SYSTEMATICS, MORPHOLOGY AND PHYSIOLOGY

A New Species Group of the Genus Epicauta Dejean of Southern South America, the bella Group (Coleoptera: Meloidae)

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Abstract
Epicauta includes two subgenera, and within the nominotypical subgenus several species groups. Analyzing species of southern South America, a set of species of Epicauta has the particularity to present two distinctive characters which separates this group from the other species groups of American Epicauta: color pattern of pubescence in elytra is not coincident with color pattern of tegument and endophalic hook robust. Based on these characters I propose a new group of species herein named bella group. This group includes the Neotropical species Epicauta bella Mäklin, E. brunneipennis (Haag-Rutemberg), E. diagramma (Burmeister), E. griseonigra (Fairmaire), E. luctifera (Fairmaire), E. riojana (Fairmaire) (new status), and E. zebra (Dohrn). This group is endemic of southern South America, inhabiting the Chaco biogeographical subregion, mainly in the arid northern areas of Argentina. Here we redefine the species of the bella group, consider new characters, illustrate the species in the group, provide maps of their distribution, and a key to identify them.

Introduction
The American species of Epicauta from North and Central America belonging to both the nominate and Macrobasis subgenera were subdivided in several groups of species (Horn 1873, Werner 1944, 1955, MacSwain 1956, Selander & Mathieu 1969, Pinto 1972ab, Adams & Selander 1979, Agafitei & Selander 1980, Selander 1981ab, 1982abc, Pinto 1991). However, most species of Epicauta from South America were treated individually and several of them were not included in any of the formal species groups. Seven of these species belonging to the nominate subgenus, E. bella Mäklin, E. brunneipennis (Haag-Rutemberg), E. diagramma (Burmeister), E. griseonigra (Fairmaire), E. luctifera (Fairmaire), E. riojana (Fairmaire) (new status), and E. zebra (Dohrn), form a distinctive, previously unrecognized group herein proposed as the bella group. This group is endemic of southern South America, including Argentina, Bolivia, and Uruguay, with the highest species diversity in central-northern Argentina.

The main purpose of the present study is to describe this new South American species group of the genus Epicauta, redescribing and illustrating its species, including both external morphology and female and male genitalia, which are described and illustrated for the first time. Finally, this contribution provides an identification key to the species of this group, and updates the knowledge on the geographical distribution of each species.

Material and Methods
The examined specimens belong to the following collections: CICyTTP - CONICET: collection, Diamante,

The comparisons between the different species were based on the external morphology, and male and female genitalia. Specimens were placed in a wet camera to soften their anatomical structures. Subsequently the abdomen was extracted, and cleared using 10% KOH for approximately 12h, and then the aedeagus was washed in water and passed through 80% ethanol and glycerin for a few minutes. Body length was measured from the occiput to the apex of the elytra with a Vernier Calipter. Other morphological measurements (length, width) were obtained using an ocular micrometer. In order to determine the ratio of head length/width head length was measured from the front-clypeal suture to the top of the occiput and width was measured on the level of the dorsal margin of the eyes. Other measurements included length/width of male and female antennae; and length/width of pronotum. Once the examination and illustrations were completed, the genitalia and other parts were placed in a plastic microbial capsule in glycerin, and pinned directly under each specimen. Drawings were done with a camera lucida adapted to the stereoscopic microscope.

The terminology used in the description of the morphological structures of male genitalia and female genitalia follows previous authors, such as Bologna (1991), Pinto (1991) and Selander (1964). The primary sources of the terms used were Torre Bueno (1937) and Tuxen (1970). Most of the geographic distribution and host plant data was based on museum specimens and bibliographic data.

Geographic Distribution

The bella species group is primarily distributed in the Chaco subregion, ranging from southern Bolivia, western Paraguay, southern Brazil, and central and northern Argentina (Cabrera, 1971; Cabrera & Willink, 1973; Morrone, 1996, 2000). The Chaco region has a characteristic physiography consisting in plains of low elevation with continental warm climate (below 1,200 masl). According to Morrone (1996, 2000), this biogeographical subregion is subdivided into five provinces; three of which correspond to the distribution of this group: Chaco, Pampa, and Monte. These biogeographical provinces are characterized by dry shrubs or xerophytic forests, and grasslands or steppes.

