

FIRST RECORDS OF 25 SKIPPERS (LEPIDOPTERA:HESPERIIDAE) FOR BHUTAN AND CONFIRMATION OR RECENT EVIDENCE OF 25 SELDOM REPORTED SKIPPERS

PIET VAN DER POEL^{1*}, KARMA WANGDI² & SAJAN KC³

^{1*} Noordwijkerhout, Netherlands;

²Ugyen Wangchuck Institute for Forest Research and Training, Bumthang, Bhutan;
kwangdi@uwice.gov.bt.

³Eastern New Mexico University, Portales, New Mexico 88130, USA.

Corresponding author: pipoel@yahoo.com

Reviewer: Peter Smetacek

Background

Evans (1932) noted, “Lists [of butterfly species] for Nepal, Garhwal and Bhutan would be interesting.”. Apparently, no such lists had been produced until 1932, and probably no species lists of surveys conducted in Bhutan had been made or published. Yazaki & Kanmuri (1985) reported on butterflies of western Bhutan and presented a list of 265 butterfly species, apparently partly based on species in the collection of the Natural History Museum, London, U.K.. Harada (1987a, b) listed 124 species with pictures for western Bhutan, based on collection trips in April-May, 1983. Van der Poel & Wangchuk (2007) published the first guidebook of butterflies of Bhutan, covering 139 species. In 2009, Karma Wangdi rediscovered, after more than 75 years, *Bhutaniitis ludlowi* Gabriel, 1942 (Ludlow’s Bhutan Glory, now Bhutan’s national butterfly) in Trashiyangtse in NE Bhutan, and described the experience in Tashi Delek magazine (Wangdi, 2010).

These last two events were the start of a growing interest in butterflies in Bhutan, leading to the publication of various reports, checklists and guidebooks. Since 2012, scientific articles, guidebooks, checklists, popular magazine, newspaper articles and internet postings reported on butterfly species for Bhutan, including new records. Around 2013, Van Gasse posted an online Portable Document File (pdf) document of an annotated checklist of the butterflies of the Indian subcontinent, including the distribution areas of the listed species. In 2015, two checklists of the butterfly species of Bhutan were published: Singh & Chib (2015) listed 670 species, and Sbordononi *et al.* (2015) listed 533 species. The main difference was in the number of reported HesperIIDae in the two reports (139 vs 73). Van Gasse (2018) posted an updated checklist with more details on the distribution areas of the butterflies of the Indian Subcontinent, which was published as a book in 2021 (Van Gasse, 2021). It listed 142 HesperIIDae species for Bhutan. One of the sources of Singh & Chib (2015) and Van Gasse (2018) was Kehimkar (2008). In that

book, Kehimkar (2008) indicated if species were found in Bhutan, mainly based on Evans (1932, 1949) and old documents in the library of the Bombay Natural History Society (BNHS), Mumbai, India (Isaac Kehimkar, *pers. comm.*, 2023).

Gyeltshen *et al.* (2018) listed hundreds of new species of plants and animals for Bhutan, discovered between 2009 and 2017. Among these, there were only four butterfly species, *Apostictopterus fuliginosus* Leech, [1893], *Euthalia amplifascia* Tytler, 1940 and *Neozephyrus suroia* (Tytler, 1915) by Wangdi *et al.* (2012, 2013) and *Una usta* (Distant, 1886) from an unpublished report by Van der Poel (2016). The authors found a few other scientific articles reporting new HesperIIDae species for Bhutan: Nidup *et al.* (2014) reported *Psoolos fuligo* (Mabille, 1876) (Coon). Cheku *et al.* (2018) reported *Pintara tabrica* (Hewitson, 1873) (Crenulate Orange Flat), a species not reported from the central Himalayas for 145 years and of which many believed that the type locality (Darjeeling) had been wrongly reported. Earlier, Harada (1987a) reported the first record for Bhutan of *Coladenia hoenei* Evans, 1939, reclassified as *Coladenia pinsbukana occidentalis* Huang, 2021 following Huang (2021). Chiba *et al.* (2023) report that *Carterocephalus houangty bootia* Evans, 1949 differs from *C. h. houangty* Oberthur, 1886 in the male genitalia and in the phylogenetic distance to such a degree that it could be considered a separate species. However, they do not report it as such. Their observations include specimens that were collected in this century, although no collection date was indicated. Other reports listed new species for Bhutan with or without supporting evidence, but were apparently unaware that the species had not been reported from Bhutan before.

Many species reported for Bhutan, were reported in articles or booklets that did not get scrutinized thoroughly, nor peer-reviewed on their identifications. Other new species were reported for Bhutan on internet postings or in newspaper articles, both suffering from a lack of peer-reviewing. Many of the reports on butterflies of Bhutan included wrong or doubtful identifications, especially of the HesperIIDae. Many reports provided lists of species without any supporting evidence, such as pictures of the listed butterflies and/or of their genitalia. Some checklists contained double entries for some species and also species that were highly unlikely to be found in Bhutan. The checklist of Singh & Chib (2015) included references to the documents in which each species was reported. Some of these publications did not report the concerned species. Many provided no evidence for many or all of the listed species, and sometimes provided pictures which were wrongly identified. It appeared that Singh & Chib (2015) generally accepted the identifications in the referenced documents as reliable. The checklist of Sbordonni *et al.* (2015) was mainly based on photographs, but also on published documents. They appear to have more critically reviewed the reliability of the identifications in these documents. However, their list also includes some mis-identified species. Probably due to this more critical review, Sbordonni *et al.* (2015) reported almost 50% fewer HesperIIDae species than Singh & Chib (2015) compared to overall reporting some 20% fewer species. Van Gasse (2018) listed 142 HesperIIDae species for Bhutan. It appears that Van Gasse accepted or rejected species based on the likelihood that these species occurred in Bhutan, rather than on the evidence presented for them. He listed more species than Singh & Chib (2015), mainly due to a more thorough search in Evans (1932, 1949) and other documents. However, Van Gasse's

checklist also included species for which the sources appear to be wrongly identified species in other documents.

One of the important sources for the above checklists was Wangdi & Sherub (2014), which, unfortunately, had a fair number of wrong identifications. Also, Yazaki & Kanmuri (1985) had several pictures of Hesperidae which were wrongly identified or wrongly labelled. Some of the wrong identifications in various reports were due to the use of guidebooks for other countries, leading to reports of species that were highly unlikely to occur in Bhutan. Moreover, wrongly identified species of some reports were listed again in other reports and checklists. Thus, what at first sight appeared to be several records of a given species, actually was based on one single source document.

When the first two authors discussed scientifically reporting new species for Bhutan and producing a new checklist of species, they realised the need to review the three published checklists and the source documents to determine which species had been reliably reported from Bhutan and which not. Understanding the amount of work involved, they decided to start with the family which probably had the most mis-identified species of all, the Hesperidae (skippers). The first two authors, not being experts in the identification of Hesperidae, contacted Sajan KC to help identify difficult species. Understanding how pivotal his identification skills were in determining which species had been reported reliably and in producing a new checklist, they asked him to be the third author. Some of the identification characteristics may be mentioned in the text, but these are usually not all characteristics that distinguish the species from similar species.

In this article, the authors present verifiable first records of 25 species that appear not to have been reported for Bhutan before or were reported with insufficient evidence or based on wrong identifications. In addition, we present 4 tentative species for Bhutan. We also present pictorial evidence of 25 mostly seldom seen species that have not been reported for Bhutan since Evans (1949) or were reported without supporting evidence. Information in some grey literature, in newspaper articles and on several websites was looked at but considered as not scientifically published information. The authors may mention these sources of information to acknowledge the work of the reporters.

The final result of this review of the Hesperidae species reported from Bhutan will be an updated checklist to be published soon, which includes the species presented in this document, but will also list species that were removed from checklists due to a lack of supporting evidence.

Methods

The authors reviewed existing checklists, specifically Singh & Chib (2015), Sbordoni *et al.* (2015) and Van Gasse (2018), and reports on butterflies of Bhutan. They checked the evidence for all listed Hesperidae species, especially those which appeared to have no or few recent

observations. This was considered necessary because many of the published lists and guidebooks contained wrong identifications and several of these were copied into some of the checklists cited above. The authors tried to ascertain if the identifications were correct, taking into account that, especially for HesperIIDae, identification of many species is very difficult or even impossible on the basis of photographs alone. Specimens and often a study of the genitalia are required for reliable identifications of many HesperIIDae species. The authors also checked on species that were reported in grey literature, in newspapers and on some websites. They also reviewed pictures which were or appeared to be of species, not yet or seldom reported for Bhutan. Many of these were taken by Bhutanese butterfly photographers over the last decade. Some were posted on websites, other sent to the authors.

Several listed species were last reported by Evans (1949) or even before that, with no reported recent observations. Evans (1949) was based on the study of specimens that often had been collected long before 1949. Most were reported or described by other authors, but Evans (1949) does not provide much information about these older reports. Some information could be found via links on the FUNET website. Many of these old documents were searched for species from Bhutan. For recent reports of species, we checked the evidence presented, starting with the oldest of the listed documents until we found a document that provided sufficient reliable evidence. In the final checklist we will list the documents that first reported on the occurrence of a species in Bhutan and the first recent report with evidence of the species.

For 25 not yet or wrongly reported species, the authors had pictorial evidence, judged sufficient to report these as first verifiable records for Bhutan. For another 25 seldom reported species, the authors report recent reliable verifiable records. For first records the authors accepted only species for which they judged the identification to have a 98-100% chance of being correct. For recent records of earlier reliably reported species and for new species to be listed as tentative they accepted species for which they judged the identification to have at least a 90-98 % chance of being correct. For many reported species, the authors found no or insufficient supporting evidence, at times because the identification was questionable or wrong. For these species the authors looked for additional evidence, mainly pictures. If none could be found, the species was removed from the checklist of HesperIIDae species of Bhutan. All identifications of which the first two authors were not very certain were checked by the third author, HesperIIDae specialist Sajan KC, who also checked all the final draft of the article and all its pictures. The authors split these species into five groups:

1. Species with reliable (98-100% chance of correct identification) pictorial evidence that, as far as we could judge, had not been reported from Bhutan or if reported, this was based on wrong identifications;
2. Species with fairly reliable (90-98% chance of correct identification) pictorial evidence that, as far as we could judge, had not been reported from Bhutan or if reported, this was based on wrong identifications;

3. Species with reliable pictorial evidence that were reported from Bhutan without or with insufficient evidence (excluding those reported by Evans (1949) or in other old documents);
4. Species with reliable or fairly reliable evidence that appeared not to have been reported from Bhutan since Evans (1949);
5. Species that were most probably wrongly reported from Bhutan, and of which we had no recent reliable evidence. These species were either wrongly identified or were reported from areas which are outside the present-day boundaries of Bhutan, such as Buxa and Kalimpong. Many were probably also outside Bhutan at the time of reporting as a large part of the Bhutan Duars became part of the British Indian Empire in the treaty of Sinchula in 1865. De Nicéville mentions in several publications “Buxa, Bhutan” and in de Niceville (1889) “Rikisum, British Bhutan”. Thus, it appears that some references to “Bhutan” should have been “Bengal” or “British Bhutan”.

The species of the first group are reported as first records for Bhutan in this document, and those in the second group as tentative species for Bhutan. The latter require additional confirmation, based on pictures of upper and undersides, a study of specimens or of the genitalia or DNA sequencing, to be accepted as a species for Bhutan. The third and fourth groups for which recent (fairly) reliable evidence was obtained by the authors are reported as recent records of seldom seen species in part two of this document. Species in the fifth group will be removed from the species list of Bhutan, but reasons for this removal will be presented in a follow-up article with a new Hesperidae species checklist for Bhutan. The species reported in checklists based on Evans (1949) or other old documents, but which have no reliable recent records, will be maintained in the checklist of Hesperidae. Four species are listed as tentative, but not counted as species occurring in Bhutan.

For scientific and common names, we follow Van der Poel & Smetacek (2022), which aimed to largely standardize the use of common and scientific names for Nepal and ultimately across the Indian subcontinent. For species that occur in Bhutan, but not in Nepal, we follow Varshney & Smetacek (2015), taking into account other recently published taxonomic changes.

