New Oak-Inhabiting Species of Erythroneura from Illinois (Hemiptera, Cicadellidae)

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Among the oak-inhabiting species of *Erythroneura* found in Illinois, those with a rigid restriction to shingle oak (*Quercus imbricaria*) and the black oaks (*Quercus nigra* group) are proving to have been the least understood. This situation is due to the relatively infrequent occasions when the collector encounters large populations of *Erythroneura* on these hosts. By good fortune, in the last two years we have found a few groves of these oaks having moderate to large leafhopper populations. On the basis of the large numbers of individuals thus available for study, it is now apparent that certain observed structural differences, previously suspected of being only variations of one or two species, in reality demark distinctive species segregates. It is these species which are described in this paper.

ERYTHRONEURA LENTA complex

In *Erythroneura lenta* and its immediate allies the body markings are scattered red bars and dots on a pale background, typical for the great majority of species in the *maculata* group; the style has either no posterior point or a minute one; the aedeagus is simple, deeper than thick; and the pygofer hooks are slender and either nearly straight, curved, or only moderately sinuate. To this complex belong *lenta* Beamer, *longa* Knull, *patris* Ross and DeLong, and several other species, some of them apparently undescribed.

Erythroneura marilandicae new species

Most closely related to *longa,* this species may be distinguished by the shorter, tapering shaft of the aedeagus and the more curved dorsal aspect of the pygofer hooks. In *longa* the latter are almost straight.

Color and general structure as in typically spotted members of the *lenta* complex. Male genitalia as in Fig. 1. Pygofer hook slender, extending considerably beyond pygofer, the latter aspect slightly curved ventrad, the dorsal aspect bowed, the two hooks converging toward apex. Style without posterior point (as in Fig. 3*E*). Aedeagus with curved internal apodeme; phalicata short, straight, and slightly tapering, lateral aspect only moderately deep, ventral aspect narrow.

Holotype ♂.—Meredosia, ILLINOIS, Sept. 8, 1954, on *Quercus marilandica,* Ross and Stannard. *Paratypes.*—All from Illinois; same data as holotype, 9 ♂; Forest City, Sept. 11, 1953, on *Q. marilandica,* Stannard and Ross, 1 ♂; same, but Sept. 8, 1954, 4 ♂; n. of Marion, Sept. 21, 1950, on *Q. velutina,* Ross and Evers, 1 ♂; Rocky Branch Cr., Oliver, Apr. 22, 1949, Ross and Stannard, 2 ♂; Starved Rock St. Pk., Sept. 7, 1951, on *Juglans cinerea,* Mills and Ross, 1 ♂; W. Vienna, Jn. 5, 1951, on *Ulmus alata,* Ross and Richards, 1 ♂.

Erythroneura econa new species

Based on general proportions of aedeagus and pygofer hooks, this species also is most closely related to *longa,* but differs in that the pygofer hooks diverge at apex and have an apparent twist to the apical portion, Fig. 2*A, B,* resulting in the apical half being abruptly narrowed in dorsal view.

Color and general structure as for typically spotted members of *lenta* complex. Male genitalia as in Fig. 2. Pygofer process extending just beyond apex of pygofer; in lateral view the base is narrow and the apical half is slightly wider (in some specimens this enlargement is not seen until the abdomen is rotated a few degrees from a strictly lateral position); in dorsal view the base is relatively thick and the apical half is abruptly thinner. Style without posterior point. Aedeagus with short, straight internal apodeme; shaft slender, moderately long, and almost straight.

Holotype ♂.—Neoga, ILLINOIS, Sept. 2, 1955, on *Quercus imbricaria,* Ross and Stannard. *Paratypes.*—Newton, Ill., Sept. 12, 1956, on *Q. imbricaria,* Ross and Selander, 8 ♂.

Erythroneura metopia new species

The ventrally-curved pygofer hook indicates a close relationship between this species and *patris,* from which *metopia* can be diagnosed by the angulate rather than gently curved pygofer hook and the very short aedeagal shaft.

