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Checklist of butterfly fauna of Dinajpur, Bangladesh.

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Abstract
Butterflies are one of the most important assemblages of insects that act as biodiversity indicators as well as nature's gardeners. Because of habitat destruction for developmental activities in urban environment and unscientific management of natural resources, most of the butterfly species are disappearing and their survival is under threat. The present study was conducted to identify the status of butterflies from June 2013 to June 2014 in Dinajpur. A total of 71 species of butterflies were found which belong to six families and 47 genera. Highest number of species and genera are from the family Lycaenidae whereas lowest number of species and genera are from the family Riodinidae. However conservation awareness may be helpful in raising the number of these beautiful creatures to a blessed level in the near future.

Keywords: Butterfly, butterfly distribution, checklist, Dinajpur, habitat.

1. Introduction
Pollinators like butterflies visit flowers to collect pollen and thus play an important role in the ecosystem as pollinators [1, 2, 3]. Butterfly life cycle consists of four stages: egg, caterpillar, pupa and adult. It needs a very preferable habitat for the survival of these different stages. However, most butterflies are host specific and depended to one or a few closely related plants and these plants serve as host plants for the caterpillars [1, 3]. Butterflies are very sensitive biota, which get terribly affected by environmental variations and changes in forest structure [4]. They form an important part of food chain of birds, reptiles, amphibians, spiders and different types of predatory insects. They also respond to disturbances and changes according to the quality of the habitat, and are thus a good indicator species to evaluate changes in habitat and landscape structure variations [5, 6]. Butterflies and caterpillars are dependent on specific host plants for food and to continue their life cycle, thus the diversity of butterflies indirectly reflects overall plant diversity especially that of shrubs and herbs in the given area [7]. Most of them prefer only particular set of habitats and are strictly seasonal [8].
About 16823 species of butterflies have been reported so far from the entire world [9], though the actual number is not known. In Bangladesh very few studies on butterfly fauna are being well documented. IUCN took first attempt to create a complete checklist of butterfly fauna in Bangladesh with the association of famous lepidopterist Torban B Larsen in 2004. IUCN checklists of butterflies (2004) document about 236 species; all identified by Larsen [10]. In addition, Encyclopedia of Flora and Fauna of Bangladesh reports 148 species [11]. Monwar Hossain Tuhin, Professor of department of zoology of Jahangirnagar University recorded 225 butterfly species from all over the Bangladesh with pictorial evidences in his book [12]. The purpose of the study was to get a clear concept on the total number of butterfly observed in Dinajpur district and to get an idea of the number and abundance of butterfly families.

2. Study Area
Dinajpur is bounded by Thakurgaon and Panchagarh district in the north, Gaibandha and Joypurhat district in the south, Nilphamari and Rangpur district in the east, and the state of West Bengal, India in the west. The total area of the district is 3,437.98 km^2 [13]. Annual average highest temperature is 33.5 °C and lowest is 10.5 °C; annual rainfall is 2,536 mm. Main rivers are Dhepa, Punarbhaba, and Atrai.

3. Materials and Methods

The present report is prepared on the basis of field studies, some conservational efforts and butterfly monitoring conducted during June 2013 to June 2014. Butterfly monitoring is not an easy task and some instruments are needed to identify the respective butterfly accurately. Various instrument including a digital camera (Sony DSC W560 Cybershot), a semi SLR camera (Canon Powershot SX 510 HS) for taking photographs of that particular species were used. Sometimes sweep nets were used to catch them and identify them in the laboratory. In few cases, specimens were collected with sweep nets, placed in a plastic bottle or plastic bag and carried to the laboratory for further identification. Sometimes specimens were caught for mere identification and then released without being harmed. Collected butterflies were identified using field guides**,** various useful books [14, 15, 16] and identification key developed by Evans, 1932.

During the study period, the butterflies were photographed several times to facilitate accurate identification. A routine butterfly monitoring at the study site was carried throughout the study period**,** except rainy morning**s.** In summer**s** butterfly monitoring was started around 8.00 am and around 9.00 am in the winter. Sometimes short visits were made for an hour. No study was conducted during night hours.

4. Results and Discussions

The exact numbers of species in an area are not known and they are being discovered every year. In some cases these species simply haven't been recorded from the area before even though they are known to occur elsewhere. In other cases new recorded species are being described by scientists. Because of these we do not even know the total number of species that occur in Bangladesh. Clench (1979) stated that, a regional list will never be complete, but as the number of collecting man-hours in the study area increases, the closer to completeness the list becomes [17].

In the study period of thirteen months, 71 species of 1 order of 6 families were observed which were in 47 genera. Though urbanization made a variation in the landscape of the total area, the vegetation was moderately rich in herbs, shrubs and canopies. The habitat was ideal for the continuation of butterfly generation, relatively sunny. Among these 6 families, most abundant butterfly family was Lycaenidae and the least observed butterflies were from the family Hesperiidae. The abundance of nymphalidae and pieriids were in a good condition though the papilionidae were not in a satisfactory condition.

