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A preliminary study on the orthopteran insects from the coastal area of Purba Medinipur district and an updated list from the coastal zone of West Bengal

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Abstract

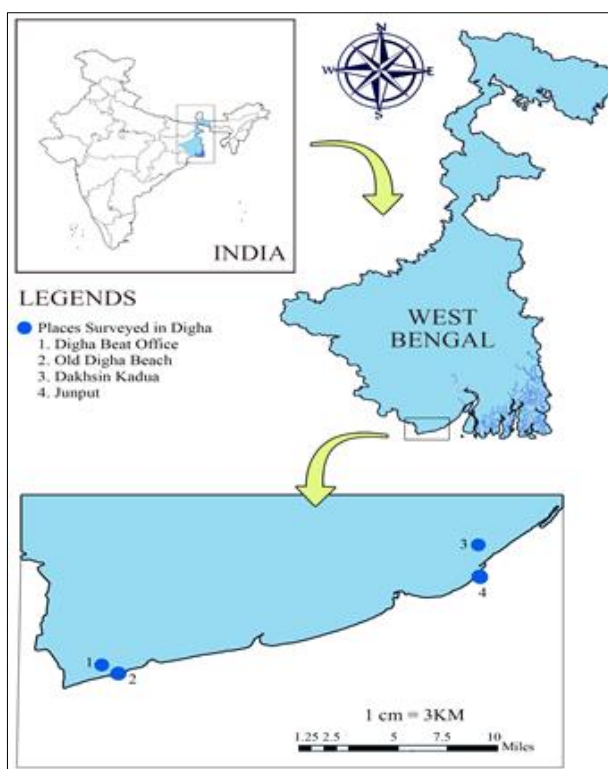
A transient field survey was conducted by the authors in the year 2017 in the coastal zone of Purba Medinipur which have been recorded 17 species belonging to 17 genera under the families Acrididae (07), Trigonidiidae (03), Gryllidae, Pyrgomorphidae and Tettigonidae (02) and Tetrigidae (01). Of these, 15 species are recorded for the first time from the coastal zone of Purba Medinipur district.

Keywords: Orthoptera, coastal area, Purba Medinipur, new records

1. Introduction

Orthoptera is the sixth largest order of class Insecta according to Zhang (2011) [1]. In West Bengal, 278 species of orthopteran insects were reported by Shisodia *et al.* (2010) [2]. Of which, 38 species under 32 genera belonging to 07 families are found in Sundarban Biosphere Reserve of South 24 pargana district (Mitra, 2017) [3]. Nothing such type of documentation has been published from the coastal zone of North 24 Parganas and Purba Medinipur districts except Jana *et al.* (2015) [4].

Present communication reports 17 species under 17 genera of 06 families of the order Orthoptera from Digha and Junput coast of Purba Medinipur district. Of which, 15 species are reported for the first time from the coastline of Purba Medinipur district.



Map 1: Coastal zone of West Bengal with Digha and Junput coast

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2. Materials & Methods

2.1 Study area

The coastline of West Bengal covers 220 km from the mouth of Subarnarekha (Odisha border) on the west to the mouth of the river Harinbanga on the east (Bangladesh border). This long stretch of coast line is covering three districts (North & South 24 Parganas and Purba Medinipur) with important beaches like Digha, Sankarpur, Bakkhali, Frezargaunj and mangrove forests of Sundarban, Nijkasba and Khejuri.

Present study was conducted in two distinct areas, Digha and Junput of Purba Medinipur district (Map 1). Collections were made from the sand dune vegetation of the sandy beaches.

2.2 Collection methodology

The study was carried out in Digha and Junput areas of the Purba Medinipur district. Insect nets were used for collection of orthopteran species. The collected specimens were killed in killing jars charged with benzene. Then these specimens were shifted in insect envelopes. To make these materials soft, these were allowed to keep in relaxing boxes. After pinning and setting, the specimens were identified with the help of Leica EZ4 stereo zoom microscope. All the collections were made by B. Mitra & party and deposited in the National Zoological Collection of Zoological Survey of India, Kolkata.

3. Results

A total of 17 species under 17 genera of 06 families of the order Orthoptera from Digha and Junput coast of Purba Medinipur district are reported here. Of which, 15 species are reported for the first time from the coastal area of Purba Medinipur district. Among the 06 families of the order Orthoptera, 07 species are reported from the family Acrididae, followed by Trigonidiidae (03), Gryllidae, Pyrgomorphidae and Tettigoniidae (02) and Tetrigidae (01).

