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## HESPERIIDAE OF RONDÔNIA, BRAZIL: *CARYSTUS*, WITH DESCRIPTIONS OF TWO NEW SPECIES (HESPERIIDAE: HESPERIINAE)

George T. Austin<sup>1</sup> and Olaf H. H. Mielke<sup>2</sup>

<sup>1</sup>McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History,  
University of Florida, P. O. Box 112710, Gainesville, Florida 32611

<sup>2</sup>Departamento de Zoologia, Universidade Federal do Paraná, Caixa Postal 19020, 81531-980,  
Curitiba, Paraná, Brazil, Fellow CNPq

**ABSTRACT:** Five species of *Carystus* were encountered in Rondônia, Brazil. Two of these, *Carystus cacaulandia* and *Carystus rufiventris*, are described as new species and illustrated with their genitalia. *Carystus hocus* and the genitalia of female *C. hocus*, *C. ploetzi*, and *C. phorcus* are illustrated for the first time.

**KEY WORDS:** *Eciton*, genitalia, neotropical, South America.

### INTRODUCTION

*Carystus* Hübner, 1819 (Hesperiidae: Hesperinae), is a neotropical genus with nine heretofore recognized species (Evans 1955; Bridges 1988; Mielke 2004, 2005); the generic name previously had included a variety of disparate taxa (*e.g.*, see Lamas *et al.* 1995). Species of *Carystus* occur from Mexico to southern Brazil and Argentina (Hayward 1950, Evans 1955, de la Maza *et al.* 1991). At least seven species occur in the Amazonian drainage of South America, although four or fewer species are known from any individual site (Evans 1955, Lamas 1994a, Robbins *et al.* 1996). Five species of *Carystus*, all notably rare, and including two undescribed, were encountered at a site near Cacaulândia in central Rondônia, Brazil (for description of the area, see Austin *et al.*, in press). Herein, these five species are characterized and illustrated including descriptions of the new species. Voucher specimens are deposited at the Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Brazil and the McGuire Center for Lepidoptera and Biodiversity, Gainesville, Florida.

*Carystus hocus* Evans, 1955  
(Figs. 1-4, 19, 24)

*Carystus hocus* (not previously illustrated) has been known from northeastern South America (Guyana, Surinam) and from Peru (Evans 1955, de Jong 1983, Lamas 1994a). The records from central Rondônia are apparently the first from Brazil. Here, the species is rare within primary forest, with records for June (2 records) and October (1), only in 1993.

Two males from Rondônia (forewing length = 21.8, 21.2 mm), although larger, are as described by Evans (1955) with a relatively broad and uninterrupted white streak on the hindwing from the distal end of the discal cell to about mid-cell M<sub>1</sub>-M<sub>3</sub> and a less well-defined pale area posterior to it in the anterior half of cell CuA<sub>2</sub>-2A on the venter, grayish purple on the costa and apex of the ventral forewing and most of the ventral hindwing, and a small white macule in cell M<sub>2</sub>-M<sub>3</sub> on the forewing. Additionally on the forewing, the posteriormost of three subapical white macules is offset distad (proximal edge in line with the distal edges of the anterior two macules) and the pair of macules in the discal cell are slightly offset with their proximal edges defining a line perpendicular to the anal margin. Male genitalia (Fig. 19) are as illustrated by Evans (1955).

Female *C. hocus* have not been described. A female from Rondônia, thought to be of this species, is similar to the male in size (forewing length = 21.0 mm) and orientation of the subapical macules. The macule in CuA<sub>1</sub>-CuA<sub>2</sub> is shifted distad, having its proximal edge aligned with the distal edge of the macules in the discal cell, the white streak on the hindwing is narrower than on males and divided by a line of brown scales at the distal end of the discal cell, and cell CuA<sub>2</sub>-2A on the ventral hindwing does not have a whitish streak. Female genitalia (Fig. 24, not previously illustrated) have a broad lamella postvaginalis that is lobate on its caudal edge, a relatively narrow lamella antevaginalis constricted centrally, a broad and elongate ductus bursae, and a similarly broad and elongate corpus bursae.

