

## **Notes on the Early Stages of *Antichloris eriphia* (Erebidae: Arctiinae) in Suriname**

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## NOTES ON THE EARLY STAGES OF *ANTICHLORIS ERIPHIA* (EREBIDAE: ARCTIINAE) IN SURINAME

**Additional key words:** Arctiini, Canna, Maranta, Surinam, Neotropics

The genus *Antichloris* Hübner, 1818 (Erebidae: Arctiinae: Arctiini: Ctenuchina) has 27 species and is distributed from Mexico to Bolivia and Brazil with one species in Cuba and one in Guadeloupe (Draudt 1917, Schaus 1938, Field 1975, Chalumeau & Delplanque 1978). Two species (*A. eriphia* (Fabricius, 1777) and *A. viridis* Druce, 1884) are known pests in banana plantations and have been reported from western countries as an accidental import with bananas (Lempke 1968, Field 1975, Barnett 1986). *A. eriphia* is distributed from Ecuador and Colombia to Bolivia, Paraguay and SE Brazil (Draudt 1917, Watanabe 2007). Although Sepp (1843–1848, pp. 145–146, pl. 69) figured the early stages from Suriname, to our knowledge these have not been described in detail.

On 15 July 2015 in a garden at the Mathoeralaan, Paramaribo, Suriname (5°49'15.91"N, 55°12'21.97"W, 6 m asl), the second author observed a small, white-haired larva on a *Canna* × *generalis* L.H. Bailey & E.Z. Bailey (Cannaceae) (Fig. 1a). A herbarium voucher (Vandenheuvel001) was collected and deposited at the herbarium of Naturalis Biodiversity Center in Leiden, the Netherlands. The larva was reared and fed only with leaves of the host plant. Larval length was measured from the anterior end of the head capsule to the anal plate. Stages were photographed with a Nikon D300s camera, an AF Micro Nikkor 105 mm 1:2.8 D lens and a SB-800 flash. Photographs were made in NEF-format and converted to TIF-files in the same color space after minor retouching and adjustments of exposure, contrast and sharpening.

**Antepenultimate instar** (Fig. 1b). General appearance of a white body with varying hues of dark green due to ingested plant matter and many tufts of long, soft, light gray to white setae. Head capsule pale orange, details of head obscured due to setae. Thorax and abdomen creamy white to light gray, lateral and subventral areas as well as intersegmental membranes light orange-brown; irregular middorsal light orange-brown stripe, interrupted on caudal one third to half of each segment; caudally on abdominal segments bordering intersegmental membrane a vaguely demarcated, narrow white transverse band extending unto subdorsal area. T1 with light gray prothoracic shield and subventral verruca with short, barbed setae. T2 and T3 with light gray subdorsal, lateral and

subventral verrucae; subdorsal verrucae of both sides connected by a sharply demarcated, transverse “bridge,” slightly concave anteriorly; subdorsal verrucae with many soft setae, some as long as five body segments, bearing multiple barbs and, interspersed with these, some dark gray, non-barbed setae of similar length; lateral and subventral verrucae with barbed setae. Abdomen with light gray to white prolegs on A3–A6 and A10. On A1–A8, dorsally a small verruca on anterior half of segment close to middorsal stripe, bearing non-barbed setae, about one third the length of an abdominal segment; subdorsally on caudal half of segment a larger verruca with multiple, non-barbed setae, 50–100% the length of an abdominal segment, as well as up to four soft, non-barbed, slightly curled, dark gray setae, on A1–A6 about half as long as an abdominal segment and on A7–A8 up to two segments long; laterally on anterior half of the segment, a large verruca with short (equivalent to about half a body segment), non-barbed setae, as well as long (up to five body segments), barbed setae projecting inferolaterally; subventrally and above proleg when present, a small verruca with barbed setae projecting inferolaterally. On A9, the small dorsal verrucae close to the midline are missing. Anal plate white.

When found on 15 July 2015, the larva was 18 mm long, solitary, inactive, exposed on the upperside of a leaf, about midway between the central vein and the leaf margin. In the evening it fed, producing round, oval or triangular holes in the leaf. On 16 July, the larva was 14 mm long, inactive, its body whitish, probably due to having voided its digestive system. It molted in the morning of 17 July.

