Three new species of *Artines* Godman, 1901 from Central and South America (Hesperiidae: Hesperiinae: Moncini)

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Abstract: Three new species of *Artines* Godman, 1901 are described: *Artines maya* A. Warren & Dolibaina **sp. nov.** from Mexico, Belize and Guatemala; *Artines steinhauseri* Dolibaina & A. Warren **sp. nov.** from eastern Ecuador; and *Artines mirnae* O. Mielke, Dolibaina, Carneiro & A. Warren **sp. nov.** from Brazil (Piauí, Maranhão and Mato Grosso). Taxonomic comments, images of the adults and illustrations of the genitalia are provided for the new taxa. Additionally, in order to characterize these new species, taxa with similar wing patterns are illustrated and discussed, including *A. rica* Steinhauser & Austin, 1993, *A. fosca* Evans, 1995 and *A. acroleuca* (Plötz, 1884).

Key words: Belize, biodiversity, Brazil, butterfly, Cerrado, Ecuador, Guatemala, Mexico, skipper, taxonomy.

INTRODUCTION

The New World tribe Moncini (Hesperiidae, Hesperiinae) comprises a seemingly endless number of small, primarily brown or gray skipper species (Warren *et al.* 2009), whose identification usually requires detailed study of the external morphology and genitalia. Although abundant in most Neotropical ecosystems (Carneiro *et al.* 2014), species of Moncini are poorly represented in regional faunal lists; because of their normally dull coloration and small size, species in this tribe are often overlooked by all but the most specialized collectors of Hesperiidae. Thus, although members of Moncini are widespread and frequently abundant, the tribe remains one of the least studied groups of butterflies.

The extraordinary diversity of Neotropical Moncini presents a serious obstacle to their identification and study. A total of 663 species of Moncini are currently recognized, distributed among 83 genera (Warren *et al.* 2015). Phylogenetic relationships among genera remain mostly unknown, and biogeographical patterns in the tribe have yet to be elucidated. Some groups of Moncini display interesting distributional patterns, and many species are found only in highly restricted habitat types (Dolibaina *et al.* 2011, Mielke *et al.* 2012, Carneiro *et al.* 2014). These species may be of significant conservation concern, as Neotropical habitats continue to disappear through agricultural development and urbanization (Machado *et al.* 2008).

The genus *Artines* Godman, 1901 currently includes ten species, some of which are associated with open landscapes such as Cerrado or high-elevation grasslands (Mielke 1992, Dolibaina *et al.* 2011, Mielke *et al.* 2012, Carneiro *et al.* 2014), while others are found within closed canopy habitats or gallery forests (Mielke *et al.* 2008). The genus was originally described to include two species, based on the presence of an ochreous ring around blue spots and a black patch on ventral hindwing, and the long, erect and pointed third segment of the labial palpi (Godman 1901, *in* Godman & Salvin 1887-1901). Evans (1955) included five additional species in the genus, and added the undivided uncus, divided gnathos, and the presence of an accessory process on the aedeagus as additional defining characters for *Artines*. Subsequently, Mielke (1968, 1992) described two additional species in the genus, and Steinhauser & Austin (1993) described one. In an effort to contribute to our knowledge of the biodiversity of Neotropical Moncini, we herein describe and illustrate three new species of *Artines* (*sensu* Evans 1995).

MATERIALS AND METHODS

Specimens examined in this study are deposited in the following collections: **ADW** (Andrew D. Warren personal collection, Castle Pines, Colorado, USA); **DZUP** (Padre Jesus Santiago Moure collection, Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Brazil); **MAZA** (De la Maza family collection, Mexico City, Mexico); **MGCL** (McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, Florida, USA); **OM** (Olaf Mielke personal collection, Curitiba, Paraná, Brazil); and **USNM** (National Museum of Natural History, Smithsonian Institution, Washington, D.C., USA). The abbreviation DZ corresponds to the code number on specimens in the DZUP collection. Additional abbreviations used are: FW–forewing; HW–hindwing; D–dorsal; V–ventral. Terminology used in the descriptions follows Carneiro *et al.* (2012, 2013).

In the "Type Material" section, different labels are identified using "/", and additional information is given between brackets. Genitalia of both sexes were prepared with standard methods (Dolibaina *et al.* 2014) and illustrated, and dissected specimens are indicated with an asterisk.

