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Purpuricenus (s. str.) *coccineus* Breit, 1917: a distinct species endemic from Calabria, Italy (Coleoptera Cerambycidae Cerambycinae Purpuricenini)

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ABSTRACT *Purpuricenus* (*s. str.*) *coccineus* Breit, 1917 (Coleoptera Cerambycidae Cerambycinae Purpuricenini) is revaluated as a distinct species from Calabria (South Italy). For a long time it was thought to be a synonym of *Purpuricenus* (*s. str.*) *globulicollis* Dejean, 1839.

KEY WORDS Cerambycidae; Purpuricenini; *Purpuricenus*; Italy.

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INTRODUCTION

During the summer of 2017, one of the authors (Luciano Arcorace) had the opportunity to visit a couple of times the Calabria region (the most southern continental Italian region) and, thanks to the use of sweet traps, collected a small series of *Purpuricenus* Germar, 1824, that appears immediately very peculiar because of the totally red coloured elytra without any black spot. After a deeper investigation, we found out that it belongs to a distinct species, *Purpuricenus* (*s.str.*) *coccineus* Breit, 1917, strictly related with *Purpuricenus* (*s.str.*) *globulicollis* Dejean, 1839, but well characterized by several differences that are illustrated in this paper.

RESULTS

Systematics

Ordo COLEOPTERA Linnaeus, 1758
Superfamilia CHRYSOMELOIDEA Latreille, 1802
Familia CERAMBYCIDAE Latreille, 1802
Subfamilia CERAMBYCINAE Latreille, 1802
Tribus PURPURICENINI Thomson, 1861
Genus *Purpuricenus* Dejean, 1821
Subgenus *Purpuricenus* Dejean, 1821

Purpuricenus* (*s. str.*) *coccineus Breit, 1917
bona species (Figs. 1–5)

Purpuricenus globulicollis Mulsant var. nov. *coccineus* - Breit, 1917: 73

Type locality. S. Eufemia d'Aspromonte (Calabria, Italy) Breit (1917).

Original Description. Breit (1917): "*Mir liegt ein von Paganetti-Hummler in Süd-Italien (Calabrien) bei Sta. Eufemia d'Aspromonte gesammeltes Stück dieser Art vor, das vollkommen einfarbig ziegelrote Flügeldecken hat. Anch die Oberseite des Halsschildes ist rot, bis auf den schmalen Vorder- und Hinterrand und zwei kleine mit der Spitze zueinander gerichtete längliche Fleckchen an der Basis*

vor dem Schildchen, welche ebenso wie dieses, schwarz sind. An den Flügeldeckenspitzen ist nur das äußere Zähnchen vorhanden, während das Zähnchen an der Naht fehlt".

TYPE MATERIAL. We found the type specimen of *P. coccineus* (Fig. 4) preserved in the Naturhistorisches Museum of Basel (Switzerland). It is a male, long 15.2 mm and wide 4.6 mm, in good conditions, missing the right antenna from the second segment and perfectly fitting with the original description. Under the type specimen there are 7 labels (Fig. 5): "*Calabria / Sta.Eufemia / d'Aspromonte*" printed, white; "*Paganetti*" printed, white - "globulicollis / *Dej.* / *ab.* coccineus / *Breit*" handwritten by Breit - "globulicollis / *Muls. a.* / coccineus / *Brt.*" handwritten by Breit - "*Type*" red, printed - "*ex Orig. Samlg. / J. Breit Wien*" red, printed - Purp. Globulicollis / *ab.* Coccineus / *det. G. Sama 19"* handwritten and printed by G. Sama (Cesena, Italy).

EXAMINED MATERIAL. *Purpuricenus coccineus* Breit, 1917. Italy. Calabria (Reggio Calabria), Caulonia, Villaggio Ziia, Località Strada Ferrata, 1040 meters, 1.VI–22.VII.2017, wine traps, L. Arcorace legit; idem, Caulonia, Villaggio Ziia, Località Martucci, Cimitero dei Tedeschi, 980 meters, 1.VI–22.VII.2017, wine traps, L. Arcorace legit.

