

ENTOMOLOGY.—*The Mexican species of leafhoppers of the genus Texananus (Homoptera: Cicadellidae).*¹ DWIGHT M. DELONG, Ohio State University.
(Communicated by C. F. W. MUESEBECK.)

A paper dealing with the Mexican species of *Texananus* including the new species then at hand was published together with the Mexican species of *Phlepsius* in 1939. Since that time the writer has had the opportunity of collecting additional material in several states of Mexico in company with C. C. Plummer, J. S. Caldwell, and E. E. Good. As a result 27 species of the genus have now been taken in Mexico, 6 of which are described as new at this time and 19 of which are known only from Mexico. In comparison, 20 species are known to occur only in the United States and 8 species are found in both countries. In addition to the 6 new species described, 3 male allotypes

are described, one species placed in synonymy and many new records cited of geographical and altitudinal distributions. All types are in the author's private collection.

Genus *Texananus* Ball

Texananus cuspidatus DeLong

Texananus cuspidatus DeLong, Anal. Esc. Nac. Cien. Biol. 1: 382. 1939.

In addition to the records of material collected in Chiapas at elevations of about 2,500 feet near Finca Vergel, specimens are at hand from Fortín, Veracruz (3,200 feet) and Tamazunchale, San Luis Potosí (350 feet). This species apparently is associated rather definitely with the low altitude tropical vegetation of the monsoon forest association.

¹ Received January 4, 1944.

***Texananus ovatus* (Van Duzee)**

Phlepsius ovatus Van Duzee, Trans. Amer. Ent. Soc. 17: 79. 1892.

Several species resemble *ovatus* in general appearance and at the time Dr. Ball reported *ovatus* for Mexico (1918) they had not been separated by male genital structures. Although collecting has been carried on in many areas, none of the members of this group can be identified as *ovatus*. It is the writer's opinion, therefore, that the reference to *ovatus* is to a closely related species and that *ovatus* does not occur in Mexico.

***Texananus barbatus*, n. sp.**

In form and general appearance resembling *ovatus* but with distinct male genitalia. Length 5 mm.

Vertex bluntly angled, a little more than half as long at middle as basal width between eyes.

Color: Vertex pale, mottled with brown, except for a circular band just posterior to apical portion and a pale spot at base next each eye. Scutellum with a dark spot each side of middle at base, a dark spot about middle of outer margin, each side, a white spot just behind each marginal dark spot and a white spot at apex. Elytra pale, with the three pale lobate spots along commissure separated by black spots at ends of the claval veins. Darker spots along costal margin and on discal and antepical cells. Face rather heavily mottled with brown.

Genitalia: Male valve triangular, strongly produced, apex bluntly angled. Plates short and broad, outer margins strongly convexly rounded to blunt apices which are divergent. Pygofer longer than plates. Styles long, narrowed somewhat at base and produced as rather broad processes to bluntly angled tips. Aedeagus with a ventral portion that is narrowed and produced to a sharp-pointed apex, just before which it is armed with a pair of conspicuous barbs. The dorsal portion is sickle-shaped, with the sickle blade not narrowed or pointed at apex.

Holotype male collected at Zacapu, Michoacán (6,500 foot elevation), October 4, 1941, by Caldwell, Plummer, Good, and the author.

***Texananus serrellus*, n. sp.**

Resembling *ovatus* in form and general appearance but with distinct genital structures. Length 5.5-6 mm.

Vertex bluntly angled, more than one-half as long at middle as basal width between the eyes.

Color: Vertex pale with heavy brown markings each side of pale apex and an area of dark markings each side of middle between the eyes. These markings form a pale line between the ocelli, a median pale longitudinal stripe on basal half, and the basal margin pale. Pronotum pale, with a few dark markings on anterior margin. Scutellum pale with a round black spot each side of middle on anterior portion and a transverse black line at middle. Elytra rather evenly marked with brown pigment except the elytral margin along scutellum and anterior clavus, which is white, margined with darker pigment. The central lobate spot on clavus and a smaller lobate spot on apex of clavus. Face rather heavily marked along margins with dark brown pigment and with two brown spots just above clypeus.

Genitalia: Female last ventral segment with posterior margin broadly angularly excavated, a small notch at the apex of the shallow excavation. The median two-thirds is brown-margined. Male valve rather long. Apex rounded. Plates short, broadly convexly rounded, to near apex where they are concavely rounded to form blunt tips. Pygofer decidedly longer than plates with saw-tooth spines on the caudal ventral side.

Styles long, narrowed slightly at middle, then slightly broadened to form blunt rounded tips. Aedeagus with a ventral portion that is broad in lateral view with a slightly broadened apex consisting of a sharp pointed toe which extends dorsally and a slightly produced and pointed heel on the ventral apical margin. The dorsal portion is somewhat sickle-shaped, with a long rather narrow handle, a dorsal spur at the base of the broad blade which is irregularly but strongly narrowed to a blunt apex.