Taxonomy

A preliminary morphology based phylogenetic analysis that included different species of Epicauta from the Americas (Campos-Soldini et al 2008) showed that the color pattern of elytral pubescence not coincident with that of the integument and a robust endophallic hook, are the principal morphological features that define this new species group.

The species belonging to the new bella group are: Epicauta bella, E. brunneipenis, E. diagramma, E. griseonigra, E. riojana (New status), E. luctifera, and E. zebra. Epicauta zebra is the unique species that was included in a formal group by Adams & Selander (1979), the vittata species group.

The bella Species Group

Diagnosis

Tegument uniformly colored, brown or black. Vittae are expressed in pubescence, not coincident with the color from the basal integument, with basic pattern of one to three vittae (Figs 1-7); endophallic hook [sensu Pinto & Selander 1999, 2001 (Pinto & Bologna 1999 and Bologna & Pinto 2001) robust (Figs 8-13, see arrow)].

Comparative remarks

The bella group is morphologically similar to the vittata group as redefined by Campos-Soldini and Roig in press.
and caustica group as defined by Selander (1981); the differences between these three groups are: in the vittata and caustica groups the vittae are expressed in the integument indistinctly to the color pattern of the pubescence, in the bella group the vittae are expressed in the pubescence, not coincident with the color from the basal integument. The eyes differ between the vittata and bella groups, in the vittata group the anterior margin is bisinuate, with ventral lobe reaching mouthparts; in the bella group the anterior margin has an emargination in front of the antennal insertion, with ventral lobe not reaching mouthparts.

**Description**

**Length.** 6-13 mm. Cuticle color mostly brown or black; head with pale patch on frons or not. Head and pronotum sculpture foveata (set with fine, impressed points or punctures appearing as pin-pricks) or puncticulate (sparsely punctuate with very fine widely spaced punctures). Elytra sculpture granulated (covered with or made up of very small grains or granules). Pubescence varying in density; color mainly pale, head with black midline vitta or dark patch distributed on frons and vertex; palpalmeres and labrum with or without elongate setae; pronotum with dark midline vitta and two lateral small and dark patches, pronotum vittae, or uniformly colored, elytral pubescence with vittae numbers of one to three.

**Habitus.** Head: subquadrate, rather wider than pronotum; frons indistinctly impressed; eyes with ample emargination in front of the antennal insertion, slightly bulged, ventral lobe rounded or tapering to base not reaching mouthparts. Antennae are similar in both sexes, subfiliform, typically tapering towards apex. **Mouthparts:** maxillary palpalmeres widening towards apex, labial palpalmeres II with the same width throughout; mandibles robust, strongly curved at apex; prementum with superior border straight, having broad emargination, or with smooth central projection. **Pronotum:** as long as wide (wider than long in E. lucifera); disk with slight depressions on apical or basal third, or convex. Elytra: with sides subparallel or moderately divergent towards apical third. **Legs:** fore tibiae with or without mucro, tibiae spurs acuminated, subequal straight, subparallel or divergent; hind tibiae with spurs acuminated and rather robust. **Pygidium:** subtriangular. **Last visible sternite** subtriangular (Figs 14-16) or subpentagonal (Figs 17-19).

**Male genitalia.** Spiculum gastrale: evidently biarmed (Figs 20-22); or almost not biarmed (Fig 23-25). Parameral lobes completely sclerotized with setae on apical third; rather bulged or tapering to apex; apex divergent or pointed inwards; phallobase with the same width as parameral lobes, or with maximum width at basal third (Figs 26-31). Aedeagus with apical hook slender or robust; endophallic hook (sensu Pinto & Bologna 1999, Bologna & Pinto 2001) robust (Figs 8-13).

**Female genitalia.** Spermathecal capsule large, in some species with well developed basal diverticulum; spermathecal duct rather short and wide, or long and thin; accessory gland large and tubular (Figs 32-34, see arrow).