*Carystus cacaulandia* Austin & Mielke, new species  
(Figs. 5-8, 20, 25)

**Description.** Male - forewing length = 22.6 mm (holotype), 22.8 mm (paratype); forewing apex produced, termen convex anteriorly, relatively straight posteriorly; hindwing termen convex extending to a short tornal lobe; dorsum dark blackish brown, forewing with obscure gray scaling basad along veins, white macules as follows: subapical in R<sub>2</sub>-R<sub>3</sub>, 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>, increasing in size caudad, last offset distad (proximal edge under center of macule in R<sub>4</sub>-R<sub>5</sub>), all opaque; pair of narrowly oval macules at end of discal cell, not offset, upper one opaque, lower one translucent; square macule in center of CuA<sub>2</sub>-2A with upper portion translucent; larger more or less rhomboidal translucent macule in base of CuA<sub>1</sub>-CuA<sub>2</sub> caudad of macules in discal cell; another rhomboidal macule in M<sub>3</sub>-CuA<sub>1</sub>, about the size of macule in CuA<sub>2</sub>-2A, offset distad by about its width from macule in CuA<sub>1</sub>-CuA<sub>2</sub>, translucent in lower proximal corner; a much smaller and opaque macule in M<sub>2</sub>-M<sub>3</sub> still further offset distad and under posterior subapical macule; base of wing with sparse pale yellow-orange scales especially along costa and olive-green scales at base of CuA<sub>2</sub>-2A and anal cell; hindwing with relatively narrow opaque white streak from distal ¼ of discal cell extending to mid-cell M<sub>1</sub>-M<sub>3</sub>, divided by narrow line of brown scales at end of discal cell; basal ½ of costal

margin and cell CuA<sub>2</sub>-2A and nearly entire anal cell gray-brown, a few olive-green scales at base of discal cell; fringes dark gray except white-tipped in CuA<sub>2</sub>-2A on forewing and between veins CuA<sub>2</sub> and 3A on hindwing.

Ventral surface with ground color of dorsum, hindwing with purplish sheen except unmarked brown from mid-cell CuA<sub>2</sub>-2A nearly to vein 3A; forewing with very base of costa yellow-orange, overscaled with gray at forewing apex to within 1 mm of termen (distad of macules, but extending to discal cell in M<sub>1</sub>-M<sub>2</sub>), veins remaining contrastingly black across overscaled area; distal end of discal cell with very few pale blue scales; hindwing largely overscaled with pale yellow leaving 0.5 mm black distal margin, veins remaining black in overscaled areas; macules on forewing repeated from dorsum, anal margin gray; hindwing more whitish beneath dorsal white streak, but not particularly contrasting, cells Rs-M<sub>1</sub> and M<sub>3</sub>-CuA<sub>1</sub> entirely black with purple sheen.

Head black with two white macules above and white streak behind each brown (on dried specimens) eye; palpi black with white at end of second segment on dorsum and with mixture of white scales on venter; antenna black, pale ochreous on venter of apiculus, nudum red-brown, 19, 20 segments; thorax above wings black dividing olive-green dorsum, broadening caudad and with yellow-orange sides, black on venter with yellow-orange and olive-green scales, legs dark gray with white streak on femora, mid-tibia with few short spines and one pair of terminal spurs, hind tibia with two pairs of spurs; dorsal abdomen dark brown, venter white with medial black line of moderate width.

Genitalia (Fig. 20) - tegumen with long and pointed process from caudal edge exceeding caudal end of uncus; uncus undivided, thin in lateral view, broad in dorsal view; gnathos divided, robust, and upcurved in lateral view; saccus relatively short, straight, broad in ventral view with evenly curved cephalic end; valva broad throughout, harpe with caudal end more or less squared, dorsal edge finely serrated; aedeagus thin cephalad in both lateral and dorsal views with broadly rounded knob at cephalic end, broad caudad with pair of heavily shagreened dorsal flaps at caudal end, no cornutus.