Holotype male collected at Mexcala, Guerrero, Mexico (1,700 foot elevation), October 22, 1941. Allotype female, paratype males, and paratype females from Iguala, Guerrero, Mexico (2,500 feet), October 25, 1941. Paratype males collected at Zacapu, Michoacán (6,500 feet), October 4, 1941; Zitacuara, Michoacán (7,500 feet), September 29, 1941; Carapan, Michoacán (7,500 feet), October 2, 1941; Jiutepec, Morelos (4,000 feet), September 6, 1939, and Acapulco (sea level), September 10,

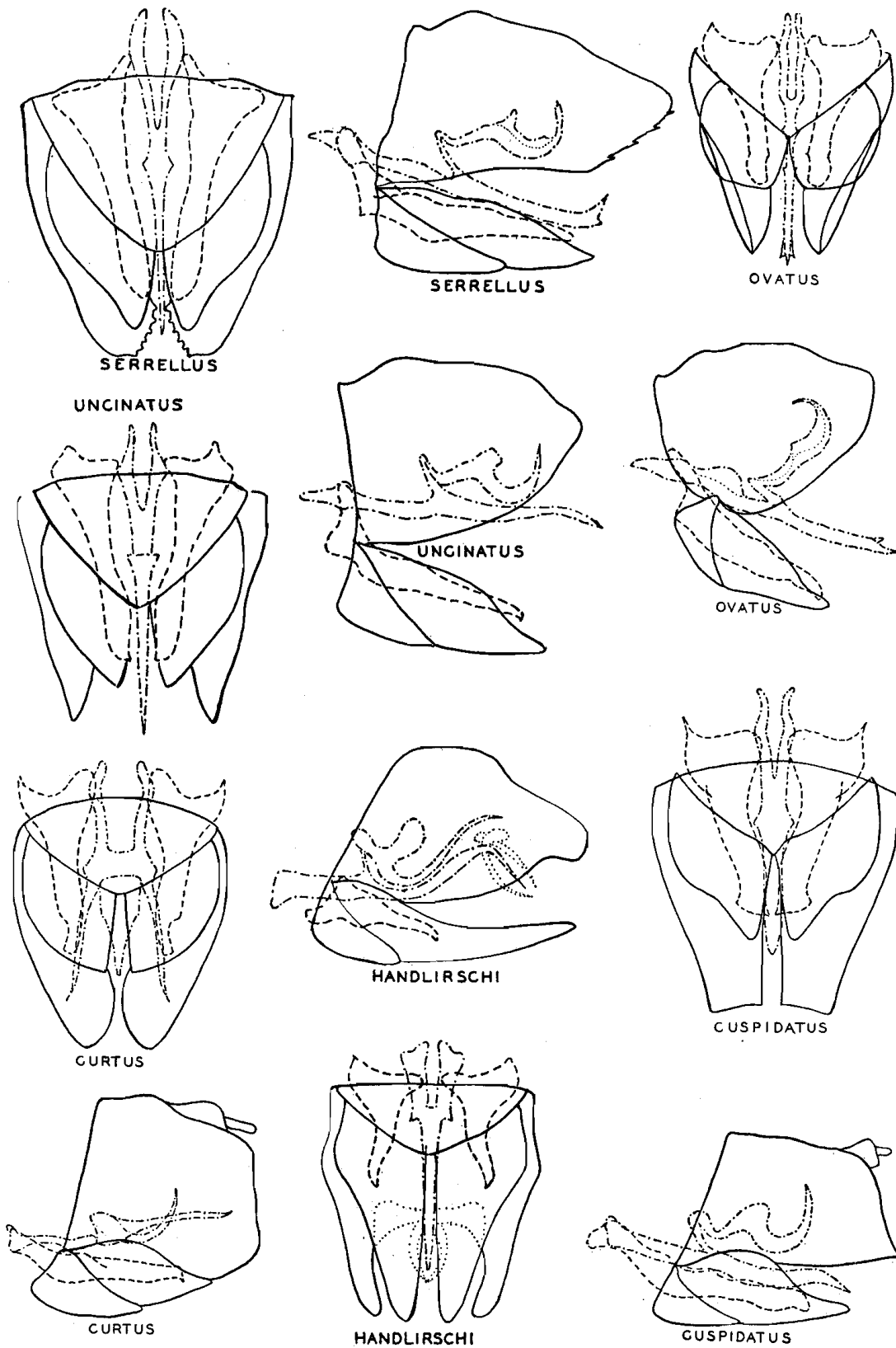


Fig. 1.—Ventral and lateral views of male genital structures of species of *Texananus* as labeled.