**Distribution**

The bella group is endemic to southern South America: *E. riojana* and *E. zebra* are endemic to Argentina; *E. lucifera* is endemic to Uruguay, and *E. bella* is recorded from Argentina, Bolivia and Uruguay. The remaining species are distributed in Argentina and Uruguay. The area with
the highest species diversity of the bella group is the North-Central region of Argentina.

**Key to the species of the bella group**

1) - Cuticle mainly brown; pubescence sparse (13-19 setae in one mm)..................................................................................................................2
   - Cuticle mainly black; pubescence very sparse (6-7 setae in one mm) or dense (28-34 in one mm).................................3
2) - Cuticle of head dark brown; pronotum and elytra pale brown. Elytra with three dark vittae (Fig 1)..............E. bella
   - Cuticle of head and pronotum dark brown; elytra pale brown with two dark vittae, one sutural from the base to near the apex, and one short on humeral callus (Fig 5).................................................................E. brunneipennis
3) - Pubescence very sparse (6-7 setae in one mm). Pubescence mainly dark; head with cinereus setae on frons and undersides; pronotum and elytra with yellow setae on the margin; elytra with three short and cinereous vittae on apical third (Fig 6)..............................E. lucifera
   - Pubescence dense (28-34 setae in one mm) setae mainly pale or reddish Head, pronotum and elytra not setated as above.................................................................................................................4
4) - Elytra with a single broad vitta from the base to near the apex (Figs 3-4). Pronotum without vittae. Head with dark patch on frons.................................................................5
   - Elytra with two or three vittae. Pronotum with vittae. Head with dark vitta of different length, not forming patch..................................................................................................................6
5) - Pubescence mainly reddish...E. riojana (New status)
   - Pubescence mainly pale..............................................E. griseonigra
6) - Elytra with two vittae (Fig 2). Pronotum with one dark middle vitta and two small lateral patches. Head with one dark thin midline vitta extended from the base of occiput to the half of forehead.....................................................E. diagramma
   - Elytra with three vittae (Fig 7). Pronotum with three dark vittae. Head with one dark midline vitta extended from base of occiput to the base of clypeus.............E. zebra

**Epicauta bella Mäklin**


**Type material of Lytta exclamationis.** Deposited in the Museum de La Plata entomological collection. Lectotype: [Typus] [Uruguay] [MLP 564/2]. [Typus] [Banda/ Oriental] [MLP 564/3]. Syntype sex not determined. [Typus] [Tandil] [Foto Bruch] [Lytta/ exclamationis/ 1889] [MLP 564/1].

Type of *Epicauta bella* not examined.

**Type material remarks.** In Berg (1889) is indicated that the author studied three specimens from Tandil (Argentina) and Uruguay. Based on this information, Campos-Soldini *et al* (2009) concluded that the material deposited at the MLP are the syntypes of *Lytta exclamationis*.

**Taxonomic remarks.** Denier (1935) considered *Lytta exclamationis* as a junior synonym of *Epicauta bella* Mäklin, 1875.

**Diagnosis.** Cuticle of head dark brown, pronotum and elytra pale brown. Pubescence of elytra with three dark
vittae: one sutural vitta from elytral base to near elytral apex, one marginal vitta from base of elytra to half of the elytra, and one interrupted vitta divided in two portions, the former on humeri and the second on posterior half, ending near apex (Fig 1). Abdomen dark-brown, except last three tergites pale-brown.

Habitus. Length 6-10 mm. Brown color predominant. Cuticle of head dark brown, pronotum and elytra pale brown; legs with femora and tibiae pale-brown, tarsal segments dark. Abdomen dark brown, except three last tergites pale brown. Pubescence sparse (13-19 setae on one mm), mostly pale with the following pattern: head with dark brown midline vitta from occiput to the base of clypeus; pronotum with three dark vittae, two marginal, one on the midline; elytra with three dark vittae, one sutural from base to near apex, one marginal from base to half of the elytra, and one interrupted vitta divided in two portions, the former on the humerus and the second on the posterior half of elytra, ending near apex (Fig 1); legs with dark setae on femur-tibia junction. Pygidium with sparse dark setae at base.

