

NEW ERYTHRONEURA (ERATONEURA) OF THE DIRA
GROUP WITH NOTES
(HOMOPTERA: CICADELLIDAE)

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The Maculata Group of *Erythroneura* has recently been given subgeneric status (*Eratoneura*) Young (1952). It has been divided further into groups, the bulk of the species falling into the Dira Group characterized by an aedeagus shaft which is "typically warty or at least rugose . . . and usually with the lack of paired processes." The fifteen species here described belong to this group.

The color-pattern in general follows this form: Vertex with three rounded pale spots, median longer, surrounded by narrow bands of color. Pronotum with median V or Y-shaped spot and angular spot back of each eye. Scutellum with spot at tip, basal angles sometimes outlined with color. Elytra: clavi with basal anchor spot and small spot before tip; coria with spot on costal margin midway between costal plaque and humeral angle, another at anterior end of costal plaque, large spot between claval suture and Cu; cross-veins and adjacent area on longitudinal veins often colored; minute black dot in posterior margin of costal plaque and larger one in base of inner apical cell. The coloring ranges from pale orange to deep red.

In the following descriptions only salient features of external markings are mentioned, and illustrations of inner ♂ genitalia portray these characters. Figures were drawn from slide mounts in which the parts were pressed flat in diaphane. They are all drawn to the same scale.

Specimens were collected by D. J. and J. N. Knull, unless other collectors are mentioned, and types are in collection of author and some paratypes in The Ohio State University Collection.

Erythroneura (Eratoneura) accita n. sp.

Figures 10, 11, 12

Markings orange, narrow on head and pronotum, broad and fused on elytra; black spot in base of inner apical cell unusually large and round.

Near *E. (E.) vittata* Knull and Auten (1937) in form of style, but with longer aedeagus and shorter pygofer hook. Allied also to *E. (E.) affinis* Fitch from which it differs in curved posterior point of foot of style. Length: 2.8 mm.

Taken in Hocking Co., Ohio: ♂ holotype, April 12, 1948; paratypes April 12, 1945, and May 12, 1947.

Erythroneura (Eratoneura) dura n. sp.

Figures 16, 17, 18

Pale orange markings on cream background, ill-defined, fused on base of clavus.

Near *E. (E.) usitata* Beamer and *E. (E.) ingrata* Beamer, but with a smaller foot of style and straighter pygofer hook; aedeagus straighter as in *ingrata*. Length: 2.7 mm.

Ohio: ♂ holotype, Delaware Co., Oct. 1, 1944; paratype, Greene Co., April 28, 1949.

Erythroneura (Eratoneura) inksava n. sp.

Figures 4, 5, 6

Markings pale orange, ill-defined, merging.

Near *E. (E.) penesica* Beamer, but with straighter, smaller pygofer hook, posterior point of foot of style not curved, and aedeagus broader and straight in lateral view. Length. 2.7 mm.

Collected on oak in Texas: ♂ holotype, allotype, 10 ♂ and 9 ♀ paratypes, Inks Lake State Park, Burnet Co., 1 ♂ and 1 ♀, Gillespie Co., April 5, 1953; 1 ♂, Leon Co., April 6, 1953.

Erythroneura (Eratoneura) masonae n. sp.

Figures 7, 8, 9

Color markings pale orange, diffuse, connected, ill-defined throughout.

In genital characters of ♂ related to *E. (E.) univittata* Robinson and *E. (E.) basilaris* Say, but without any trace of band in external markings. Length: 3 mm.

Nebraska: ♂ holotype, Elkhorn River, May 14, 1936, D. M. Johnson. Named for Esther Mason Johnson, my mother, who has long been interested in collecting leafhoppers.

Erythroneura (Eratoneura) nimia n. sp.

Figures 1, 2, 3

Markings pale orange, broad, joined, distinct.

Related to *E. (E.) knighti* Beamer, but with longer posterior point on foot of style, and shorter aedeagus. Length: 2.8 mm.

Ohio: ♂ holotype, Hocking Co., Sept. 27, 1950.

Erythroneura (Eratoneura) rubida n. sp.

Figures 19, 20, 21

A broad pink band behind middle of elytra and before apical cells distinguishes this species externally from *E. (E.) affinis* Fitch which it resembles in characters of inner ♂ genitalia. Other markings are somewhat diffuse and pale orange on a cream background. In some specimens the pink band is not definite, but in all the body color is light throughout, whereas in *affinis* it is more or less darkened.Pygofer hook straighter than that in *affinis*. Length: 2.8 mm.

