A new subspecies of *Appias nephele* (Lepidoptera: Pieridae) from Negros Island, and some new island records of Lycaenidae in the Philippines

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Colin G. Treadaway†: Colin G. Treadaway died on February 9th/10th, 2019.

Abstract: A new subspecies, *Appias nephele* ***emmeli*** Badon & Treadaway 2018, **ssp. n.,** is described from Negros Oriental, Negros Island, Philippines. Holotype female is deposited in the McGuire Center for Lepidoptera and Biodiversity, Gainesville, FL, USA. — Some new island records of Philippine lycaenids are provided.

Eine neue Unterart von *Appias nephele* (Lepidoptera: Pieridae) von der Insel Negros, sowie einige neue Inselnachweise anderer Tagfalter (Lycaenidae) der Philippinen

Zusammenfassung: Eine neue Unterart, *Appias nephele* ***emmeli*** Badon & Treadaway 2018, **ssp. n.,** wird von Negros Oriental, Insel Negros, Philippinen, beschrieben. Das Holotypus-Weibchen befindet sich im McGuire Center for Lepidoptera and Biodiversity, Gainesville, FL, USA. — Weiter werden einige neue Lycaenidennachweise für einzelne philippinische Inseln angegeben.

A. A new subspecies of *Appias nephele*

The genus *Appias* Hübner, [1819] contains more than 40 species distributed from Africa, Asia, and towards Australia including some islands in the Oceana area (Yata et al. 2010). There are currently 12 species of *Appias* in the Philippines, of which 4 species are endemic to the Philippines (Treadaway & Schroeder 2012).

Appias nephele (Hewitson, 1861) is a rare butterfly in the Philippines, and was originally described as *Pieris nephele* by Hewitson (1861) from a specimen collected in Luzon. Tsukada et al. (1985) treated the species as endemic to the Philippines, but was demoted to only at the subspecies level in Treadaway & Schroeder's (2012) checklist.

D'Abrera (1982) listed 5 subspecies (excluding subspecies from Palawan and Leyte), while Tsukada et al. (1985) listed 7 subspecies and noted that the species is rare and geographically variable, although, the distributional map indicated that the species has not been recorded in larger islands such as Panay, Negros, Cebu, and Bohol. Fruhstorfer (*in* Seitz 1908–1928) noted that the populations of this species are gradually more melanic in the south (Mindanao and Sulu) compared to the northern population (Luzon). There are currently 8 subspecies of *Appias nephele* in the Philippine islands, based on the revised checklist of Treadaway & Schroeder (2012).

The paper describes a new subspecies of *Appias nephele* (Hewitson, 1861) from Valencia, Negros Oriental, Negros Island, Philippines. The last *Appias nephele* subspecies described was *A. nephele leytensis* by Fruhstorfer (1911: 188). This is the first time a new subspecies is described after a century.

Appias nephele ***emmeli*** **ssp. n.**

Fig. 1.

Holotype ♀: 25.30 mm (base to apex of forewing); Valencia, Negros Oriental, Negros Island, Philippines, May/June 2012, leg. Iricha Balaba, Christian Palomar, and Ian Carampatan. The type specimen is deposited in the McGuire Center for Lepidoptera and Biodiversity, Gainesville, FL, USA. DENR Gratuitous Permit Number: 2012-05. — No paratype[s] (a second specimen was collected by the first author in January 2016, but it was inadvertently lost during a power outage while it was deposited in a freezer).

Etymology: The subspecies is named after the first author's M.S. and Ph.D. advisor, the late Thomas C. Emmel, Ph.D., during his graduate school in University of Florida, U.S.A. Tom Emmel is also the founding director of the McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville. Tom met Jade Badon during an invited talk in Silliman University, Dumaguete City, Negros Oriental, Negros Island, Philippines in July 2010.

Diagnosis and identification

The *Appias nephele* (Hewitson, 1861) in the Philippines have differences in the degree of black banding on the margins of the wings. The forms/subspecies in the south have broader black margins compared to the populations in the west (Palawan). The female of *Appias nephele emmeli* Badon & Treadaway, 2018 is similar to the subspecies in Luzon (ssp. *nephele,* Fig. 3) but narrower black wing margins for both wings. The hindwing marginal black band in *nephele* almost reached the cell end, while in *emmeli,* it terminates halfway before the cell end. Based on females alone, the subspecies in the southern islands such as *elis* Fruhstorfer, 1910, and *aufidia* Fruhstorfer, 1910, have very broad black bands on both wings. The subspecies *dilutior* (Figs. 2 & 4) in Palawan (western Philippines, on the Sunda shelf) have narrowest black bands on both wings.

