HESPERIIDAE OF RONDÔNIA BRAZIL: RIDENS AND THE "PROTEUS" GROUP OF URBANUS, WITH DESCRIPTIONS OF NEW SPECIES (PYRGINAE)

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ABSTRACT. Four new species of Hesperiidae are described from the vicinity of Cacaulândia, Rondonia, Brazil: Ridens bidens, Urbanus villus, Urbanus longicaudus, and Urbanus parvus. The phenologies of an additional six species of the "proteus" group of Urbanus occurring in this area are presented.

Additional key words: genitalia, Neotropics, phenology, South America.

During studies of the butterfly fauna in the vicinity of Cacaulândia in central Rondonia, Brazil (Emmel & Austin 1990, Austin et al. 1993), numerous new species of skippers (Hesperiidae) have been encountered (Austin 1993, 1994, 1995, 1996, Austin & Steinhauser 1996). These samples included a new species of Ridens and three new species of the Urbanus "proteus" group (Hesperiidae: Pyrginae). These are described herein along with information on six additional species of the "proteus" group from near Cacaulândia.

Forewing length was measured from base to apex, width was the shortest distance from costa to tornus, and tail length was measured from the end of vein 3A to the end of the tail. All primary types are deposited at the Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Brazil; other vouchers and comparative material are there, at the Nevada State Museum, and at the Allyn Museum of Entomology.

Ridens Evans 1952

Evans (1952) included thirteen species in this Neotropical genus. Descriptions of four new species (Steinhauser 1974, 1983, Freeman 1979), the raising of a subspecies to specific status (Freeman 1976), and two new combinations (Steinhauser 1983) have increased this to twenty species. A single, previously undescribed, species is known from central Rondonia.

Ridens bidens Austin, new species
(Figs. 1, 7)

Description. Male (Fig. 1). Forewing length = 26.4 mm (holotype); forewing produced, with costal fold; hindwing lobed at tornus; dorsum brownish black, basal 1/3 of...
forewing and basal 2/3 of hindwing dull blue-green; forewing with white hyaline macules as follows: discal cell, more or less quadrate, slightly excavate on distal edge; CuA₁-CuA₂, large, overlapping distal 2/3 of discal cell macule, excavate on proximal edge and prominently on distal edge, posterior edge longer than anterior; M₃-CuA₁, small, triangular at base of cell, proximal 2/3 overlapping macule in CuA₁-CuA₂; CuA₂-2A, very small, oval, at posterio-distal corner of macule in CuA₁-CuA₂; R₁-Sc, minute, very thin, over distal end of discal cell macule; costal cell, larger than macule in R₁-Sc and anterior to it; fringes very worn, brown anteriorly, appearing white posterior to CuA₂; hindwing unmarked; fringes worn, apparently brown and uncheckered. Ventral forewing dull blackish, brown along anal margin; hyaline macules repeated from dorsum; most of distal end of cell CuA₂-2A opaque white from just proximal to macule in CuA₁-CuA₂ to outer margin except anterior half of cell where blackish distad of hyaline macule in same cell; hindwing glossy dull green; white submarginal scaling posterior to CuA₁; this as relatively distinct patch in CuA₂-2A. Dorsal head and thorax dull blue-green; palpi mixed whitish and gray; white beneath eyes; antennae black, slight yellow distad beneath including club, nudium red-brown, 34 segments; thorax gray-green on sides beneath wings, pectus gray with pale yellow cephalad, legs gray, tibiae not spined, mid tibia with single pair of spurs, hind tibia with 2 pairs of spurs, back of hind tibia with sparse row of hairlike scales; dorsal abdomen blackish, white at anterior segments and indistinct gray at last four, ventral abdomen white with medium width blackish bands. Male genitalia (Fig. 7). Uncus divided, arms divergent in ventral view; gnathos entire, broader than uncus in ventral view; valva with costa short, ampulla broadly rounded, harpe with relatively broad serrated tooth dorsal and relatively long serrated projection extending dorso-cephalad; aedeagus tubular, longer than valva, no cornutus. Female. Unknown.

