

## FIVE NEW SPECIES OF *DALLA* FROM COLOMBIA AND ECUADOR (HESPERIIDAE)

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**ABSTRACT.** Five new species of the Heteropterine genus *Dalla* Mabille, 1904 are described and their male (and female where available) genitalia illustrated. Three of these species, *Dalla disconnexa*, new species, *D. vista*, new species, and *D. celsus*, new species are from Ecuador, the other two, *D. wardi*, new species and *D. pedro*, new species, from northeastern Colombia.

**Additional key words:** genitalia, transtilla, harpe, Heteropterini, *cypselus* group, *caenides* group.

When Evans compiled his catalog of the Hesperinae of America (Evans 1955), there were in the BMNH collection 1949 *Dalla* specimens representing 71 of the then known 75 species and 41 subspecies. Of these, only 29 specimens were females from 15 different species, and two of these females are the unique types of their species. He divided these 75 species into seven species groups, based on wing and leg characters, but not genitalia, resulting in some very unrealistic associations. Since the publication of Evans' masterpiece, 20 new species and two new subspecies have been described (*D. pota* and *D. cola* Bell, 1959; *D. ramirezi* Freeman, 1969; *D. roeveri*, Miller & Miller, 1972; *D. nubes*, *D. pincha*, *D. xantha*, *D. bos*, *D. pura*, *D. simplicis*, *D. puracensis*, *D. puracensis quindio*, *D. puracensis cotopa* and *D. calima* Steinhauser, 1991a; *D. kemneri* Steinhauser, 1991b; *D. steinhauseri* Freeman, 1991; *D. freemani*, Warren, 1997 and the five described below). Two subspecies, *D. epiphanaeus superior* Draudt, 1923 and *D. lalage lethaea* (Schaus, 1913) have been raised to specific rank by Steinhauser (1991a:5, 13), and one species, *D. dividuum* (Dyar, 1913) raised from synonymy with *D. ligilla* (Hewitson, 1877) by Freeman (1968:61) bringing the totals to 98 species and 41 subspecies.

In human-disturbed sites, males of the genus *Dalla* frequently gather on vertical or near vertical wet concrete surfaces, especially recently set concrete to feed on the mineral rich moisture exuding therefrom. They also congregate on wet soils where cattle have gathered, feeding on the nitrogen rich urine. I have found that urine added to vertical steep faces is a good bait, but I have never found females at any of these sites. They are either very rare or keep themselves well hidden, probably busy laying eggs to raise the next generation of males. *Dalla* species are not often found below 1500 m elevation, and usually above 2500 m. I know nothing of *Dalla* life history, food plants or immature stages, but it is probable that the larvae may feed on various grasses as recorded for *Carterocephalus palaemon* (Pallas, 1771) by Tietz (1972:501) and Scott (1986:425), and for *Piruna pirus* (Edwards, 1878) and *P. aea* (Dyar, 1912) by Opler (1999:415–416).

While curating Hesperiid material at the Allyn Museum of Entomology, comparative genitalic examination with superficially similar taxa in conjunction with previous studies indicated that several of the many unidentified hesperiids specimens were indeed new species. As stated by Judith E. Winston (1999:115), "Once you have . . . satisfied yourself that the organism you are studying does indeed represent an undescribed species, your aim is publication. Only if it is named and described acceptably in a scientific publication will the species name be available for you and others to use. Descriptions of new species are still an important part of publication in the field of taxonomy." Therefore, in an effort to better document the Neotropical lepidopteran fauna, five new species in the genus *Dalla* Mabille, 1904, are described below. Nine other new species and two new subspecies in the genus were described earlier (Steinhauser 1991a, b).

*DALLA* MABILILE, 1904

**Diagnosis.** The genus *Dalla* is one of the six heteropterine genera occurring in the New World. Most of its 98 species (this includes the five new ones herein described) are essentially montane in habitat and centered primarily in the Andes of South America, but extending also into Central America and Mexico. Evans (1955), the most recent reviser of the genus, used ten characters, unfortunately none of them genitalic, to distinguish among the six genera of the New World Heteropterini, which he included in the Hesperinae as the *Carterocephalus* group. He distinguished *Dalla* from the other five (*Carterocephalus*, *Piruna*, *Dardarina*, *Butleria* and *Argopteron*) by the apiculus of the antennae being "gradual, sharply pointed" rather than "blunt, more or less flattened and compressed at tip" as in the other five (Evans 1955:9–10). The other nine characters were used in various combinations to distinguish among the other five genera. None of their various states pertains uniquely to *Dalla*, which shares a relatively long antenna (equal or greater than half the forewing costa) with *Argopteron*, *Butleria* and *Dardarina*; spined midtibiae shared with *Carterocephalus*,

*Piruna*, *Dardarina* and *Butleria*; relatively short palpi (equal to head, rather than longer) shared with *Dardarina*; antennal nudum usually of more than 11 segments rather than less, shared with *Butleria*; nudum longer than half the antennal club, shared with *Dardarina* and *Butleria*; antennal club not grooved, shared with all but *Argopteron*. I found the other three characters used by Evans to apply inconsistently. For further comments on Evans' classification see Steinhauser (1991b:40–42).

#### MATERIALS AND METHODS

I have followed Evans' arrangement of the genus into groups in the placement of these new species, despite its unreality. Wing measurements are given to the nearest 0.5 millimeter, since I find it impossible to determine the exact wing base position on a mounted specimen more closely. Genitalic dissection techniques and terminology are the same as used by Steinhauser (1989). Wing venation follows the system of Miller (1972). The male genitalia of all five and the female genitalia of the one with a known (or probable) female are illustrated. Two of these new species are from the Santa Marta region of northeastern Colombia. The other three, two of which I had previously misidentified as *Dalla connexa* Draudt, 1923, are from Ecuador. All of these specimens are deposited in the Allyn Museum of Entomology.

