

Contribution to the knowledge of *Platyderus* Stephens, 1827 (Coleoptera, Carabidae) from Spain

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New species of *Platyderus* Stephens, 1828 from Spain are described: *P. lencinai* sp.n. (Riopar, Albacete prov.), *P. bolivari* sp.n. (Cala, Huelva prov.), *P. gazecki* sp.n. (Sierra del Casteñar). *P. zaballosi* sp.n. (Montes de Toledo) belonging to the “*ruficollis*” group is described and diagnostic characters for the separation from related taxa are provided. New synonymy are proposed: *P. marduk* Anichtchenko, 2003 syn.n. = *P. emblema* Marseul, 1871.

Key words: Coleoptera, Carabidae, *Platyderus*, new species, new synonymy, new records, Spain.

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INTRODUCTION

As presently circumscribed *Platyderus* Stephens, 1828 includes 101 recognized species (www.carabidae.pro), with the vast majority found in South Mediterranean region. The great part of species occupy small, restricted geographical ranges and occur mainly in undisturbed habitats in which they are seldom encountered. This suggests that many undescribed forms await discovery. Based on casual observation of material present in collections, the actual species-level diversity is likely to be two times this number or more. However, specimens of most species are very rare in collections which makes impossible to develop a full understanding of the inter- and intra-specific variation. This paper will hopefully stimulate interest in the group and provide tools for identification to collectors and collections managers. Designations of new synonymies and descriptions of new species are provided below.

The genus *Platyderus* was divided in species groups by Jeanne (1996). Some of this groups are quite well delimited morphologically, other shows wide variability and overlap each other. It is the case of “*ruficollis*” and “*subcrenatus*” groups, differ only by more or less punctured elytral striae. Here there is a proposition to unit them, and call “*ruficollis-subcrenatus*” group. This is the more complicated group with many new undescribed species, only few of this species are possible easy determinate by external characters, in the rest of case is necessary study of endofallus. New species belongs to this group, characterised because it has the middle dorsal pore of the elytra situated on the third striae, with smooth or punctured striae.

MATERIAL AND METHODS

Method for dissection procedures of endofallus follows Berlov (1992). Abbreviations used for

protuberances of endofallus are as follows Anichtchenko (2005): basal (B), dorso-apical (DA), ventro-apical (VA), ventro-lateral right (VLR), baso-lateral left (BLL), baso-lateral right (BLR), ventral (V) and sclerit (S).

Specimens were examined with Zeiss Discovery V8 stereomicroscope. Habitus images have been obtained using Sony A300 and Canon digital cameras, CZM or Helicon Focus automontage software, and processed on Adobe Photoshop. Measurements were taken using an ocular micrometer as follows: body length, from anterior margin of clypeus to apex of elytra along suture; length of pronotum, from anterior margin to posterior margin along midline; width of pronotum, at widest point; length of elytra, from base to apex along suture; and width of elytra, at widest point.

High-resolution habitus images are available at <http://www.carabidae.pro> "Carabidae of the World".

The material from the following institutional and private collections has been examined: Universidad Complutense de Madrid (UCM); Museo Nacional de Ciencias Naturales de Madrid (MNCN); Universidad de Granada Collection (UGC); Coleccion de Alexandre Anichtchenko, Tres Cantos (CAA); Coleccion de Marcos Toribio, Tres Cantos (CMT); Coleccion de Juan P. Zaballo, Madrid (JPZ); Coleccion de Jose L. Zapata, Tres Cantos (JLZ).

***Platyderus emblema* Marseul, 1869**

= *emblema* Marseul, 1871 (Serrano, 2003; Lobl & Smetana, 2003; Lorenz, 2005)

= *marduk* Anichtchenko, 2003 **syn.n.**

Material: 1 female - Cordoba, VI.1909, Exp. del Museo (MNCN); 1 male - *Platyderus marduk* Anichtchenko, 2003 Holotype/ ESPAÑA, Sevilla, Cazalla de la Sierra, puente de Benalija. 18.I.2003 Anichtchenko A. leg. (CAA); 5 males, 3 females idem. lable data. As paratypes of *P. marduk* (MNCN, UGC, CAA).

