

VARIATION OF STRUCTURES OF TAXONOMIC SIGNIFICANCE IN FOURTH INSTAR *CULEX TARSALIS* Coq. LARVAE

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Published descriptions of the fourth instar larvae of *Culex tarsalis* usually state that the upper and lower head hairs are multiple. The siphon, according to Dyar (1928), is slender, uniform, and about four times longer than wide; five paired tufts are inserted irregularly on the siphon, the basal one within the pecten, none are displaced, nor is the subapical one moved laterally. Yates (1943), in a study of fourth instar *Culex tarsalis* larvae observed considerable variation in several of the features mentioned above.

In the present investigation, 542 fourth instar *Culex tarsalis* larvae collected from various habitats in northern, southern, eastern, and western Texas were examined for structural variations and compared

minimum number of branches present. Of the group of 542 larvae, these hairs varied from two to eight branches. In the group of 151 laboratory reared specimens, the number of branches varied from two to six.

A more detailed analysis of the variations in the number of branches of the lower head hairs was made. The results are summarized in Table 1.

As previously mentioned, many important diagnostic features identifying fourth instar larvae as *Culex tarsalis* are associated with the siphon and its component structures. Consequently, in this study emphasis was placed on examining the siphons of both the larvae collected in the field and those reared in the laboratory

TABLE 1.—Variation in number of branches of lower head hairs of 4th instar larvae of *C. tarsalis*

	Group I 542 Fourth Instars Collected in Field	Group II 151 Fourth Instars Reared in Laboratory
Variation in number of branches of lower head hairs	2 to 6 branches	2 to 5 branches
	No. of Specimens	No. of Specimens
Both lower head hairs with same no. of branches	358	67
Lower head hairs with different no. of branches	184	84
Both lower head hairs with five or more branches	39	0
Both lower head hairs with four branches	166	42
Both lower head hairs with three branches	153	25
Total	542	151

with 151 fourth instar *Culex tarsalis* larvae reared in the laboratory from five isolated egg rafts. Three of the egg rafts were collected in Palmetto State Park, Texas and two were collected near Austin, Texas. The following variations were observed.

The upper head hairs of all larvae were examined to determine the maximum and

from isolated egg rafts. Variations observed are recorded in following tables.

The data in the tables 1 through 4 indicate that a wide range of variation of similar anatomical structures may occur in the fourth instar *Culex tarsalis* larvae from different localities and even among larvae reared from the same egg raft. The possibility of the occurrence of such variations should be borne in mind when iden-

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TABLE 2.—Alignment of subventral tufts along distal margin of siphon of 4th instar larvae of *C. tarsalis*

	Group I 542 Fourth Instars Collected in Field No. of Specimens	Group II 151 Fourth Instars Reared in Laboratory No. of Specimens
All tufts in straight line	221	67
Distal tuft displaced slightly laterad	96	24
Subapical tuft displaced slightly laterad	20	16
Distal and subapical tufts displaced slightly laterad	202	44
Three more distal tufts displaced slightly laterad	3	0
Total	542	151

TABLE 4.—Number of subventral tufts on siphon of 4th instar larvae of *C. tarsalis*

	Group I 542 Fourth Instars Collected in Field No. of Specimens	Group II 151 Fourth Instars Reared in Laboratory No. of Specimens
Three pairs of tufts	2	0
Four pairs of tufts	12	10
Five pairs of tufts	449	135
Six pairs of tufts	78	6
Seven pairs of tufts	1	0
Total	542	151

TABLE 3.—Insertion of subventral tufts on siphon of 4th instar larvae of *C. tarsalis*

	Group I 542 Fourth Instars Collected in Field No. of Specimens	Group II 151 Fourth Instars Reared in Laboratory No. of Specimens
Proximal subventral tuft proximal to distal pecten tooth	62	9
Proximal subventral tuft inserted near distal pecten tooth but not proximal to it	469	140
Proximal subventral tuft inserted near center of siphon	11	2
Total	542	151

tifying fourth instar *Culex tarsalis* larvae; otherwise, incorrect determinations may result.

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