Results

In the two sections that follow, we first report on 25 species for which we believe these are first verifiable records for Bhutan. Next, we present four species listed as tentative for Bhutan. In the second section, we present evidence of eight species that were reported without sufficient evidence and of sixteen species that appear not to have been reported with sufficient evidence for Bhutan since Evans (1949). We also confirm the presence in Bhutan of one species, considered as tentatively listed for Bhutan before.

First records for species

For the following species, we believe that we are the first to report on their presence in Bhutan in a scientific article. The species are presented in alphabetical order.

Aeromachus pygmaeus (Fabricius, 1775) Pigmy Scrub Hopper

A. pygmaeus was described as *Papilio pygmaeus* by Koenig in South India. Fabricius (1775) briefly reported it as brown and spotless with a white chin and a reddish antennae club. Evans (1949) indicated that *A. pygmaeus* has short and straight antennae without a pointed apiculus. The markings on the underside of the hindwing may resemble those of *A. jhora* (de Niceville, 1885), but are usually much fainter. *A. pygmaeus* was reported by Van Gasse (2018) for central Nepal, north West Bengal and N.E. India. Hence, its occurrence in Bhutan was expected.

A picture of *A. pygmaeus* was posted on the BBP (Bhutan Biodiversity Portal) website in 2018 by Tshulthrim Drukpa Wangyel. He took the picture presented here in August 2019 in Gelephu, Sarpang Dzongkhag, while it was basking in a warm broad-leaved forest area at an elevation of 200m. Karma Wangdi photographed *A. pygmaeus* on 25 July 2021 in Maukhola, Gelephu, Sarpang Dzongkhag, where it was extracting nutrients from moist soil in sub-tropical forest at 180m elevation.



Aeromachus pygmaeus © Tshulthrim Drukpa

Aeromachus pygmaeus © Karma Wangdi

Astictopterus jama C. & R. Felder, 1860

A. j. olivascens Moore, 1878 Forest Hopper

A. jama was described as a new species from “India continenti”, which on FUNET is listed as “TL: Malaysia [?Malacca]”. Subspecies *olivascens* was described from Myanmar and Darjeeling. Evans (1949) and Moore (1878) reported the wet season form upper forewing to be unmarked or uniform olive brown and the under hindwing to be uniform dark grey or brown with grey speckling. Darker brown spots on the under hindwing are visible in pictures presented as *A. j. olivascens* on the Yutaka and IFB websites (links in References section)

Elwes & Edwards (1897) reported specimens of ssp. *olivascens* from NE India, Sikkim and “Buxar, Bhutan”. Evans (1949) listed examining three specimens of ssp. *olivascens* from Sikkim and Bhutan. We assume that his specimen(s) from Bhutan were the same as those of Elwes & Edwards (1897). The listing by Van Gasse (2018) is based Evans (1949), while Singh & Chib (2015) accessed an earlier PDF version of Van Gasse’s document in 2014. Thus, there is no evidence of *A. jama* having been reported from within the present-day boundaries of Bhutan in the past.



Astictopterus jama © Piet van der Poel

Astictopterus jama © Piet van der Poel

On 12 July 2019, Piet van der Poel photographed a rather exhausted individual in the immigration office in Samdrup Jongkhar at an elevation of 170m, its habitat most likely being tropical forest, rather than government offices.

Burara anadi anadi (de Nicéville, [1884]) Plain Orange Awlet

B. anadi was described as “*Choaspes? anadi*” from specimens collected in Sikkim and Masuri (Mussoorie). De Nicéville (1884) stated that the male closely resembles the male of *B. harisa*, but differs in the forewing being much narrower, and the costal pale patch on the hindwing being more restricted. Evans (1949) distinguished it from *B. jaina* and *B. oedipodea* by having the under hindwing without cell spot, but



with a dark end-cell bar, a blurred ochreous discal area and a paler apex. He also indicated that both wings are purple-washed. Van Gasse (2018) listed *B. anadi* as

Burara anadi © Tshulthrim Drukpa Wangyel

rare in the Himalayas from Uttarakhand to Sikkim up to 2100m and from north West Bengal and south of the Brahmaputra. Varshney and Smetacek (2015) reported it from Uttarakhand to NE India. Recently, it was reported from Nepal at 850m elevation (KC, 2020). Thus, its occurrence in Bhutan was expected.

B. anadi was photographed on 7 June 2021 by Tshulthrim Drukpa Wangyel and posted on the BBP website. It was spotted along the Mo Chu in Punakha Dzongkhag, at an elevation of 1300m, near warm broadleaved forest where it was extracting minerals from moist sand.

Caltoris aurociliata (Elwes & Edwards, 1897) Yellow-fringed Swift

C. aurociliata was described as *Parnara aurociliata* with its name referring to the yellow/golden fore- and hindwing cilia. The type locality was Sikkim. Evans (1949) also studied specimens from Manipur and Nagaland. Hence, its occurrence in Bhutan was expected. This was also indicated by Van Gasse (2018), who noted about it: “undoubtedly occurring in Bhutan”.



Caltoris aurociliata © Karma Wangdi

A picture of *C. aurociliata* was presented as *C. tulsii* in Wangdi & Sherub (2014). It lacks the light grey-purplish band on the underside of the hindwing of *C. tulsii*. It was identified with an estimated certainty of 99 % to be correct as *C. aurociliata*. Thus, we report it here as a first record of the species for Bhutan. The picture was taken by Karma Wangdi on 31 August 2010 in Cheng village, Trashiyangtse Dzongkhag, at an elevation of 2330m in cool broad-leaved forest.

Caltoris cahira (Moore, 1877)

C. c. austeni (Moore, [1884]) Colon Swift

C. cahira was described as *Hesperia cahira* from the Andaman Islands. The Himalayan ssp. *austeni*, which was described from the Khasi Hills, differs from ssp. *cahira* in the males and females having two sub-apical spots and three discal spots. Varshney & Smetacek (2015) reported *C. cahira austeni* from Sikkim to N.E. India. Van Gasse (2018) reported this taxon from the same area including Bhutan. The source of its listing

by Van Gasse is unknown, but it could be a fairly recent report, which would explain that *C. cahira* was not listed by Singh & Chib (2015). The authors were unsuccessful in finding additional information, but found recent pictorial evidence.

The picture of *C. cahira* was taken by Karma Wangdi on 16 October 2021 in Berti, Zhemgang Dzongkhag, at 610m elevation in sub-tropical forest.



Caltoris cahira © Karma Wangdi

Caltoris kumara (Moore, 1878)

C. m. moorei (Evans, 1926) Blank Swift

C. kumara was described as *Hesperia kumara* from Canara/Kanara, Karnataka, India. Evans (1949) indicated that it has no forewing cell spots. In females, the under hindwing may have a small spot in space 2 and a smaller one in space 3 (Evans, 1949). It was first reported for Bhutan by Wangdi & Sherub (2014) with pictures that could not be identified, possibly being of a dry season form of *Pseudoborbo bevani* (Moore, 1878). *C. kumara* was also listed for Bhutan by Van Gasse (2018), and this listing was presumably based on the same publication. Thus, there was no evidence of *C. kumara* in Bhutan.

C. kumara was photographed by Piet van der Poel on 20 May 2016 in Lingmethang, Mongar Dzongkhag, at an elevation of 680m at the edge of a forested area. It was wrongly labelled as *C. tulusi* and consequently was not listed in Van der Poel (2016, unpublished).



Caltoris kumara © Piet van der Poel

Capila pennicillatum pennicillatum (de Nicéville, [1893]) Fringed Dawnfly

C. pennicillatum was described as *Crossiura pennicillatum* from the Kashi Hills in Meghalaya, India. The original description was based on 6 males and 2 females collected by local people in the Khasi Hills. Van Gasse (2018) listed it as very rare in the Himalaya and in the hills south of the Brahmaputra. From the Himalaya it was only known from two records in east Nepal, which date back to 1987 (Van der Poel & Smetacek, 2022).



Capila pennicillatum © Kado Rinchen

C. pennicillatum is easily distinguished from other species (Evans, 1949) by its tapering discal band not reaching the termen and costa and by four apical spots, while the male has hair tufts at the end of vein 4 of the hindwing. Evans (1949) and the FUNET website list three subspecies. Ssp. *pennicillatum* was only reported from the locations mentioned above.

No reports of recent observations of this species were found. Thus, Kado Rinchen photographing it in late December 2017 in warm broad-leaved forest at an elevation of 1250m in Adha, Wangdue-Phodrang Dzongkhag, confirms its continued presence in the Himalaya. It is also the first record for Bhutan. Its apparent rarity may be due to it being an elusive species, hiding in the undergrowth or hanging from the underside of leaves.

Cephrenes acalle (Hopffer, 1874)

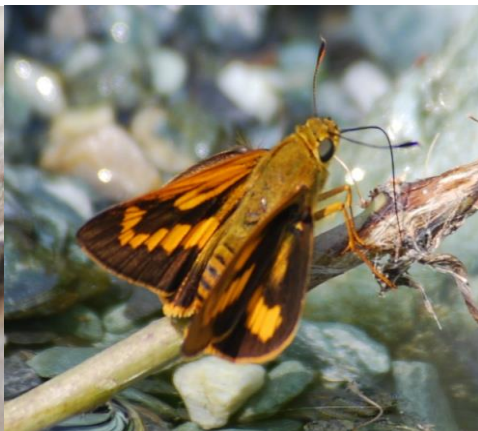
C. a. oceanica (Mabille, 1904) Plain Palm Dart

C. acalle was described as *Hesperia acalle*. Evans (1949) listed it as *Cephrenes chrysozona* (Plötz, 1883) and indicated that the males have an upper forewing central band that is solid throughout, while the underside of females often has a slaty glaze. Mabille (1904) described subspecies *oceanica* as *Telicota oceanica* from “Océanie sans localité précise”. Evans (1949) listed this as “Oceania (probably Assam)”. FUNET lists “Papua” as type locality. *C. acalle* has been reported from large parts of India, including lower elevations in the Himalaya from Sikkim to Arunachal Pradesh (Van Gasse, 2018; Varshney & Smetacek, 2015). It was also reported from central Nepal at 1500m elevation with photographic evidence of both sexes (Van der Poel, 2020). For Bhutan it was reported in Wangdi & Sherub (2014) but the accompanying picture was of a *Potanthus* Scudder, 1872 species. Hence, it appears that it was not formally reported from Bhutan before.

Cephrenes acalle was photographed by Karma Wangdi on 20 November 2022 while feeding in sub-tropical forest at 615m elevation in Bermo, Tingtibi, Zhemgang Dzongkhag.



Cephrenes acalle © Karma Wangdi



Cephrenes acalle © Karma Wangdi

Choaspes xanthopogon (Kollar, [1844]) Similar Awlking

C. xanthopogon was described as *Hesperia xanthopogon* with type locality “Himalaya”. It is difficult to distinguish between the three *Choaspes* species found in Bhutan and the individuals presented as *C. xanthopogon* in Yazaki & Kanmuri (1985) and Wangdi & Sherub (2014) were both re-identified as *C. benjaminii*, having the tornal black spot on UnH broken and a wide orange area between the black spot and the tornus. Consequently, the listings of *C. xanthopogon* for Bhutan in Singh & Chib (2015) and Van Gasse (2018) had no evidence. Sbordoni *et al.* (2015) listed it from Punakha, but the source of its listing is unclear. In early 2003, Piet van der Poel took a photograph of the upperside of a specimen labelled *Choaspes xanthopogon* [*sic*] in the Yusipang Agricultural Research Station. Karma Wangdi photographed the underside of the same specimen in 2023, in the Museum of the Ugyen Wangchuck Institute for Conservation and Environmental Research in Lamai Goempa, Bumthang Dzongkhag. This specimen was confirmed to be *C. xanthopogon*.

The specimen was most probably collected by B. B. Chhetri from an area above Yusipang at an approximate elevation of 2750 – 2800m. Another specimen of *C. xanthopogon* was collected by Karma Wangdi in Khoma, Lhuentse Dzongkhag.