(Marseul, 1869: 388-389; Serrano, 2003: 56; Anichtchenko, 2003; Anichtchenko, 2005: 108). Species was described by 2 specimens from "environs de Cordoue" [Cordoba vicinity] (Marseul, 1869). For the long time was enigmatic and erronealy attributed to another taxón. The error is doubt to wrong translation from original description, made J.M. de la Fuente (1927: 302) in his keys to species. There was traduced from Deutch: "elytral striae deep, densely punctured" instead of "elytral striae deep, smooth, intervals densely punctured". Posteriorly this species was wrongly attributed to "*varians*" group of species (Jeanne, 1996: 409), because indeed in mountains Sierra Morena live one undescribed species, which using key to species of J.M. de la Fuente easy determined as *P. emblema*. One specimen determined as *P. emblema* and deposited in collection of Joaquin Mateu (Barcelona), was studied by me before description of *P. marduk*, it was from "*varians*" group, and is a new species, related to *P. speleus* Cobos, 1961.

***Platyderus zaballosi* sp.n.**

Holotype: male, Hontanar, Montes de Toledo, 1.XII.1994 Toledo – España, M. Toribio leg. (MNCN); Paratypes: 2females – idem. (CAA, CMT); 1 male - S. Pablo de los Mtes., Toledo, España 20.11.98 / leg. Jose Luis Zapata (JLZ); 1 female - España, (TO), S^a de Fuenteblanca / Los Yebenes, 10.02.2008, leg. T.Gazurek (CAA).

Body length 7.5-8.5 mm. Colour red brown; antennomeres, palpomeres and legs paler. Habitus (fig. 1).

Head round, dorsal surface impunctate. Disc smooth, frontal impressions small, round and moderately deep. Eyes flat or slightly prominent. Labrum slightly emarginate anteriorly. Antennae pubescent from article 4.

Pronotum 1,24 times as wide as long. Lateral, anterior and posterior margins beaded. Basal impressions long, narrow, well delimited, longitudinal, sublinear. Hind angles obtuse, indistinct. Interval between basal impression and lateral margin convex and weakly punctured. Disc slightly vaulted, midline distinct, not reaching anterior and posterior margin.

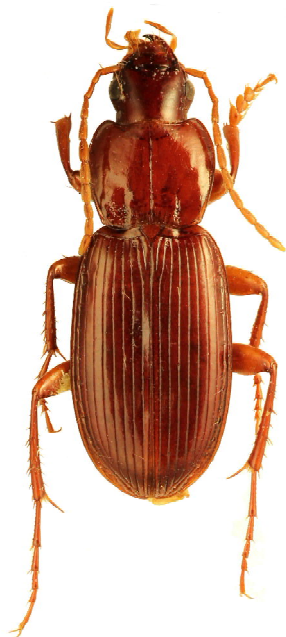


Fig. 1. Habitus *Platyderus zaballosi* sp.n., Holotype



Fig. 3. Habitus *Platyderus gazureki* sp.n., Holotype.



Fig. 2. Habitus *Platyderus lencinai* sp.n., Holotype.



Fig. 4. Habitus *Platyderus bolivari* sp.n., Paratype.