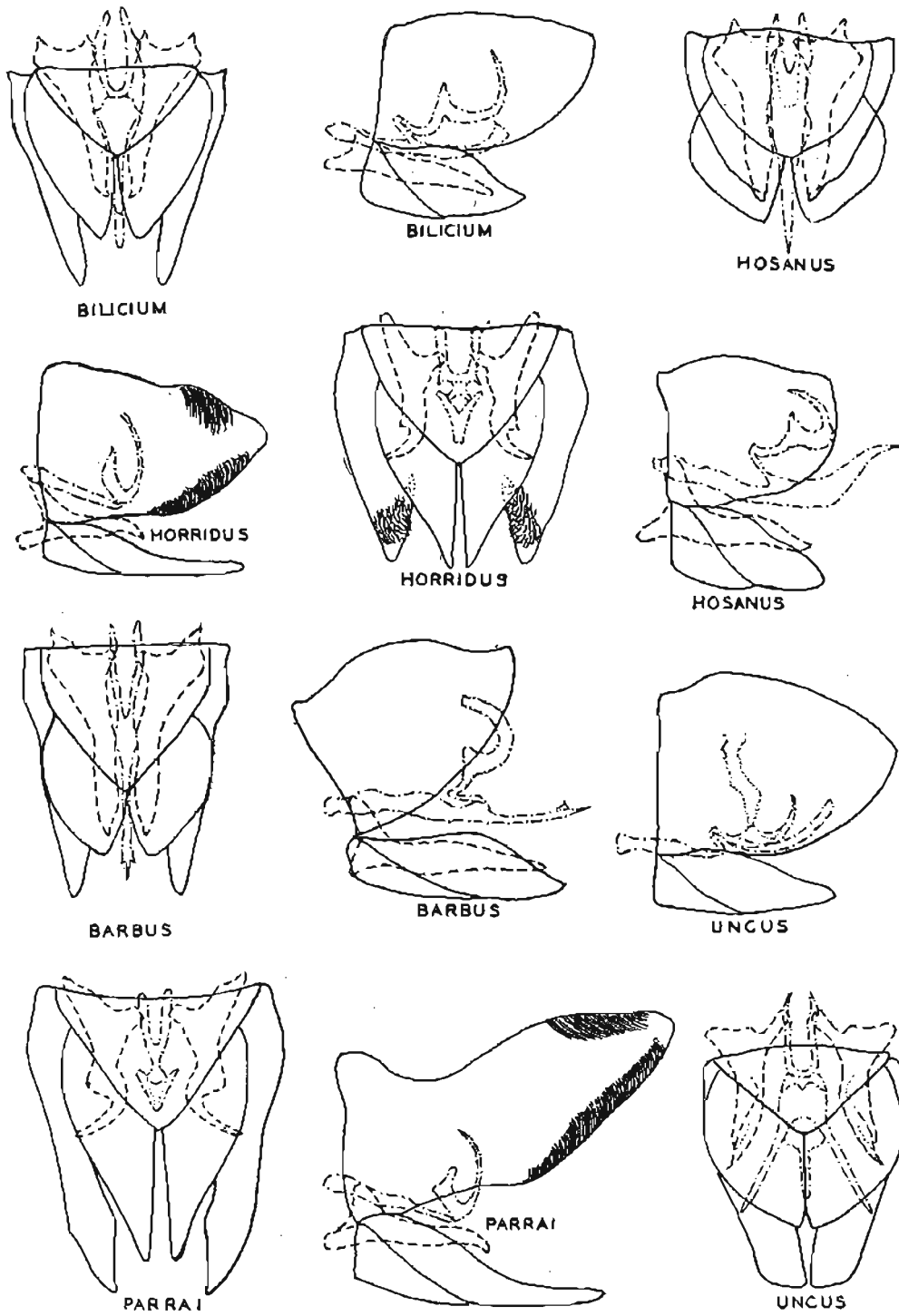


Fig. 2.—Ventral and lateral views of genital structures of species of *Texananus* as labeled.

1939, all collected by C. C. Plummer, J. S. Caldwell, E. E. Good, and the author.

Texananus bilicium, n. sp.

Resembling *ovatus* in form and general appearance but with distinct male genitalia. Length 6 mm.

Vertex almost transverse, scarcely angled, almost twice as wide between eyes at middle as median length.

Color: Vertex pale with a median reddish longitudinal line, a small area of dark pigment each side of pale apex. A conspicuous pale band between ocelli, a large area of dark pigment each side of middle on basal half. Basal margin white. Pronotum dull grayish brown with a pair of black spots just behind each eye on anterior margin and a large comma spot on anterior margin just posterior to median portion of vertex each side of middle. Scutellum with a round black spot either side of middle on anterior portion and a small spot in each basal angle. Elytra rather evenly marked with dark brown pigment except the white anterior margin along scutellum and the basal one-third of clavus along commissure, and two white lobate spots on middle and apical third of clavus. Face rather evenly marked with dark brown pigment.

Genitalia: Male valve short, triangular, apex blunt. Plates elongate convexly rounded to blunt apices. Styles long, gradually narrowed from base to sharp pointed apices, which are curved inwardly. Aedeagus with ventral portion rather short, about as long as plate, curved dorsally and broadened at apex which is truncate with a projecting point or tooth on dorsal margin. The dorsal portion is composed of two concave attached U-shaped structures. The basal U is smaller and narrow; the apical U is broad, larger, and with a slender sharp pointed apex which extends dorsally. The pygofer greatly exceeds the plates in length.

Holotype male collected at Zacapu, Michoacán, Mexico (6,500 foot elevation), October 4, 1941; paratype male from Zitacuara, Michoacán (7,500 feet), September 29, 1941, collected by E. E. Good, J. S. Caldwell, C. C. Plummer, and the author.

Texananus uncinatus, n. sp.

Resembling *ovatus* in form and general ap-

pearance but with distinct genitalia. Length 6-6.5 mm.

Vertex broad, bluntly angled, more than one-half as long at middle as basal width between the eyes.

Color: Vertex pale with faint brown markings at the apex and a small brown area each side of middle on basal half. Pronotum with two black spots behind each eye on anterior margin and a curved comma mark on anterior margin each side of middle. Scutellum pale with a round black spot each side of middle on anterior portion. Elytra marked with brownish pigment lines except a pale margin bordering the scutellum and the lobate spots along commissure of clavus. Face marked with brownish pigment.

