On some type specimens of Lycaenidae from South East Asia (Lepidoptera)

Alan Cassidy

Alan Cassidy, 18 Woodhurst Road, Maidenhead, Berkshire, SL6 8TF, England; accassidy@aol.com

Abstract: The COURVOISIER collection in Naturhistorisches Museum Basel has been overlooked by recent authors, although it contains a number of type specimens of taxa described in the late 19th or early 20th centuries. Examination of these specimens, along with some types in London and Munich, has resolved some taxonomic difficulties evident from more recent literature. No new taxa are described but a new arrangement is proposed for some representatives of the genus Jamides Hübner, [1919], from Sulawesi, Philippines and Maluku. A total of 4 lectotypes are designated where appropriate, to fix a number of species group names that have hitherto remained ambiguous: Lampides kondulana espada Fruhstorfer; male, NHMB; Lampides amphissa courvoisieri Fruhstorfer, male, BMNH; Lampides alectus sarsina Fruhstorfer, male, NHMB; Arhopala ganesa formosana Kato, male, NHMB. Two taxa which have previously been accorded only subspecific status, Jamides sabatus (Fruhstorfer, 1921) and Jamides aritai Hayashi, 1976, are raised to species status, stat. n. The following new combinations are proposed: Jamides alecto espada Fruhstorfer; Jamides pura spitamenes Fruhstorfer; Jamides aratus sestus Fruhstorfer, all comb. n. The following new synonyms are suggested: formosana Kato = Arhopala japonica Muray; pheda CORBET = Portitia phama courvoisieri Fruhstorfer; camarines Takanami = Jamides sabatus Fruhstorfer; alle syn. n. The autorenschaft of the Gattungsnames Caleta wird revidiert; die korrekte Autorenschaft ist Hirowatari, 1992.

Introduction: Type specimens preserved mainly in Naturhistorisches Museum, Basel

I recently had the opportunity to study the COURVOISIER collection of butterflies held in Naturhistorisches Museum Basel, and I examined some type specimens of South-East Asian Lycaenidae, mainly described by Fruhstorfer and Röber. Additional reference is made to specimens held in the Natural History Museum, London, which have also been examined, and Zoologische Staatssammlungen, Munich.

In this paper I list the type specimens examined in Basel and designate lectotypes when appropriate. The labels from the type specimens are described. The / mark separates data on individual labels, and my notations are in square brackets: [colour of label] or [h] = handwritten and [p] = printed. Then I make further comments on the status and validity of the original names, with nomenclatural modifications as a result of superficial and genitalic examination of the type specimens.

Abbreviations (collections and other), symbols

BMNH The Natural History Museum, London (formerly British Museum [Natural History]).

f. Forma (infrasubspecific).

HT Holotype.

LT Lectotype.

NHMB Naturhistorisches Museum Basel.

PLT Paralectotype.

PT Paratype.

ZSM Zoologische Staatssammlungen München (Munich).

Genus Jamides Hübner, [1819]

Lampides kondulana espada Fruhstorfer, 1915

Lampides kondulana espada: Fruhstorfer (1915a: 11). Celebes [Sulawesi]. (Figs. 1-3 ©, Fig. 60 © genit.)

Fruhstorfer’s description refers to two specimens, one of each sex. The ♀ is in Basel, the ♂ in Munich.

Following external examination and genitalic dissection, *españa* is treated hereinafter as a subspecies of *Jamides aleto* (C. Felder, 1860): 456 (*Jamides aleto españa* (Fruhstorfer, 1915), stat. n., comb. n.).

**Lampides suidas spatimenes** Fruhstorfer, 1915


(Figs. 4–6 ♂, 61 ♂ genit.)

Fruhstorfer’s description mentions only one ♂ specimen from Obi, although he does not say where it is stored. The ♂ specimen found in Basel is very likely to be that to which Fruhstorfer refers in his description.

Holotype ♂ by monotypy: “Obi 1909 Fried. [h] [red]/Type [p] [pink]/HOLOTYPE ♂ spatimenes Fruh. Cassidy ill. 13. [h]”.

Following external examination and genitalic dissection, *spatimenes* is treated hereinafter as a subspecies of *J. pura* (Moore, 1886) (*Jamides pura spatimenes* (Fruhstorfer, 1915), stat. n., comb. n.).

**Plebeius optimus** Röber, 1886

*Plebeius optimus*: Röber (1886: 56, pl. 4, fig. 16 ♂). E. Sulawesi.

