

Dempo Paris Peacock *Papilio paris dempo* Okano, 1988 (Lepidoptera: Papilionidae) Revisited

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ABSTRACT

A specimen of Dempo Paris Peacock *Papilio paris dempo* Okano, 1988 (Lepidoptera: Rhopalocera: Papilionidae) has been caught and collected on 5 February 2020 in lower Dempo mountain, South Sumatra province, Indonesia. This butterfly was preserved for a scientific purpose, and the specimen deposited to biological museum of Department of Biology of Sriwijaya University, with collection number Musbio/En/Coll.02.05022020. After preserved, the specimen was immediately identified using selected references. Recent finding of *P. paris dempo* is a rediscovery for this rare and endemic butterfly in its habitat after 32 years break (1988 to 2020). Based on this specimen, status of *P. paris dempo* is revisited.

Keywords: Dempo mountain, endemic, *Papilio paris dempo*, Rhopalocera, South Sumatra

INTRODUCTION

The Family Papilionidae or swallow butterflies are medium to large sized butterflies with wing usually black and prominently marked with white or with a bright colour (Holloway *et al.* 2012). This family contains at least 580 species world wide that occur in Palearctic, Neotropic and Oriental region (Hoskins, 2015). In addition to their beauty and artistic value, these insects have also been central to demonstrates of several aspects of modern biological and ecological theory (Scriber, 1995).

Papilio is one genus of Family Papilionidae (Lewis, 1973; Hoskins, 2015). The genus *Papilio* are almost group of cosmopolitan butterflies, but mainly tropical ranges throughout all regions of

the world, comprises at least 222 species and as the most phenotypically diverse and well-known of all the lepidoptera (Parsons, 1999). Morphologically, *Papilio* has underwing with the inner margin curved downwards and forming a groove beneath in both sexes (Corbet & Pendlebury, 1992).

As a second largest island in Indonesia, Sumatra is important island for *Papilio*. There are approximately 13 to 14 species of genus *Papilio* in Sumatra (D'Abrera, 1982; Tsukada & Nishiyama, 1982). Paris peacock *Papilio paris* is one beautiful butterfly species of genus *Papilio*. This butterflies has ten subspecies, and two subspecies *P. paris battacorom* and *P. paris dempo* occur in Sumatra. Described as an endemic subspecies restricted in Dempo mountain

of South Sumatra province in 1988, Dempo Paris Peacock *P. paris dempo* was a very little known subspecies of butterfly within this genus. In this paper, we revisited status of *P. paris dempo* based on a recent collection from Dempo mountain.

MATERIALS AND METHODS

On early February 2020, a survey to lower forest of Dempo mountain was carried out. The site is Kampung Empat village, Pagar Alam district, South Sumatra province (4°02'83"S, 103°08'99"E). During this survey, we caught a swallowtail butterfly on 5 February 2020. This swallowtail butterfly was preserved for a scientific purpose, and the specimen deposited to biological museum of Department of Biology of Sriwijaya University, with collection number of specimen Musbio/En/Coll.02.05022020 (Figure 1 & 2). After preserved, the specimen was immediately identified using selected references (D'Abbrera, 1982; Tsukada & Nishiyama 1982; Okano, 1988; Ek-Amnuay, 2012).

RESULTS AND DISCUSSIONS

The swallowtail butterfly caught at lower forest in Dempo mountain has forewing 51 mm, wingspan 90 mm, upperside of forewing black with mettalic green dusting; underside of forewing black with a series of whitish postdiscal spots and broader in the subapical to apical; upperside of hindwing with a large and brilliant green discal patch in spaces 4-6 not entering the cell, and a red tornal spots with black-centered; underside of hindwing with red spots in termen to tornus (Figure 1 and 2). Following appropriate guides (D'Abbrera, 1982; Tsukada & Nishiyama 1982; Ek-Amnuay, 2012). There are two endemic subspecies of *P. paris* in Sumatra, *P. paris*

battacorum Rothschild, 1908 and *P. paris dempo* Okano, 1988. The *P. paris battacorum* is distributed in montane zone of northern Sumatra (Rothschild, 1908; Tsukada & Nishiyama, 1982). Another subspecies, *P. paris dempo*, restricted in Dempo mountain of South Sumatra province (Okano, 1988). Due to the its localities collection and morphological characters described by Okano (1988), the swallowtail butterfly from Dempo mountain is identified as male of *P. paris dempo*.

