



EARWIGS (INSECTA: DERMAPTERA) RECORDED FIRST TIME FROM DIFFERENT WILDLIFE SANCTUARIES OF WEST BENGAL, INDIA

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Article History: Received 4th August 2024; Accepted 23rd September 2024; Published 30th September 2024

ABSTRACT

The present communication deals with the first record of Earwigs (Insecta: Dermaptera) from Bibhutibhushan, Bethuadahari and Kulik Wildlife Sanctuary, West Bengal, India. This study reports five species from Bibhutibhushan Wildlife Sanctuary, single species from Bethuadahari Wildlife Sanctuary, single species from Kulik Wildlife Sanctuary. Two Surveys (December 2021 & October 2023) were conducted to understand the Dermaptera fauna diversity of Wildlife Sanctuaries of West Bengal (Bibhutibhushan, Bethuadahari and Kulik Wildlife Sanctuary). The result of the study based on these survey collections carried out as part of faunal surveys at various sites of the sanctuaries of West Bengal. All the species are recorded for the first time from these Wildlife sanctuaries.

Keywords: Earwigs, Dermaptera, Wildlife Sanctuary, First record, West Bengal.

INTRODUCTION

Dermaptera are a group of small to medium sized, primitive group of hemimetabolous insects. They are commonly known as earwigs. Earwigs have a wide distribution with greatest diversity in the tropics. Dermaptera have a slender, flattened body, a conical head, filiform antennae, three segmented tarsi and a pair of sclerotised forceps at the posterior end of the abdomen. In addition to defense, the forceps also play a variety of functions, such as prey capture and possibly sexual selection (Burr, 1910; Fattorini, 2022; Haas, and Kukalova-Peck, 2001). Worldwide there are approximately 2000 described species of Dermaptera under 245 genera and 16 families (Fattorini, 2022). In India, 286 species belonging to 73 genera and 9 families of earwigs are recorded (Karthik *et al.*, 2022, Karthik and Kalleshwaraswamy, 2023, Srivastava 1988, 2003, 2013; Lal and Hegde 2012; Emiliyamma 2017, Emiliyamma *et al.*, 2024). There was no previous study on the Dermaptera fauna of Bibhutibhushan, Bethuadahari and Kulik Wildlife Sanctuary. Therefore, an attempt has been made to explore the Dermaptera fauna of these Wildlife Sanctuaries.

MATERIALS AND METHODS

Surveys were conducted to the various sites of the sanctuaries. Dermaptera collections were carried out as part of these faunal surveys, to understand the Dermaptera diversity of Bibhutibhushan, Bethuadahari and Kulik Wildlife Sanctuaries of West Bengal. Bibhutibhushan Wildlife Sanctuary is situated in the district of North 24-Parganas (Lat.: 23.1861775°N' Long; 88.7620868°E). The Sanctuary is bounded on all its three sides by the River Ichamati while the eastern side is bounded by adjoining village areas namely Parmadan and Jhupa. Bethuadahari Wildlife Sanctuary is situated in the Bethuadahari town of Nadia District, West Bengal. The sanctuary is located beside National Highway 12. The sanctuary covers 67 hectares and was established in 1980 to protect a portion of the Gangetic alluvial system. Kulik Wildlife Sanctuary is situated 4 km north from the center of Raiganj town in Uttar Dinajpur district of West Bengal. The development of the area began in 1970, as part of the social forestry program of the Government of West Bengal.

Specimens of Dermaptera are normally collected by handpicking, soil digging, and light trapping. In this study, Dermaptera specimens were mostly hand-picked from loose soil debris, loose tree bark, decaying logs and from

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the margin of the water bodies. After collecting the specimen, it was temporarily stored in 70 % alcohol, then pinned, labelled, and identified. It is mostly determined by the morphological characteristics and structure of the male genitalia. In order to identify a specimen, the male genitalia was extracted from the specimen and mounted on a slide. The differentiation was based on the differences in the morphological and structural characteristics of the edeago. A Leica EZ4 stereo zoom microscope was used to examine the Dermaptera specimen, and a Leica DMC4500 camera connected to a Leica DMC4500 microscope was used to take photographs.