Head as long as wide (0.87; 0.21-0.24); sides subparallel; occiput concave. Pronotum as long as wide (0.93; 0.15-0.16); disk rather convex, sides subparallel. Elytra: uniform in width. Legs: fore tibial spurs acuminated, subequal, apically divergent; hind tibial spurs subequal and acuminated, apex of inner spur rounded; tarsomeres with tarsal pads located in two longitudinal rows. Last abdominal sternite: subtriangular, apex marked impressed (Fig 15).

Female genitalia. Unknown.

Male genitalia. Spiculum gastrale short and biarmed (Fig 20). Parameral lobes: uniform in width, apex divergent. Phallobase: fore margin straight (Fig 26, see arrow). Median lobe: basally short and curved; dorsal hook very thin and short; endophallic hook robust, with distal area as in Fig 13.

Distribution (Fig 35). Argentina (Buenos Aires: Tandil; Berg 1889), Bolivia, and Uruguay.

Material examined. (3 ♂♂) Two specimens from Uruguay and one from Argentina: Buenos Aires.

Host plant. There is no available information about host plants for this species.

**Epicauta brunneipennis** (Haag-Rutenberg)


*Cantharis brunneipennis* Burmeister 1881: 24; Berg 1881: 304.


Type material. Berg (1881) indicates that the type material records with the asterisk indicate only province, and not exact location.

E. brunneipennis
- Records with the asterisk indicate only province, and not exact location.

E. diagramma
- Records with the asterisk indicate only province, and not exact location.

Type material. Berg (1881) indicates that the type material records with the asterisk indicate only province, and not exact location.

E. brunneipennis
- Records with the asterisk indicate only province, and not exact location.

E. diagramma
- Records with the asterisk indicate only province, and not exact location.

E. zebra
- Records with the asterisk indicate only province, and not exact location.
is deposited in the Haag-Rutemberg and Dr. Clemens Müller collection in Dresden (Germany).

**Diagnosis.** Cuticle of head and pronotum dark brown, elytra pale brown. Pubescence of head with dark thin midline vitta from the base of occiput to half of forehead; pronotum with two dark lateral patches, and dark midline vitta; elytra with two dark vittae, one sutural from base to near the apex, and the other very short on humeral callus.

**Habitus** (Fig 36). Length: 7-10 mm. Brown color predominant. Cuticle of head and pronotum dark brown, elytra pale brown. Pubescence sparse (13-19 setae on one mm); mostly pale; head with dark thin midline vitta from base of occiput to half of forehead; pronotum with two dark lateral patches and one dark midline vitta; scutellum dark; elytra with two dark vittae, one sutural from base to near the apex, and the other very short on humeral callus (Fig 5); coxae and trochanters pale; legs pale brown tinged with dark brown. The last abdominal sternite unpigmented at the apical third as in Fig 19.

**Head** as long as wide (0.80; 0.17-0.21); rather wider at temples; occiput convex. Eyes with apex of ventral lobe rounded, reaching mouthparts. Female antennomeres with the following ratios: 1.66 (I); 1.33 (II); 2.66 (III); 2 (IV); 1.66 (V); 1.66 (VI); 1.66 (VII); 1.66 (VIII); 1.66 (IX); 1.33 (X); 3.33 (XI); male: 1.75 (I); 1.33 (II); 3 (III); 2.33 (IV); 2 (V); 2 (VI); 2 (VII); 2 (VIII); 1.66 (IX); 1.66 (X); 2.66 (XI). **Pronotum** as long as wide (0.95; 0.19-0.20), rather wider at apical third; disk slightly convex. **Elytra** with the same width throughout. **Legs:** hind tibiae spurs acuminated, subequal. Female: tarsomeres I-IV with pads of setae divided in two longitudinal rows, and on tarsomere V developed only on the basal third; male: tarsomeres I and II with pads of setae uniformly distributed on the surface, tarsomeres III and IV located in two longitudinal rows, and on tarsomere V developed only on basal third. **Last abdominal sternite** subpentagonal, base with lateral prominences (Fig 19).