Family Acrididae

Subfamily Acridinae

Tribe Acridini

1. *Acrida exaltata* (Walker, 1859)

Material examined: 1 ♀ (Reg. No. 24446/H5), 29.x.2017, Junput Beat Office (21°43'26.8"N, 87°49'16.6"E).

Tribe Phlaeobini

2. *Phlaeoba infumata* Brunner von Wattenwyl, 1893

Material examined: 1 ♀ (Reg. No. 24428/H5), 29.x.2017, Junput Beat Office (21°43'26.8"N, 87°49'16.6"E), 1 ♀ (Reg. No. 24429/H5), 28.x.2017, Old Digha (21°39'02" N, 87°33'57" E).

Subfamily Catantopinae

Tribe Catantopini

3. *Xenocatantops humilis* (Serville, 1839)

Material examined: 2 ♀♀ (Reg. Nos. 24424/H5, 24425/H5), 29.x.2017, Dakshin Kadua (21°43'42" N, 87°49'40" E).

Subtribe Catantopina

4. *Diabolocatantops innotabilis* (Walker, 1870)

Material examined: 1 ♀ (Reg. No. 24427/H5), 29.x.2017, Junput Beat Office (21°43'26.8"N, 87°49'16.6"E).

Subfamily Oxyinae

5. *Oxya hyla* Serville, 1831

Material examined: 1 ♂ (Reg. No. 24419/H5), 28.x.2017, Old Digha (21°39'02" N, 87°33'57" E), 1 ♀ (Reg. No. 24420/H5), 29.x.2017, 1 ♂ (Reg. No. 24421/H5), Dakshin Kadua (21°43'42" N, 87°49'40" E), 2 ♀♀ (Reg. Nos. 24422/H5,

24423/H5), 28.x.2017, Old Digha (21°39'02" N, 87°33'57" E).

Subfamily Oedipodinae

6. *Morphacris fasciata* (Thunberg, 1815)

Material examined: 1 ♀ (Reg. No. 24426/H5), 29.x.2017, Junput Beat Office (21°43'26.8"N, 87°49'16.6"E).

Subfamily Spathosterninae

Tribe Spathosternini

7. *Spathosternum prasiniferum prasiniferum* (Walker, 1871)

Material examined: 2 ♂♂ (Reg. Nos. 24430/H5, 24431/H5), 29.x.2017, Junput Beat Office (21°43'26.8"N, 87°49'16.6"E), 2 ♀♀ (Reg. Nos. 24432/H5, 24433/H5), 1 ♂ (Reg. No. 24434/H5), 28.x.2017, Old Digha (21°39'02" N, 87°33'57" E).

Family Pyrgomorphidae

Subfamily Pyrgomorphinae

Tribe Atractomorphi

8. *Atractomorpha crenulata* (Fabricius, 1793)

Material examined: 1 ♂ (Reg. No. 24435/H5), 28.x.2017, Old Digha (21°39'02" N, 87°33'57" E), 3 ♂♂ (Reg. Nos. 24436/H5, 24437/H5, 24438/H5), 1 ♀ (Reg. No. 24439/H5), 29.x.2017, Junput Beat Office (21°43'26.8"N, 87°49'16.6"E).

Tribe Chrotogonini

9. *Chrotogonus (Chrotogonus) trachypterus trachypterus* (Blanchard, 1836)

Material examined: 1 ♀ (Reg. No. 24440/H5), 1 ♂ (Reg. No. 24445/H5), 29.x.2017, Dakshin Kadua (21°43'42" N, 87°49'40" E).

Family Tetrigidae

Subfamily Tetriginae

10. *Hedotettix gracilis* (Haan, 1842)

Material examined: 1 ♂ (Reg. No. 24447/H5), 28.x.2017, Old Digha (21°39'02" N, 87°33'57" E).

Family Gryllidae

Subfamily Gryllinae

11. *Tarbinskiellus orientalis* (Fabricius, 1775)

Material examined: 1 ♂ (Reg. No. 24441/H5), 29.x.2017, Dakshin Kadua (21°43'42" N, 87°49'40" E).

Subfamily Euscyrinae

12. *Euscyrthus (Osus) hemelytrus* (Hann, 1842)

Material examined: 1 ♀ (Reg. No. 24454/H5), 1 ♂ (Reg. No. 24455/H5), 29.x.2017, Junput Beat Office (21°43'26.8"N, 87°49'16.6"E).