Table 1: The list of butterflies observed in Dinajpur during the study period

Order	Family	scientific name	common name	status
Lepidoptera	Pieridae	*Cepora nerissa*	Common Gull	FC
		Delias eucharis	Common Jezebel	FC
		Catopsilia pomona	Common Emigrant	VC
		Catopsila pyranthe	Mottled Emigrant	VC
		Eurema hecabe	Common Grass Yellow	C
		Eurema andersonii	One spotted Grass Yellow	C
		Eurema blanda	Three-Spot Grass Yellow	C
		Pareronia valeria	Common Wanderer	FC
		Ixias pyrene	Yellow Orange Tip	FC
		Appias libythea	Striped Albatross	FC
		Appias lyncida	Chocolate Albatross	F
		Appias albina	Common Albatross	F
		Leptosia nina	Psyche	FC
	Lycaenidae	*Neopithecops zalmora*	Quaker	F
		Arhopala amantes	Large Oakblue	VC
		Arhopala centaurus	Centaur Oakblue	F
		Loxura atymnus	Yamfly	R
		Zizula hylax	Tiny Grass Blue	FC
		Pseudozizeeria maha	Pale Grass Blue	FC
		Zizeeria knysna	Dark Grass Blue	FC
		Zizina otis	Lesser Grass Blue	FC
		Aphnaeus ictis	Shot Silverline	R
		Cigaritis vulcanus	Common Silverline	R
		Spindasis syama	Club Silverline	R
		Spindasis lohita	Long Branded Silverline	R
		Castalius rosimon	Common Pierrot	FC

		Tarucus venosus	Veined Pierrot	FC
		Chilades pandava	Plains Cupid	FC
		Euchrysops cnejus	Gram Blue	FC
		Chilades lajus	Lime Blue	FC
		Catochrysops strabo	Forget-me-not	FC
		Prosotas nora	Common ***lineb***lue	R
		Prosotas dubiosa	Tailless Line Blue	R
		Anthene lycaenina	Pointed Ciliate Blue	R
		Lampides Boeticus	Pea Blue	F
	Nymphalidae	*Junonia atlites*	Grey Pansy	FC
		Junonia lemonias	Lemon Pansy	FC
		Junonia iphita	Chocolate Pansy	F
		Junonia almana	Peacock Pansy	FC
		Phalanta phalantha	Common Leopard	FC
		Euploea core	Common Crow	FC
		Ariadne merione	Common Castor	FC
		Ariadne ariadne	Angled Castor	FC
		Athyma perius	Common Sergeant	F
		Melanitis phedima	Dark Evening Brown	F
		Melanitis leda	Common Evening Brown	FC
		Elymnias hypermnestra	Common Palmfly	FC
		Mycalesis perseus	Common Bushbrown	FC
		Mycalesis mineus	Dark Branded Bushbrown	FC
		Danaus chrysippus	Plain Tiger	C
		Danaus genutia	Striped Tiger	C
		Tirumala limniace	Blue Tiger	C
		Parantica aglea	Glassy Tiger	FC
		Neptis hylas	Common Sailor	FC
		Acraea terpsicore	Tawny Coster	FC
	Papilionidae	*Papilio polymnestor*	Blue Mormon	R
		Papilio demoleus	Lime Butterfly	VC
		Papilio polytes	Common Mormon	VC
		Pachliopta aristolochiae	Common Rose	C
		Papilio clytia	Common Mime	F
		Papilio nephelus	Yellow Helen	F
		Papilio helenus	Red Helen	F
		Papilio memnon	Great Mormon	R
		Pachliopta hector	Crimson Rose	F
		Graphium sarpedon	Common Bluebottle	R
	Hesperiidae	*Parana naso*	Straight Swift	FC
		Pelopidas conjuncta	Conjoined Swift	FC
		Pelopidas agna	Bengal Swift	FC
		Borbo cinnara	Rice Swift	F
	Riodinidae	*Abisara echerius*	Palm Judy	FC
		Abisara bifasciata	Double Branded Judy	R

Butterflies were categorized into several groups based on their abundance *viz*. R=Rare (1-5 individuals, scarcely visited), F=Few (6-15 individuals, hardly visited), FC=Fairly Common (16-30 individuals, fairly visited), C=Common (31-50 individuals, regularly visited), VC = Very Common (more than 50 individuals, most time visited).

