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Diversity of moth fauna in the West Bengal state university campus: A pictorial catalogue

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Abstract
An attempt has been taken to study the diversity of Moth fauna in West Bengal State University (WBSU) campus. A total of 30 genera were recorded under ten families from the study area from November 2017 to December, 2017. The family Erebidae with 12 genera followed by family Crambidae with 9 genera, family Noctuidae with 2 genera, rest of the family Arctiidae, Sphingidae, Pterophoridae, Uraniidae, Geometridae, Scythrididae and Stathmopodidae with 1 genus each were recorded inside campus area. As 30 different genera of moth recorded within a short span of time, it can be presumed to have a good diversity of moth species inside campus area.

Keywords: moth, diversity, WBSU, West Bengal, India

1. Introduction
Lepidoptera is one of the large order of insects that include butterflies and moths and is probably one of the most suitable groups for most quantitative comparisons between insect faunas to be valid, for the many reasons elaborated by Holloway [1]. Butterfly group consisting of over 28,000 species in the world [2]. However, moth group consisting of over 1,27,000 species in the world [3] and exhibit far higher diversities in species and population sizes as compared to those of butterflies. Because of their nocturnal habits, moths are among the least known creature in the insect world. The moth group may be one of the suitable animal groups to bring us useful information and smashing evolutionary successes in field studies of ecological conditions [4, 5, 6, 7, 8]. Recently in India over 12000 species moth have been reported [9]. In Japan, numbers of moth species were shown to reach over 4,400 which are far larger as compared to over 300 species of butterflies [10, 11]. Several reports have been published on the fauna of butterfly, their species diversities and seasonal fluctuations of their population as well as appearance of their seasonal morphs in different areas at Savar, Dhaka, Bangladesh [12, 13, 14, 15, 16, 17].
Thus the present study aimed to explore the diversity of moth fauna during November-December, 2017 inside WBSU campus area which might be helpful to pave the way for future research and formulation of an effective strategy for conservation of this important group of insects.

2. Materials and methods
The present study was conducted in West Bengal State University (WBSU), Barasat, Kolkata, West Bengal, India from November-December, 2017 to assess the diversity of Moth fauna. WBSU Campus is located in between 88° 25′ E longitudes and 44°46′ N latitude in the state of West Bengal, India (Fig. 1).
Photographs and observations were taken during the day light hours. Individual images of Moths were photo-documented and identified by cross-checking with standard references and photo guides [10, 18].

3. Results & Discussion
A total of 30 species of moths including 12 species of Erebidae family and 9 species Crambidae family were recorded from the WBSU campus, Kolkata. India (Table 1). The Erebidae with 12 species was the most dominant family followed by Crambidae (9 sp.) family Noctuidae (2 sp.) and 1 species belong to the family Arctiidae, Sphingidae, Pterophoridae, Uraniidae, Geometridae, Scythrididae, Stathmopodidae (Fig 2 and 3). Among the Erebidae, *Mocis frugalis*, *Progonia sp*. and *Rivula sp* were the dominant species, whereas among the Crambidae, *Cnaphalocrocis medinalis* and *Elophila sp*. and in family Pterophoridae, *Hellinsia homodactyla* was the most dominant species encountered in the campus area. The dominancy of these species in the study area might be due to the abundant larval food plants grown in grass fields of the WBSU campus.
Since data of the present study are not sufficient to analyze species diversities and population sizes of moths, future studies will enrich the data for analyzing how species diversities and population sizes of moths changes with the changes of environmental and vegetation conditions in and around the study area. The data recorded in the present study may prove valuable as a reference for assessing the changes in environmental tools in the locality, in near future.

Fig 1: Location of the study.