**Penultimate instar** (Fig. 1c–e). Head capsule: vertices and frons light orange, no spines or scoli; at base of frons on either side a red-brown spot; clypeus light orange, anteclypeus red-brown with dark brown spots; labrum white with upper side convex, maximum width 63% of base of clypeus, length 88% of maximum width, cleft to 21% of length; six stemmata, stemmata 2–4 dark purple-red, others gray, stemma 3 the largest and nearer to 4 than to 2, 5 shifted ventrally and rostrally toward antennal base and nearer to 6 than to 4; basal and apical segments of antennae transparent light gray, middle segment light yellow. Thorax and abdomen in newly molted larva creamy white to light yellow with

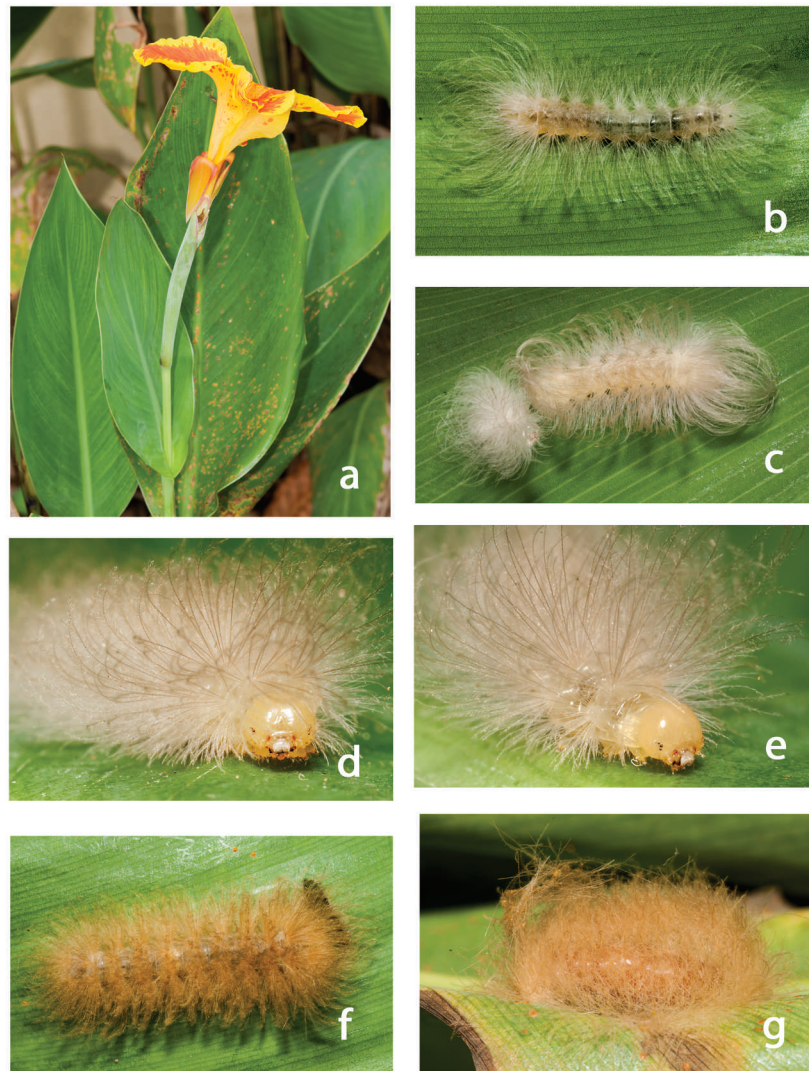


FIG. 1: Host plant and late larval stages of *Antichloris eriphia* (Fabricius, 1776) in Paramaribo, Suriname. **a:** *Canna x generalis* L.H. Bailey & E.Z. Bailey; **b:** antepenultimate instar (18 mm, head at left), 15 July 2015; **c:** newly molted penultimate instar (15 mm, exuviae at left, head at right), 17 July 2015; **d:** penultimate larva (24 mm), anterior view, 20 July 2015; **e:** penultimate larva, antero-lateral view, 20 July 2015, note subdorsal, lateral and subventral verrucae on T2; **f:** ultimate instar (31 mm, head at right), 24 July 2015; **g:** cocoon (length 21 mm, height 12 mm) with pupa, 30 July 2015. Photographs by second author.



