

Genera and species of Hecalini (Homoptera, Cicadellidae, Deltocephalinae) known to occur in Mexico

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Nine species belonging to five genera of Hecalini have been collected in Mexico. One genus, *Jiutepeca* gen. n., and two species, *J. zamorana* sp. n. and *Memnonia ornata* sp. n., are described. The following species are recorded: *Hecalus flavidus* (Sign.), *H. fenestrellus* (Bak.), *Jiutepeca nigrita* (Ball), *J. zamorana* sp. n., *Spangbergiella vulnerata* (Uhl.), *S. mexicana* Bak., *Memnonia fossitia* Ball, *M. ornata* sp. n. and *Tenucephalus marginellus* DeL.

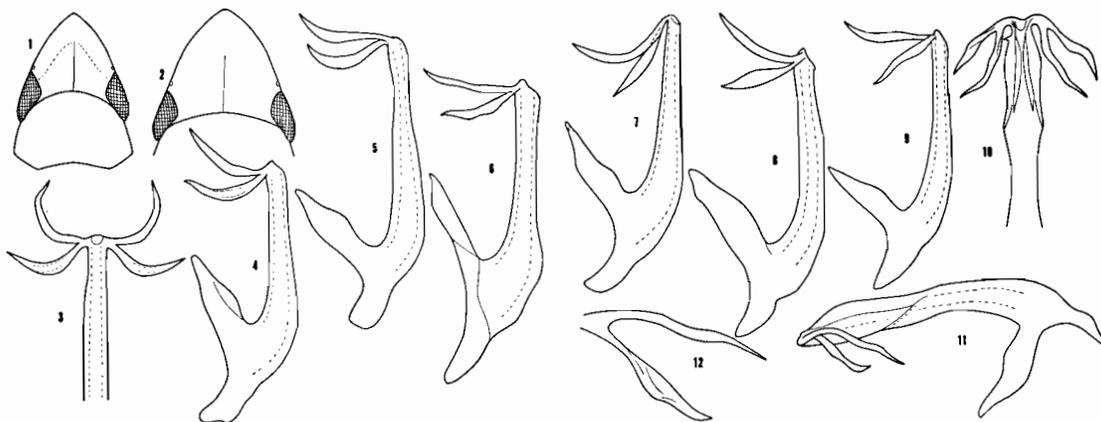
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A few hundred specimens collected in various parts of Mexico were available for this study. Species belonging to six genera of Hecalini, *Hecullus* Oman, *Hecalus* Stål, *Memnonia* Ball, *Neohecalus* Lv., *Dicyphonia* Ball and *Spangbergiella* Sgn., are known to occur in the United States. Six species belonging to only three of these genera, *Hecalus*, *Memnonia* and

Spangbergiella, have been collected in Mexico. The genus *Hecalus*, which reaches the peak of the development of the Hecalini in the United States, with 21 species, is represented by only two species in Mexico. On the other hand, two genera, *Tenucephalus* DeL., a Central and South American genus, and *Jiutepeca*, a new genus, have no known species in the United States.



Figs. 1—6. *Hecalus flavidus* (Sgn.): 1. head and pronotum (♂), 2. same (♀) (both ex. from Saltillo); 3. apex of aedeagus, ventral aspect (ex. from Saltillo); 4—6. aedeagus, lateral aspect (4 and 6 of two ex. from Saltillo, 5 ex. from Zacapa).

Figs. 7—12. *Hecalus flavidus* (Sgn.): 7—9. aedeagus, lateral aspect (7 ex. from Memphis, Tenn., 8 ex. from Cp. Charles, Va., 9 ex. from Rusk Co, Texas). — *H. fenestrellus* (Bak.) (ex. from Red Rock Can., Calif.); 10. apex of aedeagus, ventral aspect; 11. aedeagus, lateral aspect; 12. aedeagal appendage.

Genus *Hecalus* Stål

As pointed out by LINNAVUORI (1975: 19), *Parabolocratus* Fb. is a synonym of *Hecalus* St. The valid name for the Old World species formerly referred to *Hecalus* is *Glossocratus* Fb., while for the Nearctic species (*lineatus* Uhl. and *apicalis* V. Dz.) a new generic name, *Neohecalus* Lv., was proposed.

The genus *Hecalus* is well represented in the USA and the subtropical and tropical parts of the Old World, but only one species, *H. australis* Lv. & DeL. (Chile), is known from the Neotropical Region. One species was detected in the fairly large amount of material studied from Mexico.