Choaspes xanthopogon © ARS, Yusipang



Choaspes xanthopogon © UWICER, Bumthang

Coladenia agni agni (de Nicéville, [1884]) Brown Pied Flat

C. agni was described from Sikkim. It differs from *C. agnioides* Elwes & Edwards, 1897 mainly by having the upper side of the antennae uniformly black, while the underside is whitish, and not having a white area below the club on the upper side of the antennae. *C. agni* was listed for Bhutan by Singh & Chib (2015) and Van Gasse (2018), ultimately only based on Wangdi & Sherub (2014). However, the picture in the latter publication was not of *C. agni*, but most probably of *Pseudocoladenia festa* (Evans, 1949). Hence, the species was not reliably reported from Bhutan before.

C. agni was photographed by Karma Wangdi on 10 April 2014 in Pantang, Zhemgang Dzongkhag, at an elevation



Coladenia agni © Karma Wangdi

of 160m in sub-tropical forest. Another picture of it, taken in Samdrup-

Jongkhar was posted on the BBP website by Tshulthrim Drukpa Wangyel in 2018.

Gangara lebadea lebadea (Hewitson, 1868) Banded Redeye

G. lebadea was described as *Hesperia lebadea* from Borneo. It is a rather large Redeye, which is quite easy to identify. Van Gasse (2018) listed ssp. *lebadea* as very rare in the eastern Himalayas and N.E. India. Although Varshney & Smetacek (2015) listed it from Sikkim, Van

Gasse indicates that this was actually northern West Bengal. Finding it in Bhutan was not unexpected.

G. lebadea was photographed by Shyam on 21 September 2021 at Jomotsangkha, Samdrup Jongkhar Dzongkhag, at an elevation of 290m in subtropical forest and appeared to be extracting nutrients from a wet towel.

Gangara thyrasis thyrasis (Fabricius, 1775) Giant

Redeye

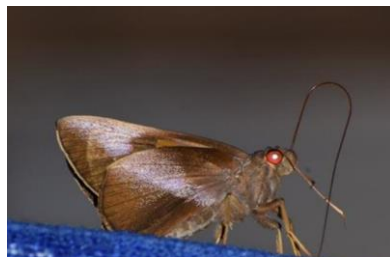
G. thyrasis was described as *Papilio thyrasis* by Fabricius, indicating “Habitat in America”. FUNET indicates that this should be Tranquebar, S. India. Van Gasse listed ssp. *thyrasis* for the Himalayan area from Himachal Pradesh to N.E. India, including an observation in the Manas National Park in Assam, near the border with Bhutan. Thus, it was expected to occur in Bhutan.

G. thyrasis was photographed by Shyam on 17 July

2020 at Jomotsangkha, Samdrup Jongkhar Dzongkhag, at an elevation of 240m. It was found in subtropical forest feeding from a *Hibiscus* flower.

Halpe aucma Swinhoe, 1893 Gold-spotted Ace

H. aucma was described as *Halpe aucma* from Shillong (Meghalaya), but Swinhoe’s single specimen may have been an exception as some of the characteristics he described appear not to be standard characteristics, such as no forewing cell spot and a tiny third apical spot above the two normal apical spots. Van Gasse (2018) and Varshney & Smetacek (2015) reported it as a ssp. of *H. homolea* (Hewitson, 1868), the former from N.E. India south of the Brahmaputra and the latter from Manipur, Meghalaya and Nagaland. It was recently reported from east Nepal by KC & Neupane (2021). *H. aucma* was raised to species rank by Huang (1998), but some doubts remain about its status (Peter Smetacek, *pers. comm.*, 2022). Van der Poel & Smetacek (2022) followed Huang (1998) and we follow Van der Poel & Smetacek (2022) and report it as a first record for Bhutan, since there appear to be no records of it from Bhutan either as a species or as a ssp. of *H. homolea*.

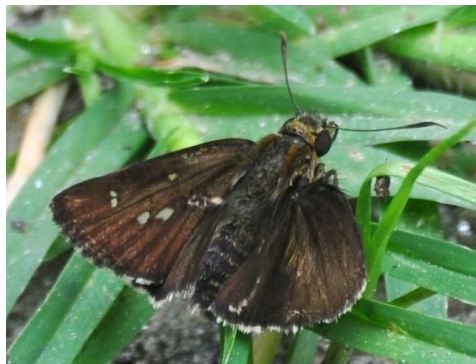


Gangara lebadea © Shyam



16 *Gangara thyrasis* © Shyam

H. aucma was photographed by Piet van der Poel on 26 August 2016 in Masangdaza, Lingmethang, Mongar Dzongkhag, at an elevation of 840m in open area next to a creek near warm broad-leaved forest. The species was not reported in Van der Poel (2016), because it was not identified at the time.



Halpe aucma © Piet van der Poel



Halpe aucma © Piet van der Poel

Iton semamora semamora (Moore, [1866]) Common Wight

I. semamora was described from “Bengal” as *Hesperia semamora*. Van Gasse (2018) listed ssp. *semamora* as occurring in the Himalaya from Sikkim and N. West Bengal to Arunachal Pradesh and as “not recorded, but undoubtedly present in Bhutan”.

A photograph of the underside of *I. semamora* was taken by JSWNP (Jigme Singye Wangchuck National Park) ranger Cheku on 20 September 2019 near the Tingtibi bridge in Zhemgang at 530m elevation in Chir pine forest. The upperside picture was taken by Shyam on 27 February 2022, in the Jomotsangkha Wildlife Sanctuary, Samdrup Jongkhar Dzongkhag, at an elevation of 520m in subtropical forest.



Iton semamora © Shyam



Iton semamora © Cheku

Matapa cresta Evans, 1949 Fringed Redeye

M. cresta was described from Sikkim by Evans (1949), who indicated: “This insect was wrongly identified as *druna* by De Nicéville (1883), when describing his *shalgrama* [now a synonym of *druna*] and subsequent authors have followed him”. Van Gasse (2018) reported *M. cresta* from east Nepal to N.E. India, thus it was expected to occur in Bhutan. *M. cresta* is also known as the Dark-brand Redeye. Its forewing apex is light grey and the basal areas of the underside of the wings are also grey.



Matapa cresta © Tandin Jamtsho

A picture of *M. cresta* was found on the BBP website, where it was posted as *M.*

sasivarna (Moore, [1866]), the Black-veined Redeye. The picture was taken on 4 January 2022 by Tandin Jamtsho in Dremzeygang, Samrang, Samdrup Jongkhar Dzongkhag, at an elevation of 440m in dense sub-tropical forest.

Matapa druna (Moore, [1866]) Grey-brand Redeye

M. druna was described as *Hesperia druna* from Bengal. Van Gasse (2018) reported it from east Nepal to Arunachal Pradesh and indicated that it certainly also occurs in Bhutan. The picture labelled *M. purpurascens* in Wangdi & Sherub (2014) was re-identified as *M. druna*. Its narrowly pale orange hindwing cilia and light yellow-grey forewing cilia are indicative. *M. purpurascens* has broadly bright orange hindwing cilia.



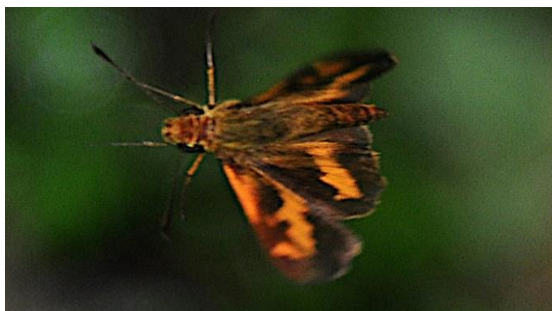
Matapa druna © Karma Wangdi

The photograph was taken by Karma Wangdi on 11 July 2012 in Phophel, Tingtibi, Zhemgang Dzongkhag, at an elevation of 900m, in sub-tropical forest.

Oriens gola (Moore, 1877)

O. g. pseudolus (Mabille, 1883)
Common Dartlet

O. gola was described as *Pamphila gola* from the Andaman Islands. It was reported for Bhutan in all 3 checklists, probably based on Yazaki



Oriens gola © Piet van der Poel

& Kanmuri (1985) and Wangdi & Sherub (2014). The former reported to have collected 28 specimens of it, but the picture labelled “*Oriens gola*” is of *Taractrocera danna* (Moore, 1865). It appears unlikely that they did not collect any *O. goloides* (Moore, [1881]), which in Lingmethang is much more common than *O. gola* (Van der Poel, 2016). The picture of *O. gola* in Wangdi & Sherub (2014) was of *O. goloides*, which has the lower cell spot and the spot in space 2 (if present) separated by a darker line. Singh (2012) also reported *Oriens gola*, but without providing photographic evidence. Van der Poel (2016) reported *Oriens gola* and *O. goloides* from Lingmethang, without pictorial evidence.

That evidence for *O. gola* is presented here. The picture was taken by Piet van der Poel on 16 June 2016 at an elevation of 660m in the area of the Mountain Hazelnut Company in Lingmethang, Mongar Dzongkhag, in secondary forest not far from the river.

Pirdana hyela (Hewitson, 1867)

P. h. major Evans, 1932 Green-striped Palmer

P. hyela was described as *Hesperia hyela* from Java. Ssp. *major* was described by Evans (1932) as *Pirdana ismene major* from Sikkim.

In Evans (1949) the name was changed to *P. hyela major*, and one specimen from Sikkim and ten from Assam were studied. Van Gasse (2018) listed ssp. *major* as rare at fairly low elevations in the Himalaya, in N. West Bengal, and in Meghalaya, Manipur and Tripura. Varshney & Smetacek (2015) listed it also from Sikkim. Hence, its occurrence in Bhutan was expected.

P. hyela was photographed by Cheku of Jigme Singye Wangchuk National Park on 23 January 2020 in Tingtibi (Zhemgang) at 1070m elevation in sub-tropical forest.



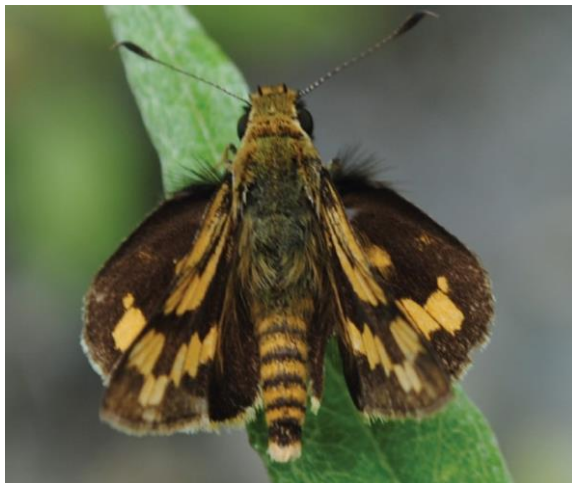
Pyrdana hyela © Cheku

Potanthus pseudomaesa (Moore, [1881])

P. p. clio (Evans, 1932) Indian Dart

P. pseudomaesa was described as *Padraona pseudomaesa* from “Colombo. Plains” (Sri Lanka). It is often reported as a common Himalayan species (e. g. Smith (1994) for Nepal). It also is very variable, e. g. the upper forewing discal spots in spaces 4 and 5 can be separate from those in 3 and 6, but could also be touching them and similarly the upper hindwing can have a spot in space 6 or one in space 7 or spots in both spaces 6 and 7. It was not reported for Bhutan in Evans (1932, 1949) and neither reported by Kehimkar (2008) who checked records of Bhutan

butterflies in old documents in the BNHS library. It was listed for Bhutan in the checklists of Singh & Chib (2015) and Sbordoni *et al.* (2015) based on it being reported in other publications. Some of these included pictures, e. g. Yazaki & Kanmuri (1985), Wangdi & Sherub (2014), Van der Poel & Wangchuk (2007) and Singh & Chib (2014). The first two were wrong identifications, while the last two could be *P. pseudomaesa*, but cannot really be identified beyond the genus level. There are also several pictures posted on the BBP website as *P. pseudomaesa*, most of which cannot be identified beyond the genus level. Thus, the presence of *P. pseudomaesa* in



Potanthus pseudomaesa © Karma Wangdi

Bhutan had not been established.