(Figs. 7–9 ♂.)

“Ost-Celebes Tombugu H. Kuhn 1885 [p]/Original [p] [mauve]/Ost Celebes 1908 Rt. [h] [pink]” A lectotype of *optimus*, from Senckenberg Naturhistorische Sammlungen (formerly Staatliches Museum für Tierkunde), Dresden, was designated by Takanami (1989: 48). A former syntype ♂ (now paracotype) from the Ribbe collection is located in NHMB.

Currently treated as a subspecies of *Jamides celeno* (Cramer, [1775]), following Takanami (1989: 48).

**Plebeius lucianus** Röber, 1886

*Plebeius lucianus*: Röber (1886: 54, pl. 4, fig. 11 ♂; lectotype). Maluku, Bacan.

(Figs. 10–12 ♂.)

“Aru Insel Wamma Dobbo C. Rubbe 1883 [p]/Original [p] [mauve]/Aru Inseln 1906 Ri. [h] [red]”. Takanami (1989: 48) designated a lectotype (in Senckenberg Naturhistorische Sammlungen Dresden) for this taxon using a ♂ from Bacan collected by Carl Rubbe in 1885. This former syntype in NHMB also appears to have been collected by Ribbe, but from the island of Aru.

Takanami synonymised *lucianus* with *Jamides aratus batarjanensis* (Röber, 1886: [54, pl. 4, fig. 10]) (see Figs. 13–14 ♂).

**Lampides amphissa courvoisiieri** Fruhstorfer, 1915

*Lampides amphissa courvoisiieri*: Fruhstorfer (1915a: 26).

(Figs. 15–17 ♂ [BMNH], 18–20 ♂ [NHMB].)

Fruhstorfer’s description refers to two specimens, one of each sex. The ♂ from Fruhstorfer’s own collection is in London, the ♀ in Basel.


A ♂ in Courvoisier collection with data: “amphissa courvoisiieri Fruhst. [h]/Nias 1907 Ro. [h] [pink]/TPUS [p] [pink]” is considered a paracotype.

Currently treated as a subspecies of *Jamides cytia* (Boisduval, [1832]): 87, following Riley & Corbet (1938: 157).

**Lampides aetherialis sestus** Fruhstorfer, 1915


(Figs. 21–23 ♂.)

Fruhstorfer describes sestus from a single ♂ from the type locality Timor and states it to be in the Courvoisier collection.

Holotype ♂ by monotypy: “lucianus sestus Fruhst. [in Fruhstorfer’s hand]/Timor 1911 Sta. [h] [pink]/TPUS [p] [pink]/HOLOTYPE ♂ sestus Fruh. Cassidy ill. 13 [h]”. Note that Fruhstorfer wrote “lucianus” on the label but then described sestus as a subspecies of *aetherialis*.

Now shown by genitalic dissection to be a subspecies of *J. aratus* (Stoll, [1781]) (*Jamides aratus sestus* (Fruhstorfer, 1915), stat. n., comb. n.).

**Lampides aleuas sarmice** Fruhstorfer, 1915


(Figs. 24–26 ♂.)

Fruhstorfer mentions only a single ♀ in his description and states it to be in the Courvoisier collection.