#### *Dalla wardi* Steinhauser, new species

(Figs. 1, 2, 15)

**Male. Head:** Blackish brown above; palpi hairy, grizzled black and white, third segment (missing in holotype) slender, porrect, black, nearly hidden in hairs of second segment. Antennae about half costa, shaft prominently checkered black and yellow, club black, yellow at base, nudum brown, 11 segments in holotype (right antenna glued to paper triangle on pin), 12 segments in paratype; terminal segment short, pointed. **Thorax:** Blackish brown above, fulvous beneath. **Thoracic appendages:** Legs fulvous; foretibiae with long slender, brown epiphyses reaching and slightly overlapping tarsi; mid and hindtibiae spined, midtibiae with single pair of spurs, hindtibiae with two, the upper smaller. **Wings: Dorsal surface:** Forewing dark blackish brown, a few scattered yellowish hairs in basal third; yellowish white hyaline spots as follows: three contiguous, subequal subapical spots separated by dark veins in  $R_3$ – $R_4$ ,  $R_4$ – $R_5$  (smallest) and  $R_5$ – $M_1$  (largest), their inner edges in an arc convex proximad; triangular lower cell spot nearly reaching radius, centered between origins of  $R_1$  and  $R_2$ ; large rhomboid spot in  $Cu_1$ – $Cu_2$ , its edges in line with those of the cell spot and separated from it only by the dark cubital vein; small (circular in the holotype, rhomboid in the paratype) spot in mid  $M_3$ – $Cu_1$ , somewhat larger than the largest subapical spot. These hyaline spots are bordered by a very narrow line of orange yellow scales. In addition to the hyaline spots, there is an opaque rhomboid-to-near-triangular yellow spot in mid  $Cu_2$ – $2A$ , not reaching  $Cu_2$  and separated by about half its width from the spot in  $Cu_1$ – $Cu_2$ , its outer edge about in line with the inner edge of the combined cell plus  $Cu_1$ – $Cu_2$  spot. Fringes concolorous,

shading to paler brown and somewhat ochreous at tornus. Hindwing same dark brown as forewing, with a few orange yellow hairs in the basal quarter, and bearing a prominent, sharply defined, somewhat ovoid central orange spot, undivided by dark veins, in the cell, extreme base of  $Rs$ – $M_1$ ,  $M_1$ – $M_2$ ,  $M_2$ – $M_3$ , extreme base of  $M_3$ – $Cu_1$ , base of  $Cu_1$ – $Cu_2$  and  $Cu_2$ – $1A$ ; the portion of the spot in  $Cu_1$ – $Cu_2$  and  $Cu_2$ – $1A$  is shifted slightly basad from the rest of the spot. Fringes ochreous to orange, slightly paler at tornus. **Ventral surface:** Forewing centrally blackish brown, costa and apex broadly reddish brown, more or less heavily scaled yellowish in distal half of costal cell. Hyaline spots as above; opaque spot in  $Cu_2$ – $2A$  much larger than above, clear pale yellow, shares entire caudal edge of spot in  $Cu_1$ – $Cu_2$ , concave distally, convex proximally. Fringes reddish brown, shading to greyish at tornus. Hindwing reddish brown, dark grey in  $2A$ – $3A$  and anal cell. Central spot as above, clear orange yellow, sharply defined. Additional rather obscure opaque yellow spots in  $Sc$ + $R_1$ – $Rs$  about one third way from base, and subternally in  $Cu_2$ – $2A$ . Fringes concolorous at apex, shading to ochreous at tornus. **Abdomen:** Blackish brown above, fulvous beneath. **Genitalia:** Very similar to *D. mesoxantha* (Plötz, 1884), *D. xantha* Steinhauser, 1991, *D. merida* Evans, 1955 and *D. frater* (Mabille, [1879]). Tegumen slender, oval, not hollowed above; uncus rather short, subequal to tegumen, slender and narrowly and shallowly bifurcate in dorsal view; in lateral view, not projecting dorsad at juncture with tegumen, slightly hooked at distal end, bearing prominent dorsal hair tuft. Gnathos well sclerotized, smooth, extends distad to about mid uncus. Valvae symmetrical. 2.4 times longer than wide, 1.8 times length of combined tegumen and uncus; harpe projects prominently cephalad as a slender dentate process with a straight rather than concave dorsal edge, completely overlapping the obliquely upturned distal portion of the ampulla which does not extend dorsad beyond harpe and bears a slender, inwardly projecting curved flange at its base. Penis slender, slightly shorter than valvae, distally broadened and dentate on left side; phallobase extremely short; single small, doubly dentate cornutus. Saccus very short, triangular; juxta and transtilla prominent.

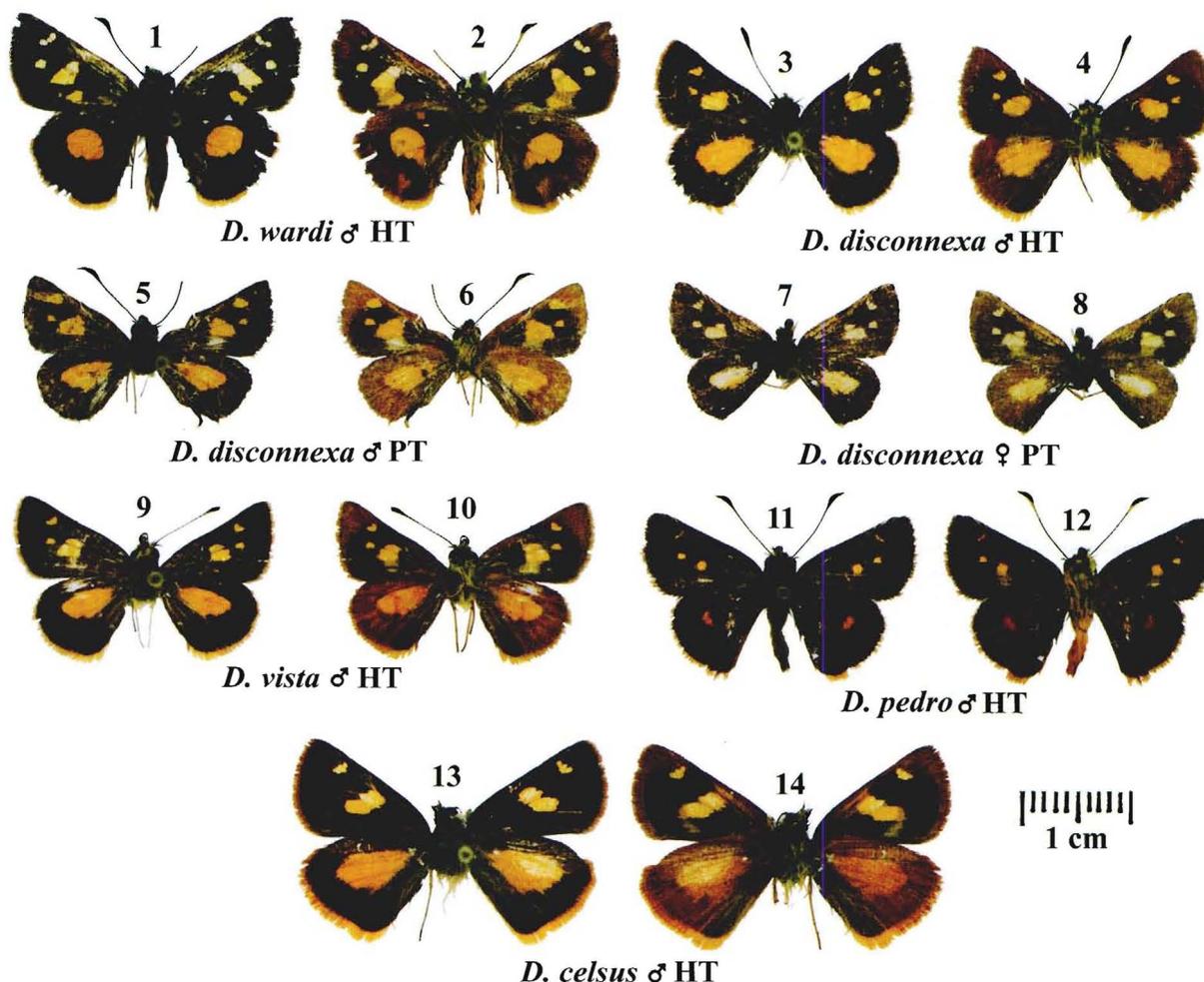
**Female.** Unknown.

