

DESCRIPTION OF THE PUPA OF *Aedes pseudotaeniatus* (GILES) (DIPTERA: CULICIDAE)¹

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ABSTRACT. The pupal stage of *Aedes pseudotaeniatus* (Giles) is described for the first time. Collections of this species were made in the Himalayan Kingdom of Nepal. Group E of subgenus *Finlaya* is discussed.

INTRODUCTION

Aedes pseudotaeniatus (Giles) belongs to subgroup III of group E in subgenus *Finlaya* of genus *Aedes* (Knight and Marks 1952). Adults of subgroup III are distinguished by an anterior, narrow, longitudinal line of pale scales on the tibiae and narrow scales on the scutellum. In addition, the group E character consists of narrow, distinct, longitudinal lines of white or yellow on the scutum. Species included in subgroup III are *pseudotaeniatus*, *banksi* Edwards, *elsiae* (Barraud), *hatorii* Yamada, *hegneri* Causey, *macdougalli* Edwards, *macfarlanei* (Edwards), and *shorti* (Barraud). The 1st, 3rd, 6th and 8th species are found in Nepal. None of the pupae of the 8 species has been described, although LaCasse and Yamaguti (1950) did illustrate abdominal tergum VIII, paddle, and trumpet of the pupa of *Ae. hatorii*. Yet, the pupae of all of the species of subgroups I and II are known (Marks 1955, Belkin 1962, Belkin et al. 1970).

The following informal key will demonstrate characters useful in separating described pupae of these group E taxa, including *Ae. pseudotaeniatus*.

KEY TO KNOWN PUPAE OF GROUP E, SUBGENUS *FINLAYA*

1. Seta 9-VI long, strong (subgroup I)
. *mediovittatus* (Coquillett)
- Seta 9-VI short to minute (subgroups II and III) 2
- 2(1). Setae 9-II-VI relatively well developed, not minute (subgroup II) *mallochi* Taylor
- Setae 9-II-VI minute 3
- 3(2). Setae 5-IV, -V at least 1.5 length of following tergum 4
- Setae 5-IV, -V usually shorter, no more than 1.3 length of following tergum 5
- 4(3). Paddle margin with distinct and numerous spicules; seta 1-III single or double
. *notoscriptus* (Skuse)
- Paddle margin smooth, or with few scattered spicules; seta 1-III with 3 or more branches *albilabris* Edwards
- 5(3). Seta 2 laterad of seta 3 on III; seta 1-P with 2-3 branches *quinquelineatus* Edwards

- Seta 2 mesad of seta 3 on III; seta 1-P single (subgroup III) *pseudotaeniatus* (Giles)

Knowledge of the pupae will aid in the taxonomic analysis of the subgroup; therefore, I am describing for the first time the pupa of *Ae. pseudotaeniatus*, the nominotypical species of subgroup III. I can affirm that pupae of other Nepal species in this subgroup, yet to be described, have distinctive characters.

Aedes pseudotaeniatus is a common mosquito in the Indian subcontinent including Nepal (Barraud 1934, Darsie and Pradhan 1990). During a recent survey of the mosquitoes of Nepal, many adults were obtained from individual rearings. Collections were made from rock holes and artificial containers at elevations from 550 to 2,400 m. The morphology and chaetotaxal nomenclature of Belkin (1952) and Harbach and Knight (1980) were employed.

DESCRIPTION OF THE PUPA

Figure 1 provides the general morphology and chaetotaxy of the pupa and the position of the setae. **Cephalothorax:** Setae 1-3-CT long, usually single; 4-, 8-, and 10-CT moderately long to long, usually triple; 5-, 7-, 9-, 11-, and 12-CT single or double; 6-CT short, single. **Trumpet:** Light brown, entirely reticulate, length 0.56-0.72 mm, width 0.18-0.24 mm, meatus 0.36-0.50 mm, pinna 0.16-0.28 mm, index 2.83-3.42. **Abdomen:** Setae 0-II-VIII minute, single; seta 1-I a float seta with 20-29 main branches, each subdividing apically into 2-5 branches; 1-II moderately long, usually with 7 branches; 1-III-VII moderately long, usually single; 2-I-VII short, single, rarely double or triple; 3-I-III rather stout, long, single; 3-IV-VII moderately long, usually double on IV, VI, usually single on V, VII; 4-I-V short, usually triple on I-III, usually double on IV, V, moderately long on VI-VIII, double on VI, single on VII, VIII; 5-I-III short, usually triple; 5-V-VII long to very long, single, occasionally double; 6-I-VI moderately long, single; 6-VII moderately long, usually double; 7-I, -II long, usually triple; 7-III-V short, usually double; 7-VI, -VII moderately long, single; 8-III-VII short, usually triple; 9-I-VI minute, single, rarely double on I-II, single on III-VI, 9-VII, -VIII stout, acuminate, usually 5-branched on VII, usually 10-branched on VIII; 10-II present in 37% (9 of 24) of pupae, short