Taken on elm in Ohio: ♂ holotype, Fairfield Co., July 26, 1945; allotype, Hocking Co., May 22, 1938; ♂ and ♀ paratypes, Columbus, Oct. 21; Delaware Co., 2 April 8, 1945, 1 April 26, 1944, 5 April 14, 1946, 6 April 18, 1948; Hocking Co., 1, May 8, 1951.

Erythroneura (Eratoneura) socia n. sp.

Figures 13, 14, 15

Markings deeper orange on head, pronotum and apex of scutellum; narrow, distinct, small and paler on elytra.

Related in shape of foot of style to *E. (E.) solita* Beamer but with heavier, differently formed pygofer hook which is very broad at base, concave on outer portion, with ventral margin toothed toward apex. Length: 3 mm.

Ohio: Hocking Co., ♂ holotype April 12, 1945; paratype, April 17, 1947.

Erythroneura (Eratoneura) solida n. sp.

Figures 22, 23, 24

Spots small, red, well separated.

Distinguished from *E. (E.) solita* Beamer by heavy pygofer hook and lack of spine at base of aedeagus. Length: 2.6 mm.

Ohio: ♂ holotype, Hocking Co., April 12, 1945; Georgia: 2 ♂ paratypes, Decatur, May 3, 1934 and April 17, 1934, Mary Auten, Collector.

Erythroneura (Eratoneura) tantula n. sp.

Figures 34, 35, 36

Markings faint, orange, diffuse.

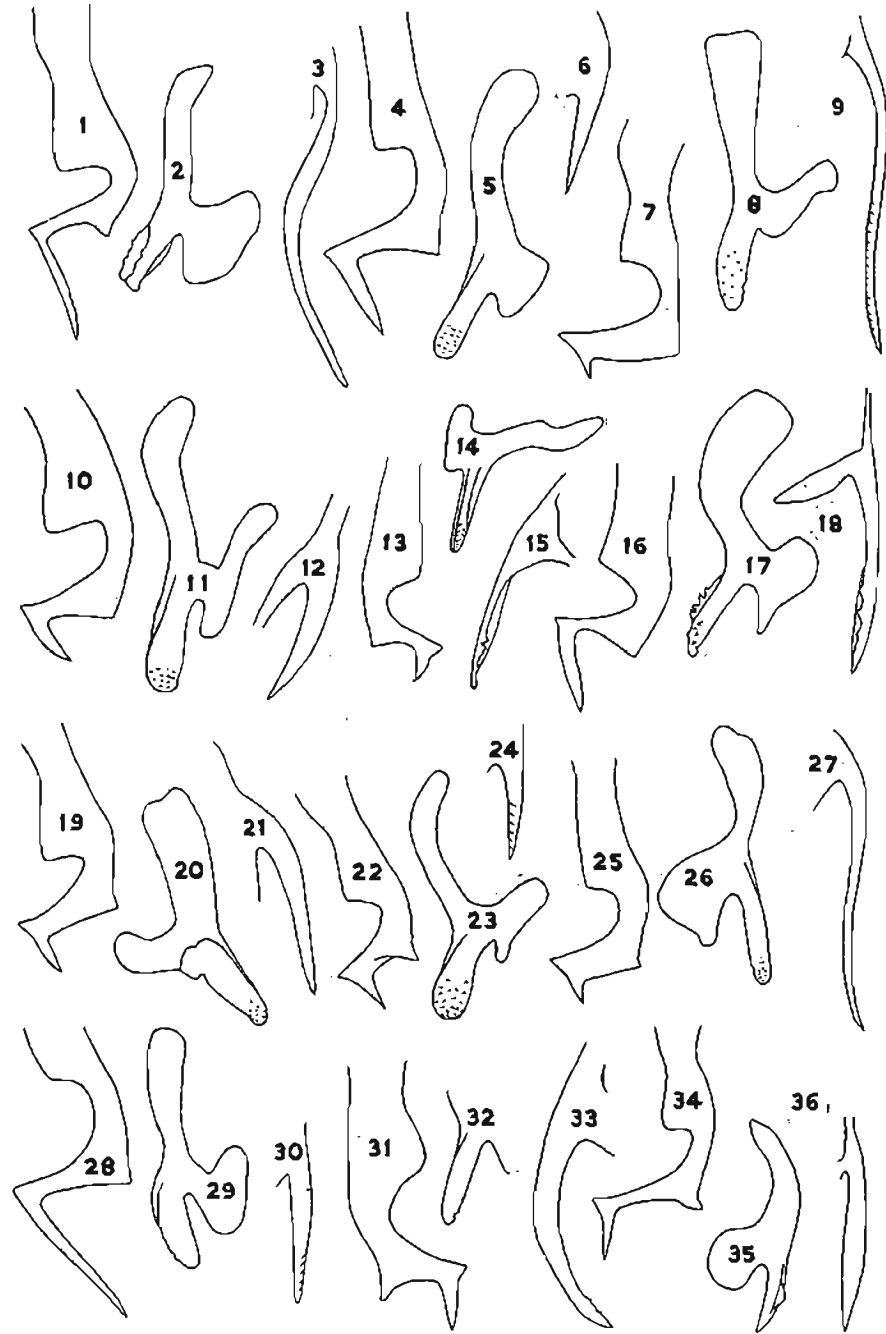
In characters of inner ♂ genitalia resembling *E. (E.) macra* Beamer, but with shorter, stubby pygofer hook. Length 2.8 mm.