**Wing measurements.** Male forewing 13 × 7 mm (paratype) to 13.5 × 7.5 mm (holotype).

**Type material.** Holotype ♂, Colombia: Magdalena; 8 km E of San Pedro, 2550 m, 13-XII-1973, P. Ward & A. Forsyth, bearing the following labels: printed and hand printed white label, COLOMBIA: 8 km E of San Pedro Dept. Magdalena 10°55'N, 73°58'W 2550 m. 13.XII.1973 P. Ward, A. Forsyth; hand printed yellow label, [P.S. Ward photo slide No.] 7–19; white paper triangle with right antenna glued thereupon; printed and hand printed white label, Allyn Museum Acc. 1999-9; printed and hand printed red label, HOLOTYPE ♂ *Dalla wardi* S.R. Steinhauser; printed and hand printed white label Allyn Museum Photo No. 990724-13.14. There is one male paratype, same data as holotype; both of which are deposited in the Allyn Museum of Entomology.

**Etymology.** This handsome skipper is named for its discoverer, Dr. Philip S. Ward.

**Discussion.** *Dalla wardi* keys out to *D. mesoxantha* in Evans' (1955) key to the species of *Dalla*. It is a member of Evans' *cypselus* group and is most closely related to *D. mesoxantha*, *D. xantha*, *D. frater* and *D. merida*, but is smaller: 13–13.5 mm for *D. wardi*, 14–15 mm for *D. frater*, 15–15.5 mm for *D. mesoxantha* and *D. xantha*. The ventral hindwing reddish brown ground color of *D. wardi* is like that of *D. merida* and similar to that of *D. frater* and *D. meso-*



FIGS. 1–14. New *Dalla* species (odd numbers dorsal, even numbers ventral): 1, 2—*Dalla wardi*, new species, ♂ holotype; 3, 4—*Dalla disconnexa*, new species, ♂ holotype; 5, 6—*Dalla disconnexa*, new species, ♂ paratype; 7, 8—*Dalla disconnexa*, new species, ♀ paratype; 9, 10—*Dalla vista*, new species, ♂ holotype; 11, 12—*Dalla pedro*, new species, ♂ holotype; 13, 14—*Dalla celsus*, new species, ♂ holotype.

*xantha*, but unlike the dark brown of *D. xantha*. There is some question about the identity of *D. mesoxantha* (see Steinhauser 1991a:10), but until proven otherwise, I use the BMNH specimen from the Kaden collection marked “Type” as its model, though I have not seen its genitalia. The ventral hindwing maculation of *D. wardi* is like that of *D. mesoxantha* and *D. merida*, but the color of the central spot, both ventral and dorsal is more orange in *D. wardi* than in *D. mesoxantha* but not as deep orange as in *D. merida*. There is a more or less complete row of postdiscal pale spots in *D. frater*, lacking in *D. wardi*.

In the male genitalia, the uncus of *D. wardi*, viewed dorsally, is considerably more slender than in *D. mesoxantha* and *D. xantha*, but not as slender as *D. frater*; I have not seen the genitalia of *D. merida*, and

Evans' sketch does not make this feature clear. The forward edge of the uncus in *D. wardi* and *D. frater* does not project over the tegumen as it does in *D. mesoxantha* and *D. xantha*. The penis of *D. wardi*, like that of *D. frater*, is more slender than in *D. xantha* and *D. mesoxantha*, but, like them, much shorter relative to the valva length than *D. frater* (0.89 times valva for *D. wardi* and *D. mesoxantha*, 0.93 times for *D. xantha*, but 1.13 times for *D. frater*; the penis length of *D. merida* is not known). The dentate dorsal process of the harpe is very slender and slightly concave dorsally in *D. mesoxantha*, somewhat thicker in *D. xantha*, *D. frater* and *D. wardi*, strongly concave in *D. frater*, very strongly concave in *D. merida* according to Evans' sketch, only slightly concave in *D. xantha*, but straight in *D. wardi*. Only in *D. wardi* is the ampulla com-

pletely overlapped by the harpe, it projects dorsad beyond the harpe in the others.

