

SHORT COMMUNICATION

A rapid assessment of Butterfly Diversity around Narora Atomic Power Plant Township, Uttar Pradesh, India

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ABSTRACT

Butterflies are known to be a good model for rapid assessment studies because they are widespread, conspicuous, easily detectable and they are very good indicators of forest health too. The objective of this study was to create a preliminary information of butterflies in and around of Narora Township, Uttar Pradesh, carried out in Pre-monsoon period (July 2016) to prepare a checklist of the butterflies of the study area. Butterflies were documented either by direct observation or by capturing photographs and was identified later. During the study period total 23 butterfly species were recorded belonging to five families *Papilionidae* (3), *Pieridae* (9), *Nymphalidae* (2), *Lycanidae* (7) and *Herperidae* (2). Mottled emigrant was (*Catopsilia pyranthe* Linnaeus, 1758) observed most frequently during the study period. This study provides a baseline information of the butterfly diversity of Narora Atomic Power Plant Township.

KEYWORDS: Butterfly, diversity, Narora, Uttar Pradesh

Received 24 April 2018, Accepted 20 June 2018 | debanjan@wii.gov.in

Introduction

Insects encompass the majority of Earth's diversity and one of the preferred taxa for evaluating biodiversity. The taxonomic distinctness and variation in both habitats exploited by different forms of insects in both terrestrial and aquatic habitats form a strong basis for using insect as target taxa (Mukherjee, Swarnali, et al, 2016). Because of their bright colour, behavior and daytime activities, butterflies are easy for everyone to enjoy (Schreiner and Nafus, 1997). In addition, they butterflies play an important role in Ecosystem services by helping in pollination (Janzen, 1987; Schowalter, 2006). Butterflies are one of the most studied insect groups (Robbins & Opler, 1997). There are more than 17500 species of butterflies described globally (Vane-Wright, 2003) and 1318 described species of butterflies in India (Varshney & Smetacek, 2015). Among all other biogeographic zones, Gangetic plain less than 100 species of butterflies (Smetacek, 2017). This present study has been done to identify a variety of species found at NAPS Township, Uttar Pradesh located in the Gangetic plain. This study also intended to have an understanding of the diversity of butterfly near in a semi Natural habitat. Although the study was done in a short span of time, it gives an idea about the richness of butterflies, possible

future exploration and conservation strategies for the butterflies in this area.

Materials and Methods

The study has been done in agricultural fields, grasslands, riverbank, roadside, Shrubs and human habitations in and around NAPS Township (Anu Vihar). The observation was done on a daily basis in July 2016, using Pollard walk method following Moore (1975) and Pollard et al (1975) and opportunistic sampling. The butterflies were documented either by direct observation or by capturing photographs and was identified later. As butterflies are active during post morning and pre sunset period the observations are taken between 8:00 AM to 10:00 AM and 3:00 PM to 5:00 PM. The identification was done using Singh (2011), Kehimkar (2008) and Kunte, K., P. Roy, S., & Kodandaramaiah, U. (2016).

Results and Discussion

A total 23 species were recorded belonging to the families of *Papilionidae*, *Pieridae*, *Nymphalidae*, *Lycanidae* and *Herperidae*. The most common species found are Mottled Emigrant (*Catopsilia pyranthe*), Lime butterfly (*Papilio demoleus*), Plain Tiger (*Danaus chrysippus*), Striped Pierrot

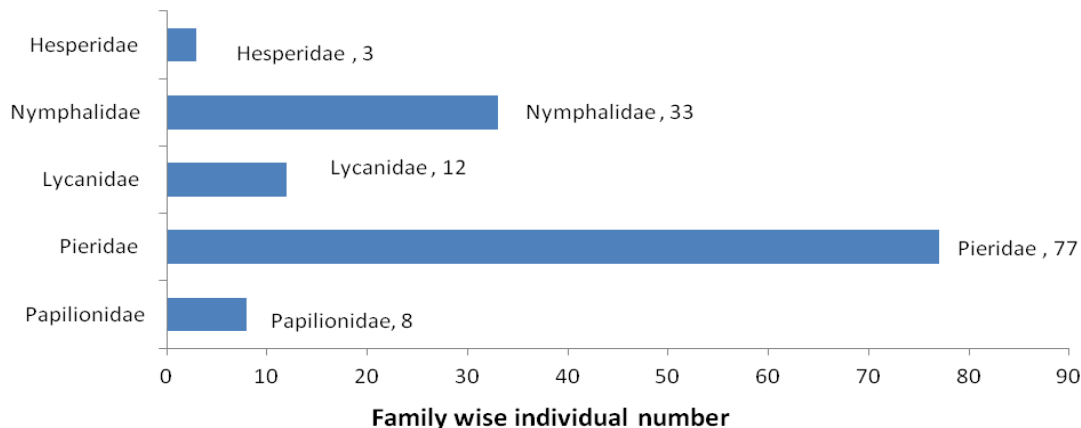


Figure 1. Family-wise distribution.

