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Burmeister (Coleoptera: Scarabaeidae: Cetoniinae: Cetoniini)

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Abstract. Based on a study of the characters used to define it, the genus *Euphoriopsis* Casey is placed in synonymy with *Euphoria* Burmeister. *Euphoria punicea* Janson is placed in synonymy with *Euphoria steinheili* Janson. Morphological characters supporting the synonymies, and the species' distributions and biological data are reviewed.

Resúmen. Basado en un estudio de los caracteres que fueron usados para definirlo, el género *Euphoriopsis* Casey es considerado como sinónimo del género *Euphoria* Burmeister. *Euphoria punicea* Janson es a su vez considerada sinónimo de *Euphoria steinheili* Janson. Se presenta una discusión soportando la lógica de los cambios propuestos y datos sobre la biología y la distribución de las especies tratadas.

Introduction

The Cetoniinae (Coleoptera: Scarabaeidae) are phytophagous scarab beetles widely distributed throughout the world. There are approximately 3500-4000 species distributed in 11 tribes (Krikken 1984; Krajcik 1998). Six of the tribes recognized by Krikken (1984) are present in the New World: Cetoniini, Cremastocheilini, Goliathini, Gymnetini, Trichiini, and Valgini. In the New World about 130 species names are available in the tribe Cetoniini, but no research has been done to test the validity of many of these names. The genus *Euphoria* Burmeister comprises most species of the American Cetoniini and includes many polymorphic species exhibiting high similarity among them.

South American *Euphoria* species are poorly known (see Hardy 1988, 2001). Six species are cited for South America (Hardy 2001), but more species are expected to occur in the area. Most of the South American species are rare in collections and are known only from the type locality and few specimens. A monographic revision of the genus (Orozco in prep.) is in progress to better understand the complexity of this group. Some obvious synonymies in the group can be dealt with first.

Recently, the former genus *Stephanucha* Burmeister was synonymized with *Euphoria* by Ratcliffe and Paulsen (2008). With the new synonymy below, only two genera now comprise the American Cetoniini: *Euphoria* and *Chlorixanthe* Bates. *Euphoria punicea* Janson previously known only from Ecuador is demonstrated to be a synonym of *Euphoria steinheili* Janson, a widely distributed species.

***Euphoria* Burmeister, 1842**

Euphoria Burmeister 1842: 370.

Erirhipis Burmeister 1842: 385.

Stephanucha Burmeister 1842: 394.

Euryomia Lacordaire 1856: 525 (part).

Euphoriopsis Casey 1915: 298.

Euphoriopsis Casey 1915: 298 **NEW SYNONYMY.**

Anatropis Casey 1915: 298.

Casey (1915) created the monotypic genus *Euphoriopsis* for *Euphoria hera* Burmeister, 1842. *Euphoriopsis* was not formally defined by Casey but only mentioned in a diagnostic key. According to Casey (1915), *Euphoriopsis* is separated from *Euphoria* based on the lack of a lateral marginal bead in the pronotum and the presence of clypeal teeth.



Figure 1. *Euphoria hera*. Scale bar = 1mm.

Phylogenetic data based on morphological evidence (Orozco 2007; Orozco and Philips, in prep.) show no support for *Euphoriopsis* as a valid genus. These data place *Euphoria precaria* Janson as the sister species of *E. hera*, within the *Euphoria* clade. Analysis of 37 specimens of *E. hera* from different museums confirmed the presence of a lateral marginal bead on the pronotum as suggested by Hardy (1988) and contrary to what Casey (1915) stated. The other character listed by Casey (1915), the presence of clypeal teeth, is not exclusive to *E. hera*, but is also present in *E. annea* Howden, *E. areata* (Fabricius), *E. bispinis* Bates, *E. pilipennis* (Kraatz), and *E. verticalis* (Horn).

Euphoria hera (Fig. 1) is known from the Andes of Colombia and Venezuela (Fig. 2). Adult specimens of this species have been found in dry horse dung (J.C. Neita, pers. comm.) and have been collected at elevations greater than 1200m. The immature stages are unknown.

Specimens Examined: COLOMBIA: ANTIOQUIA: Medellin (1); BOYACA: Arcabuco (1); CAUCA: No data (9); CUNDINAMARCA: La Mesa (1), Sasaima (1); HUILA: Rio Aguacatal (3), Rivera (2); SANTANDER: No data (1); VALLE DEL CAUCA: Valle del Calima (1). VENEZUELA: MERIDA: No data (12); TACHIRA: La Revancha (5).

