

## HESPERIIDAE OF RONDÔNIA, BRAZIL: A NEW GENUS AND SPECIES OF PYRGINAE

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**ABSTRACT.** A pyrgine skipper from Rondônia, Brazil, is described from two males. This species, with secondary sex characters including a shiny area on the ventral forewing overlaying a pronounced hump on the hindwing costa, is named *Speculum speculum* **gen. nov.** and **sp. nov.** Its affinities, although not yet certain, may be with the tribe Erynnini.

**Additional key words:** *Ectomis*, genitalia, *Telemiades*, *Tosta*, tropical rainforest.

Investigations of butterflies in Rondônia, Brazil, have indicated that the region has a megarich fauna of these insects (Brown 1984, 1996; Emmel & Austin 1990; Austin *et al.*, in press). The site, with typical lowland tropical rainforest (Emmel & Austin 1990, Emmel *et al.*, in press), has a distinctly seasonal climate with a pronounced dry season from May through September. Within the fauna of the region, there appear numerous new taxa, especially among the family HesperIIDae (e.g., Austin 1993, 1995, 1996; Austin & Steinhauser 1996; Austin & Mielke 1997, 2000; Austin *et al.* 1997). A new genus and species of hesperiid in subfamily Pyrginae was identified and is here described from the vicinity of Cacaúlândia. Forewing length was measured from base to apex. Terminology for structures of the genitalia follows that used by Austin & Mielke (1997).

### *Speculum* Austin, new genus (Figs. 1–3)

Type species: *Speculum speculum* Austin, 2008

**Description.** MALE. *Forewing* (Figs. 1–2): Narrow costal fold about 1/2 length of costa, interior scales whitish; costa slightly bent caudad at distal end of fold and then slightly convex to pointed apex; termen slightly convex; anal margin nearly straight distad, slightly convex on basal half; discal cell about 2/3 costal length, produced anteriorly; vein CuA<sub>2</sub> originating much nearer CuA<sub>1</sub> than wing base, vein Sc ending on costa far short of distal end of discal cell, vein R<sub>1</sub> ending at costa opposite end of discal cell; ventral forewing with

broad, shining gray speculum covering about basal 2/5 from anterior edge of discal cell to anal margin where extended distad about 1/2 distance to tornus; oval brown brand in speculum and about 1/2 its width, situated above to slightly below lower discal cell vein, centered slightly distad of midpoint of wing base and origin of CuA<sub>2</sub>; tuft of dark bristle-like scales originating from posterior base of brand.

*Hindwing* (Figs. 1–2): Costa highly modified basad, produced as hump far cephalad to cover forewing speculum, upper surface of produced portion also shining gray; distal costa slightly convex to sharply produced apex exceeding length of forewing anal margin; termen slightly convex cephalad, slightly concave caudad to inconspicuous, slightly produced, but broad tornal lobe; dorsum of cell 2A–3A with thick and moderately long hair-like scales, this area broadening with cell width distad, nearly reaching tornus; ventral surface of this cell as funnel-like trough.

*Palpi*: Short, porrect, triangular in dorsal view with parallel third segments protruding about half length of second segments. *Antennae*: Short, slightly less than 1/2 costal length, club arcuate beyond thickest point to apiculus, apiculus relatively long, nudum long and difficult to count but about 33–34 segments. *Legs*: Short, mid-tibia smooth with single outer spur, hind tibia with short, dense hair tuft and two pairs of spurs, outer ones shorter than inner.

*Genitalia* (Fig. 3): Uncus relatively long, narrow, curved ventrad, narrowly divided; gnathos blunt ended, lightly sclerotized except proximal end, entire; valva blade-like, harpe long with finely dentate dorsal edge and several dentate ridges curving over onto inner surface from outer surface caudad. Aedeagus about length of valva, slightly downcurved in middle, distal end with ventral keel, base of aedeagus short, no cornutus.

FEMALE. Unknown.

