



First record of six species and subspecies of butterflies (Insecta: Lepidoptera) in Bangladesh

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ABSTRACT. During the study of butterflies of Bangladesh (Insecta: Lepidoptera) which carried out since June 2014 to March 2016, several expeditions were made by the authors in the different areas of Bangladesh and many butterfly species were collected and identified. Among them, five species namely, *Zezius chrysomallus* Hübner, 1823, *Rapala tara* de Niceville, 1988, *Cethosia biblis* Fruhstorfer, 1912 and *Atrophaneura coon* Fabricius, 1793, *Cephren estrichopepla* Lowe, 1908; and one subspecies, *Pelopidas subochracea subochracea* Moore, 1878 are newly reported for the fauna of Bangladesh and their distribution data are presented. This study was achieved with an aim to update the checklist of butterflies of Bangladesh. The previous sampling gaps in some areas of Bangladesh indicated by these newly reported species which may put forward further investigations on the butterflies of this country.

Key words: Bangladesh, Butterfly, Distribution, Lepidoptera, New record.

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Introduction

Butterfly stands as an ideal subject for ecological study in landscapes (Thomas and Malorie 1985). Few studies about butterflies of Bangladesh have been done in its different parts. Recently, some scholars have been published, and few number of new records have been enlisted in butterfly fauna of Bangladesh (e.g. Das and Chowdhury 2016; Haidar *et al.* 2014; Khan 2014; Khan and Neogi 2014; Neogi *et al.* 2014; Sadat *et al.* 2016; Shahadat *et al.* 2015;

Shihan 2015). Positive relations have been found between butterfly diversity and environmental variables viz., plant diversity, habitat complexity, landscape structure, topographic and moisture gradients (Bashar 2013). Considering the floral diversity and habitat variations, it is estimated that 500–550 butterfly species be present in Bangladesh (Larsen 2004). IUCN Bangladesh (2015) listed 305 species of butterflies; of which 62% (188 species) are under Threatened Categories among them

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only one are Critically Endangered, 112 are endangered, and 75 species are Vulnerable. The remaining 85 species are Least Concern and 32 species are Data Deficient (IUCN Bangladesh 2015). In order to document the distributions of butterflies of Bangladesh, the present study was conducted by the authors in all National Parks, Protected Areas, Eco Parks, Wildlife Sanctuaries, Safari Parks, and Botanical Gardens.

Material and methods

This opportunistic study was conducted during the June, 2014 to March 2016 in different localities of Bangladesh that is showed in the Fig. 1. Study areas have been chosen based on contrasting vegetation type, including Eco Park, National Park, Reserve Forest and University Campus. Photographs were taken during the field study using different cameras viz., Fujifilm HS35Exr, Canon FX500, Canon 600D. Each record was noted in field notebook including the common ones. In case of rare species, specimens were collected by sweep nets and preserved in plastic bags and jars and carried to the laboratory for further identification. Butterflies were identified using field guides of Kehimkar (2013, 2016), Marshall and de Niceville (1883), Bingham (1905 a, b), Evans (1932), and Talbot (1978). Collected specimens are preserved in the Entomology laboratory, Department of Zoology, Jagannath University, Dhaka. Taxonomic and morphological study equipments are supplied by Jagannath University and University of Chittagong. The scientific name and common names of the butterflies are followed by Larsen (2004).

Results

The present study deals with six newly recorded species and subspecies of butterflies in Bangladesh, of which, two, two, one and one species belong to the families Lycaenidae, Hesperiidae, Nymphalidae and

Papilionidae, respectively. The species and subspecies are briefly described here.

Family Lycaenidae

***Zezius chrysomallus* Hubner, 1823** (Fig. 2)

Common name: Redspot.

Material examined: Bangladesh, Kushtia, Bheramara (24°1'13.84"N, 88°59'26.65"E), 1♀, 18.vi.2014, leg. M.S. Rahman, on *Jatropha* sp. (Euphorbiaceae); Sirajganj, Jamuna Eco Park (24°24'3.44"N, 89°48'11.38"E), 1♀, 13.iii.2015, leg. S.M.S. Imam.

General distribution: India and Sri Lanka (Kehimkar 2013).

