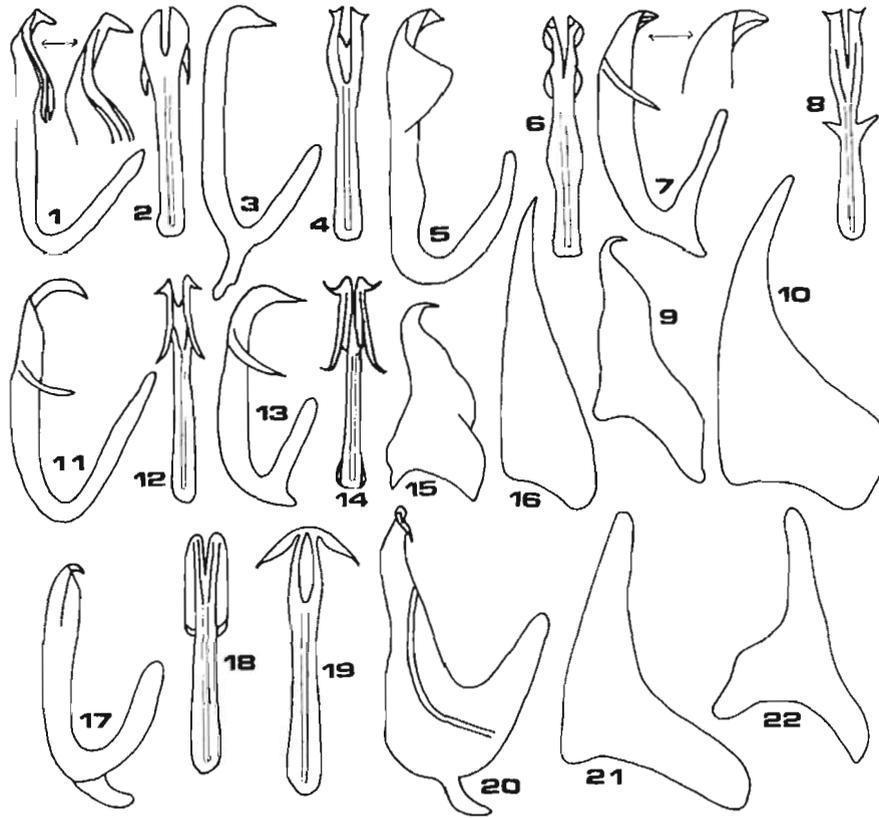
Length, male 3.5 mm, female unknown. Crown bluntly angled, two-thirds as long at middle as basal width between eyes. Color cream, crown with same pattern of brown markings as in *perspicillatus* (Fig. 23). The two spots at apex of crown are distinct and not connected with other marginal spots. The brown markings on disc and basal half of crown are faint and spots on pronotum are scarcely visible. The forewings are faintly marked with brown spots.

Male plates elongate, triangular, apices narrow, attenuate. Style with apophysis short, curved outwardly. Aedeagal shaft slender, straight, apex curving dorsally, slightly broadened and terminating in a dorsally directed, pointed tip; without aedeagal lateral processes.

Holotype male Sherwood, Oklahoma, 27 June 1937, Standish, Kaiser colls. Paratype 1♂ Uvalde Co., Texas VI-26-1940, D. J. and J. N. Knull. Holotype in DeLong collection, paratype in Osborn collection, Ohio State University.

Atanus laminus n. sp.
(Figs. 5, 6)

