

**AN ANNOTATED CHECKLIST OF THE PAPILIONIDAE
(LEPIDOPTERA) OF BHUTAN WITH FIRST PICTORIAL
EVIDENCE OF TWO SPECIES AND RECENT EVIDENCE OF
SELDOM REPORTED SPECIES**

PIET VAN DER POEL¹ & KARMA WANGDI²

¹Noordwijkerhout, Netherlands

²Ugyen Wangchuck Institute for Forest Research and Training, (UWIFRT, formerly UWICE) Bumthang, Bhutan; kwangdi@uwice.gov.bt.

Corresponding author: pipoel@yahoo.com.

Reviewer: Peter Smetacek

BACKGROUND

A recent review of the Hesperidae of Bhutan (Van der Poel *et al.*, 2023, Wangdi *et al.*, 2024) revealed that many species in the three checklists of butterflies of Bhutan (Sbordoni *et al.*, 2015; Singh & Chib, 2015 and Van Gasse, 2018) were listed based on publications that did not present supporting evidence, such as pictures, for the species they reported. We assumed that probably it was the same for other families of butterflies and selected the Papilionidae family for the next review. For the Papilionidae, Sbordoni *et al.* (2015) listed 52 species, Singh & Chib (2015) 55, and Van Gasse (2018) 53. Uémura (2016) published a checklist of the Papilionidae of Bhutan, listing 48 species, based on old and recent documents, not including the other three checklists. Uémura's (2016) list did not include eight species that were listed in one or more of the other three checklists. Kehimkar (2008) was one of the sources of Shing & Chib (2015) and Van Gasse (2018) as it indicated for many Indian species if they had been reported from Bhutan. These records were mostly based on Evans (1932) and other old documents in the library of the Bombay Natural History Museum (BNHM) (Isaac Kehimkar pers. comm., 2022).

Condamine *et al.* (2023) revised the taxonomy of *Papilio* and as a consequence many of the scientific names listed in older checklists are no longer the presently accepted names. The three checklists of Bhutan also included names that were already considered synonyms at the time of publishing. Some of the checklists listed both the valid name and a synonym of one species, such as *Graphium chironides* (Honrath, 1884) and *G. bathycles* (Zincken, 1831) in Sbordoni *et al.* (2015). Several seldom-seen Papilionidae species were reported for Bhutan in grey literature or on the internet and many recent records were reported without supporting photographic evidence. Often it was not possible to establish if the identification had been correct. Thus, we considered it worthwhile to review all the available documents and present a new checklist of the Papilionidae of Bhutan.

MATERIALS AND METHODS

The authors checked the records for all Papilionidae species reported in the three checklists of butterflies of Bhutan and in Uémura (2016). Records reported in old documents were generally accepted as correct, while records from the 1980's or after 2000 were only accepted if the publication presented verifiable evidence, such as pictures showing the distinguishing characteristics of the species. The new checklist presents the following information for the listed species: the currently valid scientific name with author and year, the correct subspecies with author and year, the first known record from Bhutan and the first record with verifiable evidence in the 1980's and/or since 2000. Scientific names, authors and years follow mostly Hu *et al.* (2023). We checked available documents to determine the correct subspecies for species for which different publications reported different subspecies for Bhutan.

Uémura (2016) was a good source of information for old records from Bhutan. Kehimkar's (2008) listings of Papilionidae species for Bhutan were based on old records, but sources were not specified. We checked original descriptions and searched various old documents that reported butterfly species from Bhutan for records of Papilionidae from Bhutan. Records at elevations below 5000 feet (1525m) from "Buxa, Bhutan" were considered to be outside the present boundaries of Bhutan, as Buxa is now in Alipurduar, W. Bengal, India. Records from Buxa at 5000 feet (1525m) or higher, such as those of *Bhutanitis lidderdalii* Atkinson, 1873 and *Teinopalpus imperialis* Hope, 1843 were probably from within the present boundaries of Bhutan or near to it, as these elevations are not found elsewhere near Buxa.

For recent records, we considered only records with verifiable pictorial evidence based on recent observations, not references to old records. Checking the evidence for reported species was considered necessary because the three earlier checklists of butterflies of Bhutan included species for which no evidence of their occurrence in Bhutan existed, such as *Pachliopta hector* (Linnaeus, 1758) and *Parnassius hunnyngtoni* Avinoff, 1916, as explained later. These listings were based on publications that did not present any pictorial evidence, presented evidence that we considered insufficient to correctly identify the species or presented evidence that showed a different species.

The authors intended to list species and subspecies names, but for *Parnassius acedestis* Grum-Grshimaïlo, 1891 and *Parnassius epaphus* Oberthür, 1879 we decided not to list the subspecies as it was impossible to decide the validity of the various reported subspecies. For Bhutan, there are no long series of specimens for comparison and we lack the in-depth knowledge of these subspecies and of their habitats and seasonality, to reliably determine the subspecies. For common English names, we followed Van der Poel & Smetacek (2022) and Varshney & Smetacek (2015). For a few taxons that were recently raised to the species level, we looked at the available English names and selected generally the name that was coined first, but if there was no common English name or that name was considered unsuitable, we selected a suitable name. For example, we use Everest Yellow Swallowtail for *Papilio everesti* Riley, 1927 and for *Papilio janaka*, Western Tailed Redbreast, rather than Red-banded Mormon, the somewhat confusing name used by IFB.

RESULTS

The authors present a new checklist of the Papilionidae of Bhutan in Table 1 and give details of species in the following five groups:

1. Species reported in grey literature or without verifiable evidence, and confirmed here with verifiable pictorial evidence;
2. Species not reported with supporting evidence in the last 70 years, and reported here with verifiable pictorial evidence;
3. Species not reported in the last 70 years;
4. Synonyms listed in one or more of the three checklists and species no longer present in Bhutan after their subspecies were raised to species level;
5. Species listed in one or more of the three earlier checklists, and not included in our checklist since their records could not be verified.

1. Confirmation of first records reported in grey literature or without verifiable evidence

Papilio polla (de Nicéville, 1897) De Nicéville's Windmill

P. polla was listed for Bhutan by Singh & Chib (2015) and Van Gasse (2018). The source document for these listings was Smetacek (2015). His listing was based on having seen a specimen of *P. polla* in the Forest Research Institute in Taba in 1992 (Peter Smetacek, pers. comm., 2023). We have not (yet) been able to locate this specimen in Bhutan. Van der Poel (2016, unpublished) reported with pictorial evidence *Papilio* (*Atrophaneura*) *polla* from Masangdaza, Lingmethang in



1. *Papilio polla* ©Piet van der Poel

Mongar Dzongkhag in East Bhutan. It was seen on 30 July and 12 August 2016, mudpuddling on a dirt road near the bridge across the Masangdaza Creek at an elevation of 860m in broadleaved forest. Here we present the picture of Van der Poel (2016) as the first published pictorial evidence of *P. polla* from Bhutan.

Papilio paradoxa (Zincken, 1831) ssp. *telearchus* (Hewitson, 1852) Great Blue Mime.

P. paradoxa was listed for Bhutan by Singh & Chib (2015) and Van Gasse (2018). Singh & Chib (2015) listed as sources Wangdi & Sherub (2012) and Smetacek (2015). Wangdi & Sherub (2012) did not list this species and Smetacek (2015) listed it but without a picture from Bhutan. The evidence for reporting this species for Bhutan in Smetacek (2015) cannot be established because at least 14 people collaborated in putting the document together and it is not clear who added the species (Peter Smetacek, pers. comm., 2023). Here, we present the first pictorial evidence of the presence of *Papilio paradoxa* in Bhutan. The picture was taken by



2. *Papilio paradoxa* ©Thinley Penjor

Thinley Penjor on 15-xii-2021 in Singay in Sarpang Dzongkhag at an elevation of 340m in sub-tropical forest. He also photographed it near Gelephu in Sarpang Dzongkhag on 11-vi-2019 at an elevation of 260m.

