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DISTRIBUTION OF ACROPHTALMIA CHIONE FELDER & FELDER, 1867, WITH DESCRIPTIONS OF TWO NEW SUBSPECIES FROM EASTERN INDONESIA (LEPIDOPTERA: NYMPHALIDAE: SATYRINAE)

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ABSTRACT: The distribution of *Acrophtalmia chione* Felder & Felder, 1867, is discussed. The species is recorded for the first time from Kasiruta, Mandioli and Ternate in North Maluku. Two new subspecies: *A. chione lucidus* **new subspecies** (Bacan) and *A. c. orientalis* **new subspecies** (Arfak Mountains) are described and illustrated. A record of *A. chione* from Buru is questioned. In addition, a new island record of Taliabu is provided for *A. leuce chionides* de Nicéville, 1900.

KEY WORDS: Indonesia, Maluku Province, Sula Islands, Irian Jaya, new distribution records, Satyridae, Ragadiinae, *Acrophtalmia, chione, leuce*, new subspecies

INTRODUCTION

The genus *Acrophtalmia* Felder & Felder, 1861, ranges from the Philippines to at least Irian Jaya and comprises eight small, inconspicuous satyrine species that are fundamentally brown with a broad, angular, white median band. The genus was revised by Uémura & Yamaguchi (1982). *Acrophtalmia* are most diverse in the Philippines, where five species occur (*A. artemis* Felder & Felder, 1861; *A. yamashitai* Uémura & Yamaguchi, 1982; *A. leto* Semper, 1887; *A. albofasciata* Uémura & Yamaguchi, 1982, *A. luzonica*, Uémura, 1992) (Treadaway 1995). Acrophtalmia leuce Felder & Felder, 1867 occurs on Sulawesi, with distinct subspecies in the Banggai and Sula island groups. A recent record of *A. leuce* east of Kolaka, in Sulawesi Tenggara Province, in 2002 (Roos 2005: 246) appears to be the most southerly Sulawesi record of this species. On Sulawesi, two species occur: *A. leuce* Felder & Felder, 1867 (with distinct subspecies in the Banggai and Sula island groups) and *A. windorum* Miller & Miller, 1978 – the status and distribution of this latter taxon may require further investigation (Vane-Wright & de Jong 2003: 182). The most easterly species known is *A. chione* Felder & Felder, 1867, thought by Uémura & Yamaguchi (1982: 35) to be endemic to Morotai, Halmahera and Bacan in North Maluku. Vane-Wright & de Jong (2003) further noted three male specimens of *A. chione* deposited in the Allyn Museum of Entomology (now McGuire Center for Lepidoptera and Biodiversity, MGCL/FLMNH) from the Arfak Mountains, Irian Jaya, representing an undescribed race.

Vane Wright & de Jong included the island of Buru in the distribution of *Acrophtalmia*; there is a solitary male *A. chione* in the BMNH labelled "M[oun]t Mada, Buru, 3,000 [feet], Sept[ember], [18]98 (Dumas)." Considered in isolation, there is no reason to doubt this locality data, but there are solitary specimens of several other butterfly taxa in the BMNH bearing similar data labels which, collectively, raise serious doubts (research in progress) as to whether they are actually from Buru. In all cases, these phenotypes are indistinguishable from those occurring in North Maluku, as already noted elsewhere (Tennent & Rawlins 2008a). So far as the authors are aware, no other specimen of *A. chione* has been recorded from Buru, and the island was not included in the species' distribution by Uémura and Yamaguchi (1982). Some parallels might be drawn with erroneous published records from "Mira, Buru," which two of the authors conclusively showed referred to the village of Mira on Morotai (Tennent & Rawlins 2008b).

