



## NEW RECORD OF A MOSQUITO *URANOTAENIA LOWII* (THEOBALD, 1901) FROM INDIA

SANTHOSH GOUD\*, SUBASINI PATTNAIK, IPSITA BISWAL, JAYA KISHOR SETH,  
RUPENANGSHU KUMAR HAZRA<sup>1</sup> AND BARSALINI PANDA<sup>1</sup>

Post Graduate Department of Zoology, Berhampur University, Berhampur 760007, Odisha, India

<sup>1</sup>ICMR-Regional Medical Research Centre, Bhubaneswar 751023, Odisha, India

\*Email: santhosh1090696@gmail.com (corresponding author): ORCID ID 0000-0003-0574-4124

### ABSTRACT

**This study reports *Uranotaenia lowii* (Theobald, 1901) as a new record from India. It was collected from Berhampur University Campus, District Ganjam, Odisha, India. This species is not considered to have medical importance, as it does not bite mammals and feeds upon the blood of reptiles and amphibians.**

**Key words:** *Uranotaenia lowii*, Culicidae, pale-footed, acoustic sensitivity, a new record, Odisha, India, diversity, zoogeography, vector, medical importance

Mosquitoes, among the wide range of vectors, play an influential role in the transmission of different kinds of diseases to a variety of animals and primarily to human beings by feeding on blood. Malaria, filariasis, dengue fever, Japanese encephalitis, Chikungunya, and various other viral diseases are transmitted by mosquitoes. In other words, they are disease agents or carriers. More than 17% of death (near about 7 lakhs) occurs due to the infection caused by vector-borne diseases out of all infectious diseases (WHO, 2020). The mosquito is the most dangerous of all the insects that spread diseases. It continues to be humanity's most persistent foe, despite costly efforts to eliminate or even control it. The global mosquito fauna consisted of 3541 species belonging to 50 genera, two subfamilies, and 12 tribes (Tyagi et al., 2015). More than 404 species and subspecies of mosquitoes are available in India, accounting for more than 12% of the global mosquito fauna (Tyagi et al., 2015).

*Uranotaenia lowii* is a tiny mosquito found throughout the Western Hemisphere, including the Gulf states of the United States. It breeds in small ponds and grassy lake edges and is also known as the pale-footed *Uranotaenia*. Larvae can be seen all year in Florida, but they are only found in the summer and early fall (Carpenter and Lacasse, 1974), in 1945, Remington conducted extensive research on this species feeding habits in Louisiana. The females did not feed on humans or reptiles but fed upon toads, frogs, and salamanders (Matheson, 1966). The pale-footed *Uranotaenia*, like its larger relative, exhibits little interest in people. Because of its lack of attention and small size, the species

sometimes goes overlooked in mosquito management and surveillance operations. These small mosquitoes feed on reptiles and amphibians, particularly frogs while avoiding humans and other living organisms. Amphibian populations are rapidly falling worldwide, and many scientists believe the key culprits are habitat degradation and climate change. The impact of mosquitoes on non-human species is little understood (VDCI, 2016). Most mosquitoes track carbon dioxide plumes and thermal taxis to discover blood sources. *Uranotaenia lowii*'s host preference shows that their natural habitat consists of grasslands, lake edges and shallow ponds with moderate sunlight. Females of this tiny species, according to studies conducted in Costa Rica, have auditory sensitivity that other mosquitoes may not have. According to some studies, they may even have extraordinary sensory abilities. While other Male mosquitoes are attracted to the sounds made by their female counterparts. The only known species in which females exploit auditory sensitivity to locate an amphibian bloodmeal is *Uranotaenia lowii*.

*Uranotaenia lowii* is not known to be a vector of parasites, as very little work has been done on this species considering the non-medical significance. The lack of scientific literature on *Uranotaenia* raises more issues regarding the species potential ecological role in the declining populations of their amphibian victims. The present finding of the mosquito from the Berhampur University campus, Ganjam, Odisha, is the first material evidence of this mosquito from India. The current record will help as the baseline information for understanding the distribution and zoogeography.

## MATERIALS AND METHODS

Mosquitoes were collected from the campus area of Berhampur University, Odisha, India (19.2977358°N84.8781602°E). The collection was carried out from January 2018 to December 2019 using an insect battery-operated mechanical aspirator (Pooter) and torchlight. The collected mosquitoes were then transferred to a test tube, covered with a loose cotton plug, and examined in the laboratory for identification. Identification of these mosquitoes was made with the help of a 10x fabric lens, and simultaneously the photographs were taken with the help of a mobile camera mounted with a 10x macro lens and L.E.D. Identification of the collected mosquitoes was based on adult characters using standard taxonomic keys and catalogues of Mosquitoes Identification key of Christophers (1933), Barraud (1934), and online identification keys from Species Identification Table Adult, Florida Medical Entomology Laboratory - University of Florida, Institute of Food and Agricultural Sciences; [fmel.ifas.ufl.edu](https://fmel.ifas.ufl.edu). Retrieved April 15, 2022, from <https://fmel.ifas.ufl.edu/mosquito-guide/species-identification-table/species-identification-table-adult/#Uranotaenia>. The identity of the mosquito was confirmed with the Indian Council of Medical Research-Regional Medical Research Centre, Bhubaneswar. These mosquitoes were deposited and registered in the National Repository of Estuarine Biology Regional Centre, Zoological Survey of India, Gopalpur-on-Sea, Odisha, India.

## RESULTS AND DISCUSSION

The taxonomic account of the species is provided below:

*Uranotaenia lowii* (Theobald, 1901) (Fig. 1)



Fig. 1. *Uranotaenia lowii*

Materials examined: 18 examples, Registration Number: EBRC/ZSI/In-12262 A-R, collected by: Santhosh Goud, Adults: ♀ small-sized; body length 0.25 to 0.3 cm.

Female: A small mosquito that is dark greyish-brownish in appearance. Palps are dark and approximately 1/5 the length of the proboscis. The proboscis is dark and fat at the tip. Dark greyish brown scutum. Thorax is pale in colour, with a black patch and a few pale blue scales. Dark abdomen with pale iridescent scale patterns on the sides. On the stem of the 5th vein, the wings have a short stripe of pale blue scales. White booties, dark hind legs, and pale knee patches.

Remarks: The species *Uranotaenia lowii* was first described by Theobald in 1901, and bionomics, distribution and larval forms were documented by Remington in 1945 and Carpenter and Lacasse in 1974. This species looks similar to *Culex mimeticus* in terms of size and appearance; however, it can be distinguished from the *Culex mimeticus* by the absence of pair of dark spots on the wings and white patches on the head. The presence of the mosquito *Uranotaenia lowii* from Odisha constitutes the first material evidence of this mosquito from the Indian subcontinent. The current record will help as the baseline information for understanding its distribution, ecology, and zoogeography.

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## AUTHOR CONTRIBUTION STATEMENT

S Goud conducted the survey, collected the specimen, taken the photograph of the specimen. Identified by S Goud and J K Seth, I Biswal, P Dash, B B Panda, S Pattnaik, and R K Hazra prepared the manuscript. All authors read and approved the manuscript.

## CONFLICT OF INTEREST

No conflict of interest.

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