2. Recent evidence of species not reported with supporting evidence in the last 70 years:

Graphium aristeus (Stoll, [1780]) ssp. *anticrates* (Doubleday, 1846) Chain Swordtail.

G. aristeus was listed for Bhutan by Smetacek (2015), Uemura (2016) and Van Gasse (2018), all apparently based on old information. Moore (1903) first reported *G. aristeus* from Bhutan and stated that Mr. G. Dudgeon had collected it. Pictures of *G. aristeus* from



Bhutan were presented in Singh (2012) and Wangdi

and Sherub (2012), but both were misidentified as *G. nomius*. Here we present the first pictorial evidence of the continued presence of *G. aristeus* in Bhutan. The picture that was taken by Karma Wangdi on 15-iii-2009 in Sheripam in Mongar Dzongkhag at an elevation of 880 m in warm broadleaved forest. He also photographed it in Panbang in Zhemgang Dzongkhag on 6-iv-2016 at 250 m elevation.

Graphium eurypylus (Linnaeus, 1758) ssp. *acheron* (Moore, 1885) Great Jay.

G. eurypylus was listed for Bhutan in Kehimkar (2008) based on old documents in the BNHS library. The oldest record we came across was Elwes (1888). The four sources of recent records listed by Singh & Chib (2015) either did not list the species (Singh, 2012), was a misidentification of *G. chironides* (in Wangdi & Sherub, 2012) or presented no pictorial evidence. Uémura (2016) listed as a source of *G.*



eurypylus: Yazaki (2012), who had reported it as *G. doson* (C. & R. Felder, 1864) *axion* (C. & R. Felder, 1864). Most sources list the subspecies as *acheron*. FUNET does not list ssp. *acheron*, but list ssp. *cheronus* (Jordan, 1909). Van Gasse (2018) indicated that *cheronus* is a junior synonym of *acheron*. The continued presence of the *G. eurypylus* in Bhutan was confirmed by a photograph taken by Shyam on 25-viii-2020 in Jomotsangkha Wildlife Sanctuary, Samdrup Jongkhar Dzongkhag, at 270m elevation.

Graphium nomius (Esper, 1799) ssp. *nomius* Spot Swordtail

G. nomius was listed for Bhutan in all three checklists and in Uemura (2016). Singh & Chib (2015) gave as source documents Kehimkar (2008), Singh (2012), Wangdi & Sherub (2012), Nidup (2014) and Smetacek (2015). Uemura (2016) listed Singh (2012) as only source. Kehimkar's (2008) listing was based on old records; Nidup (2014) and Smetacek (2015) did not show a picture of *G. nomius* or not from Bhutan. Singh (2012) and Wangdi & Sherub (2012) showed pictures of a mis-identified *G. aristeus*. Rothschild (1895) stated that the submarginal forewing spots of *G. nomius* sometimes become almost as linear as they are in *P. aristeus* Cramer. Both the individuals in Singh (2012) and in Wangdi & Sherub (2012) have clearly linear spots and thus are almost certainly *P. aristeus*. Thus, none of these reports included verifiable proof of any recent observation of *G. nomius* in Bhutan. Based on Kehimkar's (2008) listing we include *G. nomius* in our checklist.

Meandrusa payeni (Boisduval, 1836) ssp. *evan* Doubleday, 1845 Yellow Gorgon.

M. payeni was listed for Bhutan in all three checklists. Singh & Chib (2015) gave as source documents Kehimkar (2008) and Smetacek (2015); however, the latter did not list *M. payeni* for Bhutan. The oldest record for Bhutan that we came across was of *Papilio evan* by De Nicéville (1894), who reported that it becomes somewhat common in Bhutan and the Khasi Hills. Rothschild (1895) added the



4. *Meandrusa payeni* © Karma Wangdi

period from July to September. Hu *et al.* (2023) reported that Tsukada & Nishiyama (1980) reported *M. p. evan* from Bhutan. We could not check this document, but this record and that of Van Gasse (2018) were most probably based on old documents, such as Moore (1903), rather than recent observations. Recent evidence of the species is presented here with a photograph taken by Karma Wangdi on 10-iv-2012 in Tingtibi, Zhemgang Dzongkhag at an elevation of 490m in sub-tropical forest. He also photographed this species on 19-03-2020 at 230 m elevation in Tshobali of Nganglam Gewog in Pemagatshel Dzongkhag.

Teinopalpus imperialis Hope, 1843 ssp. *himalaicus* Rothschild, 1898 Kaiser-i-Hind

T. imperialis was listed in all three checklists, based on old records and on Yazaki (2012), not Yazaki & Kanmuri (1985) as stated in Singh & Chib (2015). The oldest record from Bhutan was by Elwes (1888), as reported by Uémura (2016). Sonam Dorji posted on his FaceBook site (accessed February 2024) a road-killed Kaiser-i-Hind, found on



5. *Teinopalpus imperialis* © Karma Wangdi

24-viii-2021 on the road near Khenptomani in Trashigang Dzongkhag at 2620m elevation. On 14-v-2024 nature guide trainees Tandin Wangchuk and Sonam Thinley discovered a life

individual in Nanglam at 2150m elevation. The picture of this individual is presented as proof of the continued presence of *T. imperialis* in Bhutan.

3. Species not reported in the last 70 years

Graphium nomius (Esper, 1799) ssp. *nomius* Spot Swordtail. *G. nomius* was listed for Bhutan in all three checklists and in Uemura (2016). Singh & Chib (2015) gave as source documents Kehimkar (2008), Singh (2012), Wangdi & Sherub (2012), Nidup (2014) and Smetacek (2015). Uemura (2016) listed Singh (2012) as only source. Kehimkar's (2008) listing was based on old records; Nidup (2014) and Smetacek (2015) did not show a picture of *G. nomius* or not from Bhutan. Singh (2012) and Wangdi & Sherub (2012) showed pictures of a mis-identified *G. aristeus*. Rothschild (1895) stated that the submarginal forewing spots of *G. nomius* sometimes become almost as linear as they are in *P. aristeus* Cramer. Both the individuals in Singh (2012) and in Wangdi & Sherub (2012) have clearly linear spots and thus are almost certainly *P. aristeus*. Thus, none of these reports included verifiable proof of any recent observation of *G. nomius* in Bhutan. Based on Kehimkar's (2008) listing we include *G. nomius* in our checklist.

Papilio slateri Hewitson, 1859 Blue-striped Mime. Moore (1903) reported a specimen of *P. slateri* from Bhutan in the British Museum. This is probably also the source of Kehimkar's (2008) listing of it from Bhutan.

4. Synonyms and species without proof of their occurrence in Bhutan.

Some of the species' names listed in the three checklists were synonyms that should have been listed under the valid name. Some checklists listed both a synonym as well as the valid name of some species. Our checklist presents what we believe to be the currently valid names for the Papilionidae of Bhutan. For some species, the subspecies that occurs in Bhutan was raised to species level and consequently, the original species is no longer found in Bhutan and thus not included in our checklist.

Atrophaneura alcinous (Klug, 1836) Chinese Windmill was listed by Singh & Chib (2015), under its old name, based on Kehimkar (2008), but also under its currently accepted name: *Byasa plutonius* (Oberthür, 1876).