**Distribution.** *Speculum* is known at present only from the vicinity of Cacaúlândia in central Rondônia, Brazil.

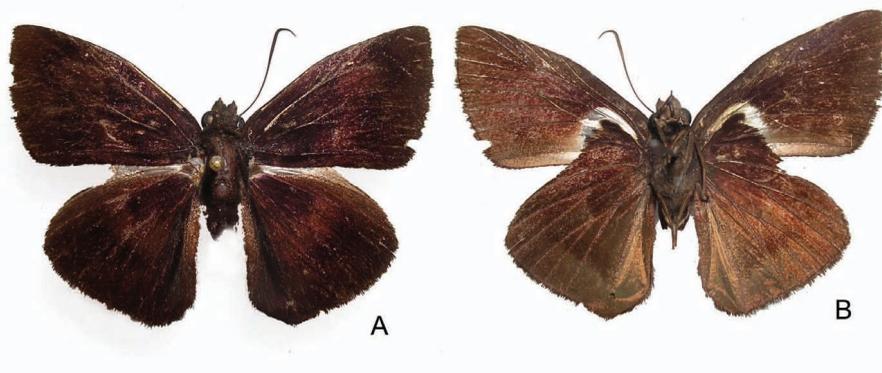


Fig. 1. *Speculum speculum* holotype (data in text): A. dorsal surface, B. ventral surface.

**Etymology.** The genus is named after the shining gray areas on the ventral forewing and basal portions of the costa of the dorsal hindwing. *Speculum* is a neuter noun meaning "mirror" in Latin.

**Diagnosis and discussion.** The affinities of this new and apparently monotypic genus are equivocal. The bend in the costa of the forewing suggests that it is of the tribe Erynnini Brues & Carpenter, 1932 as defined by Warren (2006). Within this tribe, *Tosta* Evans, 1953, includes a species (*Tosta tosta* Evans, 1953) with an expanded costa on the hindwing and a *speculum* on the ventral forewing. *Tosta*, a genus that was suggested as paraphyletic (Warren 2006), differs in several respects from *Speculum*. The seven species now included in *Tosta* (Mielke 2005) have a very short discal cell on the forewing (as nearly universal among Erynnini, Warren 2006), a shorter nudum (21–24 segments), a broad and often divided uncus, and very different valvae. *Tosta tosta* itself (after Evans 1953) has no costal fold, has a brand at the base of the costa of the dorsal hindwing, has no brand within the *speculum*, and has a hind tibial tuft entering a thoracic pouch. Its

genitalia are very different from those of *Speculum* (see figure in Evans 1953). The genitalia of *Speculum*, while possessing elongate valvae as do many Erynnini, are symmetrical unlike most others within the tribe (Warren 2006).

Other taxa with prominent specula include *Ectomis* Mabilie, 1878 (Eudaminae) represented by a single species *Plesioneura cythna* Hewitson, 1878. On this, the forewing has no costal fold, vein  $CuA_2$  originates at the base of the forewing, vein Sc ends over the end of the discal cell, there is a double hair tuft in front of the *speculum* and no brand, and the antenna has a nudum of 25 segments (Evans 1953). The male genitalia of *Ectomis* have a relatively broad uncus with lateral processes, the end of the gnathos is pointed, and the dorsal ridge of the harpe is not dentate.

*Papilio corbulo* Stoll 1783, another eudamine and once included in a monotypic genus *Pardalus* Mabilie, 1903, has now been subsumed within *Telemiades* Hübner, 1819 (Burns & Janzen 2005). That species has a costal fold similar to *Speculum*, vein  $CuA_2$  arising about 1/2 the distance from the wing base and  $CuA_1$ , and a *speculum* with a brand on the ventral forewing. The *speculum* on *Telemiades corbulo*, however, is broader, extending 2/3 the distance to the termen, does not extend into the discal cell or above vein  $CuA_2$ , and the pale yellowish brand lies above vein 2A. The costa of the hindwing is somewhat produced, but not nearly as grotesquely as on *Speculum*. Additionally, the dorsal hindwing has a large thick hair tuft arising from above the base of the discal cell. The nudum of the antenna has 24–27 segments. The male genitalia are very different from those of *Speculum* with a broad and undivided uncus, two pairs of lateral processes from the tegumen, and a very different harpe. Further, *T. corbulo*, like other *Telemiades*, have cornuti (e.g., Burns & Janzen 2005) that *Speculum* lacks.