Genitalia: Female last ventral segment with the lateral margins rounding to posterior margin, which is truncate with a rather broad, deep U-shaped notch on median third. Male valve strongly produced, apex blunt. Plates rather short, convexly rounded to form blunt apices. Styles elongate, extending almost to apex of plates, constricted near middle then broadened to form blunt, rounded apices, which are pointed on inner apical margins. Aedeagus with a ventral portion which is rather broad at base in lateral view and is gradually tapered to a narrow pointed apex extending to the apex of pygofer. The dorsal portion of the aedeagus is sickle shaped with a short blade. The handle portion is produced beyond the base of the blade and is truncate. The blade is broad at the base and rapidly narrowed at about half its length to form a sharp pointed apex which extends dorsally and caudally.

Holotype male, allotype female, and paratype female collected at Carapan, Michoacán (7,500 foot elevation), October 2, 1941. Female paratypes collected at Uruapan, Michoacán (500 feet), October 1941, and Zacapu, Michoacán (7,200 feet), October 4, 1941. All specimens were collected from herbaceous plants by C. C. Plummer, J. S. Caldwell, E. E. Good, and the author.

Texananus vermiculatus DeLong

Texananus vermiculatus DeLong, Ohio Journ. Sci. 38: 42. 1938.

This species is closely related to and has been confused with *superbus*. Records are at hand

for the states of Sonora and Jalisco and at elevations of 5,000 feet or less. It occurs on grasses in the semidesert.

Texananus superbus (Van Duzee)

Phlepsius superbus Van Duzee, Trans. Amer. Ent. Soc. 18: 81. 1892.

Three Mexican states along the Gulf coast that are low and have a tropical habitat seem to furnish the ideal conditions for *superbus*. It has been taken in Nuevo León near the Texas border, at El Mante in Tamaulipas, and at Valles in San Luis Potosí. Collecting has not revealed it as occurring in the higher mountain altitudes or on the high plateaus.

Texananus curtus DeLong

Texananus curtus DeLong, Anal. Esc. Nac. Cien. Biol. 1: 384. 1939.

This species was originally described by the author from a single male specimen from Guerrero. Additional specimens have been collected in the same state at Iguala (2,500 feet). It has also been taken at Tehuantepec, Oaxaca (300 feet), Ixmiquilpan (5,700 feet) and Zimapan (7,800 feet), Hidalgo, and at an elevation of 9,000 feet a few miles west of Mexico City. When this range of elevations is considered, the semidesert habitat seems to be the more important factor determining distribution.

The female has the last ventral segment with posterior margin broadly, roundedly excavated between the produced lateral angles. The entire margin is broadly embrowned.

Allotype female collected at Mexico City, D.F., Mexico (18 km. west), September 1, 1939, by the author.

Texananus uncus, n. sp.

Resembling *curtus* in general form and appearance but smaller, more narrowed, vertex more strongly produced and with different male genitalia. Length male 5.5 mm.

Vertex bluntly angled, about twice as wide between eyes at base as median length.

Color: Vertex pale, mottled with dark brown, a dark brown spot each side on base near eye. Pronotum mottled with brown, a "comma" spot on anterior margin just posterior to each spot on vertex. Scutellum with a spot on base each side on inner margins of basal angles and a pair of round black spots on disk. Elytra pale with dark brown veins and pigment lines, and

with three pairs of dark brown spots along commissure of clavus. Face heavily marked with dark brown.

Genitalia: Male plates short, broadly rounded to form blunt apices. Style short, rather broad, apex curved outwardly and rather sharply pointed. Aedeagus with three ventral processes. The lateral ventral processes curve upward and extend just beyond the plates. The central process is shorter, curves upward and is tapered to a sharp pointed apex.

As compared with the male structures of *curtus* it differs especially by having a more produced pygofer, a shorter broader style without a definite finger process at apex and the lateral ventral aedeagus processes are shorter and broader throughout their length, in lateral view.

Holotype male collected just west of Mexico City, D.F., Mexico, at 9,000 feet elevation, September 1, 1939, by the author.

Texananus plummeri DeLong

Texananus plummeri DeLong, Anal. Esc. Nac. Cien. Biol. 1: 385. 1939.

Texananus cassus DeLong, Anal. Esc. Nac. Cien. Biol. 1: 385. 1939.

The two species *plummeri* and *cassus* were described by the author from opposite sexes and appeared to be two distinct species. Since a series of both sexes have been collected it is the desire of the writer to retain the male as the holotype of the species and place *cassus* in synonymy, citing the female already described as the allotype.

This species has already been reported for the state of Chiapas. Additional records are Iguala, Guerrero (2,500 feet); Buena Vista, Guerrero (3,400 feet); Acapulco, Guerrero (sea level); Zamora, Michoacán (5,100 feet); and Jiutepec, Morelos (4,900 feet).

Texananus paralus DeLong

Texananus paralus DeLong, Anal. Esc. Nac. Cien. Biol. 1: 385. 1939.

This has been collected in abundance in several localities and is one of the commonest species of the genus in Mexico. It is now known to occur in Chiapas, Guerrero, Michoacán, and Morelos, ranging in elevation from sea level to 5,000 feet. Although abundant this species has not been found by intensive collecting on the

eastern slope of the Sierra Madre and is apparently a western-slope species.

Texananus conus DeLong

Texananus conus DeLong, Anal. Esc. Nac. Cien. Biol. 1: 386. 1939.

This species is apparently restricted in its distribution to the southeastern states of Mexico. At present it is known only from the state of Chiapas, and collecting in Oaxaca and Veracruz have failed to reveal it in these areas.

