

## A new species of *Candalides* HÜBNER, 1819 from Mainland Papua New Guinea (Lepidoptera: Lycaenidae)

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**Abstract:** *Candalides nokopo* sp. n. from the Finisterre Range, Papua New Guinea, is described and figured. The holotype male is deposited in the Australian National Insect Collection (ANIC), Canberra. The adult male and genitalia are compared with the related *C. neurapacuna* BETHUNE-BAKER, 1908 and *C. viriditincta* TITE, 1963.

**Keywords:** Lepidoptera, Lycaenidae, new taxa, *Candalides*, *nokopo*, Finisterre Range, Papua New Guinea.

**Eine neue Art der Gattung *Candalides* HÜBNER, 1819 von der Insel Neuguinea (Lepidoptera: Lycaenidae)**

**Zusammenfassung:** Die neue Art *Candalides nokopo* sp. n. aus der Finisterre-Gebirgskette, Papua-Neuguinea, wird beschrieben und abgebildet. Der männliche Holotypus befindet sich in der Australian National Insect Collection (ANIC), Canberra. Männchen und männliches Genital werden verglichen mit den ähnlichen *C. neurapacuna* BETHUNE-BAKER, 1908 und *C. viriditincta* TITE, 1963.

### Introduction

The genus *Candalides* comprises about 30 species, which are distributed in the Australian Region, from Timor and the Lesser Sunda Islands, West Papua and surrounding islands to the Bismarck Archipelago, Louisiades and Australia (MÜLLER 2013). BRABY (2000) and BRABY & DOUGLAS (2004) considered three genera recognised by TITE (1963) as species groups within *Candalides*. The largest of these, *Holochila* FELDER, 1863, referred to by BRABY (2000) as the “*C. absimilis* (*C. FELDER*, 1862) group”, contains a number of montane species in mainland New Guinea with restricted ranges. A new species falling into this category is introduced here.

Nomenclature follows that of PARSONS (1998) and TENNENT (2006). The description follows the venation according to the numerical notation.

### Abbreviations

ANIC Australian National Insect Collection, Canberra, ACT, Australia.

BMNH The British Museum (Natural History), London, England.

### *Candalides nokopo* sp. n.

(Figs. 1–3, 10, 13, 16.)

**Holotype ♂:** “Papua New Guinea, Finisterre Range, Nokopo, 1800 m, 8. VIII. 1987, D. P. A. SANDS”, genitalia dissected and held in vial pinned to specimen (ANIC), Registration Number: ANIC Database No. 31 023128. — No paratypes.

**Etymology:** This species is named for the type locality Nokopo village, at the border of Madang and Morobe Provinces.

### Diagnosis

♂ (Figs. 1, 2): Forewing length 17.8 mm, antenna 9.7 mm (holotype). Head deep grey; labial palpus white, eye ringed with white; antenna black, ringed with white, more noticeably on ventral side. Thorax dorsally dark grey-brown, ventrally white; legs white with tarsi broadly black, white between segments. Abdomen dorsally dark grey-brown, ventrally white.

Forewing with costa nearly straight, slightly bowed towards apex, termen convex, inner margin slightly bowed near base. Forewing upperside lustrous light blue-grey-green, median area between veins 1b and 7 with deep blue-green sex scales along veins, costa broadly dark brown, encroaching slightly into cell, termen broadly dark brown (2.5 mm at vein 1b and 5 mm at vein 6), dark brown protruding along veins 2, 3 and 4 and between veins in spaces 4, 5 and 6, such that the contact between the lustrous basal area and the dark border is serrated, base dusted heavily with dark brown; cilia dark brown, edged with white near tornus. Forewing underside white, a prominent postmedian band of dark brown triangular markings between veins 1b and 7, with an offset small marking of similar colouring between veins 7 and 8, a subterminal band of light brown weakly triangular markings between veins 1b and 7, a terminal band of very faint spots between veins, discocellulars very weakly outlined with light brown; cilia white, edged with dark brown from veins 2 to apex.

Hindwing rounded; upperside lustrous light blue-grey-green dusted heavily with dark brown, costa, termen and inner margin broadly dark brown, distal third of costa and most of space 6 light grey; Hindwing underside white, a prominent postmedian band of dark brown triangular markings between veins 2 and 6, this band more linear and offset towards base between inner margin and vein 2 and between vein 6 and costa, a subterminal band of light brown triangular markings, a terminal band of faint spots between veins, more prominent at tornus, discocellulars narrowly outlined with light brown, a sub-basal row of three dark brown spots, that in space 1b darker and very prominent, a basal row of four dark brown spots; cilia white, edged with dark brown from veins 1b to 4.