Diagnosis: The range of wingspan of the examined specimens were 41–42 mm; upper side of the forewings coppery-brown or pale grey color. The upper side of hindwing of the examined female, pale powdery blue with dark and broad border; tornal spots red-crowned black. Male has two tails compared with the female which has three tails. Pale grey on under side of the wing in female with discal band of loosely linked orange boadered spots; similar cell and basal spots on both forewing and hindwing (Kehimkar 2013).

Remarks: The Redspot, *Z. chrysomallus* is a rare species which was firstly reported from Calcutta and as stated by Larsen (2004), supposed to be occur in Bangladesh (Rajshahi region). No other species under the genus *Zezius* has been recorded from Bangladesh so far.

***Rapala tara* de Niceville, 1889** (Fig. 3)

Common name: Assam Flash.

Material examined: Bangladesh, Habiganj, Satcharti National Park (24°7'37.09"N, 91°26'30.86"E), 1♀, 1♂, 28.vi.2014, leg. A.K. Neogi, M.A.U. Hasan.

General distribution: Nepal, India, Laos and Vietnam (de Niceville 1889).

Diagnosis: The range of wingspan of the examined specimens were 34–36 mm; upper side of the wings in both sexes brownish

color; male dark blue with deep blue sheen; while female upper side dull purple with dark brown border. Under side of the tailed area of hind wing yellowish brown. Under side color yellowish brown; and in female brighter than the male; central line of discal band narrow outwardly and white, broken in the middle at the under side of hind wing (Kehimkar 2013).

Remarks: The Assam Flash, *Rapala tara* is quite similar to the *Rapala suffusa suffusa* Moore, 1883, but they differ in the discal line which is broken in *Rapala tara*; while in *Rapala suffusa suffusa* is continuous (Kehimkar 2016). So far the following subspecies namely, *Rapala manea schistacea* Moore, 1879 (Slate Flash), *R. varuna orseis* Hewitson, 1877 (Indigo Flash), *R. iarbus sorya* Kollar, 1848 (Common Red Flash), *R. pheretima petosiris* Hewitson, 1863 (Copper Flash), *R. dieneces dieneces* Hewitson, 1878 (Scarlet Flash), and *R. suffusa suffusa* Moore, 1883 (Suffused Flash) have been reported from Bangladesh by Larsen (2004).

Family Nymphalidae

***Cethosia biblis* Fruhstorfer, 1912** (Fig. 4)

Common name: Red Lacewing.

Material examined: Bangladesh, Sylhet, Tilagor Eco Park (24°54'54.36"N, 91°54'19.85"E), 1♂, 05.ix.2014, on *Desmodium* sp. (Common name: Tick Trefoil) (Fabaceae), leg. I.K.A. Haidar and M.M Rahman.

General distribution: India, Nepal, Bhutan and Myanmar (Kehimkar 2013).

Diagnosis: The wingspan of the examined specimen was 84 mm; outer borders of both wings in the examined specimen black with a series of white V-shaped markings. An additional series of these markings was present in the outer side of discal area at the upper side of the forewing (Kehimkar 2013).

Remarks: Larsen (2004) stated that *C. biblis* should be present in Srimangal. Only a single subspecies of this species, *C. cyane cyane* has already been recorded from Bangladesh.

Morphologically, *Cethosia biblis* is very similar to *C. cyane cyane* Drury, 1770.

Family: HesperIIDae

***Pelopidas subochracea subochracea* Moore, 1878** (Fig. 5)

Common name: Large Branded Swift.

Material examined: Bangladesh, Moulvibazar, Srimangal (24°27'32.13" N, 91°46'47.61"E), 1♂, 24.x.2014 on *Mikania cordata* (Common name: Heartleaf Hempvine; Bengali name: Tufani Lota) (Asteraceae), leg. M.S. Rahman; Chittagong, Chittagong Univ. campus (22°39'50.4" N, 91°46'44.39" E), 2♂, 24.x.2014 on *Tabernaemontana divaricata* (Common name: Pinwheel Flower; Bengali name: Taggar), leg. I.K.A. Haidar.

General distribution: India, Bhutan, Nepal, Myanmar and Srilanka (Kehimkar 2013).

Diagnosis: Wingspan of the examined specimens 32–34 mm. Male has a long white band on the upper side of forewing, but without any spot in space 1b; while female has a spot in space 1b; upper side of the hindwing usually unmarked; prominent white spots present in spaces 2, 3 and 6 in the cell. Under side of the hindwing greener with up to a maximum of 7 conspicuous spots, which one of them placed in the cell in spaces 2 to 7, and the spot in space 6 is the largest one (Evans 1956).

