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THE IDENTITY OF POLLENOIDES KUYANIANUS MATSUMURA, 1916 (DIPTERA: CALLIPHORIDAE: BENGALIINAE)

By KNUT ROGNES

Abstract

ROGNES, K. 2009. The identity of *Pollenoides kuyanianus* Matsumura, 1916 (Diptera: Calliphoridae: Bengaliinae). *Ins. matsum. n. s*. 65: 93-100, 8 figs.

Pollenoides kuyanianus Matsumura, 1916, described from Taiwan, is established as a junior synonym of *Bengalia fuscipennis* Bezzi, 1913, syn. nov. *Pollenoides* Matsumura, 1916 is established as a junior synonym of *Bengalia* Robineau-Desvoidy, 1830, syn. nov. Of the three original spellings of the specific name *kuyanianus* is chosen as the correct original spelling by first reviser action. Lectotypes are designated for *Bengalia fuscipennis* and *Pollenoides kuyanianus*. *Bengalia fuscipennis* is known from Taiwan and Guangdong province of China.

Author's address. University of Stavanger, Faculty of Arts and Education, Department of Early Childhood Education, NO–4036 Stavanger, Norway. E-mail. knut@rognes.no or knut.rognes@uis.no.

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Introduction

Matsumura (1916) described a new genus, *Pollenoides*, together with its designated type species, *P. kuyanianus*, on the basis of material collected on Taiwan. The new genus was considered to be similar to *Pollenia* Robineau-Desvoidy, hence the name. These two Matsumura names have been forgotten by subsequent authors, and neither have been included in the Oriental or the Palaearctic catalogues (Delfinado and Hardy, 1977; Soós and Papp, 1986–1993). In the Biosystematic Database of World Diptera (Evenhuis et al., 2005) the genus *Pollenoides* was treated as a junior synonym of *Bengalia* Robineau-Desvoidy, a conclusion suggested by the illustrated figure (Matsumura, 1916: Plate XXIII, no. 3), but the identity of the type species was left as *kuyanianus*. The Taiwanese *Bengalia* fauna is reasonably well known and is covered by the keys to the known Chinese species by Fan (1965, 1992, 1997) (eight species) and Feng et al. (1998) (nine species). For a revised nomenclature and an added tenth Chinese species, see Rognes (2009). Four of the species have names dating from after 1916, i.e. *emarginata* Malloch, 1927, *chekiangensis* Fan, 1965, *emdeniella* Lehrer, 2005 (= "*varicolor*" of Fan, 1965, 1992, 1997), and the tenth Chinese species named in Rognes (2009). Nomenclatural stability is therefore potentially threatened by Matsumura's *kuyanianus*. In any case, the preparation of a World Catalogue of Calliphoridae necessitates the establishment of the identity of all published names. The purpose of the present paper is therefore to establish formally the identity of Matsumura's nominal taxa.

Material and methods

The study is based on material in Eidgenössische Technische Hochschule Zürich, Institut für Pflanzenwissenschaften, Entomologische Sammlung, Zürich, Switzerland (ETHZ) and Systematic Entomology, Faculty of Agriculture, Hokkaido University, Sapporo, Japan (HUS). For photographic methods see Rognes (2009).

The correct original spelling of Pollenoides kuyanianus Matsumura

In Matsumura's paper (1916) three variant spellings of the name of this species occur. In the line introducing the Japanese description (p. 405) and in the designation of the type species (p. 407) the spelling *kuyanianus* is used. In the line introducing the English description (p. 406) the spelling *kuyaniauus* is used. Finally, in the legend to the figure on Plate XXIII, no. 3, the spelling *kuyania* is used. Acting as First Reviser (ICZN Article 32.2.1.) I hereby select the name *kuyanianus* as the correct original spelling.

