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NEW GENUS AND FOUR NEW SPECIES OF HESPERIINAE FROM GUYANA AND PERU (LEPIDOPTERA: HESPERIIDAE)

Stephen R. Steinhauser¹

Research Associate, McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, P. O. Box 112710, Gainesville, Florida 32611-2710

ABSTRACT: A new genus and four new species of American Hesperiinae are named and described: *Parphorus jaguar*, new species, *Crinifemur*, new genus, *Crinifemur viridans*, new species, and *Thoon opus*, new species, all from Guyana, plus *Saturnus harpe*, new species from Peru.

KEY WORDS: epiphyses, femur, genitalia, stigma

In continuing studies of the neotropical Hesperioidea, three new species and one new genus from Guyana and one new species from Peru (all hesperiine skippers) were found and are described below.

Parphorus jaguar, new species

Figs. 1, 2 (♂ holotype), 3 (♀ paratype); 11 (♂ genitalia), 12 (♀ genitalia), 13 (♂ forewing secondary sex characters)

Male. Head dark brown with ochreous and pale ochreous scaling; palpi quadrate, mixed brown and pale ochreous scaling above, slightly paler beneath, ochreous at sides against eyes, third segment stout, cylindrical, dark brown, protrudes slightly beyond hairs of second. Antennae longer than half costa, dark brown above, checkered whitish beneath, ochreous beneath slender club which is one quarter total antennal length; apiculus angled, about three times club thickness; nudum averages 12.56 segments with

¹ Deceased, 11 August 2007.

three to five on club in 11 males counted, 4/8 in holotype; terminal segment long. **Thorax** dark brown. **Thoracic appendages:** Legs dark brown, overscaled pale ochreous; foretibiae with epiphyses reaching tarsi; midtibiae spined, bearing single pair of spurs; hindtibiae spined, with two pairs of spurs. **Forewing** averages twice as long as wide in 15 males measured, varying from slightly less than twice (HT - 1.92) to slightly more (2.17), apex acute, termen rather straight. Complex stigma as described by Evans (1955:151) for *Parphorus storax* (Mabille, 1891) and on p. 267 for *Saturnus* Evans, 1955, and below in description of new species in *Saturnus*. Cu₂ arises from cell nearer to Cu₁ than to base, M₃ arises from cell about midway between M₂ and Cu₁, M₂ somewhat decurved toward Cu₁ at its origin. **Hindwing** roughly triangular, termen rather straight, tornus slightly produced, vein 3A being about equal to 2A. Discal cell about half wing length. Cu₂ arises from cell much nearer to Cu₁ than to base; Rs arises from cell very slightly basad of Cu₂; M₂ well developed. **Abdomen** brown above, pale ochreous to whitish beneath. **Dorsal surface:** **Forewing** brown with some ochreous scaling in costal cell, where it may be heavy, and base of 1A-2A. Opaque yellow spots in R₄-R₅ (minute or may be missing), R₅-M₁ (small), M₃-Cu₁ near base (about 1 mm), Cu₁-Cu₂ just distad of stigma (largest), 1A-2A just distad of stigma (triangular). There may be some minor yellow scaling in M₂-M₃. Fringes concolorous. **Hindwing** same brown as forewing overlain with slightly paler hair scales in basal half behind radius, some faint postdiscal ochreous scaling from about M₂ to Cu₂. Fringes concolorous, slightly paler at tornus. **Ventral surface:** **Forewing** same brown as above, with minor ochreous overscaling heaviest in costal cell where it may be prominent; base of discal cell and area behind cubitus somewhat blackish brown. Veins in apical area more or less prominently overscaled yellow with pre-terminal yellow streaks between them (very weak in holotype). Opaque yellow spots as above, spot in 1A-2A usually faint. Spot in M₂-M₃ may be more prominent than on dorsal surface. There is a more or less prominent dark brown terminal line before the fringe bordered interiorly by pale ochreous scaling. Fringes as above. **Hindwing** same brown as forewing, lightly overscaled ochreous. Veins prominently scaled pale ochreous, more heavily and broadly so along vestigial vein 1A. There is a pale ochreous streak in the discal cell from base to M₂, and short pale ochreous interneuronal streaks before the termen in Sc+R₁-Rs, Rs-M₁, M₃-Cu₁ and Cu₁-Cu₂. There are indistinct pale ochreous postdiscal spots from Rs-M₁ to Cu₁-Cu₂. There is a dark brown terminal line as on the forewing. Fringes concolorous, shading to whitish at tornus. **Genitalia:** Tegumen short, broad; uncus bifurcate, arms slender in dorsal view, widely separated, the inter-arm section protrudes somewhat caudad, and in lateral view the cephalad portion protrudes prominently dorsad. Gnathos bifurcate, arms widely separate, thicker than uncus arms. In lateral view, the uncus and gnathos are widely and deeply separate. Saccus long, slender. Valvae symmetrical, rather broad, about 1.5 times combined tegumen/uncus length, harpe evenly rounded, projects slightly dorsad as a blunt point, costa centrally arched. Penis long, about 1.9 times valva length, straight and slender; no phallobase, no cornutus, may have some fine distal dentation. Juxta a weakly sclerotized, narrow strip with short lateral cephalad projections.

