

10mm. Forewing more rounded with convex distal margin. Ground color of both dorsal wing surfaces paler brown; forewing with white fringe elements at distal margins of cells 1A+2A and Cu₁, dorsal hindwing with pale grey-brown at margin, dark red-brown spots at submargin (very faint in some specimens).

Types.— *Holotype male*: ECUADOR.— *Napo Prov.*: Río Napo, Limoncocha, 240m, 3 Oct 1973 (S. S. Nicolay) (diss. # JPWH 53); in the USNM.

Allotype female: PERU.— *Madre de Dios*: Parque Nacional del Manu, Pakitza, 12°07'S 70°58'W, 400m, 2 Oct 1991 (O. Mielke); in the USNM.

Paratypes: PERU.— same locality data as AT, 1 ♂, 4 ♀: 15 Oct 1991, 1 ♂ (G. Lamas); 15 Nov 1990, 1 ♀ (W. Rowe); 2 Oct 1991, 1 ♀ (O. Mielke); 10 Oct 1991, 1 ♀ (M. Casagrande); 5 Oct 1991, 1 ♀ (O. Mielke); all in the USNM. *Amazonas*: Río Huallaga, Achinamiza, 27 Aug 1927, 1 ♀ (Bassler) (AMNH). ECUADOR.— *Napo Prov.*: km 20 Tena-Puyo rd., Apuya, 600m, 30 Aug 93, 1 ♀ (J. P. W. Hall); km 12 Tena-Puyo rd., Finca San Carlo, 600m, 19 Feb 95, 1 ♀ (K. R. Willmott); both in the coll. of JHKW. *Sucumbios Prov.*: 75 km ESE of Coca, Garza Cocha-Añangu, 17 Nov 1996, 1 ♂ (P. J. DeVries); in the coll. of PJD. BRAZIL.— *Pará*: Pará, 2 ♀ (H. W. Bates); Amazon, 1 ♂ (diss. # 4422); all in the BMNH.

Etymology.— This species is named for my life-long friend Keith R. Willmott, who has been a constant field companion around the globe and an indefatigable co-author on many projects including "The Butterflies of Ecuador".

Diagnosis.— *S. willmotti* n. sp. differs most conspicuously from *S. spicata* by having a paler ventral surface and yellow-orange instead of black and white legs but is additionally separated as outlined in that species account; and from *S. acanthoides* by having a more pointed forewing (in the male) and only one elongate silver streak in the apex of the ventral forewing instead of two. *S. willmotti*, especially the female, is probably most similar to *S. harveyi* n. sp. (described below), which has two ventral forewing apical silver streaks that are not as prominent as in *S. acanthoides*, the lower one being divided through the middle, a character that is exaggerated in the female; *S. willmotti* never has silver immediately distal to the black spot in cell M₂. *S. willmotti* additionally differs from *S. harveyi* by having a more pointed forewing (in the male), a smooth postdiscal row of black spots on the ventral forewing that is not enlarged in cell M₃, and less grainy (pale brown scales over brown) background coloration on both ventral wing surfaces.

Discussion.— This species is currently known from Ecuador, Peru and Brazil (Amazon) but appears to be more common in the western Amazon. It is uncommon to rare in primary forest habitats below 600m and I have only encountered solitary females (also by far the most commonly represented sex in collections) low to the ground in lightgaps and along forest trails during the afternoon.

It is worth noting here that there are two female specimens from Costa Rica, in the collections of PJD (figured in DeVries (1997) as *S. spicata*) and the ZMHU, that have ventral wing patterns somewhat intermediate between *S. willmotti* and *S. turrialbensis*. They may well represent an undescribed taxon, but more material, including males, is needed to come to any firmer conclusions.

Sarota acanthoides (Herrich-Schäffer, [1853])

Fig. 13a-d; 32

Nymphidium acanthoides Herrich-Schäffer, [1853], *Samml. aussereurop. Schmett.* 1:55, pl. 13, fig. 49-50. TL: Surinam. Holotype male, Staatliches Museum für Naturkunde, Stuttgart (SMNS); type photograph [Examined courtesy of G. Lamas].

Identification and taxonomy. Average FW length 11mm.

Because of its relatively pale ventral surface, *S. acanthoides* superfi-

cially resembles *S. willmotti* n. sp. (described above) but it differs most conspicuously by having two prominent proximally directed silver streaks in the apex of the ventral forewing. However, its rounded wing shape and overall ventral patterning place it closest to *S. harveyi* n. sp. (described below). It differs from that species most conspicuously on the ventral surface by having more orange-brown coloration and thus less grainy (pale brown scales over brown) background coloration and two prominent, unbroken proximally directed silver streaks in the apex of the forewing. Interestingly, *S. acanthoides* is the only described species (at least in the male) outside the "chrysus group" to have orange-brown tips to the antennal clubs. **Biology.** Brévignon and Gallard (1998) report finding this species in French Guiana on hilltops from 1000-1200h then later in flat forest from 1300-1400h.

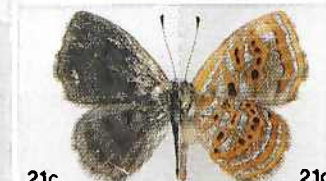
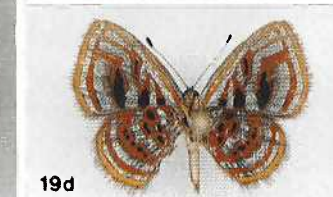
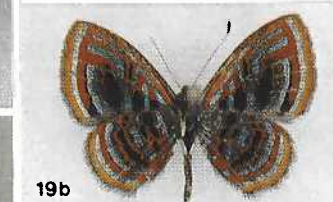
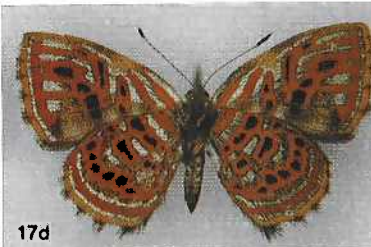
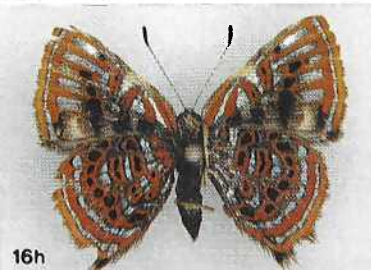
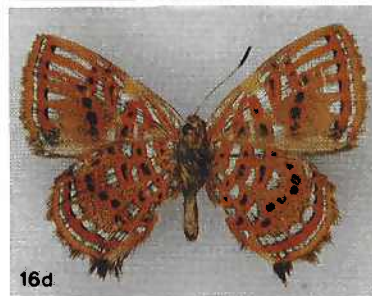
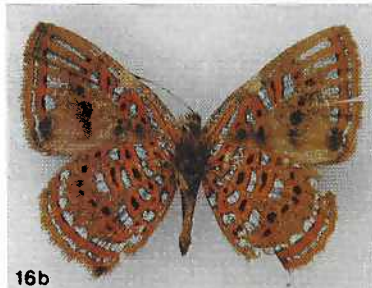
Distribution. Venezuela to Peru, Brazil (Amazon, Mato Grosso), Guianas. Most specimens in collections originate from Brazil (central and lower Amazon, Mato Grosso) and the Guianas, those from the western Amazon being very rare.

Sarota harveyi Hall, new sp.

