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**Autor:** Büttiker, W.

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## First Records of Eye-frequenting Lepidoptera from East Pakistan

by

W. BÜTTIKER

c/o CIBA Ltd., Basle, Switzerland

### Summary

This is a summary on the first records of nocturnal eye-frequenting moths from East Pakistan. *Lobocraspis griseifusa* HPSN., *Arcyophora* (*Setoctena*) *bothrophora* HPSN., *Calpe* (*Calyptra*) *eustrigata* (HPSN.), *Psara licorisicalis* WLK., *Synclera univocalis* WLK., *Hypena* sp., *Pionea damastesalis* WLK., and *Antitrygodes cuneilinea* WLK. have been collected from various hosts in the Chittagong Hill Tracts. From these preliminary records it is shown that the eye-frequenting moths were very numerous in those areas of E. Pakistan belonging to the tropical deciduous forest association whereas the moths were less prevalent in the area of the tropical semi-deciduous forest. Special emphasis has been laid on the study of the biotopes of these moths.

### Introduction

The following note is a report of the results obtained during a recent expedition<sup>1</sup> to East Pakistan, which was carried out from the 4th to the 19th April 1968 as a continuation of the trip to Nepal in March 1968. The main areas visited were the Chittagong Hill Tracts but several excursions were conducted in the neighbourhood of Dacca.

This actual trip commenced in Chittagong and collections were made in the Kaptai, Rangamati and Ramgarh Districts (see map, fig. 1). The entire expedition was conducted during the dry season but heavy rains were experienced in the Ramgarh area. According to local information pre-monsoon rains occur regularly in April in the Ramgarh area. The vegetation is, therefore, quite different from the plant associations met with in the Kaptai area. These two areas also seem to belong to two different botanical subregions, as described by ENGLER (1964). It

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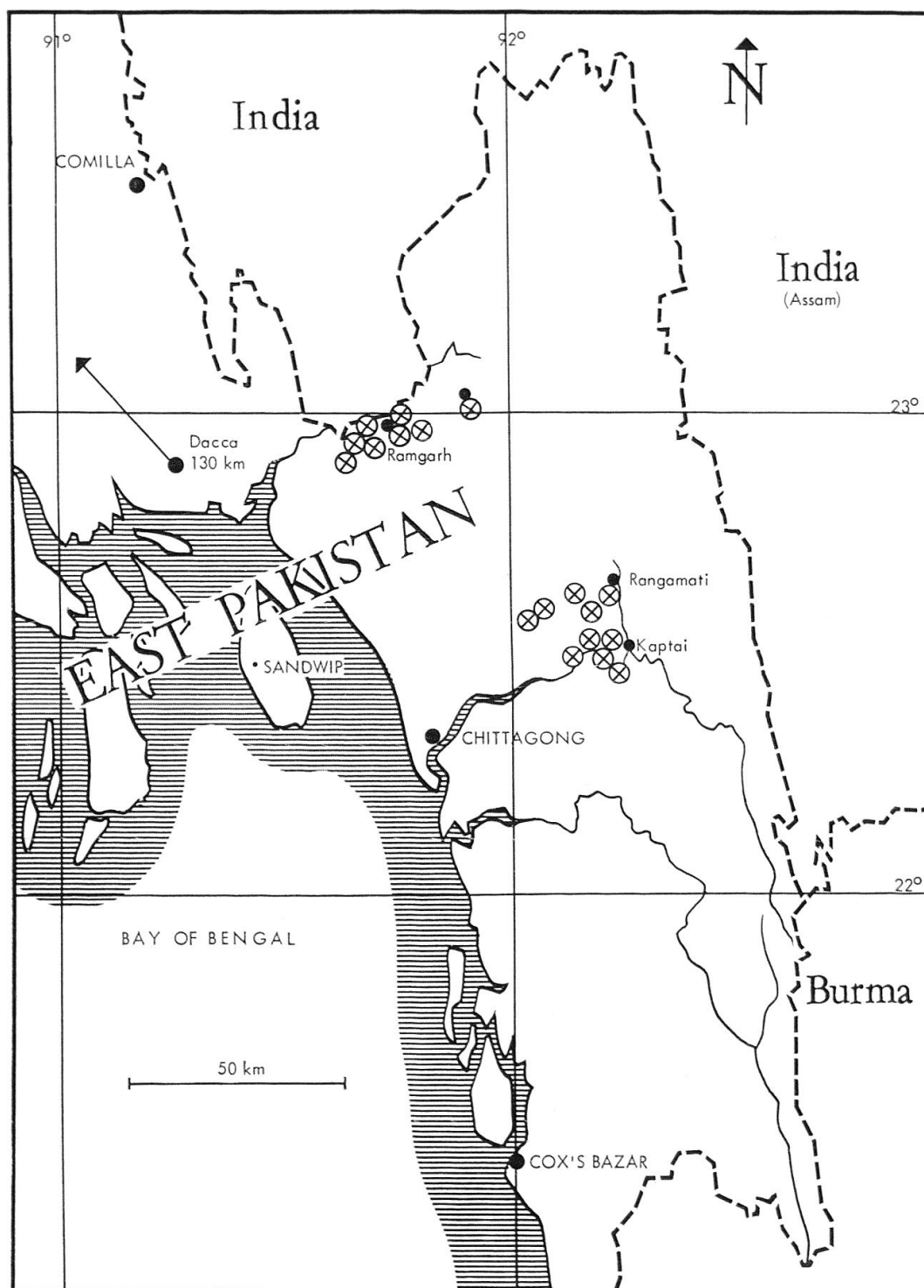