Remarks: According to Larsen (2004), this species should be present in Bangladesh. Up to now five species and subspecies of the genus *Pelopidas* viz., *P. sinensis* Mabille, 1877 (Chinese Swift), *P. agna agna* Moore, 1865 (Bengal Swift), *P. mathias mathias* Fabricius, 1798 (Small Branded Swift), *P. conjuncta conjuncta* Herrich-Schäffer, 1869 (Conjoined Swift), and *P. assamensis* de Niceville, 1882 (Great Swift) have been recorded from Bangladesh (Larsen 2004).

***Cephren estrichopepla* Lowe, 1908** (Fig. 6)

Common name: Yellow Palm Dart.

Material examined: Bangladesh, Comilla, BARD (23°26'0.90"N, 91°7'56.14"E), 1♀,

30.v.2014 on *Neolamarckia cadamba* (Rubiaceae), leg. M.S. Rahman, A.K. Neogi.

General distribution: Australia, Papua New Guinea, Singapore and Sri Lanka (EPPO Global Database 2012).

Diagnosis: Wingspan of the examined specimen 39 mm; upper side of the wings black with orange yellow streaks; yellow color at the post discal band of the forewing extended along the veins towards the termen. There is a rather large black-brown tornal patch in the hindwing. Upper

forewing without well marked spots in spaces 4 and 5 generally. Under side of the wings dark yellow with post discal spots (Khew 2010).

Family: Papilionidae

Atrophaneura coon Fabricius, 1793 (Fig. 7)

Common name: Common Clubtail.

Material examined: Bangladesh, Teknaf Wildlife Sanctuary, Teknaf (24°20'40.61" N, 91°47'56.72"E), 1♂, 03.ii.2015, leg. I.K.A. Haidar.

