

A NEW FLORIDA SAND FLY CLOSELY  
RELATED TO *CULICOIDES HAEMATOPOTUS*  
MALLOCH (DIPTERA: CERATOPOGONIDAE)<sup>1</sup>

WILLIS W. WIRTH AND FRANKLIN S. BLANTON<sup>2</sup>

Systematic Entomology Laboratory, Agricultural Research Service  
USDA, c/o U. S. National Museum, Washington, D. C. 20560  
and Department of Entomology, University of Florida  
Gainesville, Florida 32601, respectively

ABSTRACT

*Culicoides edeni* n. sp. is described from peninsular Florida. Characters are given to separate it from *Culicoides haematopotus* Malloch, a closely related, widespread, North American species that also occurs in northern Florida.

We take this opportunity to name and describe a new species of *Culicoides* Latreille from peninsular Florida in order to make the name available for a forthcoming review of the Florida sand flies and for another general paper on the *haematopotus* Group to which it belongs. Our terminology is explained in previous papers in this journal (see Wirth and Blanton 1971).

*Culicoides edeni* Wirth and Blanton, New Species  
(Fig. 1)

*Culicoides haematopotus* Malloch (misidentified, in part); Beck, 1952:106 (in part, south Florida records); Foote and Pratt, 1954:23 (in part, south Florida records); Beck, 1956:134 (in part, south Florida records).

FEMALE.—Wing length 1.12 mm.

Head: Eyes (Fig. 1d) narrowly to moderately separated, bare. Antenna (Fig. 1a) with lengths of flagellar segments in proportion of 25-16-17-18-20-20-20-20-45-50-53-57-72; AR 1.78; sensory pattern variable, usually 3,10-15, sensoria sometimes also present on 5, 7, 9. Palpus (Fig. 1b) with lengths of segments in proportion of 15-27-50-12-20; third segment moderately swollen, PR 2.2, sensory pit shallow with large round opening. Proboscis moderately long, P/H Ratio 0.83; mandible with 15 teeth.

Thorax: Yellowish brown, with heavy pale gray pollinosity; mesonotum with pattern of narrow, irregular, dark brown, longitudinal markings present. Legs (Fig. 1g) pale yellowish brown, knee spots blackish, no distinct dark brown bands present; tibial comb with 4 spines, that nearest the spur longest.

Wing (Fig. 1c): Pattern nearly identical with that of *haematopotus*, but not quite as distinct, the ground color of the wing somewhat paler; in addition to the pale markings found in *haematopotus*, wing is characterized by a pale area across costal cell from r-m crossvein to costal margin, and a distinct pale

<sup>1</sup>This investigation was supported in part by U. S. Army Medical Department Contract No. DA-49-193-MD-2177.