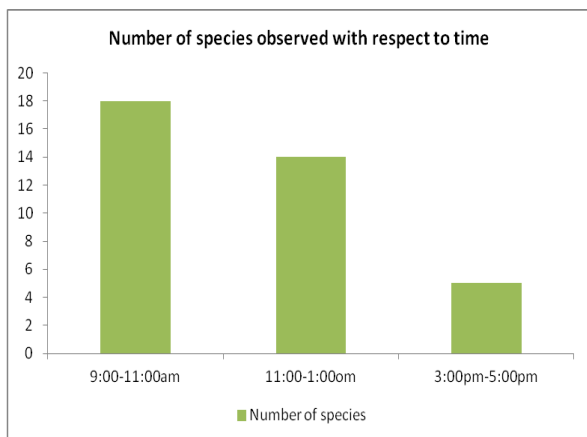


Figure 2. Number of species observed with respect to time

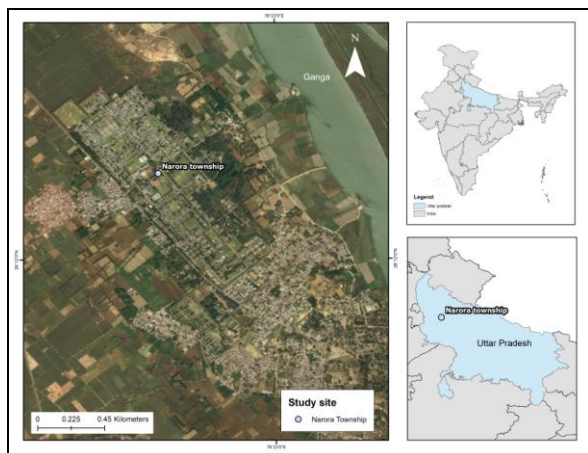
(*Tarucus nara*). Some species might have missed or could not be identified due to some inaccessible terrain, impatient and fast movements of the species, smaller body size and not distinct body pattern. The highest numbers of species (18) were observed from 8:00 AM to 10:00 AM it gradually decreased to 5 in the afternoon. (3:00pm to 5:00pm). The current study was restricted to a limited expanse of space and time but still, it gives baseline information for further study. A detailed study can be planned to estimate the butterfly population in a human-dominated landscape. A long-term monitoring on the Butterfly and moths (*Lepidoptera*) always helps conservationists to assess any change in environment taking it as flagship genera.



Figure 3. Few of the recorded butterflies of Narora township.

Table 1. List of the butterflies recorded in Narora Township.

Common Name	Scientific name	Individual found
Family: Papilionidae (8)		
1. Common Mormon	<i>Papilio polytes</i> Linnaeus, 1758	1
2. Lime Butterfly	<i>Papilio demoleus</i> Linnaeus, 1758	6
3. Common Bluebottle	<i>Graphium sarpedon</i> Linnaeus, 1758	1
Family: Pieridae (77)		
4. Indian Cabbage White	<i>Pieris canidia indica</i> Evans, 1912	2
5. Pioneer	<i>Belonis aurota</i> Fabricius, 1793	13
6. Yellow Orange Tip	<i>Ixias pyrene</i> Linnaeus, 1764	5
7. Common Gull	<i>Cepora nerissa</i> Fabricius, 1775	3
8. Crimson Tip	<i>Colotis danae</i> Fabricius, 1775	1
9. White Orange Tip	<i>Ixias marianne</i> Crammer, 1779	8
10. Mottled Emigrant	<i>Catopsilia pyranthe</i> Linnaeus, 1758	39
11. Common Emigrant	<i>Catopsilia Pomona</i> Fabricius, 1775	4
12. Common Grass Yellow	<i>Eurema hecabe</i> Linnaeus, 1758	2
Family: Lycaenidae (12)		
13. Pale Grass Blue	<i>Pseudozeeria maha</i> Kollar, 1844	2
14. Striped Pierrot	<i>Tarucus nara</i> Kollar, 1848	10
Family: Nymphalidae (33)		
15. Striped Tiger	<i>Danaus genutia</i> Crammer, 1779	7
16. Plain Tiger	<i>Danaus chrysippus</i> Linnaeus, 1758	19
17. Common Four Ring	<i>Ypthima huebneri</i> Kirby, 1871	1
18. Tawny Coster	<i>Acraea terpsicore</i> Linnaeus, 1758	1
19. Common Leopard	<i>Phalanta phalantha</i> Drury, 1773	1
20. Peacock Pansy	<i>Junonia almana</i> Linnaeus, 1758	3
21. Common Evening Brown	<i>Melanitis leda</i> Linnaeus, 1758	1
Family: Hesperidae (3)		
22. Skipper1	<i>Pelopidas sp.</i>	2
23. Skipper2	<i>Telicota sp.</i>	1
Total observed individual		133

**Figure 4.** Map of the study area.

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