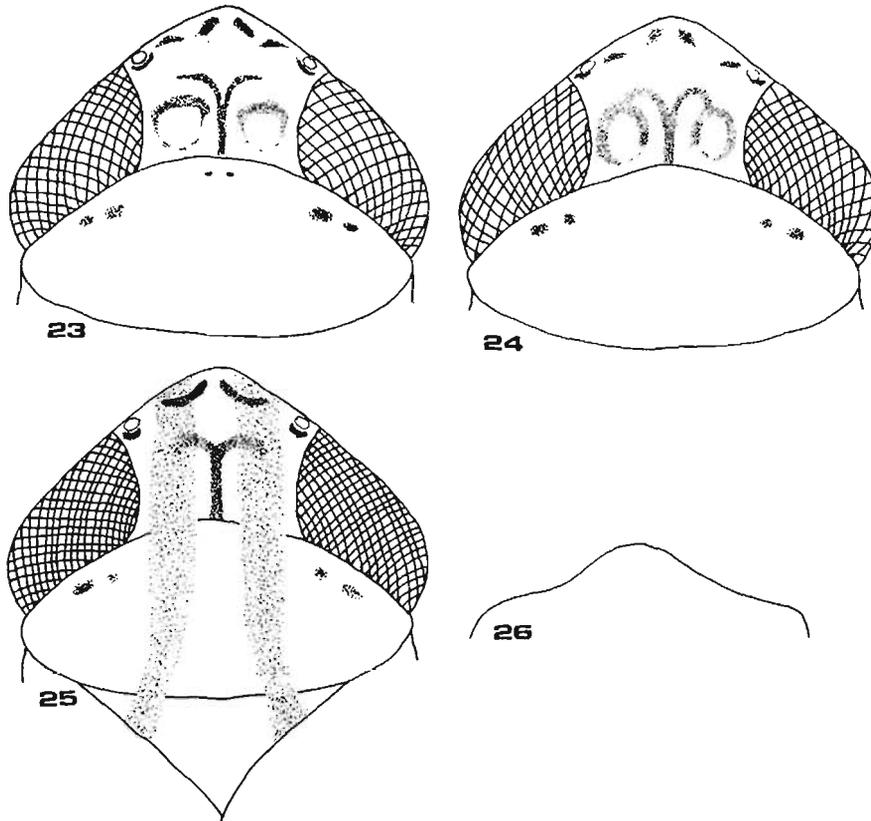
Length 3.5–4 mm. Crown bluntly angled, about two-thirds as long at middle as basal width between eyes. Color as in *perspicillatus* except more



Figs. 1-22. Figs. 1-2. *Atanus rubralineatus* (DeLong). 1. Aedeagus laterally; 2. Aedeagus ventrally. Figs. 3-4. *A. texanus* n. sp. 3. Aedeagus laterally; 4. Aedeagus ventrally. Figs. 5-6. *A. laminus* n. sp. 5. Aedeagus laterally; 6. Aedeagus ventrally. Figs. 7-10. *A. gracilis* n. sp. 7. Aedeagus laterally; 8. Aedeagus ventrally; 9. Style ventrally; 10. Plate ventrally. Figs. 11-12. *A. atascasus* (Ball). 11. Aedeagus laterally; 12. Aedeagus ventrally. Figs. 13-16. *A. perspicillatus* (Osborn & Ball). 13. Aedeagus laterally; 14. Aedeagus ventrally; 15. Style ventrally; 16. Plate ventrally. Figs. 17-18. *A. tenuis* n. sp. 17. Aedeagus laterally; 18. Aedeagus ventrally. Figs. 19-22. *A. mexicanus* n. sp. 19. Aedeagus laterally; 20. Aedeagus ventrally; 21. Plate ventrally; 22. Style ventrally.

faint. The brown broken line on margin of crown and the median brown markings as in Fig. 23, distinct. The lateral brown spots next to eyes scarcely visible. The brown spots behind eyes on pronotum and the brown spots on forewings as in *perspicillatus*.

Female seventh sternum angularly produced about one-third length of segment. Style with apophysis short, curved outwardly, apex pointed. Aedeagal shaft narrowed to a small bluntly pointed apex, curved dorsally. Shaft



Figs. 23-26. 23. *A. perspicillatus* (Osborn & Ball) head and pronotum; 24. *A. atascasus* (Ball), head and pronotum; 25. *A. rubralineus* (DeLong) head and pronotum; 26. *A. gracilis* n. sp. seventh sternum, posterior margin.

bearing a pair of rather large leaf-like lateral processes subapically which extend dorsally.

Holotype male Cleveland, Florida, IV-25-21, DeLong coll. Paratypes 3♂ same data as holotype; 2♂, 1♀ LaBelle, Florida IV-19-21; 1♀ same except IV-20-'38; 5♂, 1♀ Camp Stewart, Georgia, VIII-15-1944 E. R. Willis coll. Types in the DeLong collection.

A. laminus appears to be a faintly marked specimen of *perspicillatus* but is distinct genitally.

Atanus gracilis n. sp.
(Figs. 7-10, 26)

Length male 3.5 mm, female unknown. Crown bluntly angled, length at middle two-thirds the basal width between eyes. Color gray with similar

marking to *perspicillatus* (Fig. 23) but with median paired spots on crown above apex more pronounced.