**Female genitalia.** Spermathecal capsule with duct rather longe, accessory gland large and tubular (Fig 34, see arrow). Valvifer with ventrolateral basal stem straight; stylus rather robust, with setae on apical third. **Male genitalia.** **Spiculum gastrale** biarmed (Fig 20). **Parameral lobes** robust, with same width throughout, apex divergent. **Phallobase** suboval, fore margin largely emarginate (Fig 31, see arrow). **Median lobe:** short and stright; with dorsal hook small, **endophallic hook** robust (Fig 11).

**Distribution** (Fig 35). Argentina and Uruguay. In Argentina recorded from: Mendoza (Bruch 1914); Buenos Aires (Bruch 1914); San Luis: San Gerónimo (Viana & Williner 1973); Corrientes; Chaco: Pampa del Infierno; Entre Ríos: Concordia; Formosa: Ibarreta.

**Material examined.** (3 ♂, 1 ♀) Argentina: Corrientes; Chaco: Pampa del Infierno; Entre Ríos: Concordia; Formosa: Ibarreta.

**Host plant.** Di Iorio (2004) cited *E. brunneipennis* feeding on *Cercidium praecox* (Fabaceae), *Prosopissp.* (Fabaceae), *Senna aphylla* (Fabaceae), plant locally known as pichanilla.

**Epicauta diagramma** (Burmeister)

*Cantharis diagramma* Burmeister 1881: 24.

*Cantharis griseonigra* Berg. 1881: 304 (partim).

*Lyttia griseonigra* Bruch.1914: 405 (partim).

*Epicauta griseonigra* Borchmann 1917: 76 (partim).

*Epicauta diagramma* Denier 1935: 154; 1940; 419; Blackwelder 1945: 483.

**Type material:** Not examined.

**Taxonomic remarks.** Berg (1881) considered *Cantharis diagramma* Burmeister 1881, as a junior synonym of *Cantharis griseonigra* Fairmair 1873. I follow here the decision of Denier (1935) in considering both species as distinct, based on differences of external morphology and male genital structures.

**Diagnosis.** Pubescence mostly dark gray with following pattern: head with thin and dark midline vitta from occiput to half of forehead; pronotum with dark midline, and two lateral small and dark patches; elytra with two dark vittae, both vittae extending from base to near apex. Legs pale orange.

**Habitus** (Fig 37) Length 8-10 mm. Black color predominant. Pubescence dense (28-34 on one mm), mostly dark grey; head with a thin and dark midline vitta from occiput to the half of forehead; pronotum with one dark patch on midline, and two lateral small and dark patches; elytra
with two dark vittae, both from base to near the apex (Fig 2). Cuticle of legs pale orange.

**Head** as long as wide (0.55; 11-20); occiput convex, sides subparallel. Female antennomeres with the following ratios: 2 (I); 1.5 (II); 3 (III); 2.5 (IV); 2.5 (V); 2.5 (VI); 2.5 (VII); 2.5 (VIII); 2.5 (IX); 2.5 (X); 3.5 (XI); male: 2 (I); 2 (II); 2.5 (III); 2.5 (IV); 2 (V); 2 (VI); 2 (VII); 2 (VIII); 2 (IX); 2 (X); 3 (XI). Pronotum as long as wide (1.06; 0.15-0.16), sides slightly oblique; disk with a depression on both fore and basal third. **Elytral** sides divergent to apical third. **Legs** hind tibial spurs acuminated, inner spur rotated inwards; tarsomerers with tarsal pads composed by two longitudinal rows of setae; legs with last tarsomerers slightly curved. Last **abdominal sternite** subpentagonal, apex with slightly emarginate; base having lateral prominences (Fig 17).

**Female genitalia.** Spermathecal duct rather long, accessory gland large and tubular (Fig 33, see arrow). Ventrolateral basal stem of valvifer not well developed; styli with setae uniformly distributed.