RESULTS

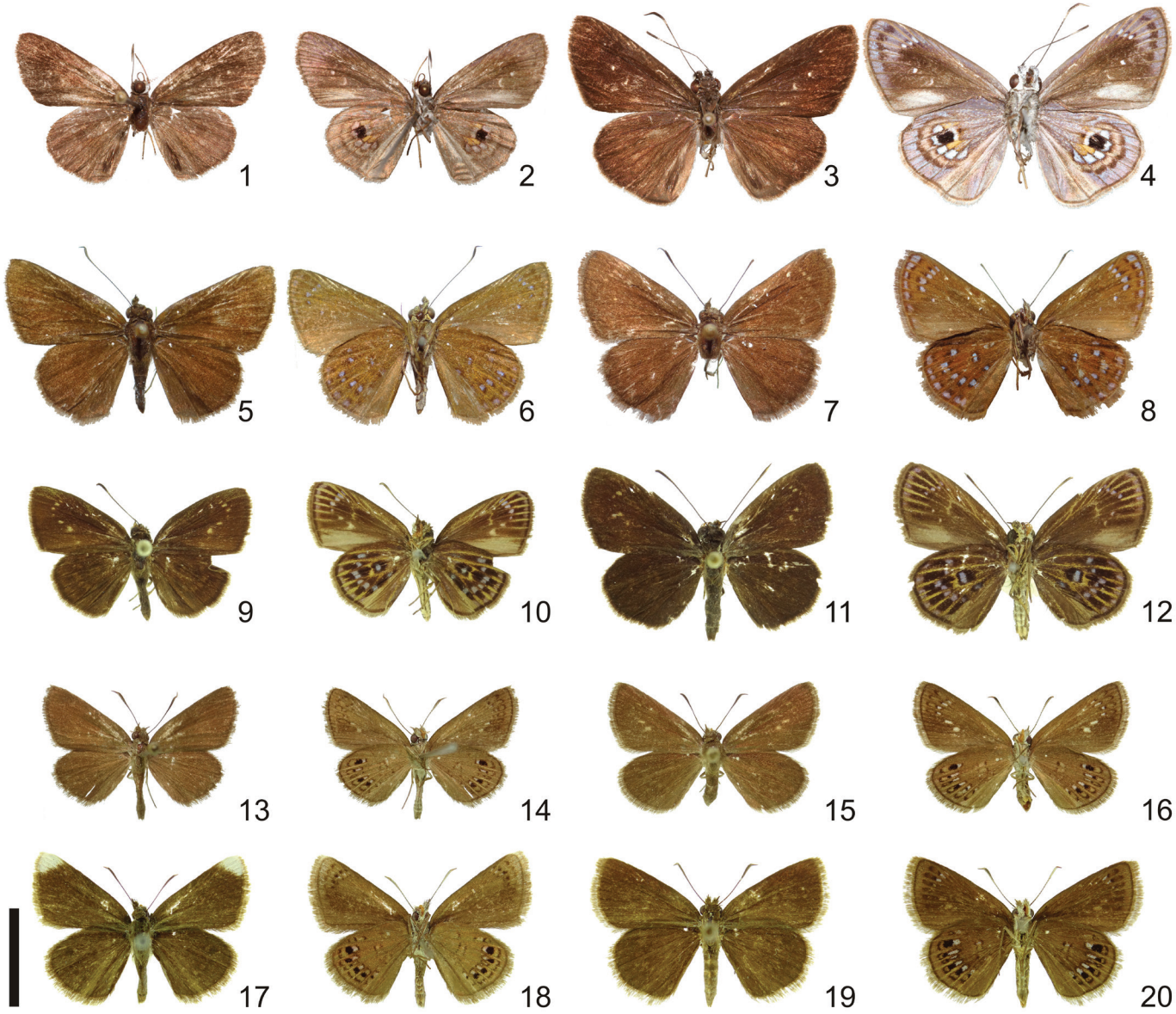
Artines maya A. Warren & Dolibaina **sp. nov.**
(Figs. 1–2, 21)

Diagnosis. *Artines maya* **sp. nov.** (Figs. 1–2) has a ventral pattern similar to that of *A. aepitus* (Geyer, 1832), *A. focus*