H. flavidus (Sgn.)

The Mexican specimens studied are fairly large, length ♂ 5.75—6.0 mm, ♀ 6.75—7.0 mm. The crown (Figs. 1—2) is somewhat longer and more sharply angulate than in specimens from the USA (crown 0.9—1.0 (♂) or 0.9 (♀) x as long as broad, 0.93—1.07 (♂) or 1.1—1.12 (♀) x as long as median length of pronotum) and the face is a little flatter. The male genitalia are similar. The variability in

the shape of the aedeagus is shown in Figs. 3—9.

Material studied: Jalapa Rd., 1 ex 14.X 1945, Shaw, DeLong, Hershberger; Saltillo, Coah, 6 ex, 23. IX 1941, and Zacapu, Mich., 1 ex, 1941, DeLong, Good, Caldwell, Plummer. — Widespread in USA.

H. fenestrellus (Bak.)

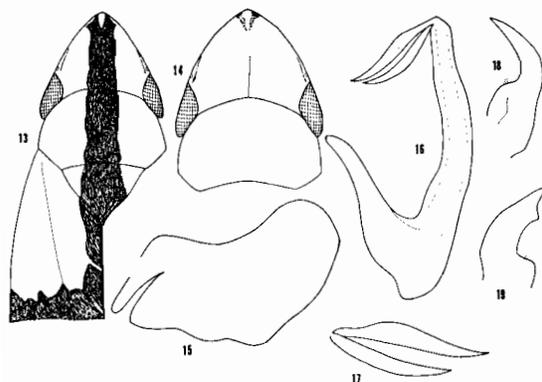
Aedeagus of a specimen from Rock Can., California, 9. VI 1948, D. J. & S. J. Knull illustrated in Figs. 10—12.

Recorded from Central America (METCALF 1963: 33). Ranger: SW USA.

Genus *Jiutepeca* gen. n.

Like *Hecalus* St. (as characterized by LINNAVUORI 1975: 10—20), but readily distinguished by the venation of the elytra (Figs. 25—27): 3 closed and relatively short subapical cells, the outer much shorter than the central (in *Hecalus* elytra with two long closed supapical cells, the inner cell open basally); 4th apical cell unusually large; cross veins of 4th and 5th apical cells and tips of claval veins distinctly reflexed (straight in *Hecalus*); claval veins connected with a cross vein.

Male genitalia as in *Hecalus* but pygophore



Figs. 13—19. *Jiutepeca nigrita* (Ball): 13. head, thorax and base of elytron (♂); 14. head and pronotum (♀); 15. side lobe of pygophore (without macrosetae), lateral aspect; 16. aedeagus, lateral aspect; 17. aedeagal appendage; 18—19. apex of style.

short and broad (usually long and sharply conical in *Hecalus*). Pygophore in female short, broadly conical; only tip of ovipositor sheath visible (in *Hecalus pygofer* elongately conical and ovipositor sheath broadly visible apically). Besides the characters mentioned above, dark pigment is usually absent in *Hecalus* (present in only a few Nearctic species, such as *H. nigrafasciatus* (Beam.) and *H. hepneri* (Beam.)) and the elytra (♂) are longer and narrower.

Type: *Dicyphonia nigrita* Ball.

Range: Mexico.

The generotype was originally described as *Dicyphonia* Ball (BALL 1937: 132). In that genus the elytra are provided with numerous pigmented false veins, which give the appearance of reticulate venation, and the inner subapical cell is open basally. The genital plates (Fig. 30) are broader and more sclerified apically, bearing long hairs on the dorsal surface (the genital plates in *Jiutepeca* (Fig. 28) end in a slender and rather weakly sclerified apical part and lack hairs on the dorsal surface). The connective (Fig. 31) is distinctive, with the sclerified arms strongly divergent (in *Jiutepeca* the connective (Fig. 29) is longer and narrower, with the arms subparallel as in *Hecalus*). The aedeagus is stouter and the ovipositor sheath extends far beyond the apex of the pygophore.

J. nigrita (Ball), comb. n.

Dicyphonia nigrita Ball 1937: 132.