Color and general structure typical for the *lenta* complex. Male genitalia as in Fig. 3. Pygofer hook slender, extending to end of pygofer and bent relatively sharply ventrad at midpoint; the two hooks, seen from dorsal view, converge slightly toward apex. Style without posterior point. Aedeagus with short internal apodeme; shaft unusually short for the complex, tapering and both shallow and narrow.

Holotype ♂.—Shawneetown, ILLINOIS, July 14, 1948, on *Quercus imbricaria,* Mills and Ross. *Paratypes.*—All from Illinois; same data as holotype, 3 ♂, 5 ♀; Danville, July 23, 1949, on *Q. imbricaria* and *Q. velutina,* DeLong and Ross, 2 ♂; n. of Marion, Sept. 21, 1950, on *Quercus* sp., Ross and Evers, 3 ♂; Fairfield, June 12, 1934, DeLong and Ross, 1 ♂; Newton, Sept. 11–12, 1956, on *Q. imbricaria,* Ross and Selander, 15 ♂.

Erythroneura alicia new species

On the basis of genitalic structures this species is closest to *longa* and *marilandicae,* from both of which it differs in the more sinuate pygofer hooks and sinuate aedeagal shaft. From all members of the *lenta* complex *alicia* differs in possessing three pink transverse bands across the dorsum, in position like the darker bands of *trivittata.*

Color pale with three transverse pink bands across the folded tegmina, one at the base including also the scutellum, one across the middle, and the third slightly before the apex. General structure typical for complex. Male genitalia as in Fig. 4. Pygofer hook slender and tapering, extending slightly beyond apex of pygofer, moderately sinuate from either lateral or dorsal view. Style without posterior point. Aedeagus with short internal apodeme; shaft short, only moderately deep, its lateral aspect definitely sinuate, its ventral aspect narrow.

Holotype ♂.—Neoga, ILLINOIS, Sept. 2, 1955, on *Q. imbricaria,* Ross and Stannard. *Paratypes.*—All from Illinois on *Q. imbricaria;* same data as holotype, 2 ♂, 7 ♀; nw. of Casey, Sept. 8, 1955, Ross, 2 ♂, 1 ♀; Dahlgren, Sept. 24, 1952, Ross and Evers, 2 ♂; Fairfield, June 12, 1934, DeLong and Ross; Newton, Sept. 12, 1956, Ross and Selander, 2 ♂, 1 ♀; Raymond, Sept. 29, 1955, Ross, 1 ♂.