Family Trigonidiidae

Subfamily Trigonidiinae

Tribe Trigonidiini

13. *Trigonidium humberianum* (Saussure, 1878)

Material examined: 1 ♂ (Reg. No. 24443/H5), 29.x.2017, Dakshin Kadua (21°43'42" N, 87°49'40" E), 1 ♀ (Reg. No. 24444/H5), 28.x.2017, Old Digha (21°39'02" N, 87°33'57" E).

Subfamily Nemobiinae

Tribe Pteronemobiini

14. *Pteronemobius (Pteronemobius) heydenii concolor* (Walker, 1871)

Material examined: 1 ♂ (Reg. No. 24448/H5), 1 ♀ (Reg. No. 24451/H5), 29.x.2017, Dakshin Kadua (21°43'42" N, 87°49'40" E), 1 ♂ (Reg. No. 24449/H5), 1 ♀ (Reg. No. 24450/H5), 28.x.2017, Old Digha (21°39'02" N, 87°33'57" E).

15. *Polionemobius taprobanensis* (Walker, 1869)
Material examined: 1 ♀, (Reg. No. 24442/H5), 28.x.2017, Old Digha (21°39'02" N, 87°33'57" E).

Material examined: 1 ♀ (Reg. No. 24453/H5), 29.x.2017, Junput Beat Office (21°43'26.8"N, 87°49'16.6"E).

Family Tettigoniidae
Subfamily Conocephalinae
Tribe Conocephalini

16. *Conocephalus (Anisoptera) maculatus* (Le Guillou, 1841)

Subfamily Phaneropterinae

17. *Letana bulbosa* Ingrisch, 1990

Material examined: 1 ♂ (Reg. No. 24452/H5), 28.x.2017, Old Digha (21°39'02" N, 87°33'57" E).

Table 1: List of species so far reported from the coastal belt (South 24 pargana & Purba Medinipur districts) of West Bengal