Table 1: A species list of moth's fauna at WBSU campus

Sl. No.	Scientific Name	Family
1	*Creatonotos transiens*	Erebidae
2	*Euproctis sp.*	Erebidae
3	*Spirama retorta*	Erebidae
4	*Hypena sp.*	Erebidae
5	*Amata fortunei*	Erebidae
6	*Calliteara sp.*	Erebidae
7	*Arctornis sp.*	Erebidae
8	*Mocis frugalis*	Erebidae
9	*Progonia sp.*	Erebidae
10	*Rivula sp.*	Erebidae
11	*Dichromia sp.*	Erebidae
12	*Asota caricae*	Erebidae
13	*Metoeca foedalis*	Crambidae
14	*Parapoynx sp.*	Crambidae
15	*Spoladea recurvalis*	Crambidae
16	*Sameodes cancellalis*	Crambidae
17	*Parapoynx fluctuosalis*	Crambidae
18	*Cnaphalocrocis medinalis*	Crambidae
19	*Elophila sp.*	Crambidae
20	*Hydriris ornatalis*	Crambidae
21	*Eurrhyparodes sp.*	Crambidae
22	*Spodoptera litura*	Noctuidae
23	*Leucania sp.*	Noctuidae
24	*Amata bicincta*	Arctiidae
25	*Pergesa acteus*	Sphingidae
26	*Hellinsia homodactyla*	Pterophoridae
27	*Phazaca sp.*	Uraniidae
28	*Scopula emissaria*	Geometridae
29	*Eretmocera sp.*	Scythrididae
30	*Atkinsonia sp.*	Stathmopodidae

Fig 1: 1. Creatonotos transiens, 2. Euproctis sp., 3. Spirama retorta, 4. Hypena sp., 5. Amata fortune, 6. Calliteara sp., 7. Arctornis sp., 8. Mocis frugalis, 9. Progonia sp., 10. Rivula sp., 11. Dichromia sp., 12. Asota caricae 13. Metoeca foedalis, 14. Parapoynx sp., 15. Spoladea recurvalis, 16. Sameodes cancellalis.

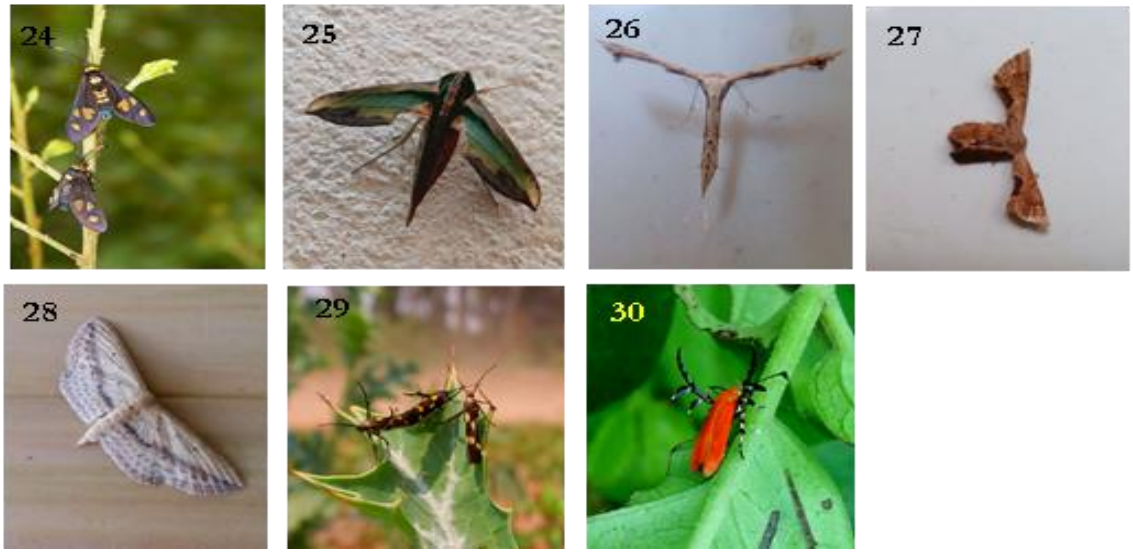

Fig 2: 17. Parapoynx fluctuosalis, 18a. Cnaphalocrocis medinalis (male), 18b. Cnaphalocrocis medinalis (female), 19. Elophila sp., 20. Hydriris ornatalis, 21. Eurrhyparodes sp., 22. Spodoptera litura, 23. Leucania sp., 24. Amata bicincta, 25. Pergesa acteus, 26. Hellinsia homodactyla, 27. Phazaca sp., 28. Scopula emissaria, 29. Eretmocera sp., 30. Atkinsonia sp.

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