ERYTHRONEURA TRIVITTATA complex

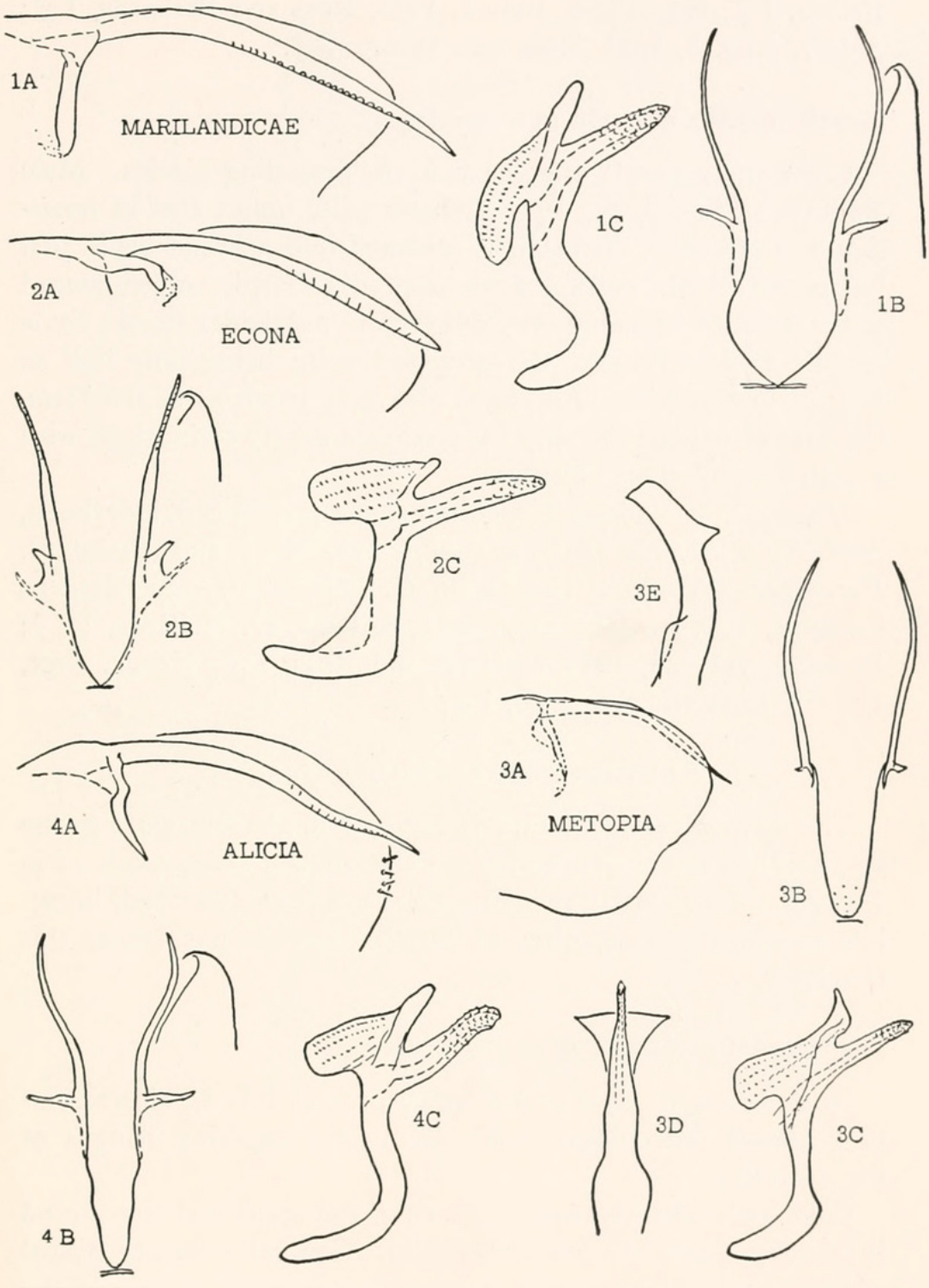
Two previously described species, *confirmata* McAtee and *trivittata* Robinson, form a distinctive small complex in which the style has both a posterior and anterior point, both slender and pointed, Fig. 5*E*. In *confirmata* the dorsal aspect (with wings folded) has an exquisite red saddle-like pattern, whereas in *trivittata* the dorsal aspect has a light ground color crossed by three nearly black transverse bands. Previously this banded pattern was considered diagnostic for the species *trivittata,* but we have discovered two additional species described below possessing this pattern. Shingle oak is the host for all four species of the complex.

Erythroneura amethica new species

This and the following species are close relatives of *trivittata* Robinson, possessing in common with it three conspicuous transverse red and black bands across the tegmina. *E. amethica* differs from the other two banded species in the shape of the pygofer hooks, which converge at the apex.

Male genitalia as in Fig. 5. Pygofer hook elongate, of nearly uniform thickness to near curved apex; dorsal aspect gently sinuate. Style with sharp anterior point and sharp, narrow posterior point. Aedeagus with base unusually large; phalicata nearly cylindrical, the apical half and most of the ventral margin spiculate; ventral aspect slightly irregular.

Holotype ♂.—Shawneetown, ILLINOIS, July 14, 1948, on *Quercus imbricaria,* Mills and Ross. *Paratypes.*—All from Illinois on *Q. imbricaria;* Dixon Springs, April 21, 1935, T. H.



FIGS. 1–4. Male genitalia of *Erythroneura*. *A, B,* pygofer hooks, lateral and dorsal aspects; *C, D,* aedeagus, lateral and ventral aspects; *E,* apical portion of style.