Habitat: Primary to secondary forests with an elevation of 400–500 m above sea level. Both specimens were collected along the road probably to get nectar from the flowering plants in nearby houses.

Hostplant recorded: *Capparis micracantha* (Cayabyab et al. 1993, Kitamura 1999).

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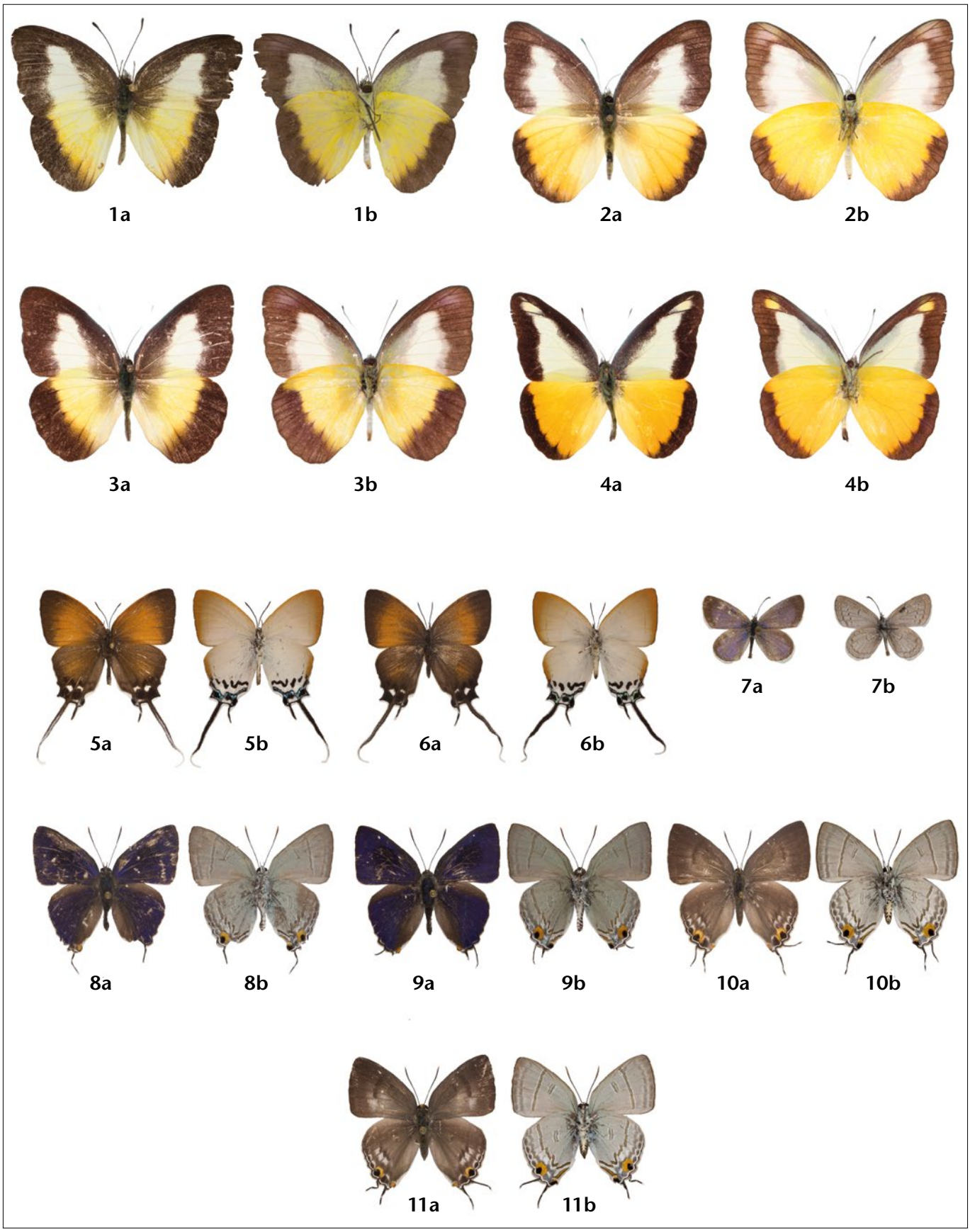