Texananus eugeneus (Ball)

Phlepsius eugeneus Ball, Ann. Ent. Soc. Amer. 11: 386. 1918.

Collecting has not revealed many specimens of this species, and those obtained were in a rather limited area. In the state of Guerrero it has been taken at several localities ranging in elevation from 1,000 to 6,000 feet. In Morelos it has been taken at 5,000 feet elevation and at a similar elevation in the state of Jalisco. This species is another that would appear to have only a western distribution in Mexico.

Texananus excultus (Uhl)

Phlepsius excultus Uhl, Bull. U. S. Geol. and Geogr. Surv. 3: 467. 1877.

This is a common species and widely distributed in Mexico. It is already known to occur in Nuevo León, Quintana Roo, Tamaulipas, San Luis Potosí, Michoacán, Jalisco, Sinaloa, Coahuila, Veracruz, and Guerrero. It is more abundant in the low tropical areas but has been collected at elevations of 6,000 feet.

Texananus dorothyi DeLong

Texananus dorothyi DeLong, Anal. Esc. Nac. Cien. Biol. 1: 387. 1939.

At the time this species was described a single specimen from Pueblo, Mexico, was at hand. More recent collecting has revealed it is a common species in certain of the tropical areas and in the semidesert. It has been collected north of Monterrey in Nuevo León; at Valles, San Luis Potosí; at Jiutepec, Morelos; Tehuantepec, Oaxaca; Zamora, Michoacán; and Iguala, Guerrero. Its distribution ranges in elevation from the low sea-level areas to elevations of 6,000 feet.

Texananus parrai (DeLong)

Phlepsius parrai DeLong, Anal. Esc. Nac. Cien. Biol. 1: 382. 1939.

This species was described from a single female specimen from Jetla, Guerrero. All additional material collected is from Guerrero and at elevations of 2,500 feet or less. This would indicate that it is a tropical species and lives in the semidesert.

The male resembles the female in form, color, and size. Male plates long, with sides tapering to pointed apices. Pygofer long and narrowed near base, greatly exceeding plates. A heavy fringe of long coarse dark spines borders the ventral margin of the apical half and the dorsal margin of the apical third. Style with a deep concave excavation on outer margin of apical third forming a slender fingerlike process on inner margin which curves outwardly. Aedeagus composed of a single looped process. The basal portion is broad with a pointed process projecting into the concavity. The apical portion is longer, slender, the apex curved dorsally then anteriorly.

Allotype male collected at Iguala (2,500 feet) Guerrero, Mexico, October 25, 1941, by Good and DeLong.

Texananus horridus, n. sp.

Resembling *parrai* in form and appearance but with a shorter vertex and different male and female genitalia. Length 5-5.5 mm.

Vertex short, blunt, scarcely angled, more than one-half as long at middle as basal width between the eyes.

Color similar to *parrai*. The apical area pale with a darker spot each side of apex within the pale area. The central and basal portion heavily mottled with brown and a dark brown spot each side at base near eye. Pronotum and scutellum heavily mottled with brown. Elytra pale with brown veins and rather uniform brownish pigment lines. The three paler lobate spots on clavus along commissure can be recognized but are not as conspicuous as in the *ovatus* group. Face heavily marked with dark brown to black.

Genitalia: Female segment with prominent, produced lateral angles, between which the posterior margin is concavely excavated either side of a pair of rather broad bluntly produced median teeth which are separated by a median

V-shaped notch. The lateral angles are distinctly longer than the median teeth. Male plates long, triangular, about as long as pygofer, convexly rounded to form bluntly pointed tips. Style rather broad at base, abruptly notched on outer margin at four-fifths its length so as to form a rather thick outwardly curved finger-like tip on the inner margin. Aedeagus narrowly U-shaped. The anterior portion of the U is broad, directed dorsally and bluntly pointed at apex. The posterior portion is tapered to form a longer, slender, dorsally directed portion and the apex is not sharp pointed. Pygofer with a row of heavy, thickly set spines which curve inwardly on the dorsal and ventral margins just anterior to apex.

Holotype male, allotype female, and male and female paratypes collected at Acapulco, Guerrero, Mexico (sea level), September 10, 1939, by C. C. Plummer and the author. Male and female paratypes from Iguala, Guerrero, Mexico (2,500 feet), September 11, 1939, collected by Plummer and the author, and October 25, 1941, collected by E. E. Good and the author. Paratypes were collected at Tehuantepec, Oaxaca, Mexico (75 feet), October 13, 1941, by Caldwell, Plummer, Good, and the author.

This species can be separated from *parrai* by the shorter lateral angles of the female segment and the shorter pygofers, the broader, shorter apical tips of the style, and the differently shaped basal portion of the aedeagus in the male.

Texananus incurvatus (Osborn and Lathrop)
Phlepsius incurvatus Osborn and Lathrop, Ann. Ent. Soc. Amer. 16: 346. 1923.

This species occurs in the southwestern United States, and specimens have been examined from the states of Sonora and Jalisco, Mexico. It has not been taken on the eastern slope.

Texananus hosanus (Ball)
Phlepsius hosanus Ball, Ann. Ent. Soc. Amer. 11: 386. 1918.

