

**Description of the Immature Stages of *Galindomyia leei* Stone  
and Barreto, 1969<sup>1</sup>**

Abdiel J. Adames<sup>2</sup> and Pedro Galindo<sup>2</sup>

The genus and species *Galindomyia leei*, a member of the tribe Culicini, was described by Stone and Barreto (1969) based on adult material collected in crabholes along the Pacific coast of Colombia. Later live gravid females from Curiche, Colombia, were collected and associated immature stages were obtained. The description that follows is based on that material.

We thank the following members of the project "Mosquitoes of Middle America" for assistance in the preparation of this paper: John N. Belkin for reviewing the manuscript, L. Margaret Kowalczyk and Nobuko Kitamura for the preparation of the illustrations and Kay Metzner for typing the text for reproduction.

**PUPA** (fig. 1). Abdomen: 2.94 mm. Trumpet: 0.44 mm. Paddle: 0.67 mm. *Cephalothorax*: All hairs present, variously developed; hair 5-C longest hair on cephalothorax, slightly longer than 1-C, 3 branched; 6,7-C very close together, 6-C shorter than 7-C; 8-C at the level of the base of trumpet; 9-C caudad of base of trumpet. *Trumpet*: Index about 8.0. Not placed on distinct tubercle; tracheoid about 0.37 of trumpet length, pinna about 0.25 of trumpet length. *Metanotum*: Hair 10-C shorter than 11-C, 3-5 branched; 11-C single, with a median lateral brush. *Abdomen*: Hair 3-I about one half the length of 2-I, 4 branched, forked; 6,7-I subequal in length, 6-I single or double, 7-I double, forked; 1-II short, shorter than 2-II, with several weak branches, close to midline; 3-II cephalad of 2-II; 5-II single, shorter than 2-II; 5-III,IV short to moderately long, always shorter in length than the following tergite, branched; 6-II single or double, when double forked; 6-III-VI single; 6-III longer than 5-III; 6-IV-VI shorter than or as long as 5-IV-VI; 1-VI mesad of 2-VI; 6-VII shorter than 6-I-VI and as long as 9-VII, 3-5 branched; 9-VIII with 5-8 branches. *Terminal Segments*: Hair 1-IX present. Median caudal lobe well developed, with its posterior margin more or less rounded. *Paddle*: Midrib strongly developed; external buttress slightly developed, margin smooth without spicules; apex slightly produced. Hair 1-P subapical, long, about 2/3 the length of paddle; 2-P present.

**FOURTH INSTAR LARVA** (fig. 2). Head: 0.84 mm. Siphon: 0.84 mm. *Head*: Poorly sclerotized, slightly wider than long, with a lateral expansion ventrad of antenna. Labrum not well-developed dorsally, rounded on anterior margin. Mental plate poorly sclerotized, wider than long, rectangular, marginal spicules similar in shape. Labial plate long truncate; maxillary suture complete, straight, extending dorsolaterally caudad of posterior tentorial pit; collar not completely developed. Aulacum indistinct. Hair 1-C long, moderately thick, widely spaced, arising on dorsal surface of labrum; 2,3-C absent; 4-6-C not all caudad of level of 7-C; 4-C minute, single; 5,6-C strongly developed, double, 5-C longer; 12,13-C close together; 14-C removed from margin; 15-C

<sup>1</sup>Supported in part by Grant AI-02984 from the National Institute of Allergy and Infectious Disease and by Contract DADA-17-67-7020, U.S. Army Medical Research and Development Command.

