

A NEW SUBSPECIES OF *ATROPHANEURA COON* FROM BAWEAN ISLAND (INDONESIA) (LEPIDOPTERA: PAPILIONIDAE)

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ABSTRACT.— The authors describe and figure a new subspecies, *Atrophaneura coon sangkapurae* new subsp., from Bawean Island (Indonesia).

KEY WORDS: *Atrophaneura coon sangkapurae* new subsp., Bawean, distribution, *Graphium*, Java, Indonesia, mimicry, Oriental, *Papilio*, *Troides*.

Atrophaneura coon Fabricius, from Bawean Island was first reported by Pagenstecher (1898), who did not find any differences with Javanese specimens, except for "die weisse Mittelparthe der Hinterflügel etwas reduciert erscheint" [the white central region of the hindwing seems somewhat reduced]. Hagen (1896) did not indicate the species as present on the island, while Fruhstorfer (1906) emphasized that *A. coon* is "haufige Zierde von Bawean" [common ornament of Bawean]. Other bibliographical references to the species for this island are not found until Tsukada and Nishiyama (1982), who reported the presence of the species on Bawean on their map, but apparently they did not see any specimens.

When we received our first specimens of *A. coon* from Bawean Island, thanks to such an indefatigable dealer as Ichwan Toeante, we noticed at first sight some differences between these new specimens and typical *A. coon coon* from both West and East Java. At first we thought it was a character to be included within the range of variation of the nominate subspecies, but when we had a long enough series from the same locality, we decided to describe this population as a new subspecies, on the basis of the pattern consistency we found.

Atrophaneura coon sangkapurae n. subsp.
(Fig. 1, 5-8)

DIAGNOSIS.— Forewing length: 61.3mm.

DESCRIPTION.— External characters: head, thorax, abdomen and antennae like in other members of the species. Upperside FWs; like in *A. coon coon*. Underside FWs: same pattern as upperside, with a more silky aspect. Upperside FWs: ground colour black; submarginal spots in ceM2-M1 smaller than in *A. coon coon*, not pure white, but suffused with dark scales. Submarginal spots in ceCUA1, ceM3 and ceRS only sketched with few whitish scales and very small. White postdiscal spots reduced, only the one in ceCUA2 being like in *A. coon coon*. All such spots are suffused with dark scales. The one in ceCUA1 highly reduced, whereas no spot is present in ceM3. Basal white spot in ceSC+R1

reduced, and highly suffused with dark scales. White discal area invaded of dark scales both in the basal and apical extremities. Orange anal spots at the apex of CUA1 and CUA2 like in *A. coon coon*, but the latter not connected with the whitish spot in ceCUA1. Spatulated tails entirely black. Underside HWs: ground colour like on upperside. Present is a complete row of submarginal and subdiscal spots, and their colour is lighter than on upperside.

TYPES.— *Holotype* ♂: INDONESIA: Pulau Bawean [no further data]; in coll. Bollino, Lecce (Italy) [to be deposited in the Zoological Museum "La Specola," Florence, Italy].

Paratypes: 16 ♂ and 2 ♀, same data as holotype, in coll. Bollino, Lecce (Italy); 2 ♂, same data as holotype, in coll. Sala, Salò (BS - Italy); 1 ♂ and 1 ♀, same data as holotype, in coll. Crnjar, Cagliari (Italy), 1 ♂ and 1 ♀ in coll. Nota, Taranto (Italy).

DISTRIBUTION.— No collecting data other than "Bawean" was provided with our specimens, so the type locality coincides with the general distribution of the new subspecies, that appears limited to Bawean Island. About its abundance in the field, Fruhstorfer (1906) notes that the species is an "haufige Zierde von Bawean" and reports that it "treibt sich gern über dem schattigen Gesträuch der Taler und Flugslaufe herum" [it most likes to move about on the shadowy bushes of the valleys and flight paths].

REMARKS.— The paratypic series is quite constant, with few variations. Submarginal spots like in holotype, only those in ceM3 and ceRS almost always absent or, if present, sketched with few whitish scales, in two specimens only being like in *A. coon coon*. Postdiscal spots like in holotype, the one in ceM3 present in 8 specimens only, always very small and dark.

Atrophaneura coon sangkapurae is easily separable from typical *A. coon coon* from Java by its dark pattern, with reduced white hindwing spots. Darker specimens are also found in Java, especially in eastern populations, but never with such a markedly dark pattern as in Bawean specimens. Hindwing spots of *A. c. sangkapurae* are always not of pure white, but suffused with dark scales. The orange marginal spot of HWs at the apex of CUA2 is nearly always separated from the submarginal whitish spot in



Fig. 1-6.— 1. *Atrophaneura coon sangkapurae* subsp. nov., Paratype ♀; 2. *Atrophaneura coon coon*, ♂, West Java; 3. *Atrophaneura coon coon*, ♀, West Java; 4. *Atrophaneura coon coon*, ♂, East Java, Bondowoso; 5. *Atrophaneura coon sangkapurae* subsp. nov., Holotype (upperside); 6. *Atrophaneura coon sangkapurae* subsp. nov., Holotype (underside).



Fig. 7-9.— 7. *Atrophaneura coon sangkapurae* subsp. nov., Paratype ♂ (upperside); 8. *Atrophaneura coon sangkapurae* subsp. nov., Paratype ♂ (underside); 9. *Atrophaneura coon coon*, ♀, East Java, Bondowoso.

Table A. Papilionidae present on Bawean Island.

Species	Endemic Species	dark pattern	mimetic
<i>Troides helena nereides</i> Fruhst.	yes	no	no
<i>Atrophaneura coon sangkapurae</i> n.ssp.	yes	yes	yes
<i>A. aristolochiae probus</i> Fruhst.	yes	yes	yes
<i>Papilio helenus enganius</i> Doherty	?		
<i>P. peranthus baweanus</i> Hagen	yes	no	no
<i>P. polytes vigellius</i> Fruhst.	yes	yes	yes (♀)
<i>P. memnon memnon</i> L.	no	no	yes (♀)
<i>Graphium doson sankapurum</i> Fruhst.	yes	no	no
<i>G. sarpedon rufocellularis</i> Fruhst.	yes	no	no
<i>G. eurypylus mecisteus</i> Distant	?		
<i>G. agamemnon baweanum</i> Hagen	yes	no	no

ceCUA1, if this is present, whereas in *A. coon coon*, both in typical and dark specimens, such white spot is clearly marked and merged together with the orange marginal spot nearby.

Until now 9 species of Papilionidae are known to occur on Bawean (see Table A), and all but one are considered to have developed endemic populations on the island, with a very high index of endemism. At least four of these species (*A. coon*, *A. aristolochiae*, *P. polytes* females and *P. memnon* females) are involved in a mimetic ring, always showing a melanistic pattern (Table A).

ETYMOLOGY.—The new subspecies has been named after the village of Sangkapura, on Bawean Island.

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