Graphium bathycles (Honrath, 1884) Veined Jay was listed in Sbordoni *et al.* (2015), where it was also listed under its presently accepted name: *Graphium chironides* (Honrath, 1884).

Graphium mandarinus (Oberthür, 1879) ssp. *paphus* (de Nicéville, 1886) Spectacle Swordtail is now treated as a species, *G. paphus*, based on Hu *et al.* (2018), occurring from central Nepal to north Myanmar. Hu *et al.* (2018) present a distribution map that shows four subspecies of *G. mandarinus* and these occur east and north-east of central Myanmar.

Graphium megarus (Westwood, 1844) Spotted Zebra was listed for Bhutan by Sbordoni *et al.* (2015) from Mongar and by Van Gasse (2018) from East Bhutan. Van Gasse's (2018) listing

was likely based on Sbordoni (2015). The listing in Sbordoni *et al.* (2015) was likely based on a picture or specimen, originally identified as *G. megarus*, but later re-identified. The species will be included when verifiable evidence is presented.

Pachliopta Hector (Linnaeus, 1758) Crimson Rose was listed in all three checklists. Singh & Chib (2015) gave four source documents:

- Yazaki & Kanmuri (1985), which did not report *P. Hector* (Motoki Saito, pers. comm., March 2024). However, the document that Singh & Chib referred to was Yazaki (2012). The latter document and Uémura (2016) reported *P. Hector* from Phuntsholing in Chukha Dzongkhag without a picture (Motoki Saito, pers. comm., March 2024).
- JSWNP (2012) did not present a picture of *P. Hector*.
- Dorji (2014) listed the names “Common Rose” and “*Pachliopta Hector*” together. The accompanying picture showed *P. aristolochiae*, Common Rose, not *P. Hector*.
- Smetacek (2015) did not present a picture of *P. Hector* from Bhutan. Moreover, it is not clear who added in this document “Bhutan” as a country where *P. Hector* occurs, because 14 people participated in producing the document (Peter Smetacek, pers. comm., 2023). It could have been based on Yazaki (2012).

The record of Yazaki (2012) has been reported as reliable (Motoki Saito, pers. comm., March 2023). However, since there is no verifiable evidence and since it can be confused with *Papilio polytes* Linnaeus, 1758 *romulus* Cramer, 1775 female form *romulus*, we decided to wait until reliable evidence is presented.

Papilio bootes Westwood, 1842 ssp. *janaka* Moore, 1857 is now treated as a species *P. janaka*. Condamine *et al.* (2023) confirmed *P. janaka* as a species separate from *P. bootes*. Varshney & Smetacek (2015) and Van Gasse (2018) list *P. bootes* from NE India, south of the Brahmaputra River.

Papilio machaon Linnaeus, 1758 Common Yellow Swallowtail. Hu *et al.* (2023) stated that recent DNA analysis presented in a conference poster by Todisco *et al.* (2023) confirmed that *Papilio everesti* Riley, 1927 is a distinct species. Subspecies *P. everesti hookeri* Gaonkar, 1999 is reported from S to SE Tibet (China), Sikkim and Bhutan (Hu *et al.*, 2023). All checked pictures of Yellow Swallowtails from Bhutan were of *P. everesti hookeri*. The “Phobjikha” picture in Dorji (2014) was not taken in Bhutan since the picture was of *P. glaucus* Linnaeus, 1758, which only flies in North America. Uémura (2016) reported *P. machaon annae* Gistel, 1857 from Bhutan based on records of *P. m. sikkimensis* Moore, 1884 reported by Rothschild (1895), *P. m. annae* Gistel, 1857 listed by Talbot (1939) and *P. m. machaon* reported by Yazaki & Kanmuri (1985). *P. m. sikkimensis* is an invalid name, since it was pre-occupied as it was a junior subjective synonym (FUNET and Lepindex, accessed Jan. 2024). Hu *et al.* (2023) list *P. everesti hookeri* as a “comb. nov.” (new replacement combination) for *sikkimensis*. Hu *et al.* (2023) also reported that Dierl (1977) showed that *P. annae* was a synonym of *P. m. asiatica* Ménétrés, 1855, the long tailed low-altitude western Himalayan subspecies, and that it was mistakenly used as a synonym of *P. machaon (everesti) hookeri*, the short-tailed high-altitude eastern Himalayan species. The picture labelled *P. m. machaon* in Yazaki & Kanmuri (1985)

was of *P. everesti hookeri*, having a complete black line between the orange tornal spot and the blue lunule above it. Since there is no evidence to confirm the presence of *P. machaon* in Bhutan, it is not included in our checklist.

Papilio memnon Linnaeus, 1758 ssp. *agenor* Linnaeus, 1758 is now for mainland Asia treated as species *P. agenor* (Condamine *et al.*, 2023).

Papilio nephelus Boisduval, 1836 ssp. *chaon* Westwood 1845 is now treated as species *P. chaon* (Condamine *et al.*, 2023). Hu *et al.* (2023) confirmed *P. chaon* as the species for the Indian subcontinent.

Parnassius delphius Eversmann, 1843 Banded Apollo was listed by Singh & Chib (2015). Evans (1932) treated nine subspecies under *P. delphius*, including *acdestis* (as *P. d. lampidius* Fruhstorfer, 1903). Singh and Chib (2015) referred for their listing of *P. delphius* and *P. acdestis* to Collins and Morris (1985), who based their information on these species on an unpublished list of species and subspecies of *Parnassius* by Turlin (1983). It is unclear which subspecies of *P. delphius* was reported for Bhutan by Collins and Morris (1985), but they listed ssp. *lampidius* for Sikkim. However, *lampidius* is nowadays considered to be a subspecies of *P. acdestis*. Thus, it appears that this record concerns *P. acdestis*. Consequently, *P. delphius* is not included in our checklist.

Parnassius hunnyngtoni Avinoff, 1916 Hannyngton's Apollo was listed for Bhutan by Singh & Chib (2015) and Van Gasse (2018). Singh & Chib (2015) listed as sources Collins & Morris (1985), which listed Bhutan with a question mark, and Yazaki & Kanmuri (1985), which most probably was Yazaki (2012), which listed *P. hunnyngtoni* without photographic evidence. Since there appears to be no proof of *P. hunnyngtoni* in Bhutan, it was not included in our checklist.

Parnassius simo G. Gray, [1853] Black-edged Apollo. Subspecies *acconus* Fruhstorfer (1903) was described from the Sikkim mountains at elevations between 5200 and 5800m. It was listed for Bhutan by Singh & Chib (2015), based on Smetacek (2015). However, the latter does not present a picture from Bhutan of *P. simo*. As there appears to be no proof of *P. simo* in Bhutan, it was not included in our checklist.

5. **Species not listed**, but reported from Bhutan on the internet or in grey literature:

Graphium teredon (C. & R. Felder, 1865) Southern Bluebottle. Varshney & Smetacek (2015) report it from India as far north as Gujarat. FUNET lists it as a subspecies of *G. sarpedon* (Linnaeus, 1758). It was reported as a new species for Bhutan from Sarpang Dzongkhag in 2019 in an unpublished update of the UWICE (Ugyen Wangchuck Institute for Conservation and Environment) butterfly species checklist of Bhutan. It was later re-identified as *G. sarpedon*.

Papilio polymnestor Cramer, [1775] Blue Mormon. Varshney & Smetacek (2015) list this species from India as far north as Madhya Pradesh and West Bengal. Van der Poel & Smetacek (2022) listed it from central and east Nepal. It was reported in an unpublished checklist of the

butterflies of Bhutan by UWICE in 2019. There appears to be no proof of its presence in Bhutan.

