

NOTES ON LEAFHOPPERS WITH DESCRIPTIONS  
(HOMOPTERA: CICADELLIDAE)

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*Xestocephalus superbus* (Prov.)

*Deltocephalus superbus* Provancher, L., Petite Faune Entomologique du Canada, Hémiptères, Homoptères, Additions et Corrections, p. 339, 1890.

*Xestocephalus fulvocapitatus* Van Duzee, E. P., Bul. Buffalo Soc. Nat. Hist. 5: 215-16, 1894.

The following is a translation of Provancher's description:<sup>1</sup>

"Length .19 inch. Varied with brown and yellow; the vertex brown with numerous small pale-yellow or white spots, the edge brown with three yellow dots, the front yellow. Prothorax and scutellum brown with yellow dots or small yellow lines, the scutellum bearing four of them, two close to the base and two before the apex. Elytra pale with brown spots, the base with yellow lines in the brown. Below and legs yellow, back of the abdomen brown.—Cap. Rouge.

"Its variety of colors gives it an entirely pleasant appearance."

This description applies very aptly to fairly common, well-marked insects, with definite although sometimes faint, markings on vertex, pronotum and scutellum. Provancher's description applies more fully to males, and Van Duzee's description of *fulvocapitatus* is very accurate for females.

The inner male genitalia are also distinct in this species; the style has a broad foot, and aedeagus is stout with a long slender pair of processes.

*Xestocephalus provancheri* n. sp.

This slender unmarked species has been confused with the preceding from which it is readily separated by a lack of definite anterior markings and by the characters of the inner male genitalia.

A brown species with unmarked produced vertex which runs to *X. superbus* (Prov.) in Peters' key.<sup>2</sup>

Head narrower than pronotum, a little less than twice as wide as long, an eighth longer at middle than next to eye, strongly produced. Pronotum one-fourth longer than vertex, a little more than twice as wide as long, elytra long and slender, strongly exceeding abdomen.

Vertex, pronotum and scutellum yellowish brown, eyes dark, area below eyes on pronotum darkened, scutellar basal angles dark, area around ocelli light. Elytra semihyaline with opaque white patches over costal plaque, dark areas on costal margin, one at middle, another above apical cell, a square area below apex of clavus, and apical cells. Below, face and legs pale, venter and dorsum dark, usually darker in female.

Male, aedeagus with short pair of processes reaching about half length of shaft and style with narrow foot. Female last ventral segment more than twice as long as broad, almost straight, slightly notched at middle, pale spines of pygofer not as abundant as in other species, ovipositor exceeding pygofer.

Length: male, 3 mm.; female 3.25 mm.

Male holotype, female allotype and three paratypes, Columbus, Ohio, May 19, 1938, D. J. & J. N. Knull, Collectors. Paratypes from Ohio: Franklin Co., July 14, 1942; Clifton, June 14, 1938; Delaware Co., June 20, 1943; and Hocking Co., May 25, 1938, and June 3, 1943, D. J. & J. N. Knull; Madison Co., Sept. 7, 1931, E. P. Breakey; Ironton, May 26, 1898, H. Osborn Collection. Paratypes from other states: Maud, Texas, April 29, 1941, D. J. & J. N. Knull; Gaines-

<sup>1</sup>Kindly checked by Professor Wencil J. Kostir.

<sup>2</sup>Peters, H. T., J. Kans. Ent. Soc. vi: 73-4, 1933.

ville, Fla., April 7, 1924, T. H. Hubbell; Agr. College, Miss., May 5, 1921, and Longview, Miss., April 9, 1921, A. McIntosh.

All type material is in the Ohio State University Collection.

***Xestocephalus tucsoni* n. sp.**

Robust, markings of vertex, pronotum and scutellum dark brown to black on tan background; elytra largely semihyaline with dark brown clouding, two inner claval veins conspicuously white toward sutural margin and near humeral angle. Inner male genitalia readily separate it from all other species as there are two pairs, instead of the usual one pair of spines on the aedeagus.

Head narrower than pronotum; vertex more than three times as broad as long, twice as long at middle as next to eye, slightly produced; pronotum more than half longer than vertex, two and three-eighths times as wide as long, humeral and lateral margins equal; elytra exceeding abdomen. Tarsal claws straight, curved ventrad.

Dark brown irregular mottling on vertex and pronotum, light and dark areas covering about equal amounts of surface, scutellum very dark, with a bluntly triangular basal white spot either side of middle and on mid-lateral margins. Elytra semihyaline, dark dorsum of insect showing through to give them a dark cast, claval veins whitened as mentioned above, square area below apex of clavus brown, corium largely semihyaline with some rounded hyaline spots margined with brown and small brown areas at ends of apical veins. Face brownish black with trace of pale arcs on front, on upper part a dark bat-shaped figure enclosed by light area. Venter very dark, legs lighter.