Male plates elongate, triangular, apices narrowly attenuate. Style with apophysis short, curved outwardly. Aedeagus shaft broadened at middle, narrowed apically to a very small, short, dorsally pointed process. Shaft with a pair of lateral processes arising ventrally at two-thirds length of shaft and extending dorsally.

Holotype male Clarksville, Tennessee, 15 Aug. 1917, DeLong coll. Paratype male same except 2 July 1915. Types in the DeLong collection.

Atanus atascasus (Ball)
(Figs. 11, 12, 24)

Doleranus atascasus Ball 1936:432.

Length 4 mm. Crown bluntly angled, two-thirds as long at middle as basal width between eyes. Color similar to *perspicillatus* but with the paired spots at apex of crown and the spots next to eyes, dark brown, prominent. The medial basal Y-shaped marking joined on median portion of crown to the oval marking next to each eye. Pronotum with two conspicuous dark brown spots behind each eye.

Female seventh sternum angularly produced about one-third length of segment. Male plates elongate, triangular, apices slender. Style with apophysis short, curving outwardly, apex pointed. Aedeagus shaft bearing a pair of lateral processes at about half its length arising ventrally and extending dorsally. Shaft narrowed subapically, producing a narrow curved apex with a dorsally pointed tip. The dorsal portion is about uniform in width.

Specimens from Atascasas Mts., Arizona and other Arizona localities have been available for study.

This species is very similar to *perspicillatus*.

Atanus perspicillatus (Osborn & Ball)
(Figs. 13-16, 23)

Thamnotettix perspicillatus Osborn and Ball 1897:227.

Length 3.5-4 mm. Crown bluntly angled, two-thirds as long at middle as width at base between eyes, rounded to front. Color cream to gray, face with brown arcs. Crown cream colored with a broken waved line, just above margin, extending beyond ocellus each side. A Y-shaped spot at middle of crown with stem of Y at base of crown and a broken O-shaped spot on basal half next to each eye. Pronotum with brown spots, usually in pairs at base, the most prominent, a pair behind each eye. Forewing with a spot near middle at base, three brown spots on clavus along commissure and a large spot on disc.

Female seventh sternum with posterior margin angularly produced about one-third length of segment. Male plates triangular, elongate, apices narrow, attenuate. Style with apophysis short, rounded, curving outwardly, apex pointed. Aedeagal shaft almost uniform in width bearing a pair of lateral processes at two-thirds its length; processes arising near ventral margin and extending dorsally. Shaft curving dorsally at apex, slightly enlarged, terminating in a narrow dorsally produced pointed spine.

The lectotype from Ames, Iowa has been studied and illustrated, and specimens from Ohio, Illinois and Texas have been examined.

Atanus tenuis n. sp.

(Figs. 17-18)

Length of male 3.5 mm, female unknown. Crown bluntly angled, length at middle two-thirds width between eyes at base. Color cream marked with brown, pattern of coloration very similar to *perspicillatus* (Fig. 23). The broken marginal line of crown dark brown, prominent; the Y-shaped and ovate markings on disc and basal part of crown pale brown. Forewings with dark brown spots along commissure, on disc, at base and on costal areas.

Male plates triangular, elongate, two and one-half times as long as broad, apices narrow. Style with apophysis short, curving outwardly. Aedeagal shaft broadened at two-thirds its length, greatly narrowed, rounded and divided dorsoventrally at apex with a pair of margins slightly roundedly produced dorsally.

Holotype male Evansville, Indiana, 8 August 1937, DeLong coll. in the DeLong collection.

Atanus mexicanus n. sp.

(Figs. 19-22)

Length of male 5 mm, female unknown. Crown bluntly angled, twice as wide at base between eyes as median length, bluntly angled with front. Color, crown cream, markings of brown very faint, scarcely visible; a faint brown, marginal, irregular line above margin, pale brownish markings on median portion of crown. Pronotum with two brown spots behind each eye and a broken transverse band near anterior margin. Scutellum with pale brown basal angles. Forewings subhyaline with pale brown veins and vermiculate lines.

Male plates triangular in form, one and one-half times as long as basal width, apices narrow, rounded. Style with blade straight, rounded at apex, without apophysis. Aedeagal shaft broad at base gradually narrowed to small rounded apex, bearing a pair of apical processes almost one-fourth as long as length of shaft; processes extending laterally, narrow at base, broadened at middle then tapering to pointed apices.

Holotype male Iguala, Gro. Mexico X-25-41, DeLong coll., in the DeLong collection.

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