Uémura and Yamaguchi (1982: 35) examined four pairs of A. chione from Halmahera, 13° , 299° from Bacan (=Batjan, Batchian), and included the island of Morotai in the distribution of A. chione. The type locality of chione was given by Felder and Felder (1867: 486) as Halmahera. A lectotype (Figs. 1-3), which is rather darker in appearance than the "typical" Halmahera phenotype (Figs. 4-7) was designated by Uémura and Yamaguchi (1982). We examined a long series of A. chione from several islands in Maluku Province, from which it is clear that phenotypes on Morotai and Halmahera differ from those on Bacan (and Kasiruta and Mandioli – new island records). Ternate $(2\Im \Im, 1\Im$, Ternate, Wallace, in BMNH) is also believed to be an unpublished island record, having been previously overlooked. The distribution of nominate *chione* is here restricted to Morotai, Halmahera and Ternate - a slightly unusual distribution, in the sense that although there are examples of distinct butterfly phenotypes occurring on each of the three islands of Morotai, Halmahera and Bacan (eg. Papilio lorquinianus Felder, 1865 [Papilionidae]; Delias funerea Rothschild, 1894 [Pieridae]; Euthaliopsis aetion Hewitson, 1862 [Nymphalidae]), it is more usual for the same race to occur on both Halmahera and Bacan, with a distinct race on Morotai (e.g., Papilio ulysses Linnaeus, 1758 [Papilionidae]; Delias poecila Snellen van Vollenhoven, 1865 [Pieridae]; Ypthima sepyra Hewitson, 1864 [Satyrinae]), or for the same race to be present on all three islands (eg. Troides criton Felder & Felder, 1860 [Papilionidae]; Cepora aspasia Stoll, 1790 [Pieridae]; Elymnias cybele Felder, 1860 [Satyrinae]).

New subspecies are described from the Moluccas and the Arfak Mountains:

Acrophtalmia chione lucidus Tennent, Miller & Rawlins, new subspecies

Figures 4, 5 ($\stackrel{?}{\bigcirc}$), 6, 7 ($\stackrel{\bigcirc}{\ominus}$), 16 ($\stackrel{?}{\bigcirc}$ genitalia)

Description. Male. Holotype: \vec{O} FWL = 22 mm; average FWL Paratypes = 22 mm; similar to nominate *chione*; dorsal forewing, dark brown, with indistinct subapical ocellus, consisting primarily of the ventral markings showing through and indistinct secondary scales (sex brand) on the subcostal vein near the base; broad clear white median band extending from inner margin towards costa and apex (less extensive, less clearly defined, and often 'clouded' with dark scales in nominate *chione*); dorsal hindwing, broad dark brown border, white band nearly reaches inner margin (white band reaches inner margin in nominate *chione*); ventral surface similar to nominate *chione*, with prominent subapical ocellus ringed pale golden yellow with several (usually 3) iridescent bluish-silvery pupils; similar subtornal ocellus on ventral hindwing), with supplementary 'blind' postmedian ocelli (usually 3) extending to costa; ventral white band distinctly separated from inner margin by dark scales (less so in nominate *chione*).

Female. Average FWL = 23.5 mm; similar to male, lacking sex-brand, with forewing more rounded.

Male genitalia (Figs. 16, 17) similar to *A. l. leuce* as illustrated by Uémura & Yamaguchi (1982), but with the brachia not as undulate distad, apex angularis more expanded ventrad, vinculum reduced, and saccus slightly elongate yet blunt anteriad. Penis comparatively shorter than *A. leuce* or *A. artemis* with aedeagus tapered distad.

Distribution: Bacan, Kasiruta and Mandioli, North Maluku, Indonesia (Fig. 18).

Type material: The authors have examined more than 100 specimens but have selected a representative sample of five pairs from Bacan in the BMNH as types, in addition to material in the MGCL/FLMNH collection, and specimens from the islands of Mandioli and Kasiruta – a combined total of $12 \ 3 \ 3$, $7 \ 9 \ 3$. **HOLOTYPE:** $\ 3$ Batchian [=Bacan], Mar[ch] 1892, W. Doherty (BMNH); **PARATYPES**: $43 \ 3$ and $49 \ 9$ same data as Holotype; 19, Batchian [=Bacan], Hewitson coll.; $13 \ Kasiruta$, vii. 1997 (BMNH); $33 \ 3$, 19, Batjan I[sland]. (=Bacan), 10.i.1940, R.G. & C.M. Wind, Allyn Museum, Acc. 1971-29; $13 \ 3$, Batjan, (ex. M. Simon), Allyn Museum, Acc. 1987-9 (MGCL); $13 \ 3$, Mandioli, Waya, 12.xi.2006; $13 \ 3$ same data, 11.xi.2006; $19 \ Kasiruta$, xi. 2007 (coll. Rawlins)

Etymology. The subspecific epithet *lucidus* refers to the clear white band of this subspecies.

