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CICADAS (INSECTA: HEMIPTERA: CICADIDAE) RECORDED FROM DHEERPUR WETLAND PARK, DELHI

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Reviewer: S.R. Hajong

Key words: *Platypleura bufo*, *Platypleura octoguttata*.

INTRODUCTION

Much work has been done on Indian cicadas recently (Price *et al*., 2016). Many specimens of cicadas are preserved in various collections, including the Forest Research Institute (FRI), Dehradun and the Indian Agricultural Research Institute (IARI), Delhi. Perusal of literature on the subject failed to reveal any previous records of cicadas from Delhi.

In the present study, we report two species of cicadas (Insecta: Hemiptera: Cicadidae: Cicadinae: Platypleurini) from Delhi. The genus *Platypleura* Amyot & Serville, 1843 is distributed in Africa (Villet, 1997), the Indian subcontinent (Distant, 1906), Southeast Asia (Lee & Hayashi, 2003; Lee 2008; Lee, 2023) and East Asia (Hayashi, 1974). According to Sanborn (2013), there are 101 species in this genus globally, with 21 of them being found on the Indian subcontinent.

MATERIALS AND METHODS

Specimen Collection: The present study was carried out over 25 days from 14.06.2024 to 09.07. 2024. We surveyed Dheerpur Wetland Park, Gandhi Vihar, Delhi, India (28.719574 N; 77.110009 E) for varying periods between 03:00 am to 11:00 pm. It is an urban wetland park which harbours great biodiversity and covers an area of about 25.38 hectares. The site was chosen because of the presence of cicadas among the vegetation in the DWP. A total of 13 specimens were collected belonging to two different species.

Description of trees: a 150 m long avenue running North to South was surveyed. Although planted, the vegetation on both sides of the avenue supported insect diversity; of particular note were cicadas who, by their loud stridulations, attracted attention. Beyond the narrow grass verge of 1m was a row of *Leucaena* growing up to 3 m high. Behind these is a row of *Prosopis juliflora* rising to a height of 10 m. Other plant species in the vicinity of trees included grasses, *Tamarix dioicia, Pithecellobium dulce* and *Azadirachta indica*. The height of the trees was a decisive factor for us during the cicada survey and there was a definite bias by us towards *Leucaena*, which was shorter and therefore easier to access and examine. Although many individuals were heard on the tall trees of *Leucaena* and *P. juliflora*, cicadas were also found on other trees and shrubs.

Date	Time	Dist. covered	Temp.	Humidity	Specimens collected	Remarks
17.06.2024	06:00pm-8:00pm	150m	35°C	36%	04	20 cicadas were observed
21.06.2024	11:30am-2:00pm	150m	37°C	24%	02	31 cicadas were observed, out of which 27 were found on *Leucaena*.
22.06.2024	07:00pm-10:00pm	150m	32°C	55%	05	Out of 15 cicadas observed,12 cicadas were found on *Leucaena* and 2 of them were ovipositing.12 exuviae were found attached to the grasses.

23.06.2024	05:30pm-7:00pm	150m	35°C	32%	06	Out of 26 cicadas observed,16 cicadas were found on *Leucaena*.
24.06.2024	07:00pm-9:00pm	150m	31°C	79%	01	12 cicadas were observed, all of them were found on *Leucaena.*
03.07.2024	7:00pm-10:00pm	150m	27°C	94%	00	Out of 6 cicadas observed, 2 cicadas were found on *Leucaena.* A mating pair was observed on *Prosopis juliflora*.

Table 1: Series of cicadas found on different times of the days.

Specimen processing: 13 specimens were collected by hand and placed in killing jars containing ethyl acetate. The next day, they were pinned and labelled in the Zoology Department laboratory, Ramjas College, New Delhi.

A series of cicadas was obtained at various times of the day and night, as depicted in table 1. At the time of field observation, the identity of cicadas has not been established therefore, the number in the table below represent both species.

Total no. of cicadas sighted	No. of cicadas on *Leucaena*	No. of cicadas on *Prosopis juliflora*	No. of cicadas on other plants	Date of observation
20	13	05	02	14.06.24

31	27	02	02	17.06.24
15	11	00	04	21.07.24
26	15	06	05	23.06.24
12	12	00	00	01.07.24
06	02	04	00	09.07.24

Table 2: Number of cicadas found on different plant species.

Imaging: The specimens are photographed with DSLR Canon EOS 6D Mark II by using Macro 100mm (lens).

Measurements: The specimens were measured using a vernier caliper in the Zoology Department laboratory, Ramjas College, New Delhi.

RESULTS: During the survey, 110 cicada specimens were spotted mainly on the two trees, *Leucaena* and *P. juliflora*, and on other unidentified grasses. Additional 12 exuviae were also found attached to the grasses in the vicinity. In total, 13 cicada specimens were collected and their morphology was studied, revealing two species. The following are the details of the two species detected in the current study.