Purpuricenus (*s. str.*) *globulicollis globulicollis* Dejean, 1839. France. 1 male: Dept. 34, La Virenque, VII.1990; 2 males, 2 females: Dept. 26, Aucelon, VII.1984; 2 females: Dept. 69, S.te Foy, 22.VII.1990; 2 males: Herault, Ceilhes, VII.1999; 1 male: Alpes Haute Provence, L'Escale, 900 m., 25.VII.1984, Reyner legit; 1 male: Drôme, Avalon, 600 meters, VIII.1980, D. Keith legit.

Italy. 5 males, 5 females: Friuli Venezia Giulia, Udine province, Alpi Giulie, Chiusaforte, 27.VI–15.VIII.2011, P. Rapuzzi legit; 12 males, 4 females: Friuli Venezia Giulia, Udine province, Alpi Giulie, Chiusaforte, Val Dogna, Chiutzuquin vill., 27.VI–15.VIII.2011, P. Rapuzzi legit; 27 males, 22 females: Friuli Venezia Giulia, Triest province, Duino, Medeazza, 3.VI–6.VII.2007, P. Rapuzzi legit; 3 males, 2 females: Friuli Venezia Giulia, Triest province, Duino, VII.2000, F. Ledouc legit; 9 males, 9 females: Friuli Venezia Giulia, Triest province, Triest, loc. Gropada, 10–23.VII.1996, P. Rapuzzi legit; 24 males, 14 females: Friuli Venezia Giulia, Gorizia province, Monfalcone, loc. Sablice, 3.VI–6.VII.2007, P. Rapuzzi legit; 9 males, 12 females: Friuli Venezia Giulia, Gorizia province, Savogna d'Isonzo, Monte San Michele, 7.VI–26.VII.2007, P. Rapuzzi legit; 10 males, 5 females: Friuli Venezia Giulia, Gorizia province, Doberdò del Lago, Jamiano, 3.VI–6.VII.2007, P. Rapuzzi legit; 1 male, 2 females: Veneto, Verona province, Lessinia, Peri-Malga Campo, 20.VI–6.VII.2012, A. Sette legit; 3 males, 3 females: Veneto, Verona province, Monte Baldo, Rivoli Veronese, 4–25.VII.2014, A. Sette legit; 1 male: Lazio, Roma province, Segni, Monte Lupone 16.VII–24.VIII.2016, M. Gigli legit; 1 female: Abruzzo, Chieti province, Majella, 3.VII.2003, B. Biscaccianti legit; 1 female: Basilicata, Matera province, Miglionico, 6.VII.1991, G. Proscia legit; 3 males, 6 females: Sicily, Palermo province, Madonie Mts., Piano Zucchi, 13.VI–8.VII.2006, P. Rapuzzi & G. Sama legit; 1 female: Sicily, Palermo province, Isnello, loc. Torre Montaspro, 27.VI.2003; 1 female: Sicily, Messina province, Nebrodi Mts., Monte Soro, 16.VI–7.VII.2006, P. Rapuzzi & G. Sama legit.

Slovenia. 76 males, 78 males: Nova Gorica, Monte Nanos, 18–28.VII.2005, P. Rapuzzi legit; 1 male: Nova Gorica, Ajdovscina, Sturje, 17.VII–3.VIII.2005, P. Rapuzzi legit; 4 males, 8 females: Nova Gorica, Solkan, Sveta Gora, 6.VII–26.VII.2007, P. Rapuzzi legit; 1 female: Nova Gorica, Korada Gora, Dobrovo v Brdih, 3.VI–6.VII.2008, P. Rapuzzi legit; 3 males, 4 females: Istria, Koper, Korte, 1.VI–18.VII.2009, P. Rapuzzi legit; 1 male: Istria, Koper, Presnica, ex larva *Ulmus* sp., 25.VI.2011, P. Rapuzzi legit; 1 male: Ajdussina, Monte Nanos, 03.VIII.2013, M. Benelli legit.