Type series. Holotype male with the following labels: white, printed - BRASIL: Rondonia / 62 km S Ariquemes / linea C-20, 7 km E / B-65, Fazenda / Rancho Grande / 17 June 1993 / leg. G. T. Austin / (at paper lures / 1530–1600); white, printed and handprinted - Genitalia Vial / GTA - 3498; white, printed and handprinted - Ridens sp. / nr. pacasa / Det. S. R. Steinhauser; red, printed - HOLOTYPE / Ridens bidens / Austin. The holotype will be deposited at the Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Brazil.
Type locality. BRAZIL: Rondônia; 62 kilometers south of Ariquemes, Linha C-20, 7 kilometers (by road) east of route B-65, Fazenda Rancho Grande, 180 meters. This is approximately 5 km northeast of Cacaualândia in typical lowland tropical rainforest.

Etymology. The name means having two teeth, referring to the two processes of the harpe, and rhymes nicely with Ridens.

Diagnosis and discussion. Ridens bidens will key to Ridens pacasa (Williams 1927) in Evans (1952); that species is well illustrated in its original description (Williams 1927). Ridens bidens differs from R. pacasa by having no indication of a checkered fringe on the hindwing, a larger macule in M₃-Cu₁₋₄, a smaller macule in Cu₂₋₄-2A, an extensive whitish area in Cu₂₋₄-2A on the ventral forewing, no indication of a discal cell macule on the ventral hindwing, and less extensive submarginal white on the ventral hindwing. The genitalia of the new species also differ from those of R. pacasa with its costa/ampulla margin more broadly rounded, longer harpe, broader dorsal tooth of the harpe, and longer, more robust anterior process of the harpe which has a slightly dorsal orientation (this appears to angle ventrad on R. pacasa).

Distribution and phenology. The species is known only from the holotype.

Urbanus "proteus" group

Steinhauser (1981) reviewed the "proteus" group of Urbanus Hübner 1807 in which he recognized sixteen species of these butterflies with long, brown tails and green bodies and wing bases. In practice, the species of this group are difficult to determine even with the excellent keys, descriptions, and illustrations given by Steinhauser (1981); comparative material is very useful to identify certain specimens. Nine species of the "proteus" group were encountered in the Cacaualândia area of which three represented undescribed taxa. The phenology of the Rondônia fauna is discussed herein along with the descriptions of the new species. All species have been found associated with army ants, Eciton burchelli (Westwood) (Hymenoptera: Formicidae) and are attracted to paper lures (see Austin et al. 1993). At the study site, a pronounced dry season generally extends from May to September; the peak of the wet season occurs in January.

Urbanus proteus (Linnaeus 1758)

Urbanus proteus is common in central Rondônia with records for March, May, June, August, September, November, and December. The species appears most frequent during the early and late wet season and less common during the dry season.

Urbanus pronta Evans 1952

Urbanus pronta is by far the most abundantly encountered "proteus" group species in the Cacaualândia region with records in March, April, and June through December. Peak abundance appears to be in November during the early wet season.

Urbanus esmeraldus (Butler 1877)

Urbanus esmeraldus is uncommon near Cacaualândia with all records in November.
Urbanus esma Evans 1952

*Urbanus esma* is an uncommon species in central Rondônia with records in June, September, and November (6 of 9 records). This species seems to be more closely associated with primary growth forests than other species in the region.

Urbanus esta Evans 1952

*Urbanus esta* is a common species in the Cacaulândia area and was recorded in March to June and August to December with most records in the early wet season.

Urbanus velinus (Plötz 1880)

This species, until recently known as the synonymous *Urbanus aca­woios* (Williams 1926) (see Robbins et al. 1996), is relatively uncommon near Cacaulândia with records in May to December. Unlike other “pro­teus” group species in the region, this was encountered most frequently during the dry season.

**Urbanus villus** Austin, new species

(Figs. 3, 4, 8, 11)