Male, aedeagus differing from that in all other species in having two pairs of latero-ventral processes, the outer pair longer; style with broad foot, rounded apex toothed on inner half of margin. Female, last ventral segment more than twice as long as preceding, posterior margin with sides sloping faintly up toward middle where there is a minute notch at the base of a slit which extends almost half length of segment. Pygofer dark brown, apex of ovipositor darker, exceeding pygofer, sides of pygofer with profuse, long, stout, tan spines.

Length: male, 3.2 mm.; female 3.5 mm.

Holotype male and allotype female from Tucson, Arizona, collected July 12, 1937, by D. J. & J. N. Knull, and deposited in the Collection of The Ohio State University.

***Stirellus osborni* n. sp.**

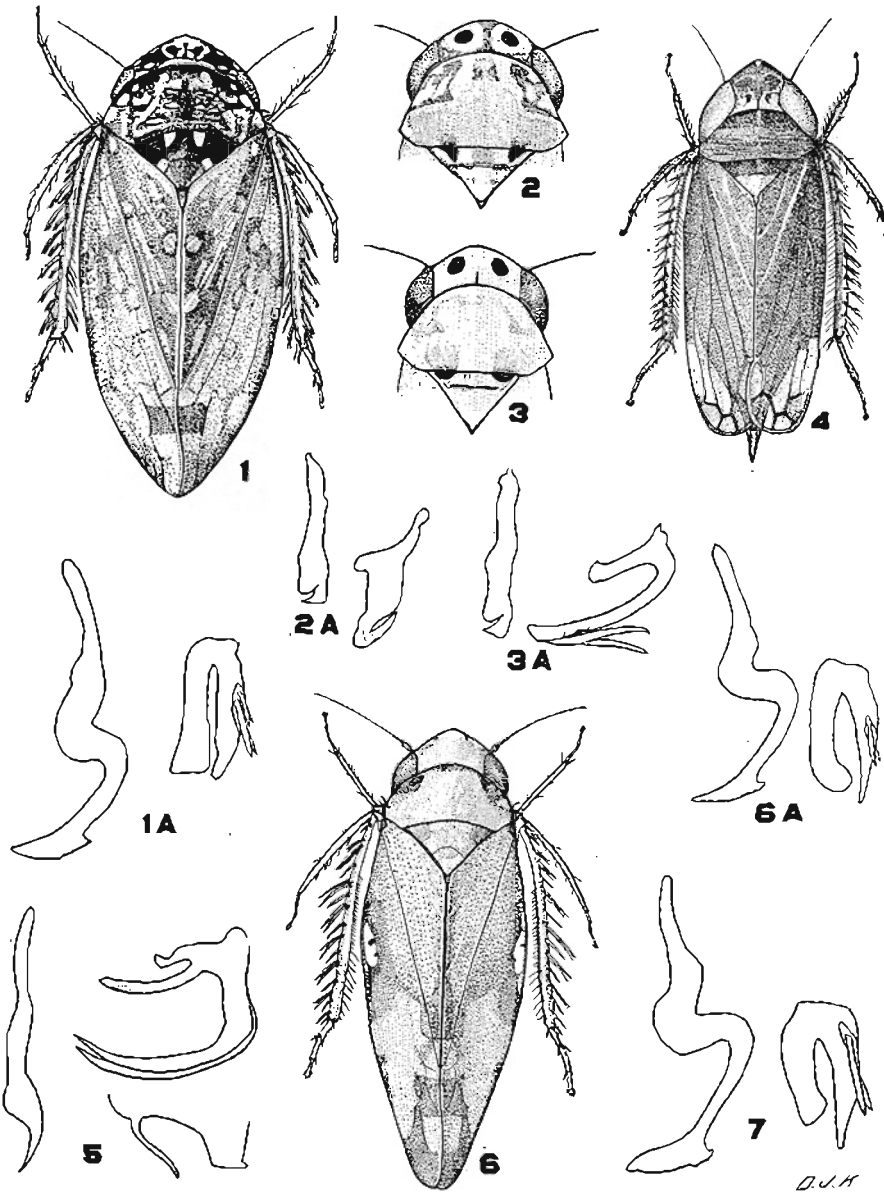
The smallest, darkest member of the genus.

Head as wide as pronotum; vertex a little longer at middle than width between eyes, half longer at middle than next to eyes, eyes large. Pronotum two and one-half times as wide as long, as long as vertex at middle, lateral margins very short, humeral margins long, posterior margin transverse, disc transversely striate especially on posterior two-thirds; elytra exceeding abdomen in male, exceeded by apex of ovipositor in female.