Parnassius acco G. Gray, [1853] ssp. ***baileyi*** South, 1913 was mentioned by Avinoff (1922) from the borders of Bhutan, Yatung, 3660–4270m ft. This was reported to be in same locality as from where *P. acdestis pundit* Avinoff, 1922 was described. Rothschild (1918) also reported on nine specimens (D. Macdonald) from Yatung (Thibet) at 12,000–14,000 ft. The website of Butterflies of America reports the type locality of *P. acdestis pundit* to be in Bhutan and this is the same area as from where *P. acco baileyi* was reported. However, Yatung is in Tibet and Avinoff (1922) did not mention Bhutan. Avinoff (1922) does not present any pictorial evidence of *P. a. baileyi*. Hence, until such evidence is presented from Bhutan, we will not include this species in our checklist.

Subspecies names

The three checklists and Uémura's (2016) Papilionidae list regularly presented different subspecies names for the same species. Some names were synonyms and others were incorrect as the listed subspecies do not occur in Bhutan. Some subspecies were replaced based on recent taxonomic research, e.g. due to finding two subspecies flying sympatrically, in the same area. Some of these, such as subspecies of *Papilio everesti* and *P. machaon* were discussed above; others are listed here.

Graphium sarpedon sirkari Page & Treadaway, 2013 Common Bluebottle. Most checklists indicated ssp. *sirkari*. Cotton *et al.* (2022) confirmed ssp. *sirkari* from India and Myanmar. Uémura (2016) listed ssp. *sarpedon*, which occurs in Yunnan, W., S., and E. China and N. Vietnam (Hu *et al.*, 2023).

Byasa polyeuctes polyeuctes (Doubleday, 1842) Common Windmill. Varshney & Smetacek (2015) and Van Gasse (2018) listed ssp. *polyeuctes* for Sikkim, Bhutan and NE India and *letincius* (Fruhstorfer, 1908) for NW India and Nepal. Yazaki *et al.* (1983) and Uémura (2016) wrongly listed ssp. *letincius*.

Graphium antiphates nebulosus (Butler, 1881) Fivebar Swordtail. Cotton *et al.* (2019) showed that ssp. *pompilius* (Fabricius, 1787) is a synonym of the nominotypical ssp. *antiphates* (Cramer, 1775) and that the valid subspecies name for populations formally treated as ssp. *pompilius* is *nebulosus* (Butler, 1881). *G. a. pompilius* is listed for Bhutan in most documents, but Uémura (2016) listed ssp. *alcibiades* (Fabricius, 1787). (Cotton, 2018) showed that the type locality of *Papilio alcibiades* was not Tranquebar in south India, but the Malay Peninsula and also indicates that the subspecies in south India is *naira* (Moore, 1903). Varshney & Smetacek (2015) limited ssp. *pompilius* (now *nebulosus*) to the Himalayas. Thus, *nebulosus* is the subspecies for Bhutan.

Graphium doson actor (Fruhstorfer, 1907) Common Jay. Hu *et al.* (2023) declared this as the valid subspecies for populations of *G. doson* from N. India to SE China and Indochina. Most documents list ssp. *axionides* (Page & Treadaway, 2014) for Bhutan, and Uémura list ssp. *axion*. Subspecies *axion* was replaced with *axionides* by Page & Treadaway (2013). Hu *et al.* (2023) synonymized *axionides* with *actor* because the two subspecies cannot be distinguished and occurred in adjoining areas.

Papilio bianor ganesa Doubleday, 1842 Common Peacock. Varshney and Smetacek (2015) and Van Gasse (2018) reported ssp. *ganesa* from Nepal/Sikkim to Arunachal Pradesh. Fruhstorfer (1902) described ssp. *triumphator* from Assam, which at the time included other states of NE India, south of the Brahmaputra River; his description included specimens from Sikkim, which he indicated to be different. Hu *et al.* (2023) noted that these Sikkim specimens belonged to ssp. *ganesa*. Wangdi *et al.* (2012) and Uémura (2016) wrongly listed *triumphator* as the subspecies for Bhutan.

Papilio castor polias Jordan, 1909 Common Raven. Subspecies *polias* occurs from Nepal to Arunachal Pradesh and ssp. *castor* Westwood, 1842 in NE India south of the Brahmaputra River (Varshney & Smetacek, 2015; Van Gasse, 2018). Uémura (2016) wrongly listed ssp. *castor* for west Bhutan, referring to Singh (2012), which did not present a picture.

Papilio polytes romulus Cramer, [1775] Common Mormon. The subspecies that is usually and correctly reported for Bhutan is ssp. *romulus*. Uémura (2016) listed ssp. *polytes*, which Hu *et al.* (2023) reported as occurring in Yunnan and from central and south China to east China.

Papilio protenor euprotenor Fruhstorfer, 1908 Spangle. Singh & Chib (2015), Hu *et al.* (2023) reported ssp. *protenor* to fly in NW India, Myanmar and beyond. NW India was based on Jordan (1909), who reported that ssp. *euprotenor* has more blue dusting on the upper hindwing and more white on the underside of the wings and flies from north India to Myanmar. Cotton *et al.* (2013), Smetacek (2015) and Van Gasse (2018) listed the subspecies for the Indian subcontinent as *euprotenor* and there is no evidence to reverse this. Thus, Uémura's (2016) listing of the subspecies in Bhutan as *protenor* is erroneous, although GBIF (accessed, Feb. 2024) lists *euprotenor* as a synonym of *P. protenor*.

Parnassius acdestis Grum-Grshimaïlo, 1891 Dusky Apollo. We find it impossible to determine the correct subspecies of *P. acdestis* for Bhutan. Ackery (1973) listed ssp. *lampidius* Fruhstorfer, 1903 and *lucifer* (Bryk, 1932), both with TL Sikkim. Ackery (1975) only listed *lucifer* from Sikkim, possibly because he only listed subspecies which differed significantly from the nominotypical ssp. *acdestis*. Varshney & Smetacek (2015) listed three subspecies from Sikkim: *lampidius*, *lucifer* and *pundit* Avinoff, 1922. Avinoff (1922) described *pundit* from the borders of Bhutan: Yatung, 3660-4270m. However, Yatung is not in Bhutan, but in Tibet (China). Van Gasse (2018) indicated *pundit* as a synonym of *lampidius*. GBIF (accessed in Jan. 2024) indicates that *lampidius*, *lucifer* and *pundit* are synonyms of *P. acdestis*. Lepindex

(accessed Jan. 2024) lists *lucifer* and *pundit* as valid names and *lampidius* as a junior subjective synonym. Wikispecies (accessed Jan. 2024) lists *lampidius* and *lucifer* as subspecies

Parnassius epaphus Oberthür, 1879 Common Red Apollo. We find it impossible to determine the correct subspecies of *P. epaphus* for Bhutan. Avinoff (2016) described ssp. *phariensis* Avinoff, 2016 from Phari-Zong in south Tibet without elevation and indicated that it resembled ssp. *sikkimensis* Elwes 1882. Talbot (1939) gave as habitat for ssp. *phariensis*: “Bhutan: Phari-Jong”. Phari Dzong is not in Bhutan, although it is only 4.4 km from the border of Bhutan and collectors could have easily collected it from Bhutan. FUNET (accessed Jan. 2024) lists ssp. *phariensis* from Phari-Jong at circa 5000m. The nearest place in Bhutan at this elevation is 7.2 km east of Phari-Zong. There are places in Tibet at 5000m that are much closer to Phari-Zong. The first undisputable records of *P. epaphus* from Bhutan appear to be from Harada (1987) who reported ssp. *phariensis* from Phajodhing near Thimphu and Warthang in northeast Wangdi-Phodrang. Uemura (2016) did not list Harada’s (1987) records, but it listed Yazaki (2012) as a source and listed the subspecies as *sikkimensis*. Ackery (1973) listed ssp. *sikkimensis* but not *phariensis*. Van Gasse (2018) listed nine subspecies for the Indian subcontinent, including ssp. *phariensis* from west Bhutan and ssp. *sikkimensis* from east Nepal and Sikkim. Varshney & Smetacek (2015) listed six subspecies for India and Smetacek (2015) listed 11 subspecies for the Indian subcontinent, both not including *phariensis* and *sikkimensis*. GBIF (accessed Jan. 2024) only list ssp. *phariensis*, but indicates it as a synonym of *P. epaphus*. Lepindex (accessed Jan. 2024) lists both *phariensis* and *sikkimensis* as valid subspecies of *P. epaphus*.