***Euphoria steinheili* Janson, 1878**

Euphoria steinheili Janson 1878: 303.

Euphoria punicea Janson 1881: 584 NEW SYNONYMY.

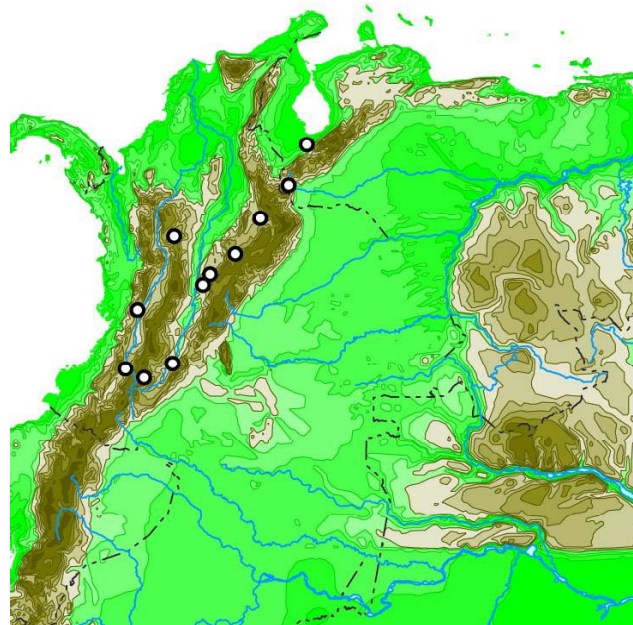


Figure 2. Distribution of *Euphoria hera*.



Figure 3. *Euphoria steinheili*. The first specimen represents the most common coloration seen in the material examined. Scale bar = 1mm.

Janson (1878) described *Euphoria steinheili* based on two specimens from Panama. In 1881, Janson described *Euphoria punicea* from specimens collected in the “Balzar Mountains” (probably Cordillera de Balzar, Province of Manabí) in northwest Ecuador.

Janson (1881) noted the similarity of *E. punicea* with *E. steinheili*, and compared these two species. He observed that *E. punicea* had a narrower and more convex body, larger pygidium, more pubescent venter, broader mesosternal process, and different coloration than *E. steinheili*. Analysis of these characters in the 111 specimens available to me revealed that these differences correspond to intraspecific variation found in both Panamanian and Ecuadorian populations. *Euphoria steinheili* (Fig. 3) is a polymorphic species in coloration varying from a dark violaceous color to dark green or dark orange. The body surface is generally tomentose, but glabrous specimens are also found. Small specimens of a related species, *E. lesueuri* (G & P), can be confused with *E. steinheili*. However, males of *E. steinheili* possess a deep longitudinal depression in the abdomen that is absent in the males of *E. lesueuri*, and females exhibit a dull pronotum contrary to the shiny one present in females of *E. lesueuri*. *Euphoria steinheili* was known only from Panama and Venezuela until Orozco and Neita (2005) recorded it from the Chocó department in Colombia. The only Colombian specimen known is from the northern part of the western Cordillera and was collected in a UV light trap. The newly expanded distribution of the species is shown in figure 4. One specimen from the Estado de Bolívar, Venezuela was not included in the distribution map because the locality (Kamarakuni) was not found. Nothing is known on the biology of *E. steinheili*, and the immature stages are undescribed.

Specimens Examined: COLOMBIA: CHOCO: Parque Nacional Los Katios (1). ECUADOR: AZUAY: Huigra (3); IMBABURA: El Milagro (1), NO DATA: “Canon” (4), “Cordillera Oriental” (1), “Ecuador” (3). PANAMA: CHIRIQUI: Valle Hornito (6); COLON: Isla Barro Colorado (7), Lago Gatún near Limón (1), Parque Nacional Soberanía (7); DARIEN: Santa Fé (9); PANAMA: Cerro Campana (12), Lago Alajuela (1), Ipetí (2), Isla Majé



Figure 4. Distribution of *Euphoria steinheili*.

(15); NO DATA: "Panama" (12). **VENEZUELA:** CARABOBO: Las Trincheras (3); BOLIVAR: "Kamarakuni (?)" (1); DISTRITO FEDERAL: Caracas (4), El Valle (15); MIRANDA: Curupao (1), San Antonio de los Altos (1); NO DATA: "Chacoa" (1).

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