Fig. 14a-d; 33

Description.— **MALE**: forewing length 11mm. Forewing costal and distal margins convex; hindwing apex and tornus produced into small points, three roughly equally sized tails at middle of distal margin. **Dorsal surface**: ground color of both wings brown; faint, darker brown discal, postdiscal and submarginal markings on both wings; fringe brown on forewing except for some white scaling at margin of cell 1A+2A, white then dark brown on hindwing. **Ventral surface**: forewing ground color brown scattered with pale brown scales, paler at anal margin; black line surrounded by orange-brown with silver streak above and silver distally at discal cell end and towards cell end with a vertical black line, that is surrounded by some orange-brown and has silver distally in cell Cu₂, in cells below; small black spot towards base of discal cell surrounded by triangle of orange-brown, that joins to middle cell marking at upper edge of cell, with silver distally and proximally and black square in cell below, orange-brown surrounds base of costal edge of discal cell, thin line of silver at base of costa; postdiscal line of black spots surrounded by some orange-brown extends from cell M₃ to cell 1A+2A curving slightly outwards in upper half and enlarged in cell M₃, a small black spot surrounded by orange-brown with silver streak distally toward base of cell R₃; broken, postmedial silver line edged proximally with black is largely black in cell 1A+2A, has a complete proximally directed silver streak in cell M₁, and one in cell M₂ that is thinned medially and almost divided in two; remainder of costa and submargin orange-brown, margin dark yellow-orange, thin submarginal silver line extends from apex to vein 1A+2A; fringe brown except for some white scaling at margin of cell 1A+2A. Hindwing ground color brown scattered with pale brown scales; orange-brown band at base lined distally and proximally by silver contains one small black spot towards costa, a small silver spot at middle; postdiscal band of black spots surrounded by some orange-brown extends from costa, curving inwards to vein M₃, kinking sharply inwards in cells Cu₁ and Cu₂, then continuing to anal margin, kinking inwards below vein 1A+2A, some disjunct silver proximally at costa, discal cell end and towards anal margin; black mark surrounded by orange-brown at discal cell end and in middle of discal cell with silver inbetween, similarly marked band extends below latter silver patch to anal margin, and above and below medial discal mark to the costal and anal margins respectively; uneven, slightly broken, postmedial silver line with thin layer of black scaling distally curves sharply inwards at costal and anal margins and thins in cells M₃ and M₂; orange-brown at submargin extends from apex to tornus and has a thin silver line distally below vein M₁; margin and tails between tornus and vein

Fig. 8-15. 8. *S. chocoensis* Hall n. sp., allotype female, Río Tanti, W. Ecuador [JHKW]: c) DS; d) VS. 9. *S. turrialbensis*, holotype male, Turrialba, Costa Rica [USNM]: a) DS; b) VS. 10. *S. craspediodonta*, male, Xcan, Quintana Roo, Mexico [FSCA]: a) DS; b) VS. Holotype female, Presidio, Mexico [USNM]: c) DS; d) VS. 11. *S. spicata*, Lectotype male, Pebas, Peru [ZMHU]: a) DS; b) VS. Female, Cotundo, E. Ecuador [USNM]: c) DS; d) VS. 12. *S. willmotti* Hall n. sp., holotype male, Limoncocha, E. Ecuador [USNM]: a) DS; b) VS. Allotype female, Pakitza, Peru [USNM]: c) DS; d) VS. 13. *S. acanthoides*, male, Diamantino, S. Brazil (MaGr) [USNM]: a) DS; b) VS. Female, Pará, Brazil (Pa) [BMNH]: c) DS; d) VS. 14. *S. harveyi* Hall n. sp., holotype male, Diamantino, S. Brazil (MaGr) [USNM]: a) DS; b) VS. Allotype female, nr. Caucalandia, S. W. Brazil (Ron) [USNM]: c) DS; d) VS. 15. *S. psaros psaros*, male, Potrerillos, Panama [USNM]: a) DS; b) VS. Female, Cerro Campana, Panama [USNM]: c) DS; d) VS. *S. psaros albidisca*, holotype female, Chanchamayo, Peru [BMNH]: e) DS; f) VS. *S. psaros psaronius*, male, E. Brazil (Ba) [ZMHU]: g) DS; h) VS. Syntype female, Leopoldina, S. E. Brazil (MiGe) [ZMHU]: i) DS; j) VS.



21b

21d

M₁ yellow with black, then white, then a thin layer of black scales distally forming fringe, fringe at apex brown. **Head:** labial palpi yellow-brown. Eyes brown and very sparsely setose, margins with brown scaling. Frons dark brown. Antennal segments black with white scaling at base that increases laterally and towards clubs; clubs black, bare tips dark brown. **Body:** both surfaces of thorax dark brown; dorsal surface of abdomen dark brown, ventral surface cream. Forelegs yellow-brown, femur of mid and hindlegs pale brown, remainder yellow-brown except tarsi black banded. **Genitalia** (Fig. 33): uncus rounded, small posteriorly projecting point from dorsal edge; vinculum evenly thin; valvae have basal, lateral bulge, long upper portion of even width that is connected by membranous tissue dorsally, and small bluntly triangular lower posterior edge; aedeagus narrow and pointed at tip, tiny cornutus at base; pedicel long.

FEMALE: differs from male in the following respects: wing shape slightly more elongate. Ground color of both dorsal wing surfaces slightly paler brown; lower of the two proximally directed silver streaks in apex of ventral forewing broadly divided by grainy brown.

Types.—*Holotype male:* BRAZIL.—*Mato Grosso:* Alto Rio Arinos, Diamantino, 14°13'S 56°12'W, 350-400m, 23 Feb 1991 (E. Furtado) (diss. # JPWH 52); in the USNM.

Allotype female: BRAZIL.—*Rondônia:* vic. Caucalandia, 10°32'S 62°48'W, 160-350m, 19 Oct 1991 (J. MacDonald); in the USNM.

Paratypes: BRAZIL.—*Mato Grosso:* Cuiabá, 2 ♂; no specific locality, 1886, 1 ♂ (P. Germain); all in the BMNH. PERU.—*Madre de Dios:* Parque Nacional del Manu, Pakitza, 12°07'S 70°58'W, 400m, 6 ♂: 8 Oct 1990, 1 ♂ (R. K. Robbins); 11 Oct 1990, 1 ♂ (R. K. Robbins); 28 Sept 1991, 1 ♂ (R. K. Robbins); 5 Oct 1991, 1 ♂ (M. Casagrande); 4 May 1991, 1 ♂ (D. J. Harvey); 26 Sept 1991, 1 ♂ (G. Lamas); all in the USNM.

Etymology.—This species is named for my friend Donald J. Harvey, whose contribution to the higher systematics of the Riodinidae has been enormous and who has independently spent time unraveling some of the taxonomic mysteries of *Sarota*.

Diagnosis.—The wing shape and overall ventral patterning of *S. harveyi* n. sp. place it closest to *S. acanthoides*. It differs from that species by having markedly more grainy background coloration on both ventral wing surfaces and thus less orange-brown, which is slightly darker, a more exaggeratedly enlarged black spot in cell M₂ of the postdiscal line on the ventral forewing, a partially (male) or completely (female) divided proximally directed silver streak in cell M₂ of the ventral forewing apex, slightly reduced postdiscal silver and slightly more broken postmedial silver lines on both ventral wing surfaces.

Discussion.—This rare species is poorly represented in collections and currently only known from south Peru and the states of Mato Grosso and Rondônia in south and southwest Brazil. It is not clear whether this unusual range for a riodinid represents reality or whether the species is more widely distributed in the central and western Amazon. In south Peru, it is sympatric with its closest relatives *S. acanthoides*, *S. willmotti* n. sp. (described above) and *S. spicata*.

Sarota psaros Godman & Salvin, 1886

Fig. 15a-j; 34

Sarota psaros Godman & Salvin, 1886, *Biol. Cent.-Amer., Lepid. Rhop.* 1:437; 3: pl. 43, fig. 14-15. TL: Cahabón, Vera Paz, Guatemala. Holotype female BMNH [Examined].

