

# An illustrated and annotated checklist of *Arhopala* BOISDUVAL, 1832, taxa occurring in North Maluku and Maluku, Indonesia (Lepidoptera: Lycaenidae) — Part 4: The *fulla* species-group

Andrew RAWLINS, Alan CASSIDY and Stefan SCHRÖDER

Andrew RAWLINS, 392 Maidstone Road, Rainham, Kent, ME8 0JA, UK; acrawlins@hotmail.com (corresponding author)

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

Stefan SCHRÖDER, Auf dem Rosenhügel 15, D-50997 Köln (Cologne), Germany; ste.schroeder@gmx.net

**Abstract:** This paper is the 4<sup>th</sup> in the series covering the species and subspecies of the lycaenid genus *Arhopala* BOISDUVAL, 1832 that occur in the Indonesian provinces of North Maluku and Maluku and deals with the *fulla* species-group, *sensu* EVANS (1957). Nine described taxa (5 species) are recognised as occurring there. Two new synonyms are proposed. We briefly discuss the taxonomy and distribution of the taxa *admete* HEWITSON, 1863, *eucolpis* KIRSCH, 1877 and *sudesta* EVANS, 1957. The taxon *sosias* FRUHSTORFER, 1914 from Obi, placed by EVANS (1957) as a synonym of *A. fulla canulia* HEWITSON, 1869 is restored to a distinct subspecies (*stat. rev.*). A map shows the islands discussed in the text and all taxa are illustrated in colour.

**Keywords:** Lepidoptera, Lycaenidae, Theclinae, *Arhopala*, *fulla* species-group, new synonyms, Indonesia, North Maluku, Maluku.

## Illustriertes und kommentiertes Verzeichnis der *Arhopala*-Arten (Lepidoptera: Lycaenidae, Theclinae), die in den Nordmolukken und Molukken (Indonesien) vorkommen — Teil 4: Die *fulla*-Artengruppe

**Zusammenfassung:** Dies ist die vierte Publikation einer Serie über die Arten und Unterarten der Lycaenidengattung *Arhopala* BOISDUVAL, 1832 aus den indonesischen Provinzen Nordmaluku und Maluku. Sie befaßt sich mit der Artengruppe von *Arhopala fulla sensu* EVANS (1957). 9 beschriebene Taxa (mit 5 anerkannten Arten) sind von dort bekannt. Zwei neue Synonyme werden vorgeschlagen. Taxonomie und Verbreitung der Taxa *admete* HEWITSON, 1863, *eucolpis* KIRSCH, 1877 und *sudesta* EVANS, 1957 werden kurz diskutiert. Das Taxon *sosias* FRUHSTORFER, 1914 von Obi, von EVANS (1957) als Synonym of *A. fulla canulia* HEWITSON, 1869 behandelt, wird als separate Unterart wieder aufgewertet (*stat. rev.*). Eine Karte zeigt die besprochenen Inseln, und alle Taxa werden farbig illustriert.

## Introduction

*Arhopala* BOISDUVAL, 1832 (Lycaenidae, Theclinae, Arhopalini) is the fifth genus to be published in NEVA in the series on the lycaenid genera of the Indonesian provinces of North Maluku (Maluku Utara) and Maluku. As *Arhopala* is a large group we have split the genus into sections for publication. Previous parts (RAWLINS et al. 2018a, 2018b, 2018c) have covered an introduction to the genus and the *anthelus*, *theba*, *democritus*, *eumolphus* and *centaurus* species-groups.

This is the 4<sup>th</sup> part and covers the *fulla* species-group, *sensu* EVANS (1957). We recognise nine taxa, comprising five species, as occurring in the Maluku area. Two new synonyms are introduced. The taxon *sosias* FRUHSTORFER, 1914 from Obi, placed by EVANS (1957) as a synonym of *A. fulla canulia* HEWITSON, 1869 is restored back to a

distinct subspecies. We briefly discuss the taxonomy and distribution of the taxa *admete* HEWITSON, 1863, *eucolpis* KIRSCH, 1877 and *sudesta* EVANS, 1957.

