

**On taxonomic status of *Onthophagus (Palaeonthophagus) macedonicus*
Mikšić, 1959 and of the subspecies of *O. (P.) truchmenus*
Kolenati, 1846 (Coleoptera: Scarabaeidae)**

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Abstract. The taxonomic position of some taxa related to *Onthophagus (Palaeonthophagus) truchmenus* Kolenati, 1846 is considered. A lectotype of *Onthophagus truchmenus* is designated. The subspecies *O. truchmenus turkmenicus* Kabakov, 2006 and *O. truchmenus iranicus* Kabakov, 2006 are synonymized with *O. truchmenus truchmenus* Kolenati, 1846 and *O. truchmenus xerxes* Petrovitz, 1965, respectively. Furthermore, *Onthophagus conspersus macedonicus* Mikšić, 1959 is proposed as a junior subjective synonym of *O. truchmenus truchmenus* Kolenati, 1846.

Key words. Taxonomy, new synonymy, lectotype designation, Coleoptera, Scarabaeidae, Scarabaeinae, *Onthophagus*, Palearctic Region.

INTRODUCTION

In 1846 the Austrian zoologist and botanist Friedrich Anton Rudolph Kolenati described *Onthophagus truchmenus* from more than 1000 specimens from Elisabethpol and Helenendorf, now Gəncə and Göygöl in Azerbaijan. The type material, according to the author, has been deposited in the Museum of Petropolis (presently Saint Petersburg) in Mannerheim and Kolenati collections. Later on, Reitter (1892, 1897) described two “varieties” of *O. truchmenus*, namely *O. araxicola* Reitter, 1892 and *O. latiplaga* Reitter, 1897, from “Araxesthal bei Ordubad” the former, “Ordubad” the latter. Subsequently, *Onthophagus truchmenus* ssp. *xerxes* was described by Petrovitz (1965) from several specimens from Iran, “Kuh-räng”, 120 km west of Esfahan.

At the beginning of the 21st century, Kabakov (2006) described additional two subspecies of *O. truchmenus*, namely *O. truchmenus turkmenicus* from Turkmenistan (Kopet Dag) and *O. truchmenus iranicus* from Iran (Lorestan province).

Onthophagus macedonicus Mikšić, 1959 was originally described as a subspecies of *Onthophagus conspersus* Reitter, 1892, on the basis of a single male collected in the Petrina Planina hills, south-western part of Macedonia, presently the Republic of North Macedonia. Balthasar (1963) raised a few doubts about the systematic validity of the subspecies, concluding that only the study of more abundant material could help to solve the issue. Later on, the same Mikšić (1964) revised the status of the taxon and gave it a specific rank.

Kabakov (2006) remarked that *O. macedonicus* was probably a subspecies of *O. truchmenus* but without justifying this hypothesis and without a nomenclatorial act. It is worth noting that Ziani & Moradi Gharakhloo (2011) also referred to the problematic position of *O. macedonicus* and of the three subspecies of *O. truchmenus* but without proposing any solution. Also Montreuil

(2017) pointed out that the systematic position of two Iranian subspecies *xerxes* and *iranicus* requires revision.

In the present study, material of populations of the whole group from Albania, Armenia, Azerbaijan, Bulgaria, Georgia, Greece, Iran, Israel, Lebanon, Macedonia, Syria, Turkey, Turkmenistan and Uzbekistan have been examined to clarify this issue more thoroughly. The studied specimens have shown great morphological and chromatic variability, especially of the elytral black spots and the pronotal punctation that varies from weak with small punctures to dense and deep (Figs. 1A–F, 2, 8A, 9–11). All the intermediate forms have been observed in the examined specimens.

For this reason, and after studying holotypes of *Onthophagus truchmenus iranicus*, *O. t. turkmenicus* and *O. macedonicus*, we are convinced that *O. t. iranicus* is a junior subjective synonym of *O. t. xerxes* Petrovitz, 1965 while the other two taxa are junior subjective synonyms of *O. t. truchmenus*.

MATERIAL AND METHODS

The following acronyms identify the collections housing the examined material (curators in parentheses):