Croatia. 1 male: Krajna, Karlovac, Slunj, Suhodol Budacki env., 6.VI–13.VII.2013, P. Rapuzzi legit; 1 female: Lika, Gospić, Ljubovo, 3.VI–1.VII.2008, P. Rapuzzi legit; 1 male: Kvarnar, Rijeka, Is. Krk, Baška, 15.VII.1973, Paolo Rapuzzi legit; 1 female: Kvarnar, Rijeka, Is. Krk, Punat, 5–24.VI.2003, P. Rapuzzi legit; 1 male: Kvarnar, Rijeka, Selce, 28.VI.1994, T. Kovacs legit; 3 males, 1 female: Kvarnar, Rijeka, Jadranovo, 28.VI–12VII.2011, M. Carraretto legit; 1 male, 1 female: Velebit, Karlobag, Susanj, VI.2001, P. Rapuzzi legit; 1 female: Velebit, Karlobag, Vidovac, VI.2001, P. Rapuzzi legit; 1 male, 1 female: Istria, Rijeka, Matulj, 3 Km W-Permani, 6.VI–13.VII.2013, P. Rapuzzi legit; 1 male: Velebit, Gospić, Brusane, 27.VI–15.VII.2011, M. Malmusi-R. Poloni legit; 1 female: Velebit GS, Vidovac-Susanj 1.VII–15.VII.2011, M. Malmusi legit.