<sup>2</sup>Gorgas Memorial Laboratory, Apartado 6991, Panama 5, Panama

in anterior half of labial plate; 16,17-C not developed. *Antenna*: Length about 0.60 of head, unsegmented, slender, gradually tapered apically, shaft with several spicules on basal part; hair 1-A multiple. *Thorax*: Integument without spicules; hairs 1-3-P on a poorly developed but sclerotized common tubercle; 1,2-P long, single; 3-P shorter than 1,2-P, double; 4-P moderately developed, branched; 5,6-P long, single; 7-P long, branched; 8-P poorly developed, subequal to 11-C; 9,10-P moderately developed, single; 12-P strongly developed, single; 14-P double; 1,3-M very short, single or double; 3,4-M moderate, 3-M single, 4-M double; 5-7-M long, single, 6-M heaviest; 8,9-M long, multiple; 10,12-M long, single; 14-M short, dendritic; 1-T minute; 2-6-T moderate, 6-T longest, single; 7-T large, multiple, with heavy basal tubercle; 8-T short, multiple; 9-T large, multiple; 13-T moderate, multiple. *Abdomen*: Integument without spicules, spiracular sensilla not distinct. Hairs 6-I-VI strongly developed, large, at least double; 7-I strongly developed and large; 7-II-VI short; 1-I-II mesad of hair 2, minute; 1-VI mesad of 2-VI; 2-III-V mesad of hair 1; 5-I-VII short; 9-II-IV very short, single; 13-II,VI dendritic. *Segment VIII*: Comb of numerous scales in a large triangular patch; individual scale long, parallel-sided, with fringed apex; hair 1 cephalad and laterad of hair 2. *Siphon*: Elongate, without marked distal tapering. Index about 4.4; acus present, attached, tracheae well developed. Pecten extending to about middle of siphon, individual pecten tooth very slender tapered to a very tiny pointed tip. Siphonal hairs made up of three lateral pairs, 2 large (1, 1av-S) and 1 small (1ad-S, dorsal). *Anal Segment*: Saddle not well defined and poorly sclerotized, apparently composed of larger dorsal part and a smaller ventral part, caudal margins without spicules; acus absent. Gills 2 pairs, short. Hair 1-X small; 2-X moderately long, multiple; 3-X very long, single; 4-X all on grid, 5 pairs, well developed, multiple.

SYSTEMATICS. The larva of *Galindomyia leei* is of the *Culex* type in general appearance. However, it can be separated from larvae of the majority of species of the latter genus as well as from those of *Deinocerites* by hair 1-VI which is mesad of 2-VI instead of laterad of 2-VI in the other two genera.

Individually *Galindomyia* can be separated from *Culex* by the following characteristics:

a) Absence of hair 3-C in *Galindomyia* which is often present in *Culex*, although sometimes it may appear only as a spicule or may be completely absent.

b) Hairs 1-3-P which are on a poorly developed but sclerotized common tubercle in *Galindomyia* while they are usually on a strongly developed common tubercle in *Culex*.

c) The lack of complete development of the collar in *Galindomyia* which is usually well developed in *Culex* (except in *Carrollia*).

From *Deinocerites* it can be easily separated by the following:

a) The absence of a pouch in the lateral expansion on each side of the head ventrocaudad of the antenna.

b) The absence of hair 2-C and

c) By hairs 4-6-C which are not all in a group caudad of level of 7-C.

In the pupal stage *Galindomyia* can be separated from both *Culex* and *Deinocerites* by the position of hair 2-VI which is mesad of 1-VI in the latter genera and laterad of 1-VI in the former. On individual basis *Galindomyia* can be separated from *Culex* by the following:

1) By hair 9-II-VI which arises ventrally at the caudolateral angle of the segments in *Galindomyia* while it is removed cephalad from caudolateral angle dorsally in *Culex*.

2) By hair 9-VII which is caudad of 6-VII in *Galindomyia* while it is cephalad of 6-VII in *Culex* and

3) By the length of hair 1-P which is one half as long as the length of the paddle in *Galindomyia*, it being rather small in *Culex*, not measuring even one-fifth the length of the paddle.

From the genus *Deinocerites* it can be easily separated by hair 9-VII which is long and single, arising ventrally at caudolateral angle in *Deinocerites* while it is branched and removed cephalad from caudolateral angle of the sternite in *Galindomyia*.

**BIONOMICS.** Eggs were obtained from gravid females collected in crabholes along the Pacific coast of Colombia. As in *Deinocerites* (Galindo, 1967), eggs were laid singly above the surface of the water loosely attached to the walls of a cylinder of plaster of Paris simulating a crabhole. Eclosion of the eggs occurs *in situ* without the need of raising the water level to cover them. The larvae after breaking out of the egg membranes either drop or slide down the sides of the cylinder to the water below. In contrast, species of *Culex* breeding in these crabholes (*C. latisquama* and *C. eldridgei*) lay their eggs on the water surface in small compact masses.