**Description.** Male (Fig. 3). Forewing length = 22.2 mm (21.2–23.2, N = 5), width = 12.0 mm (11.7–12.4, N = 5), tail length = 12.3 mm (11.2–13.3, N = 3); forewing with costal fold not quite to distal edge of costal macule; apex rounded; hindwing with outer margin slightly convex, curved posteriorly to long tail; forewing with usual hyaline macules present, white, that in CuA1-CuA3 the largest, partially to completely overlapping discal cell macule, macule in lower M2-M3 (3 of 5 individuals), no macule in M1-M2; wing bases dull green with slight blue tinge, this not reaching macules on forewing and sharply defined distad on hindwing. 4–5 mm from margin; fringe of forewing gray-brown except whitish in CuA2-2A, of hindwing white of moderate width, checkered with dark brown at veins. Venter brown; forewing with macules of dorsum repeated; submargin with distinct blackish brown band distad of macules; central band entire, including a pair of closely spaced smaller macules in Sc+R1-Rs, proximal adjoined with macule in discal cell, discal cell macule edged with white distad; postdiscal band entire, extending to vein Rs, subterminal macule prominently edged distad with white. Antennal club yellow-orange on the venter with black center, nudum = 21–23 segments, dorsal head and thorax green scaled, palpi black above, white beneath; dorsal abdomen brown with scattered green scales, gray at segments, white on venter with very broad central band of dark brown. Male genitalia (Fig. 8). Tegumen short, stout, somewhat domes­haped in lateral view, more or less oval in dorsal view; uncus slender, moderately long and divided, arms very slightly divergent in dorsal view; gnathos entire, long and narrow in lateral and ventral views; valvae long, symmetrical, costa/ampulla margin undulate, ampulla with rounded shoulder, harpe relatively short, triangular with dorsal ridge dentate cephalad where at about the same height as or shorter than shoulder of ampulla; aedeagus of typical form for genus; cornuti as typical (for the “pro­teus” group) cluster of long bristles. Female (Fig. 4). Forewing length = 23.9 mm (23.3–24.2, N = 3), width = 13.2 mm (13.2–13.3, N = 3), tail length = 16.4 mm (16.2–16.6, N = 2); very similar to male, wings slightly more rounded. Female genitalia (Fig. 11). Papillae anales with nearly straight cau­dal margin; lamella postvaginalis relatively short and broad, more or less concave with a moderate central indentation on caudal edge; lamella antevaginalis thin, weakly sclero­tized centrally, somewhat sinuous cephalad margin; ductus bursae narrow throughout; corpus bursae elongate, narrow, somewhat bent in middle.
Figs. 8–10. Male genitalia of new species of *Urbanus* from Rondônia, Brazil, including lateral view of tegumen, gnathos, uncus, and associated structures; ventral views of uncus, gnathos, and posterior tegumen; dorsal view of uncus, gnathos and tegumen; interior view of right and left valvae; left lateral view of aedeagus. 8, *U. villus*, paratype, BRAZIL: Rondônia; Linha C-20, 10 km E B-65, lot 18, 22 Nov. 1992 (GTA #2815). 9, *U. longicaudus*, paratype, BRAZIL: Rondônia; Linha C-20, 7 km E B-65, Fazenda Rancho Grande, 19 Nov. 1992 (GTA #5097) with valvae of two additional paratypes showing variation: 9a, BRAZIL: Rondônia; Linha C-20, 7 km E B-65, Fazenda Rancho Grande, 16 Nov. 1992 (GTA #2780); and 9b, BRAZIL: Rondônia; Linha C-20, 10 km E B-65, lot 18, 18 Nov. 1992 (GTA #2834). 10, *U. parvus*, holotype (GTA #5123) with valvae of a paratype showing variation: 10a, BRAZIL: Rondônia; Linha C-20, 7 km E B-65, Fazenda Rancho Grande, 12 June 1993 (GTA #5121).
Type series. Holotype male with the following labels: white, printed - BRASIL: Rondônia / 62 km S Ariquemes / linha C-20, 7 km E / B-65, Fazenda / Rancho Grande / 24 April 1991 / leg. G. T. Austin; white, printed and handprinted - Genitalia Vial / GTA - 1347; yellow, printed - photographed / G. T. Austin & / J. P. Brock / March 1992; red, printed - HOLOTYPE / Urbanus villus / Austin. Paratypes: same location as holotype, 9 Nov. 1991 (♀), 15 Nov. 1992 (♂); BRAZIL: Rondônia; 65 km S Ariquemes, Linha C-20, 10 km E B-65, 3 km E Fazenda Rancho Grande, lot 15, 15 Nov. 1992 (♂), 22 Nov. 1992 (2 ♂); BRAZIL: Rondônia, road B-80 between linhas C-10 and C-15, 17 Nov. 1991 (2 ♀). The holotype and a female paratype will be deposited at the Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Brazil.

