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THE LARVA OF *PSOROPHORA* (*JANTHINOSOMA*) *HORRIDA* DYAR & KNAB (DIPTERA: CULICIDAE)

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Psorophora horrida is listed as a synonym of *P. champerico* in Dyar's 1928 monograph of American mosquitoes, but Matheson (1934) examined specimens of *P. horrida* sent to him from Arkansas by H. H. Schwardt, and proved that this mosquito is a valid species. Matheson described the peculiar male terminalia, but apparently nothing is known concerning the immature stages. The purpose of this paper is to record a few observations regarding the breeding habits of *P. horrida* and to describe the larva.

The larvae were collected August 1, 1938, in Mohawk Park, Tulsa, Oklahoma, four days following a heavy rain. Part of Mohawk Park is composed of a level, wooded area, several acres in extent, and in this location there are a number of shallow depressions which hold water for several days following a rain. *P. horrida* larvae were breeding in two of these temporary rain pools. In 100 dips, 30 fourth stage larvae and one pupa were found, and with them were taken many pupae of *P. columbiae*, *P. signipennis*, *P. cyanescens*, *Aedes vexans*, *A. trivittatus*, and a few larvae and one pupa of *P. ferox*. Several second stage larvae of *Anopheles punctipennis* were also collected. As all but one of the *P. horrida* were in the larval stage, it appears that the mosquito develops a little more slowly than the other species collected, excepting *P. ferox*. No doubt its eggs were deposited in the depressions before the rain, as were those of the other *Psorophora* and *Aedes* collected.

P. horrida seems to require heavily shaded pools for breeding. In Mohawk Park the larvae were found only in shaded puddles, and not in nearby puddles exposed to the sun, although other species were present. I have collected large numbers of *P. ciliata*, *columbiae*, *discolor*, *signipennis*, and *cyanescens* in both shaded and unshaded puddles, but I have never found *P. horrida* or *ferox* in water exposed to full sunlight.

The larvae collected in Mohawk Park were taken to the laboratory, and several of them were bred out separately. The identification of females obtained from the larvae was confirmed by Dr. Alan Stone, of the U. S. National Museum, while the male terminalia agree in all respects with Matheson's description.

DESCRIPTION OF LARVA

Head broader than long, bulging laterally. Antennae curved, somewhat swollen basally and tapering distally, longer than the head; spinulate; a small multiple tuft

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beyond the middle; one short and three long spines, and a short papilla, at the tip. Anteantennal hairs of 5 to 7 branches; upper and lower head hairs double. Antennal, anteantennal, and head hairs with very fine, short, lateral branchlets.

Lateral abdominal hairs multiple; long on first two segments and shorter on succeeding segments. On the third segment these hairs have 3 to 7 branches, while on segments four, five, and six they have 3 to 5, rarely 2, branches.

Comb scales of eighth abdominal segment seven in number, arranged in an arc at posterior edge of a weakly chitinized plate. Each scale has a long central spine flanked on each side by one or two smaller ones. Posterior to the comb scales are three hairs, the outer two multiple and the middle one double or single.

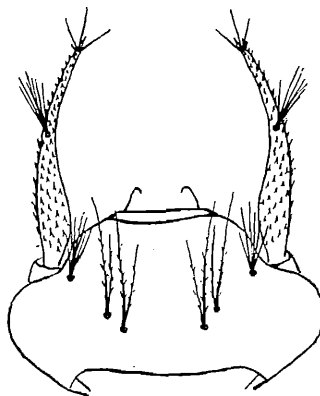


FIG. 1. Head of larva.

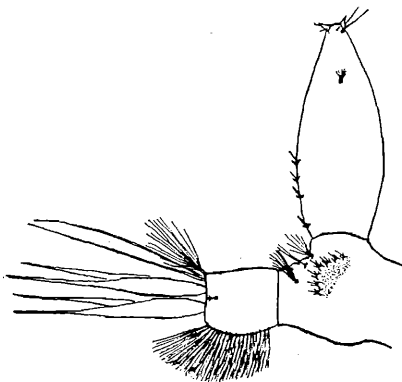


FIG. 2. Terminal abdominal segments of larva.

Air tube inflated, approximately 1×3 , with three or four short pecten spines on basal third; a very small, multiple tuft laterally on apical third; and several short and two long hairs at apex.

Anal segment longer than wide, ringed by the plate, which is perforated ventrally by the hairs forming the ventral brush. Dorsal brush a long hair and a multiple tuft on each side. Lateral hair very small, usually split apically into several branches, but occasionally it may be single. Anal gills long and tapering.

The larva of *P. horrida* resembles that of *P. ferox* very closely, but may be distinguished from the latter by the lateral abdominal hairs of the third to sixth segments. Grabham (1906), in his description of *Janthin-*

osoma echinata, states, "Lateral hairs of the abdomen paired and flattened; on the anterior segments each hair is large and 4- to 7-branched, hairs becoming smaller and with fewer branches on the hinder segments." Howard, Dyar, and Knab (1917) include Grabham's description in their discussion of *P. posticatus*. However, these authors state that these hairs on the larva of *P. sayi* are "multiple on first segment, double on second, single on third to sixth." *J. echinata*, *P. posticatus*, and *P. sayi* are listed by Dyar (1928) as being synonyms of *P. ferox*. The differences in the number of branches of the lateral abdominal hairs may be due to individual variations, but *P. ferox* larvae collected in Oklahoma, as well as those I collected in Panama, all possess multiple lateral hairs on the first and second abdominal segments, while on the third segment these hairs have 2 to 4 branches, and are long and single, very rarely double, on the fourth, fifth, and sixth segments.

The base of the antenna of *P. horrida* is slightly more swollen than in the case of *P. ferox*, but this character is not a satisfactory one for separating the two species.

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