Female. As male but slightly larger and lacking the forewing stigma. **Genitalia:** Lamella postvaginalis a microtrichia covered plate, deeply and broadly concave on its caudal edge. Lamella antevaginalis weakly developed as two lateral plates. Antrum a well sclerotized tube, length about 1.5 times width of lamella postvaginalis; ductus seminalis attached dorsally at cephalad end of antrum. Ductus bursae, a partial spiral, gradually widening to a long, narrow, spiculose corpus bursae constricted near its cephalad end.

Wing measurements: **Male forewing** 12.5 x 6.5 mm (holotype), averaging 12.60 x 6.30 in 15 males measured, varying from 12 x 6 to 13 x 6.5. **Female forewing** 13.5 x 7 mm in the only female paratype.

Type material: The male holotype is from Guyana: Berbice; New River Triangle, Camp Jaguar +500 ft. 7 Nov. 1980 leg S. R. Steinhauser, bearing the following labels: printed and hand printed white label, GUYANA: BERBICE / New River Triangle, / Camp Jaguar, +500' / 7 xi 1980 / S. R. Steinhauser; printed white label, Allyn Museum / Acc. 1980-30; printed red label, **HOLOTYPE Male / Parphorus jaguar** / Stephen R. Steinhauser. There are 15 male paratypes and one female paratype, same locality, same collector, 2-12 Nov. 1980. There is a male from Nicaragua in the collection of Richard A. Anderson that has approximately identical genitalia and maculation, differing slightly in size (14.5 mm), that is not included in the type series as it may represent a separate subspecies. More material is needed for comparative studies. The holotype male, 15 male and one female paratypes are deposited in the McGuire Center for Lepidoptera and Biodiversity.

Etymology. I have named this taxon *jaguar* for the type locality, Camp Jaguar in the New River Triangle, an area claimed by both Guyana and Suriname.

Discussion. There is considerable confusion in my mind concerning the correct phylogenetic placement of *Parphorus* Godman, 1900. This is discussed in more detail below in the discussion of the new species of *Saturnus*.

Crinifemur, new genus

Size. Male forewing length of the type species is 14 mm.

Palpi. Quadrate, but slightly flattened, third segment stout, pointed, protrudes slightly beyond hairs of second.

Antennae. Long, greater than half costa, shaft faintly checkered, club slender, about one fourth total antennal length, apiculus angled, nudum 14 segments with 4-5 on club.

Wings (see fig.14). Forewing slightly less than half as wide as long, apex roundly angled, termen evenly rounded, bearing prominent, rather broad, tri-partite stigma from base of Cu₁ to slightly basad of mid 2A; Cu₂ arises from cell about midway between base and Cu₁, which arises from cell much closer to M₃ than to Cu₂; M₃ arises midway between slightly decurved M₂ and Cu₁; discal cell about equal to dorsum. Hindwing more or less triangular, termen rounded; Cu₂ arises from cell much closer to Cu₁ than to base, Cu₁ arises closer to M₃ than to Cu₂, M₂ not developed; discal cell about half wing length.

Legs. Foretibiae with long, stout epiphyses reaching tarsi, mid- and hindtibiae spined, midtibiae with single pair of spurs, hindtibiae with two pairs, hindfemora with long dense hairs (see fig. 15).

Male genitalia (see fig. 16). Tegumen short, broad; uncus not as broad as tegumen, shallowly bifurcate caudally; gnathos nearly as broad as tegumen, deeply and widely bifurcate, extending caudad beyond uncus. Valvae nearly twice as long as combined tegumen/uncus; harpe broad, ending in sharp, dorsally directed point and bearing an inwardly directed dentate ridge. Penis longer than valva, slender, prominently bifurcate caudally, the right tine shorter than the left, without cornutus, but vesica ends in a spinose sac. Juxta well developed; saccus a short triangle.

Type species. *Crinifemur viridans*, new species.

Etymology. *Crinifemur* is so named because of the long haired hindfemora, a combination of the Latin words “crinis”, long hair and “femur”, thigh bone; its gender is neuter.

Discussion. In Evans’(1955) admittedly somewhat flawed classification of the American Hesperiinae, *Crinifemur* probably would be placed in his “J” group, but because of the antennal nudum and the slightly flattened palpi it might be considered part of the “L” group close to *Mucia* Godman, 1900. I prefer to place it in the “J” group near *Onophas* Godman, 1900, from which it is separated by its broad rather than slender stigma, its very hairy hindfemora and the prominently bifurcate penis.

Crinifemur viridans, new species

Figs. 4, 5 (δ holotype), 14 (δ holotype wing venation and secondary sex characters),
15 (δ holotype hindleg), 16 (δ holotype genitalia)

Male. Head and Thorax brilliant iridescent green; palpi and antennae as described for genus. Thoracic appendages: Legs brown, structurally as described for genus. Wings as described for genus. Dorsal surface: Forewing dark brown, some ochreous scaling in costal cell and base of discal cell, and forming an indistinct ochreous spot in lower Cu₂-2A just distad of stigma. Hyaline white spots in upper cell at origin of R₂ (very small), near base of M₃-Cu₁ (small) and in Cu₁-Cu₂ (largest, narrow, oblique, parallel to stigma) (see fig. 14). Fringe concolorous. Hindwing same dark brown as forewing with a suggestion of faint white postdiscal spots in M₃-Cu₁ and Cu₁-Cu₂ and a cell end spot. Fringe concolorous shading to paler brown tornally. Ventral surface: Forewing paler brown than above, more or less densely overscaled ochreous in costal area and distal two thirds of wing, basal area blackish brown. Hyaline white spots repeated from above with additional opaque white streak in Cu₂-2A. Fringe concolorous. Hindwing same paler brown as forewing, heavily overscaled ochreous, small white spots as above but more prominent. Fringe concolorous shading to paler at tornus. Abdomen dark brown above, whitish beneath. Genitalia as described for genus.