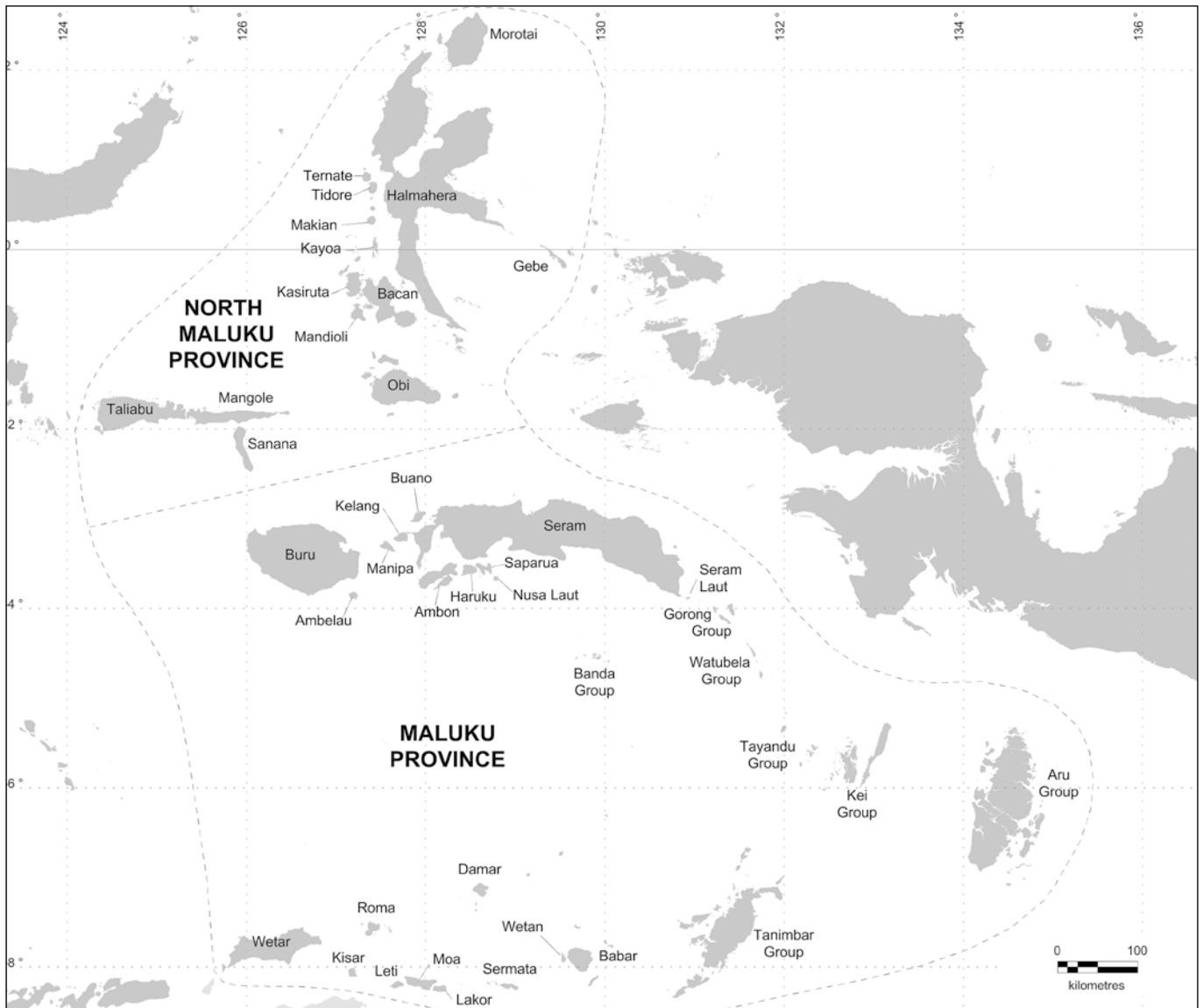
For the biogeography of the region see RAWLINS et al. (2014: 5–8). For the purposes of this paper we make the following key points:

- We use the term Maluku to include both the Indonesian political Provinces of North Maluku (= Maluku Utara) and Maluku.
- The province North Maluku comprises: the Sula islands, the islands we term “northern Maluku” (see below), Obi and Gebe.
- The province Maluku comprises: the islands we term “central Maluku” (see below), the Gorong, Watubela and Tayandu Island groups, the Banda Islands, the Kei Islands, the islands of Southwest Maluku (including Wetar), the Tanimbar Islands and the Aru Islands.
- We use the biogeographical term “northern Maluku” to mean the islands of Morotai, Halmahera, Ternate, Bacan, Kasiruta and Mandioli and some associated smaller islands.
- We use the biogeographical term “central Maluku” to mean the islands of Buru, Ambelau, Manipa, Kelang, Buano, Seram, Ambon, Haruku, Saparua, Nusa Laut, Geser and Seram Laut.

The map shows these islands of Maluku and North Maluku. Here we note that the Indonesian western half of the Island of New Guinea along with its associated offshore islands (previously variously known as Irian, Irian Jaya, West Irian, Irian Barat) now consists of two political provinces: West Papua and Papua. We use the term “New Guinea” in its geographical sense to mean the whole island including these two Indonesian provinces along with the mainland part of the country of Papua New Guinea.

Where available, both surfaces of both sexes of each taxon are illustrated. To reduce the number of colour plates needed, the specimens are illustrated “halved”, showing the upperside on the left and the underside on the right. In most cases we have depicted the left half of the butterfly, but where the right side is in significantly better condition we have shown this and flipped the image to allow easier comparison of similar taxa.

We have examined the collections of the Natural History Museum, London (NHMUK), and examined specimens and photographs from some private collections.