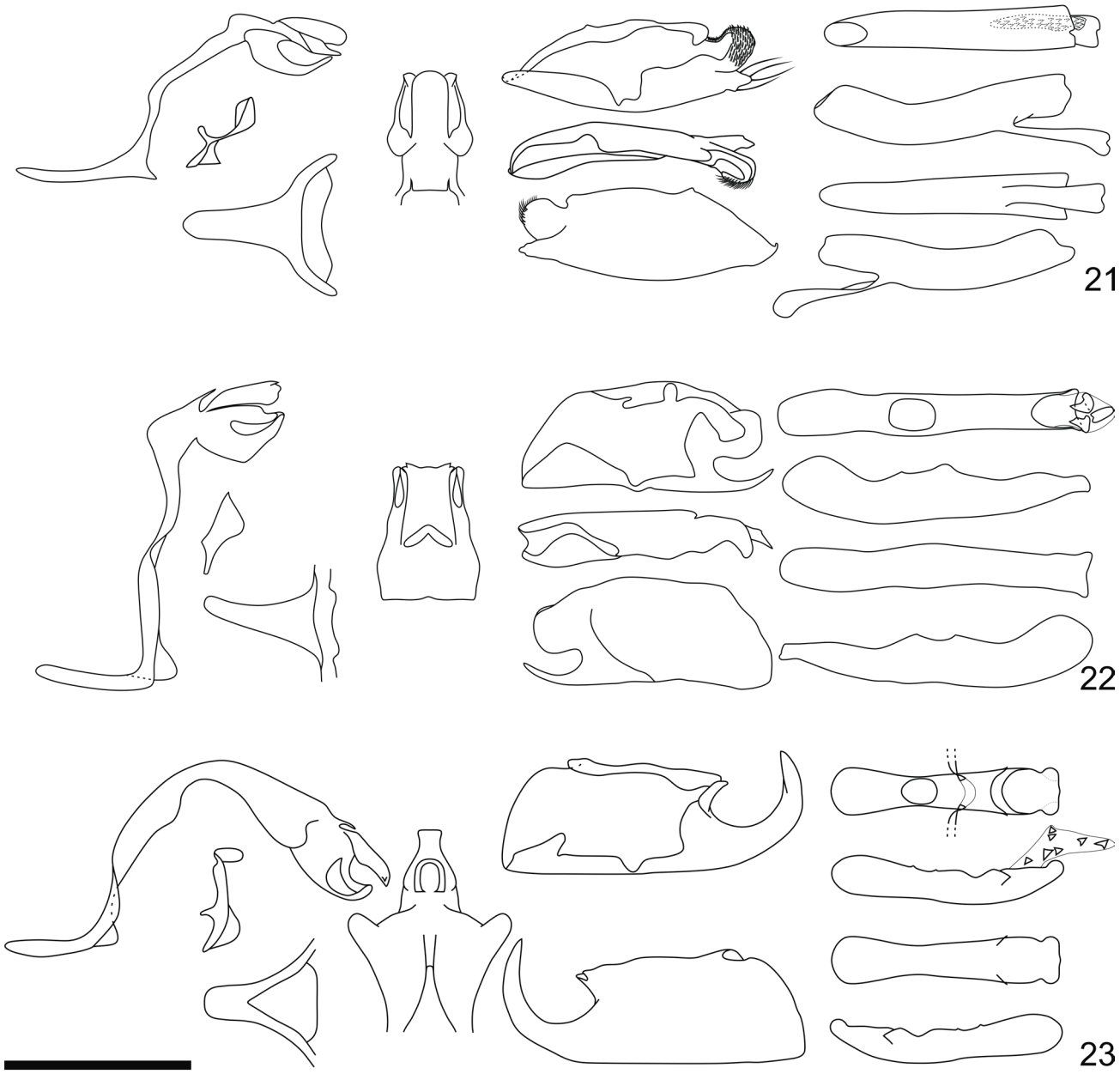
Evans, 1955 and *A. rica* Steinhauser & Austin, 1993 (Figs. 3–4); however, only the last species is believed to potentially co-occur with *A. maya* **sp. nov.** in Central America. *Artines maya* **sp. nov.** can be distinguished from *A. rica* by: 1) its smaller size; 2) the narrow dark brown line (Fig. 2) delimiting the iridescent light purple subapical band on the VFW (this band is wider and better developed on *A. rica*, Fig. 4); and 3) the VHW black spot at the end of the discal cell (Fig. 2), which is wider than long (it is longer than wide on *A. rica*, Fig. 4). Finally, the male genitalia of *A. maya* **sp. nov.** has a short distal projection of the harpe (Fig. 21), which is absent in *A. focus*, and present but much longer in *A. rica* and *A. aepitus* (this character is easily observable after removing the scales at the end of the abdomen; dissection is not necessary).

Description. Male. HEAD: Brown; white above and beneath eyes; brown mixed with long white scales on frontoclypeal and transfrontal sutures. Labial palpi (missing on holotype) brown, white lateral on first segment and inferior half of second segment, quadrate; first segment short, second segment three times longer than first, third segment thin and pointed, 3/4 length of second segment. Antenna about 58% of forewing costa length; dark brown on both sides; club short, dorsally brown and ventrally whitish; nudum rufous, 13 segments (n=1), restricted to apiculus.

THORAX: Dorsally dark brown, ventrally pale brown. Legs brown dorsad, whitish ventrad; mesotibia with a row of three short spines on inner surface, and one pair of distal spurs, outer spur 2/3 length of inner; metatibia smooth, with two pairs of spurs, one proximal at mid-length of metatibia, other at distal margin, outer spur 2/3 length of inner.



Figs. 1–20. *Artines* species in dorsal (left) and ventral (right) views. 1–2, *A. maya* **sp. nov.**, male holotype. 3–4, *A. rica*, male holotype. 5–8, *A. steinhauseri* **sp. nov.**, (5–6) male allotype, (7–8) female holotype. 9–12, *A. fosca*, (9–10) male from French Guiana (OM 13.131), (11–12) female from Amazonas inferior (OM 40.744). 13–16, *A. mirnae* **sp. nov.**, (13–14) male holotype, (15–16) female allotype. 17–20, *A. acroleuca*, (17–18) male from Brasília, Distrito Federal, Brazil (DZ 30.174), (19–20) female from Fazenda São João, Alto Rio Arinos, Diamantino, Mato Grosso, Brazil (OM 65.869). Scale bar = 1 cm.



Figs. 21–23. Male genitalia of *Artines* species. 21, *A. maya* **sp. nov.** holotype. 22, *A. steinhauseri* **sp. nov.** paratype. 23, *A. mirnae* **sp. nov.** paratype from Fazenda São João, Alto Rio Arinos, Diamantino, Mato Grosso, Brazil (USNM). Left lateral view of the tegumen, uncus, gnathos and saccus; left lateral view of the fultura inferior; ventral view of the saccus; dorsal view of the tegumen, uncus and gnathos; left lateral, dorsal and right views of the right valva; aedeagus in dorsal, left lateral, ventral and right lateral views. Scale bar = 1 mm.

Forewing about 1.5 times longer than wide; length 13.0-13.3 mm (n=2) (holotype 13.0 mm); costal margin slightly convex; apex weakly obtuse and rounded; outer margin convex, more projected at end of median veins; tornus obtuse and rounded; anal margin straight. DFW ground color dark brown; two postdiscal, yellowish, circular spots in R_5-M_1, M_3-CuA_1, and one long, narrow spot in CuA_1-CuA_2, below end of discal cell; no brand; fringe brown. VFW ground color dark brown; costal margin with an iridescent light purple band; two postdiscal whitish spots, one circular in M_3-CuA_1, other proximad and falciform in CuA_1-CuA_2; three circular, whitish subapical spots in R_3-M_1 aligned with each other and inclined toward upper half of outer margin; submarginal iridescent light purple band from R_4 to CuA_2, fused with costal marginal band, proximally surrounded by a continuous, thin, dark brown line delimiting iridescent light purple subapical band from R_4 to M_3; a weakly defined, whitish, quadrate patch in distal half of CuA_2-2A; marginal line dark brown; fringe brown.