Wing measurements: Male forewing (holotype) 14 x 6.5 mm.

Etymology. *Crinifemur viridans* is so named because of its brilliant green head and thorax.

Type material. Only the holotype, Guyana: Berbice; New River Triangle, Camp Jaguar, + 500 ft. 8-xi-1980 leg S. R. Steinhauser, bearing the following labels: printed and hand printed white label, GUYANA: BERBICE / New River Triangle, / Camp Jaguar, +500' / 8 xi 1980 / S. R. Steinhauser; printed white label, Allyn Museum / Acc. 1980-30; printed and hand printed white label, Genit. Prep. / SRS-1292; printed and hand printed white label, Allyn Museum / Photo No. 000107/ 12,13; printed red label, HOLOTYPE Male / *Crinifemur viridans* / Stephen R. Steinhauser. The holotype is deposited in the collection of the McGuire Center for Lepidoptera and Biodiversity.

Discussion: Attempting to trace this taxon through Evans’ (1955) key to the genera of his “J” group leads to *Onophas*; tracing it through his key to the species of *Onophas* leads only to confusion. An additional couplet is needed in the generic key. Couplets 45b (52a) should be re-named 45b (53a), couplet 45c (51) re-named 45c (51a), and couplets 52 and 53 each raised by one. After *Eutychide*, the key should read:

- 51a** (45c). male upf with or without stigma. Midtibiae spined. head above, usually green or blue.
- 51** (52). Hindfemora with normal hairs. Stigma may be obsolete. F 15 mm. *Onophas*. 3 species. Panama-S. Brazil.
- 52** (51). Hindfemora with long dense hairs. Stigma present, broad. *Crinifemur*. 1 species. Guyana.

***Thoon opus*, new species**

Figs. 6, 7 (δ holotype), 8 (φ paratype), 17 (δ holotype forewing venation and secondary sex characters), 18 (δ holotype genitalia), 19 (φ paratype genitalia)

Male. Head dark brown with ochreous scaling; palpi quadrate, mixed brown and ochreous scaling above, paler beneath, ochreous at sides against eyes, third segment stout, cylindrical, dark brown, protrudes well beyond second. Antennae longer than half costa, dark brown above, minutely and faintly checkered whitish beneath, whitish beneath slender club which is one third total antennal length; apiculus angled, about three times club thickness; nudum 14 segments with three or four on club. **Thorax** dark brown. **Thoracic appendages:** Legs dark brown, overscaled pale ochreous; foretibiae with epiphyses reaching tarsi; midtibiae spined, with single pair of spurs; hindtibiae missing. **Forewing** slightly less than twice as long as wide, apex roundly angled, termen evenly rounded; long, slender, rather obscure brands above and below vein Cu_2 near its base and above vein 2A. Cu_2 arises from cell about midway between Cu_1 and base, M_3 arises from cell about midway between M_2 and Cu_1 , M_2 straight at its origin. **Hindwing** roughly triangular, termen evenly rounded, tornus somewhat produced, vein 3A being about equal to vein 2A. Discal cell length about half wing length; Cu_2 arises from cell nearer to Cu_1 than to base; Rs arises from cell slightly basad of Cu_2 ; M_2 is well developed. **Abdomen** dark brown. **Dorsal surface:** **Forewing** dark brown with ochreous scaling in costal cell and base of discal cell, paler ochreous scaling in base of Cu_2 -2A and anal cell. Hyaline white spots in upper cell near origin of R_3 (small), Rs - M_1 (minute), M_3 - Cu_1 (about 1 mm), Cu_1 - Cu_2 (largest, distally concave). Fringes concolorous, shading to paler at tornus. Note that the paler apical areas in figure 6 are the result of rubbing. **Hindwing** same dark brown as forewing overlain with long, slightly paler hair scales in basal half behind radius, otherwise unmarked. Fringes concolorous shading to slightly paler brown tornally. **Ventral surface:** **Forewing** very slightly paler brown than above, overscaled ochreous in costal cell and pale ochreous in $Sc+R_1$. Radial and median veins overscaled ochreous. Hyaline spots as above, cell spot and spot in Rs - M_1 overscaled opaque pale ochreous and there is slight ochreous scaling forming minute opaque ochreous spots in R_4 - R_5 and M_3 - Cu_1 ; there is a pale opaque ochreous streak in Cu_2 -2A beneath the spot in Cu_1 - Cu_2 and extending both distad and basad along vestigial vein 1A. Fringes as above. **Hindwing** same brown as forewing, heavily overscaled ochreous in upper half of discal cell and lower portion of the base of $Sc+R_1$ - Rs , less heavily in base of costal cell and in anal cell. Veins scaled ochreous, heavily and broadly so along vestigial vein 1A. There is a pale ochreous streak in the cell extending from M_2 to wing base, and short ochreous interneural streaks before the termen in $Sc+R_1$ - Rs to Cu_1 - Cu_2 , and small, indistinct postdiscal ochreous spots in Rs - M_1 , M_1 - M_2 , M_3 - Cu_1 and Cu_1 - Cu_2 . Fringes concolorous. **Genitalia:** Tegumen short, broad; uncus bifurcate, the arms broad in ventral view, separated "V"-wise; gnathos bifurcate, the arms approximate in ventral view; lateral view of uncus and gnathos reminiscent of the cartoon character Opus, the penguin. Saccus