Figs. 13—14. Length ♂ 3.8—4.0 mm, ♀ 4.8—5.5 mm. ♂: Yellow. Anterior margin of head whitish bordered with a fine brownish line both above and below. Face usually immaculate, sometimes with faint brown lateral arcs on frontoclypeus and antennal pits slightly darkened. Crown with a blackish brown median band extending caudad to tip of scutellum. This band is usually sharply delimited and relatively narrow, the lateral margins of the pronotum are broadly pale, and the scutellum has large pale basal triangles. Sometimes the pattern is more diffuse, and the sides of the pronotum and the basal triangles of the scutellum are ± infumed. Eyes greyish. Base of elytra, excluding commissural margin of clavus, yellow (very rarely slightly infumed); other parts blackish brown, subapical cells and 1st, 4th and 5th apical cells with milky spots; subapical veins and tips of claval veins orangish, other veins concolorous. Flying wings dark. Dorsum of abdomen and venter black with narrowly pale segmental margins. Under surface of thorax immaculate or ± infumed. Hind margin of 8th sternite, valve and base of genital plates whitish. Legs yellowish, hind tarsi largely darkened. ♀: Greenish yellow. Anterior margin of head and lateral margins of pronotum whitish, bordered with a faint brown line both above and below. Crown with two brown apical spots. Eyes greyish. Elytra greenish yellow, apical cells largely milky and provided with a few very small brown dots. Flying wings pale. Dorsum of abdomen, under surface and legs uniformly pale.

♂: Small. Body broadest in middle of elytra. Anterior margin of head rather acute. Face flattish, nearly straight in profile. Crown rather narrowly parabolic, as long as median length of pronotum, 0.88—0.92 x as long as broad, shallowly concave. Lateral margins of pronotum diverging slightly caudad. Elytra and flying wings extending slightly beyond tip of abdomen. Spinulation of fore tibiae 1+4. ♀: Small and relatively robust. Body broadening caudad,

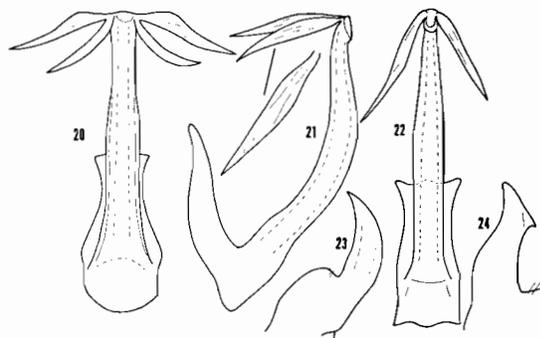
broadest in middle of elytra. Anterior margin of head rather acute. Face moderately convex, not depressed below upper margin. Crown broader than in ♂, 1.0—1.11 x as long as median length of pronotum, 0.77—0.8 x as long as broad. Elytra nearly always a little shorter than abdomen, leaving tip of pygophore visible.

Male genitalia: Pygophore short, broadly conical; side lobes (Fig. 15) truncately rounded apically, provided with numerous long dark macrosetae. Genital plates sharply triangular. Apex of style in Figs. 18—19. Aedeagus in Figs. 16—17 and 20, shaft relatively slender, slightly recurved dorsad, smooth, provided with a pair of biramose apical appendages. 7th sternite (♀): hind margin truncate with a slight median lobe. Pygofer short and rather broad; only tip of ovipositor sheath extending beyond pygofer.

Material studied: Numerous specimens from the following localities: Jiutepec, Morelos, 6. IX 1939, DeLong & Plummer; Acapulco, Guerrero, 10. IX 1941, DeLong & Plummer; Buena Vista, Gro., 23. X 1941, DeLong, Good, Caldwell & Plummer; Chilpancingo, Guerrero, 10. IX 1939, DeLong & Plummer; Cuernacava Mor., 25. IX 1941, Plummer, DeLong, Hershberger & Elliott; Guadalajara, Jal., 3. X 1941, DeLong, Good, Caldwell & Plummer; Iguala, Guerrero, 11. IX 1939, DeLong; Lk. Chapala, Jal., 3. X 1941, DeLong, Good, Caldwell & Plummer; Macazian, Gro., 3. X 1945, Balock, DeLong & Hershberger; 18 km W Mexico City, D.F., 1. IX 1939, DeLong; Morelia, Mich., 31. X 1945, DeLong, Hershberger & Elliott; Saltillo, Coach., 23. IX 1941, DeLong, Good, Caldwell & Plummer; Taxco, Guerrero, 9. IX 1939, DeLong & Plummer; Tierra Colorado, Gro., 5. X 1945, Plummer, DeLong, Hershberger & Elliott.