Hindwing rounded, wider than long; costal margin convex; apex rounded; outer margin strongly convex along median portion, slightly concave in CuA_2-2A; tornus obtuse, rounded and weakly projected; anal margin slightly convex. DHW ground color dark brown; long tuft of dark brown hair-like scales along anal area. VHW ground color dark brown with iridescent purple overlaid from costal margin to CuA_2 and from 3A to anal margin; pale brown area from posterior half of CuA_2-

2A to 3A; iridescent light purple bar-shaped spot basad of end of discal cell; end of discal cell with large, black, rectangular spot, wider than long; three yellow, triangular, postdiscal spots at origin of Rs, CuA_1 and CuA_2; five rectangular, iridescent light purple postdiscal spots from Rs to anterior half of CuA_2-2A, above anal fold, all surrounded by a thin dark brown line, narrower in M_1-M_3; postdiscal yellow arched band from Sc+R_1-Rs to CuA_2-2A, wider in Rs-M_3, distally surrounded by a thin, dark brown line; iridescent light purple submarginal band wider in Sc+R_1 to CuA_2; marginal line dark brown; fringe brown.

ABDOMEN: Uniformly brown.

Male genitalia: Tegumen quadrate in dorsal view, inclined downward distally. Ventral tegumen arm strongly inclined distally, longer than dorsal projection of saccus. Anterior projection of saccus slender, longer than tegumen+uncus, base two times wider than tegumen. Uncus simple, broad, two times longer than wide, lateral margins dorsally curved, distal margin rounded. Gnathos completely divided, arms slender, reaching distal margin of uncus, each formed by a dorsal, distally more projected and pointed plate, and a ventral, longer and distally narrowing plate, with a membranous area between them. Valvae long, two and a half times longer than wide; proximal margin strongly inclined distally; costa narrow, extending from base of valva, distal end constricted, with a small rounded lobe, slightly curved downward; sacculus rectangular and long, with a deep distal indentation, but fused with harpe; harpe rectangular, with a short, irregular distal projection, as long as distal margin of ampulla, with thick and long setae; ampulla partially fused with harpe, distal margin produced as a rounded lobe, medially curved, covered by several short and curved thorns. Fultura inferior U-shaped, with wide base. Aedeagus thick, thickening distally, longer than valva; proximal margin rounded and upturned in lateral view; opening of ejaculatory bulb ovoid, located at base of proximal margin of aedeagus; area of insertion of manica not evident; distal portion of aedeagus with a narrow, bilobed, ventral process exceeding aedeagus (about 1/3 length of aedeagus), distally wider; cornuti as a weakly sclerotized patch covered by several small, curved spines.

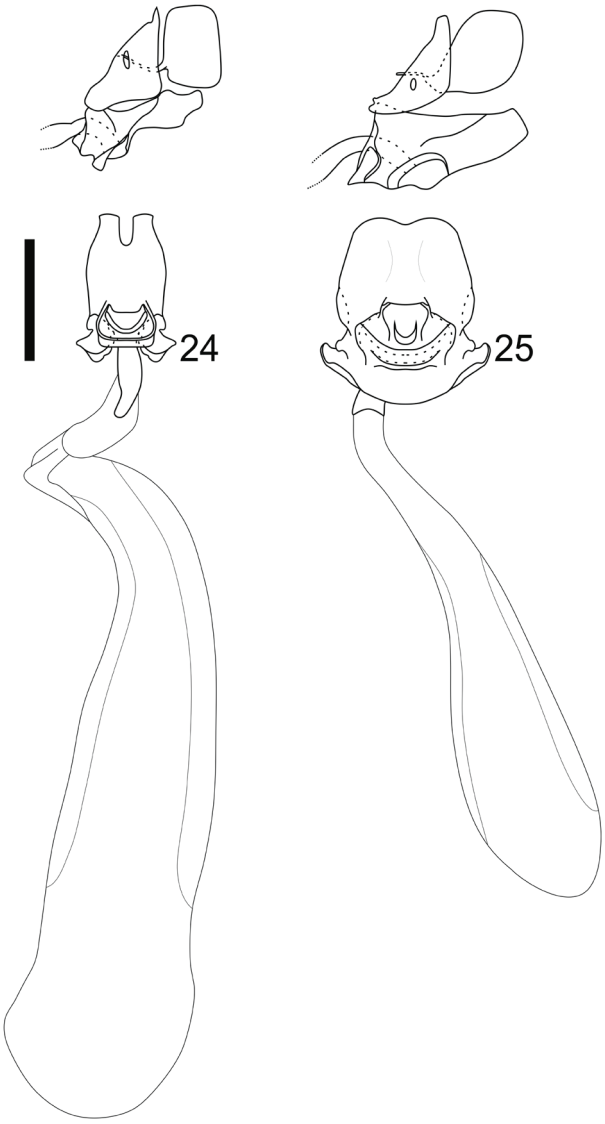
Female: unknown.