No	Species	Reported from the districts	
		South 24 pargana	Purba Medinipur
Family Acrididae			
1.	<i>Acrida exaltata</i> (Walker, 1859)	Mitra, 2017 ^[3]	Present record
2.	<i>Aiolopus thalassinus tamulus</i> (Fabricius, 1798)	Mitra, 2017 ^[3]	
3.	<i>Diabolocatantops innotabilis</i> (Walker, 1870)		Present record
4.	<i>Eyprepocnemis alacris alacris</i> (Serville, 1839)	Mitra, 2017 ^[3]	
5.	<i>Gesonula punctifrons</i> (Stal, 1861)	Mitra, 2017 ^[3]	
6.	<i>Leva indica</i> (Bolivar, 1902)	Mitra, 2017 ^[3]	Jana <i>et al.</i> , 2015 ^[4]
7.	<i>Morphacris fasciata</i> (Thunberg, 1815)		Present record
8.	<i>Oedaleus abruptus</i> (Thunberg, 1815)	Mitra, 2017 ^[3]	
9.	<i>Oxya fuscovittata</i> (Marschall, 1836)	Mitra, 2017 ^[3]	Jana <i>et al.</i> , 2015 ^[4]
10.	<i>Oxya hyla</i> (Serville, 1831)	Mitra, 2017 ^[3]	Present record
11.	<i>Oxya nitidula</i> (Walker, 1870)	Mitra, 2017 ^[3]	
12.	<i>Oxya velox</i> (Fabricius, 1787)	Mitra, 2017 ^[3]	
13.	<i>Phlaeoba infumata</i> (Brunner von Wattenwyl, 1893)	Mitra, 2017 ^[3]	Present record
14.	<i>Spathosternum prasiniferum prasiniferum</i> (Walker, 1871)	Mitra, 2017 ^[3]	Present record, Jana <i>et al.</i> , 2015 ^[4]
15.	<i>Trilophidia annulata</i> (Thunberg, 1815)	Mitra, 2017 ^[3]	
16.	<i>Xenocatantops humilis</i> (Serville, 1839)		Present record
Family Pyrgomorphidae			
17.	<i>Atractomorpha crenulata</i> (Fabricius, 1793)	Mitra, 2017 ^[3]	Present record, Jana <i>et al.</i> , 2015 ^[4]
18.	<i>Chrotogonus (Chrotogonus) trachypterus trachypterus</i> (Blanchard, 1836)	Mitra, 2017 ^[3]	Present record
Family Tetrigidae			
19.	<i>Euparatettix histricus</i> (Stal., 1861)	Mitra, 2017 ^[3]	
20.	<i>Hedotettix gracilis</i> (de Hann, 1842)	Mitra, 2017 ^[3]	Present record
21.	<i>Euparatettix histricus</i> (Stal., 1861)	Mitra, 2017 ^[3]	
Family Gryllidae			
22.	<i>Dianemobius fascipes</i> (Walker, 1869)	Mitra, 2017 ^[3]	
23.	<i>Euscyrthus (Osus) hemelytrus</i> (Hann, 1842)		Present record
24.	<i>Gryllus (Gryllus) bimaculatus</i> (De Geer, 1773)	Mitra, 2017 ^[3]	
25.	<i>Modicogryllus (Modicogryllus) confirmatus</i> (Walker, 1859)	Mitra, 2017 ^[3]	
26.	<i>Phonarellus (Phonarellus) minor</i> (Chopard, 1959)	Mitra, 2017 ^[3]	
27.	<i>Pteronemobius (Pteronemobius) montanus</i> Chopard, 1933	Mitra, 2017 ^[3]	
28.	<i>Tarbinskiellus orientalis</i> (Fabricius, 1775)		Present record
29.	<i>Teleogryllus (Brachyteleogryllus) occipitalis</i> (Serville, 1838)	Mitra, 2017 ^[3]	
Family Trigonidiidae			
30.	<i>Amusurgus (Amusurgus) fulvus</i> (Chopard, 1969)	Mitra, 2017 ^[3]	
31.	<i>Amusurgus (Amusurgus) oedemeroides</i> (Walker, 1871)	Mitra, 2017 ^[3]	
32.	<i>Anaxipha longipennis</i> (Serville, 1839)	Mitra, 2017 ^[3]	
33.	<i>Homoeoxipha lycoides</i> (Walker, 1869)	Mitra, 2017 ^[3]	
34.	<i>Polionemobius taprobanensis</i> (Walker, 1869)	Mitra, 2017 ^[3]	Present record
35.	<i>Pteronemobius (Pteronemobius) heydenii concolor</i> (Walker, 1871)	Mitra, 2017 ^[3]	Present record
36.	<i>Trigonidium humbertianum</i> (Saussure, 1878)		Present record
Family Tettigoniidae			
37.	<i>Conocephalus (Anisoptera) longipennis</i> (Hann, 1842)	Mitra, 2017 ^[3]	
38.	<i>Conocephalus (Anisoptera) maculatus</i> (Le Guillou, 1841)		Present record
39.	<i>Elimaea (Elimaea) securigera</i> (Brunner von Wattenwyl, 1878)	Mitra, 2017 ^[3]	
40.	<i>Euconocephalus pallidus</i> (Redtenbacher, 1891)	Mitra, 2017 ^[3]	
41.	<i>Holochlora indica</i> (Kirby, 1906)	Mitra, 2017 ^[3]	Jana <i>et al.</i> , 2015 ^[4]
42.	<i>Letana bulbosa</i> Ingrisch, 1990		Present record
43.	<i>Letana pyrifer</i> (Bey Bienko, 1956)	Mitra, 2017 ^[3]	
44.	<i>Sathrophyllia rugosa</i> (Linnaeus, 1758)	Mitra, 2017 ^[3]	
45.	<i>Trigonocorypha unicolor</i> (Stoll, 1787)	Mitra, 2017 ^[3]	
Family Gryllotalpidae			
46.	<i>Gryllotalpa africana</i> (Beauvois, 1805)	Mitra, 2017 ^[3]	

4. Discussion

The ecological conditions of coastal zone are always complicated particularly in Digha, Junput by the effect of salinity fluctuation, pollution stress and by the increasing of tourism activities (Jana *et al.*, 2015) [4]. These are all directly effects on the biodiversity of the coastal belt.

In the year 1915, Jana *et al.* [4] reported eight species from the coastal and non-coastal zone of West Bengal, of which, three species identified up to generic level and thus excluded from this publication. Among 05 species reported from the coastal zone of the Purba Medinipur, 02 species are also found in this present investigation.

A total of 46 species of order Orthoptera are reported here from the coastal zone of West Bengal (Table. 1). 38 species are reported from Sundarban Biosphere Reserve of South 24 pargana district (Mitra, 2017) [3] and 20 species known from Purba Medinipur district (present record & Jana *et al.*, 2015) [4].

Out of the long stretch of coast line in three districts (North and South 24 Parganas and Purba Medinipur) of West Bengal (220 km), only a small portion of South 24 Parganas and Purba Medinipur districts were surveyed. More intensive surveys will definitely enrich the orthopteran faunal diversity in coastal belt of West Bengal.

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