



Butterfly Fauna of Jhilmil Jheel Conservation Reserve, Haridwar, Uttarakhand, India

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ABSTRACT: The Jhilmil Jheel Conservation Reserve is located between Haridwar-Najimabad highway and river Ganges in Uttarakhand. The spectacular *terai* landscape of the study area is a mosaic of short and tall grasslands, tropical mixed moist deciduous forests, and secondary scrub. This Conservation Reserve was recently rediscovered (2005). This happens to be the first ever sampling of butterfly fauna of the area. Based on the study of butterfly diversity in the said reserve and adjacent area, a checklist has been prepared. The list includes 134 species belonging to 81 genera and 8 families.

Key words: Butterfly taxonomist, Pollard Walk Method, *terai*, wetland

INTRODUCTION

Butterflies have always been a subject of interest, and they are probably next only to birds in their universal popularity. This is partly attributable to the great variety and beauty of their colour patterns and partly to their dramatic transformation during their life cycle and the interesting phenomena of mimicry and migration (Behera 2012). India is believed to host about '2500 species and subspecies of butterflies' (Kunte 2010). A study carried out in the 614 km² area of Dudhwa Tiger Reserve, Uttar Pradesh, has revealed the presence of 81 butterfly species (Behera 2012). Khanal (2008) reported 85 species from four districts of Western Nepal Terai covering an area of 9768 km². Khanal (2006) also identified 54 species in 175 km² area of Koshi Tappu Wildlife Reserve, Eastern Nepal.

Here we report the diversity of butterflies from the newly discovered Jhilmil Jheel Conservation Reserve which is a saucer shaped wetland located between Haridwar–Najimabad highway and the River Ganges, in Chidiyapur Range of Haridwar Division, Uttarakhand (Fig. 1). It covers a total area of 37.83 km² of Reserve Forest and elevation ranging from 200 to 250 meters above MSL (Anonymous 2005). The spectacular *terai* landscape of the study area is a mosaic of short and tall grasslands, tropical mixed moist deciduous forests, and secondary scrub. Throughout the landscape, shifting of river channels over time has left behind many old channels where numerous seasonal and

perennial swamps ('*tals*') or wetlands occur. The central swamp zone represents one such oxbow lake. The area experiences sub-tropical climate. Such distinctive environmental circumstances with rich floral assortment and wholesome climate (44°C and 2°C; 45-80% relative humidity and rainfall ranging from 1050 to 1550 mm per annum) forms a favourable habitat for insects in general and butterflies in particular.

MATERIAL AND METHODS

Survey of the butterfly fauna in the Jhilmil Jheel and its surrounding area was conducted from 2006 to 2009 as a part of research work for preparing management plan of the Conservation Reserve. Yearly survey was categorized into three seasonal durations, the pre monsoon (March-May), monsoon (June-October), and post monsoon (November to February). Pollard Walk Method (Pollard 1977; Pollard and Yates 1993) was followed for recording the butterflies while walking along fixed paths in the Conservation Reserve area. The observation width was limited to 3m. Butterflies were observed throughout the day from 08:00 h to 04:00 h, quarterly in three seasons. Each record in the field was photographed for reference. Each photograph was then identified with the help of field guides (Wynter Blyth 1957; Gay, Kehimkar and Punetha 1992; Haribal 1992; Kunte 2000; Kehimkar 2008) and butterfly taxonomist. Classification was followed after Evans (1932).