long, slender. Valvae symmetrical, long, slender, about 1.8 times combined tegumen/uncus length, harpe a prominent dorsal hook. Penis long, about 1.2 times valva length; phallobase very short, prominently curved ventrad; cornutus a very weakly developed plate. Juxta well sclerotized.

Female. Similar to male but somewhat larger. **Dorsal surface** slightly paler brown than male. Forewing with hyaline spots as male plus additional spots in R₄-R₅, M₂-M₃ and Cu₂-2A (opaque). Hindwing as male with indistinct opaque pale ochreous postdiscal spots in Rs-M₁, M₁-M₂, M₃-Cu₁ and Cu₁-Cu₂. **Ventral surface** like male, forewing spots as on dorsal surface with additional minute spot in M₁-M₂; hindwing as male, postdiscal spots more prominent with additional minute spot in M₂-M₃. **Genitalia:** Lamella postvaginalis a microtrichia covered plate, centrally shallowly excavate on its caudal edge, the central portion somewhat sinuous; lamella antevaginalis developed as two narrow lateral plates like fingers supporting the lamella postvaginalis. Papillae anales long, narrow triangles similar to those of several *Niconiades* Hübner, 1821 species, with long apophyses posteriores. Antrum weakly sclerotized, ductus seminalis connected dorsally at its cephalad end. Ductus bursae partly spiralled, gradually widening to a long, centrally constricted, spiculose corpus bursae.

Wing measurements: **Male forewing** 13.5 x 7 mm (holotype). **Female forewing** 15.5 x 8 mm.

Type Material. The male holotype is from Guyana: Berbice; New River Triangle, Camp Jaguar + 500 ft. 14 Oct. 1980 leg S. R. Steinhauser, bearing the following labels: printed and hand printed white label, GUYANA: BERBICE / New River Triangle, / Camp Jaguar, +500' / 14 x 1980 / S. R. Steinhauser; printed white label, Allyn Museum / Acc. 1980-30; printed and hand printed white label, Genit. Vial / SRS-2682; printed and hand printed white label, Allyn Museum / Photo No. 991215 / 20A, 21A; printed red label, **HOLOTYPE Male / *Thoon opus* / Stephen R. Steinhauser**. There is one female paratype, same locality, same collector, 12 November, 1980. There is a male and a female from Nicaragua in the collection of Richard A. Anderson that have approximately identical genitalia and maculation, differing slightly in size (14.5 mm for the male, 16 mm for the female) that are not included in the type series as they may represent a separate subspecies. More material is needed for comparative studies. The holotype and female paratype are deposited in the McGuire Center for Lepidoptera and Biodiversity.

Etymology. I have named this taxon “opus” because of the resemblance of the lateral view of the uncus and gnathos to the character Opus, the penguin, in the old comic strip “Bloom County”, by Bert Breasted.

Discussion. The genus *Thoon* Godman, 1900, as construed by Evans (1955) is a probably polyphyletic assemblage of 11 species plus two subsequently described. Two of these 13 species have a tripartite brand on the male forewing, five have a two piece brand, two a single circular or oval brand in Cu₁-Cu₂ and four are without brands. The male genitalia of the 12 species whose genitalia have been illustrated show no clearcut generic pattern.

Thoon opus fits into that portion of Evans’ “J” group with antennal nudum of 3/11-4/10, which comprises 10 genera when *Crinifemur* is included. It does not fit Evans’ description of *Thoon* in that it has long, slender brands, instead of short brands or none, and in having a weakly checkered antennal shaft instead of plain. It has brands similar to those of *Justinia* Evans, 1955, but its midtibiae are spined rather than smooth, and its genitalia do not fit any better or worse to an imagined general genitalic pattern of *Justinia* than to that of *Thoon*. I tentatively place *opus* in the genus *Thoon*.

