THE GENUS *CORETHRELLA* IN THE UNITED STATES (DIPTERA: CHAOBORIDAE)

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ABSTRACT

A new species, *Corethrella wirthi* is described from Florida, ranging north to New Jersey, and the four species of *Corethrella* now known from the United States are keyed and their distributions recorded.

The genus *Corethrella* Coquillett in the United States has been thought to be represented by 3 species, *C. appendiculata* Grabham and *C. brakeleyi* (Coquillett) in the east and a Mexican species, *C. laneana* Vargas, in California. It now appears that there has been confusion in the application of the names for the eastern species and that actually 3 species are involved. The new species described below has gone under both of the other names, although Cook (1956) confused it only with *brakeleyi.*

Belkin and McDonald (1955) suggested that *C. brakeleyi* might be a mixture of species and that wing venational differences between northern and southern populations might be found. An examination of 22 females from New Jersey, Maryland, Virginia, Tennessee, Florida, and Louisiana, showed no significant differences. No specimens were found with vein R_{2+3} forking before the end of vein Sc and all had vein R_s arising at or very slightly beyond the middle of vein R. Males had vein R_s arising a little more distad. The new species here described seems to be identical in venation with *brakeleyi* and the sexes show the same differences.

I am indebted to Judy Williams of the Entomological Research Center, Florida State Board of Health, for providing material of the new species; to H. C. Chapman, U. S. Department of Agriculture, Lake Charles, Louisiana, for supplying excellent material of *C. appendiculata*; and to my colleague, W. W. Wirth, for discovering the antennal characters that gave the best means of separating the new species from its closest relatives.

Corethrella wirthi, new species

Color dark brownish with variegated scutum, mostly brownish legs, unbanded tarsi, and a pale wing with a darkened area on costa and base of vein R, and a transverse band, dark at the stigma but faint posteriorly.

FEMALE. Mouthparts and palpus yellowish; palpal ratios 5.5 : 9 : 4.5 : 10; clypeus brownish with three large bristles, the median one posterior; scape small, pedicel large, brown, with slender yellow scales and a few longer brown setae; flagellum yellowish with long yellow verticils; flagellar ratios 10 : 7.5 : 9.5 : 9.5 : 10 : 9.5 : 9 : 9 : 8.5 : 7.5 : 6.5 : 5.5 : 7; flagellomeres 1 - 12 slender with verticils in a row basally and shorter setae just beyond verticils and in an irregular group just beyond middle; flagellomere

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13 rather stout, tapering, about 4 times as long as greatest width, the tip bifurcate; 2 peglike sensoria on flagellomeres 9 - 12, one near middle, the other subapical, and 1 subapical on flagellomere 8, and 1 near middle on 13. Vertex brown with slender, curved yellow scales and longer curved brown setae margining eyes and two pairs of setae between eyes. Scutum dark brown with long yellow bristles and a variegated pattern of paler pollinosity which, when viewed at an angle from front, consists of two round spots above humeral angle, a pair of median stripes nearly joined and each with a dark longitudinal streak, a larger round spot lateral to these stripes, a pair of slender stripes at each side of prescutellar declivity convergent posteriorly and slightly convergent anteriorly; postnotum dark shining brown; pleuron shiny brown, mixed dark and paler. Wing 1.25 mm long, the veins and scales pale yellowish except for darker costa between humeral crossvein and base of R_s, a faint darkening behind this on Sc and R, and a band across wing behind stigma which is darkest on costa and very faint posteriorly, scarcely darkening the posterior marginal fringe. Radial sector arising very near middle of vein R; level of fork of vein R_{2+3} between ends of veins Sc and R_1. Halter yellow, the knob with fine yellow scales. Legs brownish, the apices of all femora and all tarsi usually distinctly paler; tarsi with no evidence of banding. Abdomen yellow, densely clothed with yellow hair. Spermatheca single, spherical or slightly lengthened, the greatest diameter 0.046 to 0.060 mm.

MALE. Coloration essentially as in female but hind femur pale on about apical half. Palpal ratios 6.5 : 10 : 6 : 11.5. Flagellum with long verticils at base of each flagellomere and many setae rather uniformly placed the length of each; flagellar ratios 10 : 6.5 : 7.5 : 8.5 : 9.5 : 10 : 10 : 10.5 : 10 : 8.5 : 6.5 : 4.5 : 7. Sensoria double on flagellomeres 10 - 12, single on 9 and 13. Wing somewhat more slender than in female, vein R_s arising beyond middle of vein R. Terminalia: Basimere about 2.7 times as long as width at base, the apical two-thirds nearly parallel sided, the base with a low rounded basal lobe; heavy subbasal spine usually somewhat flattened; 5 heavy submedian setae arranged somewhat obliquely, the basal 2 or 3 not closer together than others; distimere slender, fully as long as basimere, the tip with a very indistinct spine.

IMMATURE STAGES. Although one larval and one pupal exuviae are available, these are not in good enough condition to prepare a proper description. Some comparative notes are given later in this paper.

