

RECORDS OF MOSQUITOES (DIPTERA : CULICIDAE) FROM MANIPUR  
GENUS—ARMIGERES AND HEIZMANNIA

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INTRODUCTION

The genera *Armigeres* and *Heizmannia* are the vicious day biters of the Manipur state especially in the bamboo dominant hilly area (Rajput and Singh, 1986a) where they create a serious problem for the field workers even in the adjoining area also. In spite of their painful biting no attention was paid for any scientific study except record of *Armigeres subalbatus* from Churachandpur and Ukhrul by Malhotra *et al.* (1983). The present communication deals with the distribution record of 11 *Armigeres* and single *Heizmannia* species from the surveys for the present distribution records were made during 1983 to 1985. The collection procedure, rearing technique and description of area & climate have already been described in the earlier paper (Rajput and Singh, 1986b).

The identification was done mainly on adult characters. The genital characters of larvae were also taken into consideration, whenever those forms were available. The work mainly follows Barraud (1934), Macdonald (1960) and Mattingly (1973) for identification Knight and Stone (1977) for classification and nomenclature.

COLLECTION RECORDS

1. *Armigeres durhami* Edwards

1917. *Armigeres kuchingensis* var. *durhami* Edwards, *Bull. Ent. Res.* 7 : 206 ; Barraud, 1934 : 318 ; *Armigeres durhami* Edwards, Thurman, 1958(1959) : 391 ; Knight and Stone, 1977 : 171.

The species has a wide distribution in the Oriental region. In India, recorded from Andaman Islands, Assam, probably Maharashtra, and Manipur.

*Present records* : Manipur : *Moreh* (150m.)—1 ♀ (14 Aug. '84) from mixed vegetation ; 1 ♀ (19 Aug. '84) from indoor human dwelling.

2. *Armigeres subalbatus* (Coquillett)

1860. *Armigeres obturbans* Walker, *J. Proc. Linn. Soc. Lond. Zool.* 4 : 91 ; Barraud, 1934 : 314-317 ; *Armigeres subalbatus* (Coquillett), La Casse and Yamaguti, 1950 : 53 ; Knight and Stone, 1977 : 172.

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This species has wide distribution range in Oriental region and South-west Palaearctic region. The species is distributed all over India.

*Present records* : Manipur : *Bungmul* (850m.)-1 ♀ (27 Nov. '84) from herb vegetation. *Chandel* (1,500m.)-1 ♀ (22 Oct. '85) from forest. *Chingmeirong* (785m.)-5 ♂ ♂, 18 ♀ ♀ (11 Sept. '83-6 Nov. '83), 30 ♂ ♂, 57 ♀ ♀ (27 Jun. '84-25 Sept. '84) collected from shrubby vegetation, 7 ♀ ♀ (30 Oct. '83-6 Nov. '83) 66 ♀ ♀ (13 Jul. '84-14 Oct. '84), collected during day-biting, 29 ♂ ♂, 24 ♀ ♀ (18 Oct. '83) larvae were reared from Ant-wells in the grainage houses. *Churachandpur* (850m.)-1 ♂, 5 ♀ ♀ (1 Nov. '84) from herb vegetation. *Geljang* (850m.)-1 ♂ (27 Nov. '84) from shrubby vegetation. *Imphal* (785m.)-2 ♀ ♀ (1 Nov. '84) from cattle-shed. *Jiribam* (150m.)-15 ♂ ♂, 9 ♀ ♀ and 15 ♀ ♀ (7 Oct. '84) from herb vegetation and day-biting respectively, 44 ♀ ♀ (7 Oct. '84) from bovine-bait. *Kanglatongbi* (1,000m.)-3 ♂ ♂ (12 Aug. '84) from herb vegetation. *Khongampat* (785m.)-1 ♂, 1 ♀ (16 Dec. '84) from herb vegetation. *Khurkhul* (830m.)-1 ♀ (29 Jan. '84) from herb vegetation. *Mantripukhri* (785m.)-6 ♀ ♀ (20 Oct. '83-21 Nov. '83), 9 ♀ ♀ (11 Mar. '84-15 Sept. '84) collected from cattle-sheds, 1 ♂, 8 ♀ ♀ (11 Oct. '83-20 Nov. '83), 28 ♂ ♂, 16 ♀ ♀ (4 Jul. '84-20 Oct. '84) collected around bulb-light, 42 ♀ ♀ (23 Oct. '83-29 Nov. '83), 60 ♀ ♀ (11 Jun. '84-14 Oct. '84) collected from human-bait, 3 ♀ ♀ (14 Nov. '83-26 Nov. '83), 266 ♀ ♀ (25 Feb. '84-29 Oct. '84) from bovine-bait, 3 ♀ ♀ (13 Sept. '84) collected from human-bait. 3 ♂ ♂, 8 ♀ ♀ (9 Apr. '84-26 Sept. '84) from human dwellings. *Mao* (1,850m.)-2 ♀ ♀ (9 Sept. '85) from human-bait. *Moreh* (150m.)-4 ♂ ♂, 3 ♀ ♀ (18 Aug. '84-19 Aug. '84) from shrubby vegetation, 5 ♀ ♀ (18 Aug. '84) from human-bait, 3 ♀ ♀ (19 Aug. '84) from day-biting, 1 ♀ (19 Aug. '84) from human dwelling. *Nungba* (750 m.)-2 ♀ ♀ (8 Oct. '84) from herb vegetation, 2 ♀ ♀ (19 Oct. '84) larvae were reared from a discarded rain gauge. *Tuibang* (800 m.)-2 ♀ ♀ (8 Oct. '83) from herb vegetation. *Zaphou* (1,000 m.)-3 ♂ ♂, 40 ♀ ♀ (21 Oct. '85) from herbs near human dwellings. Associated breeders were *Aedes aegypti*, *A. albopictus*, *Culex quinquefasciatus*. *C. brevialpis* and *C. fuscanus*.