RESULTS AND DISCUSSION

The present communication reports five species from Bibhutibhushan Wildlife Sanctuary, single species from

Bethuadahari Wildlife Sanctuary and single species from Kulik Wildlife Sanctuary. A total of 44 Dermaptera specimens were collected and identified belonging to 5 species under 5 genera and 3 families from Bibhutibhushan Wildlife Sanctuary. *Nala lividipes* (Dufour, 1829), which is a very common species, was collected from decaying logs and underneath decaying leaves. *Labidura riparia* (Pallas, 1773) & *Forcipula quadrispinosa* (Dohrn, 1863) were collected from margin of the water bodies by hand picking. *Circolabia curvicauda* (Motschulsky, 1863) was collected from dry loose tree barks. *Proroeus decipiens* (Kirby, 1891) was collected from decaying logs. A single specimen was collected and identified from Bethuadahari Wildlife Sanctuary. *Euborellia annulata* (Fabricius, 1793) which was collected under the loose soil debris. Single specimen of *Labidura riparia* (Pallas, 1773) was collected and identified from Kulik Wildlife Sanctuary.

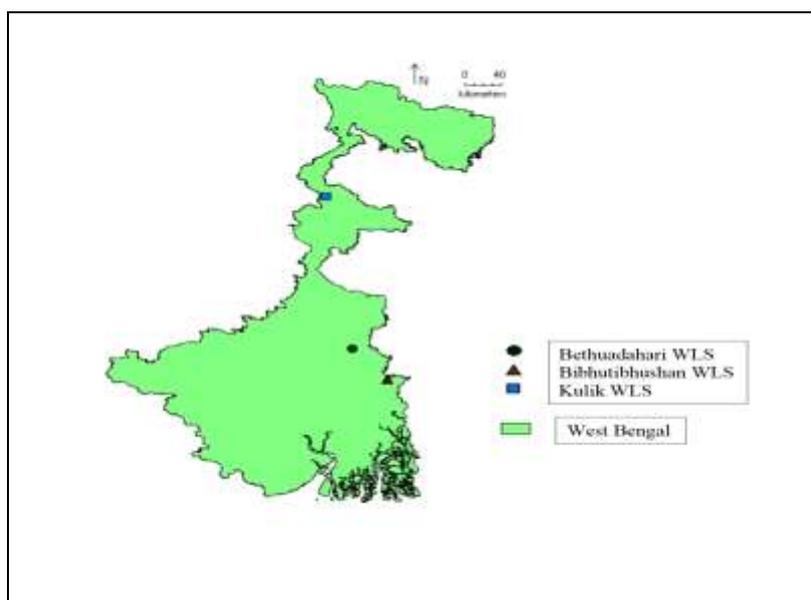


Figure 1. A map of West Bengal showing the collection localities on three different Wildlife Sanctuaries.

Taxonomic account

Super family- Anisolaboidea Sakai, 1982

Family- Anisolabididae Verhoeff, 1902

Subfamily- Anisolabidinae Verhoeff, 1902

Genus- *Euborellia* Burr, 1910

Euborellia annulata (Fabricius, 1793)

Material examined

1 ex. male, India: West Bengal: Nadia dist., Bethuadahari Wildlife Sanctuary, 06.xii.2021, coll. K. Rajmohona & Party.

Distribution

India: Andhra Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Odisha, Rajasthan, Sikkim,

Tamil Nadu, Uttar Pradesh, West Bengal, Andaman & Nicobar, Ladakh, Lakshadweep.

Elsewhere: Sri Lanka; Pakistan and China.

Remarks: This species recorded first time from Bethuadahari Wildlife Sanctuary of West Bengal.