Female - forewing length = 21.2 mm (paratype); forewing apex produced but more rounded than on male, termen convex anteriorly, relatively straight posteriorly; hindwing termen convex extending to a short tornal lobe; dorsum dark blackish brown, white opaque macules as follows: subapical 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>, last offset distad just beyond macule in R<sub>4</sub>-R<sub>5</sub>; pair of macules at end of discal cell, not offset, upper one elongate, oval, lower one quadrate; rectangular macule in middle of CuA<sub>2</sub>-2A; larger more or less rhomboidal macule in base of CuA<sub>1</sub>-CuA<sub>2</sub>, proximal edge just distad of macules in discal cell; another rhomboidal macule in M<sub>3</sub>-CuA<sub>1</sub>, smaller than macule in CuA<sub>2</sub>-2A, offset distad by about twice its width from macule in CuA<sub>1</sub>-CuA<sub>2</sub>; base of wing with sparse pale yellow-olive scales, especially at base of CuA<sub>2</sub>-2A and anal cell; hindwing with vague opaque whitish (mixed with brown scales) streak from distal end of discal cell extending to mid-cell M<sub>1</sub>-M<sub>3</sub>, a few olive-green scales at base of discal cell; fringes dark gray except white-tipped in CuA<sub>2</sub>-2A on forewing and between veins CuA<sub>2</sub> and 3A on hindwing.

Ventral surface with ground color of dorsum, hindwing with purplish bronze sheen except unmarked brown from mid-cell CuA<sub>2</sub>-2A nearly to vein 3A; forewing with very base of costa white, overscaled with gray at forewing apex to within 1 mm of termen (distad of macules, but extending to discal cell in M<sub>1</sub>-M<sub>2</sub>), veins remaining contrastingly black across overscaled area; hindwing largely overscaled with pale yellow leaving 0.5 mm black distal margin, yellow most prominent as streak from base of discal cell into

cell M<sub>1</sub>-M<sub>3</sub> but not particularly contrasting, veins remaining black in overscaled areas; macules on forewing repeated from dorsum, anal margin brown.

Head black with two white macules above and white streak behind each brown (on dried specimen) eye; palpi black with white at end of second segment on dorsum and with mixture of white scales on venter; antenna black, pale ochreous distad on venter, nudum red-brown, 17 segments; thorax above wings black dividing olive-green dorsum broadening caudad and with yellow-orange sides, black on venter with yellow-orange and olive-green scales, legs dark gray with white streak on femora, mid-tibia with pair of terminal spurs, hind legs missing; dorsal abdomen dark brown, venter whitish with broad medial black line.

Genitalia (Fig. 25) - lamella postvaginalis relatively broad, subquadrate, caudal margin with prominent central indentation; lamella antevaginalis narrower than lamella postvaginalis, extending as pair of points caudad to about center of lamella postvaginalis; ductus bursae broad constricted just before equally broad and elongate corpus bursae.

**Types.** Holotype male with the following labels: white, printed - / BRASIL: Rondonia / 62 km S Ariquemes / linha C-20, 7 km E / B-65, Fazenda / Rancho Grande / 14 August 1993 / leg. G. T. Austin / (associated with Eciton / burchelli 0930-1000) /; white, printed and handprinted - / Genitalic Vial / GTA - 9861 /; red, printed - / HOLOTYPE / *Carystus cacaulandia* / Austin & Mielke /. Paratype male: same location as holotype, 14 Nov. 1995, at paper lures, 1000-1030 (GTA #9841); paratype female: BRASIL: Rondônia; 62 km S of Ariquemes, linha 10, 5 km S of Cacaulândia, 4 May 1995, leg. O. Gomes (GTA #13798). The holotype will be deposited at the Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Brazil. The paratypes are at the McGuire Center for Lepidoptera and Biodiversity, Gainesville, Florida.

**Type locality.** BRAZIL: Rondônia; 62 km south of Ariquemes, Linha C-20, 7 km east of road B-65, Fazenda Rancho Grande. This area is located in typical lowland tropical rainforest about 5 km northeast of Cacaulândia.

**Etymology.** The name of the species pertains to the nearest municipality to the type locality, Cacaulândia.

**Distribution and phenology.** *Carystus cacaulandia* is known only from its three types taken in primary forest during May, August, and November.