Okano (1988) describe *P. paris dempo* as here: length forewing of male around 45-51 mm, and female 48 mm; male resembles to subspecies *battacorum* from North Sumatra and subspecies *gedeensis* from West Java, but differs from green marking on the hindwing is narrower and longer than those of subspecies *battacorum*, but wider than subspecies *gedeensis* (not narrow and long like the subspecies *gedeensis*); male, the green marking on the hindwing is less bluish than those of subspecies *battacorum*, but more bluish than those of subspecies *gedeensis*; female, green marking on the hindwing is smaller and shorter than those of subspecies *battacorum* and of subspecies *gedeensis*. The specimens for describing subspecies of *P. paris dempo* are private colletion of Kukimaro Okano, as noted here: Holotype, male, Mount Dempo, March-June, 1987; Allotype, female, Mount Dempo, 1985; Paratypes, 8 males, Mount Dempo, March-June, 1987. One paratype was deposited to British Museum. Similar to other subspecies of *P. Paris* in Sumatra and Java, *P. paris dempo* is limited in highland zone, therefore, its distribution is intermittent, occuring in Dempo mountain like in island, a reason why *P. paris dempo* having distinctive features. Our specimen of *P. paris dempo* collected Dempo mountain has forewing 51 mm and wingspan 90 mm. This forewing size is still in range of *P. paris dempo*, 45-51 mm.

No information of wingspan of *P. paris dempo*, and our collection has 90 mm. The subspecies of *P. paris paris* from Thailand has wingspan around 95-110 (Ek-Amnuay, 2012), suggest *P. paris dempo* is smaller than from *P. paris paris*.

The habitat of *P. paris dempo* as described by Setiawan *et al.* (2020) for the lower forest of Dempo mountain, a protected forest bordering with tea plantation, at about 1.600 from above sea level which dominated by various of plants, including fig *Ficus* spp, *Clibadium surinamens*, pandan *Pandanus* sp, tree fern *Alsophila junghuhniana*, stone oak *Litsea* sp, *Lithocarpus* sp, schima *Schima wallachii* and vanda orchid *Vanda* sp. The host plants known for *P. paris* are from Family Rutacea, including *Citrus* spp, *Euodia* spp (sometimes misspelled as *Evodia*), *Zanthoxylum* spp, *Euodia lept*a, *E. lunur-ankenda*, *E. meliaefolia*, *E. roxburghiana*, *Toddalia asiatica*, *Zanthoxylum armatum*, *Z. avicennae*, *Z. nitida*, *Z. nitidum* and *Z. valifolium* (Tsukada & Nishiyama, 1982; Robinson *et al.* 2001; Ek-Amnuay, 2012). In Dempo mountain or adjacent areas, Metusala & Rindyastuti (2016) listed *Euodia latifolia* (a synonym of *Melicope latifolia*) as one plant from Family Rutaceae occur here. It is presumed *E. latifolia* possibly important host plant for *P. paris dempo*.



Figure 1. Dorsal view of male *P. paris dempo* collected in Mount Dempo, 5 February 2020 (©Muhammad Iqbal).



Figure 2. Ventral view of male *P. paris dempo* collected in Mount Dempo, 5 February 2020 (©Muhammad Iqbal).

Since described in 1988 as a new subspecies, record of *P. paris dempo* are none. Our finding of *P. paris dempo* in 5 February 2020 is a rediscovery for this butterfly after 32 years break (1988 to 2020). The *P. paris dempo* has very tiny distribution area, restricted in remaining forest around Dempo mountain. Introduce this beautiful butterfly to local stakeholders is need to support its conservation efforts. *Papilio paris* is not listed as a threatened butterfly by IUCN (The International Union for Conservation of Nature) redlist criteria because this species has wide range distribution. However, at the subspecies level, *P. paris dempo* has very small range area, presumed this subspecies become fragile. We propose, in the regional level, the *P. paris dempo* should be protected; and nationally, the status should be listed as Endangered.

CONCLUSIONS

A recent specimen collection of *P. paris dempo* on 5 February 2020 in Dempo mountain, South Sumatra, is a rediscovery for this butterfly after 32 years break (1988 to 2020). The *Euodia latifolia*

is presumed as an important host plant for *P. paris dempo*. It is suggest in the regional level, the *P. paris dempo* should be protected and listed as Endangered species.

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