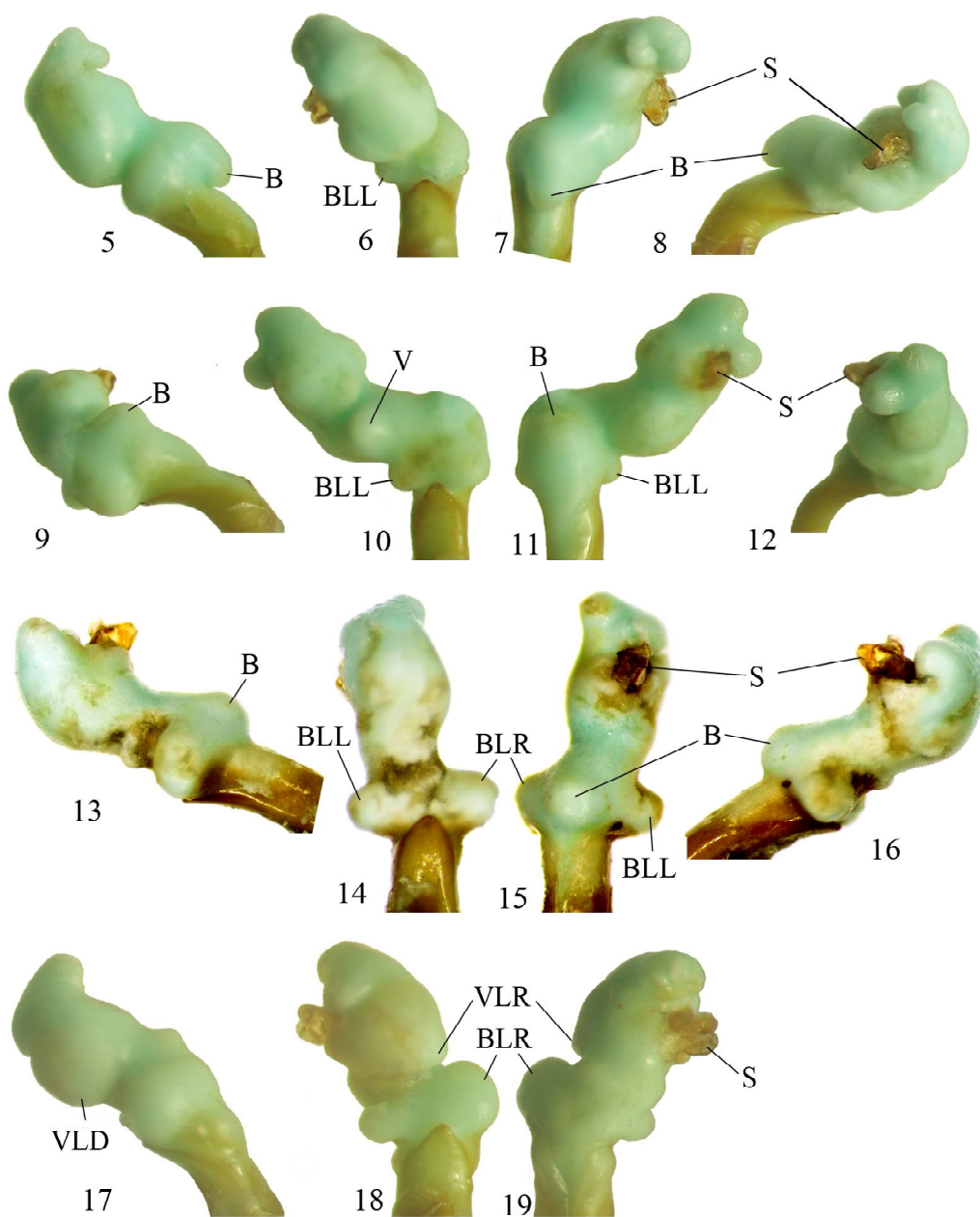


Fig. 5-15. Endofallus structure. 5-8: *Platyderus zaballosi* sp.n.; 9-12: *P. lencinai* sp.n.; 13-16: *P. gazareki* sp.n.; 17-19: *P. bolivari* sp.n.

Elytra elongate, maximal width at the middle or just behind the middle. Elytral micro sculpture of both sexes consist of longitudinally elongate meshes, surface more shiny in males. Shoulders rounded, not denticulate. Basal bead complete; scutellar striae and scutellar pore present; elytral striae deep and very finely punctate on the bottom, equally deep anteriorly and posteriorly; intervals flat, without punctuation. Medial elytral pore situated in third striae.