**Diagnosis and discussion.** Five heretofore described species of *Carystus* have a pale streak from within the discal cell and extending towards the termen on the ventral hindwing (Evans 1955). Of these, *Carystus elvira* (Plötz, 1882) has an unmarked dorsal hindwing; *C. hocus* has an undivided white streak on the dorsal hindwing of the male and a divided streak on the female. *Carystus periphias* Mabille, 1891 and *Carystus jolus* (Cramer, 1782) have a large round white macule on the dorsal hindwing of males and a white streak on the dorsal hindwing of females. Of these, the female of *C. periphias* has an unbroken streak. Females of *C. jolus* and *Carystus superbiens* Mabille, 1891 (the male apparently unknown) have the streak on the hindwing divided by dark brown at the end of the discal cell. *Carystus cacaulandia* adds another unique combination of characters with the male having a white streak on the hindwing being interrupted by dark scales on the vein at the distal end of the discal cell and the female having a vague and undivided streak.

Male *C. cacaulandia* would be tentatively identified as *C. superbiens* using the key in Evans (1955). The forewing of the male, however, has four subapical macules in a more or less straight row (three and irregular on *C. superbiens*, but note that the one known female *C. cacaulandia* has but three subapical macules), the macules in the discal cell on

the forewing are not staggered as on *C. superbiens*, the basal half of the costa on the forewing is dark (pale on *C. superbiens*), and the gray of the apex on the ventral forewing extends to near the end of the discal cell in M<sub>1</sub>-M<sub>2</sub> (not so of *C. superbiens*). *Carystus cacaulandis* is also a smaller butterfly; the female of *C. superbiens* was reported to have a wing length of 26 mm (Evans 1955) and an expanse of 52 mm (Draudt 1921-1924; expanse of male *C. cacaulandia* = 44, 46 mm; of female *C. cacaulandia* = 40 mm). The small size (along with other characters of the wings) of male *C. cacaulandia* apparently eliminates the possibility that this represents the unknown male of *C. superbiens*; the single female confirms this.

Male genitalia of *C. cacaulandia* are similar to those of *C. hocus*, but the spike-like projection from the posterior end of the tegumen extends beyond the caudal end of the uncus (*i.e.*, as on *C. ploetzi*; this is shorter than the uncus on *C. hocus*), the uncus is broader and slightly curved on the caudal edge, the gnathos is more massive and extends far laterad of the uncus in dorsal view, the saccus is broader and its caudal end is more evenly rounded, the harpe has a less rounded caudal end and a longer serrated dorsal ridge, and the aedeagus has a prominently bulb-like cephalic end and the caudal flaps are not as strongly produced caudad. The female genitalia have a sterigma narrower than does *C. hocus* without the prominent caudal points laterad. The ductus bursae and corpus bursae are similar on the two species.

***Carystus ploetzi* Mielke & Casagrande, 2002**  
(Figs. 9-12, 23, 26)

*Carystus ploetzi* (illustrated by Draudt 1921-1924 as *Carystus claudianus* [Latreille, 1824] and Mielke and Casagrande 2002), misidentified as *Carystus senex* (Plötz, 1892) by Moss (1949), Evans (1955), and subsequent authors, has been reported from Mexico and from South America to central Brazil and Peru (Evans 1955; de Jong 1983; de la Maza and de la Maza 1985, 1993; de la Maza *et al.* 1991; Lamas 1994b, Warren 2000; Mielke and Casagrande 2002). *Hesperia senex* is a synonym of *Panoquina peraea* (Hewitson, 1866) (Mielke and Casagrande 2002). The species is rare in primary forest (yet the most commonly encountered *Carystus*) in central Rondônia and was recorded in May (1 record), June (1), July (1), August (2), and October (3).

Males from Rondônia are of the size (forewing length = 22.5 mm [20.8-23.2 mm, n = 7] reported by Evans (1955); the single female seen from Rondônia has a forewing length of 22.1 mm. Male genitalia (Fig. 23) are like those illustrated by Evans (1955 as *C. senex*), but the arms of the gnathos are more widely spaced. Female genitalia (Fig. 26, not previously illustrated) have a narrower lamella postvaginalis than *C. hocus*, the lamella antevaginalis is similarly constricted centrally, the ductus bursae is narrow caudad and expands cephalad, and the corpus bursae is globular.