### *Dalla disconnexa* Steinhauser, new species

(Figs. 3–8, 16, 17)

**Male. Head:** Blackish brown; palpi missing in type series of four males. Antennae (broken in holotype) slightly longer than half costa, shaft prominently checkered black and yellow, club black above, yellow beneath, nudum dark brown, 12 segments in two male paratypes with complete antenna, terminal segment long, pointed. **Thorax:** Blackish brown above, fulvous beneath. **Thoracic appendages:** Legs pale fulvous; foretibiae with minute brown central epiphyses; mid and hindtibiae spined, midtibiae with single pair of spurs, hindtibiae with two. **Wings: Dorsal surface:** Forewing dark blackish brown, a few scattered yellowish hairs in basal third; opaque yellow-orange (holotype) to pale yellowish white spots as follows: three contiguous, subequal subapical spots not separated by dark veins in  $R_3$ – $R_4$ ,  $R_4$ – $R_5$  and  $R_5$ – $M_1$ , their outer edges in a line directed toward mid termen; a more or less triangular lower cell spot, centered approximately between origins of  $R_1$  and  $R_2$ ; large rhomboid spot in  $Cu_1$ – $Cu_2$ , its inner edge in line with that of the cell spot and separated from it only by the dark cubital vein; small, more or less quadrate spot in  $M_3$ – $Cu_1$ , subequal to the subapical spots. These spots are slightly paler yellow-orange in one paratype and pale yellowish white in the other two. Fringes basally concolorous, distally paler brown, still paler at tornus. Hindwing same dark brown as forewing, with a few orange yellow (holotype) hairs in the basal quarter (pale yellow or missing in the paratypes), and bearing a prominent, fairly well defined, elongate ovoid central yellow-orange spot, undivided by dark veins and narrowed at its proximal end which nearly reaches the wing base, in the cell,  $M_1$ – $M_2$ ,  $M_2$ – $M_3$ , extreme base of  $M_3$ – $Cu_1$ , base of  $Cu_1$ – $Cu_2$  and  $Cu_2$ –1A; the portion of the spot in  $Cu_1$ – $Cu_2$  and  $Cu_2$ –1A is shifted slightly basad from the rest of the spot leaving a small dark notch distally on its rear edge. As on the forewing, the spot color varies in the paratypes. Fringes pale brown, shading to more orangish at tornus (yellowish to whitish in the paratypes). **Ventral surface:** Forewing centrally blackish brown, slightly paler in anal cell; costal cell, costa, apex beyond subapical spots and termen to  $Cu_1$  broadly reddish brown. Opaque spots as above, slightly paler; spot in  $Cu_1$ – $Cu_2$  extended patchily to 2A or 1A, variable. Fringes reddish brown. Hindwing reddish brown, dark grey with sprinkling of pale yellowish scales in 1A–2A, 2A–3A and anal cell. Central spot as above, but extending into Sc+ $R_1$ –Rs, filling the basal three fourths of that space, which bears, slightly distad of midpoint, a vague, reddish brown spot over-scaled yellow. There is some postdiscal, scattered yellow scaling, but not organized into a spot band. Fringes concolorous, slightly paler at tornus. **Abdomen:** Blackish brown above, fulvous to whitish beneath. **Genitalia:** Illustrated by Hayward (1943) and Evans (1955) as *D. connexa* (Hayward and Evans, nec Draudt 1923; see Mielke 1993:620, figs. 67–71 for correct rendition of *D. connexa* genitalia). Tegumen in dorsal view, oval, centrally constricted, not hollowed above; uncus rather short, in dorsal view oval, elongated distally to a narrow, bluntly pointed nose, in lateral view projecting dorsad and cephalad over tegumen, distally slightly hooked, bearing a dense dorsal hair tuft. Gnathos well sclerotized, smooth, extending caudad to beyond mid uncus, where it is surmounted dorso-distally by a broad, distally bifurcate, shagreened process wider than uncus and projecting caudad subequally. Valvae symmetrical, three times as long as wide, 1.7 times as long as combined tegumen/uncus length; harpe projects dorso-distally as a slender, curved process, coarsely dentate terminally and along its forward edge, only slightly overlap-

ping the ampulla which is evenly rounded and upturned dorsad, and distally elongated more or less evenly with the harpe. Penis slender, long (1.2 to 1.3 times valva length); phallobase short; cornutus a single, small, dentate process. Juxta and transtilla very prominent; juxta narrowly pointed cephalad; transtilla developed into two long pointed arms projecting caudad.

**Female. Head:** As male; palpi missing from both paratypes, antennae of the one paratype with complete antennae, as male. **Thorax and thoracic appendages:** Thorax and legs as male. **Wings:** Generally as male, dorsal surface wing markings slightly paler; ventral surface ground color, especially the hindwing, much paler, central spot pale yellow, postdiscal area densely covered with pale yellow scales, leaving a narrow reddish brown distal border to the central spot, most prominent in  $M_1$ – $M_2$  and  $M_2$ – $M_3$ , and a very narrow reddish brown terminal border before the fringe. **Genitalia:** Lamella postvaginalis a narrow, distally concave sclerotized process. Lamella antevaginalis consists of two lateral lobes. Antrum a moderately sclerotized, rather long, oval tube extending well forward of the lamella antevaginalis; ductus bursae with a slender, rather obscure internal sclerotized process at about mid point, well forward of the antrum. Corpus bursae consists of two spherical sacs in tandem connected by a narrow membranous neck; the forward sac simple, the more caudad sac with long, slender internal spines forming lateral signa. Ductus seminalis connected to mid ductus bursae ventrally.

**Wing measurements.** Male forewing 11 × 5.5 to 12 × 6.5 mm (holotype); female forewing 11.5 × 6 to 12 × 6 mm.

**Type material.** Holotype ♂, Ecuador: Cotopaxi; Milimbanco 3900 m, ix.1971, R. de Lafebre, bearing the following labels: printed white label, ECUADOR: COTOPAXI Milimbanco, 3900 m; ix.1971 R. de Lafebre; printed white label, A.C. Allyn Acc. 1972–2; printed and hand printed white label, Genit. Vial SRS-2543; printed and hand printed red label, HOLOTYPE ♂ *Dalla disconnexa* S.R. Steinhauser; printed and hand printed white label, Allyn Museum Photo No. 990724-7.8. There are three male and two female paratypes all by the same collector: 1 ♂ Ecuador: Pichincha; Niebli, NW slope of Vol. Pichincha, 3500 m, viii-1971; 1 ♂ Ecuador: Pichincha; Vol. Antisana, 2950 m, vii-1971; 1 ♂ Ecuador: El Oro; Bellavista, 550 m, v-1971; 1 ♀, Ecuador: Tungurahua; Bellavista nr. Baños, 1900 m, xii-1970; 1 ♀, Ecuador: Tungurahua, San Antonio, 1950 m, ix-1971.