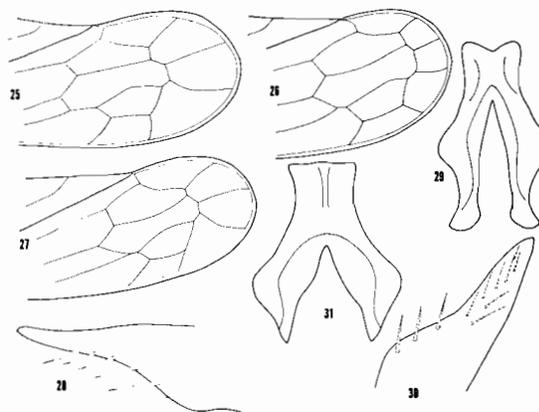
J. zamorana sp. n.

Length ♂ 4.9—5.0 mm, ♀ 5.0—5.5 mm. ♂: Like the preceding species, but bigger. Dark band on crown and thorax broader and more diffuse: figure on crown usually broadening caudad and forming an inverted T-shaped spot; pronotal band strongly broadening caudad, with margins starting at medio-basal angles of eyes and extending to posterior angles of scutellum, sides of the figure often ± broken with pale areas; scutellum totally dark, margins at most

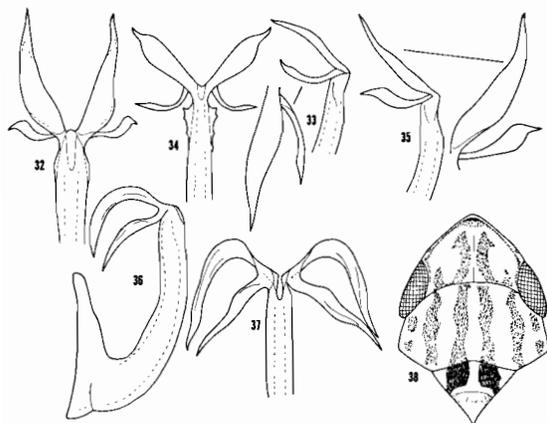


Figs. 20—24. *Jiutepeca nigrita* (Ball): 20. aedeagus, ventral aspect. — *J. zamorana* sp. n.: 21. aedeagus in lateral, 22. in ventral aspect; 23—24. apex of style.

slightly paler. Pattern of elytra similar, but apical and subapical milky spots larger and commissural margin of clavus with elongate orangish dashes. Crown somewhat shorter and broader, 0.88—0.92 x as long as median length of pronotum, 0.84—0.92 x as long as broad. ♀: Pale ochraceous. Anterior margin of head and lateral margins of pronotum whitish, bordered with a narrow brown line both above and below. Face yellow-brown, frontoclypeus with brown lateral arcs, antennal pits dark. Crown with a brown median figure as in ♂. Eyes brownish. Pronotum yellow-brown with ± abundant irregular brown spots in anterior parts and along basal margin, sometimes also with traces of two



Figs. 25—31. *Jiutepeca nigrita* (Ball): 26. apex of elytron (♀); 28. genital plate; 29. connective. — *J. zamorana* sp. n.: 25. apex of elytron (♂); 27. same (♀). — *Dicyphonia plana* Beam.: 30. genital plate; 31. connective.



Figs. 32—38. *Memnonia consobrina* Ball: 32. apex of aedeagus in ventral, 33. in lateral aspect. — *M. fossitia* Ball (ex from Saltillo): 34—35. same. — *M. ornata* sp. n.: 36. aedeagus, lateral aspect; 37. apex of same, ventral aspect; 38. head and thorax.

brown median stripes. Scutellum with brown basal triangles and middle spot. Elytra variegated, brownish yellow, apical cells \pm milky; veins pale, bordered with dark brown, cross veins of 5th apical cell blackish brown. Flying wings colourless. Dorsum blackish, sides and apex pale. Under surface of thorax largely darkened. Venter yellow-brown with brown spots. Ovipositor sheath and a basal stripe and a round apical spot on either side of pygophore brown. Legs yellow-brown. Body relatively parallel-sided. Anterior margin of head rather acute. Frons flattish, straight or slightly concave below upper margin in profile. Crown rather broadly parabolic, 0.9—0.93 x as long as median length of pronotum, 0.74—0.78 x as long as broad. Elytra and flying wings a little longer than abdomen, clavus with extra cross veins.