A picture presented as *P. nesta* in Wangdi & Sherub (2014) was considered by the authors to be 99.5% certain *P. pseudomaesa*. We present it here as a first record supported by pictorial evidence of *P. pseudomaesa* for Bhutan.

The picture was taken by Karma Wangdi on 8 August 2010 near Phangteng, Bumdeling, Trashiyangtse Dzongkhag, at an elevation of 1930m in subtropical broad-leaved forest.

Salanoemia noemi (de Nicéville, 1885) Spotted Yellow Lancer

S. noemi was described as *Plastingia noemi* from Sikkim. Van Gasse (2018) listed it for the Himalaya from Sikkim, northern West Bengal and south-eastern Arunachal Pradesh. Thus, it was expected to occur in Bhutan.

S. noemi was photographed by Cheku in early September 2016 in Nimshong, Nubji, Trongsa Dzongkhag, at 1200m elevation in an area of mixed agricultural land, pastures and forest, not far from the village of Nimshong. It was posted on the BBP website in August 2022.



Salanoemia noemi © Cheku

Scobura isota (Swinhoe, 1893) Swinhoe's Forest Bob

S. isota was described as *Isma isota* from Shillong, Meghalaya, India. Swinhoe (1893) described the underside of the hind wing to be uniformly yellowish, with the lower spot not divided by the vein, as in *S. cephalo*. Evans (1932) considered *S. isota* and *S. cephalo* to be synonyms, but Evans (1949) listed them as separate species. Van Gasse (2018) listed *S. isota* from Sikkim to NE India and *S. cephalo* from central Nepal to N.E. India, with both species not recorded from Bhutan.

S. isota was first reported for Bhutan in the Kuensel newspaper of 10 December 2016, but it was never reported in any scientific peer-reviewed journal. The picture was taken by Karma Wangdi on 19 November 2016 in Koilatar, Lhamoy Zingkhah/Kalikhola in Dagana



Scobura isota © Karma Wangdi

Dzongkhag at an elevation of 170m in sub-tropical forest. Another picture of *S. isota* was posted on the BBP website by Tshulthrim Drukpa Wangyel in 2017.

Sovia grahami grahami (Evans, 1926) Graham's Ace

S. grahami was described as *Halpe grahami* from Assam and Manipur, having upperside cilia brown and faintly chequered and a dark ochreous underside. *S. grahami* was reported for Bhutan by Van der Poel & Wangchuk (2007), showing a picture of the underside. Presumably based on this document, it was subsequently listed in all three checklists of Bhutan. Using pictures of both the upper and underside, the individual was re-identified as *Thoressa serena* (Evans, 1937). An underside picture posted as *Thoressa iana* [*sic recte aina*] on the BBP website was re-identified as *Sovia grahami*. We also found a picture of the upperside of the same individual, which makes us believe that the individual is 99% certain to be *S. grahami*. The pictures were taken by Karma Wangdi



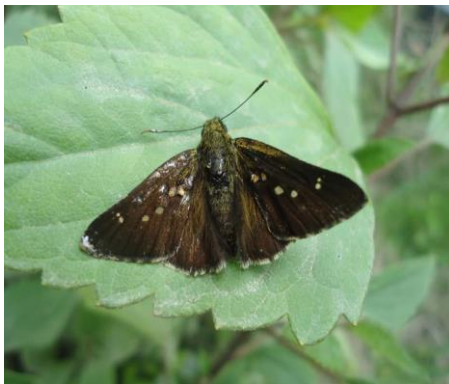
Sovia grahami © Karma Wangdi

on 23 July 2018 in Thedtsho, Wangdi-Phodrang Dzongkhag, at 1370m elevation in Chir pine forest.

Thoressa gupta gupta (de Nicéville, 1886) Olive Ace

T. gupta was described as *Halpe gupta* from Sikkim, and reported to be quite similar to *H. kumara*. The underside of *T. gupta* shows some vague spots while *H. kumara* may have a clear spot in space 2. Evans (1949) indicated that *T. gupta* has white spots and a greyish underside. *T. gupta* was reported for Bhutan by Wangdi & Sherub (2014) and presumably based on that by Singh & Chib (2015) and Van Gasse (2018). However, the picture in Wangdi & Sherub (2014) is not of *T. gupta* and probably is *Sovia separata* (Moore, 1882). Hence, the listings of it for Bhutan were incorrect.

T. gupta was photographed by Tandin Wangchuk on 28 May 2015 in Chhoekhor, Bumthang Dzongkhag at an altitude of 2150m, and posted as *Thoressa* spp. on the BBP website. The picture of the underside was taken by Piet van der Poel on 6 June 2015 near Buyang Waterfalls, Trashiyangtse Dzongkhag, in open land near broadleaved forest at 1680m.



Thoressa gupta © Tandin Wangchuk



Thoressa gupta @ Piet van der Poel

Thoressa serena (Evans, 1937) Serena Ace

T. serena was described as *Pedesta serena* from Ta Tsien Lou, Sichuan Province, China. Evans (1949) listed additional specimens from Yunnan (Tse Kou, = Cigu, in north Yunnan), Myanmar (Burma: Kambaiti, 6,000 ft, near the border with Yunnan) and north Vietnam (Tonkin). Huang (2003) reported *T. serena* from N.W. Yunnan and the Yutaka website, based on Monastyrskii & Devyatkin (2015) from Lao Cai and Sa Pa in north Vietnam. Huang & Zhan (2004) reported: “besides the type locality in Sichuan, *serena* has been recorded also from NW. Yunnan (Tsekou), NE. Burma (Kambaiti) and N. Vietnam (Tonkin). However all these records need to be

confirmed by the examination of male genitalia.” Until now, *T. serena* was not reported in any scientific document from the Indian subcontinent.

In 2022, a picture labelled *Pedesta serena*, taken on 31 May 2022 by Tshulthrim Drukpa Wangyel, was posted on the BBP website as a new species for Bhutan. The picture, of only the underside, was taken in Tashithang, Punakha Dzongkhag, West Bhutan at an elevation of 1540m, and identified by Monsoon Jyoti Gogoi. Pictures of both upper and undersides of a similar looking individual were taken by Piet van der Poel on 16 May 2003 above Thinleygang, Thimphu Dzongkhag, West Bhutan at about 2000m elevation. These latter pictures were confirmed to be *Thoressa serena* by Hao Huang (*pers. comm.*, 2023). An underside picture was wrongly presented in Van der Poel and Wangchuk (2007) as *Sovia grahami*. The common name is proposed here.



Thoressa serena © Piet van der Poel

Thoressa serena © Piet van der Poel

Unkana ambasa (Moore, [1858])

Unkana ambasa attina (Hewitson, [1866]) Hoary Palmer

U. ambasa was listed as *Ismene ambasa* by Moore in 1857, with coloured drawings of the larva and the chrysalis. He indicated having examined two males from Java and a female from North India. Subspecies *attina* was described as *Hesperia attina* in 1865, including a coloured drawing of the butterfly. Van Gasse (2018) list ssp. *attina* for Darjeeling and Jalpaiguri in N. West Bengal. Varshney & Smetacek report it only from Sikkim (but this may actually be Darjeeling). Thus, it was not unexpected to find it in Bhutan.



Unkana ambasa © Nima Tshering

The picture of *Unkana ambasa* was taken on 22 October 2018 in Loongsilsa village of Lhamoy Zingkha/Kalikhola, Dagana Dzongkhag by Nima Tshering Tamang. It was sitting on a leaf in sub-tropical forest at an elevation of 120m. *U. ambasa* was reported as a new species for Bhutan on the BBP website in October 2018, based on the same sighting. Observations of *U. ambasa* from the Buxa Tiger Reserve (north West Bengal) were posted on the IFB website. All these were taken in October and November of 2014, indicating that it is in general seldom seen.

- **Species reported as tentative for Bhutan, requiring additional proof**

Four species are listed for Bhutan as tentative. For these species, we considered the identification as having a 90-98% chance of being correct. These species need to be confirmed with additional evidence, which may consist of pictures of the upper and undersides, specimens to check certain details, a study of the genitalia or DNA analysis.

Celaenorrhinus plagifera de Nicéville, 1889 De Nicéville's Spotted Flat

C. plagifera was described from "Sikkim, Bhutan" by de Nicéville, who reported that specimens came from his own and from Mr. Knyvett's collection. Mr. Knyvett's native collectors were known to have collected extensively from "Buxa, Bhutan". Evans (1949) also listed Bhutan, probably based on the same specimens. We assume that it is most likely that these specimens were not from within the present-day boundaries of Bhutan. Since this is not certain and the species is likely to occur or to have occurred in Bhutan, it is listed as tentative.

Potanthus ganda ganda (Fruhstorfer, 1911) Sumatran Dart

P. ganda was reported by Wangdi *et al.* (2012) from Trashiyangtse and based on that by Singh & Chib (2014), Van Gasse (2018) and Sbordoni *et al.* (2015). Otherwise, on the Indian subcontinent it was reported from Assam and Meghalaya (Van Gasse, 2018). Wangdi *et al.* (2012) did not report *P. ganda* as a new species for Bhutan. The identifying team consisted of several experienced Japanese researchers and experts, but the team only studied the specimen, not the genitalia (Saito, *pers. comm.*) Consequently, *P. ganda* is listed as tentative until studies of the genitalia confirm the identification.



Potanthus ganda - Copy from: Wangdi *et al.*, 2012

Thoressa fusca (Elwes, [1893]) Fuscous Ace

T. fusca was described as *Halpe fusca* from Bernardmyo in north Burma/Myanmar and reported to resemble *T. gupta*, but being larger and with unchequered plain and paler cilia. Varshney & Smetacek (2015) and Van Gasse (2018) reported *T. fusca fusca* from Nagaland and Manipur, and *T. fusca debilis* from Meghalaya in N.E. India. Elwes & Edwards (1897) described *Halpe debilis*,



showing a male with two 38. *Thoressa fusca* © Tshulthrim Drukpa Wangyel
conjoined cell spots and a female without cell spots.

In October 2021, a picture of the upperside of *T. fusca* (with the underside of probably another *Thoressa* species) was posted by Tshulthrim Drukpa Wangyel on the BBP website as a new species for Bhutan: *Thoressa fusca*. It was observed on 17 June 2019 in Wangdigang, Trong Gewog, Zhemgang Dzongkhag, at an elevation of 930 m near sub-tropical forest. We are 95% certain that the upperside picture is of *Thoressa fusca* and report it here as a tentative first record for Bhutan.

Zographetus ogygia ogygia (Hewitson, [1866]) Purple-spotted Flutter

Z. ogygia was described from Sumatra by Hewitson and reported from “Buxa, Bhutan” by De Nicéville (1885) and Elwes & Edwards (1897). Evans (1949) just listed it as “Bhutan” and Van Gasse (2018) listed it for Bhutan based on Evans (1949). As Buxa is in West Bengal and without any old records from a location within Bhutan, there appears to be



Zographetus ogygia © unknown

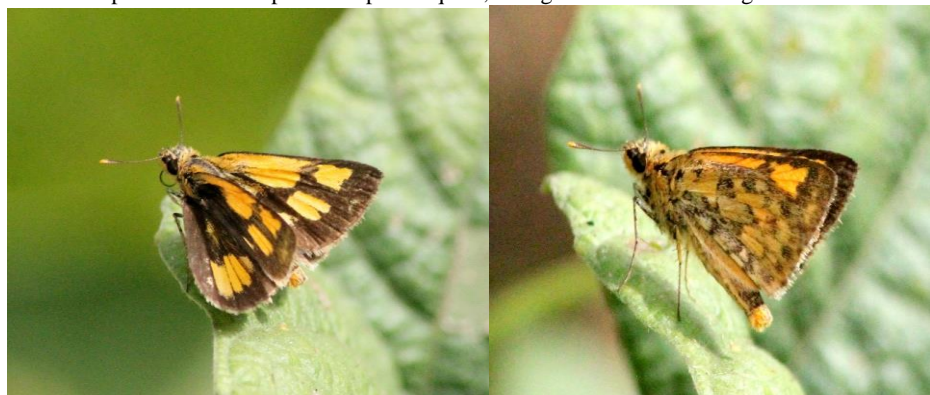
no evidence of this species having been reported from within the present boundaries of Bhutan.

