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OCCURRENCE OF *CULEX (LOPHOCERAOMYIA) QUADRIPALPIS, CULEX (LOPHOCERAOMYIA) MAMMILIFER,* AND *URANOTAENIA (PSEUDOFICALBIA) NOVOBSCURA* IN ASSAM, INDIA

D. R. BHATTACHARYYA, ANIL PRAKASH, P. K. MOHAPATRA AND J. MAHANTA

Regional Medical Research Centre, NE Region (ICMR), PO Box 105, Dibrugarh–786 001, Assam, India

ABSTRACT. *Culex (Lophoceraomyia) quadripalpis* is recorded for the 1st time in India. Collections of *Culex (Lophoceraomyia) mammilifer* and *Uranotaenia (Pseudoficalbia) novobscura* are new records from Assam in northeastern India.

KEY WORDS *Culex,* new mosquito record, northeastern India, *Uranotaenia*

INTRODUCTION

The northeastern region of India, which comprises Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, and Tripura states, has a very rich mosquito fauna and is 1 of 18 high-biodiversity locations worldwide (Khoshoo 1994). The checklist of mosquitoes, prepared on the basis of various mosquito surveys carried out in northeastern India during the last 3 decades, includes 130 species (37 anophelines and 93 culicines) in 12 genera (Malhotra and Mahanta 1994). Barraud (1934) stated "many mosquito species await discovery in India," and the number of new mosquito records gradually is increasing in northeastern India. Bhattacharyya et al. (1995) recently described the larva and pupa of *Aedes nigrostriatus* (Barraud) from Assam. Further, *Culex peytoni* Bram and Rattanarithikul, *Heizmannia reidi* Mattingly, and *Armigeres joloensis* (Ludlow) were reported from Assam (Bhattacharyya et al. 1998, 2000), which constituted new country and regional records. In this note, we report the 1st collections of *Culex quadripalpis* (Edwards) in India, and of *Culex mammilifer* (Leicester) and *Uranotaenia novobscura* Barraud in the northeastern region of India.

MATERIALS AND METHODS

Immature mosquitoes collected in the field were isolated and reared to adults. The larval and pupal exuviae were numbered and associated with the adults. Male genitalia and antennae were dissected and mounted on glass slides in Hoyer's medium.

RESULTS AND DISCUSSION

Culex (Lophoceraomyia) quadripalpis (Edwards)

In August 1998, larvae were collected from a shaded ground pool in an evergreen tropical rain forest area (Soraipung forest range) of Assam. This is a large tract of reserve forest (about 500 km^2) covering parts of Dibrugarh and Tinsukia districts of Assam. Our collection was restricted to an area located in Dibrugarh District (27°35′N, 95°41′E) at an elevation of 152 m above sea level. Three emerged male mosquitoes were identified as *Cx. quadripalpis* of the subgenus *Lophoceraomyia* by comparing them with the description provided by Sirivanakarn (1977). The slides were later sent to the Smithsonian Institution, Washington, DC, where the identification was confirmed.

Sirivanakarn (1977) described 58 species of mosquitoes belonging to the subgenus *Lophoceraomyia* of the genus *Culex* from the Oriental region. Barraud (1934) recorded 10 species of this subgenus from British India. *Culex (Lophoceraomyia) quadripalpis* originally was described by Leicester (1908) as *Lophoceratomyia sylvestris* Leicester from Kuala Lumpur, Malaysia. Later, Edwards (1917) considered both *sylvestris* and *quadripalpis* to be synonymous with *barkerii* (Theobald). However, he later revalidated *quadripalpis* and listed *barkerii* and *sylvestris* as synonyms in the world catalog (Edwards 1932). Sirivanakarn (1977) reasoned that these steps were taken by Edwards because the status of *quadripalpis* was more stable and had been used more frequently than the other 2 names, viz., *sylvestris* and *barkerii.* Sirivanakarn (1977) reported this species to be widespread in Sri Lanka, Malaysia, the Philippines, Vietnam, Singapore, and Indonesia. This is the 1st record of *Cx. quadripalpis* from India.

Culex (Lophoceraomyia) mammilifer (Leicester)

Larvae of *Cx. mammilifer* were collected from the same ground pool on the same date in the Soraipung forest range of Assam as mentioned above. Slide-mounted genitalia of 2 males along with their antennae were sent to the Smithsonian Institution, where they were confirmed as *Cx. (Lophoceraomyia) mammilifer.* Other mosquito species that emerged from the same ground pool were *Aedes (Diceromyia) nummatus* Edwards, *Verrallina (Neomacleaya) rami* (Barraud). *Culex (Lophoceraomyia) macdonaldi* Colless, *Culex (Lophoceraomyia) rubithoracis* (Leicester), and 1 unidentified species of *Culex (Lophoceraomyia).*

Barraud (1934) recorded *Cx. mammilifer* from Sukna, Darjeeling District, West Bengal, from An-

daman Island, and from the Malabar Coast, India. Although this mosquito is widespread throughout Southeast Asia (Sirivanakarn 1977), it has not been recorded previously from northeastern India.

Uranotaenia (Pseudoficalbia) novobscura Barraud

In July 1998, larvae of *Uranotaenia novobscura* were collected from a tree hole in the same forest tract (Soraipung forest range) mentioned above. Reared specimens (4 adult females and 2 males) were identified by examining the associated larval and pupal exuviae and male genitalia and comparing them with the description of Peyton (1977). The specimens were deposited in the museum of Regional Medical Research Centre, Dibrugarh, Assam, India.

Uranotaenia novobscura originally was described by Barraud (1934) from Sukna, Darjeeling District, West Bengal (India). However, Peyton (1977) stated that the type locality of this species should be Suriel of Darjeeling District, instead of Sukna, because specimens from Sukna were *Uranotaenia (Pseudoficalbia) obscura* Edwards instead of *novobscura.* This mosquito has been recorded for the 1st time from the northeastern region of India.

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