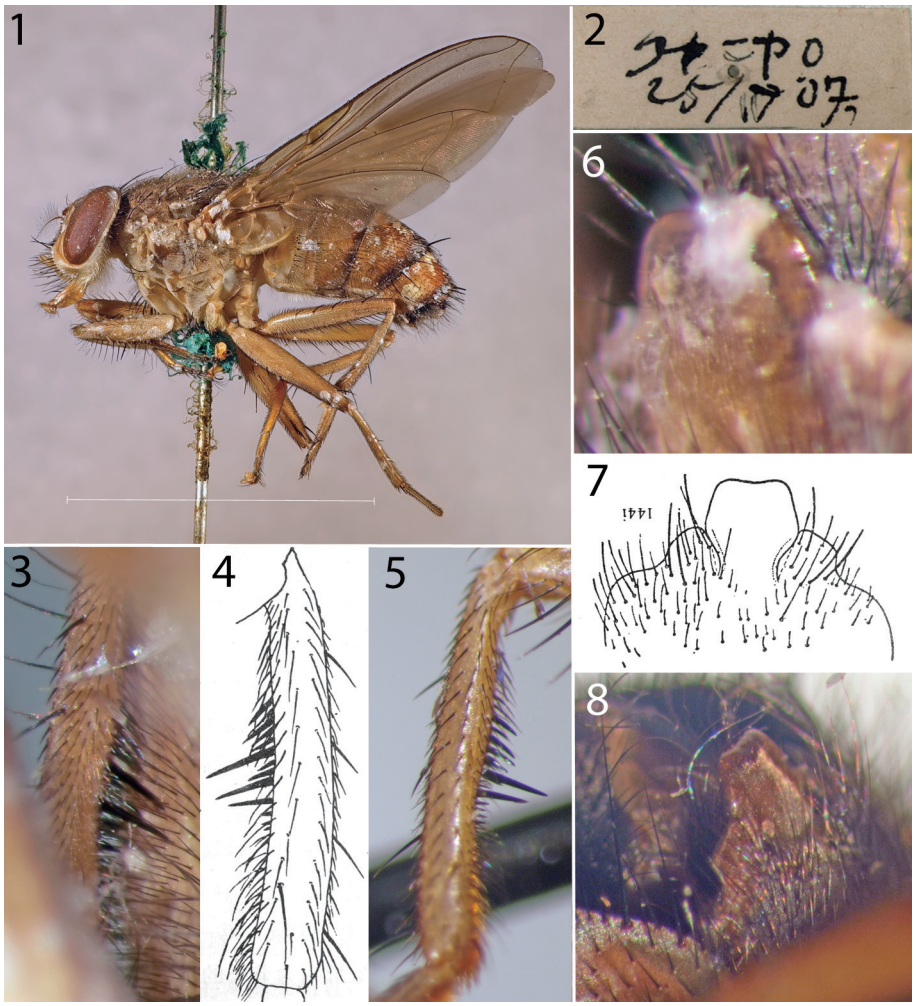
Existing material of Pollenoides kuyanianus Matsumura and lectotype designation

Pollenoides kuyanianus was described from an unknown number of specimens from "Formosa (Tappan, Kuyania)" collected by the author on an unspecified date. Thus Matsumura must have had at least two specimens before him, one from each locality, when describing *kuyanianus*. There are three specimens under *Pollenoides kuyanianus* in Matsumura's collection in HUS and I have been able to study them all.

The first specimen (Fig. 1) is a male *Bengalia* carrying a label reading on the upper side "Formosa // Matsumura" [printed in typewriter font], and on the reverse side "Kuyania

[handwritten in the Japanese syllabary Katakana] // 25/IV ’07.” (Fig. 2).

The second specimen carries a label reading on the upper side “Formosa // Matsumura” [printed in typewriter font], and on the reverse side “Horisha [handwritten in the Japanese syllabary Katakana] // 30/IV ’07.” Horisha is Japanese for the present day Taiwan locality Puli (Chiu et al., 1984: 55). The spot on the upper part of the parafacial is very dark and long, the anepimeron carries only black setulae which reach the katepisternum, the abdomen is very dark and the yellow colour slips through the integument in small spots on each side of tergites 2 and 3 only, tergite 5 is without discal



Figs. 1-8. *Bengalia fuscipennis* Bezzi. 1, 2, 3, 6: *Pollenoides kuyanianus* Matsumura, lectotype ♂. 4, 7: *Bengalia taiwanensis* Fan, ♂. 5, 8: *Bengalia fuscipennis* Bezzi, lectotype ♂. 1, whole fly from left (scalebar = 10 mm); 2, reverse side of label; 3, right fore tibia, medial view; 4, fore tibia (from Fan, 1997: 449, fig 144e); 5, left fore tibia; 6, ST5 flap (partly hidden by dirt); 7, ST5 flap (from Fan, 1997: 448, fig. 144i); 8, ST5 flap (oblique view).

setae, and the femora are darkened around the distal halves. It is a female specimen of *Bengalia escheri* Bezzi, 1913.

The third specimen is a female *Bengalia* carrying a label with text on the upper side only, reading "8/VIII 1906 // Hoppo [in non-Japanese handwriting]". Hoppo is Japanese for the present day Taiwan locality Peipu (Chiu et al., 1984: 55). This is a female specimen of *Bengalia fuscipennis* Bezzi, 1913.

The second and third specimens cannot be syntypes, since they have been collected at localities not mentioned in the original description, and therefore most likely later additions.