***Carystus phorcus phorcus* (Cramer, [1777])**  
(Figs. 13-16, 22, 27)

The most widespread of the genus, *C. phorcus* (illustrated by Godman and Salvin 1879-1901, Draudt 1921-1924, Hayward 1950, Lewis 1973, Brown 1992) is known from Mexico to southern Brazil and Argentina (Hoffmann 1941; Hayward 1950; Evans 1955; Biezanko and Mielke 1973; Mielke 1973; de Jong 1983; de la Maza and de la Maza 1985, 1993; de la Maza *et al.* 1991; Brown 1992; Lamas 1994b; Austin *et al.* 1996;

Warren 2000). This species is rare in central Rondônia, occurring in primary forest, with records in May (1 record), June (2), July (1), October (1), and December (1).

Males from Rondônia have a forewing length of 19.9 mm (19.2-20.6 mm, n = 5); the single female is smaller (18.9 mm). Male genitalia (Fig. 22) have a longer spike-like process from the tegumen than illustrated by Godman and Salvin (1879-1901, copied by Hayward 1950), but the valvae are similar to those previously illustrated (Godman and Salvin 1879-1901, Evans 1955). The narrow sterigma of the female genitalia (Fig. 27, not previously illustrated) is generally similar to that of *C. ploetzi*, but the lobes of the lamella postvaginalis are more widely spaced and irregular. The ductus bursae and corpus bursae resemble those of *C. hocus*.

***Carystus rufoventris* Austin & Mielke, new species**

(Figs. 17, 18, 21)

**Description.** Male - forewing length = 17.0 mm (holotype); forewing apex produced, termen convex anteriorly and slightly concave posteriorly, hindwing termen convex extending to a short tornal lobe; dorsum dark brown, basal 2/5 of costa red-brown, extending into anterior discal cell; pale yellow macules as follows: subapical in R<sub>2</sub>-R<sub>3</sub> and R<sub>5</sub>-M<sub>1</sub>, posterior one largest and prominently distad, both opaque, these set within narrow and vaguely paler brown band; small rhomboidal and opaque in CuA<sub>2</sub>-2A, set above middle of vein 2A; a much larger rhomboidal and translucent macule in CuA<sub>1</sub>-CuA<sub>2</sub>; an oval translucent macule near base of M<sub>3</sub>-CuA<sub>1</sub>, offset distad by slightly less than its length from macule in CuA<sub>1</sub>-CuA<sub>2</sub>; very small opaque macule in posterior discal cell, just proximad of macule in CuA<sub>1</sub>-CuA<sub>2</sub>; bases of cell CuA<sub>2</sub>-2A and anal cell with sparse yellow-olive scales; hindwing immaculate; fringes dark gray, tipped with pale brown in CuA<sub>2</sub>-2A on forewing and posteriorly on hindwing.

Ventral forewing blackish brown, darker than on dorsum, macules repeated; macule in CuA<sub>2</sub>-2A extended distad nearly to termen by yellowish scaling; basal 2/3 of costa red-brown (in costal cell) continued distad from vein Sc as continuous pale yellow subapical band (including subapical macules within) to vein M<sub>3</sub> after which divided by black-scaled veins along distal margin to vein CuA<sub>2</sub>; hindwing largely dull orange except for broad black streak from base of wing into bases of cells Sc+R<sub>1</sub>-R<sub>s</sub> and R<sub>s</sub>-M<sub>1</sub> and extending to termen anterior to vein M<sub>3</sub> and posterior to discal cell filling most of cell M<sub>3</sub>-CuA<sub>1</sub>, but bifurcate distad to leave small orange triangle in mid-cell at margin, vein CuA<sub>2</sub> black-scaled on both sides, brown from mid-cell CuA<sub>2</sub>-2A to just beyond vein 3A; anal cell gray.

Head black with two white macules above and white streak behind each brown (on dried specimen) eye; palpi black with many white scales on venter; antennae black with pale yellow on venter of club and apiculus, nudum dark red-brown, 20 segments; thorax above wings with black dividing yellow-olive dorsum, expanding caudad from dull orange on sides, venter black with pale yellow scales, legs dark gray with white streak on femora, mid-tibia with few short spines and one pair of terminal spurs, hind tibiae with two pairs of spurs; dorsal abdomen dark brown, ventral abdomen pale yellow with narrow black medial line.