Type locality. BRAZIL: Rondônia; 62 kilometers south of Ariquemes, Linha C-20, 7 kilometers (by road) east of route B-65, Fazenda Rancho Grande, 180 meters. This is approximately 5 km northeast of Cacuândia in typical lowland tropical rainforest.

Etymology. The name represents a meaningless combination of parts of the names of similar species (see below): Urbanus viterboana (Ehrmann, 1907), Urbanus belli (Hayward, 1935), and Urbanus dubius Steinhauser, 1981.

Diagnosis and discussion. This species was an enigma. It was originally identified as U. belli with Steinhauser's (1981) superficial key; yet the ventral surface does not resemble his figure and description or other material determined as U. belli, especially in the presence of distinct white edging to the subtornal macule. The genitalia are different, particularly those of females. Compared to U. belli, the male genitalia of U. villus have a shorter and broader tegumen and the cephalad end of the harpe is distinctly shorter than the caudal end of the ampulla; the female genitalia have a shallow notch on the lamella postvaginalis and the corpus bursae is not "J"-shaped. The same specimens were closest to U. viterboana using the genitalic key of Steinhauser (1981). The wings somewhat resemble U. dubius, but the dorsal color of U. villus is not blue, the postdiscal band on the ventral hindwing does not extend to vein Sc+R1, and the genitalia differ. Male genitalia of U. dubius have a narrower tegumen and a more elongate harpe than do those of U. villus and female genitalia have a more deeply notched lamella postvaginalis and a broader lamella antevaginalis. Essentially, U. villus is a green species like U. belli, with relatively prominent edging to the ventral hindwing subtornal macule like U. dubius, and genitalia somewhat like U. viterboana. Of these three species, U. belli was reported from much of Central and South America south to Bolivia and Argentina (but unrecorded for Brazil), U. dubius is known from Colombia and Ecuador, and U. viterboana is known from Mexico south to Colombia and Ecuador (Steinhauser 1981).

Distribution and phenology. This species is known only from the types taken in April and November and a female (not seen) recorded from the type locality in August (fide A. D. Warren).

Urbanus longicaudus Austin, new species
(Figs. 5, 6, 9, 12)

Description. Male (Fig. 5). Forewing length = 22.6 mm (21.7–23.0, N = 10), width = 12.5 mm (11.9–13.1, N = 10), tail length = 14.8 mm (13.2–16.8 mm, N = 10); forewing with costal fold to proximal edge or middle of costal macule; apex broadly rounded; hindwing with outer margin slightly convex, curved posteriorly to long and relatively broad tail; forewing with usual hyaline macules present, pale yellow, that in CuA1–CuA2 the largest, partially or entirely overlapping discal cell macule, macule in CuA2–2A relatively large, slightly overlapping to widely separated from macule in CuA1–CuA2, usually (9 of 13 specimens) minute macule in M2–M3, but none in M1–M2; wing bases blue-green, usually not reaching macules on forewing and sharply defined distad on hindwing, 3–5 mm from margin; fringe of forewing pale brown vaguely checkered with dark brown at veins, of hindwing broadly white with slight yellow cast, conspicuously checkered with dark brown at veins. Venter brown; forewing with macules of dorsum repeated; submargin with distinct blackish brown band distad of macules; fringe pale gray often becoming browner towards apex, entirely checkered with dark brown at veins, most prominent posteriad; ventral hindwing heavily overscaled with pale ochreous, some specimens with violet cast; central
band of separate macules, including a pair of closely spaced smaller macules in Sc+R1-Rs, one (usually that basad) or both adjoined with macule in discal cell, discal cell macule faintly edged with white distad; postdiscal band macules partially or completely separated by paler ground color along veins, this most often involving anterior 1–3 macules of band, entire band vaguely outlined distad with pale ochreous, subtoral macule prominently edged distad with narrow line of white. Antennal club yellow-orange beneath with central black, nudum = 20–22 segments; dorsal head and thorax green, palpi mixed pale yellow and gray.