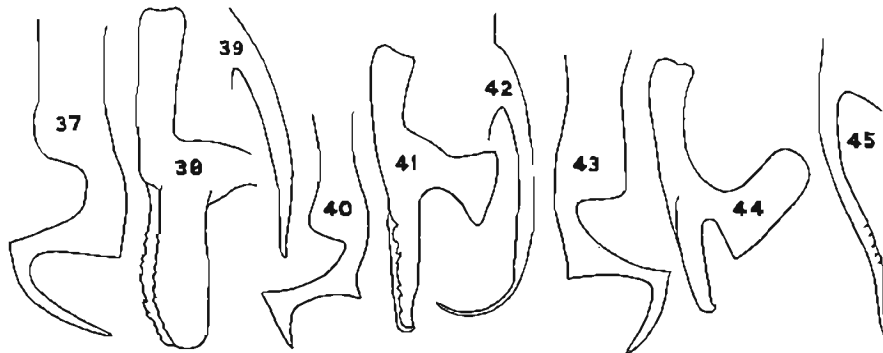
Ohio: ♂ holotype, Scioto Co., June 9, 1943.

Erythroneura (Eratoneura) staminea n. sp.

Figures 40, 41, 42

Markings red on white background, small, distinct, anterior marks on clavus joined; tip of scutellum red.





EXPLANATION OF FIGURES

In the three numbers given for each species, first applies to apical portion of style, second to lateral view of aedeagus, and third to pygofer hook.

<i>Erythroneura (Eratoneura) nimia</i>	n. sp. 1, 2, 3.
"	" <i>inksana</i> n. sp. 4, 5, 6.
"	" <i>masonae</i> n. sp. 7, 8, 9.
"	" <i>accila</i> n. sp. 10, 11, 12.
"	" <i>socia</i> n. sp. 13, 14, 15.
"	" <i>dura</i> n. sp. 16, 17, 18.
"	" <i>rubida</i> n. sp. 19, 20, 21.
"	" <i>solida</i> n. sp. 22, 23, 24.
"	" <i>tenuitas</i> n. sp. 25, 26, 27.
"	" <i>vacua</i> n. sp. 28, 29, 30.
"	" <i>unca</i> n. sp. 31, 32, 33.
"	" <i>lantula</i> n. sp. 34, 35, 36.
"	" <i>tumida</i> n. sp. 37, 38, 39.
"	" <i>staminea</i> n. sp. 40, 41, 42.
"	" <i>valida</i> n. sp. 43, 44, 45.

Lash-like tip of pygofer hook distinguishes this from all others. In Beamer's key (1932) it would run to *E. (E.) interna* Beamer. This tip appears flexible, definitely curved either in or out. Length: 3 mm.

Ohio: ♂ holotype, Hocking Co., May 4, 1950; paratype, Scioto Co., June 9, 1943.

Erythroneura (Eratoneura) tenuitas n. sp.