A picture, taken on 6 September 2017 in Gelephu in Sarpang Dzongkhag, of the underside of what we identified as *Z. ogygia* was posted on the BBP website in 2022. As indicated on the Yutaka website for Thailand, several *Zographetus* species, including *Z. ogygia*, cannot be identified without a study of the male genitalia. However, as none of the other similar *Zographetus* species have been reported from the Indian subcontinent we are 95% certain that this is *Zographetus ogygia* and list it as tentative for Bhutan, requiring confirmation based on a picture of the upperside and probably also a study of the male genitalia of a specimen.

- **Evidence of species which were reported for Bhutan without much proof or not reported for 70 or more years and confirmation of tentative species**

The following species have been reported from Bhutan before, many in Evans (1932, 1949), while others were listed by Kehimkar (2008) based on old documents in the BNHS library. We provide photographic evidence of 25 of these species. Eight of these were reported as names in species checklists without supporting photographic evidence. We obtained the missing evidence, mostly from the authors, and present it here to confirm their records of the species. One species, *Potanthus trachala*, was reported earlier (Wangdi & Sherub, 2014) with evidence that we considered only sufficient for a tentative listing. Here, we provide the evidence justifying listing them as a confirmed species for Bhutan. Sixteen species are reported here as recent records of species that were only known to occur in Bhutan from old documents.

Ampittia dioscorides dioscorides (Fabricius, 1793) Bush Hopper was listed for Bhutan by Van Gasse (2018), who (*pers. comm.*) referred to Singh & Chib (2016), which unfortunately did not include a picture of the species. Upon request, Irungbam Jatishwor Singh sent two of his



Ampittia dioscorides © Irungbam Jatishwor Singh *Ampittia dioscorides* © Irungbam Jatishwor Singh

pictures, confirming his listing from Mendrelgang (Tsirang) as correct. In 2019, another picture of *A. dioscorides*, from Sarpang Dzongkhag, was posted on the BBP website by Tshulthrim Drukpa Wangyel.

Ampittia subvittatus (Moore, 1878) *subradiatus* (Moore, 1878) Tiger Hopper was reported for Bhutan by Wood-Mason & de Nicéville (1887) listing it from Sikkim, Bhutan and Salween. It was listed in all three checklists of Bhutan. Singh & Chib (2015) referred to Kehimkar (2008), Singh (2012) and two more recent publications. None of these publications presented photographic evidence for Bhutan. A picture of the species was posted in 2022 on the BBP website. Although the species is hard to mis-identify, we provide this evidence of its continued presence in Bhutan here. The picture was taken by Karma Wangdi on 4 August 2016 near Phuntsholing in Chukha Dzongkhag at an elevation of 330m in subtropical forest.



Ampittia subvittatus © Karma Wangdi

Burara gomata gomata (Moore, [1866]) Pale Green Awlet was reported for Bhutan by Sbordonni *et al.* (2015) and also listed by Van Gasse (2018). It was also reported in the Kuensel newspaper of 10 December 2016 as a new species for Bhutan. The photographic evidence for Sbordonni *et al.* (2015) is presented here. It was taken by Tshering Nidup on 7 October 2015 in Rinchending, Chukha Dzongkhag, at an elevation of 400m, sitting on the underside of a



Burara gomata © Tshering Nidup

leaf in sub-tropical forest.

Capila jayadeva Moore, [1866] Striped Dawnfly was listed for Bhutan by Sbordonni *et al.* (2015) and Singh & Chib (2015). The latter was based on its listing in JSWNP (2014) and Kehimkar (2008). Kehimkar's (2008) listing was probably based on old documents in the BNHS library. Sbordonni *et al.* (2015) and JWSNP (2014) were based on the same picture of *C. jayadeva*. Thus, it appears there is only one recent record and one or more old records. Here, we present the pictorial evidence on which the listing of *C. jayadeva* in JSWNP (2014) and Sbordonni *et al.* (2015) is based. The picture was taken by Kado Rinchen on 5 June 2012 in Ada, Wangdue Phodrang Dzongkhag, at an



Capila jayadeva @ Kado Rinchen

elevation of 1190m in warm broad-leaved forest.

Carterocephalus avanti (de Nicéville, 1886) Orange and Silver Hopper was listed for Bhutan in Evans (1949). It was also listed for Bhutan by Kehimkar (2008) and Van Gasse (2018), both presumably based on Evans (1949). Wangdi & Sherub (2014) listed it, but the accompanying picture was of *Carterocephalus houangti bootia* Evans, 1949. A picture of *C. avanti* was presented in Wangdi & Sherub (2014), but with the wrong name: *C. silvicola* (Meigen, 1828). Here, we present that and an underside picture with the correct name. The photographs of *C. avanti* were taken by Karma Wangdi on 12 March 2013 in Damthang, Haa Dzongkhag, at an elevation of 3070m in a grazed meadow, and by Tshulthrim Drukpa Wangyel on 14 March 2019 at Chele La (pass) on the border of Paro and Haa Dzongkhags, at an elevation of 3810m in a subalpine meadow.



Carterocephalus avanti © Karma Wangdi *Carterocephalus avanti* © Tshulthrim Drukpa

Celaenorhinus dhanada (Moore, Wangyel

[1866]) Himalayan Yellow-banded Flat was listed without picture for Bhutan by Sbordoni *et al.* (2015), Singh & Chib (2015) and Van Gasse (2018). The last two appear to be based on Evans (1949), which reported 6 specimens from “Bhutan” without detailed locations. Wangdi & Sherub (2014) presented a more recent picture of *C. dhanada* and listed it correctly as the Himalayan Yellow-banded Flat, but put the wrong scientific name below it. Thus, here we present the same picture with the correct scientific name and identifying it as ssp. *dhanada*. It was taken by Karma



Celaenorhinus dhanada ssp. *dhanada* © Karma Wangdi
LUG

Wangdi on 12 August 2013 in Tsamang,

Mongar Dzongkhag, at an elevation of 1370m in warm broad-leaved forest.

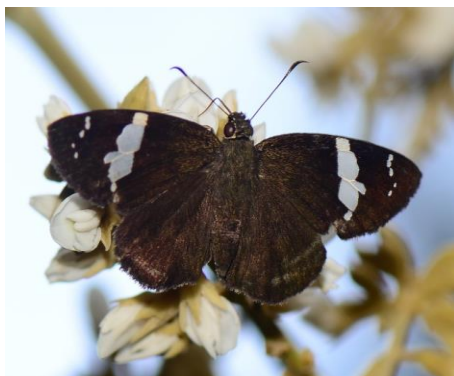
A picture taken in Yarab, Mongar Dzongkhag, and reported as “*Celaenorrhinus aurivittata* (Moore, 1866)” by Wangdi & Sherub (2014) was re-identified as *C. dhanada* ssp. *affinis* Elwes & Edwards, 1897, a new ssp. for Bhutan. Ssp. *affinis* has the spot in space Ib directed to the termen rather than to the dorsum. *C. d. affinis* was listed from N.E. India by Varshney & Smetacek (2015) and from N.E. India south of the Brahmaputra from Assam to S.E.



Arunachal Pradesh by Van Gasse (2018). Evans (1932) presented them as two separate species, with *C. dhanada* from Mussoorie to Sikkim and *C. affinis*, the Burmese Yellow-banded Flat, from Assam to Burma. Evans (1949) presented them as ssp. of *C. dhanada*, reporting ssp. *dhanada* also from Bhutan. The present record represents a northward extension of the distribution area of *C. dhanada affinis* of at least some 150 km, north of the Brahmaputra River. Ssp. *dhanada* and *affinis* may be sympatric in Mongar Dzongkhag. The Yutaka website notes for *C. affinis*: “The male genitalia are slightly different from *Celaenorrhinus dhanada*, and this species is sympatric with *Celaenorrhinus dhanada* in some parts of Chiang Mai province, N. Thailand. Therefore, I treat it as a distinct species.”. The source of information for *affinis* and *dhanada* being sympatric in Chiang Mai is the website “Butterflies of Thailand”. However, there appears to be no scientific publication reporting the change of status of this taxon. Thus, although we assume that *C. affinis* is a valid species, we will leave it as a ssp. of *C. dhanada* until its status as a species is confirmed in a scientific publication. The picture was taken by Karma Wangdi in 2009 near Yarab, Mongar Dzongkhag, at an elevation of 1600m in warm broad-leaved forest.

Celaenorrhinus dhanada ssp. *affinis* © Karma

Celaenorrhinus nigricans nigricans (de Nicéville, 1885) Small-banded Flat was listed for Bhutan based on old evidence, such as Evans (1949), by Singh & Chib (2015) and Van Gasse (2018). Sbordoni *et al.* (2015) also listed it, without a picture. Here the pictorial evidence for the listing of *C. nigricans* by Sbordoni *et al.* (2015) is presented. The picture was taken by Karma Wangdi on 2 October 2014 in Dakphel, Zhemgang Dzongkhag, at an elevation of 1050 m in warm

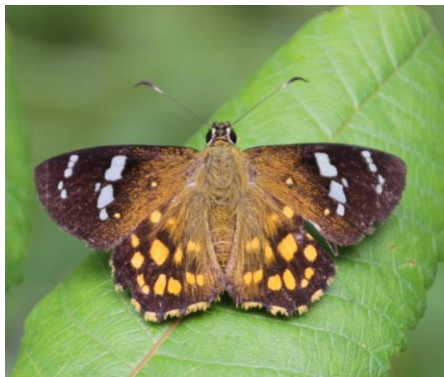


broad-leaved forest, where the butterfly was

Celaenorrhinus nigricans © Karma Wangdi

extracting nectar from flowers of *Millettia pachycarpa*.

Celaenorrhinus pulomaya pulomaya (Moore, [1866]) Multi-spotted Flat was reported by de Nicéville (1889) from Kulu (Himachal Pradesh) to Bhutan (not specifying a location). Evans (1949) also listed specimens from Bhutan, and based on this, it was listed for Bhutan by Kehimkar (2008) and Van Gasse (2018). Singh & Chib listed it based on the two sources mentioned above and on Dorji (2014), who reported it for Phobjikha. However, the latter was a mis-identification. Since Evans' listings were based on specimens, the last Bhutan record of *C. pulomaya* may have been from long before 1949.



Celaenorrhinus pulomaya © Karma Wangdi

C. pulomaya was photographed on 20 September 2012 by Karma Wangdi in Khomagang, Lhuentse Dzongkhag, at an elevation of 2020m in cool broad-leaved forest, confirming its presence in Bhutan.

Coladenia pinsbukana (Shimonoya & Murayama, 1976)

Coladenia pinsbukana occidentalis Huang, 2021 Large-spot Pied Flat was reported as *Coladenia hoenei* Evans, 1939 by Harada (1987a) as a first record for Bhutan. He collected two females on 15 May 1983, along the Mo Chhu near Tashithang, Punakha Dzongkhag, at 1600 m elevation. Evans (1939) described *C. hoenei* from type locality “Tapai Shan, Tsinling, S. Shensi” (=Shaanxi), but also listed 5 specimens from “Tien Mu Shan, Lingan, Chekiang” (=Zhejiang). Unfortunately, Evans (1949) listed *C. hoenei* only from Chekiang, while the type locality was in Shaanxi.



Coladenia pinsbukana © Karma Wangdi

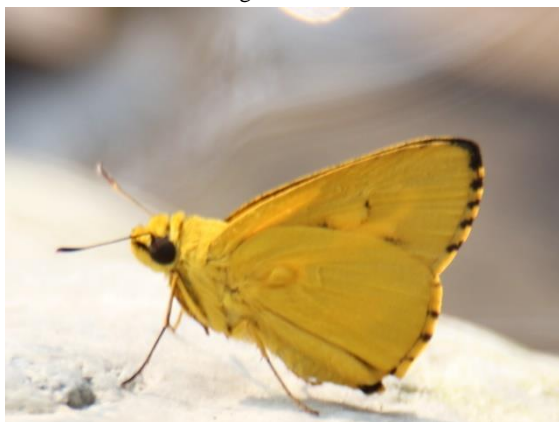
Coladenia pinsbukana (Shimonoya & Murayama, 1976) was described from Formosa (Taiwan) and at the time only known as *Pseudocoladenia pinsbukana*. The two species are very similar. Chiba *et al.* (2020) indicated that the forewings of the two species look the same, but that the discal dots on the hindwing are reduced in *pinsbukana*, while those of *hoenei* are more

prominent. They wondered why the authors of *P. pinsbukana* indicated that it was close to *Coladenia sheila* Evans, 1939 from China, but compared it in the original description with *Pseudocoladenia dan* (Fabricius, 1787) from India. Chiba *et al.* (2020) considered *pinsbukana* a good species, but placed it in *Coladenia*.

