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An unpublished 18th century rearing in Suriname of *Rhuda focula* (Stoll, 1782) (Notodontidae: Heterocampinae)

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DOI:

<https://doi.org/10.18473/lepi.79i1.a6>

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AN UNPUBLISHED 18TH CENTURY REARING IN SURINAME OF *RHUDA FOCULA* (STOLL, 1782)
(NOTODONTIDAE: HETEROCAMPINAE)**Additional key words:** Aanhangsel, *Acharia*, Cramer, *Miconia*, Scheller, Sepp, Surinaamsche Vlinders

In the three volumes of the “*Surinaamsche Vlinders. Papillons de Surinam*” [Surinamese Butterflies] by Jan Sepp ([1815–1843], [1843–1848] and [1848–1852], respectively), rearings of 148 species of Lepidoptera from Suriname (as well as one species from Celebes [now Sulawesi, Indonesia]) were described with their host plants and early stages depicted. As Sepp wrote in the preface of the first book, the data was based upon notes and paintings of H.J. Scheller (except for the species from Sulawesi). Scheller most likely reared the insects in Suriname between 1784 and 1791. Scheller’s original field notes and paintings (technically, they are gouaches (a painting made with opaque watercolour, so that the background is no longer visible) and, therefore, not drawings) as well as handwritten copies of his notes (probably used by researchers in the preparation phase of the *Surinaamsche Vlinders*) are housed in the library of the Netherlands Entomological Society (NEV), presently in Naturalis Biodiversity Center, Leiden, The Netherlands, (Gernaat et al. 2022, Gernaat et al. 2023).

Among the material at the NEV, there is a painting and note by Scheller of a rearing that was not included in the *Surinaamsche Vlinders*. The painting (Fig. 1) includes figures of the dorsal and ventral sides of an imago as well as the lateral view of a last instar larva and pupa. A caption below the lowest larval figure states “H.J. Scheller pinxit” [H.J. Scheller painted this]. The number 128 is in the upper righthand corner. Scheller’s note (Fig. 2), numbered 128, written in 18th century Dutch, says: “I have gotten a sole adult [last instar] of this beautiful caterpillar without knowing what it feeds upon. The caterpillar takes many forms and remains in a posture for a long time before it takes on another one. On 16 December it went into the earth, making an oval bullet [sic!] as large as a pigeon egg, with whitish [threads] spun on the inside. The butterfly emerged on 7 January, so in 22 days.” (translation by first author). Another note (Fig. 3) is in a different handwriting, has a largely similar content and, in the last line, refers to Stoll’s “*Aanhangsel* [Supplement] to Cramer’s *Uitlandsche Kapellen*, plaat [plate] 22 fig 6-pagina [page] 108.305 fig C.” Indeed, in Fig. 6 and 6F of pl. 22 of the *Aanhangsel*, a similar larva is shown and in Fig. 6G a similar pupa (Fig. 4). On p. 108, Stoll states that

these are the early stages of “*Phal. Bombyx. Nesea*”, now in the genus *Acharia* (Limacodidae: Limacodinae), the imago of which is figured on pl. 305 in Fig. C of the *Uitlandsche Kapellen* (Cramer 1780). Stoll mentioned that the larva, in the position shown in Fig. 6F, could often be found on *Banana* (*Musa* Linn.) [sic].

The second author recently reared a male *Rhuda* sp. in Suriname with a larva and pupa that are similar to the ones figured by Scheller and Stoll. The pupal stage lasted 15 days. The host plant was a *Miconia* sp. (Melastomataceae). The habitus of the adult (Fig. 5) is similar to that of *Rhuda focula* (Stoll, 1782) (Notodontidae: Heterocampinae) (Cramer 1780, Becker 2021); note the diagnostic irregular thin black line in the white basal area of the dorsal forewing. The barcode of the reared specimen (voucher RMNH.INS.1108029, GenBank accession number PQ099912) showed a 100% match with a specimen from French Guiana (specimen NS-RR1576), a 99.54% match with specimens from Costa Rica, provisionally identified as *Rhuda focula*DHJ01 (both taxa in BIN ACE9143) and a 98.18% match with specimens from Costa Rica, also provisionally identified as *Rhuda focula* DHJ02 (in BIN AAB2321) (Ratnasingham & Hebert 2007). Since Suriname is the type locality of *Rhuda focula* (Stoll, 1782), we believe that the identity of the reared specimen in Suriname is *Rhuda focula* (Stoll, 1782), that *Rhuda focula*DHJ01 is probably the same species and that the status of *R. focula*DHJ02 is to be further investigated.

It is evident that the data in the *Aanhangsel*, pertaining to the identity of the larvae and pupa in Fig. 6 on pl. 22 is erroneous. *Acharia* spp. have larvae that are quite distinct from those of *Rhuda* spp., with a slug-like sole instead of a series of prolegs and often with spined scoli (Epstein 1996). In addition, it is highly unlikely that banana is a host plant of *Rhuda focula*. Bananas are widely grown in Suriname and the larvae would probably be well-known due to its large size and distinctive coloration. Yet, the species is not mentioned in a book on insect pests of Suriname (Van Dintther 1960). It is not known how Stoll acquired the data on the early stages of the Lepidoptera that were depicted and described in the *Aanhangsel*, but the case of *Rhuda*



FIG. 1. Unpublished painting of H.J. Scheller, probably made between 1784 and 1791 in Suriname, in the library of the Netherlands Entomological Society (NEV), presently housed in Naturalis Biodiversity Center, Leiden, The Netherlands. Note the caption below the lowest larval figure "H.J. Scheller pinxit" [H.J. Scheller painted this] and the number 128 in the above righthand corner.