**MATERIAL EXAMINED.** 5 specimens, 1 whole larva, 2 larval skins; 2 pupal skins.

#### FIGURES

1. *Galindomyia leei*: pupa.
2. *Galindomyia leei*: larva.

#### REFERENCES

Galindo, Pedro

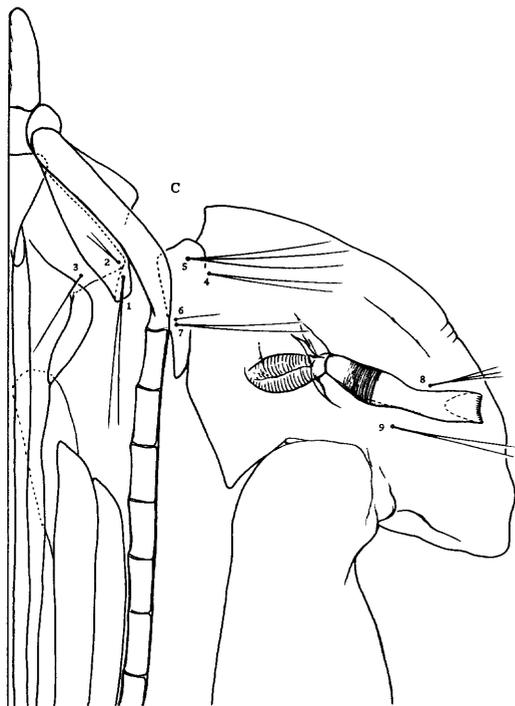
1967. Preliminary observations on the colonization and bionomics of the crabhole breeding mosquito *Deinocerites pseudus* Dyar and Knab, 1909. *Mosquito News* 27:187-190.

Stone, Alan and P. Barreto

1969. A new genus and species of mosquito from Colombia, *Galindomyia leei* (Diptera, Culicidae, Culicini). *J. Med. Entomol.* 6:143-146.