Harada's (1987a) identification of his specimens as *C. hoenei* is understandable. Huang & Xue (2004) reported the type locality of *C. hoenei* to be Zhejiang and FUNET listed it as "Chekiang", at least until 2023. *C. hoenei* was also reported from Thailand (Ek-Amnuay, 2012; Yutaka website until 2021) and India (IFB website in 2023). Huang (2021) reported that *C. hoenei* is restricted to the Chinese provinces of Shaanxi, Gansu and Henan and that *C. pinsbukana* occurs in areas further south. He described ssp. *occidentalis* from Pu'er in Yunnan, and noted that it also occurs in Laos, Thailand and Sikkim (India). Thus, the Bhutan species/ssp. should also be *Coladenia pinsbukana occidentalis*.

We found no other records for *C. hoenei/pinsbukana* in Bhutan in the literature. Karma Wangdi took pictures of *C. pinsbukana* on 5 May 2016 and 1 October 2019 in Korphu, Zhemgang Dzongkhag. Thus, also in this century the species has been observed in Bhutan. The proposed common name is the name used for this species on the Yutaka website and for *C. hoenei* on IFB website.

Cupitha purreea (Moore, 1877) Wax Dart was reported for Bhutan in Evans (1949), possibly based on the same specimen(s) as de Nicéville (1883), the latter specifying "Buxa, Bhutan), which is outside the present boundaries of Bhutan. Although it is not certain that Evans' specimens were from present-day Bhutan, we have accepted Evans (1949) as first record for Bhutan. Presumably based on Evans (1949), it was reported from Bhutan by Kehimkar (2008) and Van Gasse (2018). Singh & Chib (2015) listed it based on Kehimkar (2008). Here, we present evidence that it is still present in Bhutan. The picture was taken by Karma Wangdi on 23 February 2018 in Pantang, Zhemgang Dzongkhag, at an elevation of 200 m in sub-tropical forest.



Cupitha purreea © Karma Wangdi

Erionota torus Evans, 1941 Banana Skipper was not listed for Bhutan by Singh & Chib (2015) and neither by Sbordoni *et al.* (2015), but it was listed by Van Gasse (2018), possibly because he believed that the picture of “*Erionota thrax*” in Wangdi & Sherub (2014) was more likely to be of *E. torus*. We confirm that this was *E. torus*, which has a more curved forewing costa than *E. thrax*. The pictures of *E. torus* presented here were taken by Karma Wangdi on 20 September 2009 in Serzhong, Mongar Dzongkhag, at an elevation of 1440 m in warm broad-leaved forest and by Shyam on 2 September 2020 in Bhangter, Samdrup Jongkhar Dzongkhag, at an elevation of 340 m in sub-tropical forest.



Erionota torus © Karma Wangdi

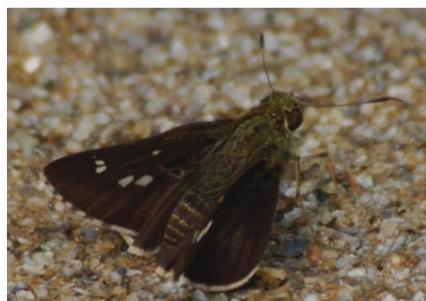


Erionota torus © Shyam

Halpe molta (Evans, 1949) *Molta* Ace. *Halpe homolea* (Hewitson, 1868), the Indian Ace, was reported from Bhutan in several publications and checklists. Most of these did not specify a ssp. and if they did it was usually ssp. *filda* (now species *H. filda*). Van Gasse (2018) reported ssp. *filda* and *molta* (now species *H. molta*) for Bhutan. The source of Van Gasse’s (2018) listing of *H. homolea molta* is not clear. The

upperside picture of *H. homolea* presented in Wangdi & Sherub (2014), which does not mention a ssp., is of *H. molta*, showing the forewing cell spot. Since Van Gasse (2018) did not present any pictures, we present a picture of *H. molta* here. It was taken by Karma Wangdi on 5 June 2012 in Dungkar, Lhuentse

Dzongkhag, at an elevation of 2030m in cool broad-leaved forest.



Halpe molta © Karma Wangdi



Halpe filda © Piet van der Poel

For comparison, we also show a picture of *Halpe filda* (Hewitson, 1868) Elwes' Ace, which has no cell spot. It was taken by Piet van der Poel on 26 August 2016 in Masangdaza, Lingmethang, Mongar Dzongkhag, near a river in broad-leaved forest at an elevation of 840 m.

Halpe porus (Mabille, [1877]) Moore's Ace was described as *Hesperilla porus* from "Himalaya", to which FUNET added: "[Assam?]". It was reported for Bhutan by Singh & Chib (2015) and Van Gasse (2018), probably both based on Kehimkar (2008). The latter was based on old documents in the library of the BNHS. Thus, apparently there were no recent



Halpe porus © Nim Tshering Tamang

reports of this species for Bhutan. Senior Forester Nim Tshering Tamang photographed *H. porus* on 25 October 2017 in Kalikhola, Dagana Dzongkhag, at an elevation of 270 m, where it was extracting nutrients from moist soil in tropical forest.

Hasora anura anura de Nicéville, 1889 Slate Awl was reported for Bhutan by Singh & Chib (2015) and Van Gasse (2018), probably both based on Kehimkar (2008). The latter was based on old documents in the library of the BNHS. Thus, apparently, there were no recent records of this species for Bhutan. Tshulthrim Drukpa Wangyel photographed *H. anura* on 12 June 2019 in Tarala, Zhemgang Dzongkhag, at an elevation of 1500m, on a lichen covered rock.



Hasora anura © Tshulthrim Drukpa Wangyel

Lobocla liliana liliana (Atkinson, 1871) Marbled Flat was reported for Bhutan by Singh & Chib (2015) and Van Gasse (2018), both presumably based on Kehimkar (2008). The latter was most probably based on old documents in the library of the BNHS. Thus, apparently, there were no recent records of this species for Bhutan.



Lobocla liliana © Karma Jamtsho

Karma Jamtso photographed *L. liliana* on 25 May 2023 in Kangpara, Trashigang

Dzongkhag, at an elevation of 1500 m in warm broad-leaved forest.

Matapa aria (Moore, [1866]) Common Redeye was reported for Bhutan by Sbordoni *et al.* (2015), Singh & Chib (2015) and Van Gasse (2018), the last two based on Kehimkar (2008) and Singh (2012). The latter, however had no picture of the species and none of the other checked recent documents mentioned *M. aria*. A picture of *Matapa aria* was posted



Matapa aria © Tshulthrim Drukpa Wangyel

on the BBP website in 2017. The picture was taken by Tshulthrim Drukpa Wangyel on 13 December 2017 along the Toorsa River in Phuntsholing, Chukha Dzongkhag at an elevation of 240m. It confirms the presence of *M. aria* in Bhutan.

Pithauria murdava (Moore, [1866]) Dark Straw Ace was mentioned by Wood-Mason & de Nicéville (1887): “We have long known of the existence of two species of the genus *Pithauria* occurring in almost equal profusion in Sikkim and Bhutan”. *P. murdava* was listed for Bhutan by Sbordoni *et al.* (2015) and Van Gasse (2018), the latter presumably considering the former as a reliable source. Since these documents do not present any pictorial evidence of their species, we present pictures of *P. murdava* here. The pictures were taken by Piet van der Poel on 26 August 2016 in Masangdaza, Lingmethang, Mongar Dzongkhag, at an elevation of 840 m. It was not included in his unpublished report on the butterflies of Lingmethang (Van der Poel, 2016), because at the time he was not sure of the identification.



Pithauria murdava © Piet van der Poel, for both pictures

Potanthus pallida (Evans, 1932) Pale Dart was described by Evans (1932) as *Padraona pseudomaesa pallida*, probably the dry season form, having broad and pale markings. Its wet season form was listed as *P. p. zatlilla*. Evans (1949) listed *P. pallida* as a species, based mainly on a study of the genitalia. He described it as having the upper forewing spots in spaces 4 and 5 detached and the underside yellow with the band defined by black dots.



Potanthus pallida © Piet van der Poel

The specimens studied included one male from Bhutan. Singh & Chib (2015) listed as recent source Wangdi & Sherub (2014). However, the upperside picture in the latter document appears to be most likely of *P. pseudomaesa*, while the underside picture may be *P. pallida*. We are not sufficiently certain of its identification as it lacks any markings and the upperside is not visible. Thus, here we present a picture of *P. pallida*, of which we are 99% certain that the identification is correct. The underside appears very similar to the underside of *P. pallida* in Wangdi & Sherub (2014), with few or no black markings. The picture was taken by Piet van der Poel on 13 March 2013 along a creek lined with shrubs and small trees in Gom Kora, Trashiyangtse Dzongkhag, at 810 m elevation. The picture in Wangdi & Sherub (2014) was taken 1.5 months earlier in the same area.

Potanthus trachala (Mabille, 1878)

Potanthus trachala tytleri (Evans, 1914) Broad Bi-dent Dart was described as *Pamphila trachala* from Java. It was not reported for Bhutan in Evans (1932, 1949) and neither reported by Kehimkar (2008) who checked old records of Bhutan butterflies reported by Evans and in old documents in the BNHS library. *P. trachala* was first reported from Bhutan in Wangdi & Sherub (2014), based on which Singh & Chib (2015) and Van Gasse (2018) also listed it in their checklists for Bhutan. The pictures presented in Wangdi & Sherub (2014) were with 95% certainty, *P. trachala*. The authors consider this sufficient



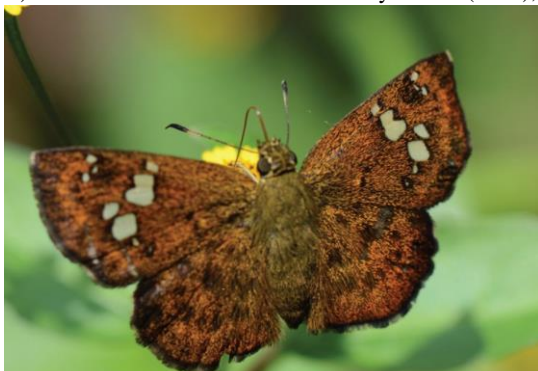
Potanthus trachala © Karma Wangdi

for a tentative listing in checklists of butterflies in Bhutan. Tentatively listed species should not be counted as a species for Bhutan until they are confirmed. On the BBP website also several pictures were posted as *P. trachala*, some of which were probably correctly identified with a 90 to 98% chance.

For the picture of *P. trachala* presented here, we are 99.5% certain that it is *P. trachala*. Its upper forewing spots in 4 and 5 are detached from the spots in 3 and 6, the spots in 2 and 3 are outwardly concave, and there is no upper hindwing spot in 6 and a prominent spot in 7. We consider its identification sufficiently certain to now confirm *P. trachala* as occurring in Bhutan. The picture was taken by Karma Wangdi on 11 February 2013 in Lingmethang, Mongar Dzongkhag, at an elevation of 690 m in sub-tropical forest.