Acrophtalmia chione orientalis Tennent, Miller & Rawlins, new subspecies

Figures 12, 13 (♂)

Description. Male. Similar to nominate *chione*, but smaller; dorsal white band more extensive, extending almost to subapical ocellus, reaching inner margin (*cf. A. c. lucidus* above) and edge of subtornal 'phantom' ocellus; basal dark scales significantly reduced and the brown areas with slightly purplish cast; ventral surface similar to nominate *chione*, white areas more extensive; forewing ocellus with two distinct bluish silvery spots; narrow darker submarginal band near apex diffused. Hindwing ocellus with three prominent bluish silvery markings; pale, incomplete grey-brown dentate postmedian band; warm brown submarginal band edged with gold rust colour along lateral margin.



Figures 1-15. Acrophtalmia: 1-3) Lectotype of Acrophtalmia chione chione (Halmahera), 1) ♂ dorsal surface, 2) ventral surface, 3) labels; 4-7) Acrophtalmia c. chione (Halmahera), 4) ♂ dorsal surface, 5) ventral surface, 6) ♀ dorsal surface, 7) ventral surface; 8-11) Acrophtalmia c. lucidus (Bacan), 8) Holotype ♂ dorsal surface, 9) ventral surface, 10) Paratype ♀ dorsal surface, 11) ventral surface; 12-13) Holotype ♂ Acrophtalmia chione orientalis (Arfak Mountains), 12) dorsal surface, 13) ventral surface; 14-15) Acrophtalmia leuce (Taliabu), 14) ♂ dorsal surface, 15) ventral surface.

Female not known.

Distribution: Known only from the Arfak Mountains, Irian Jaya, Indonesia (Fig. 18). Type material: Male: Holotype FWL= 20.0 mm; average FWL of the other two ♂♂ Paratypes 22.0 mm. Type material (3♂♂): HOLOTYPE ♂: Indonesia, Irian Jaya, Arfak Mountains, 1980; Allyn Museum, Acc. 1980-6 (MGCL/FLMNH); PARATYPES: 2♂♂, same data (MGCL/FLMNH)



Figures 16, 17. \Im genitalia, Acrophtalmia chione lucidus \Im (Bacan): 16) lateral view, 17) dorsal view.

Etymology. The subspecific epithet *orientalis* refers to the fact that this is the most easterly subpopulation of *A. chione* known.

DISCUSSION

Only the life histories of nominate *Acrophtalmia artemis* and *A. leuce* appear to be known, with *A. artemis* associated with *Selaginella labordii* and *A. leuce* with *S. fenixii* (Selaginellaceae) (Fukuda, 1983; Igarishi & Fukuda, 1997, 2000).

For the record, *A. leuce chionides* de Niceville, 1900, is previously known from the islands of Mangole and Sanana. A male captured in January 2009 (Figs. 14, 15, 18) on Taliabu represents a new island record for this species. In comparison with *A. leuce* from Mangole and Sanana, this specimen has significantly greater contrast between the dark and white areas.

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Figure 18. Distribution of Acrophtalmia chione and A. leuce.

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The attached plate with Figures 1-15 should be substituted for the one which was printed in the original paper. The Holotype \Im *Acrophalmia chione orientalis* (Fig. 12-13) is correctly illustrated in the plate below.



Figures 1-15. Acrophtalmia: 1-3) Lectotype of Acrophtalmia chione chione (Halmahera), 1) ♂ dorsal surface, 2) ventral surface, 3) labels; 4-7) Acrophtalmia c. chione (Halmahera), 4) ♂ dorsal surface, 5) ventral surface, 6) ♀ dorsal surface, 7) ventral surface. 8-11) Acrophtalmia c. lucidus (Bacan), 8) Holotype ♂ dorsal surface, 9) ventral surface; 10) Paratype ♀ dorsal surface, 11) ventral surface; 12-13) Holotype ♂ Acrophtalmia chione orientalis (Arfak Mountains), 12) dorsal surface, 13) ventral surface. 14-15) Acrophtalmia leuce (Taliabu), 14) ♂ dorsal surface, 15) ventral surface.