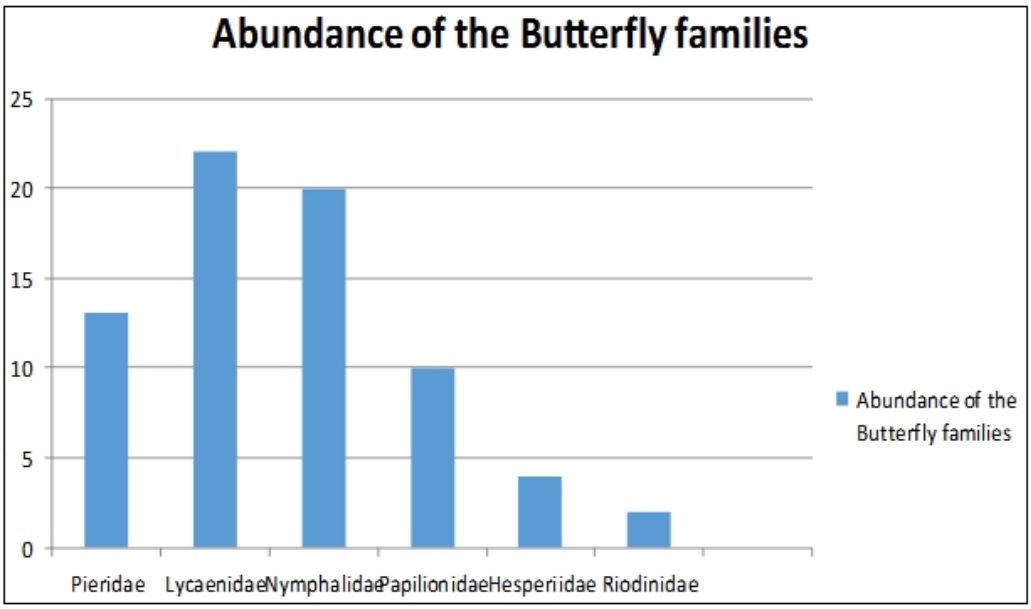

Fig 1: Abundance of butterfly families observed during the study period.

Of those 71 species of butterflies, common sailor, Lime Butterfly, Common Mormon, Blue Tiger, Common Grass Yellow, Common Crow, Yellow Orange Tip and Large Oakblue were more popular whereas Blue Mormon, Great Mormon, Grey Pansy, Centaur Oakblue, Crimson Rose, Red Helen, Yellow Helen, Chocolate Pansy were least common. This study provides a baseline data of the butterfly diversity of Dinajpur and therefore emphasizing on better management of the habitat and conservation of its rich diversity. Further study on species richness with habitat preferences of species are needed for better orientation of management policies.

5. Conclusion

Present study illustrates the importance of the area as a good habitat for butterfly fauna. Seventy one species of butterflies, belonging to six families, were recorded during the study. Control of habitat destruction, exploitation of its wilderness, human interference and pollution by visitors and students can be helpful in conservation of these winged beauties

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7. References

1. Marks R. Native Pollinators- Fish and Wildlife Habitat Management Leaflet. Wildlife Habitat Council. USDA 2005; 10.
2. Chowdhury SH, Mohiuddin M. Butterflies of the eastern border of Bangladesh-a checklist. Rajshahi Univ J Zool 2003; 22:1-9.
3. Chowdhury SH, Hossain M. Butterflies of Bangladesh-A Pictorial Handbook (Revised and enlarged I). Skylark Printers. Dhaka. Bangladesh 2013, 260.
4. Pollard E. Monitoring butterfly numbers, In: Goldsmith, F.B (ed.). Monitoring for Conservation and Ecology. Chapman and Hall, London 1991, 87-111, 275.
5. Kocher SD, Williams EH. The diversity and abundance of North American butterflies vary with habitat disturbances and geography. Journal of Biogeography 2000; 27:785-794.
6. Kremen C. Assessing the Indicator Properties of Species Assemblages for Natural Areas Monitoring. Ecological Applications 1992; 2:203-217.
7. Eswaran R. Pramod P. Structure of butterfly community of Anaikatty Hills, Western Ghats. Zoo's Print Journal 2005; 20(8):1939-1942. http://dx.doi.org/10.11609/JoTT.ZPJ.1330.1939-42.
8. Kunte K. Seasonal patterns in butterfly abundance and species diversity in four tropical habitats in northern Western Ghats. Journal of Biosciences 1997; 22:593-603.
9. Landing BH. Factors in the distribution of butterfly color and behavior patterns-Selected aspects. Privately published, Los Angeles 1984, 200.
10. Larsen TB. Butterflies of Bangladesh- an annotated checklist. IUCN Bangladesh Country Office, Dhaka, Bangladesh, 2004, 104.
11. Ahmad M, Kabir SMH, Ahmed ATA, Rahman AKA, Ahmed ZU, Begum ZNT *et al*. Encyclopedia of Flora and Fauna of Bangladesh. Asiatic Society of Bangladesh, Dhaka 2009; 21(3):460.
12. Chowdhury SH, Hossain, M. Butterflies of Bangladesh-A Pictorial Handbook (Revised and enlarged I). Skylark Printers. Dhaka. Bangladesh, 2013, 260.
13. Hossain A. In Sirajul Islam and Ahmed A. Jamal. "Dinajpur District". Banglapedia: National Encyclopedia of Bangladesh (Second ed.). Asiatic Society of Bangladesh, 2012.
14. Evans CWH. The Identification of Indian Butterflies. The Bombay natural History Society, 1932, 130-198, 199-273.
15. Kehimkar I. The book of Indian Butterflies. Bombay Natural History Society, 2013, 497.
16. Kunte KJ. Butterflies of Peninsular India. Indian Academyof Sciences, Bangalore and University Press, Hyderabad, 2000, 254.
17. Clench H. How to make regional lists of butterflies: somethoughts. Journal of Lepidopterist Society (Los Angeles) 1979; 33:215-231.