Fig. 1: *Appias nephele* ***emmeli*** **ssp. n.,** holotype ♀, Valencia, Negros Oriental, Negros Island; **1a:** upperside, **1b:** underside. — **Fig. 2:** *Appias nephele dilutior* Staudinger, 1889, leg. J. S. Petersen, 29. xii. 1996, ♀, Irawan, Palawan: **2a:** upperside, **2b:** underside. — **Fig. 3:** *Appias nephele nephele* Hewitson, 1861, leg. R. F. Denno, 21. iv. 1990, ♀, Los Banos, Luzon; **3a:** upperside, **3b:** underside. — **Fig. 4:** *Appias nephele dilutior,* leg. Dacasin, 22. viii. 1976, ♂, Puerto Princesa, Palawan; **4a:** upperside, **4b** underside. — **New island records: Figs. 5–6:** *Cheritra orpheus orpheus* Felder & Felder, 1862, Tres Reyes Islands, Marinduque, leg. Asaltine, 2002; **5a:** ♀ upperside, **5b:** ♀ underside; **6a:** ♀ upperside, **6b:** ♀ underside. — **Fig. 7:** *Zizina otis oriens* Butler, 1883, leg. Asaltine, 28. xii. 1979, ♂, Sicogon Island, Panay; **7a:** upperside, **7b:** underside. — **Figs. 8–12:** *Hypolycaena erylus tmolus* Felder & Felder, 1862, leg. Asaltine, 29. xii. 1979, Sicogon Island, Panay; **8a:** ♂ upperside, **8b:** ♂ underside; **9a:** ♂ upperside, **9b:** ♂ underside; **10a:** ♀ upperside, **10b:** ♀ underside; **11a:** ♀ upperside, **11b:** ♀ underside. — All specimens are deposited in the McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, Florida, USA 32611.

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B. New island records of some Philippine butterflies (Lycaenidae)

Cheritra orpheus orpheus Felder & Felder, 1862

Figs. 5–6.

Distribution: Babuyan, Luzon, Marinduque, Mindoro, Negros, Panay, and Ticao (Treadaway & Schroeder 2012).

New island record: Tres Reyes Islands, Marinduque.

Hypolycaena erylus tmolus Felder & Felder, 1862

Figs. 8–12.

Distribution: Babuyan, Batanes, Catanduanes, Camiguin de Luzon, Luzon, Marinduque, Masbate, Mindoro, Negros, Panay, Romblon, and Sibuyan (Treadaway & Schroeder 2012).

New island record: Sicogon Island, Panay.

Zizina otis oriens Butler, 1883

Fig. 7.

Distribution: Bohol, Cebu, Dinagat, Dumaran, Jolo, Leyte, Luzon, Marinduque, Mindoro, Mindanao, Negros, Palawan, and Sarangani (Treadaway & Schroeder 2012).

New island record: Sicogon Island, Panay.

Acknowledgements

I would like to thank my advisor Thomas C. Emmel, Ph. D., the Founding Director of the McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, for providing the funds during my 2012 fieldwork on Negros Oriental, Philippines. To my field assistants in Valencia, Via Vita Pinili, Leandro Cabrera, Iricha Ann Balaba, Christian Palomar, Ian Carampatan, Esteven Nacar, and Jean Henri Oracion. To the late Colin G. Treadaway, F.R.E.S., for verifying the specimen as a new subspecies; he had agreed to become coauthor before his death. To Silliman University for providing assistance during my visit every year. To DENR Dumaguete and Cebu offices for issuing the Gratuitous Permit for my fieldwork on Negros island.

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Received: 1. xi. 2018

© Entomologischer Verein Apollo e. V., Frankfurt am Main, April 2019 ISSN 0723-9912

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Digitale Literatur/Digital Literature

Zeitschrift/Journal: Nachrichten des Entomologischen Vereins Apollo

Jahr/Year: 2018

Band/Volume: 39

Autor(en)/Author(s): Badon Jade Aster T., Treadaway Colin G.

Artikel/Article: A new subspecies of Appias nephele (Lepidoptera: Pieridae) from Negros Island, and some new island records of Lycaenidae in the Philippines 165-167