Research Article / Artículo de Investigación

A new species of *Eprius* Godman, 1901 (Lepidoptera: Hesperiidae) from the Brazilian Atlantic Forest

Nueva especie de *Eprius* Godman, 1901 (Lepidoptera: Hesperiidae) de la Mata Atlántica brasileña

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Abstract. A new species of skipper butterfly from the Brazilian Atlantic Forest belonging to the subtribe Moncina (Lepidoptera: Hesperiidae: Hesperiinae: Hesperiini) is herein described: *Eprius punctula* Medeiros, Gualberto & O. Mielke **sp. nov.** The new species has a color pattern similar to other species in the genus, differing by the presence of a small yellow spot at the distal end of the discal cell on the dorsal and ventral surfaces of the forewing (absent in some specimens). The male and female genitalia are similar to those of *Eprius repens* (Evans, 1955), but the spined projection near the proximal-ventral margin of the harpe and the approximately straight distal margin of the lamella postvaginalis are exclusive traits of *E. punctula* **sp. nov.** Illustrations of the adults and genitalia of both sexes and the male stigma are provided.

Key words: Morphology; Neotropical; new taxa; skippers; taxonomy.

Resumen. Se describe una nueva especie de mariposa hespérida de la Mata Atlántica brasileña perteneciente a la subtribu Moncina (Lepidoptera: Hesperiidae: Hesperiinae: Hesperiini): *Eprius punctula* Medeiros, Gualberto y O. Mielke **sp. nov.** La nueva especie tiene un patrón de coloración similar al de otras especies del género, diferenciándose por la presencia de una pequeña mancha amarilla en el extremo distal de la celda discal en las superficies dorsal y ventral del ala anterior. (ausente en algunos especímenes). Las genitalias del macho y de la hembra son similares a las de *Eprius repens* (Evans, 1955), pero la proyección con espinas cerca del margen proximal-ventral de la harpe y el margen distal ligeramente recto de la lamella postvaginalis son características exclusivas de *E. punctula* **sp. nov.** Se proporcionan ilustraciones de los adultos y la genitalia de ambos sexos, y del estigma masculino.

Palabras clave: Hespérido; morfología; neotropical; nuevos taxones; taxonomía.

Introduction

Eprius Godman, 1901 is a small Neotropical genus belonging to the subtribe Moncina (Lepidoptera: Hesperiidae: Hesperiinae: Hesperiini) originally proposed to accommodate only the type species, *Eprius veleda* (Godman, 1901). Godman (1901) used characters from

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wings venation and shape and labial palpus to define the genus, and the bipartite stigma and elongated scales along vein 2A of the dorsal hindwing in males were the most relevant characters. Evans (1955) expanded the diagnosis of the genus, providing characters of the antenna, midtibia, and labial palpus, and described a new subspecies, *Eprius veleda palta* Evans, 1955, a synonym of *Eprius obrepta* (Kivirikko, 1936, a taxon overlooked by Evans (1955) (Mielke 1992). Recently, based on phylogenetic analyses using molecular data, the classification of skippers has undergone profound changes, and several new species have been described (Zhang *et al*. 2022, 2023a, b). Consequently, until the present study, *Eprius* comprised six species distributed from Mexico to southern Brazil (Mielke 2024a, b).

In this study, we expand the number of *Eprius* species to seven by describing a new species from the Atlantic Forest of the Brazilian state of Espírito Santo, thus contributing to the knowledge of the still poorly known biological diversity of the Neotropical region.

Material and Methods

We analyzed eleven specimens (9 males and 2 females) from the Padre Jesus Santiago Moure collection (DZUP), Universidade Federal do Paraná, Curitiba, Paraná, Brazil. The specimens were morphologically studied under a stereomicroscope. For the dissection of the genitalia, the abdomen was removed and boiled in a 10% potassium hydroxide (KOH) solution until softening and whitening of the structures. Images of the stigma and male and female genitalia were captured using a digital camera (Leica DFC 500), with the assistance of Leica LAS 3D view and LAS montage version 4.7 software as a focus stacking system. A digital camera (Canon EOS Rebel T5) was used for other photographs. The terminology for veins, wing cells, and the male and female genitalia follows Carneiro *et al*. (2013).