Type Material. Holotype male with the following labels: / HOLOTYPUS / Belize: Orangewalk dist[rict]., c[irc]a.5 Km W. Hill Bank, Mar 4-1997 Valerie Giles [leg.] / Genitalia Vial #98-72 Andrew D. Warren / Holotypus *Artines maya* A. Warren & Dolibaina det. 2015 /. Deposited at the MGCL. The type locality is situated within the Rio Bravo Conservation and Management Area, in a gallery forest habitat at approximately 17°35'15"N 88°44'32"W, 29m elevation.

Paratypes (2 males). MEXICO – *Chiapas*: Lacantún (Río Lacantún, Chajul) [ca. 16°07'03"N 90°55'44"W, 148m], 27-V-1981, 1 male (MAZA); GUATEMALA – *Izabal*: Morales (Cayuga) [ca. 15°31'60"N 88°42'04"W, 35m], IX, Schaus & Barnes, 1 male (USNM).

Etymology. This species is named for the Maya people, inhabitants of the known Mesoamerican range of this species.

Distribution. *Artines maya* **sp. nov.** is currently known from just three male specimens, collected in Belize (holotype), Mexico (Chiapas) and Guatemala. Its broader distribution in southern Mexico and Central America remains to be elucidated.



Figs. 24–25. Female genitalia of *Artines* species. 24, *A. steinhauseri* **sp. nov.** paratype. 25, *A. mirnae* **sp. nov.** paratype from Fazenda São João, Alto Rio Arinos, Diamantino, Mato Grosso, Brazil (DZ 8.881). From top to bottom: left lateral view of tergum VIII, papilla analis, and sterigma; ventral view of the sterigma and bursae copulatrix. The thin line inside the corpus bursae represents the area with signa. Scale bar = 1 mm.

Artines steinhauseri Dolibaina & A. Warren **sp. nov.**
(Figs. 5–8, 22, 24, 26)

Diagnosis. *Artines steinhauseri* **sp. nov.** is distinguished from many species of *Artines* by the lack of a conspicuous black spot at the end of the VHW discal cell (Figs. 6, 8). Instead, *A. steinhauseri* **sp. nov.** has a series of iridescent dark purple spots on the underside of both wings; similar spots are shared only with *A. fosca* Evans, 1955 (Figs. 10, 12). *Artines steinhauseri* **sp. nov.** can be distinguished from *A. fosca* by: 1) its somewhat larger size; 2) presence of a DFW subtriangular brand at the origin of CuA_2 (absent in the male allotype but present in the male paratype; absent in *A. fosca*); 3) rufous brown ventral ground color of both wings (dark brown in *A. fosca*); 4) rufous brown veins ventrally (yellow in *A. fosca*, except the VFW dark

brown Cubitus, CuA_2 and 2A); 5) absence of extensive black marks (Figs. 6, 8) on VHW (present on *A. fosca*, Figs. 10, 12). The male genitalia of *A. steinhauseri* **sp. nov.** (Fig. 22) differ from those of *A. fosca* by having a short fenestra, nearly straight ventral tegumen arm and dorsal projection of the saccus, harpe with a thin and pointed distal projection, and ampulla with the distal margin wide and rounded.

Description. Male. HEAD: Brown, yellowish above and beneath eyes and surrounding both pairs of chaetosema; frontoclypeal and transfrontal sutures brown mixed with long, yellowish scales. Labial palpi dark brown mixed with yellowish scales; quadrate; first segment short; second segment three times longer than first; third segment thin and pointed, 3/4 length of second segment. Antennae ca. 63% of forewing costal length (on male allotype); dorsally dark brown, ventrally brown; club short, dorsally dark brown, ventrally yellowish; nudum black to dark rufous, 13 segments (n=3), restricted to apiculus.

THORAX: Dorsally dark brown, ventrally brown mixed with long, yellowish scales. Legs brown dorsad, yellowish ventrad; mesotibia with a row of three short spines on inner surface, and one pair of distal spurs, outer spur 2/3 length of inner; metatibia smooth, with two pairs of spurs, one proximal at mid-length of metatibia, other at distal margin, outer spur 2/3 length of inner.

Forewing width about 2/3 length; length 12.5 mm (female holotype), 13.5 mm (male allotype); basal half of costal margin slightly convex; apex weakly obtuse and rounded; outer margin convex; tornus weakly obtuse and rounded; anal margin straight. DFW ground color brown to rufous brown; triangular brand at origin of CuA_2, dorsal portion distally projected (absent in male allotype but present in male paratype); fringe brown. VFW ground color dark brown, rufous brown from costal margin to CuA_1; two small, circular, iridescent, dark purple postdiscal spots from M_3 to CuA_2, distal in M_3-CuA_1; five small, circular, iridescent, dark purple subapical spots from R_3 to M_3, all more or less aligned, inclined toward end of CuA_2 and bordered by dark brown spots distally; iridescent dark purple submarginal band from R_4 to 2A, disjoint and wider in R_4-M_1, weakly defined in CuA_2-2A, proximally surrounded by a disjoint, thin, dark brown line; marginal line pale brown; fringe pale brown to brown.

