A NEW *CULEX (MELANOCONION)* FROM FLORIDA (DIPTERA, CULICIDAE)

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Arbovirus studies, conducted by National Communicable Disease Center, Arbovirus Ecology Laboratory personnel, suggested that *Culex (Melanoconion)* mosquitoes might be involved in the natural ecology of Venezuelan encephalitis virus in Florida. In order to conduct vector studies, several *(Melanoconion)* species were brought to the laboratory for colonization. One of these species was successfully colonized (1968) and appeared to be *Culex opisthopus* Komp, except that the tarsi were entirely dark or had only a trace of pale bands typical of *opisthopus*. Examination of the male terminalia revealed slight but constant differences which led us to suspect it to be a new species. Specimens collected at Fort Lauderdale, Florida, by Wirth and Denning and described by Wirth (1945) and Pratt *et al.* (1945) appear to be the same species, although there are very narrow pale basal bands on hind tarsomeres 1–4, and all of tarsomere 5 is pale. *Culex opisthopus* apparently does not occur in the United States, and all records herein refer to the new species.

The name for this new species was suggested by W. Daniel Sudia in honor of the National Communicable Disease Center where the work was conducted that led to its discovery as a new species. This is comparable to the name *Anopheles apoci* Marsh after the Anglo Persian Oil Company. We are indebted to Pedro Galindo V. of the Gorgas Memorial Laboratory, who is revising this group of the subgenus *Melanoconion,* for his verification that this is a new species.

Culex (Melanoconion) cedecei, NEW SPECIES

Female. Brownish black. Head with erect and slender recumbent dark scales except for a few yellowish recumbent scales subdorsally and mid-anteriorly, and a small patch of broad, flat white scales laterally. Antenna about as long as proboscis; torus and first flagellomere yellowish. Clypeus dark. Palpus short, a few pale scales at apex. Proboscis reaching to apex of fore femur, dark, the labellum paler. Scutum dark with dark scales, except usually for a few yellowish scales before wing base, at side of prescutellar bare area, and on scutellar lobes. Pleuron with a variable pattern of light and dark integument, but the post-spiracular area and usually a spot on lower mesepimeron, often joined posteriorly to an upper mesepimeral spot, dark; patches of pale scales on upper sternopleuron and middle of sternopleuron posteriorly; a row of setae on upper sternopleuron posteriorly, a small group on upper mesepimeron and a single lower mesepimeral seta. Legs almost entirely dark scaled but a patch of pale scales on upper fore and mid coxae, and sometimes very narrow, indistinct pale spots at apices of femora and tibiae and at base of some tarsomeres; tarsomere 5 of hind leg sometimes pale. Halter with pale stem, the knob dark scaled. Abdomen dark with basal white patches laterally on terga 2–6 and narrow basal pale bands on sterna. Wing length about 2.5 mm.

Male. Coloration essentially as in female except for complete narrow transverse

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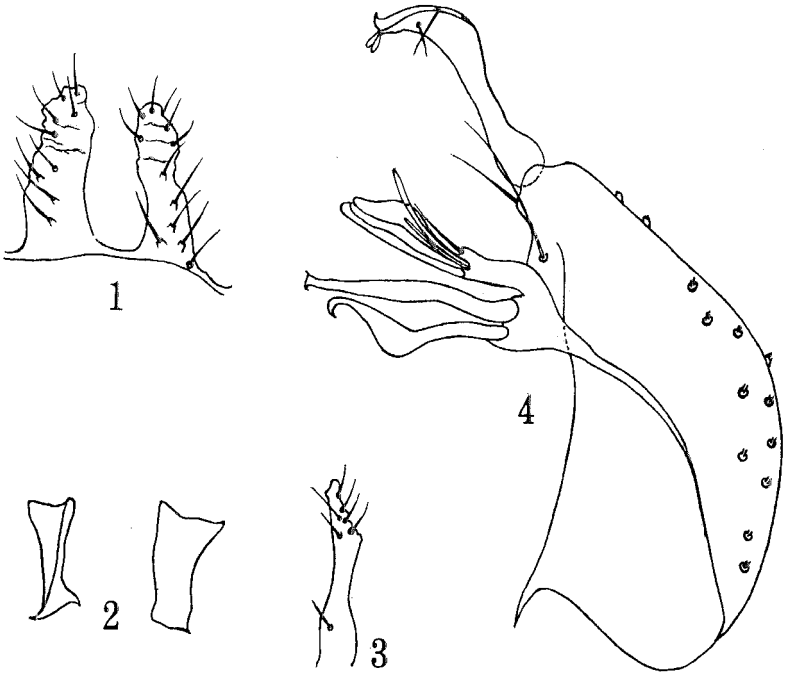
pale bands on terga 2–5 or 2–6; terminalia yellowish. Antenna reaching about to apex of third palpal segment, and proboscis a little beyond that. White spots at palpal joints. *Terminalia* (Figs. 1–4).



FIGS. 1–4. *Culex cedecei*, n. sp. Male terminalia. 1. Lobes of tergum IX. 2. Inner plate of phallosome. 3. Lobe of tergum IX, profile view. 4. Basimere and telomere.