Results and Discussion

Eprius punctula Medeiros, Gualberto & O. Mielke **sp. nov.**
(Figs. 1-4)

Description. Male (Figs. 1a-b, 3): forewing length 11.5–12.5 mm (n = 9). Head: dorsally dark brown, with yellow, elongate scales at the center of vertex, around anterior chaetosema, and at transfrontal and frontoclypeal sutures; frons dark brown; gena cream to white. Antenna a little longer than half of forewing costa, dark brown, ventrally yellow at base of club, and apiculus; nudum with 12 to 13 segments. Labial palpus first and second segments ventrally mixed with brown and yellow scales, laterally yellow with long black scales between the lateral and ventral surface; third segment brown (with few scattered yellow scales on the holotype), short and conical. Thorax*:* dorsally dark brown, ventrally mixed with brown, grey, and yellow scales. Legs dorsally brown, ventrally grayish; foretibia with epiphysis; midtibia spined with a pair of apical spurs; hind tibia spined with pairs of median and apical spurs. Dorsal forewing (Fig. 1a) ground color dark brown, darker around the stigma; a single tiny yellow spot at the end of discal cell (present in the holotype, allotype, and five paratypes); three small apical spots formed by a few (sometimes one or two) yellow scales from R_3 to M_1 and two postdiscal spots in M_3-CuA_1 and CuA_1-CuA_2 (some or all of these spots may be absent). Stigma grayish, composed of two parts: one upper, sagitated at the base of CuA_1–CuA_2, with a triangular broad proximal half followed by a narrow distal portion touching the origin of CuA_1 (Figs. 2a-b); the other lower, elongated, narrow, originating near the origin of CuA_2 and extending distally to the middle of the upper one (Figs. 2a-b). Marginal line slightly darker than the ground color. Fringe light brown. Dorsal hind wing (Fig. 1a) ground color uniformly dark brown, unmarked, with a concentration of long scales along 2A. Marginal line and fringe as on dorsal forewing.

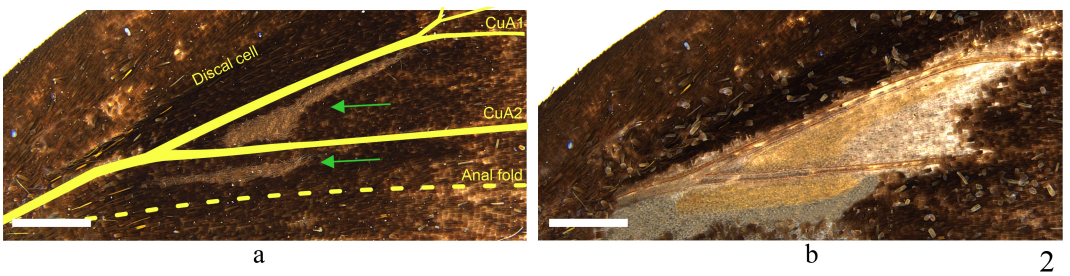
Ventral forewing (Fig. 1b) ground color dark brown, paler between CuA_2 and anal margin, with scattered grayish scales along costa, in the anterior portion of discal cell, and at apex; spots as on dorsal forewing. Marginal line dark brown, distally bounded by a thin white stripe. Fringe dark brown at the base, appearing to form a second marginal line, distal half lighter. Ventral hind wing (Fig. 1b) ground color dark brown, paler between the lower half of CuA_2–2A and 2A, with scattered grayish scales. Marginal line and fringe as on ventral forewing. Abdomen: dorsally brown, with the base densely covered by elongated scales; ventrally greyish to yellowish, with an inconspicuous median longitudinal brown stripe. Genitalia (Fig. 3): tegumen rectangular, shorter than wide, with a straight proximal margin (Fig. 3a); ventral arm of tegumen straight, wider than dorsal arm of saccus (Fig. 3c). Saccus shorter than tegumen+uncus, ventrally broad, twice as wide as aedeagus (Fig. 3b). Uncus undivided, distally directed downward; base approximately one-third the width of tegumen; distal portion with a deep lateral constriction before apex (Fig. 3a). Gnathos divided, as long as uncus; arms converging towards the apex (Figs. 3b-c); base broad in lateral view, about four times wider than apex (Fig. 3c). Valva shaped like a parallelogram (Fig. 3c); costa narrow, distally fused with ampulla; sacculus triangular, twice as long as wide; ampulla distally rounded, fused with harpe, from which it is separated by an internally serrated fold, at least in the distal half (Fig. 3d); harpe approximately as long as the sacculus, with a prominent spined cylindrical projection near the proximal-ventral margin (Fig. 3d). Aedeagus approximately as long as valva, straight in dorsal view (Fig. 3f), with the coecum downward curved and narrower than rest of aedeagus ; dorsal margin between the insertion of manica and distal margin of the opening of ejaculatory bulb laterally flattened, forming a dome-shaped, prominent projection (Fig. 3f); distal end with a complex structure of toothed and strongly sclerotized flaps (Figs. 3e-h); in lateral view, the flaps are inclined, forming an angle of approximately 45° with the longitudinal axis of the aedeagus (Figs. 3f, 3h); ejaculatory bulb opening ovoid, separated from the proximal end of aedeagus by a short distance; insertion of the manica at the median portion of the aedeagus. Fultura inferior sclerotized, U-shaped.