**Map:** Provinces of North Maluku and Maluku showing the island names used in the text.

### Abbreviations used

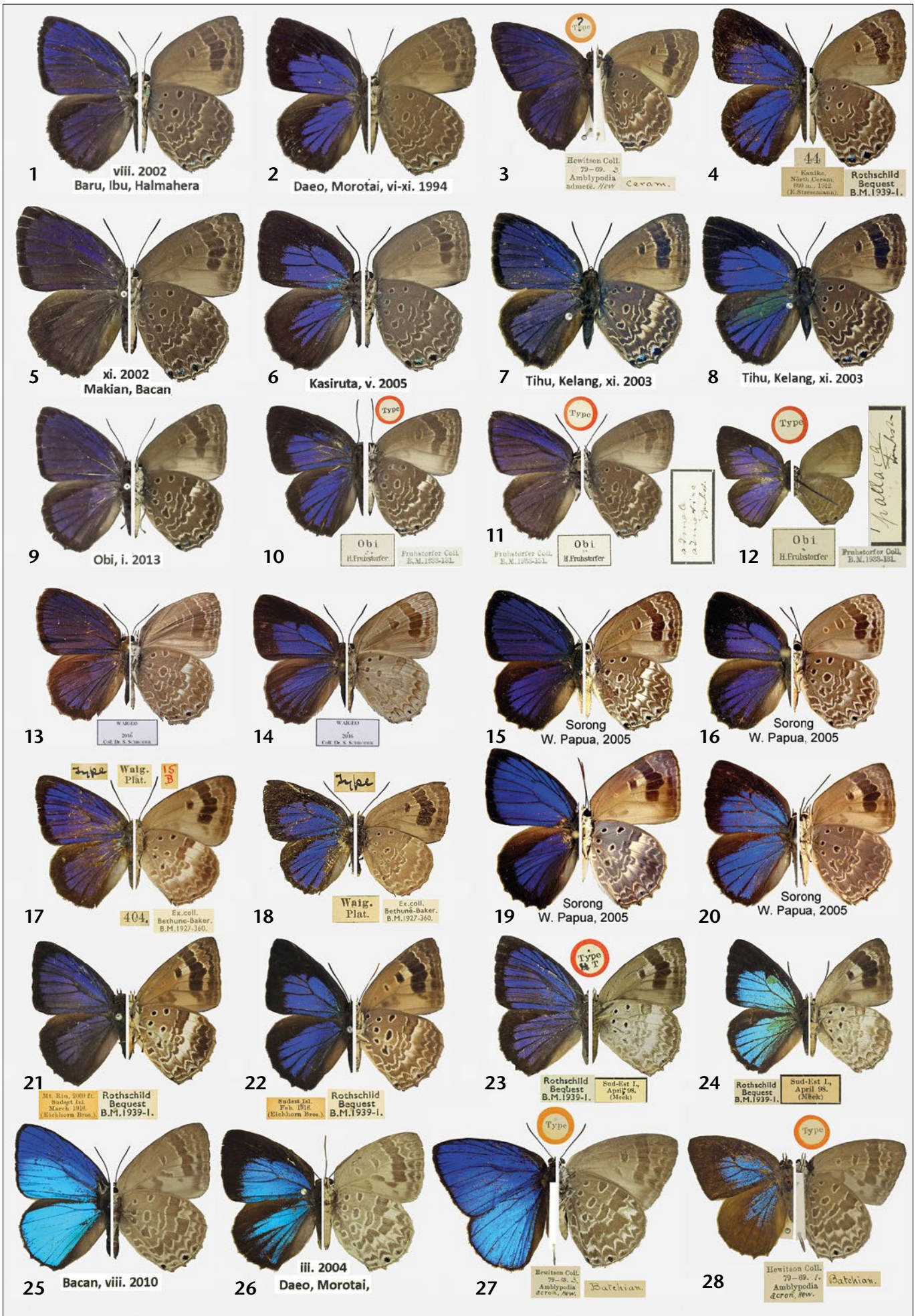
AME	Allyn Museum of Entomology, Gainesville, Florida, USA.
CARR	Coll. Andrew RAWLINS, Rainham, Kent, UK.
coll.	Collection.
CSSK	Coll. Stefan SCHRÖDER, Köln (Cologne), Germany.
HT	Holotype.
LT	Lectotype.
NHMUK	The Natural History Museum, London, UK.
PT	Paratype.
SMT	Senckenberg Museum für Tierkunde, Dresden, Germany.
stat. rev.	Status revivisco (status revised).
syn. n.	Synonymus novus (new synonymy).
TL	Type locality.

### *Arhopala* BOISDUVAL, 1832

Type species: *phryxus* BOISDUVAL, 1832, designated by SCUDER (1875: 120).

**Plate 1, Figs. 1–28:** subspecies of *Arhopala admete*; *A. eucolpis*, *A. sudesta*, *A. acron*. — **Figs. 1–16:** subspecies of *Arhopala admete*. **Figs. 1–12:** *A. admete admete*: 1: ♂, ups./uns., Halmahera (Baru, Ibu, viii. 2002, CARR). 2: ♀, ups./uns., Morotai (Daeo, vi.–xi. 1994, CARR). 3: ♂, type, ups./uns., Seram (Ceram, HEWITSON Coll., NHMUK). 4: ♀, ups./uns., Seram (Kanike, North Ceram, 600 m, 1912, E. STRESEMANN, NHMUK). 5: ♂, ups./uns., Bacan (Makian, xi. 2002, CARR). 6: ♀, ups./uns., Kasiruta (v. 2005, CARR). 7: ♂, ups./uns., Kelang (Tihu, xi. 2003, CARR). 8: ♀, ups./uns., Kelang (Tihu, xi. 2003, CARR). 9: ♂, ups./uns., Obi (i. 2013, CARR). 10: ♀, ups./uns., Obi (“type” *admetina* = *admete*, H. FRUHSTORFER, NHMUK). 11: ♂, ups./uns., Obi (“type” *admetina* = *admete*, H. FRUHSTORFER, NHMUK). 12: ♀, ups./uns., Obi (“type” *pallata* = *admete*, H. FRUHSTORFER, NHMUK). — **Figs. 13–14:** *A. admete ?cora*: 13: ♂, ups./uns., Waigeo (2016, CSSK). 14: ♀, ups./uns., Waigeo (2016, CSSK). **Figs. 15–16:** *A. admete cora*: 15: ♂, ups./uns., New Guinea (Sorong, 2005, CSSK). 16: ♀, ups./uns., New Guinea (Sorong, 2005, CSSK). — **Figs. 17–22:** *Arhopala eucolpis*: 17: ♂, ups./uns., Waigeo (type *waigeoensis*, Waig. PLAT[EN], NHMUK). 18: ♀, ups./uns., Waigeo (type *waigeoensis*, Waig. PLAT[EN], NHMUK). 19: ♂, ups./uns., New Guinea (Sorong, 2005, CSSK). 20: ♀, ups./uns., New Guinea (Sorong, 2005, CSSK). 21: ♂, ups./uns., Tagula (Mt. Riu, 2000 ft., Sudest Isl., iii. 1916, EICHHORN Bros., NHMUK). 22: ♀, ups./uns., Tagula (Sudest Isl., ii. 1916, EICHHORN Bros., NHMUK). — **Figs. 23–24:** *Arhopala sudesta*: 23: ♂, HT, ups./uns., Tagula (Sud-Est I., iv. [18]98, Meek, NHMUK). 24: ♀, ups./uns., Tagula (Sud-Est I., iv. [18]98, MEEK, NHMUK). **Figs. 25–28:** *Arhopala acron*: 25: ♂, ups./uns., Bacan (viii. 2010, CARR). 26: ♀, ups./uns., Morotai (Daeo, iii. 2004, CARR). 27: ♂ type, ups./uns., Bacan (Batchian, HEWITSON Coll., NHMUK). 28: ♀, type, ups./uns., Bacan (Batchian, HEWITSON Coll., NHMUK). — All NHMUK specimen photographs on both plates are © Trustees of the Natural History Museum London, reproduced with permission.







