

ADDITIONAL STUDIES ON THE LARVAE OF *Uranotaenia syntheta* DYAR AND SHANNON (DIPTERA: CULICIDAE)¹

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The adult of this mosquito was described in 1924 from a female specimen reared from a larva collected at Mission, Texas (Dyar and Shannon 1924). Dampf (1943) described the male, and published observations relative to the biology and distribution of the species in Mexico. In 1946 the larva was described from a specimen col-

lected at Fort Worth, Texas (Porter 1946).

During the past two years, the writer and his associates have collected many larvae of *Uranotaenia syntheta*, and have reared some to adults, thereby correlating adult and larval stages. A few notes relative to the status of *U. syntheta*, and some observations on biology have recently been published (Breland 1948).

The original larval description was made from a single specimen, and consequently it was not possible to note individual variations that might occur in a series of larvae. For this reason, it has seemed advisable to study many larvae so that these variations may be noted. The following description is based upon a study of several dozen larvae collected over a period of two years from Palmetto State Park

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² The writer wishes to express his appreciation to Mr. John E. Porter and Dr. H. H. Ross of the Illinois Natural History Survey, who allowed him to examine the larva from which the original description was made. Mr. Porter has kindly informed the writer that he is no longer in the area where the species occurs, and that he therefore welcomes additional studies by other workers. The suggestions of Dr. Alan Stone regarding distinguishing features of the larvae of *Uranotaenia* are greatly appreciated. The writer is grateful to Miss Lucille Hagan who made the drawings.

near Luling, Texas, as well as a study of the larva from which the original description was made. The terminology used is that of Carpenter, Middlekauf and Chamberlain (1946).

DESCRIPTION OF LARVA of *Uranotaenia syntheta*

HEAD only slightly longer than wide, not obviously so, as in some other species of *Uranotaenia*; darkly pigmented except in region of the eyes. ANTENNA about $\frac{1}{4}$ length of head with a few coarse spines on the shaft, and several papillae at the tip. Antennal hair single, small, inserted medially near basal third of shaft. HEAD HAIRS: PREANTENNAL multiple, sparsely barbed, about same length as antenna; LOWER single, coarse, sparsely barbed, longer than antenna; UPPER usually double, coarse, shorter than lower; single and forked near tip in an occasional specimen. POSTCLYPEAL 4 to 5-branched, shorter than upper and lower. SUTURAL usually single and forked near middle, sometimes single or single and forked near tip. TRANSUTURAL multiple and long.

DORSAL SUBMEDIAN PROTHORACIC HAIR GROUP composed of two long single barbed hairs extending beyond the bases of upper head hairs, and a multiple tuft of 5 to 6 slightly shorter hairs also barbed.

ABDOMEN: UPPER LATERAL ABDOMINAL HAIRS double on segments 1 and 2; LOWER single on segment 1 and a short multiple tuft on segment 2. COMB of 8th segment composed of 7 to 10 scales on the posterior margin of a large sclerotized plate. Individual scale thorn-shaped, with small lateral spinules visible under high-power on basal half to two-thirds. Groups of small spinules on plate near bases of comb scales. Part of plate to which comb scales are attached frequently projecting more posteriorly than remainder of plate. SIPHONAL HAIR multiple, smooth, attached to a small sclerotic area; a single smooth hair between siphonal and subsiphonal attached to same plate as siphonal. SUBSIPHONAL HAIR multiple, sparsely barbed, attached to a small sclerotic plate; a single smooth

hair between subsiphonal and anal hair, not arising from a sclerotic area. ANAL HAIR multiple, smooth, no sclerotic area occurring at base. SIPHON about $4\frac{1}{2}$ to 5 times as long as basal width. PECTEN of numerous evenly spaced teeth reaching near middle of siphon. Individual pecten tooth broad, fringed with fine spinules visible under high-power. SUBVENTRAL TUFT multiple, barbed, inserted at or slightly beyond end of pecten. DORSAL BRUSH of a long lower double tuft, and a shorter upper tuft with usually 3 hairs on each side. VENTRAL BRUSH rather sparse, some of the posterior hairs 4- or 5-branched. ANAL SEGMENT longer than wide, completely ringed by plate. Posterior edge of plate set with small spinules. LATERAL HAIR multiple. GILLS 4, slightly pointed, usually somewhat shorter than anal segment.