Frison, 1 ♀; Edgewood, June 5, 1955, Ross and Richards, 1 ♂; Sesser, Aug. 5, 1954, Ross and Moore, 2 ♂.

Erythroneura arpegia new species

Color and general structure as in the preceding species. Male genitalia as in Fig. 6. Pygofer hook quite unlike that of *trivittata* and *amethica* in that it is widened into a broad blade just before the middle, and the dorsal aspect is sharply angled laterad at the point of widening very much as in *paluloides* Ross. Style exactly as in *trivittata,* the posterior point being only half as long as in *amethica.* Aedeagus also very much as in *trivittata,* the base of normal size and the phalicata nearly cylindrical, with a scattering of short spicules.

Holotype ♂.—Adams County, ILLINOIS, north of Kinderhook, Sept. 9, 1954, on *Quercus imbricaria,* Ross and Stannard. *Paratypes.*—All from Illinois on *Q. imbricaria;* same data as holotype, 1 ♂; nw. of Casey, Sept. 8, 1955, H. H. Ross, 10 ♂; Danville, July 23, 1949, DeLong and Ross, 1 ♂; Neoga, Sept. 2, 1955, Ross and Stannard, 1 ♂.

ERYTHRONEURA TUMIDA complex

The species *tumida* Knull is unusual in the *maculata* group of *Erythroneura* in possessing a sickle-shaped style, much as in Fig. *7E.* Two closely related species are here described, bringing to three the number of known species possessing this character.

Erythroneura protuma new species

In structure of style and pygofer process this species resembles *tumida,* but differs markedly in the tapering flanges of the aedeagus.

Color pale with the usual pattern of red spots and bars found in most species of the *maculata* group. General structure typical

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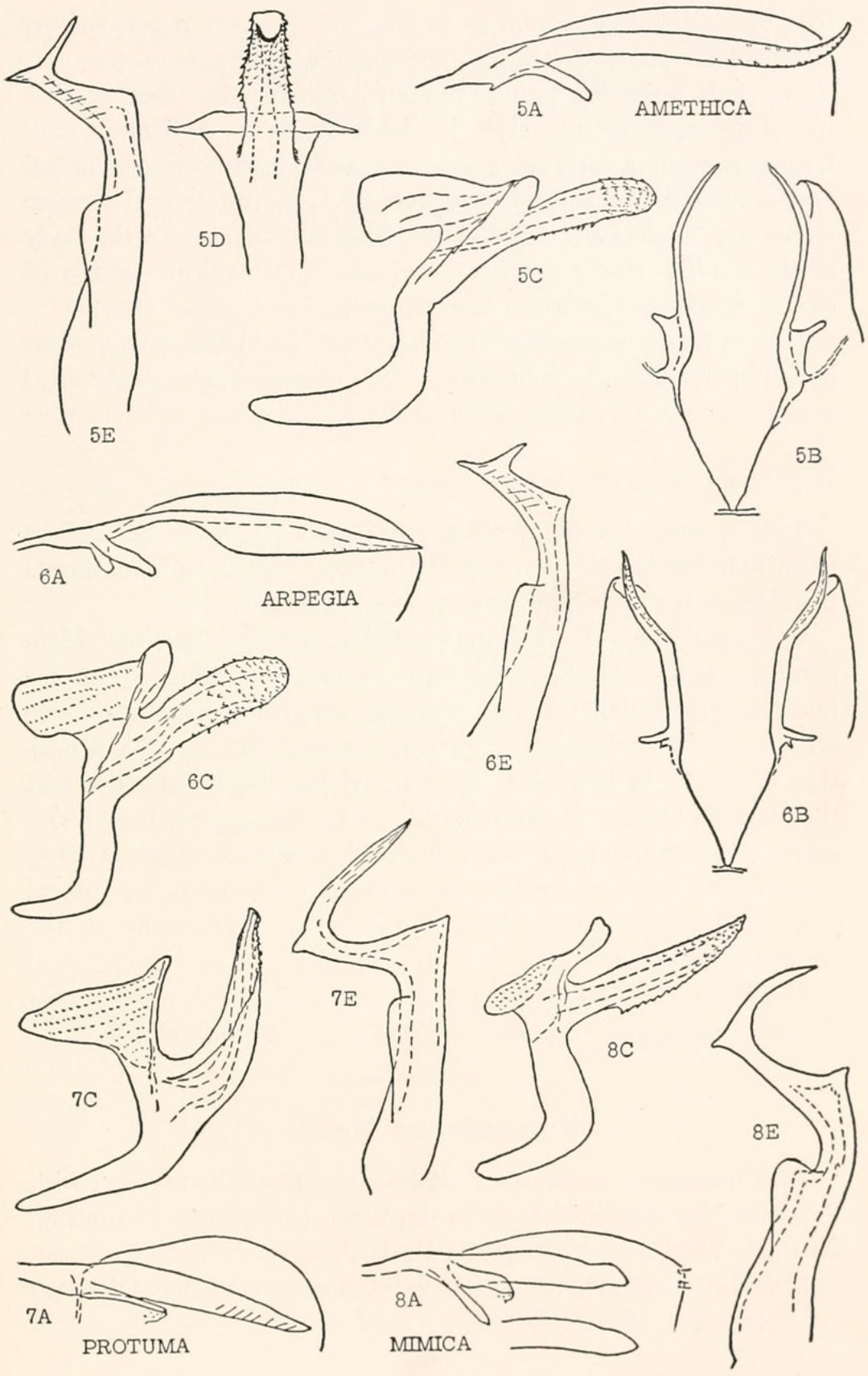
EXPLANATION OF FIGURES