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Figs. 1–3: Lampides kondulana españa Fruhstorfer, 1915 [= Jamides aleto españa (Fruhstorfer, 1915)], LT ♂; Fig. 1: upperside [Up], Fig. 2: underside [Un], Fig. 3: labels. — Figs. 4–6: Lampides suidas spatimenes Fruhstorfer, 1915 [= Jamides pura spatimenes (Fruhstorfer, 1915)], HT ♂; Fig. 4: Up, Fig. 5: Un, Fig. 6: labels. — Figs. 7–9: Plebeius optimus Röber, 1886 [= Jamides celeno optimus (Röber, 1886)], PLT ♂; Fig. 7: Up, Fig. 8: Un, Fig. 9: labels. — Figs. 10–14: Lampides aleuas batarjanensis Röber, 1886. Figs. 10–12: Plebeius lucianus Röber, 1886, PLT ♂, Aru; Fig. 10: Up, Fig. 11: Un, Fig. 12: labels. Figs. 13–14: Lampides aratus batarjanensis from Sulawesi, ♂; Fig. 13: Up, Fig. 14: Un. — Figs. 15–20: Lampides amphissa courvoisiieri Fruhstorfer, 1915 [= Jamides cytia courvoisiieri (Fruhstorfer, 1915)]. Figs. 15–17: LT ♂; Fig. 15: Up, Fig. 16: Un, Fig. 17: labels (BMNH). Figs. 18–20: PLT ♂; Fig. 18: Up, Fig. 19: Un, Fig. 20: labels (BMNH). — Figs. 21–23: Lampides aetherialis sestus Fruhstorfer, 1915 [= Jamides aratus sestus (Fruhstorfer, 1915)], LT ♂; Fig. 21: Up, Fig. 22: Un, Fig. 23: labels. — Figs. 24–26: Lampides aleuas sarmice Fruhstorfer, 1915 [= Jamides alleus sarmice (Fruhstorfer, 1915)], HT ♂; Fig. 24: Up, Fig. 25: Un, Fig. 26: labels. — Figs. 27–32: Lampides aleuas sarsina Fruhstorfer, 1915 [= Jamides allemus sarsina (Fruhstorfer, 1915)], LT ♂; Fig. 27: Up, Fig. 28: Un, Fig. 29: labels (NHMB). PLT ♂; Fig. 30: Up, Fig. 31: Un, Fig. 32: labels (BMNH). — Figs. 33–38: Lampides allectus sabitosus Fruhstorfer, 1915 [= Jamides allectus sabitus (Fruhstorfer, 1915)], HT ♂; Fig. 33: Up, Fig. 34: Un, Fig. 35: SEITZ image + labels (ZSM). Figs. 36–38: PL ♂ of syn. camarines Takanami, 1990; Fig. 36: Up, Fig. 37: Un, Fig. 38: labels (BMNH). — Figs. 39–44: Lampides antai Hayashi, [1977]. Figs. 39–40: Mindanao (= syn. mindanensis Hayashi, [1977]), ♂ Up, Un. Figs. 41–42: Sulawesi, ♂ Up, Un. Figs. 43–44: Palawan, ♂ Up, Un. — Scale bar = 1 cm, valid for all specimens = approximately natural size for all specimens (not valid for labels).
Holotype ♂ by monotypy: “Kapsu NMMecklenbg. 1912
KruK. [h] [red] /TYPUS [p] [pink] /HOLOTYPE ♂ sar-
mice FRUH. CASSIDY III. 13 [h]”.

Currently treated as a subspecies of Jamides allectus

Lampides aleuas sarsina FRUHSTORFER, 1915

(Figs. 27–29 ♂ [NHMB], 30–32 ♂ [BMNH].)
FRUHSTORFER described a pair of specimens from Aru.

Lectotype ♂ here designated: “Aru-Inseln Ureining C.
Ribbe 1884 [p] /Aru Inseln 1903 Bi. [h] [red] /aleuas sar-
sina Fr. [in FRUHSTORFER’s hand]/LECTOTYPE ♂ sarsina
FRUH. CASSIDY III. 13 [h].”

Currently treated as a subspecies of Jamides aleuas (C. &
R. Felder, 1865: [268]), following Tite (1960: 330).

A ♂ in BMNH with data: “Type AT [p] [red]/ Aru [h]
FRUHSTORFER [p]/ FRUHSTORFER Coll. B.M. 1933-131 [p]/
aleuas sarsina FRUH [h] [in FRUHSTORFER’s hand]” is con-
sidered a paralectotype.

Lampides alsietus sabatus FRUHSTORFER, 1915

Lampides alsietus sabatus: FRUHSTORFER (1915a: 16). North
Sulawesi?
(Figs. 33–35 ♂ [ZSM].)

There is a ♂ specimen marked as type in ZSM (Munich):
“alsietus sabatus FRUHST. [h] [in FRUHSTORFER’s hand]/
Abgebildet [= figured] H. FRUHSTORFER [p] /Nord Cele-
bes, H. FRUHSTORFER [p]/Type [p] [red]”. The “Abgebi-
det” probably refers to the image on Plate 151 in SEITZ
(1927) (see inset on Fig. 35). FRUHSTORFER makes no
mention of multiple specimens in his description, so this
Munich specimen is considered to be the holotype by
monotypy. Regarding the type locality of sabatus, FRUH-
STORFER writes (in translation): “Patria: Of the south-
ern Philippines or North Sulawesi. Bought from STAU-
dinger, who was not able to supply data of its origin with
certainty.”

The discussion section below expands on the revisionary
taxonomic implications of the discovery of the types of
espada and sabatus.