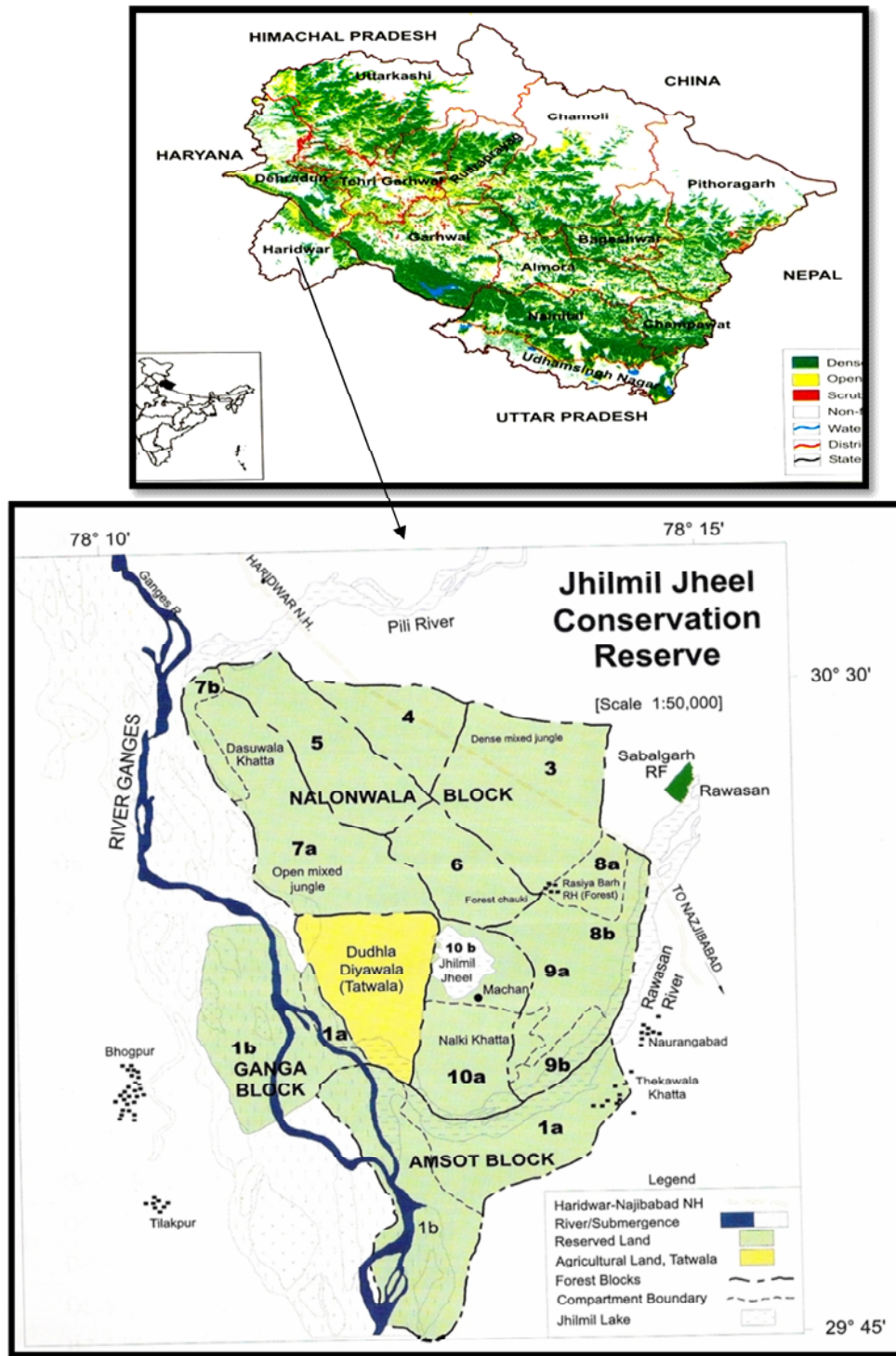


Fig.1. Location map of Jhilmil Jheel Conservation Reserve*.

*Source: Anonymous 2005

RESULTS AND DISCUSSION

During the study, a total of 28 species belonging to 25 genera under 4 families were collected from the Conservation Reserve (Table 1). Nymphalidae showed the maximum species richness, comprising of 14 species (50%), followed by Lycaenidae (7 species, 25%), Pieridae (6 species, 21%) and Papilionidae (1

species, 4%). One of the identified species is listed in Schedule I of the Indian Wildlife (Protection) Act, 1972 - the Common Pierrot (*Castalius rosimon* Fabricius) and one is listed in Schedule II - Peacock Royal (*Tajuria cippus* Fabricius). Images a-h, give photographic proof of our butterfly sightings in the Jhilmil Jheel so far (Fig. 2).

Table 1. Butterfly check list of Jhilmil Jheel Conservation Reserve.