**Male genitalia.** Spicum gastrale biarmed (Fig 21). Parameral lobes with uniform width; apex divergent. Phallobase with fore margin concave (Fig 27, see arrow). Median lobe: basally short and curved; with dorsal hook small and rather long; endophalic hook robust (Fig 12).

**Distribution** (Fig 35). Argentina and Uruguay.

**Material examined.** Two ♀♀ Uruguay; one ♂ Argentina, Buenos Aires, Tandil.

**Host plant:** Larrea sp. (Zygophyllaceae), locally known as “jarilla” (new host record).

**Comparative remarks.** Epicauta diagramma differs from *E. griseonigra* and *E. zebra* by the color pattern of pubescence: *E. diagramma* has a thin and dark midline vitta extending from the occiput to the half of the forehead, pronotum with one dark midline vitta and two lateral patches, elytra with two dark vittae both from base to near the apex; *E. griseonigra* has a dark patch on frons, pronotum uniformly colored, and elytra with a single broad vitta from the base to near the apex; *E. zebra* head with one dark midline vitta extended from base of occiput to the base of clypeus, pronotum and elytra with three dark vittae (see Figs 37, 38, 41).

**Epicauta griseonigra** (Fairmaire)

*Cantharis griseonigra* Fairmaire 1873: 24; Berg 1881: 304 (partim)

*Cantharis centralis* Burmeister 1881: 25.

*Lyta griseonigra*: Bruch 1914: 405 (partim).

**Epicauta centralis** var. ochraceocincta Pic 1916: 22

**Epicauta griseonigra:** Borchmann 1917: 76 (partim); Denier 1935: 156 (partim); Blackwelder 1945: 483 (partim); Viana & Williner 1973: 15; Martínez 1992: 6-7.

**Epicauta centralis:** Borchmann 1917: 72; Bruch 1914: 404; Blackwelder 1945: 483; Di Iorio 2004: 168.

**Type material.** Not examined.

**Diagnosis.** Cuticle of head with a small pale patch on frons. Pubescence mostly pale; head with a wide dark patch extended from clypeus along frons to occiput, bordering eyes. Elytra with a broad vitta, extended from the base to near apex.

**Habitus** (Fig 38). Length 12-15 mm. Tegument black color; head with small pale patch on frons. Pubescence dense (28-34 setae on one mm); mostly pale; head with a wide dark patch extended from clypeus along frons to occiput, bordering eyes, labrum with elongate setae at apex, maxillary palpi sexually dimorphic: male underside of palpomere II with elongate setae, lacking in female; elytra with a dark broad vitta from the base to near the apex (Fig 3); legs pale pubescence tinged with dark brown setae. **Head** as long as wide (0.86; 0.26-0.30); occiput slightly convex. Female antennomeres with the following ratios: 2.5 (I); 1.3 (II); 3.3 (III); 2.6 (IV); 2.3 (V); 2.3 (VI); 2.3 (VII); 2.3 (VIII); 2.3 (IX); 3 (X); 4.5 (XI); male: 2.6 (I); 1.3 (II); 2.6 (III); 2 (IV); 2.5 (V); 3 (VI); 2.5 (VII); 2.5 (VIII); 2.5 (IX); 2.5 (X); 3 (XI). Pronotum as long as wide (0.96; 0.29-0.28); sides subparallel; disk slightly convex. Elytra with the maximum width on apical third, tapering to apex. **Legs:** fore tibiae with macro developed; tarsomerers with tarsal pads composed by two longitudinal rows of setae; both hind tibial spurs acuminated and robust, the inner one rotated inwards. Last **abdominal sternite** subpentagonal; apically rounded; basally having marginal prominences (Fig 18, see arrow).

**Female genitalia.** Spermathecal diverticulum developed; spermathecal duct large and thin; accessory gland large, bulged near the spermathecal duct then tubular (Fig 34, see arrow). Valvifer with ventrolateral basal stem not developed; styli with setae on apical third.