Female (Figs. 1c-d, 4): forewing length 11.5–12.0 mm (n=2). Similar to male, differing by the absence of stigma, the more elongated spot in the forewing discal cell (when present), and the slightly wider marginal line on the ventral surface of wings. Genitalia (Fig. 4): tergum VIII triangular, with an incomplete spiracular opening (Fig. 4b). Sterigma rectangular, wider than long (Fig. 4a). Lamella antevaginalis formed by two lateral sclerotized spoon-shaped regions, medially connected by a narrow, sclerotized bridge, which surrounds distally a rectangular area at the base of which the ostium is inserted. Lamella postvaginalis quadrate; distal margin with a median spine-like projection; basal half with a median circular area bordered by folds of the lamella postvaginalis and a narrow distal membranous stripe; in the middle of the median circular area, there is a triangular groove that leads to the ostium opening. Ostium rounded, surrounded by a sclerotized ring, and situated at the base of the sterigma. Bursa copulatrix five times longer than sterigma; ductus bursae sinuous, completely membranous. Papilla analis rectangular, wider than long.

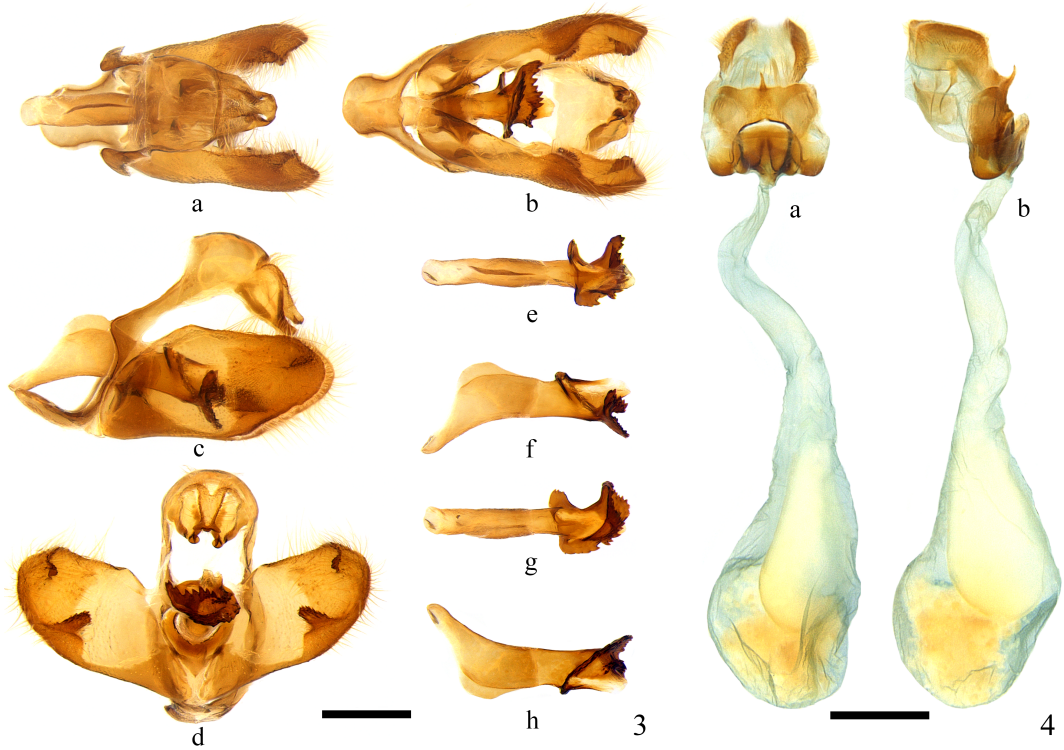
Type material. Holotype male deposited at the DZUP with the following labels (each separated by a slash): / HOLOTYPUS / Linhares, Espírito Santo, Brasil, 26-III-1972, C. Elias *leg*. / DZ 31.712 / *Eprius punctula* Medeiros, Gualberto & O. Mielke det. 2024 /. Allotype female deposited at the DZUP with the following labels (each separated by a slash): / ALLOTYPUS / Linhares, Espírito Santo, Brasil, 18-III-1972, C. Elias *leg*. / DZ 31.753 / *Eprius punctula* Medeiros, Gualberto & O. Mielke det. 2024 /. Paratypes (8 males and 1 female). 3 males, 1 female. **BRAZIL.** Espírito Santo, Linhares, 11-III-1972, col. C. Elias, DZ 31.750, DZ 31.710, DZ 31.760, DZ 31.633 [DZUP]. 1 male. **BRAZIL.** Espírito Santo, Linhares, 26-III-

1972, col. C. Elias, DZ 31.653 [DZUP]. 1 male. **BRAZIL.** Espírito Santo, Linhares, 16-21-IV-1973, col. C. Elias, DZ 31.730 [DZUP]. 1 male. **BRAZIL.** Espírito Santo, Linhares, 4-V-1972, col. C. Elias, DZ 31.433 [DZUP]. 1 male. **BRAZIL.** Espírito Santo, Linhares, 17-V-1972, col. C. Elias, DZ 31.652 [DZUP]. 1 male. **BRAZIL.** Espírito Santo, Linhares, 15-VI-1973, col. C. Elias, DZ 31.592 [DZUP].