### *Speculum speculum* Austin, new species

(Figs. 1–3)

**Description.** MALE. Wings: Forewing length = 21.3 mm (holotype), 20.1 mm (paratype); wing shape and other structural characters given above in description of genus; dorsal surface dark brownish black; basal half of forewing, basal third of hindwing, and vague postmedial bands on both wings darker, nearly black; postmedial of forewing offset distad cephalad of vein  $M_3$ , paler areas of wing with slight reddish sheen in side light; fringes of ground color. Venter similar to dorsum; forewing with postmedial band indiscernable; anal margin gray distad of *speculum*; gray overscaling anterior to this and on hindwing.

**Head, thorax and abdomen:** Head and body dark brown; head with vague olive-gray scales above palpi; palpi gray-brown on venter; antennae dark brown on dorsum, venter (including nudum) paler gray-brown; legs brown; ventral abdomen whitish-brown with pair of faint brown ventro-lateral lines.

**Genitalia:** Described above in generic description.

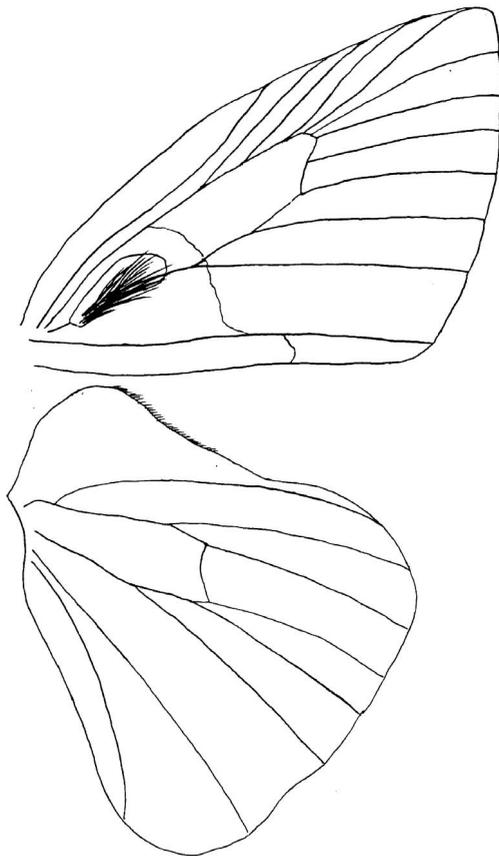


Fig. 2. *Speculum speculum* – wing venation and secondary sexual characters (ventral surface).