## Annotated checklist of the *Arhopala* “*fulla* species-group” taxa of North Maluku and Maluku

### Introduction to the *fulla* species-group

EVANS (1957: 124–126) included four species in his *fulla* group – *acron* HEWITSON, 1862, *admete* HEWITSON, 1863, *disparilis* FELDER, 1860 and *fulla* HEWITSON, 1862. We note here that EVANS placed this species-group under the genus *Narathura* MOORE, 1879, which is now considered a synonym of *Arhopala*, as discussed in *Arhopala* part 1 (RAWLINS et al. 2018a).

Under the heading “The *fulla* species group of EVANS (1957)”, PARSONS (1998: 393) stated: “A group of 4 distinctive tailless species were treated by EVANS (1957) as the *fulla* (HEWITSON, 1863) species group.” PARSONS noted that only *Arhopala disparilis* was absent from mainland New Guinea. However he then only listed one species – *fulla* – in that section. *A. azenia* and *A. admete* were the last two species included at the end of the previous section on “The *centaurus* species group of EVANS (1957)”. It seems this was just a layout error.

PARSONS (1998: 393) raised *azenia* HEWITSON, 1863 from a subspecies of *acron* to a full species and we concur.

Both EVANS (1957: 125) and PARSONS (1998: 393) treated the taxa *eucolpis* KIRSCH, 1877 and *sudesta* EVANS, 1957 as subspecies of *A. admete*.

SCHRÖDER (2015: 13) raised *eucolpis* to a full species referring to sympatry with *admete* in Maluku and New Guinea. We have seen no specimens or records of *eucolpis* from Maluku and SCHRÖDER (pers. comm.) now agrees, so we exclude *eucolpis* from the Maluku checklist. SCHRÖDER treated *sudesta* as a subspecies of *eucolpis*.

RAWLINS et al. (2018d) reviewed the status, relationships and distribution of the taxa *eucolpis*, *sudesta* and *admete*. In brief, they demonstrated sympatry of *eucolpis* and *admete* in Sorong, West Papua and Waigeo and of *eucolpis* and *sudesta* in Tagula Island, concluding that all three taxa represented distinct species.

We agree and consider the *fulla* group to comprise seven species – *acron*, *azenia*, *admete*, *eucolpis*, *sudesta*, *disparilis* and *fulla*.

Neither *A. eucolpis* nor *A. sudesta* is recorded from Maluku but we note here their distribution:

*Arhopala eucolpis* (Figs. 17–22) – from Misool, Waigeo, Yapen, New Guinea, Goodenough, Rossel and Tagula (= Sudest) (EVANS 1957; NHMUK).

*Arhopala sudesta* (Figs. 23–24) – from Tagula (= Sudest) and Rossel (1 ♂) (NHMUK).

Five species of the *fulla* species-group occur in Maluku.

### Checklist

#### *Arhopala admete* (HEWITSON, 1863)

*Amblypodia admete*: HEWITSON (1863: 7, pl. 3, figs. 18, 19); TL: Seram – see note 1.

Range: Maluku – Halmahera, Bacan, Obi, Seram, Ambon (NHMUK), Morotai, Kasiruta, Kelang (TENNETT & RAWLINS 2010), Waigeo, New Guinea (CSSK) – see note 1.

**Note 1:** EVANS (1957: 125) listed 3 subspecies for *admete* – the nominotypical, *eucolpis* KIRSCH, 1877 and *sudesta* EVANS, 1957. He considered that *admete* was restricted to Maluku and *eucolpis* to New Guinea and offshore islands. PARSONS (1998: 393) followed EVANS in treating *eucolpis* and *sudesta* as subspecies of *Arhopala admete* but noted that *sudesta* might be a distinct species. However, as noted above, RAWLINS et al. (2018d) considered *eucolpis*, *sudesta* and *admete* represented 3 distinct species. They described a new subspecies *A. admete cora* from Sorong in West Papua. They tentatively included the *admete* population on Waigeo with *cora* but noted that this may represent a further undescribed race.

**Note 2:** Underside hindwing blue ternal spots are present (on occasions vestigial) in *Arhopala admete admete* from Maluku (Figs. 1–12) but absent in *A. admete cora* known from Sorong (Figs. 15–16) and Waigeo (Figs. 13–14) and *A. eucolpis* (Figs. 17–22).

**Note 3:** Surprisingly we have seen no records of either *admete* or *eucolpis* from Aru, but consider it possible that one or other (more likely *eucolpis*), or both, occur there.

#### *Arhopala admete admete* (HEWITSON, 1863)

(Fig. 1: ♂, Halmahera; Fig. 2: ♀, Morotai; Fig. 3: ♂ type, Seram; Fig. 4: ♀, Seram; Fig. 5: ♂ Bacan; Fig. 6: ♀, Kasiruta; Fig. 7: ♂, Kelang; Fig. 8: ♀, Kelang; Fig. 9: ♂, Obi; Fig. 10: ♀ type *admetina* = *admete*, Obi; Fig. 11: ♂ type *admetina* = *admete*, Obi; Fig. 12: ♀, type *pallata* = *admete*, Obi.)

*Amblypodia admete*: HEWITSON (1863: 7, pl. 3, figs. 18, 19); TL: Seram – see note 1.

= *Arhopala admete admetina*: FRUHSTORFER – syn. n. – see note 2.

= *Arhopala admete admetina* f. *hellava* (= *pallata*?): FRUHSTORFER – syn. n. – see note 2.