***Saturnus harpe*, new species**

Figs. 9, 10 (δ holotype), 20 (δ holotype, genitalia), 21 (δ holotype,
forewing secondary sex characters)

Male. **Head** blackish brown with white scaling around the eyes; palpi quadrate, mixed brown and whitish scaling above, paler beneath, third segment stout, cylindrical, dark brown, protrudes slightly beyond second. Antennae longer than half costa, dark brown above, checkered whitish beneath, whitish beneath slender club which is about one quarter total antennal length; apiculus angled, about three times club thickness; nudum 13 segments with four on club. **Thorax** dark brown. **Thoracic appendages:** **Legs** dark brown, overscaled pale ochreous; foretibiae with epiphyses reaching tarsi; midtibiae (missing in holotype) with a few spines and single pair of spurs; hindtibiae spined, bearing two pairs of spurs. Forewing length slightly more than twice width, apex roundly angled, termen nearly straight; complex stigma as described by Evans (1955: 151) for *Parphorus storax* (Mabille, 1891) and on p. 267 for *Saturnus*. The stigma consists of a three part portion covered with shining black hair scales, one part a long slender streak along the cubitus from slightly distad of Cu₂ to M₃, a second rounded part in Cu₂-1A, extending slightly into Cu₁-Cu₂ where it nearly joins the proximal end of the cubital part, and a third oblique part beneath the second in 1A-2A. The obtuse angle between the cubital part and the other two is densely filled with a mat of grey hair scales. Cu₂ arises from cell much nearer to Cu₁ than to base; M₃ arises from cell about midway between M₂ and Cu₁; M₂ straight at origin. **Hindwing** roughly triangular, termen flatly rounded, tornus somewhat produced, vein 3A being about equal to vein 2A. Discal cell length slightly greater than half wing length. Cu₂ arises from cell much nearer to Cu₁ than to base; Rs arises from cell about opposite Cu₂; M₂ is well developed. **Abdomen** not observed prior to dissection. **Dorsal surface:** **Forewing** dark brown with pale ochreous scaling in costal cell. Semi-hyaline white spots in R₅-M₁ (small), M₃-Cu₁ (about 1 mm) and Cu₁-Cu₂ (largest, rhomboid). There is a slightly elongate opaque yellowish spot in 1A-2A behind the spot in Cu₁-Cu₂. Fringes concolorous shading to paler at tornus. **Hindwing** same dark brown as forewing overlain with long, slightly paler hair scales in basal half behind radius, otherwise unmarked. Fringes pale brown shading to still paler brown tornally. **Ventral surface:** **Forewing** slightly paler brown than above, overscaled pale ochreous in costal cell. Radial veins and distal two thirds to one half of median veins prominently overscaled pale ochreous as well as the distal portions of veins Cu₁ and Cu₂. There is subterminal pale ochreous scaling between the veins in the apical area before a brown terminal line. Semi-hyaline spots as above; the opaque spot in 1A-2A above represented as a vague pale ochreous area in Cu₂-2A. Fringe as above. **Hindwing** same brown as forewing, all veins prominently pale ochreous, 1A very prominent. There are pre-terminal pale ochreous streaks between all veins forward of 1A. **Genitalia:** Tegumen roughly rectangular, wider than long; uncus about as long as tegumen, slightly narrower, bilobed, forming two short, widely spaced horns, hooked in lateral view, bordered interiorly by two small hump-like distal protrusions. Gnathos very prominent, broadly bilobed, extending caudad slightly less than uncus. Saccus very long, slender, 1.5 times combined tegumen/uncus length. Valvae symmetrical, long, slender, 2 $\frac{1}{4}$ times combined tegumen/uncus length, four times as long as wide; harpe very long, scimitar-shaped. Penis long, slender, straight, 1.3 times valva length; phallobase short, no cornutus. Juxta well sclerotized, prominently bifurcate cephalad.

Female: Unknown.

Wing measurements: Male forewing 13.5 x 6 mm.

Type material: Holotype, Peru: Madre de Dios; 0-2 Km. W of Puerto Maldonado, 250 m elevation, 19 August, 1981, leg Lee D. Miller bearing the following labels: printed white label, PERU: MADRE de DIOS / 0-2 km. W of Puerto / Maldonado, 250 m. / moist forest / 19.viii.1981 / Lee D. Miller, sta. PE11; printed white label, Aronheim Exp. / Allyn Museum / Acc. 1982-1; printed and hand printed white label, genitalia vial no. / M-6266 ♂ / Lee D. Miller; printed and hand printed white label, Genit. Vial No. / SRS-5674 File No.; printed red label, **HOLOTYPE Male / *Saturnus harpe*** / Stephen R. Steinhauser; white paper triangle with left antennal apiculus glued on. There is one male paratype, same data as holotype. The holotype and paratype are deposited in the McGuire Center for Lepidoptera and Biodiversity.

Etymology. This taxon is named *harpe*, Latin noun for scimitar, because of the scimitar-like shape of the male *harpe*.

Discussion. There is some question about the validity of Evans' (1955) arrangement with regards to the genera *Parphorus*, *Vorates* Godman, 1900 and *Saturnus*. The complex male forewing stigma of *Phlebodes storax*, the type species of *Parphorus*, is essentially the same as that of the several species of *Saturnus*, but quite different from the brand of *Cobalus decora* Herrich-Schäffer, 1869, the type species of *Vorates*, which Evans synonymized with *Parphorus*. He placed *storax* in *Parphorus* rather than in *Saturnus* because of the slight difference in antennal nudum, 3/8 for *storax* versus 4/9 for *Saturnus*, and the diffent placement of forewing vein Cu₂, midway between Cu₁ and wing base in *storax*, nearer to Cu₁ in *Saturnus*. I think that the great similarity between stigmata of *P. storax* and *Saturnus* is far more significant than the antennal and venation differences, and that *storax* is probably congeneric with at least *S. saturnus* and probably the rest of *Saturnus* as treated by Evans. I have neither the time, nor sufficient available material to prove this point, but merely suggest it as a possible subject for some future study. If correct, this would revive *Vorates* as a valid genus and sink *Saturnus* as a junior synonym of *Parphorus*. Whether *Parphorus* should remain in Evans' "J" group or be moved to the "L" group is an open question; a major revision is needed here. For now, I place *harpe* in *Saturnus*, *Parphorus jaguar* (see above) in *Parphorus*, and leave the rest untouched.