♂ **genitalia** (Figs. 10, 13, 16). Tegumen and vinculum ring roughly oval, sociuncus U-shaped dorsally, subrounded laterally, saccus thumb-like, pointed upwards, brachium tapered apically, juxta bifurcated and clubbed anteriorly, valva broad, stepped abruptly along ventral margin near apex, developed into a short, sharp apical tooth and adorned with a long apical flattened process of



Figs. 1–9: *Candalides*, adult ♂♂ holotypes. Left column uppersides, middle column undersides, right column holotype labels. Figs. 1, 2, 3: *Candalides nokopo* sp. n. Figs. 4, 5, 6: *C. neurapacuna* (BMNH). Figs. 7, 8, 9: *C. viriditincta* (BMNH). — Scale bar = 1 cm = approx. double natural size; labels not to same scale. — Figs. 10–18: *Candalides* ♂ genitalia; Figs. 10–12 genitalia in ventral view, Figs. 13–15 genitalia in lateral view, bottom Figs. 16–18 phallus lateral view. Figs. 10, 13, 16: *Candalides nokopo* sp. n. Figs. 11, 14, 17: *C. neurapacuna*. Figs. 12, 15, 18: *C. viriditincta*. — Scale bars = 1.0 mm; phalli slightly larger than other parts.



uniform width, phallus with pre-zonal section approximately equal to post-zonal section, with single bifurcated cornutus near apex.

**Distribution:** Finisterre Range, Papua New Guinea.

## Discussion

*C. nokopo* sp. n. appears to be part of a small group of allopatric taxa also comprising *C. neurapacuna* BETHUNE-BAKER, 1908 (holotype; Figs. 4–6) and *C. viriditincta* TITE, 1963 (holotype; Figs. 7–9), in which the fore and hindwing underside postmedian bands are prominent and triangular shaped and configured in a manner in which resembles the underside patterns of the lycaenids *Udara drucei* BETHUNE-BAKER, 1906 and *U. manokwariensis* JOICEY, NOAKES & TALBOT, 1915, with which they fly. The forewing uppersides of all three species bear very broad, dark borders. The border contact in the new species is more serrated than that of the other two species, with the brown protruding deeper basally between the veins.

The phenotype of the new taxon appears midway between *C. neurapacuna* and *C. viriditincta*, with a rather similar colouration to the unusual lustrous light blue-green colour of *C. viriditincta* but having the very broad borders of the former taxon. The new species has an extensive area of grey-white in the apical area of the hindwing upperside, similar to *C. viriditincta*. The patterns of the underside are similar in all three species. The postmedian and subterminal markings on the new species are smaller, more acute and more compact than in *C. neurapacuna* and *C. viriditincta*. Those in the latter species are more wavy and rounded rather than angular. The new species is slightly larger than both *C. neurapacuna* and *C. viriditincta*.

The genitalia of the new species most closely resembles that of *C. neurapacuna* (Figs. 11, 14, 17) and implies that the two are closely related. The sociuncus of all three species is very similar. *C. viriditincta* (Figs. 12, 15, 18) is relatively diverged from the other taxa in the shape of the valva. The genitalia of the new taxon is broader than that of *C. neurapacuna* generally, especially the valvae. The tegumen is also much thicker in the new species. The apex of the valva bears a longer tooth in *C. neurapacuna* than in *C. nokopo* and the apical appendages to the valva are narrower in *C. neurapacuna* than in the new species.

This group of *Candalides* appears to be allopatric, with *C. viriditincta* apparently restricted to the Snow and Weyland Mts. in West Papua and *C. nokopo* to the Finisterre Range, Papua New Guinea. *C. neurapacuna* is so far known only from Papua New Guinea (PARSONS 1998). The author has taken this at a number of localities in the central cordillera, as far west as the Mianmin Range, very close to the border of Indonesia in West Sepik Province. It is likely therefore to also occur in nearby Papua.

Several adult ♂♂ of the new species were seen at the type locality but only one was collected (D. P. A. SANDS, pers. comm. 2013).

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