Thus the first specimen is the only candidate for lectotype selection. Apart from being from the right locality it fits the description very well. The only discrepancy is the stated sex of the specimen illustrated in Matsumura's work. Matsumura gives its sex as female in the legends to the figure, but gives no explicit reasons for this assignment. However, in view of the fact that he is erecting a new genus for a species of *Bengalia*, it is not unreasonable to assume that he was unfamiliar with this genus and with the fact that both sexes of *Bengalia* species have a very wide frons, about a third of the head width seen from above, similar to the female of species in many other genera, e.g. *Pollenia*. His first remark in the diagnosis of his new genus is that it "[m]uch resembles to *Pollenia* Meig. [sic], ...". Therefore, I think Matsumura believed that the illustrated specimen was a female only because of the width of the frons, and not on the basis of examination of its genital features. Thus I accept the male specimen with the Kuyania label as a syntype.

I have labelled and here designate this specimen as the lectotype of *Pollenoides kuyanianus* Matsumura, 1916 to fix the interpretation of the name. This action restricts the type locality to Kuyania. Matsumura (1929) lists a couple of species as being caught at "Formosa (Kuyania near Tappan)" on the 25 April 1907. Tappan is Japanese for the present day Taiwan locality Wufung (Chiu et al., 1984: 55).

Lectotype designation for Bengalia fuscipennis Bezzi

Bengalia fuscipennis was described by Bezzi (1913: 75, as "*Bengalia fuscipennis* (B. B.) n.") on the basis of "Einige Exemplare beider Geschlechter aus Tainan, Formosa (H. Sauter) in der Sammlung des Herrn Dr. J. Escher-Kündig, Zürich". In Escher-Kündig's collection in ETHZ there are a male and a female specimen under *fuscipennis*. The male carries the following labels: (1) "Bengalia / fuscipennis / ♂♀ (B. B.) n." [brown label in Bezzi's handwriting]; (2) "Bengalia / fuscipennis / ♂ BB." [black ink handwriting on white paper with blue squared lines]; (3) "13232" [black ink handwriting on same type of paper as label 2]. The female carries the following labels: (1) "Tainan / Formosa" [black ink handwriting]; (2) "Bengalia / fuscipennis / ♀ BB." [black ink handwriting]; (3) "13233" [black ink handwriting]. All labels on the female are of the same type of paper as labels 2 and 3 on the male. The numbers on the bottom labels of both specimens refer to an entry in the ETHZ catalog of the Escher-Kündig collection. The entries for numbers 13232 and 13233 contain the information that both specimens are from "Tainan (Formosa) [and] gegft/gekft [= gekauft] von Rolle". The specimens fit the description. They are clearly the specimens before Bezzi when he described *fuscipennis* and I accept them as syntypes. To fix the interpretation of the name I have labelled and here designate the male as lectotype for *Bengalia fuscipennis* Bezzi, 1913.

The lectotype of *Pollenoides kuyanianus* belongs to the same taxon as *Bengalia fuscipennis*, thus *Pollenoides kuyanianus* Matsumura, 1916 is a junior synonym of *Bengalia fuscipennis*, Bezzi, 1913, syn. nov. I base this identification on the following similarities in external features with the lectotype of *fuscipennis*.

Fore tibial vestiture. The fore tibia is shown in Fig. 3. On the ventral side it has two strong setae at the middle which are longer than the diameter of the tibia. Above them is a row of about 4-5 short but strong setae, all of them shorter than half the length of the two strong setae, and below them are a few similar short setae. There are also a few short setae in between the large setae. This is very similar to the vestiture of the fore tibia in both *taiwanensis* as figured by Fan (1997) (Fig. 4) and in the lectotype of *fuscipennis* (Fig. 5). The vestiture of the fore tibia in *escheri* Bezzi is quite different (cf. Bezzi, 1913: 74, fig. C; Fan, 1997: 449, fig. 143e). In that species there is a comb of about 8 strong setae at the middle of the tibia. The next lowest in the row is the longest, they get gradually shorter towards the base of the tibia, and all except the two uppermost ones are longer than the diameter of the tibia (description based on examination of male syntype of *escheri* in ETHZ).

Anepimeron vestiture. In the lectotype of *kuyanianus* the anepimeron has a bundle of black setulae in the upper part, whereas the ground setulae are yellow in the lower half (Fig. 1). This is similar to what is found in *taiwanensis* according to Fan's (1997) description, and in the *fuscipennis* lectotype. In the *escheri* male syntype the anepimeron is clothed almost exclusively by black setulae and these reach all the way down to the katepisternum, although less densely set in the lower half.

Crossvein *r-m*. In *kuyanianus* most of the *r-m* crossvein and the area in the immediate vicinity are strikingly pale compared to the other wing veins (Fig. 1). Such a spot is also found in the lectotype of *fuscipennis*, in *taiwanensis* (according to Fan, 1997) and in the male syntype of *escheri* (personal examination), but not in *chekiangensis* Fan, 1965 (Fan, 1997).