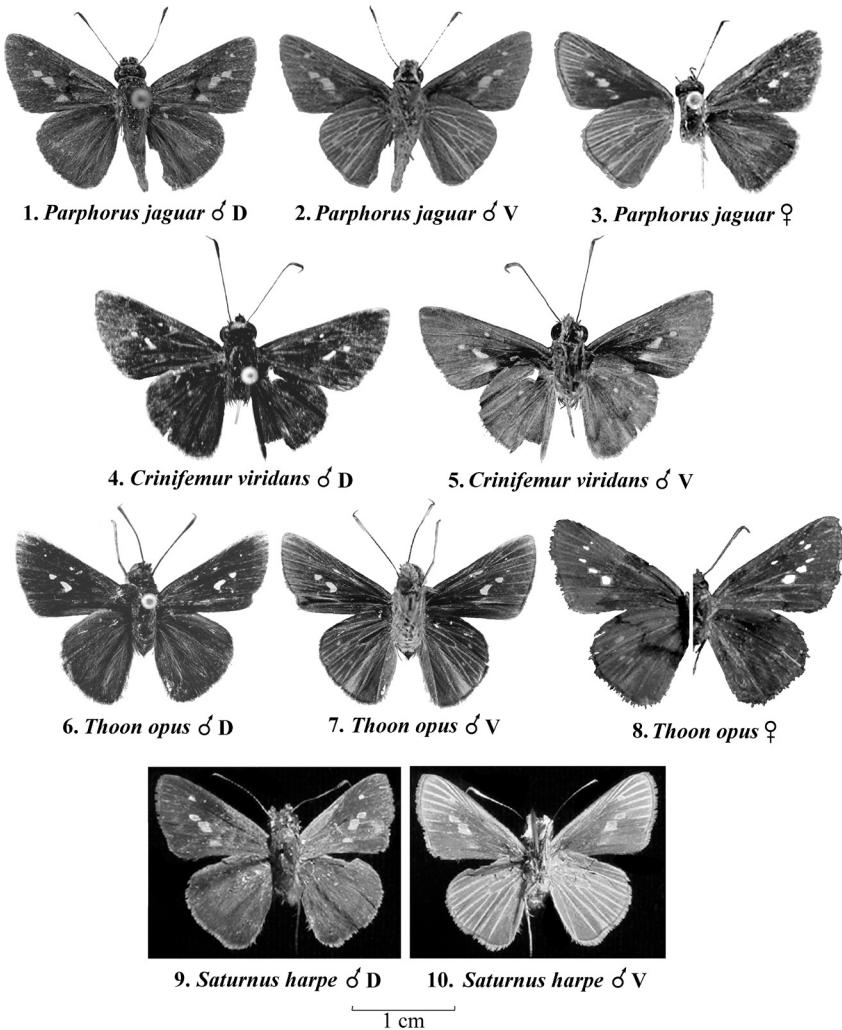
Saturnus harpe would key out to *Saturnus saturnus* unless one looked at the genitalia, which differ greatly from *S. saturnus* primarily in the shape of the harpe; long, slender and prominently produced dorsad in *S. harpe*, but with no dorsal projection at all in *S. saturnus*. The uncus and gnathos of *S. harpe* are much broader than in *S. saturnus*, and the uncus of *S. harpe* is prominently bifurcate. There is no phallobase in *S. saturnus*, yet a short one is present in *S. harpe*. The genitalia of *S. harpe* are quite similar to those of *S. reticulata* (Plötz, 1883), although the uncus of *S. reticulata* is much narrower than in *S. harpe*, not bifurcate, and its gnathos arms are much closer together and more slender. The ventral hindwing of *S. harpe* is plain, except for its prominent pale veins, differing from the variegated hindwing of *S. reticulata*. The hindwing of *S. harpe* is similar to the hindwing of *S. steinbachi* (Bell, 1930), but the forewing of *S. harpe* lacks many of the spots of *S. steinbachi*.