Teinopalpus imperialis himalaicus Rothschild, 1898. Sbordoni *et al.* (2015) and Uemura (2016) listed the subspecies as *himalaicus*, but Van Gasse listed it as *imperialis* Hope, 1843, indicating *himalaicus* as a junior synonym. Racheli & Cotton (2009) recognized *himalaicus* as a separate subspecies, flying from Nepal to Arunachal Pradesh.

DISCUSSION

For many questions that arise when comparing species and subspecies names in various checklists, it would be very useful if the sources on which listings are based are given. Sbordoni *et al.* (2015) and Van Gasse (2018) mentioned no or very few source documents. Kehimkar (2008) presented no sources for his listings of butterfly species for Bhutan. Singh and Chib (2015) listed all the documents in which they found butterfly species reported for Bhutan. Uemura (2016) listed species based on old documents or on recent documents that usually presented verifiable evidence, such as a picture or a reference to specimens. However, it is not clear based on what arguments Uemura (2016) selected the subspecies which he listed for Bhutan. We have tried to present our arguments, usually recent literature, for why we believe that the subspecies listed by us are the correct ones.

For old records, such as those reported by Evans (1932), Talbot (1939) and Kehimkar (2008), we assume that these are correct. A possible problem with these records may be that misidentification of species in the old days was not uncommon and since many of these publications do not present a drawing or picture of the specimen, we cannot always guarantee that the reported record was correctly identified. A second problem is that the reported first records may include records from “Buxa, Bhutan”, which after the treaty of Sinchula in 1865 ceased to be part of Bhutan. Buxa Fort is 4-5 km south of the border of Bhutan. Unfortunately, for many records only “Bhutan” is indicated, which could mean that some of them were outside the present-day boundaries of Bhutan. Usually, there is no way to determine exactly where specimens were collected, especially for specimens collected by local collectors.

Some reports on butterfly species of Bhutan are not easily accessible, e.g. cannot be downloaded from or not even found on the internet. Uémura (2016) regularly cited Yazaki (2012), a guidebook of the butterflies of Bhutan in Japanese, of which we only had the species list without details as the book was only distributed in Japan. The authors were informed that in 2021, Watanabe published an article which reported *P. accestis* (ssp. *lampidius*), from west of Yalela at 4620m elevation in



Thimphu Dzongkhag, photographed on 06-vii-2012 by Mr. Umezawa (Motoki Saito, pers. comm., March 2024, see picture). Before that, we assumed that there had not been any observation of *P. accestis* in Bhutan in the last 70 years. Other recent listings of *P. accestis* for Bhutan, such as Yazaki (2012) and Uémura (2016) were most probably based on old reports, such as Ackery (1975) who reported on specimens of *P. accestis* in the Natural History Museum, London. It would be good if scientific publications in Japanese about butterflies in other countries would be translated into a language commonly used for scientific research in these countries and be made available on the internet.

6. *Parnassius accestis* ©Umezawa/Watanabe

After finishing the final draft of this article, the authors were informed that Korb (2020) listed *Parnassius dongalaicus* for Bhutan: He gave as details: “TL. “Donga La” (a mountain pass located on the highway Bumthang – Ura in Bhutan, 27.394808 N, 90.9953358 E). “Donga La” is a nowadays not-used name for Thrumshing La, a 3780m pass between Ura and Sengor in Central Bhutan. This contradicts the original description of Tytler (1926) of *P. dongalaica* which specifies: “A single ♀ which may be a race of *P. mercurius*, Gr-Gr. from Amdo, N.E. Tibet, was taken on the Dongga-La, on the road to Mount Everest at 16,000’ [4,870m].” Hanus (2007) gives the collection date of Tytler’s specimen of *P. dongalaicus* as 18.vii.1922 and indicates that this coincides with members of the second Mount Everest expedition crossing Dongka La and collecting butterfly specimens there. Dongka La or Dongkha La is on the border between Sikkim and Tibet, and thus, *P. dongalaicus* does not feature in our checklist for Bhutan.

The status of some of the species listed in the new checklist for Bhutan will change in the future, especially because of more DNA-based studies. We consider this checklist to be a great improvement on the existing lists, as shown by the additions, changes and justifications presented here. A remaining problem is that access to some publications, especially publications from Japan, is difficult, depending on the goodwill of Japanese experts to share these documents.

CONCLUSIONS

The authors present a checklist of 51 Papilionidae species that have been reported from Bhutan in old documents or in recent publications with verifiable evidence. This leaves out some species that were reported before, but these reports provided no evidence or were based on mis-identifications, while for some species it was not clear on which document their listing was based. Lists of species of other butterfly families of Bhutan are likely to have similar wrongly reported species and reviews of these families are highly recommended.

ACKNOWLEDGEMENTS

The authors wish to thank everyone who contributed to this publication, either by providing photographs (Sonam Dorji, Thinley Penjor, Shyam, Mr. Umezawa) or providing documents or information (Gian Cristoforo Bozano, Adam Cotton, Isaac Kehimkar, Motoki Saito and Peter Smetacek).

REFERENCES (including those of Table 1.)

Ackery, P.R. 1973. A list of the type specimens of *Parnassius* (Lepidoptera: Papilionidae) in the British Museum (Natural History). *Bulletin of the British Museum (Natural History) Entomology* 29(1): 1-35, 1pl.

Ackery, P.R. 1975. A guide to the genera and species of Parnassiinae (Lepidoptera : Papilionidae). *Bulletin of the British Museum (Natural History) Entomology* 31(4): 71-105, pl. 1-16.

Atkinson, W.S. 1873. Description of a new genus and species of Papilionidae from the South-eastern Himalayas. *Proceedings of the Zoological Society of London* 1873: 570-572, pl. 50.

Avinoff, A. 1916. Some new forms of *Parnassius* (Lepidoptera, Rhopalocera). *Transactions of the Entomological Society of London* 1915: 351-360, pl. 52-54.

Avinoff, A. 1922. Notice sur *Parnassius acdestis* Gr. Gr., in Oberthür, *Études de Lépidoptérie Comparée* 19(2): 45-70, pl. 547-548.