Genus Caleta HIROWATARI, 1992

= Castalus (caleta species-group): FRUHSTORFER (1922: 890).
Caleta: HIROWATARI (1992: 40)

FRUHSTORFER (1922: 890) grouped together a number of
taxa of genus Castalus HÜBNER, [1819] (type species
Papilio rosimon FABRICIUS, 1775: [523], by selection of
SCUDDER 1875: 135), principally from Sulawesi and the
Philippines, and called them in the headline “Caleta-Ar-
tengruppe” (or “Caleta Species-Group”). He failed, how-
ever, to list any descriptive characters that would dis-

guish it from other species included in Castalus at
that time. This action was insufficient to constitute the
description of a new genus.

Genus Arhopala BOISDUVAL, 1832

Arhopala ganesa formosana KATO, 1930
Arhopala ganesa formosana: KATO (1930: 206).
(Figs. 48–50 ♂.)
Lectotype ♂ here designated: “Tainan [sic] Formosa 1911 H.S. [h] /pink] /TYPUS [p] [pink] /LECTOTYPE formosana Kato Cassidy III. 2013 [h]”. Described by Kato and listed by Evans (1957: 128) as a subspecies of A. ganesa, although he also states “none in BM” and so had probably not seen a specimen and certainly not this type. Following external examination, it is better regarded as a synonym of Arhopala japonica (Murray, 1874): 169, syn. n.

Genus Flos Doherty, 1889

Amblypodia kuehni Röber, 1887

Amblypodia kühni: Röber (1887: 200, pl. 9, figs 5 ♂, 8 ♀). (Figs. 51–53 ♂.)

“Bangkie H. Kühn 1885 [p] /Original [p] [mauve] /Bangkie 1908 Rd [h] [red]”, Evans (1957: 131) lists this taxon as Flos kühni [sic] and notes that the type of kuehni is held in the BMNH, while D’Abrera (1986: 584) lists Flos kühni [sic] and illustrates a ♂ with a red “type” label alongside. This specimen appears to have been collected by H. Kühn in Bangkie in 1885 and acquired by Courvoisier from Ribbe in 1908. Whilst previously considered a syntype of the ♂ in BMNH, it currently has no taxonomic status. In accordance with the ICZN (1999: Article 32.5.2.1.), the correct spelling of this taxon is Flos kuehni.

Genus Poritia Moore, [1866]

Poritia pleurata courvoisieri Fruhstorfer, 1917

Poritia pleurata courvoisieri: Fruhstorfer (1917: 40). (Figs. 54–56 ♂.)

Fruhstorfer described this taxon from a single ♀ and stated it to be in the Courvoisier collection. Holotype ♀ by monotypy: “pleurata courvoisieri Fruhst. [in Fruhstorfer’s hand] / Ost-Java Coll. H. Rolle [p] / Ost Java 1905 Ro [h] [pink] / Type [p] [tan] / TYPUS [p] [pink] / HOLOTYPE courvoisieri Fruh. Cassidy III. 2013 [h]”. Currently treated as Poritia phama courvoisieri following Corbet (1940: 343). Corbet’s taxon pheda from West Java is considered a synonym of courvoisieri, syn. n.

Genus Miletus Hübner, [1819]

Gerydus courvoisieri Fruhstorfer, 1915

Gerydus courvoisieri: Fruhstorfer (1915b: 268 ♂). Java. (Figs. 57–59 ♂.)

Fruhstorfer described this taxon from a single ♂ and stated it to be in the Courvoisier collection. Holotype ♂ by monotypy: “Buitenzorg Java 1911 G [h] [pink] / TYPUS [p] [pink] / HOLOTYPE courvoisieri Fruh. Cassidy III. 2013 [h]”. Currently treated as a synonym of Miletus boisduvali boisduvali (Moore, 1858: 19, pl. 1a, fig. 1), of which the Javanese ♂ holotype is held in BMNH, following Eliot (1961: 166).

Discussion

The positions of espada and sabatus within Jamides have not been stable. Fruhstorfer described espada under kondulana, which has itself been considered as a subspecies of alecto following Riley & Corbet (1938: 154). Fruhstorfer described sabatus, of uncertain location, under alsietus which is from Basilan (= Basilan). This position for sabatus was retained in the 1990s by authors dealing with the Philippine Islands (Takanami 1990, Treadaway 1995).