Family- Labiduridae Verhoeff, 1902

Subfamily- Nalinae Steinmann, 1975

Genus- *Nala* Zacher, 1910

Nala lividipes (Dufour, 1829)

Material examined

4 exs. (2 males, 1 female & 1 nymph), India: West Bengal: North 24 Parganas dist., Bibhutibhushan Wildlife Sanctuary, 12.xii.2021, coll. K. Rajmohona & Party; 2 exs. 1 male, 1 female, India: West Bengal: North 24 Parganas

dist, Bibhutibhushan Wildlife Sanctuary, 14.xii.2021, coll. K. Rajmohona & Party.

Distribution

Distributed almost throughout India: Andhra Pradesh, Arunachal Pradesh, Assam, Chhattisgarh, Himachal Pradesh, Karnataka, Madhya Pradesh, Manipur, Meghalaya, Odisha, Pondicherry, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, Uttarakhand, West Bengal, West Bengal, Delhi, Jammu and Kashmir.

Elsewhere: Nepal, Bhutan, Sri Lanka and worldwide, mainly tropical parts.

Remarks: This species recorded first time from Bibhutibhushan Wildlife Sanctuary of West Bengal.

Subfamily- Labidurinae Burr, 1909

Genus- *Labidura* Leach, 1815



Figure 2. Habitat of the Wildlife Sanctuaries of West Bengal: A & B -Bethuadahari Wildlife Sanctuary; C- Kulik Wildlife Sanctuary; D- Bibhutibhushan Wildlife Sanctuary.

***Labidura riparia* (Pallas, 1773)**

Material examined

2 exs. (1 female & 1 nymph), India: West Bengal: North 24 Parganas dist., Bibhutibhushan Wildlife Sanctuary, 12.xii.2021, coll. K. Rajmohona & Party

Material examined

1 ex. (1 male), India: West Bengal: Uttar Dinajpur dist., Raiganj: Kulik Wildlife Sanctuary, 17.x.2023, coll. K. B. Mohan.

Distribution

Worldwide; India: Andhra Pradesh, Arunachal Pradesh, Assam, Chhattisgarh, Himachal Pradesh, Karnataka, Maharastra, Manipur, Meghalaya, Odisha, Punjab, Tamil Nadu, Tripura, Uttar Pradesh, Uttarakhand, West Bengal, Delhi, Andaman & Nicobar.

Remarks: This species recorded first time from both Bibhutibhushan and Kulik Wildlife Sanctuaries of West Bengal.

Genus- *Forcipula* Bolivar, 1897

***Forcipula quadrispinosa* (Dohrn, 1863)**

Material examined

2 exs. (1 male & 1 nymph), India: West Bengal: North 24 Parganas dist., Bibhutibhushan Wildlife Sanctuary, 13.xii.2021, coll. K. Rajmohona & Party.

Distribution

India: Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Haryana, Himachal Pradesh, Karnataka, Odisha, Tamil Nadu, Telangana, Uttar Pradesh, Uttarakhand, West Bengal.

Elsewhere: Bhutan, Nepal, Myanmar, South China, Thailand, Indo-China, and Philippine IsIs and also reported from Reunion and Mauritius.

Remarks: This species recorded first time from Bibhutibhushan Wildlife Sanctuary of West Bengal.