**Male genitalia.** Spicum gastrale biarmed as in Fig 25. Parameral lobes tapering to apex, pointed inwards (see arrow). Phallobase suboval, superior border with marked protuberance (Fig 28, see arrow). Median lobe basally straight, curved apically; dorsal hook very short and robust, endophalic hook robust, straight, pointed at apex as in Fig 9.

**Intra-specific variation.** These species present differences in: the tegument color varies from pale-brown to dark brown; pubescence varies from pale brown to pale grey. The patch of head with different sizes: dark brown patch from the base of clypeus extending to the frons, to near the occiput, with suboval dark brown patch in vertex; or lacking dark brown patch.

**Distribution** (Fig 35). Argentina and Uruguay. In Argentina recorded from: Catamarca, La Rioja, Tucumán (Bruch 1914) Salta: Departamento capital (Cerro San Bernardo) (Martínez 1992); Santiago del Estero (Martínez 1958); San Luis: San Jerónimo, Baldecito (Viana & Williner 1973) and
San Francisco (Viana & Williner 1973). **New distribution records**: Córdoba: Lucio V. Mancilla; Mendoza: Cerro Cacheuta; San Juan: Las Tunas, Valle Fértil. **Material examined**. (♂♂, ♀♀) 11 specimens of undetermined sex; Argentina: Entre Ríos: Diamante, Córdoba: Lucio V. Macilla; Mendoza: Cerro Cacheuta; San Juan: Las Tunas, Valle Fértil; San Luis: Alto Pencoso, San Jerónimo.

**Host Plant**. Di Iorio (2004) recorded as host plant Solanum elaegnifolium (Solanaceae). **New host records**: Larrea sp. (Zygophyllaceae), locally known as “jarilla”.

### Epicauta riojana (Fairmaire). **NEW STATUS**

**Cantharis griseonigra v. riojana** Fairmaire 1892: 252. **Lytta griseonigra v. riojana**: Bruch 1914: 405. **Epicauta griseonigra v. riojana**: Borchmann 1917: 76; Denier 1935: 156; Blackwelder 1945: 483. **Type material**: Not examined.

**Taxonomic remarks**. In my opinion, the variety described by Fairmaire (1892) differs from *E. griseonigra* mainly because of the color of the pubescence, predominantly being reddish; abdomen with reddish setae conforming short apical and transversal bands; the last abdominal tergite subtriangular as in Fig 16. Aedeagus: parameral lobes subparallel, tapering to the apex, where they are slightly divergent (see arrow); phallobase similar in length to parameres but 1/3 wider; fore border straight (Fig 29). **Median lobe**. Pubescence mostly reddish, head with a wide dark patch extended from clypeus along frons to occiput, bordering eyes. Elytra with a broad vitta extended from the base to near apex. Abdomen with reddish setae forming short apical and transversal bands.

**Habitus** (Fig 39). Length 13-17 mm. Tegmentum dark color predominant; head with small pale patch on frons. Pubescence dense (28-34 setae on one mm), mostly reddish, head with a wide dark patch extended from clypeus along frons to occiput, bordering eyes; pronotum with a small dark patch near the base; coxal setae reddish, legs pubescence dark-brown, including trochanters; elytra with a broad vitta extended from the base to near the apex (Fig 4). Abdomen: with reddish setae with short apical and transversal bands.

**Head** as long as wide (0.86: 25-29); rather wide at templa; occiput slightly convex. Female antennomeres with following ratios: 2.6 (I); 1.6 (II); 3.6 (III); 2.3 (IV); 2.3 (V); 2.3 (VI); 2.3 (VII); 2.3 (VIII); 2.3 (IX); 2.3 (X); 3.3 (XI); male: 3.3 (I); 2 (II); 3.6 (III); 3 (IV); 3 (V); 3 (VI); 3 (VII); 2.6 (VIII); 2.6 (IX); 2.6 (X); 3.6 (XI). **Prontom** as long as wide (0.90: 027-030), sides subparallel, slightly wider on base; disk slightly convex. **Elytra** with maximum width at beginning of the apical third tapering to apex. **Legs**. Fore tibial micro developed, tarsomerers with tarsal pads uniformly distributed; middle and hind tarsomerers with tarsal pads composed by two longitudinal rows of setae. **Last abdominal sternite** subtriangular with apex rounded (Fig 16, see arrow).