Basimere conical, about twice as long as the greatest width, the two arms arising from a short, stout tubercle, only moderately divaricate, the inner arm curved and swollen submedially and slightly shorter than the outer, straighter, less swollen arm; both arms curved at extreme tip with a short spine on convexity. Outer division with two hooked setae, two or three slender tapering setae, and a club-shaped, moderately broad, weakly striate leaflet, all arising from a longer, more slender tubercle than the inner arm. Telomere slender, curved; the apical third tapering with an up-turned tip and short blunt appendage, occasionally doubled. Inner plate of phallosome erect, broad, the apex with two rather blunt points only slightly concave between them, and base with a rather slender projection. Each lobe of tergum IX long, slightly tapering, blunt at apex, the two subparallel; wrinkled apical portion flattened in profile, occupying about half of length.

Larva and Pupa. The larva and pupa have been described and figured for *opisthopus* by Pratt *et al.* (1945) and by Foote (1954), and the larva has been described by Wirth (1945), and described and figured by Carpenter and LaCasse (1955). Although some of these publications were dealing with specimens of both species, the descriptions and figures in them will serve for either since no characters in the immature stages have been found to distinguish between them. It does not seem necessary to redescribe them at this time. In Foote's larval key, difficulty may be encountered in couplet 23

because hair 5-C is not properly described, and it may not be possible to go correctly in couplet 25 since hair 3-P is distinctly shorter than hair 5-C. Both of these characters are given correctly in Foote's full description of the larva.

Type data. Holotype ♂ with associated larval and pupal exuviae, F_1 generation from ♀ collected at Mahogany Hammock, Dade Co., Florida, June 21, 1967. Paratypes, 4 ♀♀ with associated larval and pupal exuviae, same data; 5 ♀♀, 5 ♂♂ (3 with associated larval and pupal exuviae), F_2 laboratory generation, February 1, 1967, Atlanta, Georgia, from adults collected at Vero Beach and Everglades Park, Florida; 6 larvae, F_1 generation from ♀ collected in light trap, Everglades Park, Florida, November 2, 1966; 4 ♀♀, 3 ♂♂, 9 larvae from crab holes, Fort Lauderdale, Florida, October 22, 1944, (Wirth and Denning). Holotype and paratypes in U.S. National Museum (USNM Type No. 69792); paratypes in National Communicable Disease Center and Gorgas Memorial Laboratory.

This species was compared with larvae and adults of *Culex opisthopus* from Puerto Rico (Catano, Carolina, Cardena) and Panama (Almirante) and adults from British Honduras (Puerto Castillo), the latter including the type.

Comparative notes. Culex cedecei closely resembles *C. opisthopus,* and it has gone under that name in this country. However, most specimens of *cedecei* have the tarsomeres entirely dark or have only a trace of white flecks at the joints and only rarely is the entire fifth hind tarsomere pale, while *opisthopus* has well developed white bands at the joints of the hind tarsus, and the fifth hind tarsomere is always entirely white. In addition, the male terminalia show slight differences. The outer division of the subapical lobe of the basimere has a distinct clublike leaflet which in *opisthopus* is represented by a stout but tapering rod; the outer plate of the phallosome is somewhat longer, the apical points more acute, and the ventral spine more slender in *cedecei* than in *opisthopus.* The lobes of tergum IX are similar, but in *opisthopus* the apical wrinkled portion occupies only about a third of the total length.

Biological notes. Culex cedecei appears to be widespread in southern Florida, having been collected from Fort Lauderdale, Jupiter, Charlotte Harbor, and Cape Sable (Pritchard *et al.,* 1947), as well as in Brevard, Collier, and Dade Counties (Branch *et al.,* 1958). During 1966, numbers of adults were collected along a transitory zone of salt-fresh water in the Everglades National Park. Larval habitats have included holes of the land crab, *Cardisoma guanhumi* Latr. (Pratt *et al.,* 1945) and pot holes in limestone rock (Hair, 1968).

Adult populations of *C. cedecei* apparently reach a peak in southern Florida during the fall of the year. The largest numbers of adults have been collected in October and November; numbers decrease rapidly after December. *Culex cedecei* comprised 30–40% of the total *Culex (Melanoconion)* catch in the Everglades National Park during 1964 (Hair *et al.,* unpublished data).

Chicks, cotton rats *(Sigmodon),* and cotton mice *(Peromyscus)* have been found to be suitable hosts for adult females, and small rodents are apparently preferred hosts.

Literature Cited

BRANCH, NINA, LOGAN, LUCILLE, BECK, ELIZABETH, and MULRENNAN, J. A. 1958. New distribution records for Florida mosquitoes. Fla. Ent. 41:155–163.

CARPENTER, S. J., and LACASSE, W. J. 1955. Mosquitoes of North America (north of Mexico). Univ. of Cal. Press. vi + 360 pp., illus.

FOOTE, R. H. 1954. The larvae and pupae of the mosquitoes belonging to the *Culex* subgenera *Melanoconion* and *Mochlostyrax.* U.S. Dep. Agric. Tech. Bull. No. 1091. 126 pp., illus.

PRATT, H. D., WIRTH, W. W., and DENNING, D. G. 1945. The occurrence of *Culex opisthopus* Komp in Puerto Rico and Florida, with a description of the larva (Diptera, Culicidae). Proc. Ent. Soc. Wash. 54:27–32, illus.

PRITCHARD, A. E., SEABROOK, E. L., and MULRENNAN, J. A. 1947. The mosquitoes of the Florida Keys. Fla. Ent. 30:8–15.

WIRTH, W. W. 1945. The occurrence of *Culex (Melanoconion) elevator* Dyar and Knab in Florida, with keys to the Melanoconions of the United States (Diptera, Culicidae). Proc. Ent. Soc. Wash. 47:199–210, illus.