SPECIES OF THE *AMATA* (*SYNTOMIS*)
PFEIFFERAE GROUP
(LEPIDOPTERA: CTENUCHIDAE)¹

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This paper deals with a small group of moths, closely related to *Amata* (*Syntomis*) *pfeifferae* (Moore) and occurring in Borneo, Sumatra and Java. For this study I have examined the collections of the Rijksmuseum van Natuurlijke Historie (Leiden, The Netherlands) and the Museum of Comparative Zoology at Harvard College. At first sight, the species of this group give the impression of being merely individual forms of a single species, and this similarity gave Hampson (1898) occasion to consider *Amata* (*Syntomis*) *acuminata* (Snell.) a synonym of *pfeifferae*. To avoid further misidentification, the present paper describes the most important characters of the three species already known and one new one.

The author acknowledges with thanks the cooperation of Dr. A. N. Diakonoff and Dr. P. J. Darlington, Jr., in placing the materials of the above-mentioned museums at his disposal and thanks to Dr. W. L. Brown, Jr., for reading the English text of the manuscript.

Amata (*Syntomis*) *pfeifferae* (Moore)

Fig. 1

Syntomis pfeifferae Moore (& Horrfield), 1859, Cat. Lep. Ins. East India House, Vol. 2, (1858-59), p. 324; Moore, 1859, Proc. Zool. Soc. London, p. 198, pl. 60, fig. 5; Walker, 1864, List Spec. Lep. Ins. B. M., pars 31, p. 64; Hampson, 1898, Cat. Lep. Phal., Vol. 1, p. 88; Snellen, 1904, Tijdschr. v. Ent., Vol. 47, p. 55; Zerny, 1912, Wagner's Lep. Cat., pars 7, p. 55; Seitz, 1913, Gross-Schm. Erde, Vol. 10, p. 78, pl. 11 f [figs. 4-5].

¹Published with a grant from the Museum of Comparative Zoology at Harvard College.

Zygaena pfeifferae Kirby, 1892, Synon. Cat. Lep. Het., Vol. 1, p. 96.

The redescription of this species published by Hampson (1898) is quite accurate. The figures given by Moore (1859) and Seitz (1913) are exact except for the number of the yellow abdominal girdles. Actually, there are seven such girdles in the male, six in the female.

MALE GENITALIA (fig. 1): Uncus moderately thickened, not too long, slightly curved downward. Tegumen with short, equal lateral appendages. Valvae subtrapezoidal, the right one rather broader; processus basalis of the right valva curved caudad, that of the left valva directed upward. Aedoeagus moderately long, rather thick, with a row of small cornuti.

SPECIMENS EXAMINED: three males and two females, Java; one male, Tjampea, Java, 1892; one male, Tagal, Java; one female, Ardjouno, Neeb leg.; one female, Padang, Sumatra (Rijksmuseum van Natuurlijke Historie, Leiden).

Amata (Syntomis) quadripunctata Rothsch.

Fig. 2

Amata quadripunctata Rothschild, 1910, Novit. Zool., Vol. 17, p. 433; 1913, *ibid.*, Vol. 19, (1912), p. 375, pl. 3, fig. 36; Hampson, 1914, Cat. Lep. Phal., Suppl., Vol. 1, p. 31.

Syntomis quadripunctata Zerny, 1912, Wagner's Lep. Cat., pars 7, p. 25; Seitz, 1913, Gross-Schm. Erde, Vol. 10, p. 78, pl. 11 k, [fig. 3].

The whole appearance of this moth, described as an independent species, is that of an aberration of *pfeifferae* with reduced spots. The single male specimen examined by the author is very like that of *quadripunctata* figured by Rothschild (1913) except for the forewing spots (especially m_3 , m_5 and m_6) which are somewhat larger, and a distal spot occurring in the hind wing. The middle cell of the hind wing orange as in *pfeifferae*, and the specimen examined otherwise identical to *pfeifferae* in the markings of the head and body.

MALE GENITALIA (fig. 2): Uncus somewhat more slender and longer than in *pfeifferae*. The left lateral appendage

of the tegumen longer than the right one. The left valva narrow, with a rounded tip; the right valva broad, with an irregularly curved upper edge, an acute tip and a very undulate lower edge; processus basales as in *pfeifferae*, but the right one dilated at the base and the left one narrower.

SPECIMEN EXAMINED: one male, Telokbetong, Kali Anda, Sumatra, 1928 (Rijksmuseum van Natuurlijke Historie, Leiden).

Amata (Syntomis) acuminata (Snell.)

Fig. 3

Syntomis acuminata Snellen, 1881, Veth's Midden Sumatra, Vol. 4, pars 1, div. 2, p. 31, pl. 3, fig. 5; Van Eecke, 1920, Zool. Meded. Leiden, Vol. 5, p. 116.

Zygaena acuminata Kirby 1892, Synon. Cat. Lep. Het., Vol. 1, p. 96.

Syntomis pfeifferae (part.) Hampson, 1898, Cat. Lep. Phal., Vol. 1, p. 88; Snellen, 1904, Tijdschr. v. Ent., Vol. 47, p. 55; Zerny, 1912, Wagner's Lep. Cat., pars 7, p. 25.

Syntomis pfeifferae ab. *acuminata* Seitz 1913, Gross-Schm. Erde, Vol. 10, p. 78.

This species, relegated by Hampson (1898) to the synonymy of *pfeifferae*, was recognized by Van Eecke (1920) as independent, although this latter author did not publish any argument supporting his point of view. The following notes are based on an examination of the male holotype of *acuminata*.