Male genitalia (Fig. 9). Tegumen somewhat elongate, slightly constricted in middle in dorsal view; uncus long and slender, deeply divided, arms slightly divergent at tips in dorsal view; gnathos entire, long and narrow in lateral and ventral views; valva long, symmetrical, costa/ampulla margin sinuate, ampulla with rounded caudal shoulder slightly serrate, harpe relatively long, triangular with dorsal ridge slightly irregular and dentate cephalad where about the same height as or slightly higher than shoulder of ampulla; aedeagus of typical form for genus, slender; cornuti as typical cluster of long bristles. Female (Fig. 6). Forewing length = 23.8 mm (23.3–24.3, N = 3), width = 13.2 mm (12.6–13.7, N = 3), tail length = 16.2 mm (15.8–16.8, N = 3); very similar to male, wings slightly more rounded; antennal nudum = 23–24 segments. Female genitalia (Fig. 12). Papillae anales broad with slightly convex caudal margin; lamella postvaginalis relatively short and broad, more or less concave with a slight central indentation on caudal edge; lamella antevaginalis thin, weakly sclerotized centrally, somewhat sinuous on cephalad margin; ductus bursae expanded slightly cephalad; corpus bursae large, more or less triangular.

Type series. Holotype male with the following labels: white, printed - BRASIL: Rondonia / 65 km S Ariquemes / linea C-20, 10 km E / B-65, 3 km E / Fazenda Rancho /
Description. Male (Fig. 2). Forewing length = 19.8 mm (19.0–21.1, N = 7), width = 10.7 mm (10.3–11.0, N = 7), tail length = 10.8 mm (10.0–11.3, N = 7); forewing with costal fold not quite to distal edge of costal macule; apex narrowly rounded; hindwing with outer margin relatively straight, curved posteriorly to short and relatively broad tail; forewing with usual hyaline macules present, white, that in CuA₁–CuA₂ the largest, partially overlapping discal cell macule, with or without minute macule in M₁–M₂, none in M₁–M₅; wing bases dull blue-green, not reaching macules on forewing and sharply defined.
distad on hindwing, 3 mm from margin; fringe of forewing gray-brown posteriorly where vaguely checkered with dark brown at veins, dark brown anteriorly, of hindwing white of moderate width, checkered with dark brown at veins. Ventral forewing similar to that of *U. longicaudus*, but submarginal dark band less distinct, fringes vaguely checkered to apex; ventral hindwing overscaled with pale ochreous; central band of separate macules, that in Sc+R1–Rs as a single fused, elongate macule, discal cell macule faintly (but more prominent than on *U. longicaudus*) edged with white distad; postdiscal band macules separated by paler ground color along veins similar to *U. pronta*, submarginal macule prominently edged distad with white. Antennal club pale yellow beneath with black center, nودum = 23, 24 segments; head and body green above, palpi mixed pale yellow and dark gray.

**Male genitalia** (Fig. 10). Tegumen short, slender, somewhat dome-shaped in lateral view, more or less trapezoidal in dorsal view; uncus slender, moderately long, deeply divided, arms slightly divergent in dorsal view; gnathos entire, long, and moderately broad in lateral and ventral views; valva rather short, symmetrical, costa/ampulla margin somewhat concave, ampulla with long shoulder, sloping nearly vertically at caudal end, harpe short, triangular with dorsal ridge prominently dentate cephalad where at about same height as shoulder of ampulla; aedeagus of typical form for genus; cornuti as typical cluster of long bristles.

**Female.** Unknown.


**Type locality.** BRAZIL: Rondônia; 62 kilometers south of Ariquemes, Linha C-20, 7 kilometers (by road) east of route B-65, Fazenda Rancho Grande, 150 meters. This is approximately 5 km northeast of Cacaulândia in typical lowland tropical rainforest.

**Etymology.** The name refers to the relatively small size of this taxon.

**Diagnosis and discussion.** Superficially, *U. parvus* is distinctive in its small size and continuous bar anterior to the ventral hindwing central band. The male genitalia of *U. parvus*, while resembling those of *U. pronta*, differ in their more slender tegumen which appears trapezoidal in dorsal view (more bulbous on *U. pronta*); and the valvae are more compact with a more highly angular costa, a long and sloping ampulla, and a rather short harpe. The genitalia also resemble those of *U. longicaudus* but differ much as they do from *U. pronta*.

**Distribution and phenology.** This species is known only from the types taken in June and November.

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