Also in 1990, Takanami described a new subspecies, J. alsietus camarines, from Marinduque and several more Philippine locations. More recently authors (Takanami & Seki 1997, Treadaway & Schröder 2012) have given camarines species status on its own and placed sabatus as a subspecies of J. espada.

The discovery and examination of the type of espada has confirmed its synonymy with alecto, making the combination of sabatus with espada inappropriate. Comparison of the images of the type of sabatus (Munich) with paratypes of camarines (London) suggests that their conspecificity is highly probable. Therefore I propose the following arrangement:

Jamides alecto espada Fruhstorfer, 1915, stat. n.

Jamides sabatus Fruhstorfer, 1915, stat. n.

= camarines Takanami, 1990, syn. n. (Figs. 36–38 [paratype in BMNH].)

This new status of espada also raises further problems relating to the Jamides fauna of Sulawesi, Maluku and the Philippines: the status of “Jamides rothschildi” auctt. and its putative subspecies aritai Hayashi, [1977a]: 151] and mindanensis Hayashi, 1977b[; 167].

Jamides rothschildi is a nomen nudum and is invalid. It was first attributed to “Toxopeus (M.S.)” by D’Abrera (1971) and perpetuated in Edition 2 (D’Abrera 1977: 354). Although it was accompanied by an illustration of two butterflies from Seram, Maluku Province, Indonesia, it contained no written description. D’Abrera suggested that “It is likely that Toxopeus never actually published this name”, and indeed no such publication has been discovered. Subsequently, Hayashi [(1977) ; 1977b] published his descriptions of two subordinate taxa, but this action still did not properly describe or fix a type specimen for rothschildi, which remains an invalid name.

Takanami (1990: 71) wrongly attributed rothschildi to Hayashi, but helpfully included drawings of the ♂ genitalia of the taxon mindanensis and has subsequently confirmed (pers. comm.) that those of aritai are of the same form. More recently, dissections by the author of ♂♂ from North Sulawesi and Buru have confirmed the conspecificity of those specimens with aritai and mindanensis.

As aritai is the earliest published available name for the species, with ♂ genitalia of the form shown in Figs. 62–63,
Figs. 45–47: Castalius elina forma ‡elina ♂; Up, Un, labels. — Figs. 48–50: Arhopala ganesa formosana [= Arhopala japonica] ♂; Up, Un, labels. — Figs. 51–53: Flos kuehni ♂; Up, Un, labels. — Figs. 54–56: Poritia phama courvoisieri ♀; Up, Un, labels. — Figs. 57–59: Miletus boisduvali boisduvali [= courvoisieri] ♂; Up, Un, labels. — Scale bar = 1 cm, valid for all specimens = approximately natural size for all specimens (not valid for labels). — Figs. 60–63: ♂ genitalia (A = armature, V = valva, P = phallicus [or aedeagus]). Fig 60: Jamides alecto espada. — Fig 61: Jamides pura spitamanes. — Fig 62: Jamides aritai, Sulawesi. Fig 63: Jamides aritai, Buru. — Scales see in pictures.
with type locality Palawan and a range that includes Sulawesi, Seram and Buru, I propose the following arrangement:

**Jamiodes aritai** HAYASHI, [1977a] **stat. n.**

- **Range:** Sulawesi, Maluku, Philippines.
- **(Figs. 39–40 Mindanao, Figs. 41–42 Sulawesi, Figs. 43–44 Palawan.)**
  - ♀rothschildi auctorum, nomen nudum
  - ♂mindanensis HAYASHI, 1977b; synonymised by **Takanami & Seki** (1997).

More detailed examination of longer series of insects from this wide variety of locations might lead to the proposal of further subspecific names subordinate to *aritai*, but none is proposed here.

**Notes on methods used**

All genitalic preparations were initiated by maceration in 0.1N KOH before the parts were separated in 70% iso-propanol. After study, elements of the genitalia were dried in absolute iso-propanol and then stored in glycerol in nested polypropylene vials. Microphotography was undertaken in glycerol, to inhibit movement, using an Aigo GE-5 digital microscope. Multiple images were combined using Helicon Focus 5.3.7 X64 software from Helicon Soft Ltd to provide enhanced depth of field. Photographs of adult specimens were taken using a Nikon D80 digital SLR camera, usually with multiple flash illumination. Images were post-processed, including colour balancing for different lighting conditions, using Photoshop Elements 6.0 from Adobe. Image backgrounds have been flattened in Photoshop to remove distracting shadow and reflection effects from mounting materials. All images are scaled to show adult specimens represented at life size.

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