The species has previously been reported for the states of Veracruz, Mexico, Morelos, Guerrero, and Colima. It has proved to be a rather

common species and has been taken at several additional localities in the states mentioned and at Jacala, Hidalgo (5,000 feet), Zitacuaro (6,750 feet), Zamora (5,140 feet), Tuxpan (4,000 feet), Carapan (6,000 feet), and Uruapan (5,300 feet) in the state of Michoacán and at Mexico City (7,500 feet) and Río Frío (10,300 feet), D.F. This series of collections shows a range of elevation from 2,500 to 10,300 feet and a range of conditions from semidesert to the luxuriant herbaceous growth of the pinefir forest. The male has not hitherto been described.

Male plates short, broad, convexly rounded to a rounded inner apical margin. Styles broad, elongate, blunt at apex. Aedeagus in lateral view appearing broad where it joins the connective, then bent upward and narrowed to a caudally directed, sharp-pointed apex. The dorsal portion is narrowed at base, at the apex of which is formed a sicklelike blade which is wide at the base with a produced tooth on the inner basal margin. The apical half is narrow. The open portion of the sickle is dorsal.

Allotype male from Zamora, Michoacán, Mexico, October 2, 1941, collected by Plummer, Good, Caldwell, and the author.

Texananus areolatus (Baker)
Phlepsius areolatus Baker, Can. Ent. 30: 30. 1898.

This species occurs in prairie habitats in the southern Mississippi Valley and Texas. It undoubtedly occurs at several places along the northern Mexican border, but the only record for Mexico is from Monterrey, Nuevo León. The white areolar spots on the elytra will easily distinguish it from closely related species.

Texananus spatulatus (Van Duzee)
Phlepsius spatulatus Van Duzee, Trans. Amer. Ent. Soc. 19: 78. 1892.

This is one of the commonest species of the genus in both the southwestern United States and Mexico. Specimens are at hand from the states of Baja California, Nuevo León, Coahuila, Jalisco, Sonora, Tamaulipas, Morelos, Oaxaca, and Guerrero. It occurs in the low desert areas and upon the semideserts to elevations of 5,000 feet.

Texananus biacus DeLong

Texananus biacus DeLong, Anal. Esc. Nac. Cien. Biol. 1: 389. 1939.

This species was described from a single female specimen from Hermosillo, Sonora. Additional female specimens have been collected at

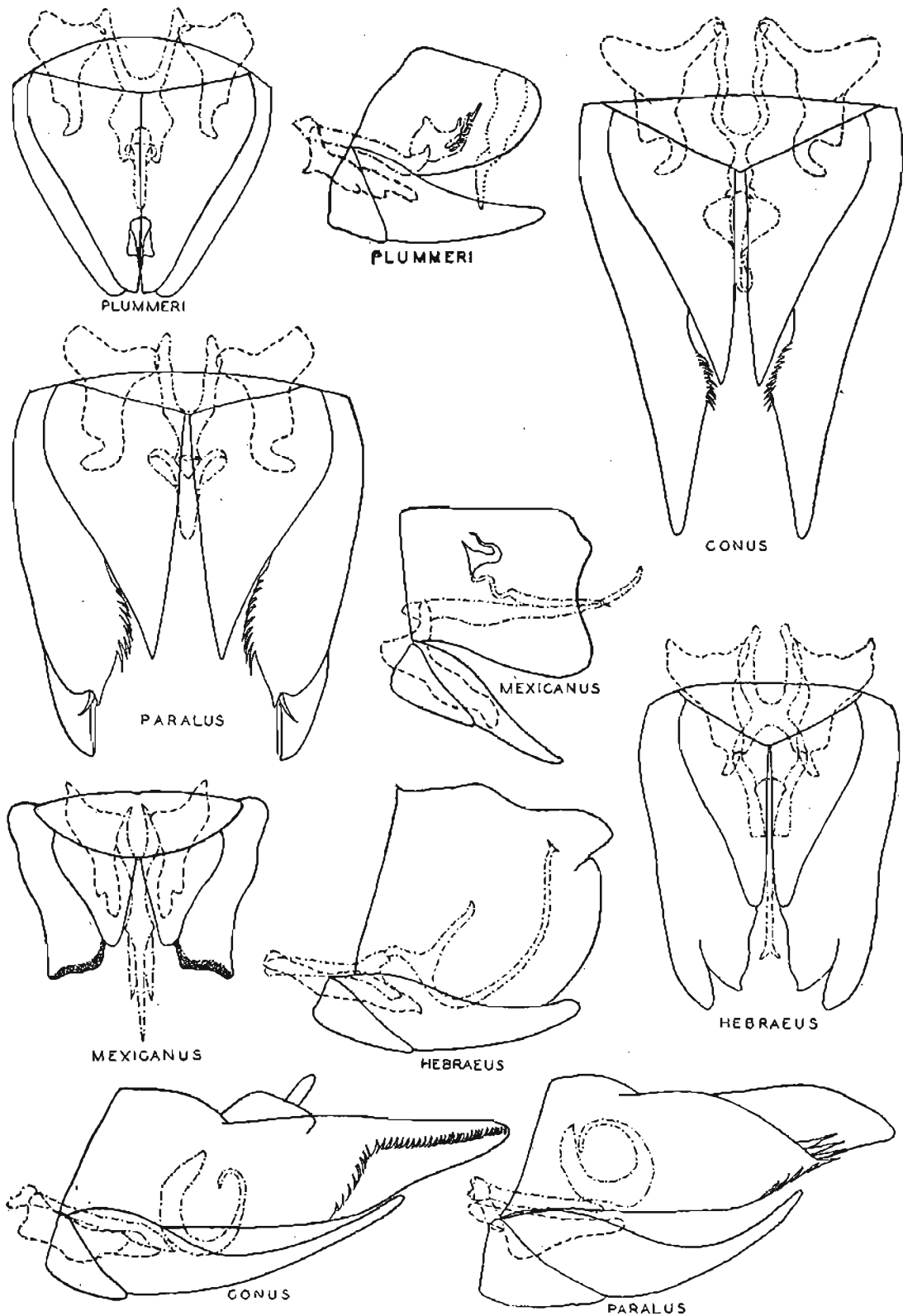


Fig. 3.—Ventral and lateral views of genital structures of species of *Texananus* as labeled.

