A new *Prosotas* (Lepidoptera, Lycaenidae) from the islands of Milne Bay Province, Papua New Guinea

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Date of issue online: 16 August 2023
Zoobank Registered: urn:lsid:zoobank.org:pub:E753AF9D-C607-4128-BE33-046B33AF71E7
Electronic copies (ISSN 2575-9256) in PDF format at: https://journals.flvc.org/troplep; https://zenodo.org; archived by the Institutional Repository at the University of Florida (IR@UF), http://ufdc.ufl.edu/ufir; **DOI**: 10.5281/zenodo.8140734
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Abstract: A new polyommatine lycaenid butterfly, *Prosotas cloe* **sp. n**., is described from the Trobriand Islands and eastern Louisiades, Papua New Guinea. The new species bears some superficial similarity to congeners *P. dubiosa* Semper, 1879, *P. nora* Felder, 1860, and *P. patricae* Tennent, 2003, with which it is compared.

Keywords: Lepidoptera; Lycaenidae; Milne Bay Province islands; new taxon; Papua New Guinea; Polyommatini; *Prosotas.*

INTRODUCTION

The polyommatine lycaenid genus *Prosotas* Druce, 1891 comprises *ca.* 20 small or very small species occurring from India and Sri Lanka to Taiwan and eastwards through the southeast Asian islands to New Guinea, Australia, the Solomon Islands, Vanuatu and Fiji. Species may be tailed or tailless. Six *Prosotas* species were reported from Papua New Guinea by Parsons (1998); of these, *P. atra* Tite, 1963, *P. talasea* Tite, 1963, and *P. papuana* Tite, 1963, all have slender hindwing tails. *Prosotas nora* Felder, 1860 is unusual, in that nominotypical *nora* is tailless, but *P. n. caliginosa* Druce, 1891, once considered a distinct species but treated as a subspecies of *P. nora* by Hirowatari (1992: 30), has a filamentous tail. The two remaining Papua New Guinea species, *P. gracilis* Röber, 1886 and *P. dubiosa* Semper, 1879, are tailless.

Two additional tailless species were described by the author (Tennent, 2003) from the New Hebrides Archipelago: *P. russelli*, from Vanuatu (TL: Maewo) and islands of the Santa Cruz group (Solomon Islands), and *P. patricae*, from the island of Futuna, one of the most southerly islands of Vanuatu. During fieldwork on the islands of Milne Bay Province between 2010 and 2016, the author collected 1♂ and 2♀♀ specimens of an undescribed *Prosotas* species at low elevation on the Trobriands and the Calvados chain in the eastern Louisiades, a distribution that suggests it is likely to be widespread. The species bears some superficial similarity to *P. dubiosa*, with which it is compared; all comparisons with other *Prosotas* species are with specimens from the Milne Bay islands.

It is noted that no other *Prosotas* species is recorded from either of the two islands where *P. cloe* is known to occur, but these islands are small and under-recorded and it is quite possible that sympatry with other *Prosotas* species occurs. The new species has been compared with many hundreds of *Prosotas* specimens collected by the author on the islands of Milne Bay, Vanuatu and the Solomon Islands over almost three decades, as well as with the extensive collections of the Natural History Museum, London, United Kingdom.

Prosotas cloe **sp. n**.
(Figs. 1a-d, 2a-c, 8a, 9a)

Diagnosis: Some groups of Pacific polyommatine lycaenids present difficulties in identification (e.g. *Jamides* Hübner, [1819]; *Nacaduba* Moore, 1881). Identification of many, including *Prosotas*, is based on often subtle differences in the arrangement of transverse lines on the under surface. *Prosotas* species are small or very small in overall size, with angular forewings (in comparison to *Jamides* and *Nacaduba*) and prominent marginal markings that are generally diagnostic. This new species is similar to other *Prosotas* species, except as follows. *Prosotas cloe* **sp. n.** is tailless (compared with *P. atra*, *P. talasea*, *P. papuana* and *P. nora caliginosa*); male upperside appears plain dark brown, but close examination under oblique lighting reveals that both fore- and hindwings have a loose scattering of pale blue and pinkish-violet scales, broken by veins (Fig. 1c; unknown in any other *Prosotas* species); broad dark border; underside markings distinctive; hindwing submarginal markings rounded, almost linear (saggitate in associated *Prosotas* species); tornal black spot with associated iridescent scales vestigial or absent (iridescent scales generally more prominent in other *Prosotas* species).