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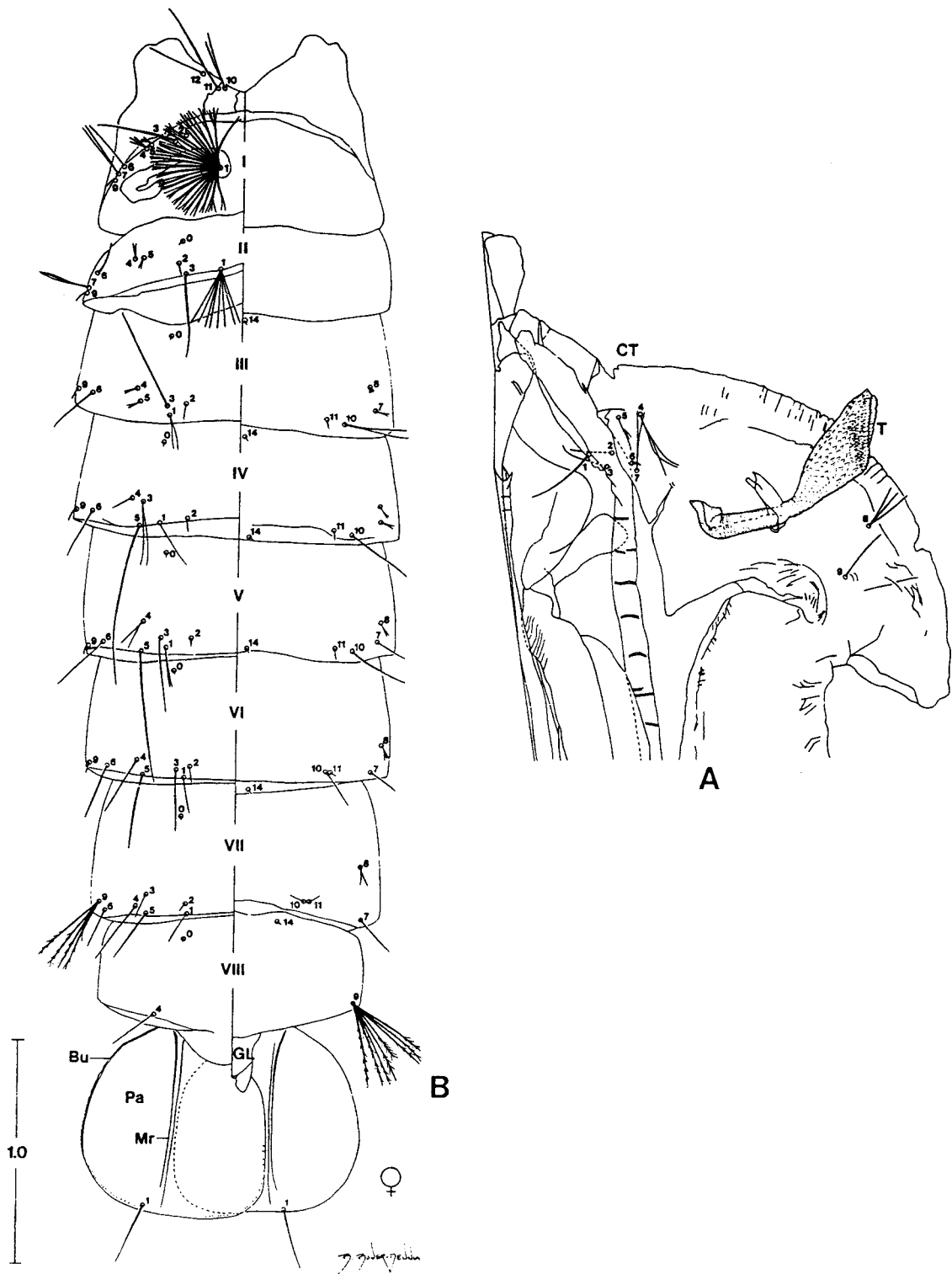


Fig. 1. Pupa of *Aedes pseudotaeniatuS* (Giles). A: Cephalothorax, T = trumpet; B: metanotum and abdomen, dorsal-left, ventral-right; GL = genital lobe, Pa = paddle, Bu = external buttress, Mr = midrib.

to moderately long, single or double; 10-III-VI long, usually single; 10-VII short, single; 11-III-VII short, single, rarely double on IV; 14-III-VII near midventral line, minute, single; 14-VIII lateral to midline, single. *Paddle*: Length 0.75-0.85 mm, width 0.71-0.80 mm, index 0.96-0.108, about as wide as long, midrib diffuse in apical 0.78, outer margin smooth or with few scattered spicules, inner margin smooth, seta 1-P long, single.

The other species found breeding with *Ae. pseudotaeniatus* differed with the type of habitat. In 3 rock pools, it was the only species; in 2 others, *Aedes elsiæ* (Barraud) and *Culex viridiventer* Giles were also present. In artificial containers more species were encountered, i.e., *Anopheles culicifacies* Giles, *Anopheles splendidus* Koidzumi, *Culex brevipalpus* (Giles), and *Culex infantulus* Edwards.

The following specimens, which were studied, are in the collection of the author at the Florida Medical Entomology Laboratory, University of Florida, Vero Beach, Florida. The district names of Nepal are in upper case; LP means larval and pupal, and P means that pupal exuviae were mounted. All were associated with the adults. Collection numbers are in brackets. RAMECHHAP, Haladibesi, VIII-23-91, 1 ♀ P, ex rockhole [128]; OKALDUNGA, Chilaune, IX-17-91, 2 ♀ LP, 1 ♀ P, ex water tank [204]; Okaldunga, IX-28-91, 1 ♀, 1 ♂ P, ex rockhole [279]; KASKI, nr Dhotei Khola, VIII-17-92, 2 ♀, 1 ♂ P, ex rockhole [438]; GORKHA, Durbār, VII-22-92, 1 ♂ P, ex rock pool [459]; DANG-DEUKHURI, Tulsipur, VII-24-94, 2 ♂ P, ex broken clay pot [625]; SALYAN, Lamdanda, VII-28-94, 1 ♀ P, ex clay pot [688]; JUMLA, Achanjabada, IX-9-94, 1 ♂ P, ex rockhole [934]; HUMLA, Simikot, VII-27-94, 4 ♀ LP, 1 ♂ P, ex rock pool [1,024]; Simikot, VII-27-94, 3 ♀, 3 ♂ P, rock pool [1,025].

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