### 3. *Armigeres theobaldi* Barraud

*Armigeres theobaldi* Barraud. 1934 : 319 ; Thurman, 1959 : 91 ; Knight and Stone, 1977 : 172.

The species has been recorded from Burma, India and Thailand. In India, it has been recorded from Bihar, Karnataka, Manipur, Meghalaya and Orissa.

*Present Records* : Manipur : *Moreh* (150 m.)-1 ♂, 7 ♀ ♀ (18 Aug. '84-19 Aug. '84) from shrubby vegetation in dense forest.

### 4. *Armigeres annulitarsis* (Leicester)

1908. *Leicesteria annulitarsis* Leicester, *Stud. Inst. med. Res. F. M. S.* 99 ; Barraud, 1934 : 325-327 ; Macdonald, 1960 : 119 ; Knight and Stone, 1977 : 173.

This is an Oriental species, recorded from Assam, Karnataka, Maharashtra, Manipur, Meghalaya and Tamil Nadu, in India.

*Present records* : Manipur : *Nungba* (750 m.)—1 ♀ (8 Oct. '84) from shrubby vegetation.

#### 5. *Armigeres dentatus* Barraud

1927. *Armigeres dentatus* Barraud, *Indian J. Med. Res.* 14 : 547 ; Barraud, 1904 : 331-332 ; Macdonald, 1960 : 124 ; Knight and Stone, 1977 : 173.

The species has been reported from India and Thailand only. In India, it has been recorded from Manipur and Meghalaya only.

*Present records* : Manipur : *Nungba* (570 m.)—5 ♀ ♀ (8 Oct. '84) during day-biting.

#### 6. *Armigeres digitatus* (Edwards)

1914. *Leicesteria digitatus* Edwards, *Bull. Ent. Res.* 4 : 262 ; Barraud, 1934 : 330 ; Delfinado, 1966 : 88 ; Knight and Stone, 1977 : 173.

The species distribution is restricted to Oriental region only. In India, it has been reported from Karnataka, Manipur and West Bengal.

*Present records* : Manipur : *Nungba* (750 m.)—16 ♀ ♀ (8 Oct. '84) collected from day-biting.

#### 7. *Armigeres flavus* (Leicester)

1908. *Chaetomyia flavus* Leicester, *Stud. Inst. Med. Res. F.M.S.* : 101, Barraud, 1934 : 321-324 ; Delfinado, 1966 : 89 ; Knight and Stone, 1977 : 173.

The species has its distribution range in Oriental region with its extension to South Palaearctic region. In India, it has been recorded from Assam, Goa, Kerala, Maharashtra, Manipur and West Bengal.