Range: Maluku – Halmahera, Bacan, Obi, Seram, Ambon (NHMUK), Morotai, Kasiruta, Kelang (TENNETT & RAWLINS 2010).

**Note 1:** HEWITSON described only the ♂ and illustrated both upper-side and underside, noting that the specimen(s) was in the collection of A. R. WALLACE and came from Seram. EVANS (1957: 125) noted that the ♂ “type” was in the BMNH (Fig. 3).

**Note 2:** In his publication on FRUHSTORFER types, TALBOT (1923: 84) listed “*Arhopala admete admetina*” (♂ & ♀) and “*Arhopala admete admetina* f. *hellava*” (♀), both from Obi. We have found these 3 specimens in the NHMUK main collection amongst the series of Obi *admete* specimens. The ♂ (Fig. 11) bears four labels:

1. A handwritten “*admete admetina* FRUHST.”.
2. A red ringed circular type label.
3. “FRUHSTORFER Coll. NHMUK 1933-131”
4. “Obi, H. FRUHSTORFER”.

One ♀ bears labels 2–4 as above. This *admetina* pair are indistinguishable from the other Obi *admete* specimens. The 2<sup>nd</sup> ♀ (Fig. 12) is very small with very pale underside markings and bears labels 2–4 as above and a further handwritten label stating: “*pallata* FRUHST.”. This surely corresponds to the f. *hellava* recorded by TALBOT. We consider this specimen to be a minor aberration of *admete*, rather than a stable form. We have been unable to find any published description of these FRUHSTORFER “types” or any further reference to *admetina*. Including these 3 “types”, the NHMUK contains 11 ♂♂ and 6 ♀♀ of *admete* from Obi. EVANS also noted 11 ♂♂ and 6 ♀♀ so he must have seen these “type” specimens. He clearly included them with *admete*, but without creating synonymy, so it seems likely that he considered they were unpublished names. Thus, it seems *admetina* and *pallata/hellava* are probably *nomina nuda*, but we cannot be certain and therefore we

synonymise *admetina* FRUHSTORFER and *pallata/hellava* FRUHSTORFER with *admete* HEWITSON, 1863.

**Note 3:** As EVANS (1957: 125), we include Obi specimens with *admete*, but note they are generally smaller than *admete* from other Maluku localities. The uppersides of both sexes exhibit the narrower black borders typical of specimens from central Maluku – see note 4.

**Note 4:** Northern Maluku *admete* generally differ from those from central Maluku. We have examined 20 ♂♂ & 16 ♀♀ from northern Maluku (Morotai, Halmahera, Bacan) and 5 ♂♂ & 2 ♀♀ from central Maluku. In both sexes the upperside dark borders are usually broader in northern Maluku specimens (except 1 of the 6 ♀♀ and 2 of the 7 ♂♂ from Morotai). In addition northern Maluku ♀♀ exhibit a darker and more matt blue (except 1 from Halmahera and 1 from Morotai – not the same specimen that has narrower borders). Although in general the northern Maluku and central Maluku specimens can be easily phenotypically separated, the few exceptions incline us not to describe the northern Maluku population as a new race.

### *Arhopala acron* (HEWITSON, 1862)

(Fig. 25: ♂, Bacan; Fig. 26: ♀, Morotai; Fig. 27: ♂ type, Bacan; Fig. 28: ♀ type, Bacan.)

*Amblypodia acron*: HEWITSON (1862: 9, pl. 5, figs. 53, 54); TL: Bacan – see note 1.

**Range:** endemic to northern Maluku – Halmahera, Bacan (NHMUK), Morotai (TENNETT & RAWLINS 2010).

**Note 1:** HEWITSON (1862) described both sexes and illustrated the ♂ underside and the ♀ upperside, noting that the specimens were in the NHMUK. EVANS (1957: 125) stated that the ♂ “type” was in the NHMUK (Fig. 27).

**Note 2:** EVANS (1957: 125) placed *azenia* HEWITSON, 1863 as a subspecies of *acron* but PARSONS (1998: 393) recognised that the 2 taxa were distinct species without specifying how they differed. TENNETT & RAWLINS (2010: 15) described the differences in detail and separated the Obi population as a new subspecies of *azenia* – see below.

**Note 3:** The extent of white markings in the underside hindwing postdiscal area varies between *acron* specimens, with occasional specimens lacking it completely – see Figs. 25–28.

### *Arhopala azenia* (HEWITSON, 1863)

*Amblypodia azenia*: HEWITSON (1863: pt. 1: 7, illustrations pt. 2: pl. 3, figs. 22, 23); TL: Waigeo.

**Range:** Maluku, New Guinea and various off shore islands.

**Note:** There are 2 subspecies – both occur in Maluku; one is endemic to Obi.

### *Arhopala azenia azenia* (HEWITSON, 1863)

(Fig. 29: ♂, Aru; Fig. 30: ♀, Aru; Fig. 31: ♂ HT, Waigeo; Fig. 32: ♀ PT, Waigeo.)

*Amblypodia azenia*: HEWITSON (1863: pt. 1: 7, illustrations pt. 2: pl. 3, figs. 22, 23); TL: Waigeo – see note 1.

**Range:** Aru, Waigeo, Misool, Yapen, New Guinea (NHMUK), Normanby Island in the D’Entrecasteaux group and Sariba Island in the Louisiades (PARSONS 1998). ?Seram – see note 2.

**Note 1:** HEWITSON described both sexes and illustrated both surfaces of the male of *azenia*, noting that the specimens were in the collections of A. R. WALLACE and W. C. HEWITSON and came from Waigeo. The HT ♂ and AT (i.e. PT) ♀ are in the NHMUK (Figs. 31 & 32).

