

**Taxonomic notes on the subgenus *Eucalohister* Reitter, 1909
of the genus *Margarinotus* Marseul, 1854 (Coleoptera: Histeridae: Histerinae)**

**Taxonomické poznámky k podrodu *Eucalohister* Reitter, 1909
rodu *Margarinotus* Marseul, 1854 (Coleoptera: Histeridae: Histerinae)**

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Abstract. Based on the structure of their respective aedeagi, *Hister arboricavus* Mazur, Abacigil, Varli, Mokrzycki et Jansson, 2013 = *Margarinotus (Eucalohister) arboricavus*, **comb. nov.**, and *Margarinotus (Eucalohister) mateui* (Thérond, 1964) = *Hister mateui*, **comb. nov.** An updated key to the members of *Eucalohister* Reitter, 1909 is given and all species are illustrated.

INTRODUCTION

In 2003, one of us published a faunistic note on the subgenus *Eucalohister* Reitter, 1909, with the definition of the subgenus and an identification key (Lackner 2003). Several rare species were illustrated and new faunistic records were provided in this paper. At present, *Eucalohister* includes eight species (one of them with three distinct subspecies) distributed primarily in the Palaearctic Region, especially in the south Palearctic steppe and desert belt, with one species, *Margarinotus (E.) mateui* (Thérond, 1964), only known from three Saharan findings (Algeria, Chad and Senegal) (Lackner et al. 2015, Mazur 2011).

In this contribution we would like to indicate the erroneous placement of two taxa: *Hister arboricavus* Mazur, Abacigil, Varli, Mokrzycki et Jansson, 2013 and *Margarinotus (Eucalohister) mateui*, and provide new combinations for their respective taxonomic placement. All species of the subgenus *Eucalohister* are illustrated and a key to the subgenus is given.

MATERIAL AND METHODS

Beetles were photographed by F. Slamka (Bratislava, Slovakia). Aedeagi of *H. arboricavus* and *M. (E.) mateui* were re-drawn using Adobe Illustrator 5. For exact distribution of the taxa we referred to Lackner et al. (2015), and, in the case of *M. (E.) binotatus* Erichson, 1834, to Lackner (2015). All specimens used in this study originate from the collection of T. Lackner; with the exception of *M. (E.) arboricavus*, **comb. nov.**, that has been loaned from Museo di Storia Naturale “Giacomo Doria”, Genova, Italy (curator M. Tavano). The abbreviation PEL indicates the length between anterior angles of pronotum and apices of elytra. Specimens were measured with an ocular micrometre.

TAXONOMY

The genera *Hister* Linnaeus, 1758 and *Margarinotus* Marseul, 1854, beside the structure of the male aedeagi, differ chiefly by the absence/presence of a predominantly complete external subhumeral stria, among other, minor and variable morphological characters. However, this external subhumeral stria, which is incomplete or absent in most *Hister* and typically complete in *Margarinotus*, can vary somewhat. It is, for example, intermittently present in *Hister unicolor* Linnaeus, 1758, *H. concolor* Lewis, 1884, and/or *H. teter* Truqui, 1852. Therefore, the most (perhaps the sole) reliable-and-crucial distinguishing character dividing and determining the two respective genera is the presence/absence of strongly sclerotized median armature inside the tegmen – the autapomorphy of *Margarinotus*. Óhara (1989) adds two more synapomorphies of the genus: 1) sac-like and coiled sessile receptacles of the spermatheca; 2) profemoral posterior marginal stria not being entire, usually present on apical third only. The entire external subhumeral stria may be a plesiomorphy, according to Óhara (1989) and can also be, albeit only partly, present in members of *Hister*. Unfortunately, few of these characters have been studied across most of the diversity of either genus.

Margarinotus Marseul, 1854 (subg. *Eucalohister* Reitter, 1909)

Diagnosis. The diagnosis of the subgenus has already been published by Lackner (2003), but for the sake of the completeness of this paper it is repeated here. Members of the subgenus *Eucalohister* differ from members of other subgenera by the following characters: pro-, meso- and metatibiae moderately to strongly dilated, triangular, bearing several prominent denticles dorsally and yellow setae laterally. Body more-less rectangular in shape, moderately to strongly convex; elytra often with red macula or reddish in color. Outer lateral stria of pronotum complete, inner lateral stria either developed or absent; pronotal hypomeron often ciliate; elytra with striae III–V developed. Propygidium and pygidium strongly convex. Mesoventrite deeply inwardly arcuate anteriorly; lateral areas of metaventricle as well as metepisternum occasionally with amber setae. Protibia with three or four prominent teeth, topped by denticle. Aedeagus with 2- or 4-lobed tegmen; penis long, narrow, its apical part without spoon-like expansion or dentate crest (though at times with large median tooth dorsally); median armature narrow, occasionally its halves fused along entire length.

