

First record of family Elateridae (Coleoptera: Elateridae) from Sundarban biosphere reserve with addition of two species from West Bengal, India

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Abstract

The present communication deals with the first record of family Elateridae of order Coleoptera from Sundarban Biosphere Reserve (SBR). Present study reports four species from this Biosphere Reserve, among them two species viz. *Cardiophorus aequabilis* Candeze and *Cardiophorus tibialis* Erichson are reported for the first time from the State of West Bengal, India.

Keywords: Coleoptera, Elateridae, new record, West Bengal, Sundarban biosphere reserve

Introduction

The family Elateridae Leach, 1815, one of the largest family of the order Coleoptera under the Superfamily Elateroidea. The representatives of this family is called “Click beetles” and easily recognized by their elongated, somewhat depressed shape, freely articulating prothorax, posterior angles of pronotum, being prolonged pointedly. This family is well known for the ability of the adults to click when lying on their back.

The adults occur on foliage and flowers, under bark and in rotting wood. The larvae of these beetles are commonly known as “wire worms” and are mainly root feeders. The larvae are found in leaf litter, soil, moss and rotting wood. Those occurring in the soil feed on roots and some are very injurious to crops.

The family contains 400 genera and 10,000 species in the world. Chakraborty & Chakrabarti (2006) ^[1] reported 172 species under 37 genera from West Bengal. Recently, Sarkar *et al.* (2012) ^[2] reported 12 species from Buxa Tiger Reserve (BTR), West Bengal, India.

The knowledge of insect faunal diversity of the Sundarban Biosphere Reserve (SBR) is very recent. Recently, Mitra (2017) published a list of 124 species belonging to 73 genera under 18 families of the order Coleoptera from SBR. But nothing has been known or reported about the Click beetles (Family Elateridae) from this area.

The present communication reports four species of Elateridae from Sundarban Biosphere Reserve. This is the first report of this family from Sundarban Biosphere Reserve. Besides this, *Cardiophorus aequabilis* Candeze and *Cardiophorus tibialis* Erichson reported for the first time from West Bengal, India.

Study Sites

Sundarban Biosphere Reserve (SBR) in West Bengal, India has been identified as the largest single block of tidal halophytic mangrove forest in the world, covering an area of 9630 sq km (in India) and lying in between 21° 32' – 22° 40' N latitude and between 88° 45' – 89° 04' E longitude. At present the SBR is bounded in the East by the International boundary of Bangladesh formed by the rivers Ichamati, Raimangal and Kalindi; Bay of Bengal in the South and river Hooghly in the West. The Northern limit cannot be clearly demarcated due to high degree of reclamation; though an imaginary Dampier-Hodges line has marked (considered in 1831) the North-Western limit of this Biosphere Reserve – an imaginary line from Kulpi (South 24-Parganas) to Basirhat (North 24-Parganas) (Mitra, 2016).

Materials and Methods

Several surveys were undertaken in the Sundarban Biosphere Reserve under the project entitled ‘Role of Insect Pollinators on the Conservation of Major Mangrove Species in Sundarban Islands, West Bengal’ funded by Ministry of Environment, Forest and Climate Change, Government of India from 2014 to 2016. The collection was made from different islands viz. Bali, Gosaba and Sagar Island of the Indian counterpart. Collections were made at night with the help of light trap. Mercury bulbs (160 Watt) were used to attract insects on a white sheet of cloth measuring approximately 2x2 m. The examples were studied with the help of Stereo Zoom Binocular Microscopes, model Leica EZ4 HD. Specimens examined are deposited in the “National Zoological Collections of Zoological Survey of India, Kolkata. All collections were made by B. Mitra and party. The coordinates of the collection sites were recorded using GPS (Garmin Oregon 550). The map of the study area (Fig. 1) have been prepared by the help of Google Earth.



Fig. 1: Map of the study area

Results

Altogether, four species under two genera of two subfamilies were reported from Sundarban Biosphere Reserve.

Subfamily Conoderinae

1. *Aeoloderma brachmana* (Candeze, 1859)

1859. *Aeolus brachmana* Candeze, *Mon. Elat.* II: 283, 345; Fleutiaux, 1918, *Bull. Mus. Hist.Nat, Paris*: 216; Fleutiaux, 1918, *Anns. Soc. Ent. Fr.* 87:208.

2006. *Aeoloderma brachmana* (Candeze, 1859): Chakraborty and Chakrabarti, *Rec. zool. Surv.India. Occ. Paper* No.254: 114-116.

Material Examined: 3 exs, Gangasagar crematorium, Sagar Island, Sundarban, dist. South 24 paraganas, 17.vii.2014; 1 ex, 9 no. Gheri, Bali island, Sundarban, dist. South 24 paraganas, 27.viii.2014.

Distribution: India West Bengal (Calcutta and Sukantanagar, North 24 Parganas).

Elsewhere: Annam, Formosa, Myanmar, Java, Vietnam, Philippines, Sumatra.

Remarks: Chakraborty & Chakraborti (2006) reported this species from Kolkata and North 24 Parganas.

Subfamily Cardiophorinae

2. **Cardiophorus aequabilis* Candeze, 1860

1860. *Cardiophorus aequabilis* Candeze, *Mon. Elat.* 3: 209.

Material Examined: 2 exs, Gangasagar crematorium, Sagar Island, Sundarban, dist. South 24 paraganas, 17.vii.2014.

Distribution: India Sikkim, Haryana.

Remarks: This is the first report of this species from West Bengal.

3. **Cardiophorus tibialis* Erichson, 1991

1991. *Cardiophorus tibialis*. Vats and Chauhan, *Res. Bull.(sci.) Pun. Uni.* 42 (I-IV): 11-13.

Material Examined: 2 exs, Gangasagar crematorium, Sagar Island, Sundarban, dist. South 24 paraganas, 17.vii.2014.

Distribution: India: Sikkim, Uttar Pradesh.

Elsewhere: Greece and Spain.

Remarks: This is the first report of this species from West Bengal.

4. *Cardiophorus gangeticus* Candeze, 1860

1860. *Cardiophorus gangeticus* Candeze, *Mon. Elat.* Vol., 3: 212; 1891, Candeze, *Catalog. Method des Elat.*: 127.

Material Examined: 2 exs, Gangasagar crematorium, Sagar Island, Sundarban, dist. South 24 paraganas, 17.vii.2014 ; 2 exs, 9 no. Gheri, Bali island, Sundarban, dist. South 24 paraganas, 27.viii.2014 ; 1 ex, Pakhirala, Gosaba Island, Sundarban, dist. South 24 paraganas, B. Mitra and party, 11.xii.2014; 1 ex, Binapani, Satjelia Island, Sundarban, dist. South 24 paraganas, 15. xii. 2014.

Distribution: India: West Bengal (Calcutta, Darjeeling).

Remarks: This species is reported earlier from Kolkata and Darjeeling by Chakraborty & Chakraborti (2006).

Discussion

Previously no taxonomic work has been done on the coleopteran family Elateridae from Sundarban Biosphere

Reserve. This is the first study on click beetles from this area. Present communication reports 4 species of click beetle under 2 genera of 2 subfamilies from Sundarban biosphere reserve. Among them two species namely *Cardiophorus tibialis* Erichson 1991 and *Cardiophorus aequabilis* Candeze, 1860 are first time reported from the Indian state West Bengal. Further work must have done on this coleopteran family from this area.

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