Colour of abdomen. In the *kuyanianus* lectotype the abdomen is quite pale brownish yellow with shifting areas of white microtomentum according to angle of view, and the dark marginal bands are very narrow (Fig. 1). It is quite similar to the abdomen of the lectotype of *fuscipennis*. In the *escheri* syntype the abdomen is very dark, with yellow colour slipping through the integument in small spots on each side of tergites 2 and 3 only.

Lack of discal setae on abdominal tergite 5. Among Chinese and Taiwanese *Bengalia* species this feature of the lectotype of *kuyanianus* (Fig. 1) is shared with the lectotype of *fuscipennis*, with the male syntype of *escheri*, with *chekiangensis* and with *torosa* Wiedemann (Fan, 1997).

Femoral colour. The colour of the femora in the lectotype of *kuyanianus* is pale yellow (Fig. 1), and similar in this respect to the lectotype of *fuscipennis*. In *taiwanensis* all the femora are described as yellow by Fan (1997). In the *escheri* male syntype the femora are dark coloured in the distal halves.

Vestiture of fore femur. (1) In the lectotype of *kuyanianus* the middle third of the anterior and anteroventral surface of the fore femur carries a large number of fine, long and densely set setae forming a fringe or brush. The setae become gradually shorter distally. Such a fringe is also present in the lectotype of *fuscipennis*. Fan (1997) reports

its presence also in *taiwanensis*. A similar fringe occurs on the fore femur of *escheri*, indicating a close relationship with *fuscipennis*. To my knowledge such a feature is unique among *Bengalia* species. (2) In the lectotype of *kuyanianus* there are two particularly strong setae in the middle of the row of posteroventral setae of the fore femur. They are slightly shorter than the neighbouring setae, but strikingly thicker. One of the setae has the distal half broken off on the left side (Fig. 1), but on the right side both setae are complete. Similarly placed very strong setae are also present in the lectotype of *fuscipennis* and in the male syntype of *escheri*.

ST5 flap. The ST5 flap in the *kuyanianus* lectotype is shown in Fig 6. Its lateral edges are straight and slightly converging. They form distinct corners with the distal edge, which is narrower than the flap at its broadest, and very slightly concave. It is obviously the same as the ST5 flap of *taiwanensis* as illustrated by Fan (Fig. 7) and the ST5 flap of the lectotype of *fuscipennis* (Fig. 8). In the *escheri* syntype the distal two thirds of the ST5 flap is an even semicircular structure with no straight converging lateral edges, no laterodistal corners and no distal concavity.

I have not dissected the male genitalia of the *kuyanianus* lectotype, but there is no reason to suspect that they differ from those of the lectotype of *fuscipennis*.

The identity of the genus Pollenoides Matsumura

The fact that the type species of *Pollenoides* Matsumura is *Pollenoides kuyanianus* (= *Bengalia fuscipennis*) by original designation makes *Pollenoides* a junior synonym of *Bengalia* Robineau-Desvoidy, syn. nov. The type species of the latter is *Bengalia testacea* Robineau-Desvoidy (= *Bengalia torosa* (Wiedemann)), for most authors a congener of *Bengalia fuscipennis*.

Distribution

Bengalia fuscipennis is apparently a rare species, and its area of distribution is confined to Taiwan and China (Guangdong). Records are reported by Bezzi (1913), Matsumura (1916, as *kuyanianus*), Fan (1965, 1992, 1997, as *taiwanensis*), Feng et al. (1998, as *taiwanensis*) and Rognes (2009). The record from Sri Lanka published by Séguy (1946) is based on a misidentified specimen, and the record from "Ceylon" in James (1977) is most likely based on Séguy's misidentification (cf. Rognes, 2009). No other authors have treated this species.

Nomenclatural summary

Synonyms in genus-group names

Genus *Bengalia* Robineau-Desvoidy, 1830: 425. Type species: *Bengalia testacea* Robineau-Desvoidy, 1830, by designation of Duponchel (1842: 542) (= *Musca torosa* Wiedemann, 1819).

Pollenoides Matsumura, 1916: 407. Type species: *Pollenoides kuyanianus* Matsumura, 1916, by original designation (= *Bengalia fuscipennis* Bezzi, 1913), syn. nov.

For lists of further generic synonyms, see James (1977), Pont (1980) and Rognes (2006).

Synonyms in species-group names

Bengalia fuscipennis Bezzi, 1913: 75.
Pollenoides kuyanianus Matsumura, 1916: 405, syn. nov.
Bengalia taiwanensis Fan, 1965: 194. Synonymy established by Rognes (2009).

Fan (1997: 456) stated that his *taiwanensis* resembled *fuscipennis*, but since Bezzi's description was so brief thought the relationship needed further investigation. He did not study any type material of *fuscipennis*.

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