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Omalium gildenkovi (Coleoptera: Staphylinidae: Omaliinae), a new species from the central part of European Russia

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Abstract. *Omalium gildenkovi* sp. n. (Omaliinae: Omaliini), a new species of rove beetle from Smolensk Region of Russia is described and illustrated. This species belongs to the *rivulare* group of the genus *Omalium* Gravenhorst, 1802, and based on several external and internal morphological features, it is similar to three European species: *O. exiguum* Gyllenhal, 1810, *O. funebre* Fauvel, 1871 and *O. cerrutii* Zanetti, 1985. Illustrations of some morphological details of two compared species are presented: the habitus and female abdominal segments of *O. exiguum*, as well as the aedeagus of *O. exiguum* and *O. funebre*. Specimens of *O. gildenkovi* sp. n. were collected using car net that demonstrates the effectiveness of this method in the collecting of Staphylinidae and other small beetles.

Key words: *Omalium*, taxonomy, new species, Russia, Palaearctic Region.

Omalium gildenkovi (Coleoptera: Staphylinidae: Omaliinae), новый вид из центральной части Европейской России

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Резюме. Описан и проиллюстрирован *Omalium gildenkovi* sp. n. (Omaliinae: Omaliini), новый вид стафилинов, из Смоленской области, Россия. Этот вид относится к группе видов *rivulare* рода *Omalium* Gravenhorst, 1802 и по некоторым наружным и внутренним признакам похож на три европейских вида: *O. exiguum* Gyllenhal, 1810, *O. funebre* Fauvel, 1871 и *O. cerrutii* Zanetti, 1985. Представлены иллюстрации некоторых деталей строения двух сравниваемых видов: габитус и абдоминальный сегмент самки *O. exiguum*, а также эдеагусы *O. exiguum* и *O. funebre*. Экземпляры *O. gildenkovi* sp. n. были собраны при помощи автомобильной ловушки, что демонстрирует эффективность этого метода при сборе Staphylinidae и других мелких жуков.

Ключевые слова: *Omalium*, таксономия, новый вид, Россия, Палеарктика.

Introduction

The genus *Omalium* Gravenhorst, 1802 of the rove beetle tribe Omaliini McLeay, 1825 contains about 80 species and subspecies, all confined to the Palaearctic Region. About half of them are distributed in Europe, and 16 species and subspecies are known from the European part of Russia [Schülke, Smetana, 2015]. Despite the relatively good knowledge of the European fauna, there are several species of *Omalium* with uncertain taxonomic status. Besides that, the distribution of some taxa is still insufficiently studied.

This article presents an unexpected discovery of a new species of *Omalium* from Smolensk Region, Russia. In our view, it can be a widespread species in Central Europe where it could be confused with related *O. exiguum* Gyllenhal, 1810. The latter species also has a small body and differs from the new species by some details of external and internal morphology. One of the problems in the study of *Omalium* is the lack of good images of sexual features because published figures of the aedeagi and female

accessory sclerites are rather sketchy [e.g. Zanetti, 1987, 2012]. Based on this, the main morphological details for two compared species were illustrated to facilitate their separation from the new species.

Specimens of a new species were collected using a car net that further demonstrates the effectiveness of this method in the collecting of Staphylinidae and other small beetles and shows good results [Herrmann, 2001; Semionenkov, 2014]. Several dozen of new records of species of Staphylinidae for the European part of Russia were made using this method [e.g. Semionenkov et al., 2015]. Several species of Omaliinae were collected together with a new species in the same localities: *Eusphalerum minutum* (Fabricius, 1793), *E. primulae* (Stephens, 1834), *Omalium caesum* Gravenhorst, 1806, *O. exiguum* Gyllenhal, 1810, *O. oxyacanthae* Gravenhorst, 1806, *Phloeonomus pusillus* (Gravenhorst, 1806) and *Phyllodrepa floralis* (Paykull, 1789). *Omalium caesum* and *O. exiguum* were the dominant species. The conducted sampling by car net allowed us to find that *O. exiguum* is a very common species in Smolensk Region but rarely collected by conventional entomological methods.



Figs 1–3. Species of the genus *Omalium*, habitus.