Family	Common name	Scientific name
Nymphalidae	Blue Pansy	<i>Junonia orithya</i> (Linnaeus, 1758)
	Common Bush Brown	<i>Mycalesis perseus</i> (Fabricius, 1775)
	Common Castor	<i>Ariadne merione</i> (Cramer, 1777)
	Common Five Ring	<i>Ypthima baldus</i> (Fabricius, 1775)
	Common Indian Crow	<i>Euploea core</i> (Cramer, 1780)
	Cruiser	<i>Vindula erota</i> (Fabricius, 1793)
	Great Eggfly	<i>Hypolimnas bolina</i> (Linnaeus, 1758)
	Grey Pansy	<i>Junonia alitis</i> (Linnaeus, 1763)
	Orange Oakleaf	<i>Kallima inachus</i> (Boisduval, 2846)
	Peacock Pansy	<i>Junonia almana</i> (Linnaeus, 1758)
	Plain Tiger	<i>Danaus chrysippus</i> (Linnaeus, 1758)
	Striped Blue Crow	<i>Euploea mulciber</i> (Cramer, 1777)
	Tawny Rajah	<i>Charaxes bernardus</i> (Fabricius, 1793)
	Yellow Coster	<i>Acraea issoria</i> (HUBner, 1819)
	Lycaenidae	Common Grass Blue
Common Guava Blue		<i>Virachola isocrates</i> (Fabricius, 1793)
Common Hedge Blue		<i>Acytolepis puspa</i> (Horsfield, 1828)
Common Pierrot		<i>Castalius rosimon</i> (Fabricius, 1775)
Metallic Cerulean		<i>Jamides alecto</i> (Felder, 1860)
Peacock Royal		<i>Tajuria cippus</i> (Fabricius, 1798)
Yamfly		<i>Loxura atymnus</i> (Stoll, 1780)
Pieridae		Brown Veined White
	Common Grass Yellow	<i>Eurema hecabe</i> (Linnaeus, 1758)
	Crimson Tip	<i>Colotis danae</i> (Fabricius, 1775)
	Great Orange Tip	<i>Hebomoia glaucippe</i> (Linnaeus, 1758)
	Psyche	<i>Leptosia nina</i> (Fabricius, 1793)
Papilionidae	Yellow Orange Tip	<i>Ixias pyrene</i> (Linnaeus, 1764)
	Common Mormon	<i>Papilio polytes</i> (Linnaeus, 1758)

Although Jhilmil Jheel attains primary concern for its rich mammalian and avian resources, the area shows a rich assemblage of butterflies. The preference of butterflies for a particular habitat is often linked with the larval or adult food source. The rich diversity of butterflies, especially the nymphalids and lycaenids in

Jhilmil Jheel indicates a varied assemblage of floral species, particularly among the forested vegetation. Occurrence of these listed butterflies indicates the potential of this Conservation Reserve area to harbor varied environmental conditions that in turn can support further bioresources.

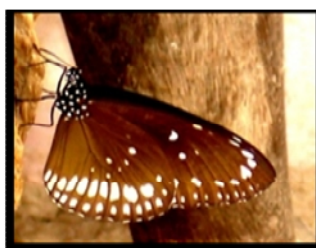
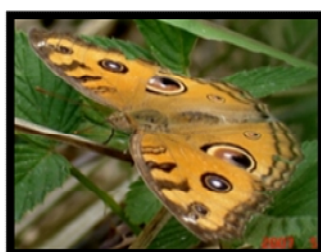
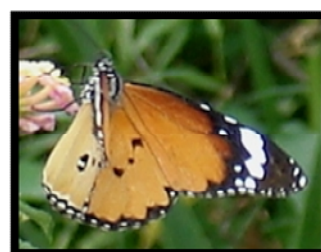
(a) *Mycalesis perseus*(b) *Euploea core*(c) *Ypthima baldus*(d) *Eurema hecabe*(e) *Acytolepis puspa*(f) *Junonia atlitis*(g) *Junonia almana*(h) *Danaus chrysippus*

Fig. 2. Certain butterflies of the Jhilmil Jheel Conservation Reserve, Uttarakhand. **a, b, c, f, g, h,** represent the family Nymphalidae; **d,** Pieridae; **e,** Lycaenidae.

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