*Present records* : Manipur : *Jiribam* (150 m.)—1 ♂ (7 Oct. '84) from Banana groves (*Musa balbisiana*) ; 1 ♀ (8 Oct. '84), during day-biting.

#### 8. *Armigeres inchoatus* Barraud

1927. *Armigeres inchoatus* Barraud, *Indian J. Med. Res.* 14 : 544 ; Barraud, 1934 : 328 ; Macdonald, 1960 : 122 ; Knight and Stone 1977 : 173.

This species has been recorded from India, Malaysia and Thailand. In India, recorded from Manipur and West Bengal only.

*Present records* : Manipur : *Nungba* (750 m.)—3 ♀ ♀ (8 Oct. '84) collected during day-biting.

### 9. *Armigeres longipalpis* (Leicester)

1904. *Leicesteria longipalpis* Leicester, In Theobald, *Entomologist*, 37 : 211 ; Barraud, 1934 : 329-330 ; Macdonald, 1960 : 126 ; Knight and Stone, 1977 : 174.

Recorded from Oriental region only. In India, it has been noted to be distributed in Assam, Manipur, Meghalaya, and West Bengal.

*Present records* : Manipur : *Nungba* (750 m.)—3 ♀ ♀ (8 Oct. '84) collected during day-biting. *Tamenglong* (1,200 m.)—2 ♀ ♀ (8 Sept. '84) collected during day-biting in forest.

### 10. *Armigeres magnus* (Theobald)

1908. *Brevirhynchus magnus* Theobald, *Rec. Indian Mus.* 2 : 293 ; Barraud, 1934 : 324-325 ; Delfinado, 1966 : 91 ; Knight and Stone, 1977 : 174.

This species has its distribution in Oriental and Palaearctic region. In India, it has been recorded from Assam, Goa, Kerala, Maharashtra, Manipur and West Bengal.

*Present records* : Manipur : *Nungba* (750 m.)—2 ♀ ♀ (8 Oct. '84) collected during day-biting.

### 11. *Armigeres omissus* (Edwards)

1914. *Leicesteria omissus* Edwards, *Bull. Ent. Res.* 5 : 76 ; Barraud, 1934 : 330-331 ; Delfinado, 1966 : 22 ; Knight and Stone, 1977 : 174.

Distributed in Oriental and South Palaearctic region. The species has been recorded from Maharashtra and Manipur only.

*Present records* : Manipur : *Nungba* (750 m.)—34 ♀ ♀ (8 Oct. '84) collected during day-biting.

### 12. *Heizmanni A complex* (Theobald)

1910. *Bolbodeomyia complex* Theobald, *Rec. Indian Mus.* 4 : 31 ; Barraud, 1934 : 302 ; Knight and Stone, 1977 : 182.

The species has its distribution range in Oriental region only. It has been recorded from Assam, Manipur, and Meghalaya in India.

*Present records* : Manipur : *Chandel* (1,500 m.)—1 ♀ (22 Oct. '85) from forest vegetation. *Kalinamei* (1,800 m.)—1 ♀ (8 Sept. '85) reared from larva bamboo-cut. *Mao* (1,850 m.)—13 ♂ ♂, 2 ♀ ♀ (8 Sept. '85) reared from larvae from a flower-pot. *Moreh* (150 m.)—2 ♀ ♀ (18 Aug. '84) from tree-hole, 1 ♂, 4 ♀ ♀ (19 Aug. '84) from shrubby vegetation. *Nungba* (750 m.)—6 ♀ ♀ (8 Oct. '84) from day-biting. Associated breeders were *Aedes albopictus* and *A. pseudalbopictus*.

## SUMMARY

The communication deals with distribution records of 12 species viz., *Armigeres durhami*, *A. subalbatus*, *A. theobaldi*, *A. annulitarsis*, *A. dentatus*, *A. flavus*, *A. inchoatus*, *A. longipalpis*, *A. magnus*, *A. omissus* and *Heizmannia complex*. *Armigeres subalbatus* remained prevalent species in both hilly and valley region of the state, while other *Armigeres* species were mainly recorded from bamboo growing area of the hilly region. *Heizmannia complex* was also prevalent in the forested area of the hilly region of the state. The study is based on a collection of 140 ♂ ♂ and 824 ♀ ♀.

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