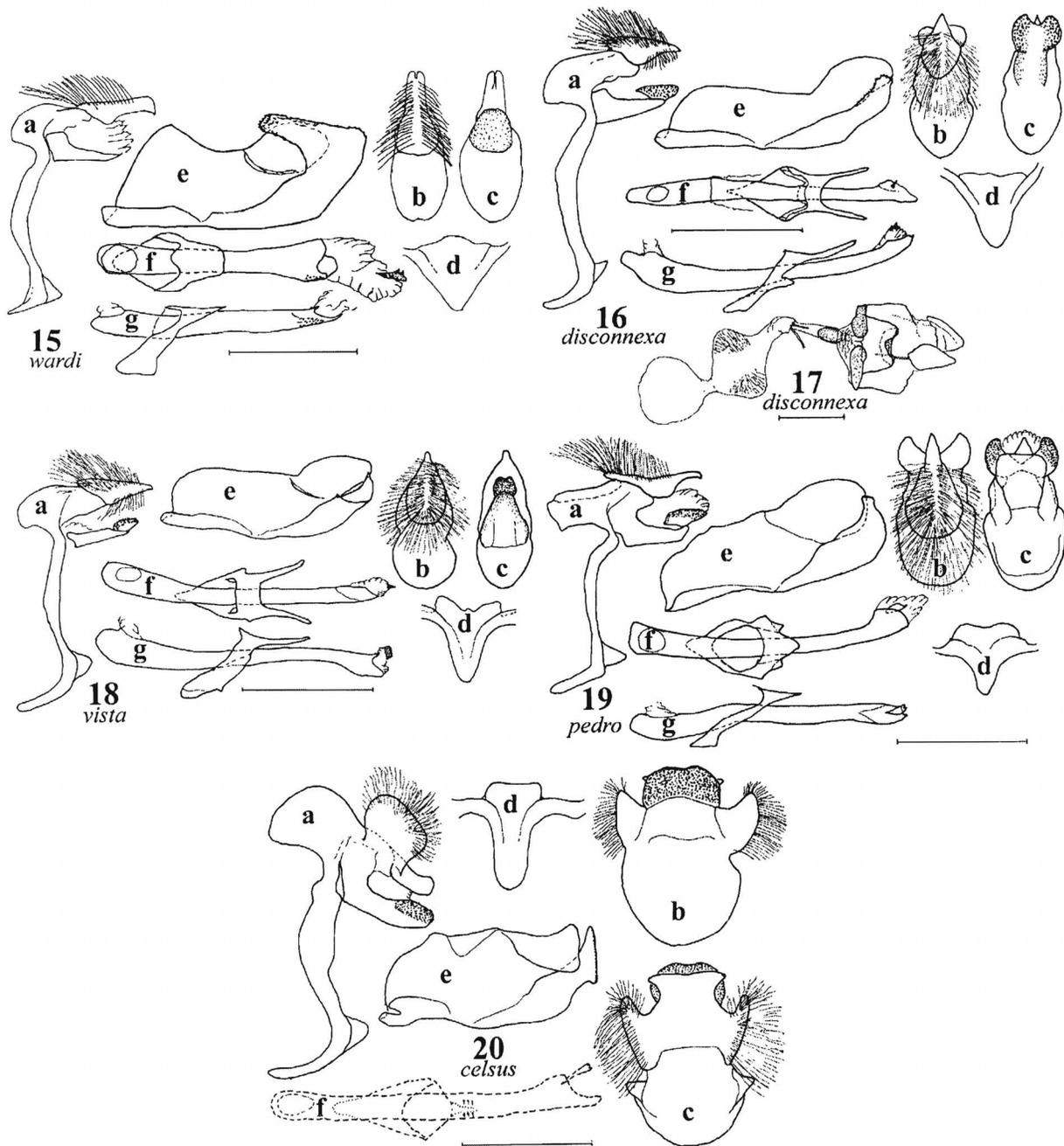
**Etymology.** I have named this insect *D. disconnexa* because of its great similarity to, but differences from, *D. connexa*.

**Discussion.** See discussion of the new species described immediately below.

### *Dalla vista* Steinhauser, new species

(Figs. 9, 10, 18)

**Male. Head:** Blackish brown above; palpi hairy, basally black, grizzled black and white distally, third segment (missing in holotype and one male paratype) slender, porrect, black, nearly hidden in hairs of second segment. Antennae slightly longer than half costa, shaft prominently checkered black and yellow, club black above, yellow beneath, nudum dark brown, 12 segments in only male paratype with complete antenna (tips of apiculi broken off on holotype), terminal segment long, pointed. **Thorax:** Blackish brown above, fulvous beneath. **Thoracic appendages:** Legs pale fulvous; foretibiae with minute brown central epiphyses; mid and hindtibiae spined, midtibiae with single pair of spurs, hindtibiae with two. **Wings: Dorsal surface:** Forewing dark blackish brown, a few scattered yellowish hairs in basal third; opaque yellow-orange spots as follows: three contiguous, subequal subapical spots not separated by dark veins in  $R_3$ – $R_4$ ,  $R_4$ – $R_5$  and  $R_5$ – $M_1$ , their outer edges in a line directed



FIGS. 15–20. *Dalla* species genitalia (scale line = 1 mm). **15**—*Dalla wardi*, ♂ paratype (Genit. Vial SRS-4804): **a**) tegumen, uncus, vinculum and associated structures, lateral; **b**) tegumen and uncus, dorsal; **c**) tegumen, uncus and gnathos, ventral; **d**) saccus, ventral; **e**) right valva, interior lateral; **f**) penis, cornutus, transtilla and juxta, dorsal; **g**) penis, transtilla and juxta, lateral; **16**—*Dalla disconnexa*, ♂ holotype (Genit. Vial. SRS-2543): **a**) tegumen, uncus, vinculum and associated structures, lateral; **b**) tegumen, uncus and gnathos, dorsal; **c**) tegumen, uncus and gnathos, ventral; **d**) saccus, ventral; **e**) right valva, interior lateral; **f**) penis, cornutus, transtilla and juxta, dorsal; **g**) penis, cornutus, transtilla and juxta, lateral; **17**—*Dalla disconnexa*, ♀ paratype (Genit. Vial SRS-5281), ventral. **18**—*Dalla vista*, ♂ holotype (Genit. Vial SRS-5282): **a**) tegumen, uncus, vinculum and associated structures, lateral; **b**) tegumen and uncus, dorsal; **c**) tegumen, uncus and gnathos, ventral; **d**) saccus, ventral; **e**) right valva, interior lateral; **f**) penis, cornutus, transtilla and juxta, dorsal; **g**) penis, cornutus, transtilla and juxta, lateral; **19**—*Dalla pedro*, ♂ paratype (Genit. Vial SRS-4805): **a**) tegumen, uncus, vinculum and associated structures, lateral; **b**) tegumen, uncus and gnathos, dorsal; **c**) tegumen, uncus and gnathos, ventral; **d**) saccus, ventral; **e**) right valva, interior lateral; **f**) penis, cornutus, transtilla and juxta, dorsal; **g**) penis, cornutus, transtilla and juxta, lateral. **20**—*Dalla celsus*, ♂ holotype (Genit. Vial SRS-4797): **a**) tegumen, uncus, vinculum and associated structures, lateral; **b**) tegumen, uncus and gnathos, ventral; **c**) tegumen, uncus and gnathos dorsal; **d**) saccus, ventral; **e**) right valva, interior lateral; **f**) penis, cornutus and juxta, dorsal (drawn from memory).