Collins, N.M. & M.G. Morris. 1985. *Threatened swallowtail butterflies of the world*. IUCN Red Data Book. IUCN. Gland, Switzerland. vii + 401pp. + 8 pls. <http://dx.doi.org/10.5962/bhl.title.45485>

Condamine, F.L., R. Allio, E.L. Reboud, J.R. Dupuis, E.F.A. Toussaint, N. Mazet, S.J. Hu, D.S. Lewis, K. Kunte, A.M. Cotton & F.A.H. Sperling. 2023. A comprehensive phylogeny and revised taxonomy illuminate the origin and diversification of the global radiation of *Papilio* (Lepidoptera: Papilionidae). *Molecular Phylogenetics and Evolution* 183, 107758. <https://doi.org/10.1016/j.ympev.2023.107758>

Cotton, A.M. 2018. Confirmation of the true identity of *Papilio alcibiades* Fabricius, 1787 (Lepidoptera: Papilionidae). *Butterflies* 79: 11-17.

Cotton, A.M., J. Robinson & Y. Inayoshi. 2019. Taxonomic implications resulting from examination of the syntypes of *Papilio pompilius* Fabricius, 1787 (Lepidoptera: Papilionidae). *Butterflies* 81: 48–55.

Cotton, A.M., S.J. Hu & Y. Inayoshi. 2021. Issues with *Papilio bianor gladiator* Fruhstorfer, [1902] and *ganesa* Doubleday, 1842 (Lepidoptera: Papilionidae). *Butterflies* 87: 39–45.

Cotton, A.M., T. Doleck, X. Zhang, Y. Inayoshi, D.J. Lohman & S.J. Hu. 2022. *Graphium septentrionicolus* Page & Treadaway, 2013 (Lepidoptera: Papilionidae) is a distinct species. *Zootaxa* 5154(2): 211–224. <https://doi.org/10.11646/zootaxa.5154.2.6>

De Nicéville, L. 1894. Butterflies. In: *The Gazetteer of Sikkim*. Oriental Publishers, Delhi, India: 112-187.

Dierl, W. 1977. Die Identität von *Papilio machaon asiaticus* Ménétrié (Lepidoptera: Papilionidae). *Mitteilungen der Münchener Entomologischen Gesellschaft*, 67, 85–89.

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

Elwes, H.J. 1888. A catalogue of the Lepidoptera of Sikkim, with additions, corrections, and notes on seasonal and local distribution by Otto Möller. *Transactions of the Entomological Society of London* 36(3): 269–465, pl. 8–11.

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

Fruhstorfer, H. 1902. Neue Papilioformen aus dem Indo-Australischen Gebiet *Societas Entomologica* 17(9): 65-66.

Fruhstorfer, H. 1903. Zwei neue Sikkim-Falter. *Insekten-Börse* 20(19): 148.

- Gabriel, A.G. 1942. A new species of *Bhutanitis* (Lepidoptera: Pailionidae). *The Entomologist* 75: 189.
- Hanus, J. 2007. *Parnassius dongalaicus* Tytler, 1926, a poorly known and ill-treated species (Lepidoptera: Papilionidae). *Nachrichten des Entomologischen Vereins Apollo, Neue Folge* 28 (1/2): 63-67.
- Harada, M. 1987. Butterflies of Bhutan (I). The Lepidopterological Society of Japan, *Yadoriga* 131: 4–22.
- Harada, M., K. Wangdi, S. Wangdi, M. Yago, T. Aoki, Y. Igarashi & T. Uchiyama. 2012. Rediscovery of Ludlow's Bhutan Glory, *Bhutanitis ludlowi* Gabriel (Lepidoptera: Papilionidae) morphology and biology. *Butterflies (Teinopalpus)* 60:1–13.
- Horsfield, Th. & F. Moore. 1857. *A catalogue of the lepidopterous insects in the museum of the Hon. East-India Company*. Vol I. W.H. Allen and Co, London.
- Horsfield, Th. & F. Moore. 1858. *A catalogue of the lepidopterous insects in the museum of the Hon. East-India Company*. Vol. II. W.H. Allen and Co, London
- Hu, S.J., A. Cotton, F. Condamine, K. Duan, R.J. Wang, Y.F. Hsu, X. Zhang & J. Cao. 2018. Revision of *Pazala* Moore, 1888: The *Graphium* (*Pazala*) *alebion* and *G. (P.) tamerlanus* groups, with notes on taxonomic and distribution confusions (Lepidoptera: Papilionidae). *Zootaxa* 4759(1): 77-97.
- Hu, S.J., A.M. Cotton, G. Lamas, K. Duan & X. Zhang. 2023. Checklist of Yunnan Papilionidae (Lepidoptera: Papilionoidea) with nomenclatural notes and descriptions of new subspecies. *Zootaxa* 5362(1): 1–69. <https://doi.org/10.5281/zenodo.10168495>
- Jordan, K. 1908-1909. 1. Familie: Papilionidae, Segelfater. In A. Seitz, (1908-1909). *Die Indo-Australischen Tagfalter. Die Gross-schmetterlinge der Erde* (9), 11-118. Fritz Lehmann Verlag, Stuttgart, Germany.
- 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, 30 pp. (<http://biodiversity.bt/document/show/32>)
- Kehimkar, I. 2008. *The Book of Indian Butterflies*. Bombay Natural History Society. Oxford University Press, Mumbai, 497 pp.
- Kehimkar, I. 2016. *Butterflies of India - BNHS Field Guides*. Bombay Natural History Society, Mumbai, India. 510 pp.
- Korb, S.K. 2020. An annotated checklist of the tribus *Parnassiini sensu Korshunov of the Old World* (Lepidoptera, Papilionidae). *Acta Biologica Sibirica* 6: 59–86.

- Moore, F. 1902. *Lepidoptera Indica Vol. V. Rhopalocera: Nymphalidae, Riodinidae & Papilionidae*. Lovell Reeve & Co., Ltd., London, [v] + 248 pp., pl. 379–466.
- Moore, F. 1903–1905. *Lepidoptera Indica. Vol. VI. Rhopalocera: Papilionidae & Pieridae*. Lovell Reeve & Co., Ltd., London, [viii] + 240 pp., pl. 467–550.
- Nidup, T. 2015. An annotated checklist of butterflies from Royal Manas National Park, Gelephu, Bhutan. *Spring* 5: 1–9.
- Page, M.G.P. & C.G. Treadaway. 2013. Speciation in *Graphium sarpedon* (Linnaeus) and allies (Lepidoptera: Rhopalocera: Papilionidae). *Stuttgarter Beiträge Zur Naturkunde A, Neue Serie* 6: 223–246.
- Racheli, T. & A. M. Cotton. 2009. *Guide to the Butterflies of the Palearctic Region. Papilionidae part 1, Subfamily Papilioninae, Tribes Leptocircini, Teinopalpini*. Omnes Artes, Milano, Italy.
- Rothschild, W. 1895. A revision of the Papilios of the Eastern hemisphere, exclusive of Africa. *Novitates zoologicae* 2(3): 167–463.
- Rothschild, W. 1898. Some new Lepidoptera from the East. *Novitates zoologicae* 5(3): 602–605.
- Rothschild, W. 1918. Catalogue of the Parnassiidae in the Tring Museum. *Novitates zoologicae* 25: 218–262.
- 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. & M. Chib. 2015. Checklist of butterflies of Bhutan. *Proceedings of Bhutan Ecological Society* 2: 22–58.
- Smetacek, P. 2015. *Papilionid Butterflies of the Indian Subcontinent*, Concise edition. Butterfly Research Centre, Bhimtal. 120 pp.
- Talbot, G. 1939. *The fauna of British India, including Ceylon and Burma. Butterflies Vol. I* Taylor & Francis, London. xxix + 600 pp., 3 pls.
- Todisco, V., V. Nazari, & M. Mutanen. 2023 So familiar, yet so unknown: Taxonomy and DNA barcoding of the Palearctic *Papilio machaon* group. *GRS Conference, Lucca, 2023*, 1 pp. [poster presentation].