Genitalia (Fig. 21) - tegumen broad, more or less quadrate, with short (much shorter than uncus) spike-like process from caudal end; uncus entire, broad in dorsal view, caudal end nearly square; gnathos with relatively widely spaced and thin arms, upcurved caudad; saccus of moderate length, directed ventrocephalad; valva broad, harpe upcurved

caudad to serrate dorsal ridge; aedeagus thin cephalad in both lateral and dorsal views, broad caudad with pair of heavily shagreened dorsal flaps at caudal end, no cornutus.

Female - unknown.

**Types.** Holotype male with the following labels: white, printed - / BRASIL: Rondonia / 62 km S Ariquemes / linha C-20, 7 km E / B-65, Fazenda / Rancho Grande / 24 October 1997 / leg. G. T. Austin / (at paper lures / 0900-0930) /; white, printed and handprinted - / Genitalia Vial / GTA – 8753 /; red, printed - / HOLOTYPE / *Carystus rufovenstris* / Austin & Mielke /. The holotype will be deposited at the Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Brazil.

**Type locality.** BRAZIL: Rondônia; 62 km south of Ariquemes, Linha C-20, 7 km east of road B-65, Fazenda Rancho Grande. This area is located in typical lowland tropical rainforest about 5 km northeast of Cacaúlândia.

**Etymology.** *Carystus rufovenstris* is named after its dull orange ventral hindwing.

**Distribution and phenology.** The species is known only from the holotype taken in primary forest during October.

**Diagnosis and discussion.** *Carystus rufovenstris* initially resembles species included in *Vettius* Godman, 1901, by Evans (1955) with its relatively small size and pattern of darkened veins on the venter. The uniformly dark dorsal hindwing and the more produced apex on the forewing were at odds with general characters associated with that genus. The genitalia of *C. rufovenstris* are clearly typical of *Carystus*. These are similar to genitalia of such species as *C. hocus* and *C. cacaulandia* with a broadly upturned harpe and an aedeagus with an abruptly narrowed phallobase and dorso-caudal flaps.

Most *Carystus* have a prominent white macule or streak on the dorsal hindwing; *C. rufovenstris* and *C. elvira* do not. The latter species, illustrated by Draudt (1921-1924), was considered by Evans (1955) to “be an aberration or faulty figure.” The illustration in question (plate 189b) shows a male differing from Evans’ (1955) general diagnosis of the genus by having no white at the apex of the dorsal forewing or on the dorsal hindwing. *Carystus elvira* was rediscovered by de Jong (1983), a single female from Surinam. That specimen was described in detail (de Jong 1983), substantiating the validity of Plötz’s (1882) taxon. The discovery of a second species of this general phenotype from Rondônia adds another *Carystus* without white on the dorsal hindwing. Despite this, *C. rufovenstris* is otherwise a typical *Carystus* in its other superficial characters and genital morphology.

*Carystus rufovenstris* differs most obviously from *C. elvira* by its smaller size, being the smallest of the known *Carystus*. The female of *C. elvira* has a forewing length of 21.4 mm (de Jong 1983). Male *Carystus* are about the same size as females and perhaps slightly larger (forewing length of 1.02-1.08 times that of females in small samples of four species). Further differences include the male having subapical macules (male *C. elvira* without, but the female with two subapical macules), the presence of a small macule in the discal cell of the forewing (two large macules on *C. elvira*), and the color of the ventral hindwing (yellow-brown or paler on *C. elvira*) and without the central portion (discal cell through cell M<sub>1</sub>-M<sub>3</sub>) being paler. Differences in the genitalia potentially exist, but their assessment await dissection of *C. elvira*.

## DISCUSSION

Evans (1955) diagnosed *Carystus* as lacking secondary sexual characters, spined mid-tibiae, a long discal cell on the forewing, and dark veins on the ventral hindwing. He noted sexual dimorphism with males having the macules in the discal cell of the forewing closely spaced and those of females further apart, males having a broadly white subapex on the dorsal forewing with these as smaller macules on females, and males having a large circular white area on the dorsal hindwing that is reduced to a streak or absent on females. The males of some species, however, do not have a broad patch on the dorsal hindwing, but either have a streak as on females (*i.e.*, *C. hocus*) or a dorsal hindwing without white (*i.e.*, *C. elvira*, *C. rufoventris*).