1–2 – *O. gildenkovi* sp. n.: 1 – male, holotype, 2 – female, paratype; 3 – *O. exiguum*, male (Smolensk Region, Russia). Scale bars 1 mm.

Рис. 1–3. Виды рода *Omalium*, габитус.

1–2 – *O. gildenkovi* sp. n.: 1 – самец, голотип, 2 – самка, паратип; 3 – *O. exiguum*, самец (Смоленская область, Россия). Масштабные линейки 1 мм.

Material and methods

The examined material is deposited in the following collections:

cA – collection of V. Assing (Hannover, Germany);

cSem – collection of O.I. Semionenkov (Smolensk, Russia);

ZMM – Zoological Museum of Moscow University (Moscow, Russia, A.A. Gusakov).

Type labels are cited verbatim. Both type specimens were dissected; a plastic plate with the aedeagus (or female genital segment) and abdominal apical sclerites in Canada balsam were pinned under the card with the beetle. Specimens were examined using MBS 10 stereomicroscope. A digital camera Canon EOS 5D Mark III with a Canon MP-E 65 mm macro lens was used for photographs of the habitus. Zeiss AxioScope.A1 with a Canon EOS 6D camera was used for photographs of aedeagi (except *O. funebre* Fauvel, 1871) and abdominal segments. All figures were modified using Adobe Photoshop software. All measurements are given in millimetres and were made with a stereoscopic microscope equipped with an ocular micrometre.

For comparative purposes, two species of *Omalium* were studied:

1) *O. exiguum* (Figs 3, 6, 7, 16): 1♂ (cSem), with the same data as the holotype of *O. gildenkovi* sp. n.; 1♂ (cSem), “Russia, Smolensk Area, Baklanovo-Przhevalskoye-Rudnya-Klimyaty route. Car net. 19.V.2017. O. Semionenkov”; 1♀ (cSem), “Russia, [Smolensk Region], Pochinkovskiy District, L’nozavod-Mokryadino route. Car net. 30.VII.2014. O. Semionenkov”.

2) *O. funebre* (Figs 8, 9): 1♂ (cA), “Italy, Alpi Carniche, NW Paluzza, Monte Crostis, 2200 m, under stone, 25.VII.1997, leg. Assing”.

Omalium gildenkovi sp. n.

(Figs 1, 2, 4, 5, 10–15)

Material. Holotype, ♂ (Fig. 1; specimen without right elytron) (ZMM): “РОССИЯ: Смоленская область, Ершичский район, маршрут Поселки-Ершичи-Рухань-Корсики. Автомобильная ловушка. 15.V.2021. О. Семионенков” [RUSSIA: Smolensk Region, Yershichi District, Poselki-Yershichi-Ruhan’-Korsiki route. Car net. 15.V.2021. O. Semionenkov] (printed), “HOLOTYPE *Omalium gildenkovi* sp.n. Semionenkov O.I. & Shavrin A.V. des. 2021” (red, printed). Paratype: 1♀ (Fig. 2; specimen damaged: right elytron, right protarsomeres 3–5, right metatibia and metatarsus are missing) (ZMM): “РОССИЯ: Смоленская область, Шумячский район, маршрут Краснополье-Понятовка-Шумячи-Первомайский. Автомобильная ловушка. 3.V.2020, О. Семионенков” [RUSSIA: Smolensk Region, Shumyachi District, Krasnopolye-Ponyatovka-Shumyachi-Pervomayskiy route. Car net. 3.V.2020, O. Semionenkov] (printed), “PARATYPE *Omalium gildenkovi* sp.n. Semionenkov O.I. & Shavrin A.V. des. 2021” (red, printed).