Tsukada, E. & Y. Nishiyama. 1980. Butterflies of the South East Asian Islands I. Papilionidae, in Tsukada (Ed.), *Butterflies of the South East Asian Islands I*, Plapac Co Ltd, Tokyo, Japan. 459 pp., 166 pls.

Turlin, B. 1983. Systematique des *Parnassius*. Unpublished manuscript, referred to in Collins & Morris (1985).

Tyler, H. C. 1926. Notes on some new and interesting butterflies from India and Burma, part I. The Journal of the Bombay Natural History Society 31 (1/2): 248-260, pls. 1 + 4.

Uémura Y. 2016. A synonymic list of butterflies of Bhutan Part I: Papilionidae. *Bulletin of the Tayosato Museum of Entomology* 25: 1-10.

Wanatabe, Y. & Umezawa, 2021. (*Parnassius accestis* from Bhutan). *Wanatabe* [Journal].

Van der Poel, P. & T. Wangchuk. 2007. *Butterflies of Bhutan - Mountains, hills and valleys between 800 and 3000m*. Royal Society for Protection of Nature. Thimphu, Bhutan. pp. 71.

Van der Poel, P. 2016. *Butterflies of Lingmethang: A preliminary checklist of species* (unpublished). Available from the NBC-Bhutan Biodiversity Portal: <https://biodiversity.bt/document/show/111>

Van der Poel, P. & P. Smetacek (eds.) 2022. *An Annotated Catalogue of the Butterflies of Nepal*. Bionotes: Occasional Paper 1, vii + 241 pp. (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).

Van der Poel, P., K. Wangdi & S. KC. 2023. First records of 25 skippers (Lepidoptera: Hesperiiidae) for Bhutan and confirmation or recent evidence of 25 seldom reported skippers. *Bionotes* 25(1&2): 83–124.

Van Gasse, P. 2018 [date given on website]. *Butterflies of the Indian Subcontinent – Annotated checklist*. Pdf version from the internet, 207 pp. Published as book by Tshikolovets Publications in 2021. http://www.biodiversityofindia.org/index.php?title=Butterflies_of_the_Indian_subcontinent

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

Wangdi, K. & Sherub. 2012. *Field guide to the swallowtails*. UWICE Nature Guide Series. Ugyen Wangchuk Institute of Conservation and Environment, Bumthang, Bhutan. 66 pp.

Wangdi, K., P. van der Poel & S. KC (2024. resubmitted to JoTT in May 2024). An updated checklist of the skippers (Lepidoptera: Hesperiiidae) of Bhutan.

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.

Yazaki, Y. 1980. Butterflies of Bhutan. Lepidopterological Society of Japan, *Yadoriga* 101-102: 5-19.

Yazaki, Y. 2012. *Butterflies of Bhutan*. Japan. 268 pp.

Yazaki, Y., K. Yazaki & S. Awano. 1983. Butterflies of Bhutan (second series). Lepidopterological Society of Japan, *Yadoriga* 111-112: 9-30.

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

INTERNET SOURCES:

BBP (Bhutan Biodiversity Portal of the National Biodiversity Centre): <https://biodiversity.bt/>

Butterflies of America:
https://www.butterfliesofamerica.com/ih02/peeblesi_Bryk_Parnassius_acdestis_MNHU_1B_i.htm

FUNET (Finnish University and Research Network):
<https://www.funet.fi/pub/sci/bio/life/insecta/lepidoptera/ditrysia/papilionoidea/papilionidae/>

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

IFB (Indian Foundation for Butterflies, Kunte, K., S. Sondhi, and P. Roy (Chief Editors). *Butterflies of India*, v. 4.21.): <https://www.ifoundbutterflies.org>.

Lepindex (Global Lepidoptera Names index of the Natural History Museum, UK):
<https://www.nhm.ac.uk/our-science/data/lepindex/>

Wikispecies: https://species.wikimedia.org/wiki/Main_Page

Table 1. Papilionidae checklist of Bhutan.

The first record for Bhutan (Bht) is the oldest record the authors have been able to find. Recent records are the first record with verifiable evidence in the 1980's and the first verifiable record since 2000. (K08) indicates that the species was reported in Kehimkar (2008) and was most likely based on old documents in the BNHS library, but the authors did not find any old document listing the species.

Codes in last two columns: Ack75 – Ackery, 1975; Atk73 – Atkinson, 1873; Av16 – Avinoff, 1916; dNc94 – De Niceville, 1894; Elw88 – Elwes, 1888; Gab42 – Gabriel, 1942; Hr87 – Harada, 1987; Hetal12 – Harada *et al.*, 2012; Hf&Mr57 – Horsfield & Moore, 1857; Hf&Mr58 – Horsfield & Moore, 1858; K08 – Kehimkar, 2008; K16 – Kehimkar, 2016; Mr02 – Moore, 1902; Mr03 – Moore, 1903; Ndp15 – Nidup, 2015; P&W07 – Van der Poel & Wangchuk, 2007; PW24 – Van der Poel & Wangdi, 2024 = this document; Rot95 – Rothschild, 1895; Rot98 – Rothschild, 1898; Rot18 – Rothschild, 1918; Si12 – Singh, 2012; Sm15 – Smetacek, 2015; vdP16 – Van der Poel, 2016; W&S12 – Wangdi & Sherub (2012); Wetal12 – Wangdi *et al.*, 2012; Yz12 – Yazaki, 2012; Yz80 – Yazaki, 1980; Yetal83 – Yazaki *et al.*, 1983; Y&K85 – Yazaki & Kanmuri, 1985.

Species	Author	Sub-species	Common name	First Bht record	Bht records 1980's & >2000
Subfamily Parnassiinae					
Tribe Parnassiini Duponchel, [1835]					
Genus Parnassius Latreille, 1804					
<i>Parnassius acdestis</i>	Grum-Grshimaïlo, 1891		Dusky Apollo	Ack75	←
<i>Parnassius epaphus</i>	Oberthür, 1879		Common Red Apollo	Hr87	←
<i>Parnassius hardwickii</i>	G. Gray, 1831	<i>hardwickii</i> Gray, 1831	Common Blue Apollo	Rot18	Y&K85/P&W07
Tribe Sericinini Chapman, 1895					

Genus Bhutanitis Atkinson, 1873					
<i>Bhutanitis lidderdalii</i>	Atkinson, 1873	<i>lidderdalii</i> Atkinson, 1873	Bhutan Glory	Atk73	Yz80/W&S12
<i>Bhutanitis ludlowi</i>	Gabriel, 1942		Ludlow's Bhutan Glory	Gab42	Hetal12
Subfamily Papilioninae Latreille, [1802]					
Tribe Leptocircini Kirby, 1896					
Genus Graphium Scopoli, 1777					
<i>Graphium agamemnon</i>	(Linnaeus, 1758)	<i>agamemnon</i> (Linnaeus, 1758)	Tailed Jay	(K08)	P&W07
<i>Graphium agetes</i>	(Westwood, 1843)	<i>agetes</i> (Westwood, 1843)	Fourbar Swordtail	Mr03	Si12-W&S12
<i>Graphium antiphates</i>	(Cramer, 1775)	<i>nebulosus</i> (Butler, 1881).	Fivebar Swordtail	Mr03	Si12-W&S12
<i>Graphium aristeus</i>	(Stoll, [1780])	<i>anticrates</i> (Doubleday, 1846)	Chain Swordtail	Mr03	P&W24
<i>Graphium chironides</i>	(Honrath, 1884)	<i>chironides</i> (Honrath, 1884)	Veined Jay	Elw88	P&W07
<i>Graphium cloanthus</i>	(Westwood, 1841)	<i>cloanthus</i> (Westwood, 1841)	Glassy Bluebottle	Mr03	Yz80/P&W07
<i>Graphium doson</i>	(C. & R. Felder, 1864)	<i>actor</i> (Fruhstorfer, 1907)	Common Jay	Mr03	Si12-W&S12
<i>Graphium eurous</i>	(Leech, 1893)	<i>sikkimica</i> (Heron, 1899)	Sixbar Swordtail	(K08)	Y&K85/W&S12
<i>Graphium</i>	(Linnaeus,	<i>acheron</i> (Moore,	Great Jay	Elw88	P&W24