toward mid termen; a more or less triangular lower cell spot, centered approximately between origins of  $R_1$  and  $R_2$ ; large rhomboid spot in  $Cu_1-Cu_2$ , its inner edge in line with that of the cell spot and separated from it only by the dark cubital vein; small spot in  $M_3-Cu_1$ , subequal to the subapical spots (rhomboid in the holotype and one paratype and not reaching the base of  $M_3-Cu_1$ , triangular in one paratype and reaching the base). Fringes light greyish brown with an orange tinge toward the tornus. Hindwing same dark brown as forewing, with a few orange-yellow hairs in the basal quarter, and bearing a prominent, fairly well defined, elongate ovoid central yellow-orange spot, undivided by dark veins and narrowed at its proximal end which nearly reaches the wing base, in the cell,  $M_1-M_2$ ,  $M_2-M_3$ , extreme base of  $M_3-Cu_1$ , base of  $Cu_1-Cu_2$  and  $Cu_2-1A$ ; the portion of the spot in  $Cu_1-Cu_2$  and  $Cu_2-1A$  is shifted slightly basad from the rest of the spot leaving a small dark notch distally on its rear edge. Fringes ochreous to orange, shading to more orange at tornus. **Ventral surface:** Forewing centrally blackish brown, slightly paler in anal cell; costal cell, costa, apex beyond subapical spots and termen to  $Cu_1$  broadly reddish brown. Opaque yellow-orange spots as above, slightly paler; subapical spots narrowly bordered distally by slightly darker reddish brown; spot in  $Cu_1-Cu_2$  extended broadly to 2A, yellow-orange to vestigial vein 1A, whitish in 1A-2A. Fringes reddish brown. Hindwing reddish brown, dark grey with sprinkling of pale yellowish scales in 1A-2A, 2A-3A and anal cell. Central spot as above, more or less overscaled reddish brown, poorly defined, marked with a vague reddish brown line at cell end. There is a very vague yellowish postdiscal spot-band from about  $Rs-M_1$  to  $Cu_1-Cu_2$ , which may be reduced to a few yellow scales. Fringes concolorous, slightly paler at tornus. **Abdomen:** Blackish brown above, fulvous beneath. **Genitalia:** Tegumen slender, oval, not hollowed above; uncus rather short, in dorsal view oval, elongated distally to a narrow, bluntly pointed nose; in lateral view projecting dorsad and cephalad over tegumen, distally slightly hooked, bearing a dense dorsal hair tuft. Gnathos well sclerotized, smooth, extending caudad to about mid uncus, where it is surmounted dorso-distally by a rounded, distally somewhat excavate, shagreened process narrower than uncus. Valvae symmetrical, three times as long as wide, 1.6 times as long as combined tegumen/uncus length; harpe projects dorso-distally as a slender, smooth pointed process with a single, centrally placed, short, inwardly projecting tooth; ampulla distally elongated, evenly rounded, bearing a narrow, curved, inwardly projecting flange at its base, overlapped by harpe process which does not reach dorsad beyond mid ampulla. Penis slender, long (1.4 times valva length); phallobase short; cornutus a single, small, dentate process. Juxta and transtilla very prominent; juxta narrowly and bluntly pointed cephalad; transtilla developed into two long pointed arms projecting caudad.

**Female.** Unknown.

**Wing measurements.** Male forewing  $11.5 \times 6$  mm (one paratype) to  $12 \times 6$  mm (holotype and one paratype).

**Type material.** Holotype ♂, Ecuador: El Oro; Bellavista 550 m, V-1971, R. de Lafebre, bearing the following labels: printed white label, ECUADOR: EL ORO; Bellavista, 550 m; v.1971 R. de Lafebre; printed white label, A.C. Allyn Acc. No. 1972-6; printed and hand printed red label, HOLOTYPE ♂ Dalla vista S.R. Steinhäuser; printed white label, Genit. Vial No. SRS-5282; printed and hand printed white label, Allyn Museum Photo No. 990724-3,4. There are two male paratypes, all same collector as holotype, 1 ♂ same data as holotype, 1 ♂ Ecuador, Tungurahua; Baños, 1850 m, xii-1970. The holotype and paratypes are deposited in the Allyn Museum of Entomology.

**Etymology.** The name *vista* is based on the last part of the name of the village where the holotype was collected.

**Discussion.** I had determined a series of seven males (two dissected) and two females (one dissected) from Ecuador at the Allyn Museum as *D. connexa*, based on Evans' (1955) key and description and his and Hayward's (1943) genitalia drawings. When later compared with Mielke's (1993) illustration of the genitalia of the lectotype of *D. connexa*, it appeared that those two males whose genitalia I had examined might be different; they had a prominent, bifurcate transtilla like that illustrated by both Evans and Hayward, and the dorsal harpe process was prominently and coarsely dentate along its entire forward edge, unlike that shown by Mielke with only some fine terminal dentation. Mielke did not illustrate the juxta and transtilla, and did not remember seeing (pers. com. 1999) a prominent, bifurcate transtilla. Upon dissecting the abdomens of the remaining specimens in the series, I discovered that three of the males were entirely different (*D. vista*); the other two were the same as the two I had originally determined as *D. connexa*, newly described above as *D. disconnexa*. I am treating the females as *D. disconnexa* because, although the central yellow spot of the hindwing beneath is more or less obscurely defined as in the males of *D. vista*, and not as well defined as in *D. disconnexa* males, it does extend fully into  $Sc+R_1-Rs$ , and does not have a reddish brown bar at cell end. It is possible, however, that they may belong to *D. vista* instead.

It is very probable that the skippers determined as *D. connexa* by both Hayward and Evans, at least those whose genitalia were examined, are *D. disconnexa* rather than *D. connexa*. I have before me, however, a photograph of an undissected BMNH specimen from Colombia, determined by Evans as *D. connexa*, that I believe is probably *D. vista*.