Identification and taxonomy: Average FW length 10.5mm.

The grainy white ground color to the ventral surface of *S. psaros* makes it one of the most distinctive species in the genus.

Biology: This widespread species appears to be associated with wet, lower premontane forest habitats from about 500-1400m. DeVries (1997) states that in Costa Rica:

"males are encountered as rare, solitary individuals perching from 3 to 5m above the ground on isolated trees or shrubs between 12:00 and 12:30 hrs, in the company of other *Sarota* species".

Curiously, solitary males have been reported as attracted to black lights at night in both Costa Rica (N. Greig in DeVries, 1997) and French Guiana (M. Thouvenot in Brévignon and Gallard, 1998).

The nominate subspecies of *S. psaros* is uncommon in collections while the other two are very rare, subspecies *albidisca* being known only from the holotype. The validity of these subspecies is uncertain, but since they do show discernible differences and are confined to different biogeographical regions, I maintain them until further material becomes available from the intervening east Andean region to better assess the extent of intrapopulation and clinal variation.

Distribution: Mexico to Panama, Guianas.

Sarota psaros albidisca (Lathy, 1932)

Fig. 15e,f

Charis psaros albidisca Lathy, 1932, *Ann. Mag. Nat. Hist.* (10)9:70. TL: Chanchamayo, Peru. Holotype female BMNH [Examined] (Fig. 15e,f).

Identification and taxonomy: The ventral patterning of this subspecies is somewhat intermediate between the other two but the female holotype has two prominent white spots in the middle of the dorsal forewing.

Distribution: East Peru.

Sarota psaros psaronius (Stichel, 1911)

Fig. 15g-j; 34

Charis psaros psaronius Stichel, 1911, *Gen. Ins.* 112B:250. TL: Leopoldina, Espírito Santo, S.E. Brazil. Syntype females ZMHU [Examined] (Fig. 15i,j).

Identification and taxonomy: Both sexes of this subspecies differ from the nominate by having an orange-brown instead of yellow margin on the ventral hindwing, equal amounts of black distal to the innermost submarginal silver line on both ventral wing surfaces, slightly less dense white ventral scaling that forms a smaller spot in cell Cu₂ of the forewing in relation to the cells above and below, markings in the middle of the ventral forewing discal cell that do not meet the black mark below in cell 1A+2A and marks towards the discal cell end of the ventral hindwing that are coalesced.

Distribution: Southeast Brazil.

Sarota chloropunctata Hall, new sp.

Fig. 24a,b; 35

Description.—**MALE:** forewing length 10.5mm. Forewing pointed, apex slightly angular; hindwing tornus pointed, barely discernible points at end of cells Cu₂, Cu₁ and M₃. **Dorsal surface:** ground color of both wings brown; fringe of both wings brown. **Ventral surface:** forewing ground color brown; black line at discal cell end surrounded by orange-brown with silver streak above, proximally and distally; remainder of discal cell orange-brown except for silver streak at middle that extends to vein 1A+2A where it becomes paler and has a black spot either side, a medial black spot, and silver streak at base; entire costa orange-brown; postdiscal line of black spots surrounded by orange-brown above vein Cu₂ consists of three spots in cells M₁ to M₃, the former being much smaller, and a slightly more proximally positioned,

Fig. 16-21. 16. *S. estrada estrada*, male, Barbarena, Guatemala [BMNH]: a) DS; b) VS. Female, Barbarena, Guatemala [BMNH]: c) DS; d) VS. *S. estrada sabanilla* Hall n. sp., holotype male, Sabanilla, S. Ecuador [JHKW]: e) DS; f) VS. Allotype female, Sabanilla, S. Ecuador [JHKW]: g) DS; h) VS. 17. *S. gamelia gamelia*, male, Piña, Panama [FSCA]: a) DS; b) VS. Allotype female, Sinanja, Vera Paz, Guatemala [BMNH]: c) DS; d) VS. *S. gamelia alba* Hall n. sp., holotype female, Yahuarriyao, S. Peru [BMNH]: e) DS; f) VS. 18. *S. acantus*, type illustration (in Cramer, 1782), Surinam: a) VS. Neotype male, Bartica, Guyana [BMNH]: b) DS; c) VS. Female, Piña, Panama [FSCA]: d) DS; e) VS. 19. *S. miranda*, male, Río Yuturi, E. Ecuador [JHKW]: a) DS; b) VS. Female, nr. Coca, E. Ecuador [JHKW]: a) DS; b) VS. 20. *S. gyas*, type illustration (in Cramer, 1775), Berbices, Guyana: a) VS. Neotype male, Bartica, Guyana [BMNH]: b) DS; c) VS. Female, Montañita, Caquetá, Colombia [USNM]: d) DS; e) VS. 21. *S. myrtea*, holotype male, Cubilguitz, Vera Paz, Guatemala [BMNH]: a) DS; b) VS. Female, km 49 Tena-Loreto rd. (1300m), E. Ecuador [JHKW]: c) DS; d) VS. Male, nr. Cosanga (2000m), E. Ecuador [JHKW]: e) VS. Female, nr. Cosanga (2000m), E. Ecuador [JHKW]: f) VS.

increasingly broad band below vein M_3 ; slightly curved, postmedial silver line edged distally with increasingly more black towards tornus consists of two short, proximally directed streaks in cells M_2 and M_1 , a tiny distally positioned spot in cell M_3 , and a broad but increasingly smaller, divided band of silver spots in cells Cu_1 to $1A+2A$; remainder of costa, submargin and margin orange-brown, thin submarginal silver line extends from apex to vein $1A+2A$; fringe brown. Hindwing ground color orange-brown with a light scattering of pale brown scales; black spot at base of costa, basal silver line then broken line of black spots distally both extend from costa to anal margin; black line marking discal cell end and proximally displaced black spot below have equivalent silver marks proximally; postdiscal line of black spots contains a large, coalesced spot in cells M_3 and M_2 and is slightly concave between cells Cu_1 and $1A+2A$, with a proximally elongate spot in cell Cu_2 ; broad, even, postmedial silver line with isolated black spots distally in cells Cu_1 to $1A+2A$ and brown proximally extends from anal margin to vein M_3 , black continues to apex, only faint trace of silver in cell M_1 ; thin, silver submarginal line extends from tornus to apex; fringe brown. **Head:** labial palpi brown. Eyes brown and bare, margins with brown scaling. Frons brown. Antennal segments black with white scaling at base that increases laterally and towards clubs; clubs black. **Body:** dorsal surface of thorax and abdomen dark brown, ventral surface pale brown. Forelegs dark brown, femur of mid and hindlegs dark brown, remainder yellow, tarsi black banded. **Genitalia** (Fig. 35): uncus rectangular, dorsal posterior tip weakly bifid; falci very long; vinculum slightly broader at middle; valvae have basal, lateral bulge, long upper portion of even width that is connected by membranous tissue dorsally, and small bluntly pointed lower posterior edge; aedeagus narrow and pointed at tip, tiny cornutus at middle; pedicel long.

FEMALE: unknown.

Types.— *Holotype male:* ECUADOR.— *Carchi Prov.:* nr. Lita, ridge to east of Río Baboso, 900m, 6 Jul 1998 (K. R. Willmott); to be deposited in the BMNH.

Etymology.— The name of this species is derived from the greenish color of the ventral silver markings.