**Note 2:** EVANS (1957: 125) recorded 1 ♂ and 1 ♀ from Seram in the NHMUK. We have examined these specimens and confirm they are typical *azenia*. The ♂ bears 3 labels:

A. Handwritten “Ceram”

B. “EX. MUSAEOD<sup>ris</sup> BOISDUVAL”

C. “EX OBERTHÜR Coll. Brit. Mus. 1927-3”

The ♀ beside it has only labels B and C and no location label. We know of no further specimens from Seram or anywhere in central Maluku so consider this Seram record as uncorroborated.

### *Arhopala azenia patsyae* TENNETT & RAWLINS, 2010

(Fig. 33: ♂ PT, Obi; Fig. 34: ♀ PT, Obi; Fig. 35: ♂ HT Obi; Fig. 36: ♀ PT, Obi.)

*Arhopala azenia patsyae*: TENNETT & RAWLINS (2010: 15, figs. 38–41); TL: Obi – see note.

**Range:** endemic to Obi.

**Note:** TENNETT & RAWLINS (2010) described and illustrated both sexes of *patsyae*. The HT ♂ and a series of PTs of both sexes are in the NHMUK (Figs. 33–36).

### *Arhopala disparilis* (C. FELDER, 1860)

(Fig. 37: ♂, Morotai; Fig. 38: ♀, Ambon; Fig. 39: ♂ type, Ambon; Fig. 40: ♀, Haruku.)

*Amblypodia disparilis*: C. FELDER (1860: 453); TL: Ambon – see note 1.

= *Amblypodia courvoisieri*: RIBBE (1901: 335, pl. 6, fig. 2); TL: Seram – see note 3.

**Range:** Endemic to Maluku – Ambon (NHMUK), Seram, Haruku, Morotai (CARR; TENNETT & RAWLINS 2010).

**Note 1:** C. FELDER briefly described both sexes of *disparilis* in Latin. He noted that the specimens from Ambon were in the FELDER collection. EVANS (1957: 125) noted that the ♂ “type” was in the NHMUK (Fig. 39).

**Note 2:** C. & R. FELDER (1865: 230, pl. 28, figs. 4 & 5) then also described and illustrated both surfaces of the ♀.

**Note 3:** In his paper on new Lepidoptera from Seram, RIBBE (1901) described only the *courvoisieri* ♂, illustrating both surfaces. EVANS (1957: 125) listed *courvoisieri* as a synonym of *disparilis* and we agree. TAKANAMI (1989: 51) designated a ♂ LT of *courvoisieri* in the SMT.

### *Arhopala fulla* (HEWITSON, 1862)

*Amblypodia fulla*: HEWITSON (1862: 10, pl. 6, figs. 67, 68); TL: Buru.

**Range:** Andaman Islands, Burma, Thailand, Peninsular Malaysia, Borneo, Indonesia including Maluku, Philippines, New Guinea and some offshore islands.

**Note:** EVANS (1957: 125–126) listed 7 subspecies. He considered *sosias* FRUHSTORFER from Obi as a synonym of *canulia* HEWITSON. We consider *sosias* is a distinct subspecies – see below. Four subspecies are found in Maluku.

### *Arhopala fulla fulla* (HEWITSON, 1862)

(Fig. 41: ♂ type *prasiae* = *fulla*, Ambon; Fig. 42: ♀ type *prasiae* = *fulla*, Ambon; Fig. 43: ♂ HT, Buru; Fig. 44: ♀, Buru.)

*Amblypodia fulla*: HEWITSON (1862: 10, pl. 6, figs. 67, 68); TL: Buru – see note 1.

= *Arhopala fulla prasiae* [emendation for original spelling *prasiä*]: FRUHSTORFER (1914: 157); TL: Ambon – see note 2.

**Range:** endemic to central Maluku – Buru, Ambon (NHMUK) – see note 3.

**Note 1:** HEWITSON (1862) described only the ♂ of *fulla* and illustrated both surfaces and noted “In the collection of Dr. BOISDUVAL from Boirou”. The HT ♂ is now in the NHMUK (Fig. 43).

**Note 2:** FRUHSTORFER (1914) described both ♂ and ♀ *prasiä* [*sic*] from Ambon and noted the specimens were in his collection. He

differentiated it from *fulla* and noted that the upperside was a richer blue-violet than in *fulla* from Buru. There are ♂ and ♀ types in the NHMUK (Figs. 41 & 42). EVANS (1957: 126) listed “*prasia*” [sic] as a synonym of *fulla*. We have compared the ♂ types (Figs. 41 & 43) and concur.

**Note 3:** This taxon is very likely also to occur on Seram.

### *Arhopala fulla babsi* JOICEY & TALBOT, 1917

(Fig. 45: ♂, Aru; Fig. 46: ♀, Misool; Fig. 47: ♂ HT, Waigeo; Fig. 48: ♀ PT, Waigeo.)

*Arhopala fulla babsi*: JOICEY & TALBOT (1917: 219); TL: Waigeo – see note 1.

**Range:** Waigeo, Misool, New Guinea, Tagula (labelled Sudest Island) (NHMUK), Aru – Wokam Island (CARR) Aru – Wamar Island (AME) – see note 2.

**Note 1:** JOICEY & TALBOT (1917) first described the male of *babsi* then stated: “♀. This sex of *fulla* does not appear to be known.” But he then appeared to describe the female and noted: “*Hab.* Waigeu, 6 ♂♂, 2 ♀♀”. The HT ♂ and a PT ♀ (labelled as AT) are in the NHMUK (Figs. 47 & 48).

**Note 2:** PARSONS (1998: 393) recorded specimens of *fulla* from Aru in the Allyn Museum (AME), without specifying the subspecies. We have examined photographs of a ♂ in the AME, courtesy of Andy WARREN. The specimen is typical *babsi* and was taken by R. G. & C. M. WIND in Dobo (Wamar Island) 30. iv. 1939. We confirm the presence of *babsi* in Aru (1 ♂, Wokam Island, iii. 2003, CARR – Fig. 45).