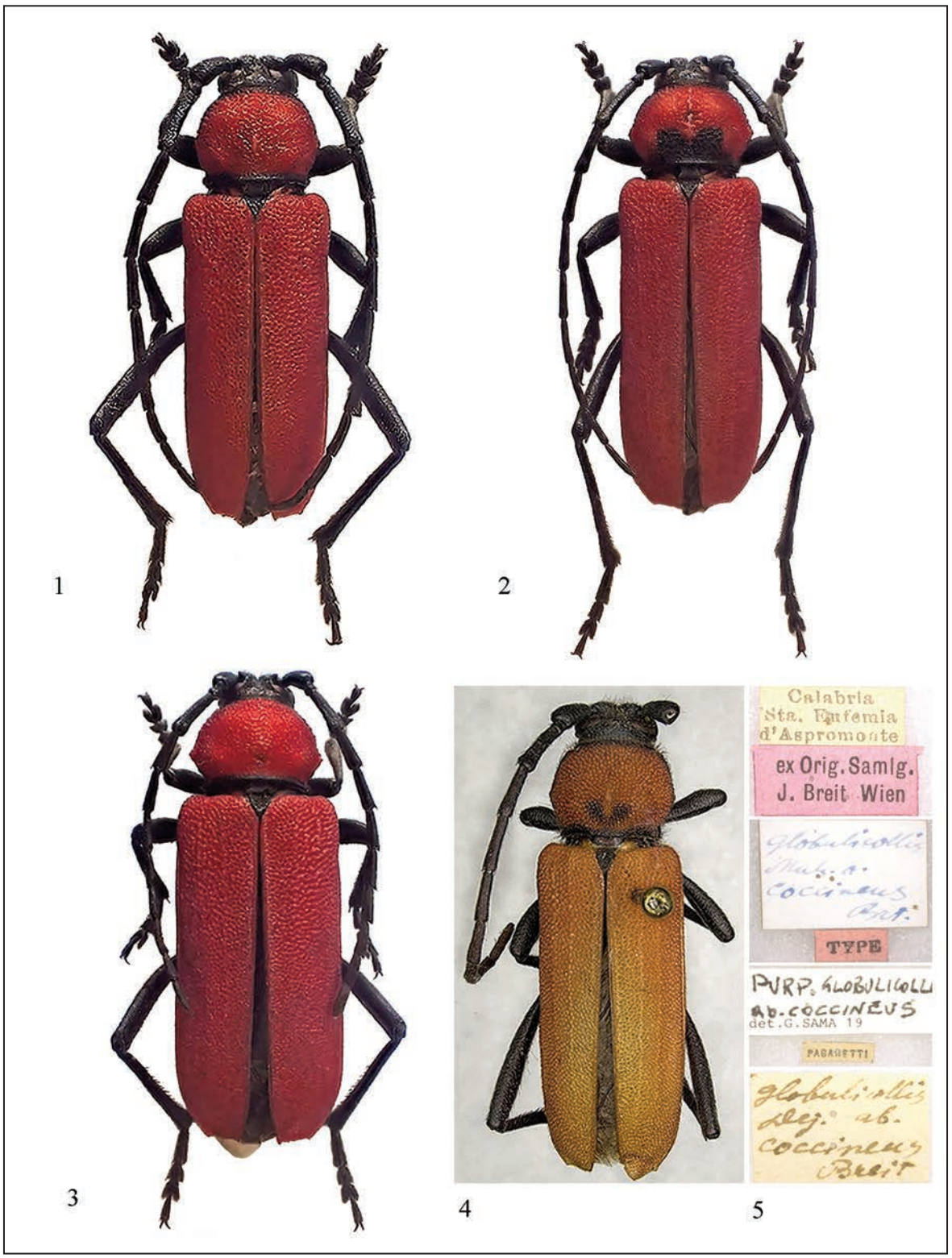

Figure 1. *Purpuricenus coccineus* male, habitus. Italy, Calabria (RC), Caulonia, Villaggio Ziia, Località Martucci, Cimitero dei Tedeschi, 980 meters, 1.VI-22.VII.2017. Figure 2. *Purpuricenus coccineus* male, habitus. Italy, Calabria (RC), Caulonia, Villaggio Ziia, Località Strada Ferrata, 1040 meters, 1.VI–22.VII.2017. Figure 3. *Purpuricenus coccineus* female, habitus. Italy, same data of figure 1. Figure 4. *Purpuricenus coccineus* holotypus. Figure 5. *Purpuricenus coccineus* holotypus labels.

Greece. 1 male: Thessaly, Ossa Mt., Kokkino Nero, 24.VI–10.VII.2002, L. Kruszelnicki legit; 8 males, 9 females: Eubea, Pili, 16.VI–25.IX.2014, A. Sette legit; 1 male, 2 females: Eubea, Prokopi, 25.VI–11.IX.2010, A. Sette legit; 1 male: Eubea, Aghios, 30.VI.1989, A. Sette legit; 22 males, 10 females: Eubea, between Kerinthos and Strofilia, 25.VI–09.IX.2013, A. Sette legit; 1 male: Peloponnese, Lakonia, Karies env., 4–5.VI.2008, I. Martinů legit.

Russia. 1 male: SE-Siberia, Cheljabins reg., Snezinsk env., 22.VII.2013, S. Rybalkin legit; 1 male: Siberia, Altai reg., Ulgan distr., Chulyshman riv. valley, 12 Km SSE Ko, 550 meters, 6–8.VII.2013 (sub. *Purpuricenus tscherepanovae* Tscherepanov, 1980).

Purpuricenus (*s. str.*) *globulicollis skypetarum* Rapuzzi et Sama, 2013. Albania. Holotypus male: Durres, Bizë, 15–24.VI.2007, sugar traps, P. Rapuzzi & G. Sama legit (coll. P. Rapuzzi); Paratypes: 66 males, 54 females: Same data (coll. P. Rapuzzi, coll. G. Sama); 8 males, 4 females: Shkodër, M.te Ghzoprës (West slopes), 400 meters, 15–24.VI.2007, sugar traps, P. Rapuzzi & G.Sama legit (coll. P. Rapuzzi); 4 males, 6 females: Tiranë, Mal. I Dajtit, 16–24.VII.2007, sugar traps, P. Rapuzzi & G. Sama legit (coll. P. Rapuzzi) (Type series).

Greece. 2 males, 2 females: Etolia, between Palagros and Mitikas, 15.VI–3.VII.2010, sugar traps, A. Sette legit (coll. P. Rapuzzi) (Type series); 1 male, 1 female: Epiro, Milia, 1–15.VIII.2013, G. Giannini & G. Rondinini legit.

DISTRIBUTION AND BIOLOGY. The new localities of *P. coccineus* are situated on the Ionic coast, relatively close one to the other, and far from the type locality (San'Eufemia di Aspromonte) that is located on the Tirrenic coast of Calabria, Italy. It is very likely that, after deeper researches, other locality and populations for this very interesting species could be found in Calabria. From the closest region (Sicily and Basilicata) we have seen only *P. globulicollis*. For this reason, we believe that it should be regarded as a Calabrian endemism.