Hindwing rounded, as long as wide; costal margin convex; apex rounded; outer margin convex; tornus rounded and obtuse; anal margin straight. DHW ground color brown to rufous brown; unmarked; fringe brown. VHW ground color rufous brown, brown from posterior half of CuA_2-2A to 3A; two rectangular, iridescent, dark purple discal spots internally surrounding end of discal cell, bordered by dark brown scales; circular, iridescent, dark purple discal spot below origin of CuA_2, surrounded by dark brown scales; seven rectangular, postdiscal, iridescent, dark purple spots from Sc+R_1 to 2A, more or less uniform in size, distally and proximally surrounded by dark brown scales; iridescent, dark purple submarginal band from Rs to 2A, disjoint, surrounded distally by a rufous brown band, and proximally by a disjoint, dark brown line; marginal line pale brown; fringe brown.

ABDOMEN**:** Dark brown dorsally, yellowish ventrally, with a continuous, medial, dark brown line.

Male genitalia**:** Tegumen wider than long in dorsal view, distal apophysis short and pointed. Ventral tegumen arm and dorsal projection of saccus almost straight. Anterior projection of saccus slender, longer than tegumen+uncus, base as wide as tegumen. Fenestra narrow. Uncus simple and broad, longer than tegumen, distal margin with two short, lateral spiniform projections. Gnathos completely divided, arms slender; each formed by a ventral plate- broad at base then narrowing distally and extending to distal margin of uncus, and a narrow dorsal plate- fused with uncus at base; between these two plates an ovoid, membranous area. Valvae about twice as long as wide, proximal margin convex; costa narrow; sacculus triangular, about half valva width, with a deep distal indentation; harpe with a slender, pointed distal projection, slightly upturned; ampulla narrow, producing a broad rounded lobe. Fultura inferior narrow, U-shaped, no anterior projections. Aedeagus thick, longer than valva; coecum 1/3 length of aedeagus, slightly upturned and constricted before opening of ejaculatory bulb; opening of ejaculatory bulb almost at middle of aedeagus, ovoid, longer than wide; distal opening of aedeagus dorsal and short, distal margin smooth and slightly projected laterad; three cornuti, two short with a pointed tip, one rounded.

Female. Wings and body as in male, with all wing markings somewhat better developed.

Female genitalia: Sterigma broad, longer than wide, heavily sclerotized. Lamella antevaginalis ringed and short, with two lateral plates at base. Lamella postvaginalis two times longer than wide in ventral view, distal margin with a deep median indentation producing two laterodistal rectangular projections with straight distal margins, densely covered by short setae. Ostium bursae at base of sterigma, semicircular, surrounded by sclerotized areas. Bursa copulatrix five times longer than sterigma; ductus bursae with a short sclerotized area, then membranous and folded in spiral, about 1/4 length of corpus bursae; corpus bursae longer than ductus bursae, with two long, lateral areas of signa, composed of small, thin, sclerotized spicules extending about 2/3 length of corpus bursae. Tergum VIII divided dorsally, subtriangular, with a complete spiracle opening. Papilla analis rectangular, wider than long, with a slender posterior apophysis, as long as papilla.

Type Material. Holotype female with the following labels: / HOLOTYPUS / ECUADOR: TUNGURA-HUA: Puyo, 3500' 25-ii-1971 Tom Taylor / A. C. Allyn Acc. 1971-40 / Genit. Vial SRS-2823 / Holotypus *Artines steinhauseri* Dolibaina & A. Warren det. 2015 /. Deposited at the MGCL. The type locality is situated at approximately 1°29'12"S 78°00'08"W, in Pastaza (not Tungurahua) Province.

Allotype male with the following labels: / ALLOTYPUS / Pano, NAPO ECUADOR 400m 14 Dec[ember]. '[19]76 S. S. Nicolay [leg.] / Genitalia Vial USNM 1 #male Dolibaina prep. 2013 / Allotypus *Artines steinhauseri* Dolibaina & A. Warren det. 2015/. Deposited at the USNM. Pano is located at approximately 0°44'09"S 77°11'27"W.

Paratypes (1 male, 2 females). ECUADOR – *Pastaza*: Río Alpayacu bridge, Puyo – Baños Rd., 1086m, 1°28'05.39"S 78°06'13.29"W, 3-VII-2004, H. Greeney leg., H04-907, 1 female (ADW); *Sucumbíos*: Cerro Lumbaqui Norte (0° 01.70'N, 77° 19.22'W), 31-XII-2001, D. H. Ahrenholz leg. 1

Fig. 26. Live female paratype of *Artines steinhauseri* **sp. nov.** from Río Alpayacu bridge, Puyo – Baños Rd., Pastaza, Ecuador, 3-VII-2004. Photo by Harold Greeney.

male, 1 female, collected in copula (USNM) (genitalia of both examined).

Etymology. *Artines steinhauseri* **sp. nov.** is named in honor of the late Stephen Rogers Steinhauser, who first recognized this species as undescribed, in acknowledgement of his extensive contributions to our knowledge of Neotropical Hesperiidae.

Distribution. *Artines steinhauseri* **sp. nov.** is currently known from two male and three female specimens collected in the foothills of the eastern Ecuadorian Andes, at elevations from 400 to 1200m. The female paratype photographed and collected by H. Greeney (Fig. 26) at the Río Alpayacu bridge in Pastaza Province was perching on top of a leaf, 0.3m above the ground, with the hindwings slightly flared, at 10:35 hrs.

