



## Original article

## Taxonomic review of the superfamily Pyraloidea in Bhutan (Lepidoptera)

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## ABSTRACT

The result of an investigation of the lepidopteran fauna of Central and Southern Bhutan (Bumthang, Dagana, Trongsa, Tsirang, and Sarpang districts) is presented in this study. The investigation was the part of the Invertebrate Documentation Project of Bhutan initiated by the National Biodiversity Center, Thimphu, funded by the Bhutan Trust Fund for Environmental Conservation, Thimphu. The checklist was based on the systematic collections by light trapping at nine locations and the occasional collections from native forest and gardens within the five districts of Central and Southern Bhutan. The specimens were photographed and collected as specimens for future identification and reference. A list of 182 species belonging to families Crambidae and Pyralidae is presented, including 92 species as new records for the country. All the studied specimens are deposited at “Invertebrate Referral Collection Center” at the National Biodiversity Center, Thimphu.

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## Introduction

Bhutan is a landlocked country placed between India and Tibet (China) on the southern slopes of the Himalayan range. The country lies on the border between Oriental and Palaearctic regions and hence is considered very rich in terms of lepidopteran diversity. The altitudes range from 200 m in the southern foothills to more than 7000 m in the northern part of country. The lowland parts are inhabited by typical Oriental species, whereas Palaearctic species are known to be from high altitudes. But there is a lack of information on the Lepidoptera fauna of Bhutan. Few works on the moths of Bhutan have been found at “The Fauna of British India” series (Hampson 1892, 1894, 1895, 1896a) but the information is insufficient. Sir George Hampson (1899) reported 75 species of Pyraloidea, which are the only available records on Pyraloidea of Bhutan. In neighboring countries, a significant amount of work on moths has been conducted. Robinson et al (1995) and Yamanaka (1995, 1998, 2000) have reported the presence of 558 species of

Pyraloidea from Nepal through the specimens from the collection of the Natural History Museum, London and the late Mr T. Haruta and Mr S. Sakurai. Kirti and Sodhi (2001) reported the presence of 102 species of Pyraustinae in the state of Arunachal Pradesh (India) and Bhattacharya (1997) reported 72 species from West Bengal (India) which gives us the rich diversity of this family in the area. However, no information on Pyraloidea fauna is known from Bhutan. Thus, to fill up this gap in knowledge of the fauna, here we present the first checklist on Pyraloidea of Bhutan. The present checklist is based on the study conducted by the authors in Central and Southern parts of Bhutan in the last 2 years (2013–2015).

