

SEXUAL ABERRATION IN TWO SPECIES OF *CULICOIDES*JAMES L. HAWKINS¹

The rarity of recorded cases of aberrant sexual forms in *Culicoides* was commented upon recently by Curtis (1962), who listed two previously recorded cases and added a report of a gynandromorph in *C. variipennis* (Coq.). Curtis suggested that the scarcity of reports may reflect the relatively small number of workers interested in the bloodsucking midges. Additional reports of sexual aberration in two species *Culicoides* from the Panama Canal area are presented here.

Culicoides furens. One individual of *Culicoides furens* (Poey) with what appeared to be a completely male head and female thorax and abdomen was taken on a landing rate collection on January 30, 1961 in a coastal mangrove swamp on Saleta Point on the Atlantic side of the Canal Zone. This is a normal mangrove swamp typical of the habitat of *C. furens* throughout the Caribbean littoral.

During the course of a landing rate collection on January 30, 1961 one individual which appeared to the unaided eye to be a male was observed to land and probe briefly at the skin of the right index finger, and move onto the wrist of the investigator where it became entangled in the hair of the forearm and was captured in an aspirator. At the end of the collecting period the midges were knocked down by blowing tobacco smoke into the aspirator and transferred to a vial containing seventy percent alcohol. Males are not frequently encountered in landing rate collections, even those made in close proximity to breeding sites, but their collection is not unique particularly where resting sites are disturbed by the collector taking his position.

Further examination under the dissecting microscope revealed that one specimen

had what appeared to be a male head and a female thorax and abdomen. There was no evidence of blood in the gut. The specimen was mounted in Hoyer's medium, but did not clear sufficiently to permit examination of the mouthparts and spermathecae; it was removed and the head cleared in dilute household chlorine bleach, the thorax and abdomen in hot phenol, and remounted in a phenol-euparal mixture.

Head.—Antennae of the male type; pedicel greatly enlarged enclosing the base of the first flagellar division or third antennal segment; segments four through twelve subequal and three through twelve bearing verticils; segments thirteen, fourteen and fifteen elongate and subequal, each being about as long as any three of the preceding nine segments. Palpi weakly developed as in males. Proboscis short and weakly developed, but containing a pair of mandibles bearing twelve strong teeth on their apical margins. Compound eyes narrowly separated above the bases of the antennae. Thorax.—Mesonotum with well defined pattern of brown punctiform dots. Wings of size, configuration and markings associated with females. Legs stout with well defined color pattern; hind tibial comb strongly developed; tarsal claws small, equal, and narrowly divided apically as in males. Abdomen.—Relatively stout female form tapered posteriorly and bearing cerci below the ninth tergite; moderately distended as in individuals that have fed on water or sugar solution but have not taken a blood meal. One normally developed and one rudimentary spermatheca and the sclerotized ring around the base of the common duct present. Normal females of *C. furens* possess two well developed spermathecae and one rudimentary one. There was no evidence of male terminalia.

Culicoides leopoldi. One individual of

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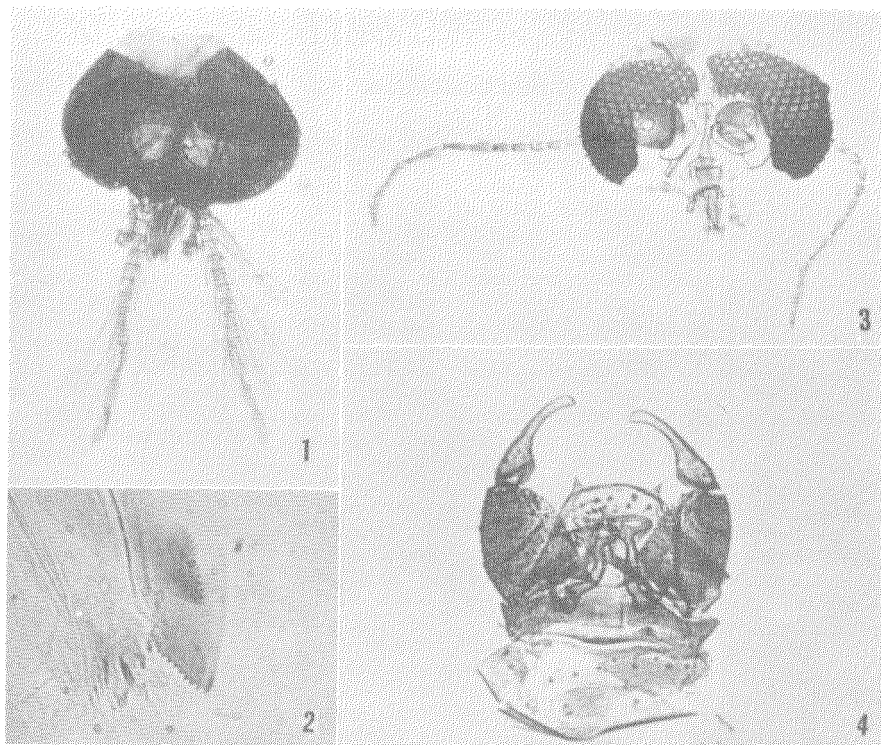


FIG. 1.—Head of *C. furens* showing antennae and mouthparts of the male type. FIG. 2.—Tip of the proboscis of *C. furens* showing a well developed pair of mandibles in a predominantly male head. FIG. 3.—Head of a gynandromorph of *C. leopoldi* showing female characters. FIG. 4.—Male terminalia of *C. leopoldi* from specimen with the female head shown in Fig. 3.

Culicoides leopoldi Ortiz collected in a New Jersey light trap at Gatun, Canal Zone on May 31, 1961 appears to be a gynandromorph of the type described by Curtis, exhibiting anterior-posterior dimorphism with regard to secondary sexual characteristics. Female characters dominate the head and thorax, while the abdomen and terminalia are distinctly male.

Head.—Eyes narrowly contiguous above the antennal bases. Pedicel of the antenna somewhat more enlarged than in normal females; flagellum with the last five seg-

ments distinctly longer than the preceding eight which are subequal. Thorax.—Mesonotum, wings and legs indistinguishable from those of normal females. Abdomen.—Abdomen of the slender male form bearing terminally a perfect set of male genitalia. No evidence of female abdominal structures has been observed.

Literature Cited

- CURTIS, L. COLIN. 1962. A gynandromorph in *Culicoides*. Mosquito News 22(1):53.