Hister mateui (Thérond, 1964), **comb. nov.**
(Figs 11, 13)

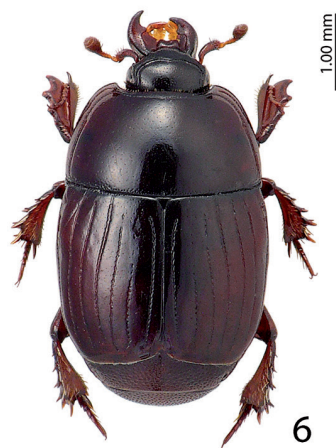
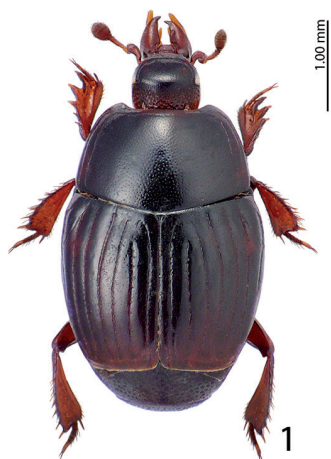
Margarinotus (Eucalohister) mateui (Thérond, 1964): Gomy 1995: 94.

Eudiploter mateui Thérond, 1964: 152.

Gomy (1995) transferred the Saharan species *Hister mateui* (Thérond, 1964) originally described in the genus *Eudiploter* Reitter, 1909, into *Eucalohister*, indicating the morphological

Figs 1–6. Habitus, dorsal view. 1 – *Margarinotus (Eucalohister) arboricavus* (Mazur, Abacigil, Varli, Mokrzycki et Jansson, 2013), **comb. nov.**, 2 – *M. (E.) binotatus* (Erichson, 1834), 3 – *M. (E.) bipustulatus* (Schränk, 1781), 4 – *M. (E.) graciosus* (Mannerheim, 1852), 5 – *M. (E.) kurdistanus kurdistanus* (Marseul, 1857), 6 – *M. (E.) kurdistanus lethierryi* (Marseul, 1862). Photographs by F. Slamka.

Obr. 1–6. Habitus, dorzálný pohľad. 1 – *Margarinotus (Eucalohister) arboricavus* (Mazur, Abacigil, Varli, Mokrzycki et Jansson, 2013), **comb. nov.**, 2 – *M. (E.) binotatus* (Erichson, 1834), 3 – *M. (E.) bipustulatus* (Schränk, 1781), 4 – *M. (E.) graciosus* (Mannerheim, 1852), 5 – *M. (E.) kurdistanus kurdistanus* (Marseul, 1857), 6 – *M. (E.) kurdistanus lethierryi* (Marseul, 1862). Fotografie F. Slamka.



characters lending support for his placement, and complementing his transfer with a crude illustration of the aedeagus of this species. Gomy (1995) based his placement of *H. mateui* “without hesitation”(!) into *Margarinotus (Eucalohister)* on the form of mandibles, pronotal and elytral striation, red macula on elytron, the form and structure of protibia, punctation and striation of prosternum and mesoventrite and the form of aedeagus (clearly a mistake, see below). Indeed, externally this species looks superficially similar to members of *Eucalohister*. However, its aedeagus (re-drawn here; Fig. 13) lacks the median armature and thus the species belongs to the genus *Hister*.

***Margarinotus (Eucalohister) arboricavus* (Mazur, Abacigil, Varli, Mokrzycki et Jansson, 2013),
comb. nov.
(Figs 1, 12)**

Hister arboricavus Mazur, Abacigil, Varli, Mokrzycki et Jansson, 2013: 52.

