



Systematics, Morphology and Biogeography

A new species of *Aguna* Williams (Lepidoptera, HesperIIDae) from Panamá belonging to the “*claxon* group”



Ricardo Russo Siewert*, Gabriela Lourenço Leviski, Olaf Hermann Hendrik Mielke, Mirna Martins Casagrande

Laboratório de Estudos de Lepidoptera Neotropical, Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, PR, Brazil

ARTICLE INFO

Article history:

Received 6 April 2015

Accepted 4 August 2015

Available online 9 October 2015

Associate Editor: Luis Parra

Keywords:

 Butterfly
 Central America
 Eudaminae
 Skippers
 Taxonomy

ABSTRACT

A new species of *Aguna* Williams, 1927 from Panamá is described: *Aguna prasinus* Siewert, Leviski, Mielke & Casagrande, sp. nov. Illustrations of adults and male genitalia are provided. A dichotomous key for the male *Aguna* species for the “*claxon* group” is also provided.

© 2015 Sociedade Brasileira de Entomologia. Published by Elsevier Editora Ltda. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

Aguna Williams, 1927 (HesperIIDae: Eudaminae) is a Neotropical genus of skippers currently comprised by 26 known species (Mielke, 2005). Austin and Mielke (1998) partially revised the genus and recognized ten species groups based on the shape of the wings and in the general pattern of the male genitalia morphology. Among them, the “*claxon* group” includes three greenish species, *A. claxon* Evans, 1952, *A. clina* Evans, 1952 and *A. latifascia* Austin and Mielke, 1998. This group is characterized by the lobed tornus of the hind wing and a well-defined white discal band on the ventral hind wing. Furthermore, the male genitalia has a long and thin gnathos, the valva possess a smooth and rounded process of the ampulla, the harpe overlap the interior surface of the ampulla and the aedeagus has bristles on the right side (Austin and Mielke, 1998).

This paper aims to describe a new species of *Aguna* from Panamá that belongs to the “*claxon* group”. Detailed illustrations of the adults, male genitalia, diagnosis, distributional information, remarks and a dichotomous key are provided.

Material and methods

For genitalia dissection, the abdomen was detached and soaked in a heated 10% potassium hydroxide solution (KOH) for about

5 min. Subsequently, the abdomen was dissected and the genitalia removed to analyze its structures. After examination, the genitalia was stored in vials with glycerol. The illustrations were prepared with the aid of a camera lucida attached to a stereoscopic microscope. Genitalia terminology follows Carneiro et al. (2013). The specimens studied belongs to the following collections:

OM – Olaf Hermann Hendrik Mielke collection, Curitiba, Paraná, Brazil.

USNM – National Museum of Natural History, Smithsonian Institution, Washington, D.C., USA.

Taxonomy

Aguna prasinus Siewert, Leviski, Mielke & Casagrande **sp. nov.** (Figs. 1–9)

Diagnosis. *A. prasinus* **sp. nov.** can be distinguished from the other *Aguna* of the “*claxon* group” by the following characters: the white discal band on the ventral hind wing as narrower than in *A. latifascia* (Fig. 12), similar to *A. claxon* (Fig. 10) and *A. clina* (Fig. 11) but with the anterior portion thinner than the last two species, and the valva with the dorso-proximal process of harpe narrower and triangular.

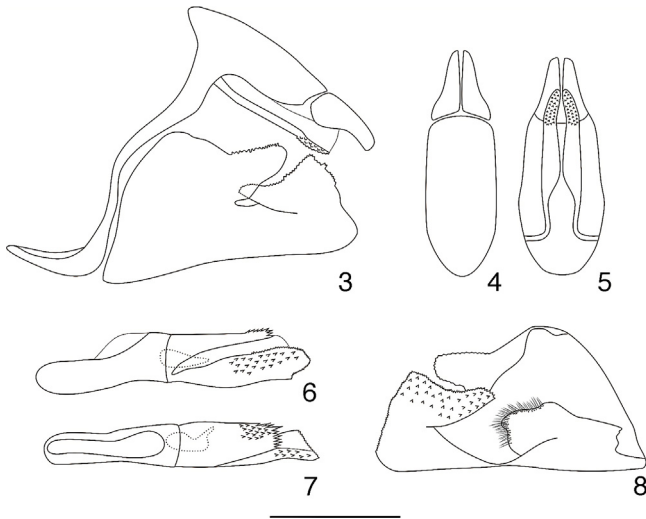
Male description. Head: green metallic with some sparses yellow scales; eyes glabrous, dark brown; first and second segments of labial palpus mixed with dark brown and creamy scales, third segment entirely dark brown, porrect; antenna dorsally

* Corresponding author.

E-mail: ricardo.siewert@gmail.com (R.R. Siewert).



Figs. 1–2. *Aguna prasinus* Siewert, Leviski, Mielke & Casagrande, sp. nov. (1) dorsal view and (2) ventral view. Scale bar = 1 cm.



Figs. 3–8. Male genitalia of *Aguna prasinus* sp. nov. (3) Lateral view; (4–5) tegumen, uncus and gnathos; (4) dorsal view; (5) ventral view. (6–7) Aedeagus; (6) lateral view; (7) dorsal view. (8) Internal view of left valva. Scale bars = 1 mm.

dark brown and apical third ventrally creamy, nudum 20–22 ($n=4$).

Thorax: dorsally green metallic with sparse brown scales, ventrally yellowish; legs brown.