Distribution. Species known only from its type locality, the lowland Atlantic Forest of Linhares, Espírito Santo, Brazil.



Figures 1-2. *Eprius punctula* **sp. nov. 1a-b.** Holotype male, dorsal and ventral view. **1c-d.** Allotype female, dorsal and ventral views. Scale: 1 cm. **2a-b.** Stigma, with and without scales (the yellow lines represent the wing venation, and the green arrows indicate the stigmas' position). Scale: 1 mm. / **Figuras 1-2.** *Eprius punctula* **sp. nov. 1a-b.** Holotipo macho, vistas dorsal y ventral. **1c-d.** Alotipo hembra, vistas dorsal y ventral. Escala: 1 cm. **2a-b.** Stigma, con y sin escamas (las líneas amarillas representan la venación alar y las flechas verdes indican la posición de las marcas). Escala: 1 mm.



Figures 3-4. *Eprius punctula* **sp. nov. 3a-d.** Male genitalia, dorsal, ventral, lateral, and posterior views. **3e-h.** Aedeagus, dorsal, left lateral, ventral, and right lateral views. Scale: 0.5 mm. **4a-b.** Female genitalia, ventral and lateral views. Scale: 1 mm. / **Figuras 3-4.** *Eprius punctula* **sp. nov. 3a-d.** Genitalia masculina, vistas dorsal, ventral, lateral y posterior. **3e-h.** Aedeagus, vistas dorsal, lateral izquierda, ventral y lateral derecha. Escala: 0,5 mm. **4a-b.** Genitalia femenina, vistas ventral y lateral. Escala: 1 mm.

Etymology. The name is a fusion of the Latin words *punctu* [m] and [cellu] *la* referring to the yellow spot in the forewing discal cell of some male and female specimens. The name is a noun in apposition.

Comments and diagnosis. Until the present study, *Eprius* Godman, 1901 had six species (Mielke 2024a). The males of the species in this genus present two stigmas on the forewing, one at the base of CuA_1-CuA_2, and the other below CuA_2 (Figs. 2a-b). The arrangement of these stigmas allows for the recognition of two informal species groups. The first group includes *Eprius veleda* (Godman, 1901), *Eprius veledinus* Grishin, 2023, and *Eprius obrepta* (Kivirikko, 1936), in which the stigma in CuA_2-2A is displaced towards the wing base with the distal end below the origin of CuA_2. The second group includes *Eprius penna* (Evans, 1955), *Eprius repens* (Evans, 1955), and *Eprius planus* (Weeks, 1901), in which the part of the stigma in CuA_2-2A is displaced distally with the proximal end below the origin of CuA_2.

Eprius punctula **sp. nov.** has the stigma of the second species group and can be easily confused with *E. penna*, *E. repens*, and *E. planus* considering solely the stigma and wing color pattern. The presence of a spot at the end of the discal cell of the forewing seems to occur only in *E. punctula* **sp. nov.**, but this spot is absent in some specimens in good conditions. On the other hand, the yellow spots at the distal end of the discal cell and between Rs-CuA_2 on the ventral hindwing are present only in *E. penna*, *E. repens*, and *E. planus* (Evans 1955). However, considering the variation in the presence of wing spots in these species (especially in worn specimens), the most appropriate way for a reliable identification is through the study of the genitalia.

The male and female genitalia of *E. punctula* **sp. nov.** are morphologically similar to those of *E. repens*. Regarding the male genitalia, *E. punctula* **sp. nov.** can be easily recognized by the presence of a spined cylindrical projection near the proximal-ventral margin of harpe (Fig. 3d) (absent in *E. repens*) and by the greater complexity of the flaps at the distal end of the aedeagus (Figs. 3e-h). As for the female genitalia, *E. punctula* **sp. nov.** is characterized by the distal margin of the lamella postvaginalis being approximately straight (Fig. 4a) instead of deeply excavated in the median portion as in *E. repens*.

Author Contributions

ADM: Writing original drafts, reviewing, creating, and editing figures. **EPG:** Writing, reviewing, and editing figures. **OHHM:** Writing, reviewing, validation.

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