Description: small, in size comparable to *P. patricae*; forewing length 8 mm; antennae with prominent white bands; clubs with area of distinct creamy-white hairs; eyes bordered white; body gray-white dorsally; legs mottled brown/white.
Male upperside appears uniformly dark brown, but viewing obliquely or under a microscope reveals a broad dark border and a loose scattering of pale blue scales, pinkish violet on

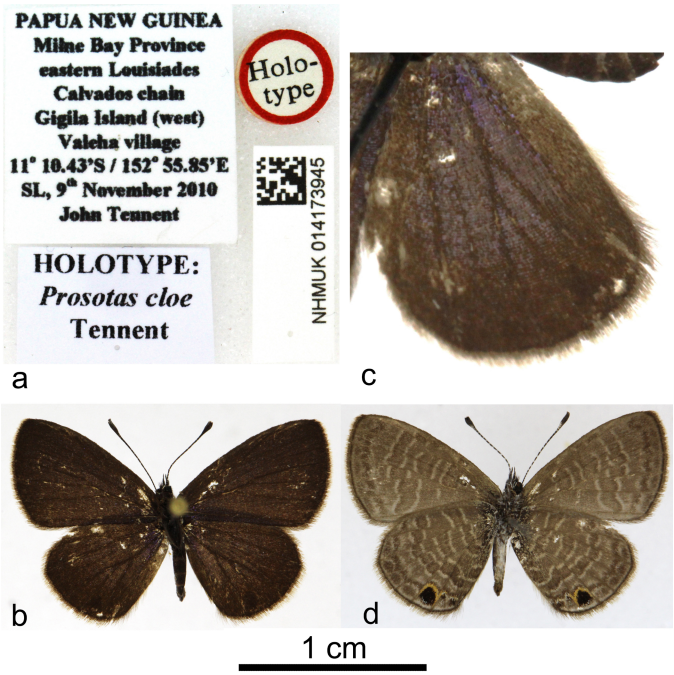

Figure 1. *Prosotas cloe* **sp. n**. ♂ holotype. **a,** labels; **b,** upper surface; **c,** section of hindwing showing blue/violet scales; **d,** under surface.

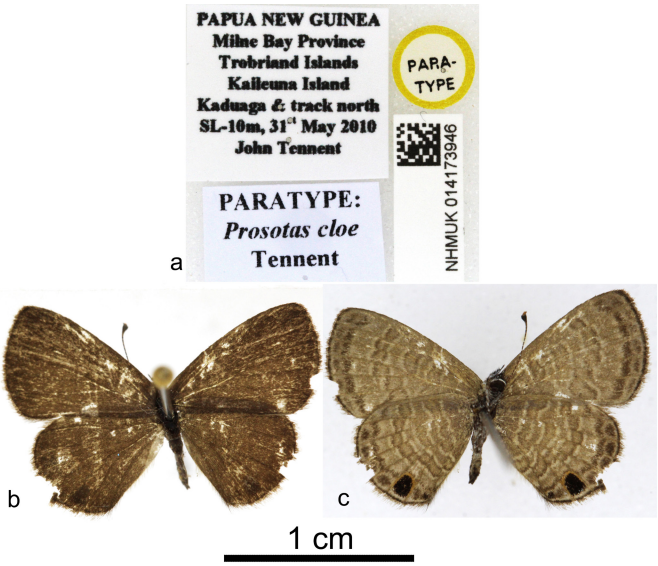

Figure 2. *Prosotas cloe* **sp. n.** ♀ paratype. **a**, labels; **b,** upper surface; **c,** under surface.

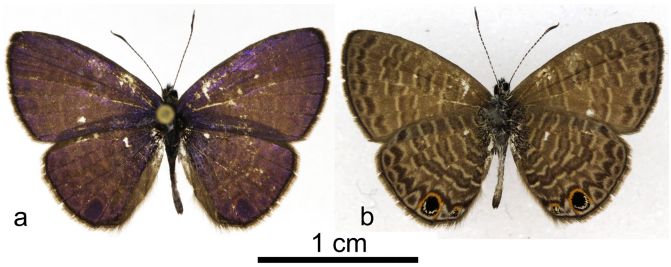

Figure 3. *Prosotas dubiosa* ♂. **a,** upper surface; **b,** under surface.