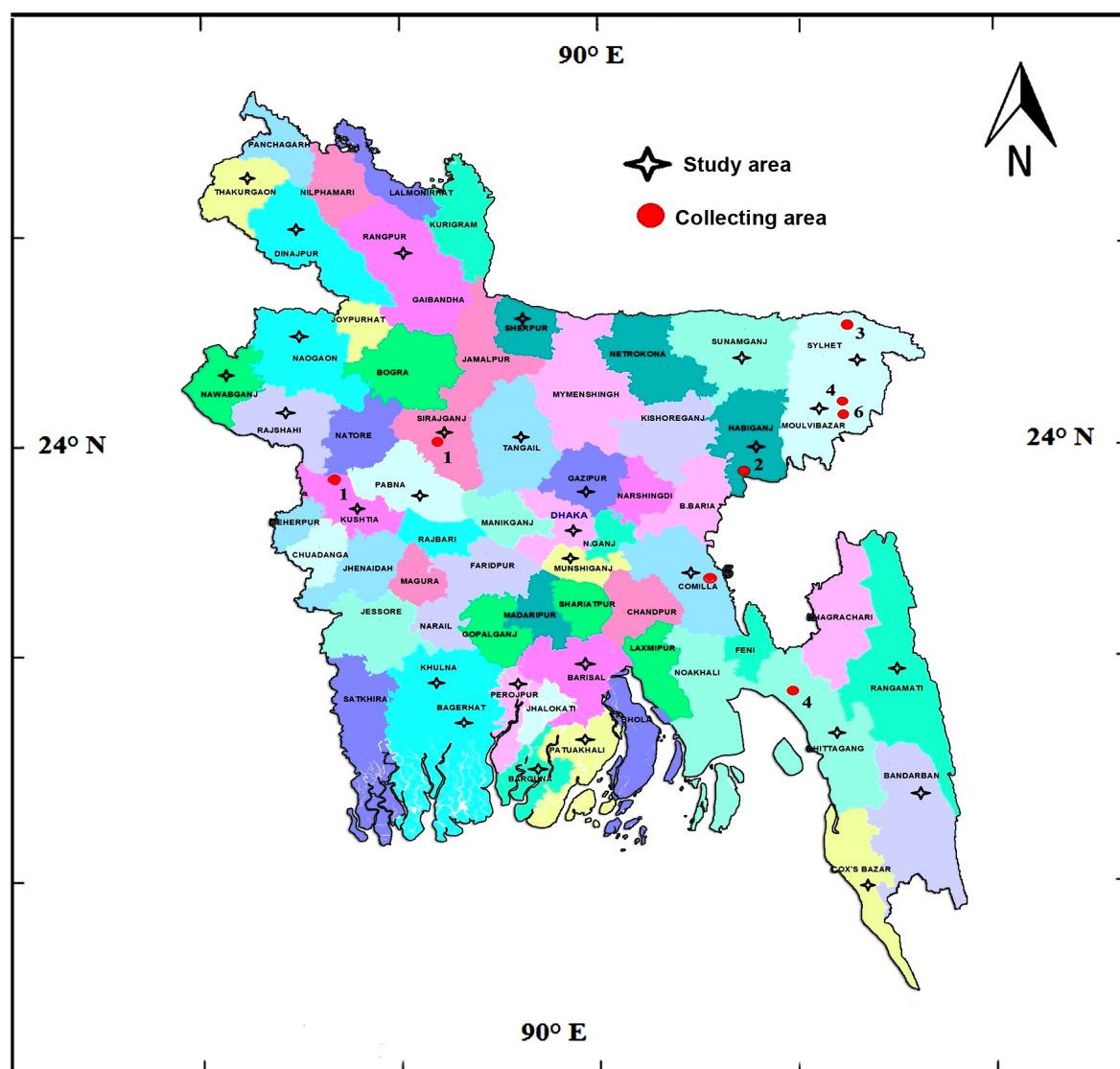


Figure 1. Observing/study sites and graphical distribution of six new recorded species and subspecies; 1. *Zeuzius chrysomallus*, 2. *Rapala tara*, 3. *Cethosia biblis*, 4. *Pelopidas subochracea subochracea*, 5. *Cephrenes trichopepla*, 6. *Atrophaneura coon*.



Figures 2-7: Six new records of butterflies from Bangladesh. **2.** *Zezius chrysomallus*, **3.** *Rapala tara*, **4.** *Cethosia biblis*, **5.** *Pelopidas subochracea subochracea*, **6.** *Cephren estrichopepla*, **7.** *Atrophaneura coon*.

General distribution: Myanmar, Thailand, Laos, Cambodia, Vietnam, Malaysia, (Inayoshi, 2016), India, Indonesia (Smetacek 2015) and China (Tsukada and Nishiyama 1982).

Diagnosis: *Atrophaneura coon* is a tailed butterfly with a long and constricted wing. Head, sides of thorax and abdomen is red in color. Forewing is shaded with conspicuous, pale greyish white streaks between veins (Smetacek 2015).

Remarks: Only one subspecies of this genus namely, *Atrophaneura varuna astorion* Westwood, 1842 (Common Batwing) has already been reported from Bangladesh by Larsen (2004). As stated by Kehimkar (2013), *A. coon* is not rare in some parts of India especially in Assam, Manipur, Arunachal Pradesh, and it should be found in Bangladesh (Kehimkar 2013). But there was not any pictorial evidence and document about presence of this species in Bangladesh.

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اولین گزارش شش گونه و زیر گونه از پروانه‌های روزپرواز (Insecta: Lepidoptera) در بنگلادش

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چکیده: در طی مطالعه پروانه‌های بنگلادش (Insecta: Lepidoptera) که از ژانویه ۲۰۱۴ تا مارس ۲۰۱۶ انجام شد، چندین سفر توسط نگارندگان به مناطق مختلف بنگلادش انجام شد و تعداد زیادی گونه از پروانه‌ها جمع‌آوری و شناسایی گردید. در بین آنها پنج گونه به نام‌های *Rapala tara*, *Zezius chrysomallus* Hübner, 1823, *Atrophaneura coon*, *Cethosia biblis* Fruhstorfer, 1912, de Niceville, 1988 و *Cephren estrichopepla* Lowe, 1908 و Fabricius, 1793 یک زیرگونه به نام *Pelopidas subochracea subochracea* Moore, 1878 برای اولین بار برای فون بنگلادش گزارش شدند و انتشار جغرافیایی آنها ارایه گردید. این تحقیق با هدف به روز کردن چک لیست پروانه‌های بنگلادش انجام شد. شکاف موجود در نمونه‌برداری‌های قبلی در برخی از نواحی بنگلادش به وسیله گزارش‌های جدید نشان داده شد، اگرچه تحقیقات بیشتری در مورد پروانه‌های این کشور مورد نیاز است.

واژگان کلیدی: بنگلادش، پروانه، انتشار، Lepidoptera، گزارش جدید