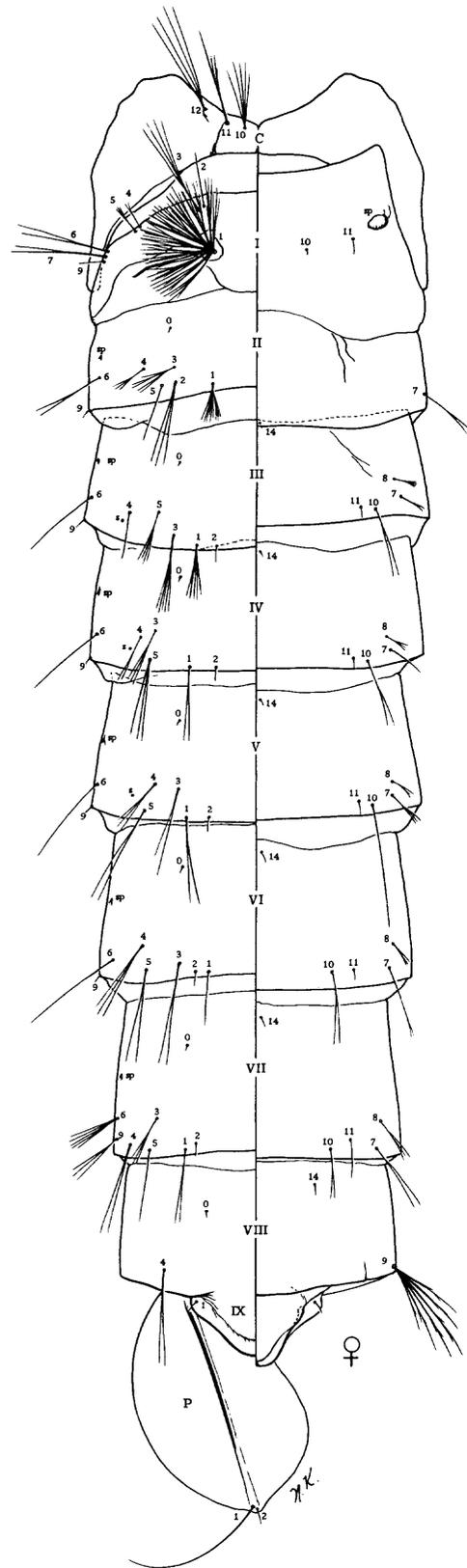
# Fig. 1

## GALINDOMYIA

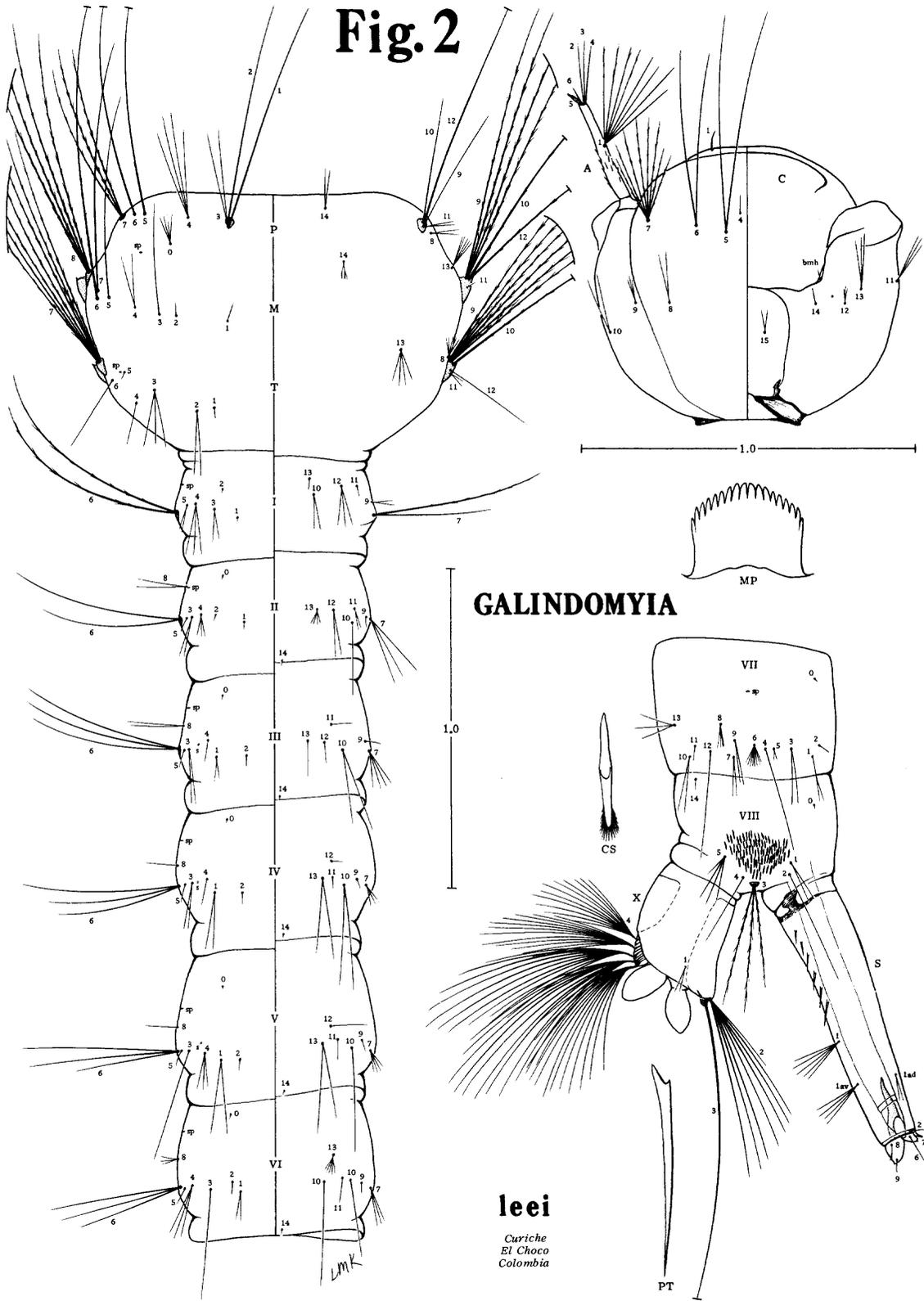


### leei

Curiche  
El Choco  
Colombia



**Fig. 2**



**GALINDOMYIA**

**leei**

*Curiche  
El Choco  
Colombia*