1. *Platypleura bufo* (Walker, 1850)

Oxypleura bufo Walker, 1850; Distant, W.L. 1906. The Fauna of British India including Ceylon and Burma. Rhynchota Vol. 3: 5960.

Material examined: 10 exs.: 3♂♂ 7 ♀♀: Dheerpur Wetland Park, New Delhi between 14.06.2024 - 24.06.2024. Leg.: Jeenat; Coll.: Zoology Department laboratory, Ramjas College, New Delhi.

The measurements of the specimens are given as follows:

Specimen	Sex	Length excluding Tegmina (mm)	Span with expanded tegmina (mm)	Breadth between pronotal angle (mm)
I A	M	24	76	14
I B	M	24	77	14
I C	M	24	80	14.4
I D	F	23	75	14
I E	F	23.5	78	14
I F	F	23.25	74	14
I G	F	23	78.5	14
I H	F	25	79	14.45
I I	F	22	69	13.25
I J	F	22.5	69	13.5

Table 3: Measurements of *Platypleura bufo* specimens.

Distinctive features: *Platypleura bufo* is easily recognized by the great breadth of the pronotum as compared to the other members of the genus (Distant, 1904).

Known Distribution in India: East India (Price *et al*.,2016)

Remarks: The present records confirm the presence of this species in Delhi. The specimens were identified based on morphology and morphometric measurements as given by Distant (1906). There appear to be no specimens of this species in collections besides the holotype kept in The Natural History Museum, London. The specimen of this species was presented by Sir R. H. Inglis (Walker, 1850). We found it to be plentiful, feeding on the sap of *Leucaena.*

2. *Platypleura octoguttata* (Fabricius, 1798)

Tettigonia octoguttata Fabricius 1798. Ent. Syst. Suppl. P.515: 22-23.

Materials Examined: 3 ♂♂: Dheerpur Wetland Park, New Delhi 14.06.2024 - 24.06. 2024. Leg. Jeenat. Coll.: Zoology Department laboratory, Ramjas College, New Delhi.

Specimen	Sex	Length excluding tegmina (mm)	Span with tegmina expanded (mm)	Breadth between pronotal angles (mm)
II A	M	26.5	74	14.4
II B	M	26.5	74	14.1
II C	M	25	73	14

Table 4: Measurements of *Platypleura octoguttata* specimens.

Known Distribution: India: Uttarakhand, Rajasthan, Maharashtra, Uttar Pradesh, West Bengal, Karnataka, Tamil Nadu, Madhya Pradesh. Punjab, Pakistan. Sri Lanka. Thailand.

Remarks: This is a very widespread species generally recorded from low elevation areas. It is highly unusual that it was recorded from Nainital (1800m) and Mussoorie (2000m amsl) (Price *et al*., 2016). However, it is possible that the records referred to Nainital district which has extensive low-lying areas.

In the present study we recorded fewer specimens of this species as compared to *Platypleura bufo.*

DISCUSSION

From the data presented above, it is evident that even a small area can support remarkable diversity of insects, herein reporting two species of cicadas, *P. bufo* and *P. octogutatta*, from a sampling area of roughly 25.38 hectares. Out of the 110 cicadas specimens sighted on trees and grasses, *P. bufo* appeared to be more abundantly found than *P. octogutatta*, as also evident by the capture of more specimens of the former species than the latter.

Little is known of the habits of Indian cicadas including the two species reported herein and more research towards understanding them is warranted. During the present survey, we noted that these two cicada species began calling around 5 – 6 am. This proceeded throughout the day, rising to a crescendo near nightfall and continuing after dark until around 9 pm. At midnight, no cicadas were heard.

In the present study we noted that *Leucaena* usually had two cicadas on it. This contrasts with the account by Biscoe (1896) who stated that in the case of unidentified cicada observed by him that they were so numerous that the bark of tree was not visible.

Our study extends the known distribution of *P. octoguttata* to Delhi, providing photographs of the species collected. Our study not only marks the rediscovery of the species and also indicates that for the first time that both cicada species recorded feed on *Leucaena* and *P. juliflora.*

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Authors have no conflict of interest

Jeenat, M. Ojit Kumar Singh, Rolish Singh and Suresh Babu conceived the project, conducted the field work together and analysed the data. All the authors

contributed to the preparation of the manuscript.

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Platypleura bufo (Male in dorsal view)

Platypleura bufo (Male in ventral view**)**

Platypleura bufo (Female in dorsal view)

Platypleura bufo (Female in ventral view)

Platypleura octoguttata (Male in dorsal view)

Platypleura octoguttata (Male in ventral view)