Mexcala, Guerrero, at an elevation of 1,700 feet
No male specimens have been taken.

Texananus mexicanus (Ball)

Phlepsius mexicanus Ball, Ann. Ent. Soc.
Amer. 11: 385. 1918.

Records of previous citations are for Ori-
zaba, Veracruz, and Chilpancingo and Aca-
pulco, Guerrero. Other states are represented
by material collected at Zamora (5,100 feet)
Zacapu (6,500 feet), Michoacán, and Valles,
San Luis Potosí (300 feet). The range in eleva-

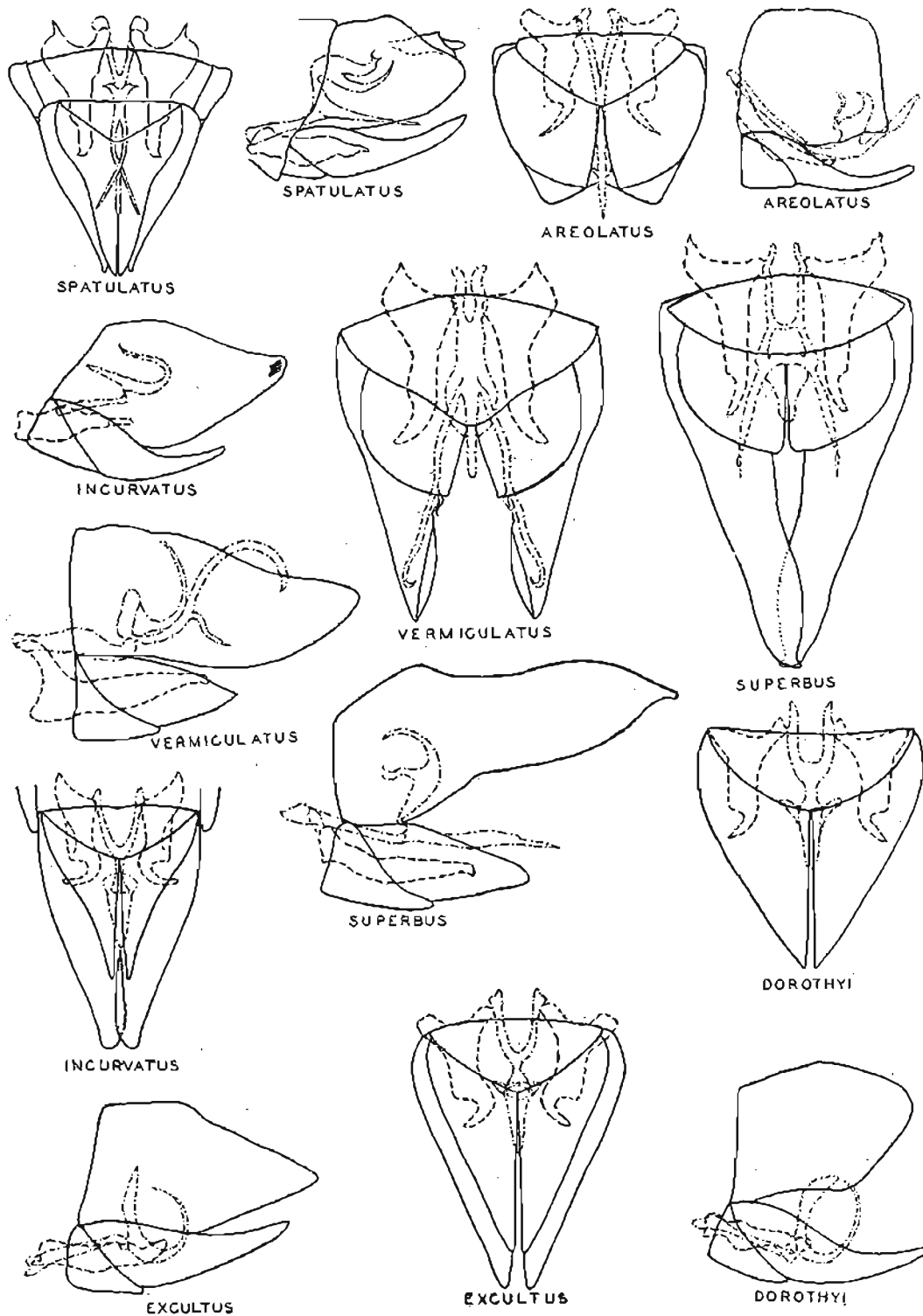


Fig. 4.—Ventral and lateral views of genital structures of species of *Texananus* as labeled.

tion for this species would therefore be from sea level to about 6,500 feet, according to present records.