Diagnosis.— *S. chloropunctata* n. sp. can be distinguished from all other species of *Sarota* by having tiny points at the distal margin of the hindwing but no tails, placing its wing shape inbetween those of species in the "*acanthoides*" and "*gyas*" groups and suggesting that it is an evolutionary intermediate between those two groups. Certain elements of its ventral wing pattern, most notably the tapering postmedial silver band of the forewing, the incomplete postmedial line of the hindwing and the presence of significant amounts of black distal to the postmedial silver lines of both wings, additionally distinguish it from species of the "*gyas* group" and indicate a closer affinity to species of the "*acanthoides* group", although *S. chloropunctata* does lack the white fringe elements of the hindwing that are associated with tails. Its black forelegs separate it from all species in the "*acanthoides* group" except *S. spicata*, which has white instead of yellow tibia to the mid and hindlegs and a substantially different ventral pattern. Notable male genitalic characters of *S. chloropunctata* include a weakly bifid dorsal posterior tip to the uncus and very long, thin falci.

Discussion.— The holotype was encountered perching 2m above the ground along an open ridgetop path at 1145h. It seems likely that this species is a Chocó endemic and it should be looked for in Colombia.

"*gyas* group" (in part, Gyadiformes of Stichel (1930))

Sarota estrada Schaus, 1928

Fig. 16a-h; 36a,b

Sarota estrada Schaus, 1928, *Proc. Ent. Soc. Wash.* 30:48. TL: Guatemala. Holotype male USNM [Examined].

Identification and taxonomy: Average FW length 14mm.

Nominate *S. estrada* is most conspicuously separated from nominate *S. gamelia* in Central America by its larger size, predominantly brown instead of yellow frons and legs, setose instead of bare eyes, the presence of a white subapical dorsal forewing spot (in the female),

more extensive areas of grainy brown ventral background color on both wings, a darker yellow-orange margin and by having a shorter proximally directed silver streak in cell M_2 of the ventral forewing that does not reach the perpendicular postdiscal silver line. The ventral markings of *S. estrada* are variably blue-silver or green-silver.

Biology: This species is associated with premontane and lower montane forest habitats from about 600-1700m. It is uncommon in collections, the vast majority of specimens originating from Mexico and Guatemala, records from further east being very rare.

Distribution: Mexico to Costa Rica.

Sarota estrada sabanilla Hall, new ssp.

Fig. 16e-h; 36b

Description.— **MALE:** forewing length 14.5mm. Forewing pointed, costal margin convex at base, distal margin slightly convex; hindwing pointed at tornus, very slightly pointed at end of vein Cu_2 . **Dorsal surface:** ground color of both wings dark brown; faint, darker brown basal, discal, postdiscal and submarginal markings on both wings; fringe brown on both wings (and both surfaces) except for some white scaling at margin of cells $1A+2A$ and Cu_1 on the forewing. **Ventral surface:** forewing ground color brown; black line surrounded by orange-brown and then silver at discal cell end, uneven yellow triangle at costa near discal cell end becomes white at tip, "U"-shaped mark extends from vein $1A+2A$ to costal edge of discal cell and back, black below discal cell, orange-brown within discal cell, remainder of discal cell silver, orange-brown surrounds base of costal edge of discal cell, thin line of silver at base of costa; postdiscal line of black spots surrounded by orange-brown above vein Cu_2 extends diagonally inwards from cell M_3 to vein $1A+2A$, slightly broader in cell M_3 , a small black spot surrounded by orange-brown toward base of cell M_1 , long silver streak in cell R_3 ; series of postmedial, proximally directed silver streaks which align at distal edge set in orange-brown consists of a long one in cell M_1 that is white at middle, a very long one in cell M_2 that joins proximally to postdiscal silver, a short ovoid one in cell M_3 , and two slightly longer ones in cells Cu_2 and Cu_1 , cream rectangle below in cell $1A+2A$; remainder of costa and submargin orange-brown, margin dark yellow-orange, thin submarginal silver line extends from apex to vein $1A+2A$, very thin line of black scaling distally, black scaling proximally in cell $1A+2A$. Hindwing ground color brown with a very faint scattering of pale brown scales; orange-brown band at base lined distally and proximally by silver contains one faint black spot at costa and one streak at middle; postdiscal band of black spots surrounded by orange-brown extends from costa, curving outwards then inwards to vein Cu_2 , kinking outwards in cell $1A+2A$, then continuing to anal margin, some disjunct silver proximally at costa, discal cell end and towards anal margin; black mark surrounded by orange-brown at discal cell end with silver proximally, two similarly marked spots below discal cell end in cells $1A+2A$ and $3A$, a similarly marked band extends from vein R_s to vein $1A+2A$ through middle of discal cell; broken, postmedial silver line with thin layer of black scaling distally curves sharply inwards at costal and anal margins; orange-brown at submargin extends along anal margin and distal half of costal margin, and has a silver line distally, with very thin line of black scaling distal to it, below vein M_1 which thickens at tornus; margin below vein M_1 dark yellow-orange; tuft of black hairs at tornus and smaller one at end of vein Cu_2 . **Head:** labial palpi mixture of yellow and brown scales. Eyes brown and setose, margins with brown scaling. Frons dark brown with some yellow scales. Antennal segments black with white scaling at base that increases laterally and slightly towards clubs; clubs black, bare tips dark brown. **Body:** both surfaces of thorax dark brown; dorsal surface of abdomen dark brown, ventral surface dark brown with some pale brown scaling. Forelegs mixture of pale and dark brown scaling, femur of mid and hindlegs black, remainder dark yellow-brown except ventral surface of tibia red-brown. **Genitalia** (Fig. 36b): uncus rounded, small posteriorly projecting point from dorsal edge; falci long and thin; vinculum thickened slightly at middle; valvae have elongate, basal, lateral bulge, long upper portion of even width that is connected by membranous tissue dorsally, and small bluntly triangular lower posterior edge; aedeagus narrow and pointed at tip, tiny cornutus at middle; pedicel long, sharply bent towards tip.

FEMALE: differs from male in the following respects: forewing length 13mm. Forewing less pointed, distal margin more convex. Ground color of

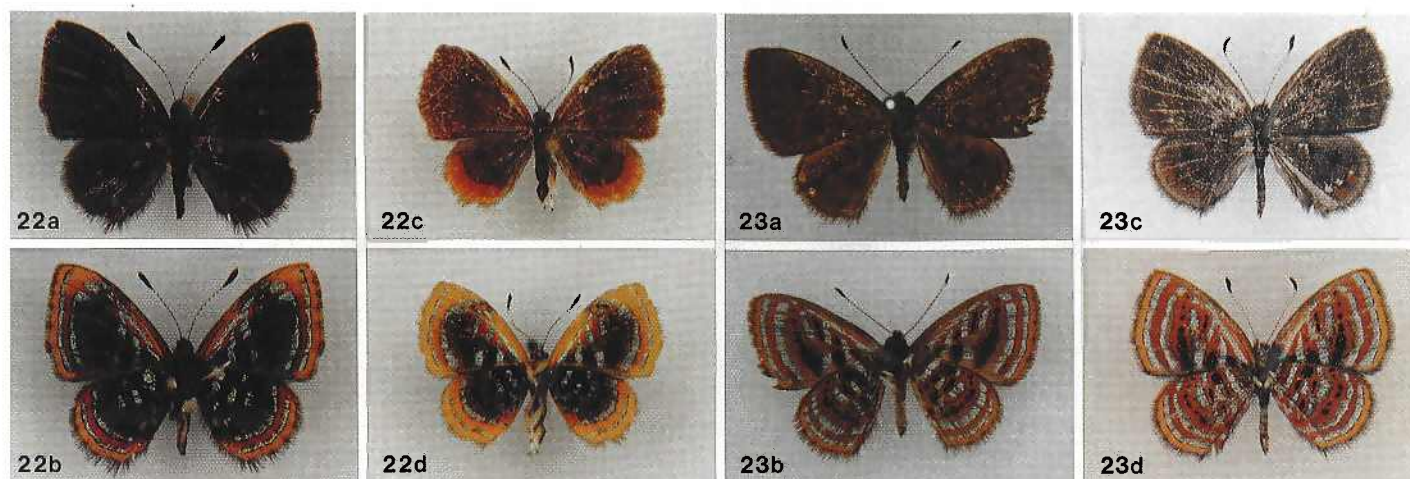


Fig. 22-23. 22. *S. lasciva*, male, Río Negro, Meta, Colombia [USNM]: a) DS; b) VS. Female, Río Negro, Meta, Colombia [USNM]: c) DS; d) VS. 23. *S. completa* Hall n. sp., holotype male, Ega, W. Brazil (Am) [BMNH]: a) DS; b) VS. Allotype female, El Capricho, E. Ecuador [JHKW]: c) DS; d) VS.

both dorsal wing surfaces slightly paler brown, more prominent darker brown basal, discal, postdiscal and submarginal markings on both wings, small white fleck in middle of cell M_1 on forewing, faint red-brown scaling in tornus of hindwing.