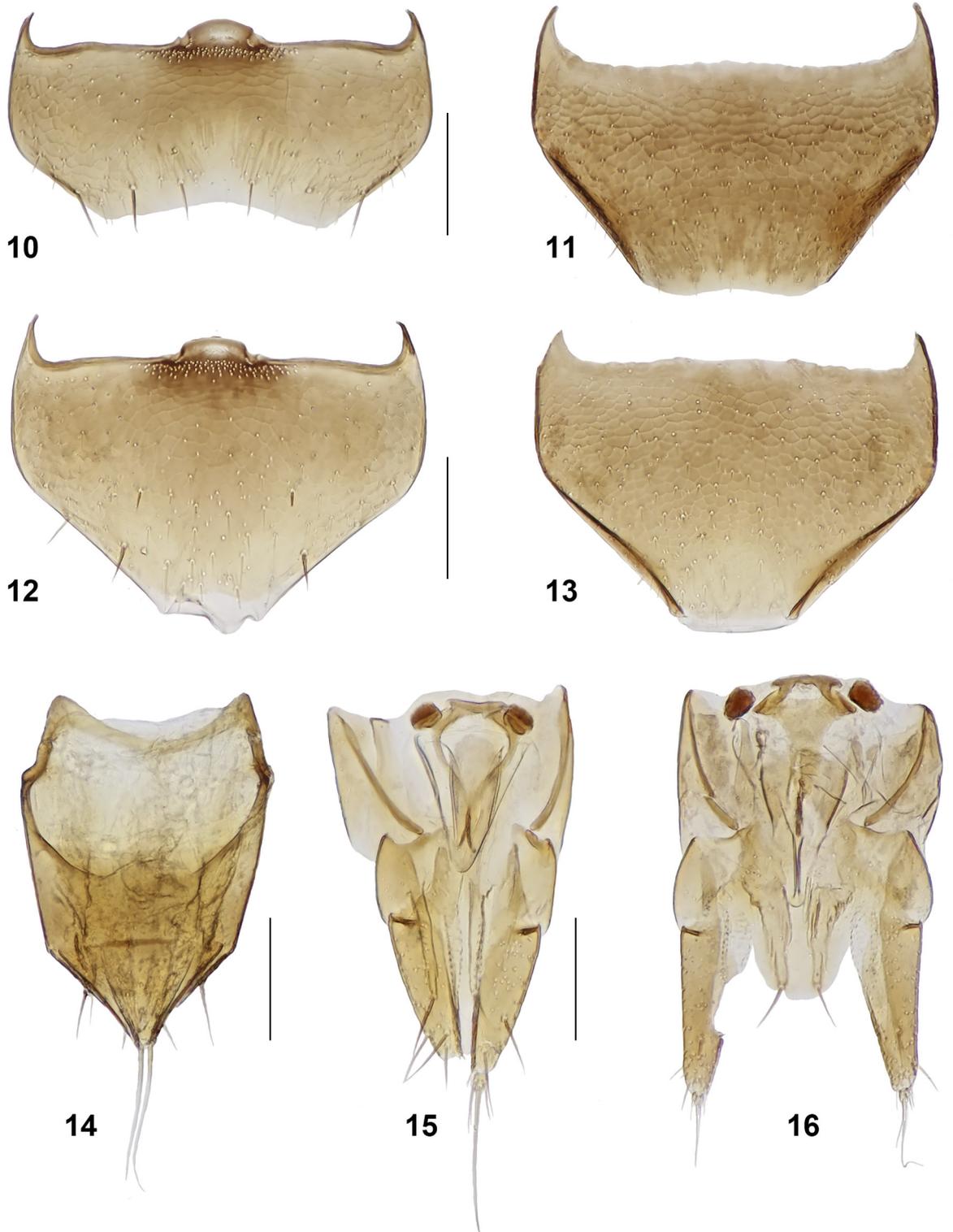
Description. Measurements ($n = 2$): maximum width of head including eyes 0.39–0.41; length of head (from base of labrum to posterior constriction along head midline) 0.28–0.32; length of antenna 0.64; ocular length (longitudinal) 0.11–0.14; length of temple 0.05–0.07; length of pronotum 0.36–0.38; maximum width of pronotum 0.49–0.52; sutural length of elytra (length of elytra from apex of scutellum to posterior margin of sutural angle) 0.57–0.6; maximum width of elytra 0.64; length of metatibia 0.29–0.3; length of metatarsus 0.17–0.19; maximum width of abdomen 0.61–0.63; length of aedeagus (from base of median lobe to apex of parameres) 0.39; length of forebody (from anterior margin of clypeus to apex of elytra) 2.11–2.42; total length (from anterior margin of clypeus to apex of abdomen) 2.25–2.7.