Female, uniform rich brown with the following light areas: a spot at apex of vertex, traces of light pattern on disk and base; pronotum, indication of median longitudinal stripe, apex of scutellum; elytra, claval veins and elytral area extending from above inner apical cell, obliquely

EXPLANATION OF PLATE

1. *Xestocephalus tucsoni* n. sp., female; 1A. Inner male genitalia, lateral view of style and aedeagus.
2. *Erythroneura apacha* Baker, female; 2A. Inner male genitalia, lateral view of style and aedeagus.
3. *Erythroneura balli* Beamer, female; 3A. Inner male genitalia, lateral view of style and aedeagus.
4. *Stirellus osborni* n. sp., female.
5. *Dikraneura mera* McAtee, inner male genitalia, lateral view, style, aedeagus and posterior margin of ninth segment.
6. *Xestocephalus provancheri* n. sp., female; 6A. Inner male genitalia, lateral view of style and aedeagus.
7. *Xestocephalus superbus* (Prov.), inner male genitalia, lateral view of style and aedeagus.



Note: Figs. 1, 4 and 6 to same scale; 2 and 3 to same scale; and all illustrations of inner male genitalia to same scale.

on antepical, to costal margin, apical cells dark and veins embrowned. Male, uniformly dark but for pale apex of scutellum, below dark in male, in female with white ocelli and oval pale area just below clypeal suture; spines of legs pale in both sexes.

Female, last ventral segment about as long as penultimate, posterior margin slightly concave; ovipositor exceeding pygofer by twice its width; a few pale spines on pygofer. Male, genitalia similar in form to those of *S. bicolor* (V. D.) as illustrated,<sup>3</sup> except that the pygofer extends beyond the plates by more than half their length.

Length: male, 2.5 mm.; female 3 mm.

Holotype female, allotype male and eight female paratypes collected near Homestead, Fla., Feb. 16, by Herbert Osborn and in the Osborn Collection at The Ohio State University.

Named for Professor Herbert Osborn, collector of the type series.

#### *Dikraneura mera* McAtee

*Proc. Ent. Soc. Wash.* 26: 76, 1924.

This species was described from a single female from Maryland taken on white oak. A number of specimens has been taken from white oak in Tennessee and Ohio, and since the male has not been described, a figure of the inner male genitalia is presented, and a male specimen, Delaware Co., Ohio, August 27, 1942, D. J. & J. N. Knull, is made the allotype and placed in the collection of the author.

Dr. P. W. Oman kindly compared specimens with the type and assured me that they were correctly identified. In McAtee's description he indicates that the clavus is black. This is not true in any of the specimens I have at hand, and Dr. Oman did not mention that it is true of the type.

#### *Erythroneura apache* Baker

*Typhlocyba bipunctata* Gillette, *Proc. U. S. Nat. Mus.* 20: 751, 1898.

*Erythroneura apache* Baker, nom. nov. for *E. bipunctata* Gill., *The Philipp. J. of Sci.* 27: 537, 1925.

Dr. D. M. DeLong has recently compared female specimens taken by D. J. & J. N. Knull near Tucson, Arizona, with the female (wingless) type of *E. apache* Baker, in the U. S. National Museum, and has noted that the markings are "just like the type." Specimens were taken at light and from a low-growing *Acacia* in the Tucson Mts., and in Sabino Canyon on a number of occasions on dates ranging from May 13 to August 27. A study of the inner male genitalia shows them to be quite distinct from those in Dr. Beamer's *E. balli* (*J. Kans. Ent. Soc.* 5: 125, 1932) which he later (*Can. Ent.* 66: 175, 1934) made a synonym of *E. apache* Baker.

It is my belief that *E. apache* Baker and *E. balli* Beamer are separate and distinct species, and illustrations are offered to show their differences. Specimens determined by Dr. Beamer are at hand.

<sup>3</sup>Thomas, Ruth L., *J. Kans. Ent. Soc.* vi: 136, Pl. II, 1933.

#### Methods of Plant Breeding

Although designed for use in advanced undergraduate and graduate classes in plant breeding this book is somewhat more than a classroom textbook. It is in addition a reference work on the methodology and genetics applicable to programs of crop-plant improvement.

The genetic basis and the methods and techniques of improvement by hybridization and selection are thoroughly treated for all our crop plants. The chapters dealing with approved methods of field-testing new varieties or strains for yield are excellent.

Throughout, the discussion centers around illustrative examples from the literature and from the extensive research carried on by the authors and their students.

The text proper is supplemented by a list of over four hundred references, statistical tables useful in analysis, and a glossary consisting mostly of general botany and elementary genetic terminology.

The book is sturdily bound and the type is easily read. In this reviewer's opinion, a few more illustrations would be a decided improvement.—R. T. Wareham.

*Plant Breeding*, by Herbert Kendall Hayes and Forrest Rhinehart Immer. 432 pp. New York, The McGraw-Hill Co., 1942. \$4.00.