This species is known by the female holotype specimen alone, which was collected at Amula, Guerrero, Mexico.

Texananus elongatus (Ball)

Texananus handlirshi (Ball)

Phlepsius elongatus Ball, Ann. Ent. Soc. Amer. 11: 382. 1918.

Phlepsius handlirshi Ball, Ann. Ent. Soc. Amer. 11: 383. 1918.

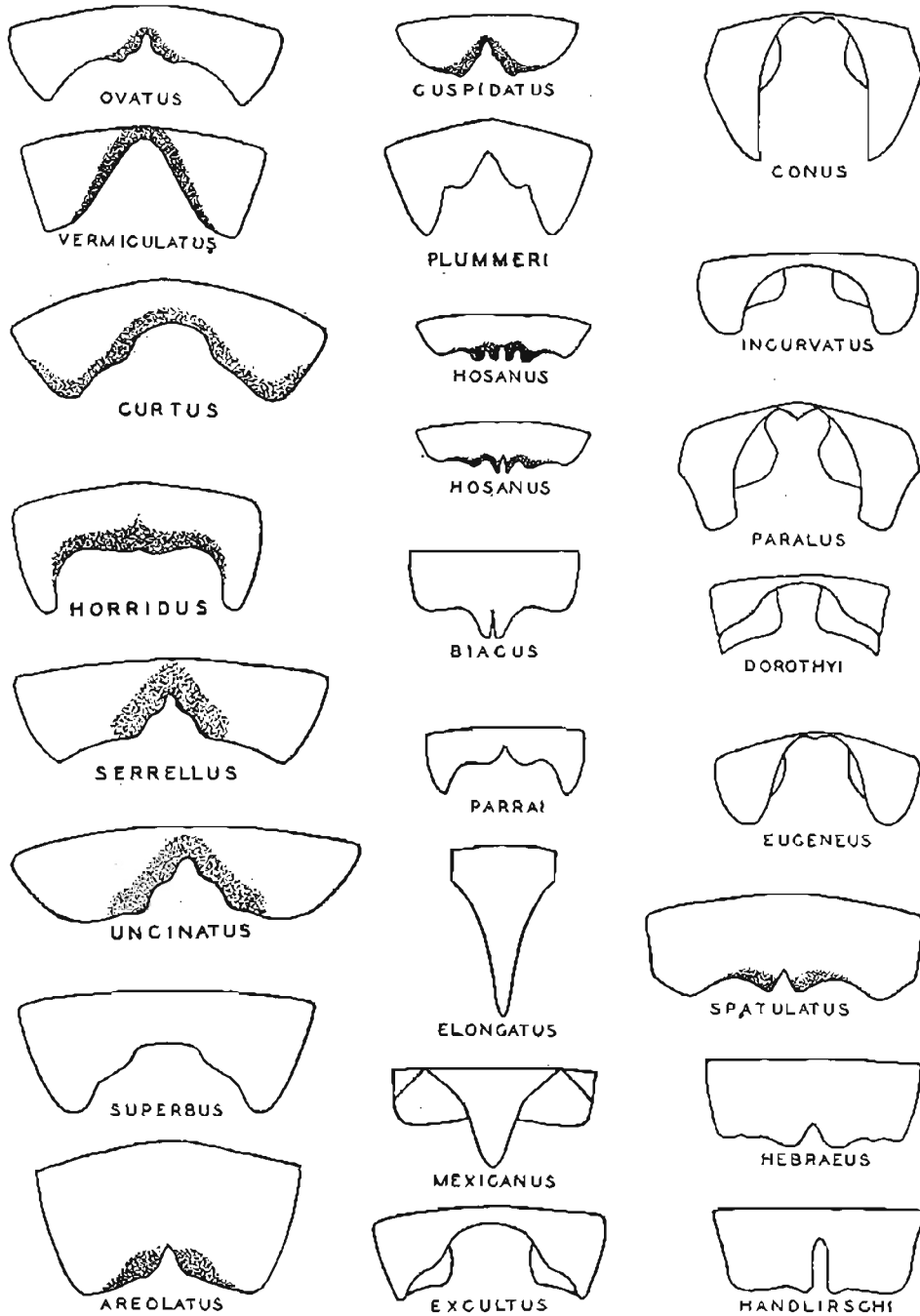


Fig. 5.—Ventral view of last ventral segment of female abdomen of species of *Texananus* as labeled.

In form and appearance this species closely resembles *majestus*. It is known to occur in Mexico, D.F., and in several localities in Guerrero.

Male plates long, broad at base, gradually tapered to bluntly pointed apices. Style broad at base, rapidly, concavely narrowed before middle on outer margin to form a produced, narrow apical half on inner margin, which is pointed at apex. Aedeagus with a ventral and dorsal process. The ventral portion is long, slender, curved dorsally, the apical fourth bent ventrally, and very narrow. The dorsal portion with a pair of dorsal, basal lobes from which a

long slender tapering process extends ventrally then curves caudally and extends caudodorsally. It is not as long as ventral portion. Pygofer narrowed, with an apical lobe.

***Texananus hebraeus* (Ball)**

Phlepsioides hebraeus Ball, Ann. Ent. Soc. Amer. 11: 383. 1918.

This large well-marked species is known from only two states by collections made to date. It occurs in Guerrero and in Chiapas at Finca Vergel, in the Río Huixtla Valley. Most of the material was taken at elevations of 2,100 to 3,200 feet.