Male genitalia as in *J. nigrita* but shaft of aedeagus (Figs. 21—22) more gracile and provided with a pair of falcate apical appendages. Apex of style in Figs. 23—24. Hind margin of 7th sternite ($\text{\textcircled{f}}$) subtruncate. Pygophore broad, ovipositor sheath extending only a little beyond pygophore.

Zamora, Mich., 1 $\text{\textcircled{m}}$, type and several paratypes, 2. X 1941, DeLong, Good, Cladwell & Plummer; Lk. Chapala Jal. 1 paratype 3. X 1941, Guadalajara, Jal., 1 paratype, 3. X 1941, Saltillo, Ciah., 1 para-

type, 23. IX 1941, DeLong, Good, Caldwell & Plummer. Types in the DeLong collection, Ohio State Univ.

Genus *Spangbergiella* Sgn.

S. vulnerata (Uhl.)

Material studied: Valles, S.L.P., 1 ex, 25. IX. 1941, DeLong, Good, Caldwell & Plummer. — Widespread.

S. mexicana Bak.

Material studied: Valles, S.L.P., 1 ex, 25. IX 1941, localities: Cordoba, V.C., 8. X 1941, DeLong, Good, Caldwell & Plummer; Jiutepec, Morelos, 6. IX 1939, DeLong; Lk. Chapala, Jal., 3. X 1941, DeLong, Good, Caldwell & Plummer; Mexico City, D.F., 22. X 1945 Dampf; Naxaca Pue, 26. X 1945, Stone, DeLong, Hershberger, Elliott; Orizaba, V.C., 8. X 1941, Saltillo, Coah., 23. IX 1941, DeLong, Good, Caldwell, Plummer; Tamazunchale, 15. XI 1938, Caldwell; Tasquillo, Hgo, 29. X 1941, Tuxpan, Mich., 5. X 1941, DeLong, Good, Caldwell & Plummer; Valles, S.L.P., 3. XI 1945, DeLong, Hershberger & Elliott. — Range: SW USA and Mexico.

Genus *Memnonia* Ball

M. fossitia Ball

Distinguished from the closely related and variable *M. consobrina* Ball by the shape of the aedeagus (Figs. 32—35).

Material studied: Saltillo, Coah., 1 ex, 23. IX 1941, DeLong, Good, Caldwell & Plummer. — Range: SW USA.

M. ornata sp. n.

Fig. 38. Length 3.5 mm. Shiny. Pale ochraceous. Anterior margin of head whitish. Face blackish, genae laterally pale ochraceous. Crown with a narrow line along anterior and lateral margins and two J-shaped middle figures brown. Eyes grey. Pronotum with 6 irregular longitudinal brown bands. Scutellum with two large dark brown basal spots, apex with two faint brown dashes. Elytra subhyaline, whitish ochraceous, appendix and apices of 1st—3rd apical cells brown; veins dark brown. Flying wings

greyish brown. Dorsum of abdomen brown with pale segmental margins. Under surface of thorax dark. Venter \pm embrowned. Legs brown, fore tibiae pale.

Body robust, somewhat depressed. Anterior margin of head rather sharp, face nearly flat, straight in profile. Crown bluntly angular, 0.80—0.86 x as long as median length of pronotum, 0.68—0.70 x as long as broad, slightly concave; frontal region densely, discal region rather finely, shagreened. Pronotum transversely wrinkled. Elytra a little longer than abdomen, with two closed subapical cells; venation distinct, claval veins united apically.

Aedeagus in Figs. 36—37, shaft incrassate, apical appendages long, bifurcate. Other genitalia of the usual type.

Toluca, D.F., 1 δ , type, and 1 δ paratype, 29. IX 1941, DeLong, Good, Caldwell & Plummer. Types in

the DeLong collection, Ohio State Univ.

Closest to *M. albolinea* Ball, which differs in the much darker colouring (crown brown to smoky; pronotum dark smoky with a few light stripes; elytra with apical half smoky or black) and shorter crown. *M. acuta* Beam. is smaller, less shiny and darker (median stripes on crown broader and nearly confluent; pronotum dark brown with narrow pale stripes; elytra uniformly blackish brown), and its entire crown is densely and strongly shagreened.

Genus *Tenucephalus* DeL.

T. marginellus DeL.

Known only from the type locality, Iguala, Guerrero (DELONG 1944: 236—237). Three other species of the genus occur in the Neotropical Region (Panama, Peru and Bolivia).

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