Fig. 1. — Sketch map of entomological expedition in E. Pakistan, April 1968.

would appear that the Kaptai and the Rangamati areas are part of the Indo-Malayan subregion. However, the boundry line between the Indo-Himalayan and the Indo-Malayan subregion seems not to be defined in detail and the necessary detailed investigations are lacking. Nevertheless, we had the opportunity to collect eye-frequenting lepidoptera under dry and wet vegetation conditions and in two different zoogeographical sub-regions of East Pakistan.

### Results

During the expedition the following eye-moths were collected in E. Pakistan :

#### NOCTUIDAE

##### *Lobocraspis griseifusa* HPSN.

Collected from the eyes of bovines in Kaptai and Rangamati Districts :

Shilchari	(25 m)	8.IV.68	1 ♂ + 6 ♀	Cattle
Waggasara	(30 m)	8.IV.68	2 ♂ + 15 ♀	Cattle and water buffaloes
Waggasara	(30 m)	9.IV.68	3 ♂ + 14 ♀	Cattle and water buffaloes
Mogh Reserve				
Village	(35 m)	9.IV.68	1 ♂ + 4 ♀	Cattle
Natunpara	(35 m)	9.IV.68	1 ♂ + 2 ♀	Cattle
Ghagra	(45 m)	11.IV.68	5 ♂ + 13 ♀	Cattle and water buffaloes
Tongchonpara	(55 m)	12.IV.68	1 ♂ + 3 ♀	Cattle

(Altitudes, in meters, are given in brackets.)

The figures given represent the actual number of moths collected ; but in all places many additional specimens were observed on the hosts eyes.

*L. griseifusa* was the most prevalent eye-frequenter in the areas visited, and up to 5 specimens were observed on a single eye of the host.

##### *Arcyophora (Setoctena) bothrophora* HPSN.

Only two specimens of this species were collected during the expedition, viz. from the eyes of cattle (1♀) at Ghagra on the 11th August 1968 and at Tongchonpara (1 ♂) on the 12th April 1968.

It is of interest to note that these specimens represent the first record of *A. bothrophora* as eye-frequenters. Therefore, it is the first time that a member species of the section *Setoctena* within the genus *Arcyophora* has been discovered to exhibit eye-frequenting behaviour.

The wingspan of the two specimens collected is only 17–18 mm instead of at least 20 mm as mentioned by FLETCHER (1954).

*Calpe (Calyptra) eustrigata* (HPSN.)

One male collected from cattle at Waggasara on 8th April 1968. As far as we could ascertain the specimen was attached to an eye of the host.

This skin-piercing blood-sucking moth species was found by BÄNZIGER (1968) in Malaya in fair numbers on several hosts. A related species, viz. *C. minuticornis* GUEN., was observed in Cambodia by BÜTTIKER (1962) as an eye-frequenting moth on cattle.

*Mocis frugalis* F.

One specimen was collected near cattle at Tongchonpara on 12th April 1968 and was suspected having been disturbed whilst feeding on the eyes of cattle. It has to be mentioned, however, that another species, *Mocis undata*, was found in N. Thailand once near cattle (BÜTTIKER 1967 a). It is assumed that this species is only an occasional eye-frequenter.