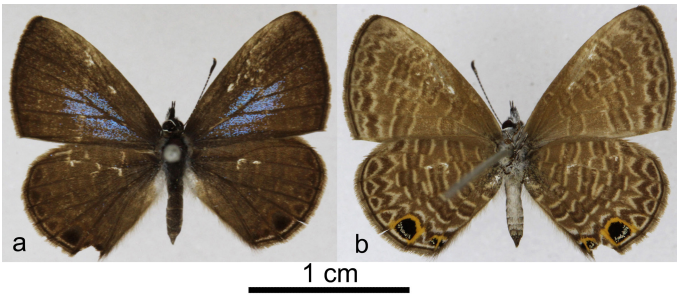

Figure 4. *Prosotas dubiosa* ♀. **a,** upper surface; **b,** under surface.

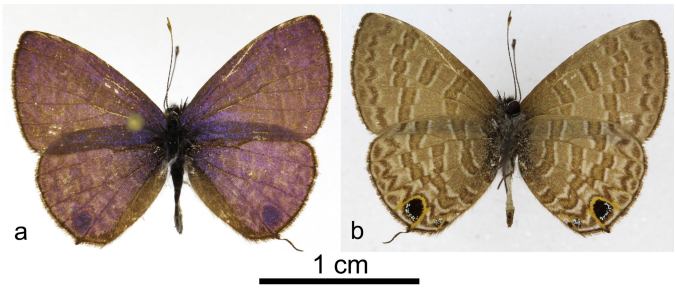

Figure 5. *Prosotas nora* ♂. **a,** upper surface; **b,** under surface.

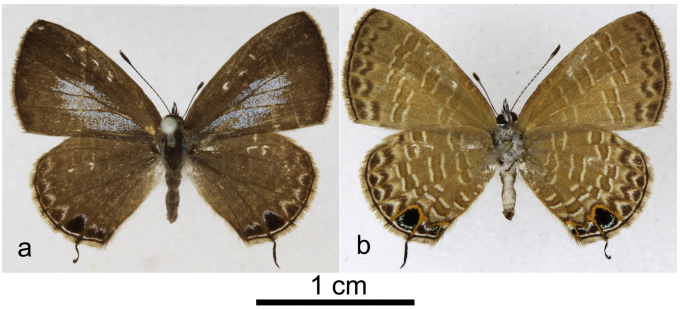

Figure 6. *Prosotas nora* ♀. **a,** upper surface; **b,** under surface.

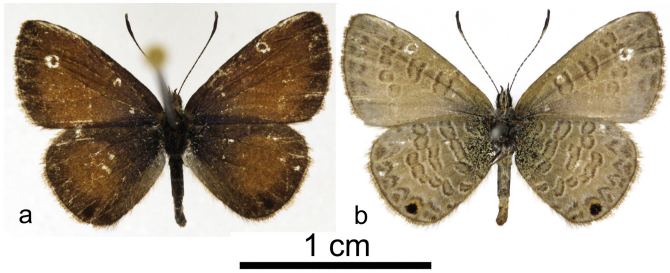

Figure 7. *Prosotas patricae* ♂ paratype. a, upper surface; b, under surface.

hindwing near inner margin (upperside blue in *dubiosa*; dark purple-blue, appearing almost black, with dark border, in *patricae*); underside like *dubiosa*; ground color dark brown; forewing with usual *Prosotas* median and postbasal paired markings, irregular, broad, dark brown, outwardly bordered pale brown (narrower, more regular in *dubiosa*; markings sparse, completely absent from median area above inner margin in *patricae*); submarginal band narrow, indistinct (larger, more prominent in *dubiosa* and *nora*; more spaced, absent towards tornus in *patricae*); hindwing with usual *Prosotas* median and basal markings with irregular but continuous areas of ground color between bands (ground color largely overwhelmed by bands in *dubiosa*; paler, more contrasting in *nora*; bands