Types.— *Holotype male*: ECUADOR.— *Zamora-Chinchipe Prov.*: Zamora-Loja rd., nr. Sabanilla, Quebrada San Ramon, 1700m, 27 Oct 1997 (K. R. Willmott); to be deposited in the BMNH.

Allotype female: ECUADOR.— same data as HT; in the coll. of JHKW.

Etymology.— This taxon is named after its capture location.

Diagnosis.— I deliberated for a long time over the correct systematic placement of this taxon and my decision was influenced by the existence of the taxon *S. gamelia alba* ssp. n. (described below) from the base of the eastern Andes. While at first I had cursorily considered *S. estrada sabanilla* ssp. n. and *S. gamelia alba* conspecific, closer examination revealed that several differences existed between them and also united each to *S. estrada* and *S. gamelia* respectively, the only similar species, occurring allopatrically to the west of the Andes. The situation is confounded by the fact that in Central America, *S. estrada* and *S. gamelia*, although very similar, may be separated with relative ease while in South America *S. e. sabanilla* and *S. g. alba* are even more similar to each other. I describe *sabanilla* as a subspecies of *S. estrada* as opposed to *S. gamelia* because it shares with *S. estrada* its large size (forewing length on average 2mm larger than *S. gamelia*), compact and pointed wing shape (the wing shape of *S. gamelia* is more elongate with a less pointed forewing), predominantly brown leg and frons coloration (they are typically yellow in *S. gamelia*), setose eyes (they are bare in *S. gamelia*), dark yellow-orange margin on both ventral wing surfaces (this tends to be yellow in *S. gamelia*), general tendency to have a straight, inwardly diagonal postdiscal line of black spots on the ventral forewing (this tends to become vertical or even curve in the opposite direction in cell $1A+2A$ in *S. gamelia*) and a line through the middle of the discal cell on the ventral hindwing that kinks slightly inwards below the discal cell (this tends to be straight in *S. gamelia*), slightly broken postmedial silver line on the ventral hindwing (this is complete in *S. gamelia*), and its presence in lower montane forest habitat (*S. gamelia* does not occur quite so high and also occurs lower, near sea-level).

Sarota estrada sabanilla differs from the nominate on the ventral surface by having less grainy brown background color on both wings, a complete proximally directed silver streak in cell M_2 of the forewing that joins the perpendicular postdiscal silver line, slightly larger silver streaks in cells Cu_2 and Cu_1 of the forewing, no black spot in cell R_3 of the forewing or distal to the postmedial silver streaks and no trace



Fig. 24. *S. chloropunctata* Hall n. sp., holotype male, nr. Lita, W. Ecuador [JHKW]: a) DS; b) VS.

of postmedial silver in cell $1A+2A$ of the forewing, there instead being a cream rectangle. Despite these differences, I believe the number of fundamental similarities between *sabanilla* and *S. estrada* warrant placement of the former as a subspecies of the latter instead of as a full species.

Discussion.— This very rare subspecies is currently only known from lower montane forest in southern Ecuador but it surely has a broader altitudinal and geographical distribution that probably extends at least from east Colombia to east Peru. The male holotype was perching at the top of a 10m tall tree in the middle of a stream at 1010h, on top of a leaf with its wings shut. The allotype was encountered flying nearby along a wide path at the forest edge at 0800h.

Sarota gamelia Godman & Salvin, 1886

Fig. 17a-f; 37

Sarota gamelia Godman & Salvin, 1886, *Biol. Cent.-Amer., Lepid. Rhop.* 1:436. TL: Bugaba, Panama. Holotype male BMNH [Examined].

Identification and taxonomy: Average FW length 12mm.

The nominate Central American subspecies of *S. gamelia* is distinguished from the sympatric *S. estrada estrada* as outlined in that species account. *S. gamelia* exhibits quite some wing pattern variation, the extent of which has even led one author (DeVries, 1997) to express the belief that two species are involved. However, although two slightly different phenotypes do exist, they result from altitudinally clinal variation. Above about 1000m, the frons and legs begin to have more brown setae, the margin of both ventral wing surfaces becomes a darker yellow-orange, all orange-brown ventral markings become slightly darker and the silver tends to be more bluish than greenish but there are no pattern element differences. A similar but more extreme phenomenon occurs in *S. myrtea* (see that species account).

discal cell end marking of the forewing joined to the proximally positioned vertical silver line along the base of the discal cell (less prevalent in west Andean and west Amazonian specimens). The male genitalia of *S. acantus* differ from those of *S. miranda* and *S. gyas* by typically having a tiny posterior projection from the dorsum of the uncus instead of a slightly indented region.

The female of *S. acantus* is even more easily confused with those of *S. miranda* and *S. gyas* as the legs of the latter are more of a yellow-brown color and their ventral coloration is typically paler than that of the males. However, females may still be distinguished by the aforementioned ventral wing pattern characters; additionally, they always have an entirely brown dorsal surface whereas in *S. miranda* and *S. gyas* there are invariably red-brown markings at the distal margin of the hindwing that may also rarely extend to the forewing. The silver coloration in both sexes of *S. acantus* is also more consistently bluish than greenish when compared to *S. gyas* and *S. miranda* and the wing shape is typically more rounded, especially compared to *S. gyas*.

Biology: *S. acantus* is one of the most widespread species in the genus and occurs in primary and secondary wet forest habitats from sea-level up to 1300m. It is considerably rarer east of the Andes. Males are most frequently encountered perching in small groups in the early to mid morning along streamsides and forest edges but may be found less commonly along with females throughout much of the day along forest trails. DeVries (pers. comm.) reports *S. acantus* in Costa Rica and Panama visiting the extrafloral nectaries of *Heliocarpus* (Tiliaceae), *Inga* (Fabaceae) and *Byttneria* (Sterculiaceae) species.

S. acantus is the only species in the genus whose life history is largely known. Females oviposit around mid-day on the mosses and liverworts (Lejuniaceae) that grow as epiphylls on old leaves (DeVries 1988, 1997; DeVries *et al.*, 1994 — all as *S. gyas*). The tiny white globular sponge-like egg, which is covered with irregular ellipsoid holes and a patchy glue-like substance obviously important in substrate affixation, is laid singly. The fifth instar larva (Fig. 2) is covered in dense tufts of long downy white dorsolateral setae that project outwards in all directions and has a dorsal cluster of whitish bladder-like setae on the anterior edge of the first thoracic segment. When at rest, the caterpillar's head capsule is kept flat against the substrate and when molested by an ant its setae may be moved toward it and detached as an irritant. Pupation takes place inside rolled leaves where the long larval setae surround the pupa to form a loose cocoon (DeVries, 1997).

Distribution: Honduras to west Ecuador, Venezuela to Peru, Brazil (Amazon, Mato Grosso and southeast), Guianas, Trinidad.