*Hypena* sp.

One male specimen was found, on the eye of an ox, and collected at Tongchonpara on the 12th April 1968. It would appear that this species is an occasional eye-frequenting moth (BÜTTIKER 1964, 1967 a), similar to *Mocis frugalis*.

# GEOMETRIDAE

*Antitrygodes cuneilinea* WLK.

One female found on an eye of an ox, was collected at Waggasara on the 8th April and two specimens (♂ + ♀) on cattle at Tongchonpara on the 12th April 1968.

# PYRALIDAE

*Pionea damastesalis* WLK.

This well-known eye-frequenter was collected from the following hosts :

Waggasara	(30 m)	8.IV.68	1 sp.	Cattle
Mogh Reserve				
Village	(35 m)	9.IV.68	4 sp.	Cattle
Isamoti	(20 m)	11.IV.68	3 sp.	Cattle and goats

Ghagra	(45 m)	11.IV.68	11 sp.	Cattle and goats
Tongchonpara	(55 m)	12.IV.68	1 sp.	Cattle and goats
Dacca				
Zoological				
Gardens	(10 m)	7.IV.68	1 ♂	Chittal deer ( <i>Axis axis</i> ERXL.)

(Altitudes in brackets.)

The figures of the moths collected represent the actual number of specimens taken from the eyes during relatively short periods of time. However, many more specimens were on the wing.

In comparing the taxonomical features of specimens of *P. damastesalis* from various regions of Asia it is evident that there is a considerable variation, and a revision of the genus *Pionea*, and of the forms of *P. damastesalis* in particular, will be carried out.

#### *Psara licarsisalis* WLK.<sup>1</sup>

One female specimen was collected from eye of an ox at Tongchonpara on 12th April 1968.

#### *Synclera univoclis* WLK.

One male specimen was collected on eye of an ox at Tongchonpara on 12th April 1968.

### Host Relationship

Most of the records were obtained from domestic cattle, water buffaloes or goats. We had an opportunity to inspect one domesticated elephant near Kaptai and a captive sambar (*Cervus unicolor*) but in no instances did we find any eye-frequenters.

A visit was paid to the Zoological Gardens of Dacca where the following mammals were investigated :

<i>Axis axis</i> ERXL.	(Chittal)
<i>Bos indicus</i> L.	(Zebu)
<i>Canis familiaris</i> L.	(Domest. dog)
<i>Capra</i> sp.	(Goat)
<i>Cervus unicolor</i> KERR.	(Sambar)
<i>Elephas maximus</i> L.	(Indian elephant)
<i>Equus caballus</i> L.	(Ponies)
<i>Macaca</i> spp.	(Monkeys)
<i>Muntjac muntjak</i> ZIMM.	(Barking deer)

<sup>1</sup> According to Dr. W. Sauter, ETH Zürich, this species belongs to the genus *Pachyzancla*.

<i>Naemorhedus goral</i> HARDW.	(Goral)
<i>Panthera pardus</i> L.	(Leopard)
<i>Selenarctos thibetanus</i> G. CUV.	(Asiatic black bear)
<i>Vulpes bengalensis</i> SHAW	(Bengal fox)

In the Zoo of Dacca no eye-frequenting moths were found except one male of *Pionea damastesalis* on *A. axis* as mentioned in the previous chapter.

Another visit was paid to Sabhar Dairy Improvement Farm where approximately 250 water buffaloes and 500 cattle were checked on the 17th April 1968. However, no eye-frequenters were found.

An attempt to frequent human eyes was made by specimens of *Pionea damastesalis* and *Antitrygodes cuneilinea* at Isamoti and Tongchonpara, on the 11th April and 12th April 1968 respectively.

### Type of Vegetation and Habitat of Moths

The collecting sites of the eye-moths were confined to the tropical dry deciduous forests in the Kaptai and Rangamati area, the tree association belonging to the dipterocarp forests. The prevailing natural vegetation resembles very much the forest type encountered in Chiangmai, Thailand, with typical dry bioclimates. According to the observations made the Kaptai and Rangamati Districts belong to the Indo-Malayan botanical and zoogeographical subregion (see also ENGLER 1964, DE LATTIN 1967).