Figures 25, 26, 27

Markings pale orange, broad, joined.

A short stubby foot and long slender straight aedeagus as well as the long slender pygofer hook characterize this species which bears some resemblance to *E. (E.) texana* Beamer (1929), however in *tenuitas* the pygofer hook is not bent and there is not a definite spine anterior to base of shaft of aedeagus. Length: 2.6 mm.

Texas: ♂ holotype and allotype, Bastrop State Park, March 26, 1950.

Erythroneura (Eratoneura) tumida n. sp.

Figures 37, 38, 39

Markings distinct, orange, joined.

Near *E. (E.) gemina* Beamer from which it differs in its very broad, large aedeagus. Posterior point of style curved strongly so tip is even with heel. Length: 3 mm.

Ohio: ♂ holotype Hocking Co., May 4, 1950, paratype October 12, 1947; 1 Pickaway Co., March 31, 1934, J. S. Caldwell, Collector.

Erythroneura (Eratoneura) unca n. sp.

Figures 31, 32, 33

Markings faint, pale orange, head darker.

Near *E. (E.) interna* Beamer but with longer posterior point on foot of style. Foot as in *E. (E.) solida* n. sp. Length: 3 mm.

Ohio: ♂ holotype, Hocking Co., May 12, 1947.

Erythroneura (Eratoneura) vacua n. sp.

Figures 28, 29, 30

Upper claval markings orange, fused, outer markings brighter red.

Near *E. (E.) abjecta* Beamer, but with longer posterior point on foot of style in proportion to base, and with broader aedeagus in lateral view. Length: 2.7 mm.

Ohio: ♂ holotype, Hocking Co., May 12, 1947.

Erythroneura (Eratoneura) valida n. sp.

Figures 43, 44, 45

Markings of medium width, orange, anterior claval spots joined.

Near *E. (E.) gemina* McAtee but with longer, more curved pygofer hook. Length: 3 mm.

Ohio: ♂ holotype, Hocking Co., May 4, 1950.

NEW OHIO RECORDS

In addition to the twelve new species from Ohio in this paper, the following have been found:
Erythroneura (Erylhidula) scissa Beamer, Hocking Co., Sept. 14, 1945.*Erythroneura (Erylhidula) scythia* Auten and Johnson, Hocking Co., April 11, 1945.*Erythroneura (Eratoneura)*, Dira Group, *acericola* Ross and DeLong, Delaware Co., April 14, 1946; Hocking Co., April 12, 1945 and May 30, 1952; Greene Co., May 7, 1952.*E. (E.)* Dira Group, *stoveri* Ross and DeLong, Hocking Co., May 4, 1950.*E. (E.)*, Noncuspidis Group, *eversi* Ross and DeLong, Delaware Co., April 8, 1945, April 14, 1946; Hocking Co., April 12, 1945.*E. (E.)*, Noncuspidis Group, *imbricariae* Ross and DeLong, Hocking Co., May 12, 1947.

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- Auten, M., and D. M. Johnson. 1936. Some *Erythroneura* of the Obliqua Group from Decatur, Georgia. *Ann. Ent. Soc. Am.*, 29: 61-5.
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1931-32. *Erythroneura* of the Maculata Group. *Can. Ent.*, 63: 127-135; 240-244; 268-289;
64: 12-17; 45-48; 69-72; 82-88; 134-144; 158-162; 174-181.
- Knoll, D. J., and M. Auten. 1937. Some *Erythroneura* of the Maculata Group from Decatur, Georgia. *Ann. Ent. Soc. Am.*, 30: 572-8.
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1953. Biological and Taxonomic Notes on *Erythroneura*. *Ohio Jour. Sci.*, 53: 77-90.
- Young, D. A., Jr. 1952. A Reclassification of Western Hemisphere Typhlocybinæ. *Univ. Kansas Sci. Bull.*, 35: 1-217.

Introduction to Metamathematics. Stephen C. Kleene. D. Van Nostrand Co., Inc., New York. First edition, 1952. x+550 pp. \$8.75.

The book is meant as a text book for first year graduate students in mathematics or others at that level of mathematical facility. Its aim, as stated by the author: ". . . is to provide a connected introduction to the subjects of mathematical logic and recursive functions in particular, and to the newer foundational investigations in general." This book is also being published in Holland as a volume in *Bibliotheca Mathematica*.