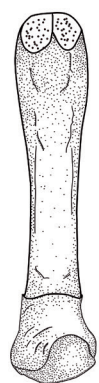
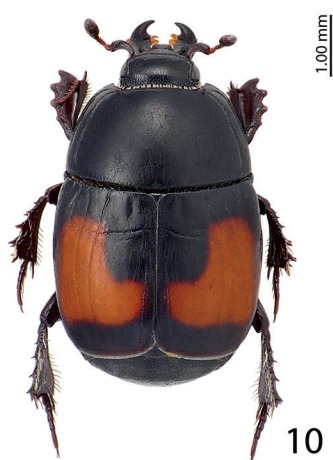
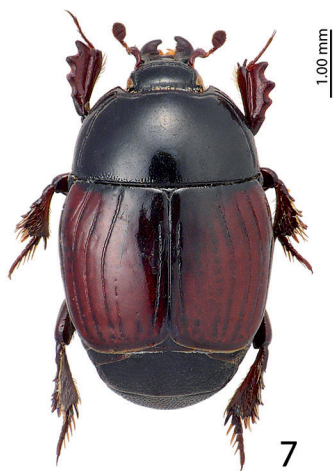
Mazur et al. (2013) described this saproxylic histerid from Kazdaği National Park in western Turkey, likewise depicting its aedeagus (re-drawn here; Fig. 12), correctly mentioning the presence of the external subhumeral stria: “outer subhumeral stria incised, present on basal half”. Based on the presence of strongly sclerotized median armature inside the aedeagus as well as the presence of an external subhumeral stria the species is transferred here into the genus *Margarinotus*. The placement of this taxon into *Eucalohister* at the present level of knowledge is also supported by the presence of both (inner and outer) lateral pronotal striae, complete marginal pronotal stria, five developed dorsal elytral striae and four prominent protibial teeth. However, the divisions among the subgenera of *Margarinotus* are rather arbitrary and the genus was never examined from the phylogenetic point of view. It should be noted that *M. (E.) arboricavus* lacks ciliate meso- and metapleura- and sterna, which would be otherwise a diagnostic character for the subgenus. The length of the terminal segment of its maxillary palpus, being longer than the mandibles is also noteworthy. This feature is hitherto unknown among members of *Margarinotus*.

Key to the species of the subgenus *Eucalohister* (modified from Lackner (2003), with updated distributional data)

- 1(8) Elytra with red macula (Fig. 2).
- 2(7) Pronotum, apart from the marginal pronotal stria with two lateral pronotal striae developed.
- 3(4) Elytron with an almost triangular red macula, present in the posterior half; anterior part of the macula formed by a sharply defined angle (Fig. 2). Distribution: Portugal, Spain, France, Italy, Switzerland (?).
.....*Margarinotus (Eucalohister) binotatus* (Erichson, 1834)

Figs 7–11. Habitus, dorsal view. 7 – *Margarinotus (Eucalohister) kurdistanus touthmosis* (Marseul, 1862), 8 – *M. (E.) mirabilis* (Iablokoff-Khnzorian, 1959), 9 – *M. (E.) pseudomirabilis* Kalashian, 1989, 10 – *M. (E.) solskyi* (J. Schmidt, 1889), 11 – *Hister mateui* (Thérond, 1964), **comb. nov.** 12 – *Margarinotus (Eucalohister) arboricavus* (Mazur, Abacigil, Varli, Mokrzycki et Jansson, 2013), **comb. nov.**, aedeagus, lateral view, 13 – *Hister mateui* (Thérond, 1964), **comb. nov.**, aedeagus, dorsal view. Photographs by F. Slamka.

Obr. 7–11. Habitus, dorzálny pohľad. 7 – *Margarinotus (Eucalohister) kurdistanus touthmosis* (Marseul, 1862), 8 – *M. (E.) mirabilis* (Iablokoff-Khnzorian, 1959), 9 – *M. (E.) pseudomirabilis* Kalashian, 1989, 10 – *M. (E.) solskyi* (J. Schmidt, 1889), 11 – *Hister mateui* (Thérond, 1964), **comb. nov.** 12 – *Margarinotus (Eucalohister) arboricavus* (Mazur, Abacigil, Varli, Mokrzycki et Jansson, 2013), **comb. nov.**, aedeagus, pohľad z boku, 13 – *Hister mateui* (Thérond, 1964), **comb. nov.**, aedeagus, dorzálny pohľad. Fotografie F. Slamka.