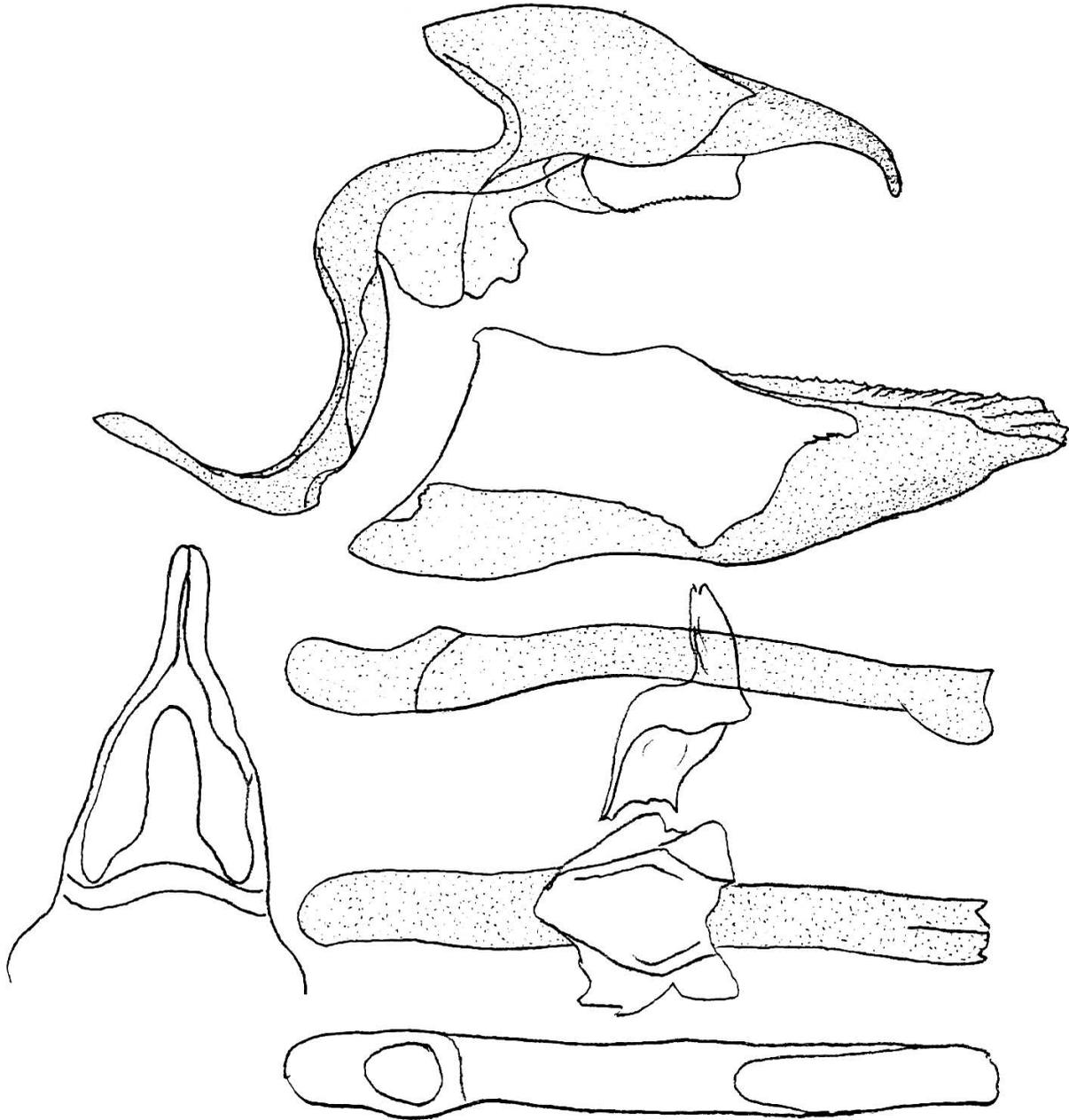


Fig. 3. *Speculum speculum* – genitalia (lateral view of tegumen, saccus, and associated structures; internal lateral view of valva; ventral view of uncus and gnathos; lateral ventral, and dorsal views of aedeagus)

FEMALE. Unknown.

**Holotype.** Male with the following labels: white, printed - / BRASIL: Rondonia / ca 70 km S / Ariquemes / B-80 between / lineas C-10 & 15 / 1 December 1991 / leg. G. T. Austin / (paper lures) /; white, printed and handprinted - / Genitalia Vial / GTA - 1676 /; white, printed and handprinted - / Genitalia Vial / SRS - 4383 / File No. /; red, printed and handprinted - / HOLOTYPE / *Speculum speculum* / Austin /. The holotype will be deposited at the Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Brazil.

**Paratype.** BRAZIL: Rondônia; 65 km S Ariquemes, Linha C-20, 7 km E of B-65, Fazenda Rancho Grande, 10 Nov. 1994, at paper lures, 1330-1400 [local time] (1 male, GTA-7522). The paratype is at the McGuire Center for Lepidoptera and Biodiversity.

**Type locality.** BRAZIL: Rondônia; about 70 kilometers south of Ariquemes, road B-80 between linhas C-10 and C-15, ca. 200 meters elevation. This is approximately 15 km east of Cacaulândia in typical lowland tropical rainforest.

**Etymology.** The species is named as was its genus (see above).

**Distribution and phenology.** *Speculum speculum* is known only from its types taken in November and December.

**Diagnosis and discussion.** Both known specimens of *Speculum* were caught at paper lures indicating that the species is part of the guild that feeds on bird droppings and suggests it will be found associated with army ants (Austin *et al.* 1993, Vieira 2004). As noted above, *Speculum* appears to be allied to species within the tribe Erynnini of Pyrginae. Besides this tentative placement, little further speculation is possible at this time. The examination of a female could go far in elaborating its relationships. Females of most Erynnini have a gland at the seventh tergum (e.g., Burns 1964, de Jong 1975) that appears to be a synapomorphy (Warren 2006).

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