Body reddish-brown to dark brown, with paler lateral and basal portions of pronotum and apical portion of elytra



Figs 4–9. Aedeagi of *Omaliium* spp.
4–5 – *O. gildenkovi*, holotype; 6–7 – *O. exiguum* (Smolensk Region, Russia); 8–9 – *O. funebre* (Alpi Carniche, Italy). 4, 6, 8 – ventral view; 5, 7, 9 – lateral view. Scale bars 0.1 mm.

Рис. 4–9. Эдеагусы *Omaliium* spp.
4–5 – *O. gildenkovi*, голотип; 6–7 – *O. exiguum* (Смоленская область, Россия); 8–9 – *O. funebre* (Карнийские Альпы, Италия). 4, 6, 8 – вид снизу; 5, 7, 9 – вид сбоку. Масштабные линейки 0.1 мм.



Figs 10–16. Apical abdominal segments.
 10–15 – *Omalium gildenkovi*; 16 – *O. exiguum*. 10 – male sternite VIII; 11 – male tergite VIII; 12 – female sternite VIII; 13 – female tergite VIII; 14 – male genital segment; 15–16 – female genital segment. Scale bars 0.1 mm.

Рис. 10–16. Вершинные брюшные сегменты.
 10–15 – *Omalium gildenkovi*; 16 – *O. exiguum*. 10 – стернит VIII самца; 11 – тергит VIII самца; 12 – стернит VIII самки; 13 – тергит VIII самки; 14 – генитальный сегмент самца; 15–16 – генитальный сегмент самки. Масштабные линейки 0.1 мм.

(paratype paler); antennae reddish-brown (slightly paler in holotype); mouthparts, legs and intersegmental membranes between abdominal tergites yellow-brown; tarsi yellowish. Head with dense, moderately large and deep punctation, very fine and sparse in frontoclypeal portion, denser and coarser in middle, with interstices between punctures in middle about as long as diameters of nearest two punctures; neck with dense punctation, about as that in middle portion of head; punctation of pronotum about as that on head, denser in medioapical and distinctly sparser in middle and lateral portions (punctation of laterobasal portion of holotype very sparse), interstices between punctures in middle as broad as diameter of one-two nearest punctures; scutellum with several fine punctures; punctation of elytra distinctly larger, deeper and coarser than that on pronotum, finer and denser in parascutellar portions and along suture, with some merging punctures in medioapical portion forming indistinct longitudinal rows; abdomen with regular, fine and moderately dense punctation. Forebody without microsculpture; abdomen with distinct, dense, isodiametric microreticulation.

Head distinctly convex in middle and in portions between antecellar foveae and eyes, 1.2–1.3 times as broad as long, with wide and moderately long diagonal impressions on lateral sides of clypeus; temples moderately long, about twice as long as longitudinal length of eyes, convex, temporal angles rounded, distinctly protruded laterobasally; each lateroapical portion with two moderately long ridges extending from above antennal insertion to level of apical third of eyes; antecellar foveae very deep, wide, moderately short. Ocelli large, located below level of posterior margins of eyes; distance between ocelli slightly narrower than distance between ocellus and posterior margin of eye. Eyes moderately large, strongly convex, markedly longer than temples. Apical palpomere of maxillary palpi slightly more than twice as long as and about as broad as moderately short preapical segment. Antennae moderately short, reaching basal margins of pronotum when reclined, with antennomeres 5–9 progressively broadened apically; basal antennomere about twice as long as broad, antennomere 2 suboval, narrower than basal antennomere, 3 distinctly narrower and slightly shorter than 2, 4 small, slightly longer than broad and distinctly shorter than 3, 5 slightly broader than 4, 6 broader than 5, 7 broader and longer than 6, 8 slightly transverse, broader and shorter than 7, 9–10 slightly or distinctly transverse, broader than 8, apical antennomere about 1.4 times as long as 10, from apical third sharply narrowing toward subacute apex.