In most generic keys now in use for larvae of mosquitoes in the United States, larvae of the genus *Uranotaenia* are distinguished from other larvae by the structure of the head hairs and the shape of the head. *Uranotaenia sapphirina* (Osten Sacken), *U. lowii* Theobald and *U. syntheta* Dyar and Shannon are the only species of *Uranotaenia* known to occur in the southwestern United States. In the two former species, both the upper and lower head hairs are single and spinelike, while the head is longer than wide. In most other culicine larvae, the head hairs are hairlike, frequently branched and the head is not obviously longer than wide. Consequently, the head hairs and the shape of the head are sufficient to distinguish *U. sapphirina* and *U. lowii* from the larvae of other culicine genera. In the larvae of *U. syntheta*, however, the head hairs are not obviously spinelike, the upper head hairs are usually double and in most specimens the head is not noticeably longer than wide.

It is thus proposed that future generic larval keys for mosquitoes of the southwestern United States, or for the United States as a whole, be modified to include distinguishing features of *U. syntheta*. At

FIG. 1.—Head of fourth instar larva of *Uranotaenia syntheta* Dyar and Shannon.

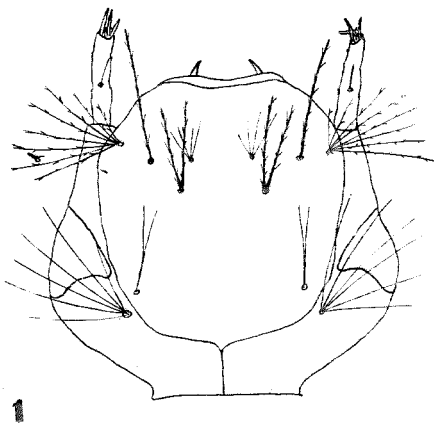
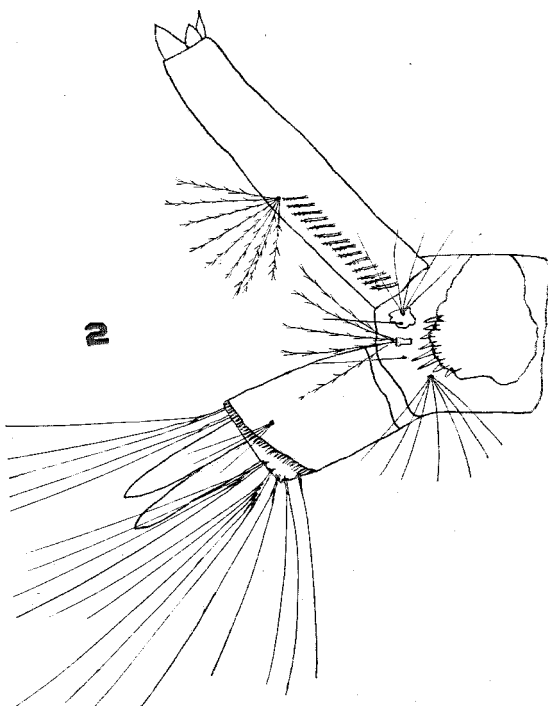


FIG. 2.—Terminal segments of fourth instar larva of *Uranotaenia syntheta* Dyar and Shannon.



this writing, *U. syntheta* has been collected in the United States only from Texas, but future collections may reveal that the species occurs in adjacent states. In the larvae of the genus *Uranotaenia* known to occur in the United States, the comb scales on each side are attached to the posterior edge of a large chitinous plate. The comb scales of most other culicine larvae in this region occur as a row or patch of individual scales. The larvae of some species of *Psorophora* are exceptions in that their comb scales are attached to a small plate. This plate in these *Psorophora* larvae, however, is quite small, and it covers much less than one half of the lateral surface of the segment. In the larvae of *Uranotaenia*, the plate is large and conspicuous; it covers more than half the lateral segmental surface and sometimes extends dorsally to the upper side of the segment. It appears, therefore, that the differences in the comb scales are better key characteristics than the shape of the head and the structure of the head hairs.

Once the larvae of *U. syntheta* are determined to genus, they may be distinguished easily from other larvae of *Uranotaenia* known to occur in the same area. In *U. sapphirina* and *U. lowii* the upper and lower head hairs are large, single and spinelike. These hairs are much

smaller in *U. syntheta* and the upper head hairs are double or forked on one or both sides.

The larvae of *U. syntheta* are apparently very similar to those of *U. anhydor* Dyar, a rare species known only from the vicinity of San Diego, California. At the present state of our knowledge it is not possible to give morphological features that will distinguish the larvae of the two species. However, in view of the distance now known to separate the two mosquitoes, it does not appear probable that the ranges overlap. Distinctions may thus be made on the basis of distribution.

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