Pseudocoladenia dan (Fabricius, 1787)

Pseudocoladenia dan fabia (Evans, 1949) Fulvous Pied Flat was described by Evans (1949), listing also specimens from Bhutan. It is characterized by the upper forewing discal spots being separated from each other and the upper and lower parts of the cell spot being subequal. The ssp. is presently the only ssp. of *P. dan* known to occur in Bhutan. Most of the records of *P. dan* from Bhutan concern the former ssp. *fasta* (later a ssp. of *P. fatih* and now a separate species) and were often wrongly identified as the former spp. *fatih* (now species *P. fatih*). *P. fatih fatih* does not occur in Bhutan and has only been reliably reported from central Nepal and further west. A picture of *P. dan fabia* was presented as *P. dan* in Wangdi & Sherub (2014). It was taken by Sherub on 27 September 2012 in Yongkala, Mongar Dzongkhag, at an elevation of 1580 m in warm broad-leaved forest.



Pseudocoladenia dan fabia © Sherub

Pseudocoladenia fatua (Evans, 1949) Sikkim Pied Flat was described by Evans (1949) as *P. dan fatua*, reporting a specimen from Bhutan. It was also listed for Bhutan by Van Gasse (2018) and Singh & Chib (2015), both based on Evans (1949). Another picture labelled as *P. dan* in Wangdi & Sherub (2014), was of *P. fatua*. It is often bright reddish brown and the forewing spots of the male are yellowish with no such spots in space 1b. This appeared to be the only recent published evidence of the species. The



Pseudocoladenia fatua © Karma Wangdi

picture was taken by Karma Wangdi on 11 March 2012 in Phuntsholing, Chukha Dzongkhag, at an elevation of 720 m in sub-tropical forest. The species is likely to be fairly common, but often mis-identified as *P. dan*.

Because the Himalayan *Pseudocoladenia* Shirozu & Saigusa, 1962 species have recently been reorganised and a lot of old records were mis-identified, we report here also on *Pseudocoladenia festa* (Evans, 1949) Naga Pied Flat. *P. festa* was described by Evans (1949) as *P. dan festa*, including a specimen from Bhutan. *P. festa* was raised to species level by Huang & Xue (2004) and became known as Naga Pied Flat. Huang (2021) raised ssp. *fatih* of *P. dan* to species rank and declared *P.*



Pseudocoladenia festa © Piet van der Poel

festa a ssp. of *P. fatih*. Van der Poel & Smetacek (2022) proposed the name Himalayan Pied Flat, as an earlier proposed name of West Himalayan Pied Flat for *P. fatih* did not make sense since ssp. *festa* occurred in Bhutan in the eastern Himalaya. Recently, Zhu *et al.* (2023) raised *P. festa* back to the species level, based on a 2.3% genetic distance with *P. fatih*, *fatih* and *festa* “appearing” sympatric in Mochu, Sichuan, differences in the white sub-hyaline spots on the forewing and differences in their genitalia. Thus, the former English names can be re-instated: *P. fatih* is West Himalayan Pied Flat and *P. festa* Naga Pied Flat. Wangdi *et al.* (2012) reported *P. festa* as *P. dan festa*. It has the central upper forewing spots more conjoint than other Pied Flats and generally flies at higher elevations. For Bhutan, the earlier reported *P. dan festa* and *P. fatih festa* should now be listed as *P. festa* and species *P. fatih* is no longer present in Bhutan. The picture of *P. festa* was taken by Piet van der Poel on 25 August 2016 near Yadi, Mongar Dzongkhag, at an elevation of 1500m in an area with agricultural land and broad-leaved forest.

Sebastonyma dolopia (Hewitson, 1868) Tufted Ace was reported for Bhutan by Singh & Chib (2015) and Van Gasse (2018), probably both based on Kehimkar (2008). The latter was based on old documents in the BNHS library. Thus, apparently, there were no recent records from Bhutan of this species. Cheku of the Jigme Singye Wangchuck National Park photographed *S. dolopia* on 3 September 2019 in Berti, Zhemgang Dzongkhag, at an elevation of 600 m, perching on a rock in sub-tropical forest. Another picture of *S. dolopia* was



posted on the BBP website in 2022 by Karma Jamtsho.

Seseria sambara sambara (Moore, [1866]) Sikkim White Flat was reported for Bhutan by Van Gasse (2018) and Singh & Chib (2015), both probably based on Evans (1949). A picture of *S. sambara* was posted on the BBP website in 2022 by Karma Jamtsho. A picture in Wangdi & Sherub (2014), listed as *S. doherlyi*, was re-identified as *S. sambara*. The picture, presented here, was taken by Karma Wangdi on 9 September 2012 in the riverbed near Berti, Zhemgang Dzongkhag, at an elevation of 600m.



Seseria sambara © Karma Wangdi

Suastus gremius gremius (Fabricius, 1798) Indian Palm Bob was reported for Bhutan by Singh & Chib (2015) and Van Gasse (2018), probably both based on Kehimkar (2008). The latter was most probably based on old documents in the library of the BNHS. Thus, apparently, there were no recent records of this species for Bhutan.

Karma Wangdi photographed *S. gremius* on 9 January 2014 in Kalikhola, Dagana Dzongkhag, at an elevation of 170 m in tropical forest.



Suastus gremius © Karma Wangdi

Telicota colon colon (Fabricius, 1775) Common Palm Dart was reported from Bhutan in all three checklists. Singh & Chib (2015) listed four sources of which only Wangdi & Sherub (2014) had pictures. Unfortunately, the pictures were of *Potanthus* spp. and possibly *T. bambusae*. Kehimkar (2008) listed it for Bhutan based on old records in the BNHS library. A picture of *T. colon* was posted on the BPP website in 2022. Here, we report it as the first verifiable recent record of *Telicota colon* for Bhutan. The picture was taken by Shyam on 29 September 2020, in Daifam, Samdrup-Jongkhar Dzongkhag, at an elevation of 290m, in sub-tropical forest.



Telicota colon © Shyam

DISCUSSION

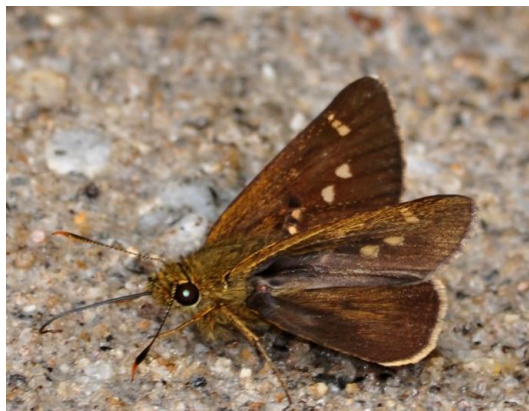
This research has shown that for many, especially young and less experienced butterfly surveyors, the identification of HesperIIDae species is particularly difficult. Many checklists include mis-identified HesperIIDae species, often without any evidence, such as pictures. When these mis-identifications are published in articles or guidebooks, other surveyors and naturalists may report species based on these wrong identifications. Wangdi & Sherub (2014), which listed many new species for Bhutan, also had a large number of misidentifications, which were then also wrongly reported in subsequent species checklists of Bhutan by Singh & Chib (2015) and to a lesser degree by Van Gasse (2018) and Sbordoni *et al.* (2015). Also, the species checklists of protected areas in Bhutan (e.g. JSWNP, 2014; RMNP (Nidup, 2015); and BWS, 2013) suffer from this mis-identification problem. For example, a picture identified as *Potanthus dara* was presented in Wangdi & Sherub (2014). Presumably (at least partly) based on this publication *P. dara* was reported for Royal Manas NP (Nidup *et al.*, 2015) and Tsirang (Singh, 2014; Singh & Chib, 2016) and listed in the Bhutan checklists of Singh & Chib (2015) and Sbordoni *et al.* (2015). It was not listed by Van Gasse (2018), who probably realised that there were no reliable records of *P. dara* east of central Nepal.

Mis-identification is not just a recent problem. Wood-Mason & de Nicéville (1887) noted that Moore and Distant labelled the male of *P. stramineipennis* as female of *P. murdava*. Thus, even specialists make errors. Consequently, some records of species in old documents may actually be of other species. Another example of the need to be careful with old reports of species is de Nicéville (1885) writing about *Halpe kumara*:

"Mr. Moore places this species in the genus *Baoris*".

De Nicéville then gave reasons why it should be in the genus *Parnara*. But Moore (1878) described *Hesperia kumara*, which he moved to the genus *Baoris* in 1881 and is now *Caltoris kumara*. So, presumably de Nicéville thought that his specimen belonged to the same species as Moore's *Baoris kumara*. But his specimen belonged to a new species, now known as *Halpe kumara*. Thus, we find that the original description of *Halpe kumara* is a note without description of the characteristics of the species and without a type locality or habitat. Another example is Evans (1949) references to many figures in Moore/Swinhoe's *Lepidoptera Indica*, regularly re-identifying species that were mis-identified.

The authors also faced some identification problems. Pictures from East Bhutan originally identified as *Thoressa gupta* were at a later stage listed as *Thoressa cf. gupta*, because its upper forewing spots were yellowish rather than white, as indicated for *T. gupta* by Evans (1949). Moreover, the underside was usually ochreous brown rather than grey, which *T. gupta* should be according to Evans (1949). These yellowish spotted *T. cf. gupta* have been recorded on various occasions in Trashiyangtse Dzongkhag between



Thoressa cf. gupta © Piet van der Poel

1680 and 2200 m elevation. There are also some records from Lingmethang, Mongar Dzongkhag, at 700 to 900 m elevation. Research is required to establish if these belong to another species, another spp. or are just other forms. Also, in first instance, the authors did not question the identification of *Celaenorrhinus aurivittata* in Wangdi & Sherub (2014). Only later, they determined that this identification was incorrect.

This document reports first verifiable records of 25 HesperIIDae species for Bhutan. Some were already in one, two or in all three of the main checklists, but based on mis-identifications or lacked supporting evidence. Some were posted on websites or in articles in non-scientific non-peer-reviewed journals or papers. Furthermore, we report on 25 HesperIIDae species for which there were no evidence-based recent observations or for which we confirm earlier listings. We urge researchers and naturalists in Bhutan to keep photographing HesperIIDae species, but to be careful with identifications and not immediately believe the first person declaring which species it is. Some species can only be reliably identified by pictures of the upper as well as the underside, and other species can only be reliably identified by a study of the genitalia or DNA sequencing.

ACKNOWLEDGEMENTS

The authors are thankful to the following persons for allowing us to present their pictures and for providing the related information for this article: Cheku, B. B. Chhetri, Karma Jamtsho, Tandin Jamtsho, Tshering Nidup, Kado Rinchen, Sherub, Shyam, Irungbam J. Singh, Nim Tshering Tamang, Tandin Wangchuk and Tshulthrim Drukpa Wangyel. We also acknowledge the following persons for providing requested information and discussing or confirming the identification or the sources of reporting for certain species: Paul van Gasse, Hao Huang, Isaac Kehimkar, Monsoon Jyoti Gogoi, Motoki Saito and Irungbam J. Singh.

REFERENCES

BWS (Piet van der Poel & Pankey Dukpa). 2013. *Bumdeling Wildlife Sanctuary Conservation Management Plan 2013 to 2018*. Nature Conservation Division, Min. of Agric., Bhutan. pp. 91.

Cheku, L., Q. Trang & P. Smetacek. 2018. Confirmation of the type locality of *Pintara tabrica* (Hewitson, 1873) (Hesperiidae) on the Indian subcontinent and its distribution in Vietnam. *Nachrichten des Entomologischen Vereins Apollo, N. F.* 39 (2): 107–108.

Chiba, H., H. Tsukiyama, J-Y. Liang, S-M. Wang, Z-Y. Shen & Y-F. Hsu. 2020. *Pseudocoladenia pinsbukana* Shimonoya & Murayama, 1976. *Tyô to Ga* 27 (2): 44.

Chiba, H., G. C. Bozano & X. Fan. 2023. *Guide to the Butterflies of the Palearctic Region - Hesperiidae Part I*. Omnes Artes, Italy. pp. 71.

Dorji, S. 2014. *Butterflies in and around Phobjikha valley*. Royal Society for Protection of Nature (RSPN). Thimphu, Bhutan. pp. 163.

Elwes H. J. & J. Edwards. 1897. A Revision of the Oriental Hesperiidae. *Transactions of the Zoological Society of London* 14 (4): 101–324, pl. 18–27.

Ek-Amnuay, P. 2012. *Butterflies of Thailand*. (2nd edition, revised). Baan Lae Suan Amarin Printing, Bangkok, Thailand. pp. 943.