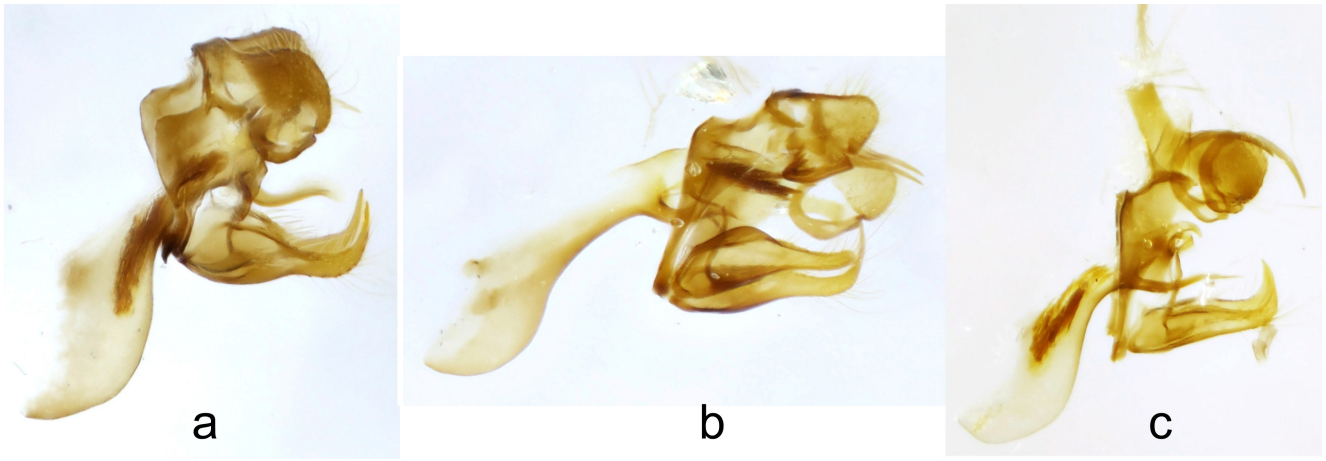

Figure 8. *Prosotas* ♂ genitalia, lateral view. **a,** *Prosotas cloe* **sp. n.**; **b,** *Prosotas dubiosa* (tip of one valve missing); **c,** *Prosotas nora* (vinculum broken).

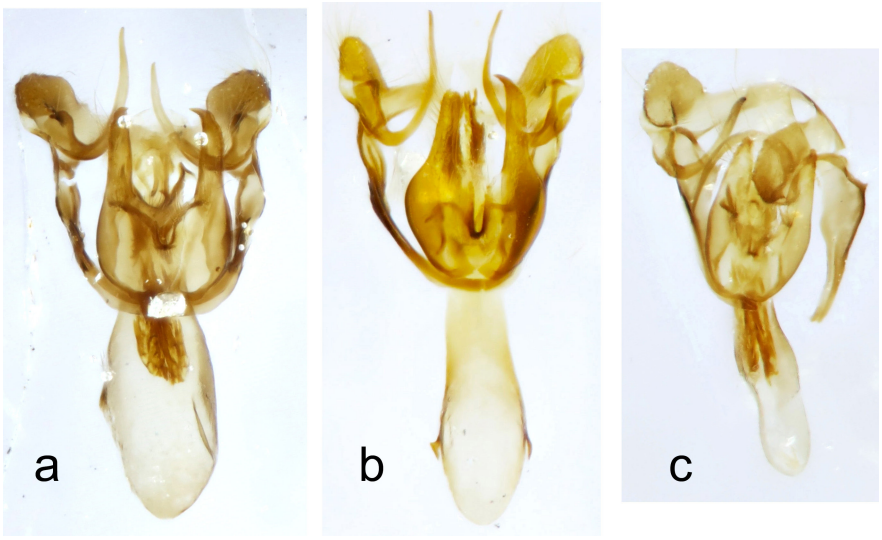

Figure 9. *Prosotas* ♂ genitalia, frontal view. **a,** *Prosotas cloe* **sp. n.**; **b,** *Prosotas dubiosa*; **c,** *Prosotas nora*.

significantly reduced in *patricae*); subtornal black spot large, weakly edged orange basad, with iridescent green scales distad vestigial or absent (spot larger, orange border and iridescent scales more extensive; often with smaller, secondary tornal spot in *dubiosa* and *nora*; tornal spot small, orange border indistinct, iridescent scales absent in *patricae*); submarginal series of dark brown, slightly oval spots, bordered pale brown, with irregular dark brown slightly curved line edged paler distad (spots pyramidal, dark brown line deeply saggitate in *dubiosa* and *nora*; pyramidal, saggitate, often weakly so in *patricae*).

Female similar to male; upperside plain dark brown; underside gray-brown, markings less cluttered than other *Prosotas* species, leaving larger areas of ground color; hindwing underside marginal markings rounded, submarginal line almost linear, segments weakly rounded (deeply sagittate in other *Prosotas* species).