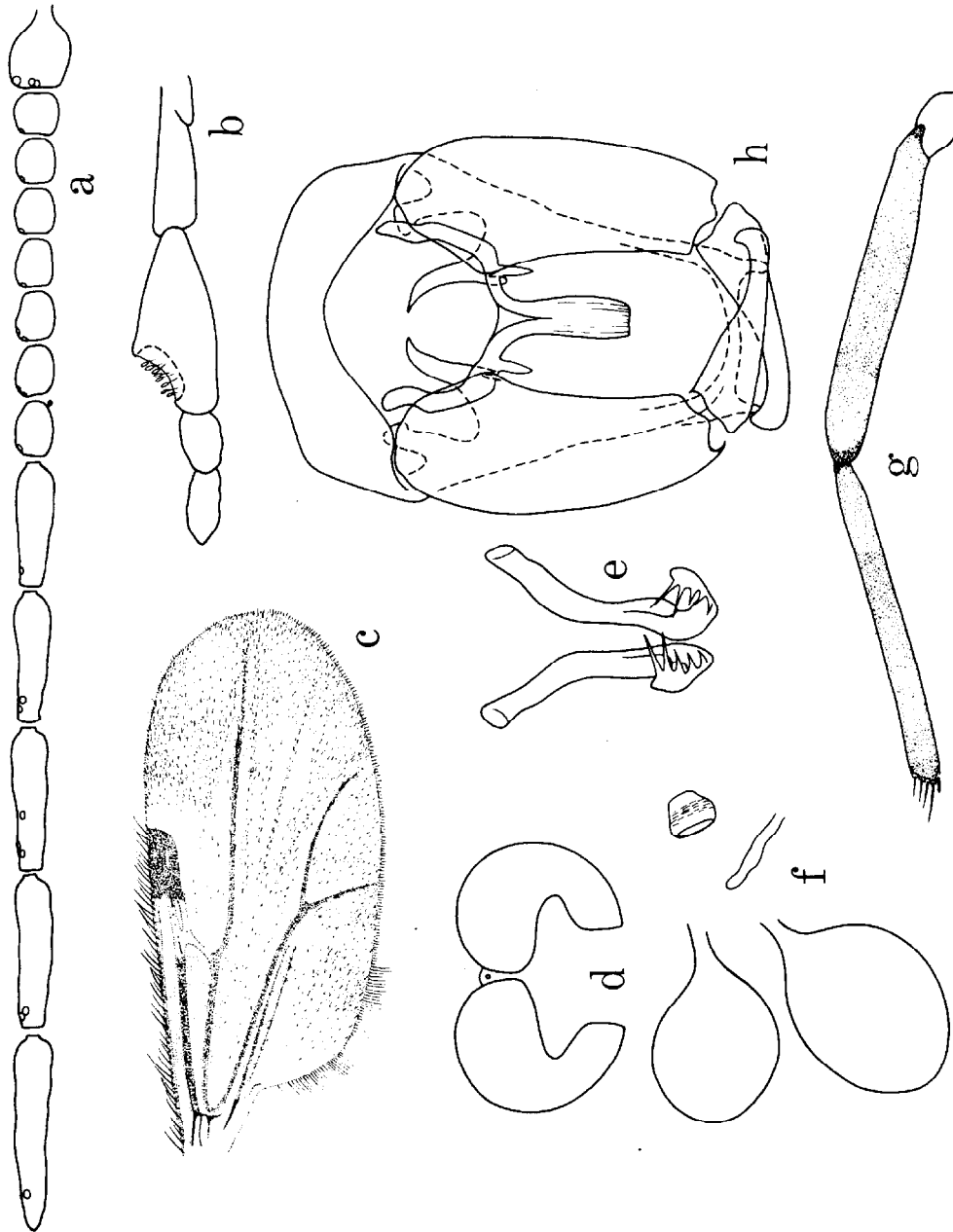
<sup>2</sup>Research Associates, Florida State Collection of Arthropods, Division of Plant Industry, Florida Department of Agriculture and Consumer Services.

spot near wing margin in proximal portion of anal cell. Macrotrichia long and numerous, extending nearly to bases of medial and anal cells; CR 0.58. Halter pale.

Abdomen: Pale yellowish. Spermathecae (Fig. 1f) 2 plus rudimentary third and prominent sclerotized ring of characteristic shape; functional spermathecae unequal, measuring 0.061 by 0.038 mm and 0.054 by 0.032 mm, including the long sclerotized necks; spermathecae slightly broader in proportion to length than in *haematopotus*.

MALE GENITALIA (Fig. 1e, h): Indistinguishable from those of *haematopotus*.

DISTRIBUTION: Bahamas, Florida.



TYPES: Holotype female and allotype male: FLORIDA: Orange Co., Rock Springs, 21 April 1970, W. W. Wirth, light trap (Type no. 71483, USNM).

Paratypes, 23 males, 65 females, as follows:

BAHAMAS: South Bimini Island, May 1951, M. Cazier and W. Gertsch, 1 female.