Sarota miranda Brévignon, 1998

Fig. 19a-d; 39

Sarota miranda Brévignon, 1998, *Lambillionea* 98:313, fig. 45-48. TL: Lac des Américains, Matoury, French Guiana. Holotype male coll. L. & C. Brévignon, Guadeloupe; type illustration [Examined].

Identification and taxonomy: Average FW length 10mm.

This recently described species has wing pattern elements that are somewhat intermediate between those of *S. acantus* and *S. gyas* but, although the variation expressed in its wing pattern sometimes makes identification very difficult with respect to *S. gyas*, I tentatively regard it as a valid species. It is amply distinguished from *S. acantus* in the previous species account but is most readily separated by having blackish or brownish male forelegs (contrary to the assertion in the original description that these are yellowish), a darker ventral ground color, additional proximal and distal black markings at the anal margin of the ventral forewing and two black marks in the discal cell of the ventral hindwing instead of one. In all these regards, *S. miranda* is the same as *S. gyas*. However, *S. miranda* typically has a more rounded wing shape than that species, more extensive black scaling distal to the postmedial silver line of the ventral forewing, slightly thicker

postmedial and submarginal silver lines on both ventral wing surfaces and always has an undivided, proximally directed silver streak in cell M_1 of the ventral forewing whereas it is usually divided in *S. gyas*; as in *S. acantus*, the proximally directed silver streak in cell M_2 of the ventral forewing in *S. miranda* is variably divided or undivided whereas it is always divided in *S. gyas*.

Biology: Brévignon and Gallard (1998) state in the original description that, in French Guiana, *S. miranda* flies at the forest edge during the late morning and into the afternoon. It is not uncommon.

Distribution: Colombia to Bolivia, Brazil (Amazon), Guianas, Trinidad.

Sarota gyas (Cramer, 1775)

Fig. 20a-e; 40

Papilio gyas Cramer, 1775, *Uitl. Kapellen* 1 (3):45, pl. 28, fig. F,G. TL: Bartica, Guyana. Neotype BMNH [Designated] (Fig. 20b,c).

Identification and taxonomy: Average FW length 10mm.

For the same reasons outlined in the account of *S. acantus*, I designate a neotype for this species. The following points explicitly address the qualifying conditions for a valid neotype designation:

- 1) See the account of *S. acantus*.
- 2) No specimens could be located in the BMNH from the original type locality of Berbices, Guyana, so a specimen was selected from as near to it as possible that was in good enough condition to clearly allow identification. The male neotype selected (Fig. 20b,c) in the BMNH bears the following three labels: "Bartica, Br. Guiana, H. S. Parish", "Joicey Bequest, Brit. Mus., 1934-120." and "S. gyas, Neotype, det. J. Hall".
- 3) As evidence that the neotype is consistent with what is known of the former name-bearing type, I figure the original type illustration (Fig. 20a). It is somewhat ambiguous whether this illustration represents the species treated in this paper as *S. gyas* or *S. miranda*, but it appears to more closely resemble the former and this position facilitates nomenclatural stability.
- 4) *S. lasciva* and *S. completa* n. sp. (described below) have different patterns of silver in the apex of the ventral forewing and *S. gyas* is most similar to *S. myrtea*, *S. acantus* and especially *S. miranda* from which it is distinguished in those species accounts.

Biology: *S. gyas* occurs not uncommonly in wet forest habitats below 700m. Males are typically encountered in small groups perching from 0730-1000h on low bushes in streamside lightgaps and along forest edges but may be more sporadically found as solitary individuals until about 1400h in forest lightgaps, along trails and ridgetops. Solitary females fly in the same microhabitats.

Distribution: Colombia to Peru, Brazil (Amazon, Mato Grosso), Guianas.

Sarota myrtea Godman & Salvin, 1886, stat. rev.

Fig. 21a-f; 41

Sarota myrtea Godman & Salvin, 1886, *Biol. Cent.-Amer., Lepid. Rhop.* 1:436. TL: Cubilguitz, Vera Paz, Guatemala. Holotype male BMNH [Examined] (Fig. 21a,b).

Identification and taxonomy: Average FW length 11mm.

S. myrtea was described as a full species by Godman and Salvin (1886), but inexplicably treated as a subspecies of *S. acanthoides* by Stichel (1930). Because the two taxa are sympatric at the base of the eastern Andes and they exhibit numerous wing pattern differences, including of course the lack of hindwing tails in *S. myrtea*, I officially reinstate *myrtea* as a full species (the species status accorded to it by DeVries (1997) was based on an ambiguous identification; see appendix).

S. myrtea is most similar to *S. gyas* and *S. miranda*, but differs on the ventral surface by having more brown background coloration in evidence, two equally sized, small, proximally directed silver markings in the forewing apex, typically with the paler apical yellow-orange

extending inbetween them, larger black postdiscal spots on both wings that have relatively less orange-brown surrounding them and extend to the costa on the forewing, and, possibly most diagnostically, more angular wings in the tornal area particularly on the forewing where white fringe elements in cells 1A+2A and Cu₁ accentuate the undulating distal margin that is mirrored in the submarginal silver line. Females of *S. myrtea* also do not have red-brown around the distal margin of the dorsal hindwing.

S. myrtea is the most variable species in the genus, so variable that an extreme form warrants illustration to avoid confusion (see Fig. 21e,f). Although the ventral surfaces of the figured specimens look rather different, they exhibit no fundamental pattern element differences and those superficial ones that are apparent can be explained by clinal altitudinal variation, as in *S. gamelia*. The type of *S. myrtea* (Fig. 21a,b) is representative of lower elevation populations but above about 1400m in the Andes (slightly lower in Central America), the ventral surface becomes darker, the margin of both wings becomes dark orange-brown, postdiscal markings become reduced and the grainy brown background color is even more in evidence on both wings. All manner of intermediates exist from intervening altitudes. As is typical in the genus, populations from higher altitudes also tend to have more bluish than greenish silver markings.

Biology: *S. myrtea* is a widespread and relatively common species that is typically encountered between 700 and 2000m, but it is occasionally found as low as 400m and as high as 2400m, making it the highest flying species in the genus and one of the highest flying riodinids. Males are most frequently found perching in small groups on streamside vegetation 3-10m high in the early to mid morning from 0730-1130h, while solitary females may be found throughout much of the day. In cloudy montane forest habitats, *S. myrtea* is one of the first species to fly when the sun appears. DeVries (pers. comm.) reports *S. myrtea* in Costa Rica visiting extrafloral nectaries of *Inga* (Fabaceae) and *Byttneria* (Sterculiaceae) species.

Distribution: Mexico to west Ecuador, Venezuela to Argentina.

Sarota lasciva (Stichel, 1911), n. stat.

Fig. 22a-d; 42

Charis gyas f. *lasciva* Stichel, 1911, *Gen. Ins.* 112B:250. TL: Manaus, C. Brazil. Holotype female ZMHU [Examined].

= *Charis acantus flavicincta* Lathy, 1932, *Ann. Mag. Nat. Hist.* (10) 9:70. TL: San Ramon, C. Peru. Holotype male BMNH [Examined], n. syn.

= *Sarota flavicincta atlantica* Brévignon & Gallard, 1998, *Lambillionea* 98:313, fig. 41-44. TL: Matoury, French Guiana. Holotype male coll. of J.-Y. Gallard, Matoury, French Guiana; type illustration [Examined], n. syn.

Identification and taxonomy: Average FW length 10mm.

S. lasciva was described as a female form of *S. gyas*, but since the two taxa are widely sympatric and *S. lasciva* possesses numerous diagnostic characters, as described below, I raise it to species status. The taxon *flavicincta* was described nearly twenty years later by Lathy (1932) as a subspecies of *S. acantus*, but the type represents the male of *S. lasciva*; the taxon *atlantica*, described by Brévignon and Gallard (1998) as a subspecies of *S. flavicincta*, does not differ significantly from nominotypical populations of *S. lasciva* and it is also a synonym.