Artines mirnae O. Mielke, Dolibaina, Carneiro & A. Warren **sp. nov.**
(Figs. 13–16, 23, 25)

Diagnosis. *Artines mirnae* **sp. nov.** is the smallest species of *Artines* (Figs. 13–16), with a unique ventral pattern, shared only with *A. acroleuca* (Figs. 17–20), the most similar species. *Artines mirnae* **sp. nov.** is distinguished from *A. acroleuca* by: 1) its smaller size; 2) its narrower FW and HW shape; 3) male DFW apical area being brown (it is white on *A. acroleuca*, Fig. 17). The male genitalia of *A. mirnae* **sp. nov.** differ from those of *A. acroleuca* in characters of the tegumen: 1) possessing two broad, lateral projections; 2) a deep indentation in the distal margin; and 3) a shorter and wider distal apophysis. The genitalia of *A. mirnae* **sp. nov.** also differ from those of *A. acroleuca* in the longer, more rectangular valva, a longer and thicker distal projection of the harpe, and a shorter ampulla, not projected distally.

Description. Male. HEAD: Uniformly brown. Labial palpi with first segment short, whitish ventrally and laterally, remainder whitish mixed with brown scales; second segment whitish, cylindrical, about four times longer than first; third segment brown, thin and pointed, about 3/4 length of second segment, projected upward. Antennae about 47% length of forewing costa (male holotype), brown dorsally, pale brown ventrally; club longer than apiculus, brown, paler ventrally; nudum dark rufous, 10-11 segments (n=7), restricted to apiculus.

THORAX: Uniform dark brown; legs brown dorsad, whitish ventrad; mesotibia with a longitudinal row of short spines on inner surface, and one pair of distal spurs, outer spur 2/3 length of inner; metatibia smooth, with two pairs of spurs, one proximal at mid-length of metatibia, other at distal margin, outer spur 2/3 length of inner.

Forewing nearly 1.5 times as long as wide; length 10.1 mm (male holotype), 10.4 mm (female allotype); basal third of costal margin slightly convex, then straight; apex rounded;

outer margin convex, distally produced in R_4-CuA_1; tornus weakly obtuse and rounded; anal margin straight. DFW ground color brown; no brand; two postdiscal, pale brown, subrectangular spots in M_3-CuA_1 and CuA_1-CuA_2 (absent on some specimens), former distally projected; fringe brown. Female with four additional pale brown subapical spots from R_4 to M_3 (absent on some specimens). VFW ground color brown, darker from CuA_1 to CuA_2, paler from CuA_2 to anal margin; two narrow, postdiscal, whitish to light purple spots from M_3 to CuA_2, that in M_3-CuA_1 distal; four narrow, subapical, whitish to light purple spots from R_4 to M_3 (poorly developed on males), all surrounded distally by black scales; first three spots aligned with each other and inclined toward middle of outer margin, spot in M_1-M_2 disjoint basad; submarginal pale brown band from R_4 to CuA_1, surrounded proximally by thin, dark brown C-shaped lines from R_4 to M_3; pale band between these lines and postdiscal spots; marginal line dark brown; fringe long, pale brown.

Hindwing ellipsoid, longer than wide; costal margin convex; apex rounded; outer margin strongly convex; tornus obtuse and rounded; anal margin straight. DHW ground color brown; unmarked; fringe brown. VHW ground color brown, paler in 2A-3A; two thin, dark brown discal spots, nearly fused, before end of discal cell, distally surrounded by two rectangular, whitish to pale purple spots, wider than long, reaching end of discal cell; two discal, whitish to pale purple spots (poorly developed in some specimens) below discal cell, one at origin of CuA_2, other below origin of CuA_2, both surrounded by a thin, dark brown line proximally and distally; six postdiscal whitish to purple spots from Rs to 2A, quadrate in Rs-M_1, narrow in M_1-M_2, weakly defined in M_2-M_3, rectangular and twice as wide as long in M_3-CuA_1, quadrate in CuA_1-CuA_2, and ellipsoid and small in CuA_2-2A, all surrounded distally by a postdiscal black spot, ovoid and well developed in Rs-M_1 and CuA_1-CuA_2, reduced in remaining cells; submarginal pale brown band from Rs to 2A, wider in Rs-M_1, surrounded proximally by thin, dark brown C-shaped lines; pale brown area between these lines and postdiscal spots; marginal line dark brown; fringe long, pale brown. Female postdiscal spots in M_2-M_3 and CuA_2-2A better developed.

ABDOMEN: Brown dorsally, whitish ventrally, with a continuous, medial, brown line.

Male genitalia: Tegumen broad, wider than long in dorsal view, base laterally developed, three times wider than base of uncus, with two lateral, median, large and rounded projections, and a short and wide posterior apophysis. Ventral tegumen arm longer than dorsal projection of saccus, wide and mostly straight. Anterior projection of saccus slender, shorter than tegumen+uncus, narrower than tegumen. Fenestra ellipsoid, longer than wide. Uncus simple, shorter than tegumen, thin distally, with two pointed, lateral tips. Gnathos totally divided, longer than uncus, arms slender and upturned, with a distal ovoid membranous area. Valvae rectangular, about 2.5 times as long as wide, proximal margin almost straight; costa long and narrow, completely separated from ampulla; sacculus irregular, wide anteriorly, narrowing distally, with a sharp indentation before harpe; harpe well developed, with a thick, distal, hook-like projection, strongly curved, extending beyond dorsal margin of valva; ampulla short and narrow, restricted to distal margin of valva. Fultura inferior broad, U-shaped, base with a short, thin, proximal projection. Aedeagus thick, shorter than valva; coecum about 1/3 length of aedeagus; opening of ejaculatory bulb ovoid, longer than wide; distal portion of aedeagus with two short, pointed, lateral processes; distal opening dorsal, disto-lateral margins rounded; several triangular, thorn-like cornuti.