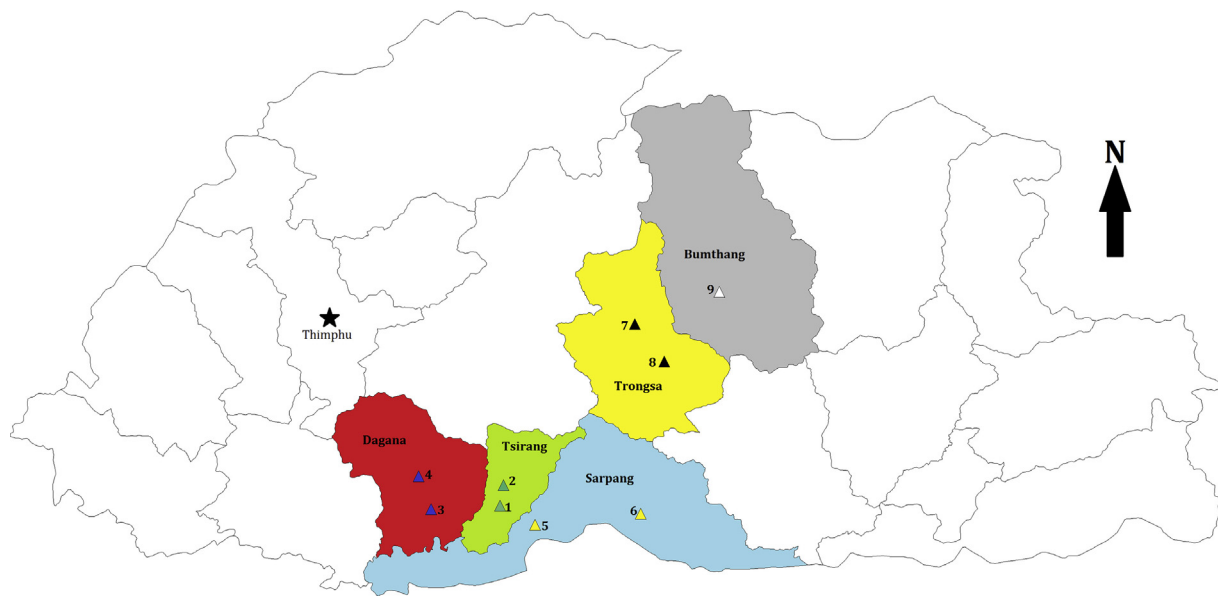
## Materials and methods

During our collection of specimens in Bhutan during 2013–2015, we were able to make a rich collection of Pyraloidea moths. The moth specimens were collected from five districts of Bhutan (Bumthang, Dagana, Trongsa, Tsirang and Sarpang). The moth trapping sites in these districts with Global Positioning System coordinates are provided in the map (Figure 1, Table 1). Field collection of the specimens was carried out using fluorescent bulbs on a white cloth sheet hanging (Figure 2A) and mercury vapor (MV) light traps (Figure 2B) at different sites. Identifications were made by comparison with available literature (Hampson 1896a; Inoue

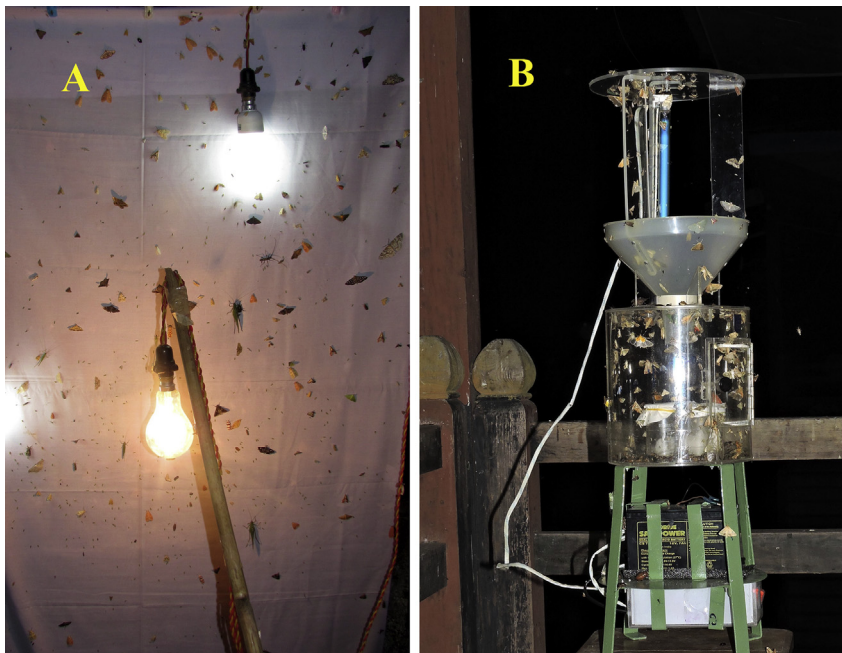
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**Figure 1.** Map showing the districts in Bhutan where the light trapping of moths were set up during October 2013 to October 2015. N = north.



**Figure 2.** Light traps used during the study: A, Plain cloth sheet trap with fluorescent lamp; B, mercury vapour lamp light trap.

1996, 1997; Kendrick 2002; Robinson et al 1994; Yamanaka 1995, 1998, 2000). The list order and taxonomic nomenclature are based upon Solis (2007) and Nuss et al (2016).

For all identified species, the general specific information, including references for the original descriptions, material examined, and the local and global distributions of the species are given. Images for adults with their labels are provided (Figures 3–14). The new records of the species for Bhutan are marked with an asterisk (\*) in the systematic list. Specimens of each of the species referred in this paper were deposited at the Invertebrate Referral Collection Centre (IRCC), National Biodiversity Centre (NBC), Thimphu, Bhutan.

#### Taxonomic accounts

Order Lepidoptera Linnaeus, 1758

Family Crambidae Latreille, 1810

Subfamily Acentropinae Stephens, 1836

*Eoophyla peribocalis* (Walker, 1859b)\* (Figure 3A)

*Cataclysta peribrocalis* Walker, 1859b: 446

*Material examined.* Bhutan, 1♀, Mendrelgang (Tsirang), 31 x 2013 (J.S. Irungbam and M.S. Chib); 2♀, Damphu (Tsirang), 12 ix 2014 (J.S.

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