**Female genitalia**. Spermathecal diverticulum well developed; spermathecal duct elongate and thin (Fig 34, see arrow). Valvifer ventrolateral basal stem lacking; stylus with setae uniformly distributed.

**Male genitalia**. **Spiculum** gastrale straight, at apex as in Fig 24. **Parameral lobes** subparallel, tapering to the apex where they are slightly divergent (see arrow). **Phallobase** similar in length to parameres but 1/3 wider; fore border straight; lateral view evidently emarginate (Fig 29). **Median lobe** with basal region straight; dorsal hook very short and robust; **endophallic hook** robust (Fig 8).

**Distribution** (Fig 35). Known only from Argentina, in the western provinces of La Rioja, Tucumán, and Salta. **New distribution records**: Córdoba: Lucio V. Macilla.

**Material examined**. (♂♂, ♀♀) 12 specimens from Argentina. Córdoba; La Rioja; Salta: Santa Salta Forestal 5 km from J. V. González; Tucumán: Gobernador Garmendia.

**Host plants**. There is no available information about host plants of this species.

### Epicauta luctifera (Fairmaire)


**Type material**. The two syntypes of *Cantharis leucoloma* Burmeister 1881 are preserved at the Museo Argentino de Ciencias Naturales (Buenos Aires – Argentina) Nº 4181, 4182. Lectotype Nº 4181.

**Diagnosis**. Pubescence very sparse. Head with dark setae on capsule, pale setae on frons and undersides. Pronotum and elytra with yellow setae marginally, elytra with three short vittae extended only on the apical third.

**Habitus** (Fig 40). Length 12-13 mm. Dark color predominates. Head and pronotum punctulate. Pubescence very sparse (6-7 setae in one mm); head with dark setae on capsule, pale setae on frons and undersides; pronotum and elytra with marginal yellow pubescence, elytra with three short vittae extended only onto the apical third (Fig 6).

**Head** as long as wide (0.4: 8-20), widest on occiput; occiput convex. Female antennomeres with the following ratios: 2.5 (I); 1 (I); 3 (III); 2 (IV); 2 (V); 2 (VI); 2 (VII);
Epicauta zebra (Dorhn)

Cantharis zebra Dorhn 1876: 411.
Lyttta albivittata Haag-Rutenberg 1880: 29;
Epicauta somnolenta Beauregard 1889: 89; Bruch 1914: 404; Borchmann 1917: 83; Bosq 1934: 12; Viana & Williner 1974: 11.

The bella Group is proposed as a new group of species based on the vittae pattern, which is expressed in pubescence, not coincident with the color from the basal integument, with basic pattern of one to three vittae (Figs 1-6); and endophalic hook robust (see diagnosis of group). These two features are not present in other species of the nominate subgenus. This supports the hypothesis that the species in the bella group constitute a natural and monophyletic group. Seven species belong to the new group: E. bella, E. brunneipennis, E. diagramma, E. griseonigra, E. riojana, E. luctifera, and E. zebra, and have the particularity that they have hitherto never been included in a formal species group. The distributions of these
species have never been mapped, and neither described or illustrated in detail.

This new group occurs in South America, principally in the subtropics of southern South America. Two species, E. riojana and E. zebra, endemic to central-west Argentina; E. lucifera is endemic to Uruguay; three species (E. brunnipennis, E. diagramma, and E. griseonigra) are recorded from both countries, and only E. bella is widespread in Argentina, Bolivia, and Uruguay.

All species inhabit warm and moderately dry regions, being mainly distributed in the biogeographical region known as the Chaco subregion (Morrone 1996, 2000). Additionally, it is remarkable that many large areas of southern South America are still poorly explored and consequently the range of many species appears patchy. Although I have updated the distributional data for this group, a further study is needed to obtain more accurate information on the distribution of the species.

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The bella Group, a New Species Group of *Epicauta*