FIGS. 5–8. Male genitalia of *Erythroneura. A, B,* pygofer hooks, lateral and dorsal aspects; *C, D,* aedeagus, lateral and ventral aspects; *E,* apical portion of style.


5A
AMETHICA
5D
5C
5E
5B
6A
ARPEGIA
6E
6C
6B
7E
8C
7C
8E
7A
PROTUMA
8A
MIMICA

for genus. Male genitalia as in Fig. 7. Pygofer process short and bladelike, almost straight, and not reaching apex of pygofer. Style with posterior point long and curved over foot so that the entire apex of the style is sickle shaped. Aedeagus with large, triangular internal apodeme; shaft arising from ventral area of socket, upturned, massive, and having lateral flanges which are moderately wide at the base and taper into the body of the shaft a short distance from the apex; apical portion of the shaft with a few small lateral teeth.

Holotype ♂.—Oregon, ILLINOIS, Sept. 27, 1956, on *Quercus borealis,* Ross and Stannard. *Paratypes.*—Same data, 4 ♂; same, but Sept. 15, 1955, on *Quercus alba,* 4 ♂.

Erythroneura mimica new species

This species resembles the preceding most closely but differs from it in the chubby apex of the pygofer hooks and the dorsal position of the aedeagal shaft on its socket.

Color and general structure as in the preceding species. Male genitalia as in Fig. 8. Pygofer hook short, ending some distance before the apex of the pygofer, and connected at its base with a strong surface thickening of the pygofer; the apical portion of the hook is slightly constricted just before the tip, and the latter is blunt. Style sickle-like, with long, curved posterior point. Aedeagus with small internal apodeme; shaft arising near dorsal part of socket, straight and tapering, its lateral margins forming serrate flanges which taper gradually to the tip of the shaft.

Holotype ♂.—Oregon, ILLINOIS, Sept. 15, 1955, on *Quercus borealis,* Ross and Stannard. *Paratypes.*—Same data, 2 ♂.

Nomenclature Notice

All comments relating to the following should be marked with the File Number, and sent in duplicate to Francis Hemming, 28 Park Village East, Regent's Park, London N.W.1, England.

Mansonia Blanchard, 1901, validation of (Order Diptera) (File No. Z.N.(S.) 553).