In the Ramgarh area the annual rainfall is higher than in Kaptai and Rangamati Districts, and normally distinct pre-monsoon showers are experienced in April which have a remarkable impact on the composition and growth of the vegetation. As a result of these conditions in the Ramgarh District that area seems to be very unfavourable for the development of eye-frequenting moths. From these and additional observations it is evident that the eye-frequenting moths are mainly distributed in areas with a pronounced monsoon season with dry periods extending between 3 to 6 months.

The present preliminary observations indicate that the collection area with the fairly large number of eye-frequenting moths tends to belong to the Indo-Malayan subregion, as the following species were found:

*L. griseifusa*; *Calyptra eustrigata*; *Antitrygodes cuneilinea*; *Psara licorsicalis*; *Synclera univocalis*; *Mocis frugalis*; *Hypena* sp.

The other species recorded, viz. *Arcyophora* (*Setoctena*) *bothrophora*, is a representative of the Indo-Himalayan subregion.

Concerning *Pionea damastesalis* and *Calpe* (*Calyptra*) *eustrigata* it would appear that these species have a very wide distribution in both zoogeographical subregions due to the fact that specimens are known from S.E. Asia and the Indian subcontinent. In addition records of *C. eustrigata* are available from Ceylon and Philippine Islands.



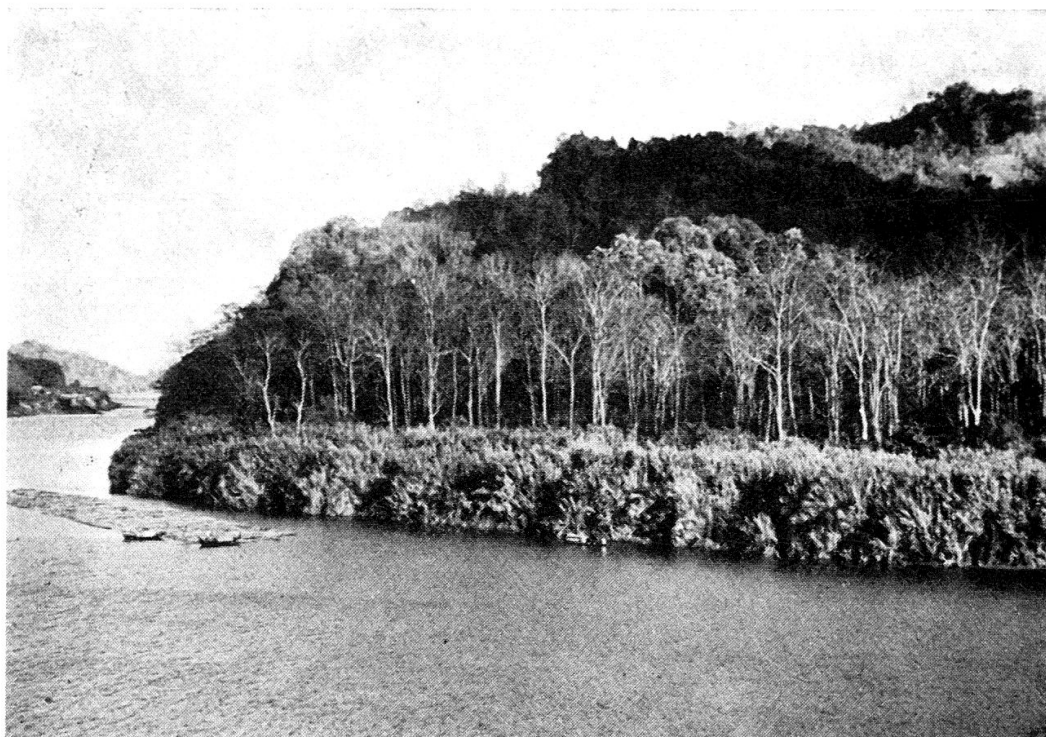


Fig. 2. — Typical vegetation near the collecting site at Waggasara with Kaptai River.



Fig. 3. — Tropical dry deciduous forest near Ghagra, an excellent collecting site in Rangamati District. Note the “Jhum” or shifting cultivation.



A more detailed study based on these and previous observations in Asia and Africa is in preparation and will be published elsewhere (BÜTTIKER, in preparation).

However, it would be desirable to carry out a thorough investigation over a longer period in order to gain more information about the various points raised in this publication. In particular it is hoped to obtain more detailed results regarding the seasonal abundance, the biotopes, and the geographical distribution of each species as well as the host range of the moths involved.

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