### *Arhopala fulla canulia* (HEWITSON, 1869)

(Fig. 49: ♂, Halmahera; Fig. 50: ♀, Halmahera; Fig. 51: ♂ type, “Philippine [sic] Isles” recte Halmahera; Fig. 52: ♀, Halmahera.)

*Amblypodia canulia*: HEWITSON (1869: 14f, pl. 3c, fig. 54); TL: Halmahera? – see notes 1 & 3.

**Range:** northern Maluku – Halmahera, Ternate (NHMUK), Bacan (BETHUNE-BAKER 1903, FRUHSTORFER 1914 – see note 3), Morotai (TENNET & RAWLINS 2010).

**Note 1:** HEWITSON (1869) described the ♂ and illustrated only the underside. He noted: “In the collection of W. C. HEWITSON, from the Philippines.” EVANS (1957: 126) stated “‘Philippines’, recte Halmahera” without giving any explanation and noted that the ♂ “type” was in the NHMUK. This specimen (Fig. 51) bears only a type label, a HEWITSON coll. label and a handwritten label stating “Philippine [sic] Isles”. On the same page, EVANS described a new subspecies – *santa* – from Luzon in the Philippines, noting 3 ♂♂ and 1 ♀ in the NHMUK. This clearly distinct subspecies has a brown underside rather than the grey of *canulia*. The *canulia* type clearly matches specimens in the NHMUK from Halmahera and Ternate but EVANS gave no reason why he chose Halmahera as the TL. We suspect he chose Halmahera on the balance of probability, as he noted that the NHMUK held 18 *canulia* specimens from Halmahera, 2 from Ternate and 3 from Obi (treated by us as *sosias*). See also note 3 re TL.

**Note 2:** EVANS (1957: 126) listed *sosias* (TL Obi) as a synonym of *canulia*, but as discussed below, we consider the Obi population – *sosias* – represents a distinct subspecies.

**Note 3:** In his revision of the “*Amblypodia* group”, BETHUNE-BAKER (1903: 149, pl. 3, fig. 26) listed *Arhopala canulia* and gave the habitat as “Philippines; Batchian”, but he did not record where the specimens were held. He illustrated a ♂ typical of northern Maluku *canulia* without stating its collection locality. This is the first record we have seen recording the taxon from Bacan. In describing *sosias*, FRUHSTORFER (1914: 157) compared it to “*A. canulia* HEW. von Batjan” – indicating either that he considered HEWITSON’s *canulia* type was from Bacan, or that he was familiar with *canulia* from Bacan. *Arhopala fulla canulia* is recorded from

the other northern Maluku islands of Morotai, Ternate and Halmahera, so is very likely to be present on Bacan as well.

**Note 4:** TREADAWAY (1995: 77) records only the subspecies *A. fulla santa* EVANS, 1957, in his checklist of the butterflies of the Philippines.

### *Arhopala fulla sosias* FRUHSTORFER, 1914 stat. rev.

(Fig. 53: ♂ type, Obi; Fig. 54: ♂, Obi; Fig. 55: ♂, Obi.)

*Arhopala canulia sosias*: FRUHSTORFER (1914: 157); TL: Obi – see note 1.

**Range:** endemic to Obi.

**Note 1:** FRUHSTORFER (1914) described *sosias* from 3 ♂♂ from Obi in his collection. EVANS (1957: 126) listed *sosias* as a synonym of *canulia* and noted that the ♂ “type” was in the NHMUK (Fig. 53). We have compared the *canulia* and *sosias* ♂ types in the NHMUK (Figs. 51 & 53) and small series of *A. fulla* from Obi and Halmahera and we note that the undersides of Obi and Halmahera specimens clearly and consistently differ. Obi specimen undersides are a much lighter grey colour and the pale postdiscal and submarginal streaky bands are whiter. Both subspecies have a submarginal black spot, edged inwardly with blue, in spaces 1a and 2 on the hindwing underside and in some specimens a vestigial spot in space 3. In Obi specimens this space 3 spot is usually more developed. Therefore, we consider that *sosias* is not a synonym of *canulia* and re-establish the Obi population as a distinct subspecies *Arhopala fulla sosias*.