No 128.

Deze Schoone rups hebbe allen en volwassen be-
 koemen vorder te weten wat se eet - De rups
 neemt veelte hande gedaantes an en blijft lang
 in een potter zitten bevor se ene andere
 an neemt - De 16 Decembar gong se in de aarde
 makende een ovale kogel als een druiven ey ges
 en binne die. haat de kam gespakt. en van
 binne wat witagtig besponnen - De 7 Janneij
 kwam de fopel uit dit in 22 dagen -

FIG. 2. Original field note of H.J. Scheller of rearing No.128.

No 128.

Deze Schoone rups heb allen en volwassen bekomen
 vorder te weten; de rups neemt veelte hande
 gedaantes an en blijft lang in een potter zitten, voor
 dat se een andere aanneemt.

16 Decembar krop zij in de aarde, makende een
 ovale kogel van de groote een druiven ey van binne wat
 witagtig besponnen.

den 7 Janneij kwam de vlinder uit dit in 22 dagen

Aanhangsel plaat 22 fig. 6. - pagina 108. 305 fig. 6.

FIG. 3. Note of H.J. Scheller with references to Stoll's *Aanhangsel* [Supplement] and Cramer's *Uitlandsche Kapellen*, probably used by researchers during the preparation phase of Sepp's *Surinaamsche Vlinders*.FIG. 4. Figure 6, 6G and 6F of Plate 22 of Stoll's *Aanhangsel* [Supplement], stated to be the early stages of *Phal. Bombyx. Nesea* [sic], now *Acharia nesea* (Stoll, 1781) (Limacodidae: Limacodinae).

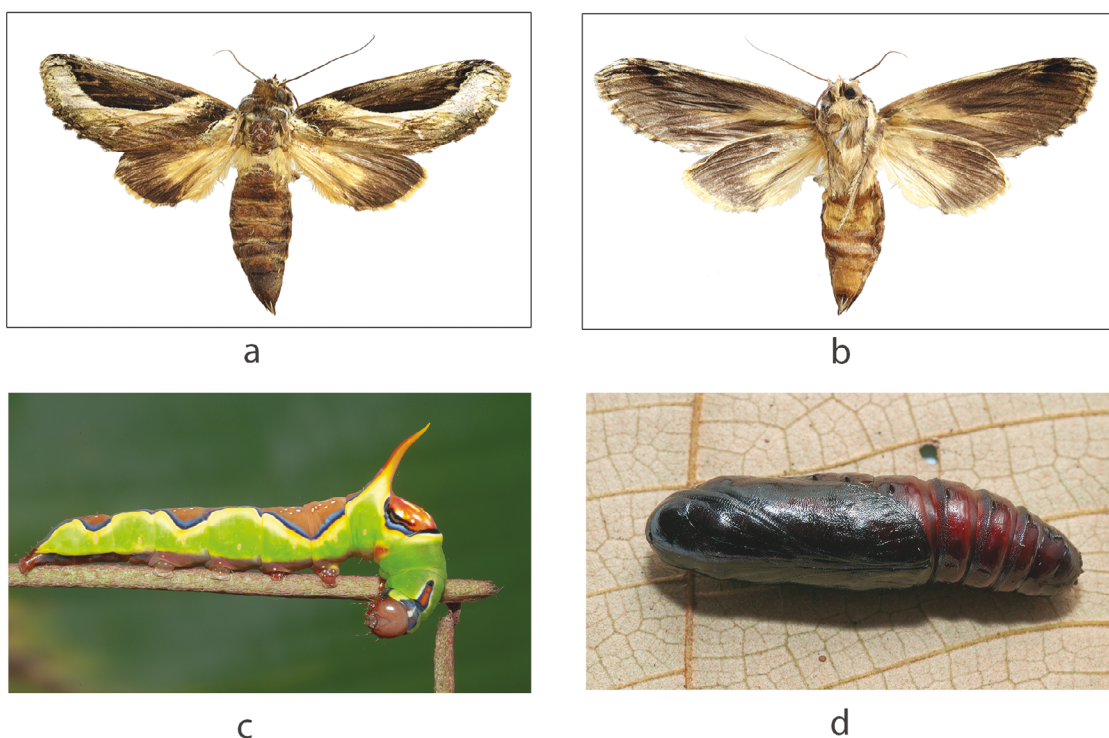


FIG. 5. Rearing of *Rhuda focula* (Stoll, 1782) in Suriname. **a:** male, dorsal side, trail from road to Kraka near Zanderij Airport, Suriname, eclosion 13 August 2018; forewing length 26 mm; **b:** same, ventral side; **c:** fifth (last) instar larva (length 45 mm), lateral view, 16 July 2018; **d:** pupa (length 27 mm), ventrolateral view, 11 August 2018.

focula illustrates it is highly unlikely that it came from Scheller.

Scheller's rearing of *Rhuda focula* makes a case in point in that data on early stages or host plants in Stoll's *Aanhangsel* should be interpreted with caution and preferably be backed by more recent data.

ACKNOWLEDGEMENTS

We are grateful to Godard Tweehuysen and Danny Boomsma, who searched the libraries of Naturalis and the Netherlands Entomological Society (NEV) for documents related to the *Surinaamsche Vlinders* and to two anonymous reviewers. This research has been made possible by a grant from the Uyttenboogaart-Eliassen Foundation.

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Submitted for publication 4 August 2024; revised and accepted 7 December 2024; published 18 March 2025.