<i>eurypylus</i>	1758)	1885)			
<i>Graphium macareus</i>	(Godart, 1819)	<i>indicus</i> (Rothschild, 1895)	Lesser Zebra	(K08)	Hr87/Si12
<i>Graphium nomius</i>	(Esper, 1799)	<i>nomius</i> (Esper, 1799)	Spot Swordtail	(K08)	←
<i>Graphium paphus</i>	(de Nicéville, 1886)		Spectacle Swordtail	(K08)	Yz80/W&S12
<i>Graphium sarpedon</i>	(Linnaeus, 1758)	<i>sirkari</i> Page & Treadaway, 2013	Common Bluebottle	(K08)	Si12-W&S12
<i>Graphium xenocles</i>	(Doubleday, 1842)	<i>phrontis</i> (de Nicéville, 1897)	Great Zebra	Rot95	W&S12
Tribe Teinopalpini Grote, 1899					
Genus Teinopalpus Hope, 1843					
<i>Teinopalpus imperialis</i>	Hope, 1843	<i>himalaicus</i> Rothschild, 1898	Kaiser-i-Hind	Elw88	PW24
Tribe Troidini Talbot, 1939					
Genus Pachliopta Reakirt, [1865]					
<i>Pachliopta aristolochiae</i>	(Fabricius, 1775)	<i>aristolochiae</i> (Fabricius, 1775)	Common Rose	(K08)	W&S12
Genus Troides Hübner, [1819]					
<i>Troides aeacus</i>	(C. & R. Felder, 1860)	<i>aeacus</i> (C. & R. Felder, 1860)	Golden Birdwing	(K08)	Yz80/W&S12
<i>Troides helena</i>	(Linnaeus, 1758)	<i>cerberus</i> (C. & R. Felder, 1865)	Common Birdwing	Bing07	Ndp15

Genus Atrophaneura Reakirt, [1865]					
<i>Atrophaneura aidoneus</i>	(Doubleday, 1845)		Lesser Batwing	Rot95	Y&K85/W&S 12
<i>Atrophaneura astorion</i>	(Westwood, 1842)	<i>astorion</i> (Westwood, 1842)	Common Batwing	Mr02	W&S12
Genus Byasa Moore, 1882					
<i>Byasa dasarada</i>	(Moore, [1858])	<i>dasarada</i> (Moore, [1858])	Great Windmill	Elw88	Y&K85/W&S 12
<i>Byasa latreillei</i>	(Donovan, 1826)	<i>latreillei</i> (Donovan, 1826)	Rose Windmill	(K08)	Yz80/W&S12
<i>Byasa plutonius</i>	(Oberthür, 1876)	<i>pembertoni</i> Moore, 1902	Chinese Windmill	Hf&Mr58	Hr87/K16
<i>Byasa polla</i>	(de Nicéville, 1897)		De Niceville's Windmill	Sm15	vdP16-PW24
<i>Byasa polyeuctes</i>	(Doubleday, 1842)	<i>polyeuctes</i> (Doubleday, 1842)	Common Windmill	Mr02	Yetal83/Wetal 12
Tribe Papilionini Latreille, [1802]					
Genus Meandrusa Moore, 1888					
<i>Meandrusa lachinus</i>	(Fruhstorfer, 1902)	<i>lachinus</i> (Fruhstorfer, 1902)	Brown Gorgon	Mr03	Yetal83/Wetal 12
<i>Meandrusa payeni</i>	(Boisduval, 1836)	<i>evan</i> (Doubleday, 1845)	Yellow Gorgon	dNc94	PW24
Genus Papilio Linnaeus, 1758					
<i>Papilio</i>	Linnaeus,	<i>agenor</i>	Great	(K08)	Si12-W&S12

<i>agenor</i>	1758	Linnaeus, 1758	Mormon		
<i>Papilio agestor</i>	G. Gray, 1831	<i>agestor</i> G. Gray, 1831	Tawny Mime	Elw88	Yz80/W&S12
<i>Papilio alcmenor</i>	C. & R. Felder, 1865	<i>alcmenor</i> C. & R. Felder, 1865	Redbreast	Mre02	Yz80/P&W07
<i>Papilio arcturus</i>	Westwood, 1842	<i>arcturus</i> Westwood, 1842	Blue Peacock	Mr03	Yz80/P&W07
<i>Papilio bianor</i>	Cramer, 1777	<i>ganesa</i> Doubleday, 1842	Common Peacock	(K08)	Yz80/P&W07
<i>Papilio castor</i>	Westwood, 1842	<i>polias</i> Jordan, 1909	Common Raven	(K08)	W&S12
<i>Papilio chaon</i>	Westwood 1845	<i>chaon</i> Westwood, 1845	Yellow Helen	(K08)	Si12-W&S12
<i>Papilio clytia</i>	Linnaeus, 1758	<i>clytia</i> Linnaeus, 1758	Common Mime	Mr03	Y&K85/W&S12
<i>Papilio demoleus</i>	Linnaeus, 1758	<i>demoleus</i> Linnaeus, 1758	Lime Butterfly	(K08)	W&S12
<i>Papilio epycides</i>	Hewitson, 1864	<i>epycides</i> Hewitson, 1864	Lesser Mime	dNc94	Yz80/W&S12
<i>Papilio everesti</i>	Riley, 1927	<i>hookeri</i> Gaonkar, 1999	Everest Yellow Swallowtail	Rot95	Hr87/W&S12
<i>Papilio helenus</i>	Linnaeus, 1758	<i>helenus</i> Linnaeus, 1758	Red Helen	(K08)	Yz80/P&W07
<i>Papilio janaka</i>	Moore, 1857	<i>janaka</i> Moore, 1857	Western Tailed Redbreast	(K08)	Y&K85/W&S12
<i>Papilio</i>	Moore,	<i>krishna</i> Moore,	Krishna	Hf&Mr5	Yz80/W&S12

<i>krishna</i>	[1858]	[1858]	Peacock	7	
<i>Papilio paradoxa</i>	(Zincken, 1831)	<i>telearchus</i> Hewitson, 1852	Great Blue Mime	PW24	←
<i>Papilio paris</i>	Linnaeus, 1758	<i>paris</i> Linnaeus, 1758	Paris Peacock	Mr03	Yz80/P&W07
<i>Papilio polytes</i>	Linnaeus, 1758	<i>romulus</i> Cramer, 1775	Common Mormon	Mr02	P&W07
<i>Papilio protenor</i>	Cramer, 1775	<i>euprotenor</i> Fruhstorfer, 1908	Spangle	Mr02	P&W07
<i>Papilio slateri</i>	Hewitson, 1859	<i>slateri</i> Hewitson, 1859	Blue-striped Mime	Mr03	←