*Carystus* are rare in central Rondônia with a total of 21 records among five species during nine years of observation. These few records indicate a flight period during the dry and early wet seasons (May to August, October–December, respectively) with peaks in June and October (5 and 6 records respectively). Fourteen of 17 males were seen in association with army ants (*Eciton burchelli*; Hymenoptera: Formicidae: Ecitoninae) or at paper lures (*e.g.*, Austin *et al.* 1993). Nine records were in the morning (07:00–10:30) and four were in late afternoon (16:00–17:00); only one was at midday (12:00–12:30). This suggests that species of this genus, many having red eyes, have two daily flight periods and perhaps are largely crepuscular (see also Brown 1992).

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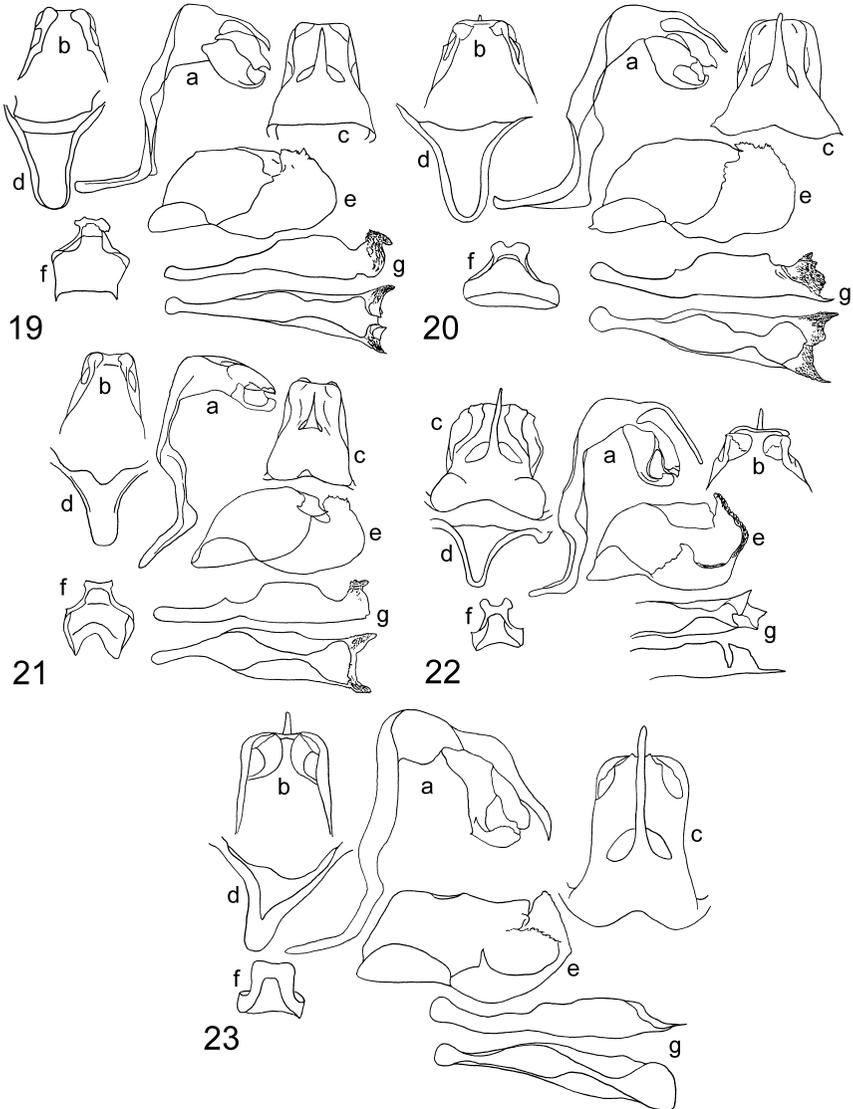
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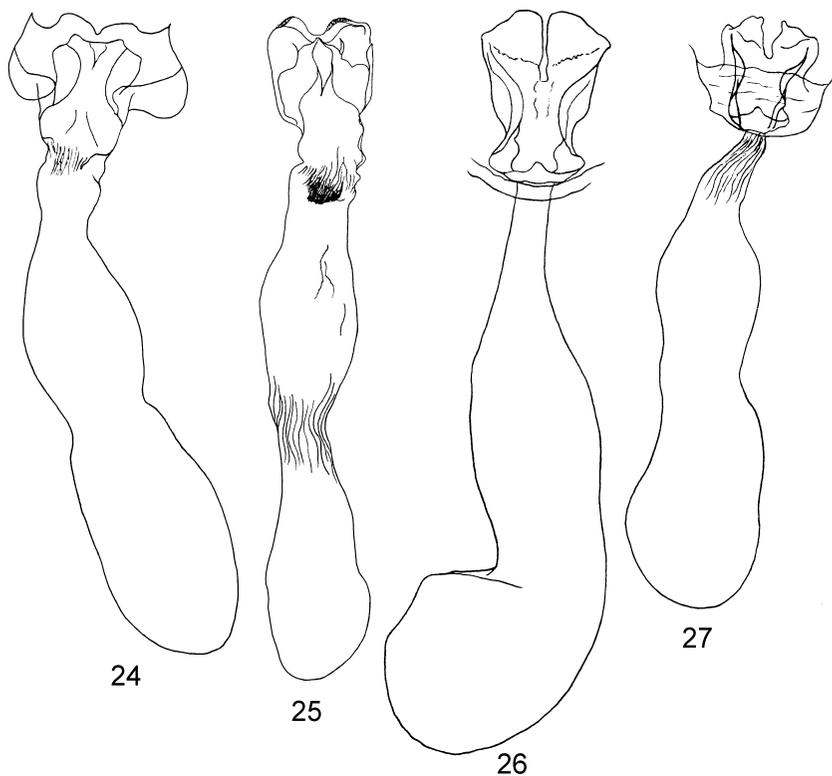
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**Figures 1-16.** *Carystus* from near Cacaulândia, Rondônia, Brazil (D = dorsum, V = venter; line = 1 cm). **1-2)** *C. hocus*, ♂, D, V; Fazenda Rancho Grande, 13 June 1993; **3-4)** *C. hocus*, ♀, D, V; Fazenda Rancho Grande, 12 October 1993; **5-6)** *C. cacaulandia*, holotype ♂, D, V; data in text; **7-8)** *C. cacaulandia*, paratype ♀, D, V; Linha C-10, 5 km S of Cacaulândia, 4 May 1995; **9-10)** *C. ploetzi*, ♂, D, V; Fazenda Rancho Grande, 19 July 1994; **11-12)** *C. ploetzi*, ♀, D, V; Linha 10, 5 km S of Cacaulândia, 28 August 1993; **13-14)** *C. phorcus*, ♂, D, V; Linha 10, 5 km S of Cacaulândia, 4 May 1995; **15-16)** *C. phorcus*, ♀, D, V; Linha 10, 5 km S of Cacaulândia, 23 December 1995; **17-18)** *C. rufiventris*, holotype ♂, D, V; data in text.



**Figures 19-23.** Male genitalia of *Carystus* (all from BRAZIL: Rondônia; vicinity of Cacaulândia). Structures are as follows: (a) lateral view of tegumen, uncus, gnathos, and saccus; (b) ventral view of uncus and gnathos; (c) dorsal view of tegumen, uncus, and gnathos; (d) ventral view of saccus; (e) lateral view of valva; (f) anterior view of juxta; and (g) lateral (above) and dorsal (below) views of aedeagus. **19** *Carystus hocus* (GTA #9862), **20** *C. cacaulandia* holotype (GTA #9861), **21** *C. rufovenstris* holotype (GTA #8753), **22** *C. phorcus* (GTA #9859), **23** *C. ploetzi* (GTA #3495).



**Figures 24-27.** Female genitalia (ventral view) of *Carystus* (all from BRAZIL: Rondônia; vicinity of Cacaulândia). **24** *Carystus hocus* (GTA #9840), **25** *C. cacaulandia* (GTA #13798), **26** *C. ploetzi* (GTA #9842), **27** *C. phorcus* (GTA #9845).