The two new localities where the specimens have been collected are located on a north-facing slope: the habitat is an intersection zone between the temperate deciduous forest and the mediterranean evergreen oak forest. The main trees species of this habitat are holm oak, *Quercus ilex* L., European beech, *Fagus sylvatica* L., Italian maple, *Acer opalus* subsp. *obtusatum* (Waldst. et Kit. ex Willd.) Gams).

COMPARATIVE NOTES. We studied the type and 6 specimens (5 males and 1 female); they are perfectly fit with the type.

Figure 6. *Purpuricenus coccineus* aedeagus. Italy, Calabria (RC), Caulonia, Villaggio Ziia, Località Strada Ferrata, 1040 meters, 1.VI-22.VII.2017. Figure 7. *Purpuricenus coccineus* paramers, same data of figure 6. Figure 8. *Purpuricenus globulicollis* aedeagus. France, Herault, Ceilhes, VII.1999. Figure 9. *Purpuricenus globulicollis* paramers, same data of figure 8.

All specimens are without any black spot on the elytra and the pronotum is totally red or with small black spots situated near the base. *Purpuricenus coccineus* is strictly related to *P. globulicollis*, but it is easy to separate, except for the very peculiar color, for the totally absence of short and sparse black erect hairs on the elytra. These hairs are present in *P. globulicollis* and they are denser on the lateral side and upon the black spot on the middle of the elytra. In the Calabrian species, the elytra are less convex and deeper punctured than in *P. globulicollis*, the points are denser and strong toward the elytral apex as well. In both the sexes the elytra are evidently shorter and larger. Pronotum is more globular in both the sexes in the Calabrian species and it shows flatter callosities on the disk. These callosities are more prominent in *P. globulicollis*. Legs and antenna are relatively shorter and a little stouter. The paramers look very different between these two species. In fact, in *P. coccineus* they are stout and fused almost up to the apex and in *P. globulicollis* they are longer and dived for the two thirds of their length (Figs. 7, 9). Aedeagus is different as well. In the Calabrian species it is shorter, enlarged at the sides in the middle and with the apex larger and shortly acuminate. In *P. globulicollis*, aedeagus is evidently longer, with parallel sides and the apex acuminate (Figs. 6, 8).

The 6 specimens studied in this paper plus the type specimen show a range of size between 16 to 11 mm. for the males. The only female is long 14 mm. They are very similar in any other characteristics, except the red color on pronotum, that changes a little. Three specimens (2 males and 1 female) show the pronotum totally red, the other 3 specimens from the new locality plus the type show a more or less small black spot located in the middle of the base. Shape and dimensions of this pronotum spot vary from two small aligned dots linked at the base to a triangular spot extending over the middle of the pronotum (1 specimen).

In examined specimens of *P. coccineus,* the prosternum is totally black and the red coloration of pronotum never reach the lateral lower edge of pronotum (prosternum in *P. globulicollis* is often totally or partly red, and the red colouration of pronotum usually reach the lateral lower edge of pronotum). The elytral apex present two more or less evident teeth. Breit (1917) in the original description mentioned only one tooth at the external side of the elytral apex (*...An den Flügeldeckenspitzen ist nur das äussere Zähnchen vorhanden, während das Zähnchen an der Naht fehlt*) but it is clear that the type has problems of elytral development at the apex.

Based on the the peculiar color it can resemble *P. schurmanni* Sláma, 1985 (endemic from Crete). Nonetheless, it is very easy to separate based on the glabrous elytra (elytra with short light erect hairs in the Cretan species). Moreover, *P. schurmanni* shows often reddish legs and antennae, that are instead totally black in *P. coccineus*. The shape of pronotum is different as well, more transverse and globose in *P. schurmanni*.

Remarks. Inside the Catalogue of Paleartic Cerambycidae (Löbl & Smetana, 2010), *P. coccineus* is missing due to a mistake. In fact, according to the ICZN (art. 45.6.4: *It is subspecific if first published before 1961 and its author expressly used one of the terms "variety" or "form" (including use of the terms "var.", "forma", "v." and "f."), unless its author also expressly gave it infrasubspecific rank, or the content of the work unambiguously reveals that the name was proposed for an infrasubspecific entity, in which case it is infrasubspecific."*) since it was described as "*var.*" before 1961, the name should be regarded as available and for this reason it must be accepted as valid.

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