Evans, W. H. 1932. *The Identification of Indian Butterflies*. (Second Edition Revised). Bombay Natural History Society, Bombay. pp. x + 454, 32 pls.

Evans, W. H. 1939. New species and subspecies of Hesperiidae (Lepidoptera) obtained by Herr H. Höne in China in 1930-1936. *Proceedings of the Royal Entomological Society of London* (B) 8 (8): 163–166.

Evans, W. H. 1949. *A catalogue of the Hesperiidae from Europe, Asia and Australia in the British Museum (Nat. Mus.)*, London. Trustees of British Museum, London. pp. xx + 502, 53 pls.

- Fabricius, J. C. 1775. *Systema Entomologiae, sistens Insectorum Classes, Ordines, Genera, Species, Adiectis Synonymis, Locis, Descriptionibus, Observationibus*. pp. 832.
- Gasse, P. van. 2018 [date given on website]. *Butterflies of the Indian Subcontinent – Annotated Checklist*. Pdf version from the internet. pp. 207. Published as book by Tshikolovets Publications in 2021. http://www.biodiversityofindia.org/index.php?title=Butterflies_of_the_Indian_sub-continent
- Gyeltshen, C., K. Tobgay, N. Gyeltshen, T. Dorji & S. Dema. 2018. New Species Discoveries and Records in Bhutan Himalaya. In: Hartmann, Barclay & Weipert: *Biodiversität und Naturlausstattung im Himalaya VI* (Erfurt, Germany): 59–82.
- Harada, M. 1987a. Butterflies of Bhutan (I). The Lepidopterological Society of Japan, *Yadoriga* 131: 4–22.
- Harada, M. 1987b. Butterflies of Bhutan (II). The Lepidopterological Society of Japan, *Yadoriga* 131: 23–26.
- Huang, H. 1998. Research on the butterflies of the Namjagbarwa Region, S. E. Tibet (Lepidoptera: Rhopalocera). *Neue entomologische Nachrichten* 41: 207–264.
- Huang, H. 2003. A list of butterflies collected from Nujiang (Lou Tse Kiang) and Dulongjiang, China, with descriptions of new species, new subspecies, and revisional notes (Lepidoptera, Rhopalocera). *Neue entomologische Nachrichten* 55: 3–114.
- Huang, H. 2021. Taxonomy and morphology of Chinese butterflies 1 Hesperiiidae: Pyrginae: Genera *Coladenia* Moore, [1881] and *Pseudocoladenia* Shirôzu & Saigusa, 1962. *Atalanta* 52 (4): 569–620.
- Huang, H. & Y-P Xue. 2004. The Chinese *Pseudocoladenia* skippers (Lepidoptera, Hesperiiidae). *Neue entomologische Nachrichten* 57: 171–177, pl. 14.
- Huang, H. & C. H. Zhan. 2004. Notes on the genera *Thoressa* and *Pedesta*, with description of a new species from South China. *Neue entomologische Nachrichten* 57: 179–186.
- JSWNP (Jigme Singye Wangchuk National Park). 2014. *Biodiversity Checklist for Jigme Singye Wangchuk National Park*. JSWNP, Department of Forest and Park Services, Tshangkha, Trongsa, Bhutan. (<http://biodiversity.bt/document/show/32>)
- KC, S. 2020. Some new distribution records of Hesperiid butterflies in Nepal. *Bionotes* 22 (3): 190–194.
- KC, S. & B. P. Neupane. 2021. First records of *Halpe aucma* Swinhoe, 1893 (Lepidoptera: Hesperiiidae) from Nepal. *Species* 22 (70): 392–403.

- Kehimkar, I. 2008. *The Book of Indian Butterflies*. Bombay Natural History Society. Oxford University Press, Mumbai. pp. 497.
- Mabille, P. 1904. Lepidoptera Rhopalocera Fam. Hesperidae; in Wytzman. P.: *Genera Insectorum* 17 (C): 143–182.
- Moore, F. 1857. in Th. Horsfield & F. Moore. *A Catalogue of the Lepidopterous Insects in the Museum of the Hon. East-India Company Vol. I*. WH Allen and Company, London: 1-278.
- Moore, F. 1878. Descriptions of new Asiatic Hesperidae. *Proceedings of the Zoological Society of London* 1878 (3): 686–695, pl. 45.
- Nicéville, L. de. 1883 [1884]. On new and little known Rhopalocera from the Indian Region. *Journal of the Asiatic Society of Bengal* 52 Pt. II (2/4): 65–91, pl. 1, 9–10.
- Nicéville, L. de. 1887. Descriptions of some new or little-known butterflies from India, with some notes on the seasonal dimorphism obtaining in the genus *Melanitis*. *Proceedings of the Zoological Society of London* 1887 (3): 448–467, pl. 39–40.
- Nicéville, L. de. 1889. On new and little-known butterflies from the Indian region, with revision of the genus *Plesioneura* of Felder and of authors. *Journal of the Bombay Natural History Society* 4 (3): 163–194, pl. A–B.
- Nidup, T., T. Dorji, & U. Tshering. 2014. Taxon diversity of butterflies in different habitat types in Royal Manas National Park. *Journal of Entomology and Zoology Studies* 2 (6): 292–298.
- Nidup, T. 2015. An annotated checklist of butterflies from Royal Manas National Park, Gelephu, Bhutan. *Spring* 5: 1–9.
- Poel, P. van der & T. Wangchuk. 2007. *Butterflies of Bhutan - Mountains, hills and valleys between 800 and 3000m*. Royal Society for Protection of Nature (RSPN). Thimphu, Bhutan. pp. 71.
- Poel, P. van der. 2016. *Butterflies of Lingmethang* (unpublished). Available from the NBC-Bhutan Biodiversity Portal.
- Poel, P. van der. 2020. First records for Nepal of two skipper butterflies: *Gerosis sinica* and *Cephrenes acalle*. *Bionotes* 22 (4): 233–235.
- Poel, P. van der & P. Smetacek (eds.). 2022. *An annotated catalogue of the butterflies of Nepal*. *Bionotes*: Occasional Paper 1. pp. vii + 241. (Freely available from ResearchGate: https://www.researchgate.net/publication/366559011_An_annotated_Catalogue_of_the_Butterflies_of_Nepal_Nepal-Buts-Catalogue_PvdP_PSm_Dec_2022_Final).

Sbordoni, V., G. C. Bozano, K. Wangdi, Sherub, S. Marta, S. de Felici & D. Cesaroni. 2015. Towards a georeferenced checklist of the butterflies of Bhutan: a preliminary account (Insecta: Lepidoptera). In: Hartmann & Weipert: *Biodiversität und Naturlausstattung im Himalaya V* (Erfurt, Germany): 523–546.

Singh, A. P. 2012. Lowland forest butterflies of the Sunkosh River catchment, Bhutan. *Journal of Threatened Taxa* 4 (12): 3085–3102.

Singh, I. J. 2014. Butterfly diversity of Dzamling Norzoed Community Forest, Tsirang, Bhutan. A Preliminary study. *SAARC Forestry* III: 38–46.

Singh, I. J., & M. Chib. 2014. A preliminary checklist of butterflies (Lepidoptera: Rhopalocera) of Mendrelgang, Tsirang District, Bhutan. *Journal of Threatened Taxa* 6 (5): 5755–5768. <http://dx.doi.org/10.11609/JoTT.o3675.5755-68>

Singh, I. J. & M. Chib. 2015. Checklist of butterflies of Bhutan. *Proceedings of Bhutan Ecological Society* 2: 22–58.

Singh, I. J. & M. Chib. 2016. *Study of Butterfly Diversity and its Conservation in Tsirang District, Bhutan*. Final Report, The Rufford Small Grant Foundation, UK. pp. 33. Also published without pictures as: Irungbam, J. S. & M. J. Irungbam. 2018. An updated checklist of butterflies (Lepidoptera: Rhopalocera) from Tsirang district, Bhutan. *Species* 19: 55–67.

Smith, C. 1994. *Butterflies of Nepal*. Tecpress Services L.P., Bangkok, Thailand. pp. 368.

Swinhoe, C. 1893. A list of the Lepidoptera of the Khasi Hills, Part I. *Transactions of the Entomological Society of London* 1893 (3): 267–330.

Van: in Belgium and The Netherlands “van”, “de”, “van de”, “van der”, etc. are ignored when alphabetically ordering names. Thus, look under “Gasse” and “Poel”.

Varshney, R.K. & P. Smetacek (eds.). 2015. *A Synoptic Catalogue of Butterflies of India*. Butterfly Research Centre, Bhimtal, & Indinov Publishing, New Delhi. pp. ii + 261, 8 pls.

Wangdi, K. 2010. After 75 years, a rare butterfly is rediscovered – The story of Ludlow’s Swallowtail, an endemic butterfly species of Bhutan. *Tashi Delek Magazine* XX (4): 13–15.

Wangdi, K. & Sherub. 2012. *Field Guide to Nymphalids (Brush-footed) of Bhutan*. UWICE Nature Guide Series. Ugyen Wangchuk Institute of Conservation and Environment, Bumthang, Bhutan. 158 pp.

Wangdi, K. & Sherub. 2013. *Field Guide to Pieridae and Lycaenidae (Whites and Blues) of Bhutan*. UWICE Nature Guide Series. Ugyen Wangchuk Institute of Conservation and Environment, Bumthang, Bhutan. 172 pp.

Wangdi, K. & Sherub. 2014. *Field Guide to HesperIIDae (Skippers) of Bhutan*. UWICE Nature Guide Series. Ugyen Wangchuk Institute of Conservation and Environment, Bumthang, Bhutan. 91 pp.

Wangdi, S., K. Wangdi, Sherub, R. Wangdi, S. Drukpa, M. Harada, T. Aoki, S. Yamaguchi, M. Saito, Y. Igarashi, Y. Watanabe & M. Yago. 2012. Butterflies of Trashiyangtse Valley, eastern Bhutan (Part 1). The Butterfly Society of Japan. *Teinopalpus* 62: 16–29.

Wangdi, S., K. Wangdi, Sherub, R. Wangdi, S. Drukpa, M. Harada, T. Aoki, S. Yamaguchi, M. Saito, Y. Igarashi, Y. Watanabe & M. Yago. 2013. Butterflies of Trashiyangtse Valley, eastern Bhutan (Part 2). The Butterfly Society of Japan. *Teinopalpus* 64: 4–15.

Wood-Mason, J. & L. de Nicéville, 1886. List of the Lepidopterous Insects collected in Cachar by Mr. J. Wood-Mason, part ii. *Journal of the Asiatic Society of Bengal* 55 Pt. II (4): 343–393, pl. 15–18.

Yazaki, Y. & S. Kanmuri. 1985. Butterflies of Western Bhutan (218 species). *The Rhopalocerists' Magazine, Japan* 8 (7): 260–267.

Zhu, L, Y. Han, Y. Hou, Z. Huang, M. Wang, H. Chiba, L. Chen & X. Fan. 2023. Mitogenomic phylogenetic analyses provide novel insights into the taxonomic problems of several hesperiid taxa (Lepidoptera: HesperIIDae). *Nature portfolio Scientific Reports* 13: 7901. <https://doi.org/10.1038/s41598-023-34608-8>.

Internet sources:

BBP (Bhutan Biodiversity Portal): <https://biodiversity.bt/>

Butterfly-Circle: <https://www.butterflycircle.com/>

Butterflies of Thailand (S. Sophonviwatkul, C. Sunthornwiphat & T. Laola, 2023): <https://wingscales.com/HesperIIDae/Celaenorrhinus-affinis>

FUNET:

<https://www.funet.fi/pub/sci/bio/life/insecta/lepidoptera/ditryisia/hesperioidea/hesperIIDae/>

GBIF (Global Biodiversity Information Foundation): <https://www.gbif.org/>

IFB (Indian Foundation of Butterflies): <https://www.ifoundbutterflies.org/hesperIIDae>

Yutaka: A Check List of Butterflies in Indo-China - Chiefly from Thailand, Laos & Vietnam: <https://yutaka.it-n.jp/hespi.html>