The figure published by Snellen (1881) is excellent. The thorax of *acuminata* is not spotted by orange at the middle as in *pfeifferae*, the forewing has no supradorsal orange streak, and the spot m_3 is narrower and pointed above. In the hind wing there is only a broad basal spot with an external tooth joined to it (= rudiment of a distal spot), but not two spots. Abdomen with six yellow abdominal girdles; Snellen described the female as having five such girdles.

MALE GENITALIA (fig. 3): Uncus broad at the base, narrowed at the tip. The lateral appendages of the tegumen rather long, longer and narrower than in *pfeifferae*. The

left valva narrow, the right one lancet-shaped. Processus basales of both valvae shorter, the left one directed caudad but not upward as in *pfeifferae*. The right valva deeply excavate before the processus basalis.

SPECIMEN EXAMINED: male, holotype, Bedar Alam, Sumatra, December 10, 1877 (Rijksmuseum van Natuurlijke Historie, Leiden).

***Amata (Syntomis) borneogena*, new species**

Fig. 4

MALE: Antennae simple, black, white at tips. Head black, frons yellow; palpi brown. Patagia orange; tegulae black, orange-edged. Thorax (damaged!) with orange scales at the middle and posterior edge; pectus with two orange patches on each side. Abdomen black; first tergite

Text-figures 1 to 4. Anterior view of the spread male genitalia: 1—*Amata (Syntomis) pfeifferae* (Moore), Java (Rijksmuseum, preparation No. Ct. 7); 2—*A. (S.) quadripunctata* Rothsch., Telokbetong, Sumatra (Rijksmuseum, prep. No. Ct. 10); 3—*A. (S.) acuminata* (Snell.), holotype, Bedar Alam, Sumatra (Rijksmuseum, prep. No. Ct. 8); 4—*A. (S.) borneogena*, new species, holotype, Lundu Mt., Borneo (Mus. Comp. Zool., prep. No. 3, Obr.).

orange, third and fourth tergites with præsegmental girdles of the same coloring, fifth tergite entirely orange; the corresponding sternites with somewhat paler, almost yellow girdles; second sternite with yellowish scaling on the whole surface. Legs brown, only the bases of the interior side of the coxae yellow. Wings black-brown, shot with dark violet; spots orange. Length of the forewing: 14 mm.

Forewing with six spots: one subtrapezoidal spot (m_1) at the wing base supradorsad; a subquadrate spot (m_2) at the end of the middle cell; a larger, rhomboidal spot (m_3) below it; an elongate-ovoid spot (m_4) between the veins R_5 and M_1 near their base; the spots (m_5 and m_6) on both sides of the vein M_3 form a common roundish spot divided by the diffusely black-scaled vein. Hind wing with a basal spot stretching band-like from costa to dorsum; this band reaches about to the middle of the wing (in the middle cell about to its middle) and joins the distal spot which looks like an exterior tooth of the basal spot and occupies the small area below the middle cell and between the veins Cu_1 and Cu_2 . The lower vein of the middle cell black-scaled; a diffuse blackish dot in the orange spot, below the middle cell and separate from it.

MALE GENITALIA (fig. 4): Uncus swollen before the pointed tip. Tegumen with the two large lateral appendages curved inward. The left valva with an undulate upper edge, a separate and angled apical part, the right one subtrapezoidal, shorter and much broader; both processus basales curved caudad, the left one much longer.

TYPE: male, holotype, Lundu Mt., Kuching, Sarawak, Borneo, July 15, 1920, H. W. Smith leg. (Museum of Comparative Zoology).

From all known species of the *pfeifferae* group, *borneogena* differs in number of abdominal girdles, and also in genitalia. The forewing spots m_1 and m_3 of the new species are more widely separated than in *pfeifferae*, and the orange supradorsal streak is absent. The hind wing spots of *borneogena* are like those of *acuminata*, but not like those of *pfeifferae*, which latter has two distinct spots. The truncate tooth formed by the distal spot of the hind wing of *borneogena* differs from the more acute tooth in

acuminata, and the forewing spots m_1 , m_2 and m_4 of the new species are shorter. From *quadripunctata* the new species differs in having all wing spots better developed.

BREPHIDIUM BARBOURI CLENCH A SYNONYM OF BREPHIDIUM EXILIS ISOPHTHALMA (HERRICH-SCHAFFER) (LEPIDOPTERA: LYCAENIDAE).

Lycaena isophthalma Herrich-Schaffer, 1862, Corresp.-Blatt. zool.-min. Ver. Regensburg, 16:141, sex not stated. Type locality: Cuba.

Brephidium barbouri Clench, "1942" [1943] Psyche, 49:58, two males. Type locality: Great Inagua Island, Bahamas. NEW SYNONYMY.

An examination of the holotype and paratype males of *Brephidium barbouri* reveals that they are identical with *isophthalma* for the following reasons. In the first place, microscopic examination of the anal angle of the forewing fringe reveals that the white patch supposedly differentiating *isophthalma* from the dark fringed *barbouri* can be present in all intergradient degrees. One specimen of *isophthalma* examined had a well defined white patch on one wing and practically none on the other. Secondly, *barbouri* is supposedly darker both above and below than *isophthalma*. This appears to be the case if one compares the types of *barbouri* with the Nassau specimens of *isophthalma* in the Museum of Comparative Zoology, and apparently this is what Clench did. However, the Nassau specimens were collected in 1897, while the types of *barbouri* were collected in 1934. Therefore it seems quite likely that the difference in color is merely due to fading. Lastly, my comparison of the genitalia of the types of *barbouri* with those of *isophthalma* failed to reveal any differences in structure. — NICHOLAS W. GILLHAM, Harvard University, Cambridge.