Male genitalia similar to *P. dubiosa* and *P. nora*; valva broad, terminating in slender, but relatively short, inwardly curving blunt point (valva less broad, terminus longer, more slender in *dubiosa*); seen from lateral view, valva slender, terminus short, blunt in *nora*); labides (uncus) sharply stepped (less so in *dubiosa* and *nora*); from frontal view, valvae separated to approximately half length (deeply separated in *dubiosa*; slightly less so in *nora*). *Prosotas cloe* aedeagus with well-defined, prominent area of cornuti along ventral margin (cornuti elongated, at apex of aedeagus in *P. dubiosa*; cornuti less extensive, situated on dorsal margin in *P. nora*). Male genitalia of *P. patricae* dissimilar (see Tennent, 2003: 42).

Type material (1♂, 2♀♀): HOLOTYPE ♂, (1) typed "Papua New Guinea, Milne Bay Province, eastern Louisiades, Calvados chain, Gigila Island (west), Valeha village, 11° 10.43' S / 152° 55.85' E, SL, 9th November 2010, John Tennent"; (2) typed "Holotype: *Prosotas cloe* Tennent"; (3) circular, red-bordered, typed "Holotype";

PARATYPES: 1♀ labelled (1) typed "Papua New Guinea, Milne Bay Province, Trobriand Islands, Kulawa Island, SL, 29th May 2010, John Tennent; (2) typed "Paratype: *Prosotas cloe* Tennent"; (3) circular, yellow-bordered, typed "paratype"; 1♀ labelled (1) typed "Papua New Guinea, Milne Bay Province, Trobriand Islands, Kaileuna Island, Kaduaga & track north, SL-10m, 30th May 2010, John Tennent; (2) typed "Paratype: *Prosotas cloe* Tennent"; (3) circular, yellow-bordered, typed "Paratype".

Holotype and paratypes all in the Natural History Museum (NHM), London, United Kingdom.

Distribution: Papua New Guinea (Milne Bay Province): islands of The Trobriands and Louisiades.

Etymology: *Prosotas cloe* is named for Mlle Claudine Lozach, who very kindly made photographic records of butterflies on several remote Pacific islands in pursuance of the authors planned update of a Pacific butterfly checklist (Tennent, 2006).

DISCUSSION

Parsons (1998: 435-437) recognized the occurrence of six *Prosotas* species in Papua New Guinea and believed all but one of them were generally rare (*P. papuana* was said to congregate in thousands under favorable conditions). The concept of rarity is of limited value in a tropical environment, particularly when related to small, inconspicuous butterflies that fly extremely swiftly and spend significant time in the canopy. It is noted that *P. patricae*, first discovered on the Vanuatu island of Futuna, was extremely fast-flying and only collected eventually at one flowering shrub which individual butterflies visited regularly but very briefly from adjacent high trees (Tennent, 2003). The species was subsequently discovered to be present on New Caledonia (Tennent, 2006) and it is likely that the butterfly is more widespread. The same applies to *P. cloe*, which is highly unlikely to be restricted in distribution to the Trobriands and the eastern Louisiades, on islands several hundred kilometres apart. It is probable that the species may occur on the islands of the D'Entrecasteaux, the western Louisiades and possibly the eastern New Guinea mainland. It is also probable that further species of this genus of small and fast-flying butterflies await discovery.

There is significant diversity, in particular among the Lycaenidae, to be found among the smaller butterfly species in tropical southeast Asia and it is clear from the number of new lycaenid taxa described from New Guinea and associated islands in recent years that the process of discovery, identification and description of new taxa is set to continue for some time to come. In these days of habitat destruction at an alarming rate, all faunae are desperately in need of taxonomic recognition and recording.

ACKNOWLEDGMENTS

The author is grateful to the National Research Institute, the Department of Environment and Conservation, Papua New Guinea Government, and the Provincial Research Committee, Milne Bay Provincial Government, for supporting the author's butterfly research in Milne Bay Province.

The length of time spent in Milne Bay and the large number of islands visited was enabled through the collective generosity of organisations and individuals who provided funding: National Geographic, Washington D.C. (CRE Grant # 8319-07 and GEFNE Grant # 6-11); The Linnean Society, London (Appleyard Fund); The Percy Sladen Exploration Fund, London (Linnean Society); the Natural History Museum, London (Special Funds); the Royal Entomological Society, St Albans (formerly London), the British Ecological Society, London (SEPG No 3651/4516) and, in particular, Martin Jacoby, Somerset, UK.

Alessandro Giusti, NHM London, kindly prepared and photographed genitalia of *P. dubiosa* and *P. nora* (Figs. 8b,c, 9b, c), and two reviewers provided comments on the manuscript.

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