Forewing: 22–23 mm (Holotype 23 mm), average length = 22.5 mm ($n=4$). Upper side: background color brown; basal area with sparse green metallic scales; hyaline spots pale yellow; two rectangular spots between the costal margin and vein R; rectangular spot in discal cell; falciform spot in M_3 - CuA_1 , this one, distally separated from the discal spot by more than double of its width; squared spot in CuA_1 - CuA_2 , this broad and slightly excavate at its distal margin; one smaller triangular spot

in CuA_1 -2A; two subapical spots in R_1 - R_2 and R_2 - R_3 , no spot in R_3 - R_4 , another small spot offset far distally in R_5 - M_1 ; fringe brown. Underside: similar to upper side, but paler; anal margin light brown.

Hind wing. Upper side: background color brown; sparse green metallic scales occupying about 2/3 of its surface. Underside: background color paler brown; darker scales between CuA_2 to anal margin; slightly irregular white band between $Sc+R_1$ -2A, with the thin anterior portion; anal margin with creamy scales.

Abdomen: dorsally dark brown with sparse green metallic scales, ventrally mixed with dark brown and creamy scales.

Male genitalia (Figs. 3–8): tegumen dorsally rectangular; uncus bifid, short; gnathos narrow; valva squared, ampulla separated from harpe, the latter overlap the interior surface of ampulla in a dorso-proximal process, dorsal margin serrated, sacculus with thin hair-like scales in distal margin; aedeagus cylindrical, coecum about the half length of aedeagus, row of small bristles dorsally on the distal end, cornutus present.

Female. Unknown.

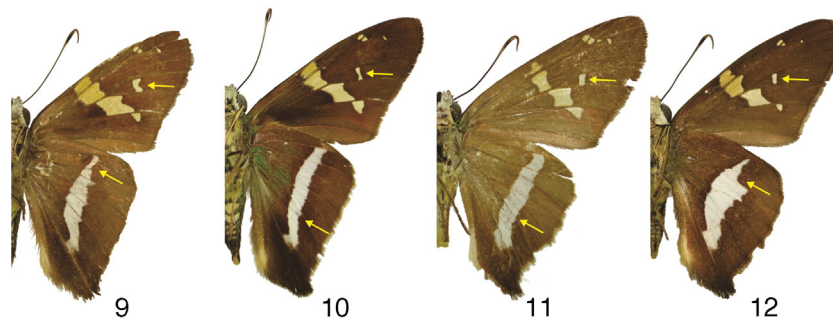
Type material. Holotype male with the following labels (separated by transversal bars):/HOLOTYPUS/*A. prasinus* Siewert, Leviski, Mielke & Casagrande det. 2015/PANAMA: [Darién], Darién Cana 1200 m 13.I.1984 leg. G. B. Small. Deposited at the USNM. Paratypes. PANAMA – Darién, Darién Cana, 1200 m, 1 male, 14-IV-1983, Small leg. (USNM). Darién Cana, Cerro Pirre, 7° 56'N, 77° 43'W, 1000 m, 1 male, 23-VIII-1982, Small leg., (USNM) 1 male, 5-IX-1982, OM 45.488 (OM).

Etymology. The specific epithet is from the Ancient Greek *prasinus*, light green, in reference to the greenish color on the dorsal wings.

Distribution. This species is currently known only from its type locality, Darién Cana, Darién, Panama.

Remarks. *A. prasinus* sp. nov. clearly belongs to the “claxon group” based on the morphology of wings and male genitalia pattern. Externally, *A. prasinus* is most similar to *A. claxon* and *A. clina* but can be distinguished by the width of the white discal band on ventral hind wings (Figs. 9–11). The morphology of the male genitalia, especially the valva, is most similar to *A. latifascia* but the white discal band on the ventral hind wings is broader and irregular in the latter (Fig. 12) (Austin and Mielke, 1998).

As already pointed out by Austin and Mielke (1998), several *Aguna* species are very similar superficially, and for a correct identification to the specific level a detailed study of the genitalia morphology is required. That is the case for the four known species from the “claxon group” and it is important to note that probably new cryptic species are waiting to be described.



Figs. 9–12. Detail of the underside of the wings of *Aguna* species from the “claxon group”. (9) *Aguna prasinus* sp. nov.; (10) *Aguna claxon* Evans, 1952; (11) *Aguna clina* Evans, 1952; (12) *Aguna latifascia* Austin & Mielke, 1998. Scale bar = 1 cm.

Key to the male *Aguna* species of “claxon group” (modified from Austin and Mielke, 1998)

1. Dorsal wings brighter green, dorso-proximal process of harpe pointed distally . . . *A. claxon*
 - Dorsal wings dull blue-green, dorso-proximal process of harpe broadly rounded distally. . . 2
2. Ventral hind wing white band very broad and irregular . . . *A. latifascia*
 - Ventral hind wing white band of moderate width, relatively regular . . . 3
3. Dorso-proximal process of harpe very broad and rounded distally. . . *A. clina*
 - Dorso-proximal process of harpe narrower, triangular . . . *A. prasinus* **sp. nov.**

Conflicts of interest

The authors declare no conflicts of interest.

Acknowledgements

RRS (fellowship process 140223/2013–4), GLL (134752/2013–9), OHHM (304639/2014–1) and MMC (308247/2013–2) thank to Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) for the grant support.

References

- Austin, G.T., Mielke, O.H.H., 1998. *Hesperiidae of Rondônia, Brazil: Aguna Williams (Pyrginae), with a partial revision and descriptions of new species from Panama, Ecuador and Brazil*. *Rev. Bras. Zool.* 14, 889–965.
- Carneiro, E., Mielke, O.H.H., Casagrande, M.M., 2013. Thorax and abdomen morphology of some Neotropical Hesperiiidae (Lepidoptera). *Insecta Mundi* 327, 1–47.
- Mielke, O.H.H., 2005. *Catalogue of the American Hesperioidea: Hesperiiidae (Lepidoptera)*, vol. 1–6. Sociedade Brasileira de Zoologia, Curitiba.