TYPE DATA: Holotype ♀ (on slide) Gainesville, Alachua Co., Florida, 19 April 1967, light trap (W. W. Wirth); U.S. National Museum Type No. 69870. Paratypes (all Florida): Same locality as holotype, 19 April 1967, 6 ♂; 5 May, 1962, 1 ♀; 20 April, 1967, 1 ♂ (all Wirth); May 1967, 1 ♀ (Blanton); Miami (no further data), 1 ♀; Miami, 26 July, 1944, 1 ♀; 20 February, 1944, 1 ♀; 7 October, 1944, 1 ♀; 14 October 1944, 5 ♀; 17 October 1944, 3 ♀; October 1943, 11 ♀ (all Wirth); Crystal River, Citrus Co., 7 June 1949, 1 ♀ (Hudson); Avon Park, 6 August 1942, 1 ♀ (Middlekauff); Marianna, 17 September 1943, 1 ♀ (Middlekauff); Marianna Air Base, 3 November 1944, 1 ♀; West Avocado, Dade Co., 16 October 1944, 1 ♀; Morrison Field, West Palm Beach, 10 December 1942, 1 ♀ (Hardy); Vero Beach, January 1960, 1 ♂; May 1967, 1 ♂ with larval and pupal exuviae (both Williams).

COMPARATIVE NOTE. *Corethrella wirthi* can be distinguished from the 3 other species known from the United States by the characters given in the key below. The female appears to be indistinguishable macroscopically from *C. selvicola* Lane of Brazil, British Guiana, Trinidad, Panama, and Mexico, but in the female of *selvicola* there is only one sensorium on flagellomeres 9 - 13 and none on 8, while in *wirthi* there are 2 on flagellomeres 9 - 12 and 1 each on 8 and 13.

KEY TO ADULTS

1. Wing with 2 transverse bands ending, in female at least, in dark fringe spots; one or more dark fringe spots near apex of wing; dark areas of prescutellar declivity joined anteriorly; no flagellomeres with 2 sensoria ..... *brakeleyi* (Coquillett)

   Wing with not more than one transverse band reaching hind margin in a dark fringe spot; no distinct dark fringe spots near apex of wing; dark areas of prescutellar declivity, if present, separated anteriorly by paler pollinosity; flagellar sensoria single or double 2

2. Some tarsi distinctly banded; halter knob usually dark (no flagellomeres with 2 sensoria) ..... *appendiculata* Grabham

   Tarsi not banded; halter knob pale yellow 3

3. Two sensoria on flagellomeres 9 - 12 in female, 10 - 12 in male and these longer than broad ..... *wirthi*, n. sp.

   No flagellomeres with 2 sensoria, and the sensoria present shorter than broad ..... *laneana* Vargas

Satisfactory characters for separating all 4 species in the immature stages have not been discovered. Larvae *C. brakeleyi* and *C. laneana* can be distinguished by the presence of a row of pigmented spots on the dorsum of the abdomen. The character used by Cook (1956) for separating these two species are not evident either in the published figures or the specimens available. *C. appendiculata* can be separated from *C. wirthi* by the shape of the submentum, which tapers abruptly at about the distal third in the former but tapers evenly from the base in the latter. The pupae of the 4 species are even more difficult to separate; *appendiculata* is the only distinctive species in having a shorter, stouter trumpet without a distinct slender basal portion.

BIOLOGY. Based on a single reared male from a wet soil sample, *Corethrella wirthi* appears to be a ground pool breeder; in this respect it resembles *brakeleyi* and *laneana*. *C. appendiculata*, on the other hand, breeds in tree holes and artificial containers. It has been reared from a tree hole in Panama, a hollow gum log in Georgia, and a tub in Louisiana.

DISTRIBUTION. The 4 species of *Corethrella* here treated have the following distribution, based on specimens that I have examined.

C. appendiculata: JAMAICA: Kingston (type locality); PANAMA: Almirante, Boca del Toro Prov.; Gatun and Tabernilla, Canal Zone; GEORGIA: Macon, Bibb Co.; LOUISIANA: Dunn Ferry, Moss Bluff, and Sulphur, Calcasieu Par.

C. brakeleyi: ARKANSAS: Marianna, Lee Co.; FLORIDA: Gainesville,

Alachua Co.; Miami and Tamiami Trail, Dade Co.; Monticello, Jefferson Co.; Vero Beach, Indian River Co.; West Palm Beach, Palm Beach Co.; LOUISIANA: Chloe and Lake Charles, Calcasieu Par.; Baton Rouge, East Baton Rouge Par.; Raceland, Lafourche Par.; Fort Jackson, Plaquemines Par.; Camp Livingston, Rapides Par.; St. Barnard, St. Bernard Par.; MARYLAND: Snow Hill, Somerset Co.; MISSISSIPPI: Harmon, Lamar Co.; Washington Co.; NEW JERSEY: Lahaway, Ocean Co. (type locality); TENNESSEE: Reelfoot Lake; Camp Forrest; TEXAS: Conroe, Montgomery Co.; VIRGINIA: Blacksburg, Montgomery Co.; Falls Church, Fairfax Co.

C. laneana: MEXICO: Monterey, Nueva Leon (type locality); CALIFORNIA: Saratoga Springs, Inyo Co.

C. wirthi: In addition to the type series from Florida, listed above, I have determined this species from the following localities: GEORGIA: Billy's Island, Okefenokee Swamp, Charlton Co.; MARYLAND: Snow Hill, Worcester Co.; NEW JERSEY: Lahaway, Ocean Co.; NORTH CAROLINA: Jacksonville, Onslow Co.; Nags Head, Dare Co.; SOUTH CAROLINA: Martsville; VIRGINIA: Falls Church, Fairfax Co.; Suffolk, Nansemond Co.

It should be noted that *brakeleyi* and *wirthi* occur at a number of the same localities, i.e., Gainesville, Miami, West Palm Beach, and Vero Beach, Florida; Snow Hill, Maryland; Lahaway, New Jersey; and Falls Church, Virginia. The two species appear to occupy the same range along the eastern seaboard but *wirthi* has not been found inland and west along the coastal plain except possibly in South Carolina, where it occurs in Spartanburg Co., if Martsville is a contraction of Martinsville.

Literature Cited

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