S. lasciva is a rather distinctive species because of its variably bright yellow margin on both ventral wing surfaces that extends beyond the submarginal silver line into the forewing apex of the male but also around the entire submargin of both wings and costal margin of the forewing in the female. This is in stark contrast to the dark medial areas of both wings that lack orange-brown coloration encircling the black spots (traces may be seen in some specimens), leaving a purely black and silver pattern. The reduced silver markings in the apex of the ventral forewing mean *S. lasciva* is similar only to *S. completa* n. sp. (described below), with which it is contrasted in that species account.

Biology: *S. lasciva* is one of the rarer "gyas group" species, occurring in intact wet forest habitats up to 1050m. Males perch singly or in pairs on streamside bushes or along forest edges about 3m above the ground from 0700-0800h and then more rarely in the mid to late afternoon. Females are found in forest lightgaps and along forest trails throughout the middle of the day. DeVries (pers. comm.) reports *S. lasciva* in Ecuador visiting the extrafloral nectaries of a *Machaerium* species (Fabaceae).

Distribution: Colombia to Peru, Brazil (Amazon), Guianas.

Sarota completa Hall, new sp.

Fig. 23a-d; 43

Description.— MALE: forewing length 10mm. Wing shape rounded. *Dorsal surface:* ground color of both wings dark brown; faint, darker brown basal, discal, postdiscal and submarginal markings on both wings; fringe brown on both wings (and both surfaces). *Ventral surface:* forewing ground color brown, paler at anal margin; black line at discal cell end surrounded by dark orange-brown and then silver above, distally and proximally, silver square below in cell 1A+2A, "V"-shaped mark extends from vein 1A+2A to costal edge of discal cell and back, black below discal cell, dark orange-brown within discal cell, black spot in discal portion of distal arm, remainder of discal cell including entire costal edge silver, basal half of costa orange-brown; postdiscal line of black spots surrounded by dark orange-brown above vein Cu₁ extends from vein 1A+2A curving sharply inwards at costa; thick, postmedial silver line extends continuously from vein 1A+2A to the costa, before which it curves inwards, except for narrow dark orange-brown breaks along veins M₁ and R₄₊₅; submargin dark orange-brown, margin dark yellow, thin submarginal silver line extends from apex to vein 1A+2A, very thin line of black scaling distally. Hindwing ground color brown; dark orange-brown band at base lined distally and proximally by silver contains a faint black spot at costa; postdiscal line of black spots surrounded by dark orange-brown extends in a semicircle from costa to anal margin, some disjunct silver proximally at costa, discal cell end and in cell 1A+2A; black mark surrounded by dark orange-brown at discal cell end with silver proximally, two similarly marked spots below discal cell end in cells 1A+2A and 3A join at anal margin with postdiscal line, a similarly marked band extends from vein Rs to anal margin through middle of discal cell; thick, postmedial silver line extends from near apex to near tornus; submargin dark orange-brown, margin dark yellow, thin submarginal silver line extends from apex to tornus below vein M₁, very thin line of black scaling distally. *Head:* labial palpi black. Eyes brown and bare, margins with black scaling. Frons black. Antennal segments black with white scaling at base that increases laterally and slightly towards clubs; clubs black, bare tips black. *Body:* both surfaces of thorax black; dorsal surface of abdomen black, ventral surface brown. Forelegs black, mid and hindlegs black except lower portion of tibia and tarsi cream, tips black. *Genitalia* (Fig. 43): uncus rounded, small posteriorly projecting point from distal dorsal edge; vinculum of even width; valvae have elongate, basal, lateral bulge, long upper portion of even width that is connected by membranous tissue dorsally, and bluntly triangular lower posterior edge; aedeagus narrow and pointed at tip, tiny cornutus at middle; pedicel long.

FEMALE: differs from male in the following respects: forewing length 9mm. Wing shape more rounded. Dorsal ground color of both wings paler brown; thin, broken submarginal band of dark red-brown spots on hindwing. Margins of both ventral surfaces brighter yellow. Frons and palpi pale brown. Forelegs pale brown, femur of mid and hindlegs brown, remainder pale brown, tips brown.

Types.— *Holotype male:* BRAZIL.— Amazonas: Ega (H. W. Bates) (diss. # 4871); in the BMNH.

Allotype female: ECUADOR.— Napo Prov.: Tena-Puyo rd., El Capricho, 800m, 26 Oct 1996 (K. R. Willmott); in the coll. of JHKW.

Paratypes: ECUADOR.— Napo Prov.: nr. Talag, Río Jatunyacu, Pimpilala, 600m, 14 Sept 1996, 1 ♂, 1 ♀ (K. R. Willmott); Tena-Puyo rd., Satzayacu, 700m, 13 Sept 1996, 1 ♀ (K. R. Willmott); all in the coll. of JHKW. Tena-Pano rd., 700m, 21 Sep 1987, 1 ♂ (S. S. Nicolay); in the coll. of D. Ahrenholz, St. Paul, MN. *Morona-Santiago Prov.:* nr. Gualaquiza, Bomboiza, 850m, 26 Jul 1993, 1 ♂ (J. P. W. Hall); all in the coll. of JHKW. PERU.— Loreto: Pebas, Nov 1906, 1 ♂ (M. de Mathan) (BMNH). 65 mi. E. of Iquitos,