ACKNOWLEDGMENTS

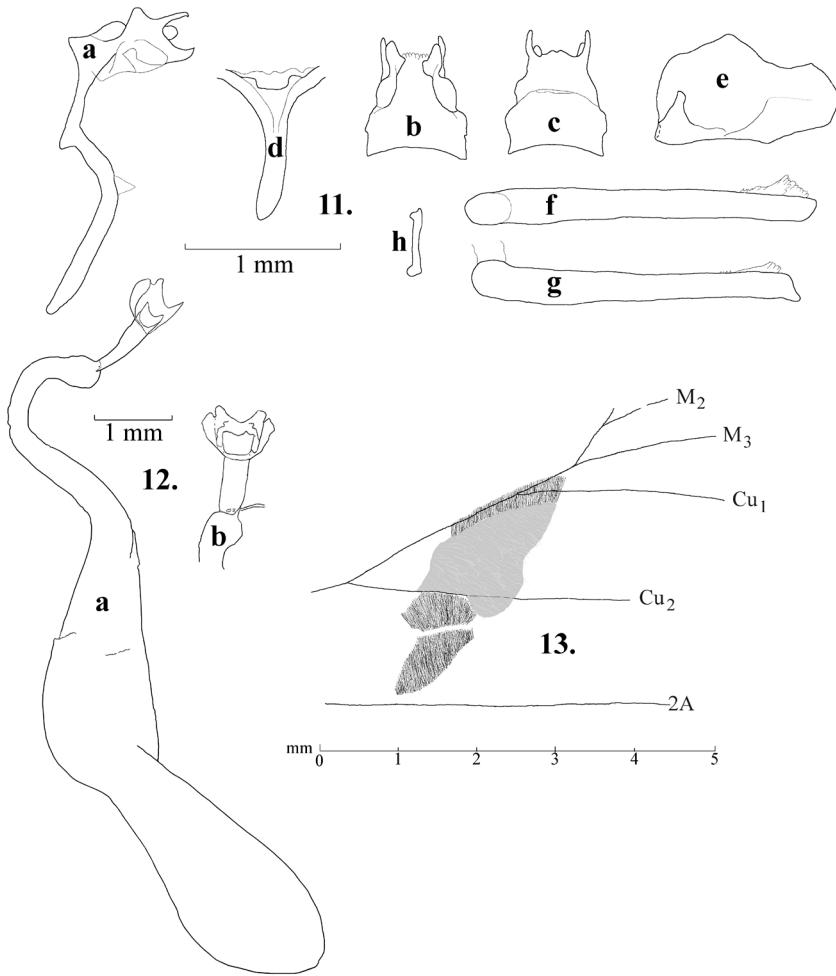
I am indebted to Lee D. and Jacqueline Y. Miller, curators at the McGuire Center for Lepidoptera and Biodiversity (MGCL), for their continued support and access to the collections. Special thanks to Jacqueline Y. Miller for careful review of the manuscript and many helpful suggestions. I would also like to thank George Austin, Andrew Warren, and Deborah Matthews Lott for equally careful reviews of the manuscript and some of their suggestions have been incorporated into the final publication. Deborah Matthews Lott and Dona-Marie Mintz are acknowledged for their efforts on the final production of this publication.

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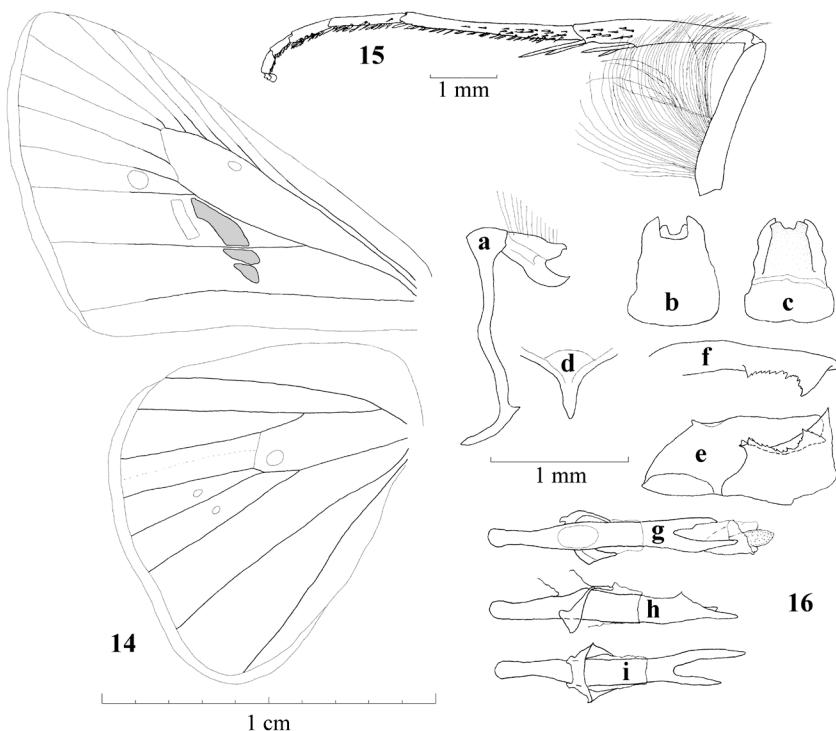
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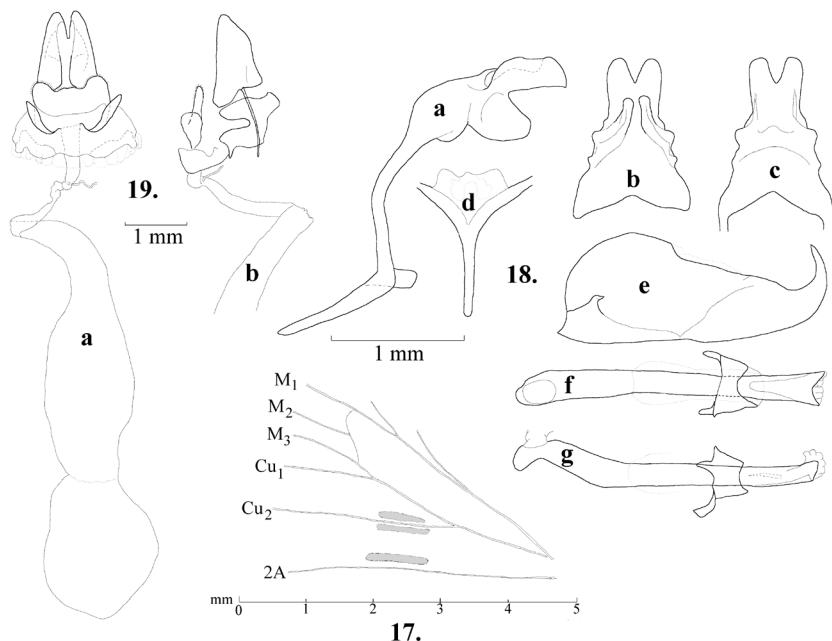
Figures 1-10. New species of Hesperiinae. 1. *Parphorus jaguar*, new species male holotype, dorsal; 2. *P. jaguar*, male holotype, ventral; 3. *P. jaguar*, female paratype, ventral & dorsal; 4. *Crinefemur viridans*, new species male holotype, dorsal; 5. *C. viridans*, male holotype, ventral; 6. *Thoon opus*, new species male holotype, dorsal; 7. *T. opus*, male holotype, ventral; 8. *T. opus*, female paratype, ventral (note that zigzag dark streak on hindwing is an artifact) and dorsal; 9. *Saturnus harpe*, new species male holotype, dorsal; 10. *S. harpe*, male holotype, ventral. Scale as shown.