Superficially, I find it very difficult to distinguish among the three species. All are about the same size (11-12 mm forewing) and have essentially the same wing markings. Comparing the Seitz illustration of *D. connexa* (Vol. 5: pl. 179e), and a photo taken by Mielke of the lectotype, with the series before me of *D. vista* and *D. disconnexa*, and a photograph of the BMNH specimen mentioned above, determined by Evans as *D. connexa*, I find the following slight and perhaps inconsistent differences:

Dorsal surface: spot in  $Cu_1-Cu_2$  of forewing may be slightly larger in *D. vista* and *D. disconnexa* than in *D. connexa*. Color of the spots in *D. disconnexa* varies from yellow-orange to yellowish white; *D. connexa* is illustrated as yellow-orange similar to *D. vista*. The hindwing central spot of *D. connexa* and *D. disconnexa* is slightly longer (extends closer to termen) than that of *D. vista*.

Ventral surface: in the Seitz illustration, the hindwing central spot of *D. connexa*, which may be of the female, is very large, nearly white and fairly well defined. That of *D. disconnexa*, which may be whitish, is equally well defined, but very much smaller, whereas that of *D. vista* is rather poorly defined and generally slightly darker. The central spot in *D. vista* does not extend into Sc+R<sub>1</sub>-Rs as in *D. disconnexa* and has a reddish brown bar at cell end, missing in *D. disconnexa*.

Both of these new species belong in Evans' (1955) *caenides* group, and both will key to *D. connexa* in his key to the *Dalla* species.

### *Dalla pedro* Steinhauser, new species

(Figs. 11, 12, 19)

**Male. Head:** Dark brown above; palpi missing from both holotype and paratype; antennae reach to slightly beyond mid costa, shaft prominently checkered yellow and black, club black above pale yellow beneath, nudum brown, 12 segments, terminal segment short, rounded. **Thorax:** Dark brown above, beneath clothed in long pale fulvous hairs. **Thoracic appendages:** Legs clothed in long pale fulvous hairs; foretibiae with very small central epiphyses, mid and hindtibiae spined, midtibiae with single pair of spurs, hindtibiae with two pairs. **Wings:** Dorsal surface: Forewing dark brown with scattered ochreous hair scales in basal third. Small opaque, subapical yellow-orange spots in R<sub>3</sub>-R<sub>4</sub>, R<sub>4</sub>-R<sub>5</sub> and R<sub>5</sub>-M<sub>1</sub> in a line directed toward mid termen; slightly larger (up to 1 mm), widely separated, round, opaque yellow-orange spots in M<sub>3</sub>-Cu<sub>1</sub> and Cu<sub>1</sub>-Cu<sub>2</sub>. Fringes concolorous, shading to paler dull orange at tornus. Hindwing same dark brown as forewing, with scattered ochreous hair scales in basal third; small central orange spot in cell end extending into basal Rs-M<sub>1</sub>, M<sub>1</sub>-M<sub>2</sub> and M<sub>2</sub>-M<sub>3</sub>. Fringes dull orange. Ventral surface: Forewing same dark brown as above, slightly paler in anal cell, broadly rufous at costa, apex and termen to Cu<sub>1</sub>. Opaque yellow-orange spots as above, those in M<sub>3</sub>-Cu<sub>1</sub> and Cu<sub>1</sub>-Cu<sub>2</sub> much larger, quadrate; an additional opaque pale yellow spot in Cu<sub>2</sub>-2A adjoining the spot in Cu<sub>1</sub>-Cu<sub>2</sub>. Fringes as above. Hindwing rufous, black brown in anal cell; faint darker brown postdiscal spot band from Sc+R<sub>1</sub>-Rs to Cu<sub>1</sub>-Cu<sub>2</sub>. Fringe rufous with a faint dark brown hairline at its base. **Abdomen:** Dark brown above, rufous beneath. **Genitalia:** Tegumen broad in dorsal view, somewhat quadrate in lateral view, slightly hollowed dorsally. Uncus slender, entire, slightly hooked at distal end, projects over tegumen where it bears a very dense hair tuft. Gnathos broad, sclerotized, smooth, but bearing a large, bifurcate, dentate dorsal process that extends caudad as far as does the uncus. Valvae symmetrical, long (1.5 times combined tegumen/uncus length), narrow (length 2.5 times its greatest width); harpe projects dorsad as a short dentate nose, reaching mid ampulla, which is large, evenly rounded and extending caudad nearly as far as harpe. Penis long, slender, curved to left, terminally widened to left; phallobase very short; cornutus a small, monodentate plate. Juxta and transtilla prominent, transtilla with short, bilateral caudally directed projections. Saccus a small slender triangle.

**Female.** Unknown.

**Wing measurements.** Male forewing 12.5 × 6.5 mm (holotype) to 13 × 7 mm (paratype).

**Type material.** Holotype ♂, Colombia: Magdalena; 8 km E of San Pedro, 2550 m, 13-XII-1973, P Ward & A. Forsyth, bearing the following labels: printed and hand printed white label, COLOMBIA: 8 km E of San Pedro Dept. Magdalena 10°55'N, 73°58'W 2550

m. 13.XII.1973 P. Ward; hand printed yellow label [P.S. Ward photo slide No.] 7-21; printed and hand printed white label, Allyn Museum Acc. 1999-9; printed and hand printed red label, HOLOTYPE ♂ *Dalla pedro* S.R. Steinhauser; printed and hand printed white label Allyn Museum Photo No. 990724-11,12. There is one male paratype, Colombia: Magdalena; 10 km E of San Pedro, 2900 m, 23-XII-1973, P. Ward; both types are deposited in the Allyn Museum of Entomology.

**Etymology.** This skipper is named for its locale, San Pedro.

**Discussion.** *Dalla pedro* does not fit well into Evans' 1955 key to the species of *Dalla*. I place it tentatively in Evans' *caenides* group on the basis of its rather peculiar genitalia, similar to *D. connexa* Draudt, 1923, *D. tigidas* (Mabille, 1897), *D. caenides* (Hewitson, 1868), *D. bos* Steinhauser, 1991, *D. mora* Evans, 1955 and *D. carnis* Evans, 1955, none of which even faintly resembles *D. pedro* superficially. *Dalla pedro* bears some superficial similarity to several of the more sparsely marked *Dalla* species, but is immediately recognized by its distinctive genitalia.