Female. Wings and body as in male.

Female genitalia: Sterigma broad, longer than wide in ventral view. Lamella antevaginalis with a well developed, irregular, anterior plate, slightly folded posteriorly. Lamella postvaginalis broad, with a short lateral fold, and a tubular and ventrally projected process at center. Ostium bursae semicircular and short, placed at inferior margin of ventral tubular process of lamella postvaginalis. Bursa copulatrix about three times longer than sterigma; ductus bursae 1/3 length of bursa copulatrix, with a short, sclerotized portion fused to sterigma, and a membranous portion of same length before corpus bursae; corpus bursae about 2/3 length of bursa copulatrix, with two lateral areas of signa composed of small, thin, sclerotized spicules present over almost all of corpus bursae. Tergum VIII divided dorsally, narrow and triangular, with a complete spiracular opening. Papilla analis almost quadrate, with a slender posterior apophysis, shorter than papilla.

Type Material. Holotype male with the following labels: / HOLOTYPUS / Imperatriz, MA[ranhão, Brazil] 15-VII-1974 Exc[ursão]. Dep[ar]t[ament]o. Zool[ogia, UFPR] / DZ 27.517 / Holotypus *Artines mirnae* O. Mielke, Dolibaina, Carneiro & A. Warren det. 2015 /. Deposited at the DZUP. The type locality is situated at approximately 5°31'13.98"S 47°28'18.63"W, 130m elevation.

Allotype female with the following labels: / ALLOTYPUS / Imperatriz, MA[ranhão, Brazil] 2-VII-1974 Exc[ursão]. Dep[ar]t[ament]o. Zool[ogia, UFPR]. / DZ 27.581 / Allotypus *Artines mirnae* O. Mielke, Dolibaina, Carneiro & A. Warren det. 2015 /. Deposited at the DZUP.

Paratypes (21 males and 8 females). BRAZIL – *Maranhão*: Feira Nova do Maranhão (30 Km W, Retiro), 470m [ca. 7º01'22.94"S 46º24'58.85"W], 18-23-I-2010, Mielke leg. 1 male (DZ 30.157); Imperatriz, 1-VII-1974, Exc. Dep. Zoo. leg., 1 male (DZ 27.468), 3-VII-1974, 1 male (DZ 27.558), 6-VII-1974, 3 males (DZ 27.347, DZ 27.337, DZ 8.803*) 1 female (DZ 27.478), 8-VII-1974, 1 male (DZ 27.538) 1 female (DZ 27.424), 9-VII-1974, 1 female (DZ 27.503), 15-VII-1974, 5 males (DZ 25.155, DZ 27.401, DZ 27.409, DZ 27.364, DZ 27.351), 1 female (DZ 27.508), 17-VII-1974, 5 males (DZ 27.453, DZ 27.498, DZ 27.389, DZ 27.539, DZ 27.357) 3 females (DZ 27.429, DZ 27.580, DZ 8.881*). *Mato Grosso*: Diamantino (Alto Rio Arinos, Fazenda São João), 380m [ca. 14º12'26"S 56º06'13"W], 16-I-1978, Mielke & Furtado leg., 1 male (OM 65.876), 19-I-1978, 1 male (OM 65.855*), 7-XI-1978, H. & H. D. Ebert leg., 1 male (DZ 8.801*), 3-X-1990, Furtado leg. 1 male (USNM*). *Piauí*: Ribeiro Gonçalves (Estação Ecológica Uruçui-Una), 520m [ca. 8º51'24.32"S 45º15'55.75"W], 23-27-V-1984, Graf leg., 1 female (DZ 27.548).

Etymology. We are happy to dedicate this new species to our friend Dr. Mirna Martins Casagrande, in recognition of

her extensive contributions to our knowledge of many groups of butterflies, and for her tireless efforts and dedication in mentoring many students in taxonomy, including two of the authors of this study.

Distribution. This species occurs in open areas with natural vegetation in Piauí, Maranhão and Mato Grosso (Brazil), however, it is expected to be widespread in Brazilian Cerrado habitats.

DISCUSSION

A recent systematic study based on morphological characters suggested that *Artines*, as circumscribed by Evans (1955), constitutes a polyphyletic group (Carneiro *et al.* 2015). Given the great diversity of wing and genitalic phenotypes found among the species of *Artines*, this result is not surprising. While only four species of *Artines* were studied by Carneiro *et al.* (2015), their results clearly suggest two genus-level groups among them, yet the type species of the genus, *A. aepitus*, was not included.

Based on these findings, we have initiated a thorough revision of the genus, using molecular and morphological characters, which we hope will enable us to define natural groups among species currently placed in *Artines* and related genera. Despite this, we've decided to include all three new species described herein within *Artines*, following Evans' (1955) delimitation of the genus, to facilitate the interpretation and discussion of morphological characters in our ongoing phylogenetic study. Rather than wait and describe these three new species in our phylogenetic study, we've elected to name them now, in hopes that additional material (*e.g.*, the female of *A. maya*; additional males of *A. steinhauseri*) may surface, which would add to our knowledge of the group.

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