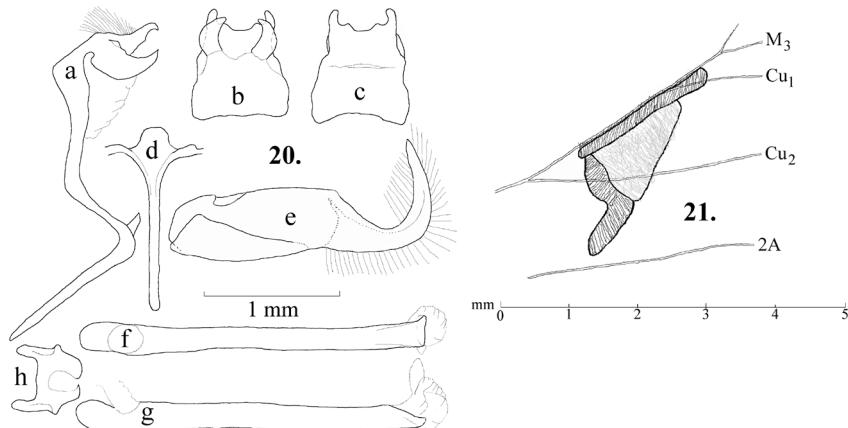
Figures 11–13. *Parphorus jaguar*, new species. 11. Male genitalia, paratype (genit. prep. SRS-5670): **a**) tegumen, uncus, gnathos, vinculum and saccus - lateral; **b**) tegumen, uncus, gnathos - ventral; **c**) same - dorsal; **d**) saccus - ventral; **e**) right valva, interior - lateral; **f**) penis - dorsal; **g**) same - lateral; **h**) juxta - ventral. **12.** Female genitalia (genit. prep. SRS-1618): **a**) ventral view, slightly skewed; **b**) ventral view. **13.** Male holotype forewing secondary sex characters. Scales as shown.



Figures 14-16. *Crinifemur viridans*, new genus, new species, male holotype. 14. Wing venation and secondary sex characters; 15. Hindleg; 16. Genitalia (genit. prep. SRS-1292); a) tegumen, uncus, gnathos, vinculum and saccus - lateral; b) tegumen, uncus, gnathos - ventral; c) same - dorsal; d) saccus - ventral; e) right valva, interior - lateral; f) same - dorsal; g) penis and juxta - dorsal; h) same - lateral; i) same - ventral. Scales as shown.



Figures 17–19. *Thoon opus*, new species. 17. Male holotype, forewing venation and secondary sex characters; 18. Male holotype genitalia (genit. prep. SRS-2682); a) tegumen, uncus, gnathos, vinculum and saccus - lateral; b) tegumen, uncus, gnathos - ventral; c) same - dorsal; d) saccus - ventral; e) right valva, interior - lateral; f) penis and juxta - dorsal; g) same - lateral. 19. Female paratype (genit. prep. SRS-3596); a) ventral; b) lateral. Scales as shown.



Figures 20–21. *Saturnus harpe*, new species. 20. Male holotype genitalia (genit. vial. M-6266, [SRS-5674, File No.]): a) tegumen, uncus, gnathos, vinculum and saccus - lateral; b) tegumen, uncus, gnathos - ventral; c) same - dorsal; d) saccus - ventral; e) right valva, interior - lateral; f) penis and juxta - dorsal; g) same - lateral; h) juxta - ventral. 21. Male holotype forewing secondary sex characters. Scales as shown.