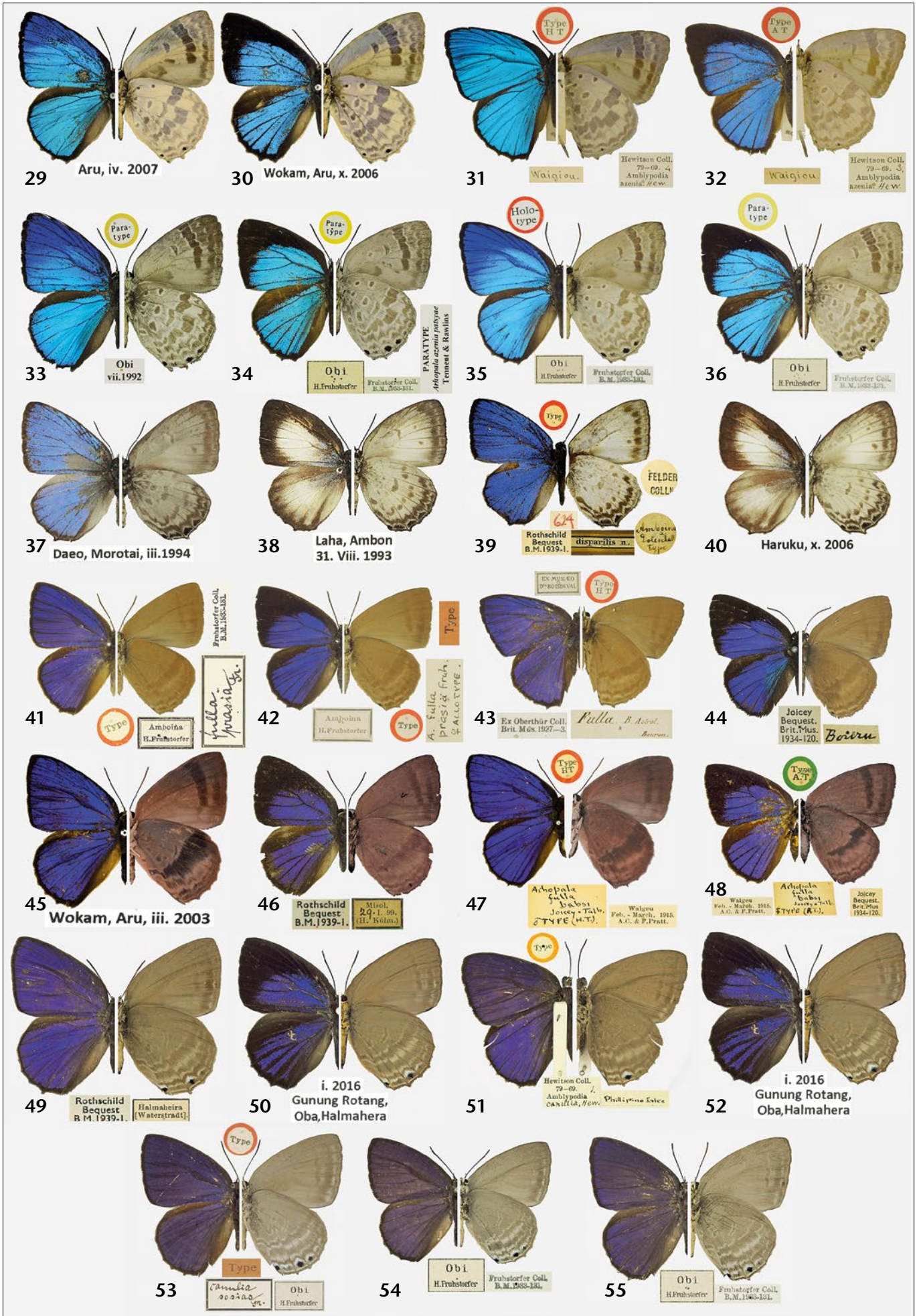
**Note 2:** We have not seen any ♀♀ of this subspecies.

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**Plate 2, Figs. 29–55:** subspecies of *Arhopala azenia*; *A. disparilis*, subspecies of *A. fulla*. — **Figs. 29–36:** subspecies of *Arhopala azenia*. **Figs. 29–32:** *A. azenia azenia*: **29:** ♂, ups./uns., Aru (iv. 2007, CARR). **30:** ♀, ups./uns., Aru (Wokam, x. 2006, CARR). **31:** ♂, HT, ups./uns., Waigeo (Waigiou, HEWITSON coll., NHMUK). **32:** ♀, PT, ups./uns., Waigeo (Waigiou, HEWITSON coll., NHMUK). — **Figs. 33–36:** *A. azenia patsyae*: **33:** ♂, PT, ups./uns., Obi (vii. 1992, CARR). **34:** ♀, PT, ups./uns., Obi, (H. FRUHSTORFER, NHMUK). **35:** ♂, HT, ups./uns., Obi, (H. FRUHSTORFER, NHMUK). **36:** ♀, PT, ups./uns., Obi, (H. FRUHSTORFER, NHMUK). — **Figs. 37–40:** *Arhopala disparilis*: **37:** ♂, ups./uns., Morotai (Daeo, iii. 1994, CARR). **38:** ♀, ups./uns., Ambon (Laha, 31. viii. 1993, CARR). **39:** ♂, type, ups./uns., Ambon (Amboina, DOLESCHALL type, FELDER Colln., NHMUK). **40:** ♀, ups./uns., Haruku (x. 2006, CARR). — **Figs. 41–55:** subspecies of *Arhopala fulla*. **Figs. 41–44:** *A. fulla fulla*: **41:** ♂, ups./uns., Ambon (type *prasiä*, Amboina, H. FRUHSTORFER, NHMUK). **42:** ♀, ups./uns., Ambon (type *prasiä*, Amboina, H. FRUHSTORFER, NHMUK). **43:** ♂, HT, ups./uns., Buru (Bourou, Ex Musaeo D<sup>ns</sup> BOISDUVAL, NHMUK). **44:** ♀, ups./uns., Buru (Bouru, JOICEY Bequest, NHMUK). — **Figs. 45–48:** *A. fulla babsi*: **45:** ♂, ups./uns., Aru (Wokam, iii. 2003, CARR). **46:** ♀, ups./uns., Misool (Misool, 29. i. [18]99, H. KÜHN, NHMUK). **47:** ♂, HT, ups./uns., Waigeo (Waigeu, ii.–iii. 1915, A. C. & F. PRATT, NHMUK). **48:** ♀, PT, ups./uns., Waigeo (Waigeu, ii.–iii. 1915, A. C. & F. PRATT, NHMUK). — **Figs. 49–52:** *A. fulla canulia*: **49:** ♂, ups./uns., Halmahera (Halmahera, WATERSTRADT, NHMUK). **50:** ♀, ups./uns., Halmahera (Gunung Rotang, Oba, i. 2016, CARR). **51:** ♂, HT, ups./uns., Halmahera (“Philippine Isles” recte Halmahera, HEWITSON Coll., NHMUK). **52:** ♀, ups./uns., Halmahera (Gunung Rotang, Oba, i. 2016, CARR). — **Figs. 53–55:** *A. fulla sosias*: **53:** ♂, type, ups./uns., Obi (H. FRUHSTORFER, NHMUK). **54:** ♂, ups./uns., Obi (H. FRUHSTORFER, NHMUK). **55:** ♂, HT, ups./uns., Obi (H. FRUHSTORFER, NHMUK).







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