FLORIDA: Alachua Co., Gainesville, May, August 1967, F. S. Blanton, light trap, 3 males, 1 female; 27 April 1970, W. W. Wirth, light trap, 1 female. Citrus Co., Crystal River, 18 September 1950, Hudson, light trap, 3 females. Collier Co., Ochopee, September 1971, F. S. Blanton, light trap, 1 female. Escambia Co., Innerarity Point, 29 April 1949, Rathert, light trap, 3 males, 16 females. Glades Co., Palmdale, 14 July 1970, E. Irons, light trap, 1 female. Gulf Co., St. Joseph St. Park, 1-3 May 1970, W. W. Wirth, light trap, 13 females. Hardee Co., Ona, July 1970, E. Irons, light trap, 1 female. Highlands Co., Lake Placid, 19 April 1970, J. N. Layne, light trap, 1 male; Highlands Hammock St. Park, 15 April 1970, W. W. Wirth, light trap, 1 male, 2 females; Archbold Biol. Sta., 3-19 April 1970, W. W. Wirth, light trap, 2 females. Lee Co., Fort Myers, 20 December 1949, Keith, light trap, 2 females. Manatee Co., Bradenton, 3 December 1948, Parnu, light trap, 2 females. Marion Co., Juniper Springs, 28 April 1970, W. W. Wirth, light trap, 1 male, 1 female. Orange Co., Lake Magnolia Park, 6 August 1970, E. Irons, light trap, 1 male, 2 females; Rock Springs, 21 April 1970, W. W. Wirth, reared spring margin, 5 males, pupae; same, light trap, 2 males, 6 females; Wekiwa Springs, 16 August 1951, W. and J. Keller, W. W. Wirth reared, 1 male, 1 female. Palm Beach Co., Morrison Field, 20 December 1942, D. E. Hardy, 1 female; Lake Worth, Congress Road Canal, August 1951, W. W. Wirth, reared canal margin, 2 males, 2 females. Volusia Co., New Smyrna Beach, 22 October 1942, USDA light trap, 2 females. Wakulla Co., Ochlockonee River St. Park, 29 April 1970, W. W. Wirth, light trap, 3 males, 3 females. Walton Co., Grayton Beach, 10 May 1949, Butler, light trap, 1 female.

DISCUSSION: We dedicate this species with pleasure to Dr. William G. Eden, Department of Entomology, University of Florida, in appreciation of his constant and enthusiastic support of our research on Florida *Culicoides*, and in tribute to his many important contributions to Florida Entomology.

*Culicoides edeni* is very similar to *haematopotus* Malloch and was confused with it for many years. Malloch's species, which is widespread in North America, can be distinguished from *edeni* by its darker color, with dark brown thorax and legs, and by the wing markings, in which the pale spot over the r-m crossvein does not extend to the costal margin, and the proximal pale spot near the wing margin in the anal cell is lacking or indistinct. The pupa of *haematopotus* is larger and darker in color than in *edeni*, with spines better developed, the area between the *am* tubercles bearing moderate to distinct spinelike markings ranging to distinct spines.

IMMATURE STAGES: Jones (1961) gave notes on the pupa, from Wekiwa Springs, Florida, stating that it differs from *haematopotus* as follows: "Smaller, color light brown, less spinose. Respiratory trumpet not darkened so extensively, apex narrowly dark; both trumpets with five apical and three basal spiracular openings. Operculum disc with few uniformly medium-sized spines, most of these confined to lateral row on each side; area between and beyond *a.m.*'s bare. Area between *d.*'s devoid of distinct markings."

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Fig. 1. *Culicoides edeni* n. sp.: a-d, f-g female, e, h, male: a, antenna; b, palpus; c, wing; d, eye separation; e, parameres; f, spermathecae; g, hind femur and tibia; h, male genitalia, parameres removed.

LARVAL HABITAT: Wirth and Keller reared *edeni* from mud at the margin of the stream below Wekiwa Springs in Orange County in 1951. Wirth reared several specimens from pupae collected on the sloping, sandy margins of a canal on Congress Road near Lantana, Florida in August 1951. Wirth collected pupae from sandy humus at the margins of small spring areas at Rock Springs in Orange County in 1970.

FEEDING HABITS: unknown.

SEASONAL DISTRIBUTION: our Florida collections are distributed between April and December.

FLORIDA DISTRIBUTION: *Culicoides edeni* has seldom been taken in West Florida, with records from Escambia and Wakulla counties, but from Jacksonville and Gainesville southward it becomes abundant and replaces its close relative *haematopotus* entirely.

#### LITERATURE CITED

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