Superfamily- Forficuloidea Tillyard,1926

Family- Spongiphoridae Zacher,1915

Subfamily- Labiinae Burr, 1911

Genus- *Circolabia* Steinmann ,1987

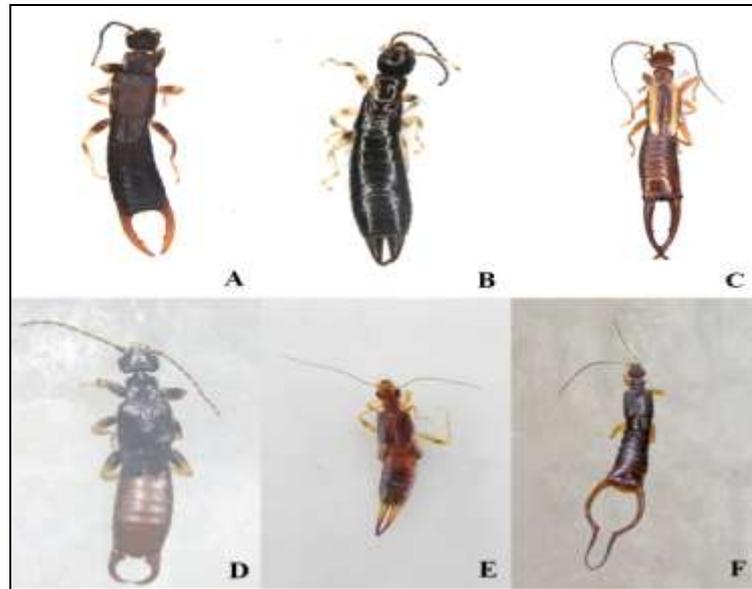


Figure 3. Dermaptera of different Wildlife Sanctuaries of West Bengal: A- *Nala lividipes* (Dufour, 1829), ♂; B- *Euborellia annulata* (Fabricius, 1793), ♂; C- *Proreus decipiens* (Kirby, 1891), ♂; D- *Circolabia curvicauda* (Motschulsky, 1863), ♂; E- *Labidura riparia* (Pallas, 1773), ♀; F- *Forcipula quadrispinosa* (Dohrn, 1863), ♂.

***Circolabia curvicauda* (Motschulsky, 1863)**

Material examined

29 exs. (8 males, 8 females & 13 nymphs), India: West Bengal: North 24 Parganas dist., Bibhutibhushan Wildlife Sanctuary, 14.xii.2021, coll. K. Rajmohona & Party.

Distribution

India: Arunachal Pradesh, Assam, Karnataka, Kerala, Manipur, Meghalaya, Sikkim, Tripura, Uttarakhand, West Bengal, Andaman & Nicobar Lakshadweep.

Remarks: This species recorded first time from Bibhutibhushan Wildlife Sanctuary of West Bengal.

Family- Chelisochidae Burr, 1907

Subfamily- Chelisochinae Burr,1907

Genus- *Proreus* Burr, 1907

***Proreus decipiens* (Kirby, 1891)**

Material examined

5 exs. (1 male, 2 females & 2 nymphs), India: West Bengal: North 24 Parganas dist., Bibhutibhushan Wildlife Sanctuary, 14.xii.2021, coll. K. Rajmohona & Party.

Distribution

India: Assam, Chhattisgarh, Himachal Pradesh, Karnataka, Odisha, Tamil Nadu, Tripura, Uttar Pradesh, Uttarakhand, West Bengal, Puducherry.

Elsewhere: Myanmar and Vietnam.

Remarks: This species recorded first time from Bibhutibhushan Wildlife Sanctuary of West Bengal.

This communication signifies the importance of the diversity of Dermaptera fauna in the Protected areas of West Bengal. A total of 6 species under 6 genera and 4 families are reported first time from three different Wildlife Sanctuaries of West Bengal. The family Labiduridae contributed maximum number of species (3 spp.) than other three families, Anisolabididae, Chelisochidae and Spongiphoridae with one species each. Among the 06 species, *Nala lividipes* (Dufour, 1829) is the most common species with worldwide distribution records, followed by *Labidura riparia* (Pallas, 1773).

CONCLUSION

The present study contributes towards the knowledge on the diversity of earwigs of Bibhutibhushan, Bethuadahari and Kulik Wildlife Sanctuaries of West Bengal and extension of range of species distribution and habitat status

of Dermaptera in this Wildlife Sanctuary. All the species are recorded for the first time from these Wildlife sanctuaries.

ACKNOWLEDGMENTS

The authors are grateful to Dr. Dhriti Banerjee, Director, Zoological Survey of India, for providing the necessary facilities for the work. We are also thankful to Dr. D. Suresh Chand, Scientist-E and Dr. Rajmohona K., Scientist E & Officer-in-Charge, Isoptera Section Officer-in-Charge, Orthoptera Section for all the support provided during the survey.

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