- 4(3) Red macula of elytron narrowing anteriorly, gradually widening posteriorly, but never triangular in shape (Fig. 3).
- 5(6) Outer lateral pronotal stria complete, or almost complete (Fig. 4). Elytral epipleuron usually with two marginal epipleural striae. Distribution: Mongolia, China: Nei Mongol, Russia: Eastern Siberia.
..... *Margarinotus (Eucalohister) gratosus* (Mannerheim, 1852)
- 6(5) Outer lateral pronotal stria shortened, usually not reaching basal pronotal half (Fig. 10). Marginal epipleural stria single. Distribution: Kazakhstan, Afghanistan, Iran, Tajikistan, Turkmenistan, Uzbekistan, Iran and Turkey.
..... *Margarinotus (Eucalohister) solskyi* (J. Schmidt, 1889)
- 7(2) Lateral pronotal stria single (Fig. 3). Distribution: Albania, Armenia, Azerbaijan, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Russia (European part), Czech Republic, Denmark, Germany, Georgia, France, Hungary, Italy, Kazakhstan, Latvia, Lithuania, Macedonia, Moldova, Netherlands, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Switzerland, Turkey, Turkmenistan and Ukraine.
..... *Margarinotus (Eucalohister) bipustulatus* (Schrank, 1781)
- 8(1) Elytra never with a distinct red macula (Fig. 5).
- 9(14) Meso- and metatibia with long setae ventrally (Figs 5–7). Distribution: North Africa and Middle East.
..... *Margarinotus (Eucalohister) kurdistanus* (Marseul, 1857)
- 10(11) Dorsal elytral striae I–IV, occasionally even stria V or VI complete (Fig. 5). Distribution: Iran, Iraq, Israel, Jordan, Saudi Arabia, Syria and Turkey.
..... *Margarinotus (Eucalohister) kurdistanus kurdistanus* (Marseul, 1857)
- 11(10) Dorsal elytral striae I–III + sutural elytral stria complete (Figs 6–7).
- 12(13) Elytra dark brown to black (Fig. 6). Distribution: Italy: Sicily, Spain, Algeria, Egypt, Libya, Morocco and Tunisia.
..... *Margarinotus (Eucalohister) kurdistanus lethierryi* (Marseul, 1862)
- 13(12) Elytra dark red (Fig. 7). Distribution: Algeria, Egypt, Libya, Tunisia.
..... *Margarinotus (Eucalohister) kurdistanus touthmosis* (Marseul, 1862)
- 14(9) Meso- and metatibiae without long setae ventrally.
- 15(16) Body small (PEL < 3.20 mm); external subhumeral stria present as a short median fragment; appendages reddish; mandibles distinctly longer than wide; terminal palpomere of maxillary palpus longer than mandibular length (Fig. 1). Distribution: Western Turkey.
..... *Margarinotus (Eucalohister) arboricavus* (Mazur, Abacigil, Varli, Mokrzycki et Jansson, 2013)
- 16(15) Body larger (PEL > 3.20 mm); external subhumeral stria either completely absent or present as a series of punctures (Fig. 8); terminal palpomere of maxillary palpus not longer than mandibular length.
- 17(18) Cuticle pitch-black, apical part of elytra somewhat translucent; external subhumeral stria can be absent or present, dorsal elytral stria V and sutural stria not connected basally (Fig. 8). Distribution: Armenia, Azerbaijan.
..... *Margarinotus (Eucalohister) mirabilis* (Iablokoff-Khnzorian, 1959)
- 18(17) Cuticle dark red; external subhumeral stria present as a series of punctures; dorsal elytral stria V basally connected with sutural elytral stria (Fig. 9). Distribution: Armenia, Iran.
..... *Margarinotus (Eucalohister) pseudomirabilis* Kalashian, 1989

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SÚHRN

Na základe štruktúry aedeágov sú navrhnuté následné nové kombinácie: *Hister arboricavus* Mazur, Abacigil, Varli, Mokrzycki et Jansson, 2013 = *Margarinotus (Eucalohister) arboricavus*, **comb. nov.** a *Margarinotus (Eucalohister) mateui* (Thérond, 1964) = *Hister mateui*, **comb. nov.** Súčasťou práce je doplnený kľúč do druhov podrodu *Eucalohister* Reitter, 1909 rodu *Margarinotus* Marseul, 1854. Všetky druhy podrodu sú vyobrazené.