Propleuron, mes-, metepisternum, and abdomen smooth. Metasternum weakly densely punctate. Structure of the internal middle lobe of the male aedeagus is shown in (fig. 5-8). Basal protuberance (B) is big and hook shape.

Etymology. Species named after Dr. Juan Pedro Zaballo, a prominent Spanish carabidologist.

Differential diagnosis. Is the unique known species of “*ruficollis-subcrenatus*” group from mountains of Toledo, there live together with *P. crypticola* Jeanne, 1996 of “*varians*” group. Exteriorly is related to *P. espanoli* Mateu, 1952 from Catalonia and *P. lencinai* sp.n. described below.

***Platyderus lencinai* sp.n.**

Holotype: male, Riopar, Albacete, 22.X.1984, J.L. Lencina leg. (MNCN); Paratype: female, idem. (CAA).

Body length 7,3-8,5 mm. Females with microsculpture of elytra escamiform, surface mate, smooth and shiny in males. Colour dark brown, sometime almost black; antennomeres, palpomeres, legs and epipleura of elytra a bit paler. Habitus (fig. 2).

Head round, dorsal surface impunctate. Disc smooth, frontal impressions indistinct, shallow. Eyes moderately big, flat, moderately prominent. Labrum slightly emarginate anteriorly, with isodiametric micro sculpture. Antennae pubescent from article 4.

Pronotum 1,21-1,24 times as wide as long. Lateral, anterior and posterior margins beaded. Basal impressions long, moderately and irregularly deep, longitudinal, sublinear. Interval between basal impression and lateral margin convex and

weakly punctured. Hind angles obtuse, more or less distinct. Disc slightly vaulted, midline distinct, deep, almost reaching anterior and posterior margin.

Elytra elongate, regularly ovalate, maximal width at the middle. Shoulders rounded, not denticulate. Basal bead complete; scutellar striae and scutellar pore present; elytral striae finely punctate, equally deep anteriorly and posteriorly, all reaching basal margin; intervals slightly convex, without punctuation. Hind wings reduced. Medial elytral pore situated in third striae.

Propleuron, mes-, metepisternum, metasternum and abdomen smooth.

Structure of the internal middle lobe of the male aedeagus is shown in (fig. 9-12). Protuberances BLI and BLD symmetrical, endofalus located athwart to median lobe of edeago.

Etymology. Named after José Luis Lencina Gutiérrez, Spanish entomologist.

Differential diagnosis. *P. lencinai* sp.n.

***Platyderus gazureki* sp.n.**

Holotype: male, España (920m)/ Puerto del Milagro/ Sierra del Casteñar/ 07.02.2009 Toledo/ leg. T. Gazurek (MNCN).

Body length 7 mm. Colour red brown; antennomeres, palpomeres and legs slightly paler. Habitus (fig. 3).

Head round, dorsal surface impunctate. Eyes moderately big, moderately prominent. Labrum with irregular isodiametric meshes. Antennae pubescent from article 4. Disc smooth, frontal impressions distinct, large and round.

Maximal width of pronotum in anterior third, 1,24 times as wide as long. Anterior angles prominent. Lateral, anterior (excluding medial tip) and posterior margins beaded. Basal impressions long, deep in anterior half, sublinear. Interval between basal impression and lateral margin flattened, densely punctured. Hind angles obtuse, rounded. Disc slightly vaulted, midline distinct, deep, not reaching anterior and posterior margin.

Elytra oval elongate, maximal width at the middle. Shoulders rounded, not denticulate. Basal bead

complete; scutellar striae and scutellar pore present; elytral striae deep and impunctate, equally deep anteriorly and posteriorly; intervals convex, with coarse punctuation, without micro sculpture, shiny. Medial elytral pore situated in third striae. Hind wings reduced.

Propleuron, mes-, metepisternum, metasternum and abdomen smooth.

Structure of the internal middle lobe of the male aedeagus is shown in (fig. 13-16). Protuberances BLI and BLD big and symmetrical, have same size. Basal protuberance (B) protruding and well visible.