FIG. 2: Eclosed male *Antichloris eriphia* (Fabricius, 1776) (forewing length 18 mm, wingspan 38 mm; antennae mended) in Paramaribo, Suriname. **a:** dorsal view; **b:** ventral view. Specimen deposited in Naturalis Biodiversity Center, Leiden, Netherlands.

irregular light brown areas laterally, brown middorsal stripe present on anterior one third on A2–A3 and restricted to oval brown spot on A5–A8. After some feeding bouts, the lateral and subventral area was light orange, the (sub)dorsum mottled gray-green, the middorsal stripe from T3 to A8 dark green and the white transverse bands caudally on A1–A7 had reappeared, anteriorly vaguely and caudally sharply demarcated. Dorsally on A5, anteriorly on either side of the middorsal stripe, a paired, oval, creamy white structure shining through, probably the testes. Distribution of verrucae as in previous instar. Up to ten, curled, dark gray setae, about two segments long, with multiple tiny barbs arise from the subdorsal verrucae on T2–A8; otherwise, setae as in previous instar.

In the morning of 17 July, the larva measured 15 mm long (Fig. 1c). From 12.15 to 12.20 hrs, it consumed its exuviae. In the evening, it measured 17 mm long and started feeding from the *Canna* leaf. On 18 July, the larva moved about considerably and fed little during the day, in the evening it had returned to the *Canna* leaf. On subsequent days, it stayed on the host plant and fed mainly during the evening and night. On 19 July, its length was 20 mm and on 20 July 24 mm. On 21 July, the larva was 18 mm long, inactive, with a white body after having voided its digestive system. It molted during the night.

**Ultimate instar** (Fig. 1f). Body and verrucae as in previous instar. The dark gray setae and part of the white setae of previous instars had been replaced by red-brown setae, which arose from all verrucae and were greatly increased in number; the distal third to half curved back from vertical except on T2–A1, where the curve was directed anteriorly.

On 22 July the larva remained largely inactive. During the next days it ate well. On 23 July it measured 28 mm long and on 24 July 31 mm. On 27 July, it had stopped eating, was inactive and measured 26 mm long.

**Pupa and cocoon** (Fig. 1g). In the morning of 28 July, the larva had made a light red-brown cocoon (length 21 mm, height 12 mm), that was attached to the upperside of the *Canna* leaf. The wall of the cocoon consisted of rather loosely interwoven setae of all types, not specifically directed outwards. On 30 July, the larva turned into a light-colored 14 mm pupa. On 6 August the pupa had darkened.

**Imago** (Fig. 2). In the morning of 7 August, a male *Antichloris eriphia* eclosed (forewing length 18 mm, wingspan 38 mm). Some diagnostic features (after Hampson (1898)): Overall appearance black, diffused with deep metallic bronze-green, especially abdomen. **Head:** proboscis well developed; first segment of labial palpi largely and second segment at its base covered

with creamy-white setae. **Thorax:** lateroventrally on T1 a tuft of bright red setae; innerside of legs white-yellow including base of coxa. **Abdomen:** A1 expanded dorsolaterally (“lateral tubercles”); middorsally a longitudinal green band; dorsolaterally a white spot on A2; laterally a green band from A3 to A9; subventrally from A2 to A4 broad, white bands, on A5 and A6 only caudally. **Hindwing** (males only): outer margin acute opposite cell; rostral half pale gray with long setae.

**Duration of stages.** Antepenultimate instar at least 2 days, penultimate instar 5 days, ultimate instar 6 days, pupa 11 days.

For *A. eriphia*, the following host plants have been recorded: *Canna indica* L. (Brazil), *Musa* sp. (British isles), *Musa x paradisiaca* L. (Musaceae) and *Plantago* sp. (Plantaginaceae) (cosmopolitan) (Robinson et al. 2010) as well as *Heliconia latispatha* Benth. (Heliconiaceae) (SE Brazil) (Watanabe 2007). The host plant we found, *Canna x generalis*, is a cultivar related to *C. indica* and widely used as an ornamental plant. For Suriname, Sepp mentioned and figured “Indiaansche Tayer,” *Maranta arundinacea* L. (Marantaceae) (arrowroot) (Sepp 1848, p. 145, van Andel & Ruyschaert 2011). He also mentioned “Jurca-bessies,” probably referring to “yorka pesi,” *Senna occidentalis* (L.) Link (Fabaceae). The latter record requires confirmation as the relationship between Fabaceae and Zingiberales is quite distant.

Only on 18 July, the *A. eriphia* larva exhibited some wandering, but otherwise remained on the host plant. Therefore, we had no evidence for individual polyphagy. Additional research is required to document the early larval stages, possible larval variation and parasitoids.

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