Pronotum 1.3 times as broad as long, 1.2 times as broad as head, widest in middle, gradually narrowing toward widely rounded anterior angles and relatively sharply narrowing toward subacute posterior angles; laterobasal margins in front of posterior angles slightly and widely concave; anterior margin widely rounded, slightly concave in front of anterior angles, about as long as posterior margin; paramedian impressions distinct, wide and long, extending from about apical third, slightly broadened basally and reaching basal third portion of pronotum; medioapical impression distinct, small, suboval, slightly elongate; lateral impressions distinct, deeper and broader in laterobasal portions.

Elytra moderately narrow, slightly broader than long, 1.5 times as long as pronotum, more or less parallel-sided, with widely rounded posterior margins.

Legs simple, with several short spines in apical portions of meso- and metatibiae; metatarsi 1.5–1.7 times as long as metatibia.

Abdomen slightly narrower than elytra, with two small oval tomentose spots in middle of abdominal tergite IV, with narrow palisade fringe at apical margin of abdominal tergite VII.

Male (Fig. 1). Antennomeres 8–10 slightly elongate. Posterior margin of abdominal tergite VIII slightly (Fig. 11) and sternite VIII (Fig. 10) widely and deeply concave. Genital segment as in Fig. 14. Aedeagus with wide basal portion and long, narrow, spear-shaped median lobe, from widest basal portion gradually narrowing toward subacute apex; apical portions of paired elongate sclerites

connected with middle part of median lobe widely rounded; parameres wide, moderately short, narrowed apically, almost reaching preapical part of median lobe, apical part of each paramere with two long apical and short preapical setae; internal sac moderately narrow and long, with elongate, sclerotized sclerites in basal portion (Fig. 4). Aedeagus laterally as in Fig. 5; median lobe forming hook-shaped apical portion, with wide apical and subacute preapical angles.

Female (Fig. 2). Antennomeres 8–10 slightly transverse. Posterior margin of abdominal tergite VIII (Fig. 13) and sternite VIII (Fig. 12) somewhat straight. Genital segment as in Fig. 15; female accessory sclerite moderately wide, with suboval basal portion and rounded apex. Spermatheca not found.

Comparative diagnosis. Based on the morphology of the aedeagus and the shape of the antecellar foveae, *O. gildenkovi* sp. n. belongs to the *rivulare* group of *Omalius* defined by Zanetti [1987]. Based on the small body and general shape of the median lobe, *O. gildenkovi* sp. n. is similar to two European species: *O. exiguum* (Fig. 3) and *O. funebre*. From *O. exiguum* (Figs 3, 6, 7, 16) it differs by the absence of microsculpture and denser punctation of the head and the presence of hook-shaped apex of the median lobe (in lateral view). From *O. funebre* (Figs 8, 9) it differs by the paler colouration of femora, the absence of microsculpture on the forebody, and the shape of the hook of the apical portion of the median lobe (Figs 5, 9). The general shape of the female accessory sclerite (Fig. 15) of *O. gildenkovi* sp. n. is similar to that in *O. funebre* [Zanetti, 1987: fig. 48m], but this sclerite in the latter species has narrower basal and somewhat broader apical parts. Besides that, based on the body size, colouration, general shape of the pronotum and the aedeagus, *O. gildenkovi* sp. n. is somewhat similar to *O. cerrutii* Zanetti, 1985 (= *O. montivagum* Eppelsheim, 1878), originally described from Central Italy [Zanetti, 1985] and recorded from Georgia [Zanetti, 2002]. However, the new species can be distinguished from *O. cerrutii* by the absence of microsculpture on the head and different shape of the median lobe [Zanetti, 1985: figs 4–6, 9, 10; Zanetti, 2002: figs 22, 23]. From all these species, *O. gildenkovi* sp. n. can be distinguished by the somewhat paler colouration, the shape of convex temples, distinctly protruded laterobasally, by narrower apical portion and the shape of the median lobe (lateral view), by the morphology of the internal sac, and by different shape of the female accessory sclerite.

Notes. The new species was collected in two localities with a distance of approximately 10 km from each other in Smolensk Region near the border with Belarus. Possibly, *O. gildenkovi* sp. n. is more widely distributed in the East European Plain. Bionomics for this species remains unknown.

Etymology. Patronymic, the species is named to honour our friend and colleague, staphylinidologist Mikhail Yu. Gildenkov (Smolensk, Russia).

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