Etymology. Named after coleoptera enthusiast from Poland, Tomasz Gazurek who collected the new species.

Differential diagnosis. Is given below, in comparison with related species *P. bolivari* sp.n. and *P. emblema*.

Platyderus bolivari sp.n.

Holotype: male, Cala, Huelva, 15.2.1915 C. Bolivar (MNCN); Paratypes: 9 males, 3 females - idem. (MNCN).

Description. Body length 7,5-7,6 mm. Colour red brown; antennomeres, palpomeres and legs paler. Habitus (fig. 4).

Head round, dorsal surface impunctate. Eyes moderately big, flat, moderately prominent. Labrum slightly emarginate anteriorly. Antennae pubescent from article 4. Frontal impressions distinct, wide, irregular shaped.

Pronotum 1,32 time as wide as long. Lateral, anterior and posterior margins beaded. Basal impressions long, deep, strongly punctured. Hind angles obtuse, more or less distinct, rounded at the tip. Intervals between basal impressions and lateral margin flattened and with big flat punctures. Disc slightly vaulted, midline distinct, deep, almost reach anterior and posterior margin.

Elytra oval elongate, maximal width in the middle. Shoulders rounded, without humeral denticle. Basal bead complete; scutellar striae and scutellar pore present; elytral striae punctate, equally deep anteriorly and posteriorly, all reaching basal

margin; 1-3 intervals weakly convex, the rest almost flat. All intervals with fine punctuation and weakly convex on the base. In males intervals smooth, shiny, without micro sculpture; in females 1-3 intervals shiny, the rest with fine squamiform micro sculpture. Medial elytral pore situated in third striae. Hind wings reduced.

Propleuron and mesepisternum finely punctured, metepisternum and metasternum strongly densely punctured. Abdomen smooth.

Structure of the internal middle lobe of the male aedeagus is shown in (fig. 17-19). Protuberances BLI and BLD asymmetrical, BLD much bigger. Basal protuberance not protruding.

Etymology. Named after Cándido Bolívar Pieltain (1897–1976) who collected the specimens. Cándido Bolívar Pieltain was a prominent Spanish entomologist.

Differential diagnosis. This new species is well distinct from any other *Platyderus* from Iberian peninsula by numerous external morphological characters and endofallus structure. The new species is from “*ruficollis-subcrenatus*” group of species and related to *P. emblema* and *P. gazureki* sp.n. by densely punctured intervals of elytra. From *P. emblema* is easy distinguish by flat or slightly convex intervals of elytra and punctured elytral striae, meanwhile in *P. emblema* intervals are strongly concave and striae not punctured. From *P. gazureki* sp.n. is distinguish by punctured ventral segments. Also is different from both species by endofallus structure.

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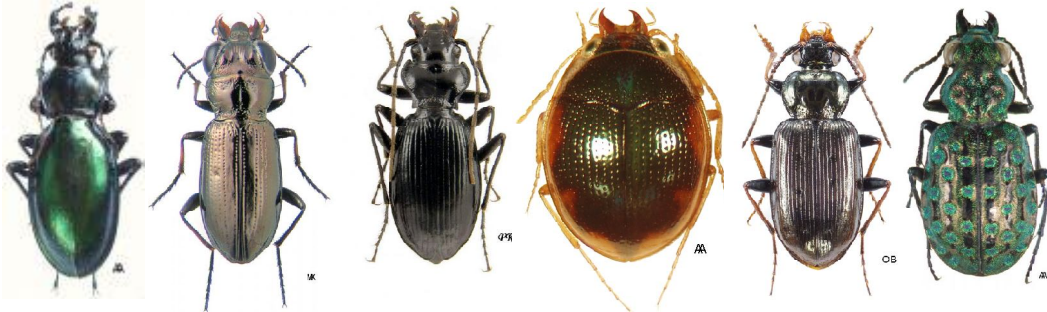
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