### *Dalla celsus* Steinhauser, new species

(Figs. 13, 14, 20)

**Male: Head:** Black-brown above; palpi and antennae missing. **Thorax:** Black-brown above, reddish brown beneath. **Thoracic Appendages:** Legs dark brown, clothed in ochreous hairs and scales; fore and mid legs missing, hindtibiae spined with two pairs of spurs. **Wings:** Dorsal surface: Forewing black-brown with scattered ochreous scaling in the basal quarter, most prominent along the costa. Opaque yellow-orange spots subapically in R<sub>3</sub>-R<sub>4</sub> (smaller), R<sub>4</sub>-R<sub>5</sub> and R<sub>5</sub>-M<sub>1</sub>, in a line directed toward mid termen; broad cell spot across mid cell, its somewhat excavate outer edge centered between R<sub>1</sub> and R<sub>2</sub>; large, somewhat elongate spot in Cu<sub>1</sub>-Cu<sub>2</sub>, its outer edge convex, its inner half conjoined to the cell spot. Fringe paler brown. Hindwing same black-brown as forewing, overlain with orange hairs in basal one third, bearing a large, tear-drop-shaped orange spot nearly reaching wing base in cell, bases of Rs-M<sub>1</sub>, M<sub>1</sub>-M<sub>2</sub>, M<sub>2</sub>-M<sub>3</sub>, M<sub>3</sub>-Cu<sub>1</sub>, Cu<sub>1</sub>-Cu<sub>2</sub> and extending slightly into Cu<sub>2</sub>-1A and Sc+R<sub>1</sub>-Rs. Fringes brownish orange. Ventral surface: Forewing centrally dull black, reddish brown along costa to about cell end and at apex; spots as above, some yellow scaling at costa above cell spot; rather faint narrow yellowish spot in Cu<sub>2</sub>-2A, adjoining spot above it in Cu<sub>1</sub>-Cu<sub>2</sub>, narrow at Cu<sub>2</sub>, broader at 2A. Fringe red-brown, paler basally. Hindwing reddish brown, blackish in Cu<sub>2</sub>-2A and anal cell; spot from above yellowish, very faint, indistinct. Fringe concolorous, shading to orange at tornus. **Abdomen:** Blackish brown above, reddish brown beneath. **Genitalia:** Tegumen short, broad, globular; uncus short, broad, dorsally hollowed, its distal end broad, rounded, slightly concave centrally and extending laterally as two blunt points; the uncus is surmounted by two large circular lobes, densely hairy and projecting prominently dorsad. Gnathos shagreened, broad as uncus, rounded, slightly excavate centrally at caudal end, and extends caudally beyond uncus. Valvae symmetrical, harpe distally an upright process which is finely serrate along its distal margin, the teeth pointing inward. The harpe extends dorsad subequally with the rather squared, dorsally pointed ampulla, which, in interior view, overlaps the harpe rather than the more usual harpe overlapping the ampulla. Penis (lost while transferring to second watch glass and drawn immediately from memory) long, slender, with very short phallobase, slightly flared to the left distally and with a single small,

dentate cornutus. Juxta (lost with penis and drawn from memory) prominent, projecting prominently cephalad; transtilla (lost with penis and drawn from memory), not projecting prominently caudad.

**Female.** Unknown.

**Wing measurements.** Holotype male forewing  $15 \times 7.5$  mm.

**Type material.** Holotype ♂, Ecuador: Chimborazo; Atzatapungu, 4100 m, vi, 1976, R. de Lafebre, bearing the following labels: printed white label, ECUADOR: CHIMBORAZO Atzatapungu, 4100 m vi.1976; R. de Lafebre; printed white label, A.C. Allyn Acc. 1976-8; printed and hand printed white label, Genit. Vial SRS-4797; printed and hand printed red label, HOLOTYPE ♂ *Dalla celsus* S.R. Steinhauser; printed and hand printed white label, Allyn Museum Photo No. 990724-1.2. Known only from the holotype which is deposited in the Allyn Museum of Entomology.

**Etymology.** This skipper is named *celsus*, Latin for lofty, due to the high altitude of its type locality.

**Discussion.** In Evans' (1955) key to the species of *Dalla*, *D. celsus* falls into the *caenides* group, between *D. seirocastnia* Draudt, 1923 and *D. pantha* Evans, 1955, its hindwing spot extending slightly into  $Sc+R_1-Rs$ , unlike *D. seirocastnia*, but not reaching  $Sc+R_1$ , as in *D. pantha*. Another superficially similar species is *D. simplicis* Steinhauser, 1991 which lacks the ventral surface forewing spot in  $Cu_2-2A$ . Genitally, *D. celsus* is closest to *D. seirocastnia*, *D. puracensis* Steinhauser, 1991 and *D. ochrolimbata* Draudt, 1923 in having prominent dorsal lobes surmounting the uncus. *Dalla ochrolimbata* was placed by Evans in the *quadristriga* group because of its nearly complete lack of dorsal surface markings. *Dalla celsus* differs from both *D. seirocastnia* and *D. ochrolimbata* in the terminal shape of the uncus: broad and rounded in *D. celsus* and *D. puracensis*; with a bluntly pointed nose in *D. seirocastnia* and *D. ochrolimbata*. It also differs from them in the general shape of the valvae, which are terminally deeply excavate in *D. seirocastnia* and *D. ochrolimbata*. There are many other differences, but these serve to separate the species.

#### CONCLUSIONS

The genus *Dalla*, in fact the entire Heteropterini tribe, is in need of a phylogenetic revision. For example, I suspect that a few species currently in *Dalla* may belong in *Piruna*. It is also possible that some named *Dalla* taxa may be mere infraspecific variants; Evans (1955:20), speaking of his *agathocles* group, notes "The genitalia of the following 8 species are too alike to confirm their validity as species." Two of those eight species were then given an additional two subspecies and one of them, an additional three, making 15 taxa with essentially identical genitalia. Whereas this is entirely possible, it does seem like a ripe field for more detailed investigation. Unfortunately, at the present time, lack of comparative material from varied locations plus the extreme scarcity of females in col-

lections, makes such a study very difficult. If there are more undescribed species hiding in collections, they should be described and published to add to the data available for a possible revision. Whether this will result in subdividing *Dalla* into more than a single genus or to the establishment of sub-genera, I cannot say. There is a good possibility of arranging the species into groups based on genitalic similarity, shape and form of the antennal apiculus and club, form of the foretibial epiphyses and very probably other characters as well, certainly female morphology and immature biology. I have accumulated a fair amount of data, drawings and photos, which I will gladly share with anyone who decides to tackle this project.

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