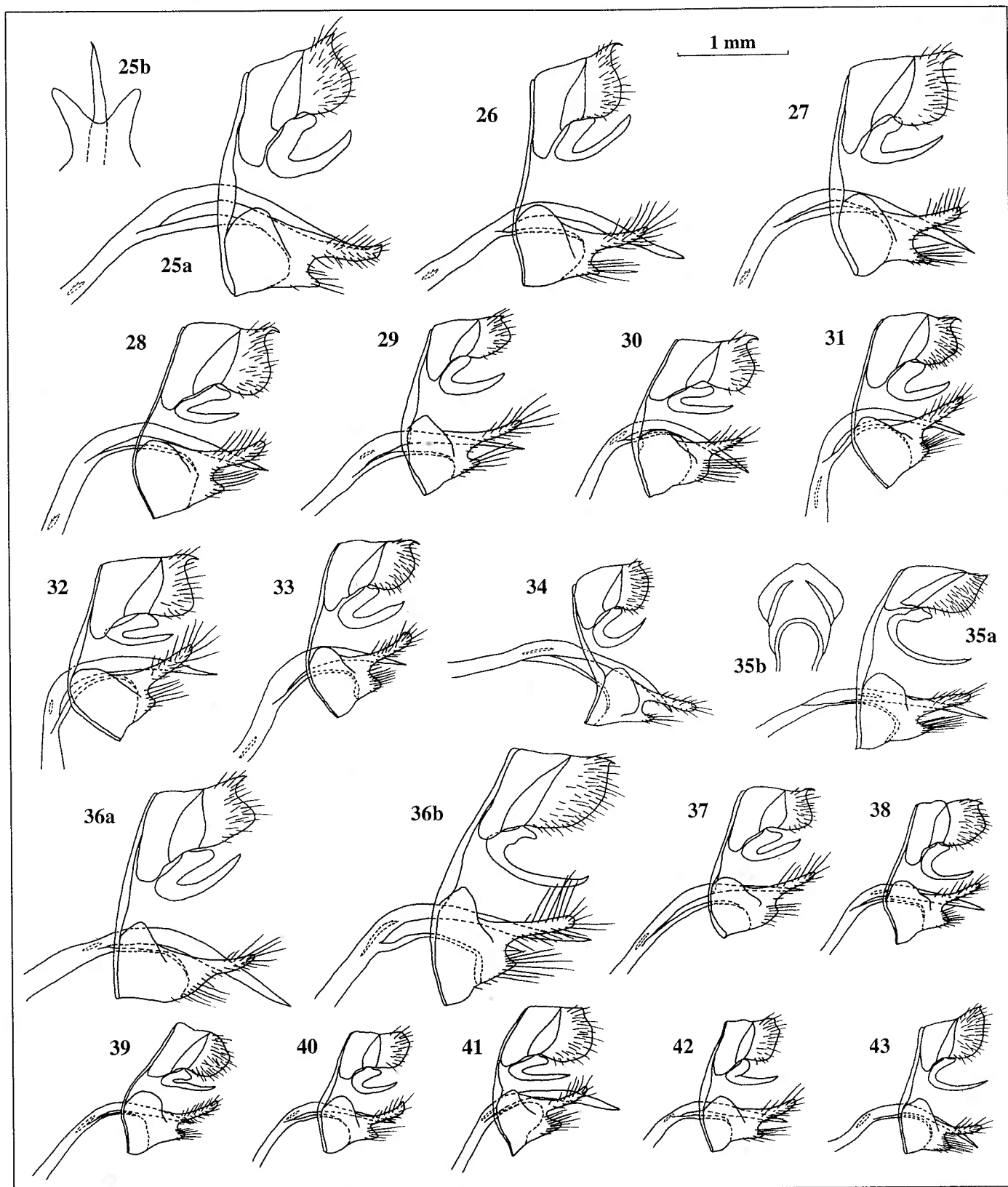


Fig. 25-43. Male genitalia: 25. *S. subtessellata*, Cerro Campana, Panama [FSCA]: a) lateral view of genitalia; b) dorsal view of valve tips. 26. *S. chrysus*, Chiapas, Mexico [AME]. 27. *S. neglecta*, Río Tanti, W. Ecuador [JHKW]. 28. *S. chocoensis* Hall n. sp., holotype [BMNH]. 29. *S. craspediodonta*, Xcan, Mexico [FSCA]. 30. *S. spicata*, Apuya, E. Ecuador [JHKW]. 31. *S. willmotti* Hall n. sp., holotype [USNM]. 32. *S. acanthoides*, Potaro river, Guyana [AME]. 33. *S. harveyi* Hall n. sp., holotype [USNM]. 34. *S. psaros psaronius*, Brazil (Ba) [ZMHU]. 35. *S. chloropunctata* Hall n. sp., holotype [JHKW]: a) lateral view of genitalia; b) dorsal view of uncus. 36. a) *S. estrada estrada*, Chiapas, Mexico [AME]; b) *S. estrada sabanilla* Hall n. ssp., holotype [JHKW]. 37. *S. gamelia*, Piña, Panama [FSCA]. 38. *S. acantus*, Piña, Panama [FSCA]. 39. *S. miranda*, Río Yuturi, E. Ecuador [JHKW]. 40. *S. gyas*, Apuya, E. Ecuador [JHKW]. 41. *S. myrtea*, Cerro Campana, Panama [FSCA]. 42. *S. lasciva*, Pimpilala, E. Ecuador [JHKW]. 43. *S. completa* Hall n. sp., holotype [BMNH].

Explorama Lodge, 6 Mar 1984, 1 ♂ (C. D. Linwood) (FSCA). *Madre de Dios*: Parque Nacional del Manu, Pakitza, 11°55'48"S 71°15'18"W, 340m (5 ♂, 4 ♀): 27 Sept 1991, 1 ♂ (G. Lamas); 27 Sept 1991, 1 ♂ (R. K. Robbins); 28 Sept 1991, 1 ♂ (R. K. Robbins); 2 Oct 1991, 1 ♂ (R. K. Robbins); 13 Oct 1991, 1 ♂ (O. Mielke); 28 Apr 1991, 1 ♀ (D. J. Harvey); 28 Sept 1991, 1 ♀ (O. Mielke); 5 Oct 1991, 1 ♀ (I. Bohorquez); 5 Oct 1991, 1 ♀ (R. K. Robbins); all in the USNM. Tambopata Reserve, 12°50'S 69°17' W, 300m (3 ♂, 2 ♀): 25 Oct 1991, 1 ♂, 1 ♀ (O. Mielke); 26 Oct 1991, 1 ♂, 1 ♀ (O. Mielke); 26 Oct 1991, 1 ♂ (G. Lamas); all in the USNM. 50 km WSW of Puerto Maldonado, 12°45'S 69°35'W, 2 ♂ (C. Tello E.) (USNM). *Puno*: Chaquimayo, 2500ft, Apr 1912, 1 ♂, 1 ♀ (H. & C. Watkins) (BMNH). VENEZUELA.— *Amazonas*: Cerro de la Neblina, basecamp 0°50'N 66°9'W: 21 Mar 1984, 1 ♂ (R. K. Robbins); 20 Mar 1984, 1 ♀ (R. K. Robbins) (USNM). BOLIVIA.— *La Paz*: Mapi, 1 ♂ (coll. Bethune-Baker) (BMNH). BRAZIL.— *Amazonas*: São Paulo de Olivença, Jun/Jul 1883, 3 ♂ (M. de Mathan) (BMNH).

Etymology.— The name of this species is derived from the almost complete postmedial silver line on the ventral forewing.

Diagnosis.— A number of ventral wing pattern characters clearly place *S. completa* n. sp. in a group comprising *S. acantus*, *S. gyas*, *S. miranda*, *S. myrtea* and *S. lasciva*. It is easily distinguished from the first three by having a postmedial silver line on both ventral wing surfaces which is of even thickness and without proximally directed streaks in the forewing apex. *S. completa* is most similar to *S. lasciva*, but the ventral forewing postmedial silver line of the latter thins centrally and has some broader elements in the apex, it has brighter yellow margins, a yellow apex and no orange-brown surrounding the medial black marks on both ventral wing surfaces; the female of *S. completa* also has a thinner dark red-brown band at the distal margin of the dorsal hindwing than that of *S. lasciva*.

Discussion.— *S. completa* has a typical west Amazonian distribution that stretches from southern Venezuela to Bolivia and west Brazil. Small groups of males perch about 2-5m above the ground in streamside clearings and along forest edges in association with primary and secondary forest from 0615-0745h and then later only as rarer solitary individuals. Females are found throughout much of the day in a wide variety of forest microhabitats.

APPENDIX

Errors of identification of *Sarota* in popular literature:

Seitz (1916-18: plate 113):

Sarota demetria = *Sarota neglecta*; *Sarota gyas* = *Sarota acantus* or *Sarota miranda*; *Sarota gamelia* = *Sarota myrtea*; *Sarota acanthus* [sic] = *Sarota gyas*.

Lewis (1973: p. 71):

Charis chrysus = *Sarota chrysus*; *Charis gyas* = *Sarota acantus*.

Smart (1975: p. 178):

Sarota chrysus = *Sarota neglecta*.

D'Abrera (1994: pp. 1052-1053):

Sarota gyas = *Sarota acantus*; *Sarota acantus* = *Sarota completa* n. sp.; *Sarota craspedodonta* = *Sarota acanthoides*; *Sarota* ? sp. = *Sarota gamelia alba* n. ssp..

DeVries (1997: plate 15, pp. 198-203):

In text: *Sarota demetria* (p. 202) = *Sarota neglecta*. Plate 15: 11. *Sarota spicata* = *Sarota* sp. nr. *willmotti* n. sp. (see discussion in text); 15. and front cover *Sarota gyas* = *Sarota acantus*; 16. & 18. *Sarota acantus* = *Sarota myrtea* (# 9 is correctly identified as *Sarota myrtea*).

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