- ABCB – Alberto Ballerio private collection, Brescia, Italy;
- ANCR – Alexander Napolov private collection, Riga, Latvia;
- DRCB – Dirk Rohwedder private collection, Bonn, Germany;
- HNHM – Termesztudományi Múzeum Allattára, Budapest, Hungary (Ottó Merkl);
- JSCS – Joachim Schönfeld private collection, Sinzig, Germany;
- KHCB – Karl Hadulla private collection, Bonn, Germany;
- NHMK – Landesmuseum Kärnten, Klagenfurt, Austria (Christian Wieser, Alexandra Krug);
- MHCG – Meindert Hielkema private collection, Gouda, The Netherlands;
- MHNG – Muséum d'histoire naturelle, Geneva, Switzerland (Giulio Cuccodoro and Guido Sabatinelli);
- NMPC – National Museum (Natural History), Prague, Czech Republic (Jiří Hájek);
- OHCB – Oliver Hillert private collection, Schöneiche bei Berlin, Germany;
- OUMNH – University Museum of Natural History, Oxford, England (Darren J. Mann);
- RMNH – Nationaal Natuurhistorische Museum, Leiden, The Netherlands (Rijksmuseum van Natuurlijke Historie) (Naturalis Biodiversity Center) (Hans Huijbregts);
- SMNS – Staatliches Museum für Naturkunde Stuttgart, Germany (Wolfgang Schawaller);
- SZCM – Stefano Ziani private collection, Meldola (Forli), Italy;
- ZFMK – Zoologisches Forschungsmuseum Alexander Koenig, Bonn, Germany (Dirk Ahrens);
- ZINC – Zoological Museum, Academy of Sciences, St. Petersburg, Russia (Andrey V. Frolov);
- ZMML – Zoological Museum of the Moscow Lomonosov State University, Moscow, Russia (Aleksey A. Gusakov).

Altogether, almost 800 specimens (see material list below) were studied. Remarks of the authors and comments are indicated in square brackets. Information in quotation marks (“ ”) indicates the original spelling. The exact label data are cited for the type material only; individual labels are indicated (only for types) by double slash (/), individual lines on every label by single slash (/), [p] – preceding data within quotation marks are printed, [hw] – preceding data within quotation marks are handwritten.

TAXONOMY

***Onthophagus (Palaeonthophagus) truchmenus* ssp. *truchmenus* Kolenati, 1846** (Figs 1A–F; 2, 3A, 4A–C, 6A–E, 7A–D, 8A–D, 9–11, 18–20)

Onthophagus truchmenus Kolenati, 1846: 8 (original description); Marseul 1866: 52 (catalogue).

Onthophagus truchmenus: Solsky 1876: 306 (footnote, description); Schneider & Leder 1878: 186 (list); Reitter 1892: 190 (key); d'Orbigny 1898: 181 (key and description); Reitter 1906: 729 (catalogue); Bedel 1911: 31 (key, as *truchmenus*); Monnot et al. 1912: 147 (catalogue); Olsoufieff 1918: 86 (distribution); Boucomont & Gillet 1927: 130 (catalogue); Winkler 1929: 1033 (catalogue); Sainte-Claire Deville 1935: 194 (catalogue); Paulian 1941: 75 (key, description, distribution); Petrovitz 1954: 265 (distribution); Horion 1958: 32 (remark); Paulian 1959: 94 (diagnostic characters, key, distribution); Balthasar 1963: 567 (description, distribution); Medvedev 1965: 186 (key); Iablukoff-Khznorlan 1967:

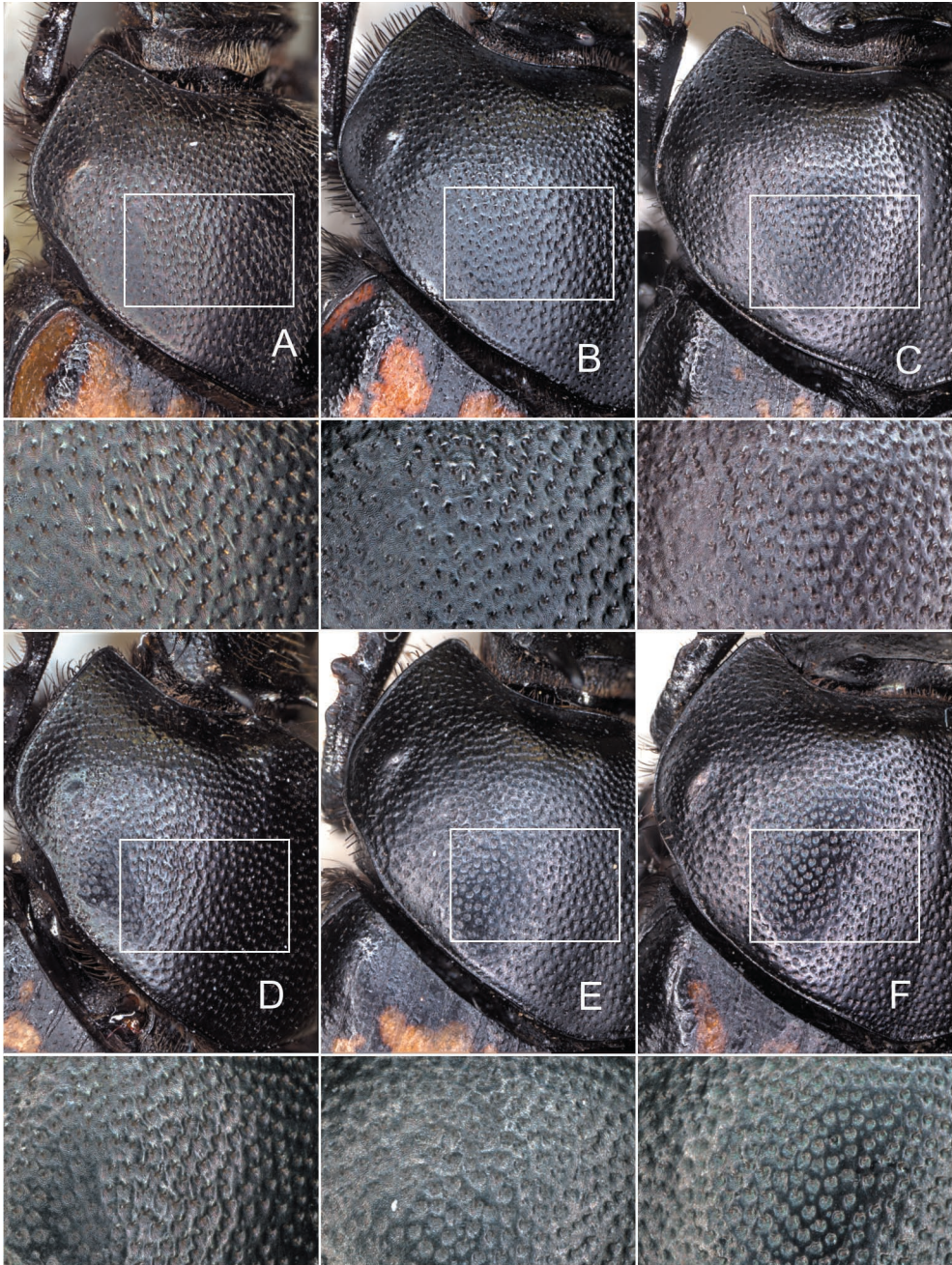


Fig. 1. Variability of pronotal sculpture in dorso-lateral view (top), with close-up of the pronotal punctation (bottom): A – *Onthophagus macedonicus* Mikšić, 1959 **syn. nov.** (holotype); B–F – *O. (Palaeonthophagus) truchmenus truchmenus* Kolenati, 1846: B – Turkey, Erzican; C – Azerbaijan, Kaleybar; D – Turkey, Pulumur; E – Iran, Polour; F – Azerbaijan, Kjurektschi.

138 (key, distribution); Baraud 1977: 49 (description, distribution); Carpaneto 1977: 40 (distribution); Paulian & Baraud 1982: 20 (key, description); Carpaneto et al. 2000: 231 (list, with a question mark); Tauzin 2000: 83 (distribution).

Onthophagus conspersus ssp. *macedonicus* Mikšić, 1959: 39 (original description); Balthasar 1963: 318 (footnote) [type locality: “Mazedonien, Petrina planina, 1600 m” (Republic of North Macedonia); type material: holotype ♂ (examined), in NHMK (**new synonymy**)].

Onthophagus macedonicus: Mikšić 1964: 281 (taxonomic notes, stat. nov.); Mikšić 1965: 240 (description); Mikšić 1970: 11 (catalogue); Carpaneto et al. 2000: 15 (list); Montreuil 2017: 274 (remarks);

Onthophagus (Palaeonthophagus) truchmenus: Zunino 1979: 9 (list); Baraud 1992: 385 (diagnostic characters, key, distribution); Kabakov 2006 (key, description); Löbl et al. 2006: 170 (catalogue); Shokhin 2007: 126 (distribution); Ziani & Moradi Gharakhloo, 2011: 69 (as *O. (P.) truchmenus* s. l., distribution); Bunalski et al. 2014: 158 (checklist); Ziani & Bezděk 2016: 196 (catalogue); Cosandey et al. 2017: 82 (as *O. (P.) truchmenus* s. l., distribution); Montreuil, 2017: 273 (distribution).

Onthophagus (Palaeonthophagus) macedonicus: Baraud 1992: 378 (diagnostic characters, key, distribution); Bunalski 2001a: 169 (checklist); Bunalski 2001b: 31 (distribution); Löbl et al. 2006: 168 (catalogue); Kabakov 2006: 233 (remarks); Carpaneto et al. 2011: table 5 (List); Ziani & Moradi Gharakhloo 2011: 70 (remarks); Ziani & Bezděk 2016: 193 (catalogue).

Onthophagus truchmenus var. *araxicola* Reitter, 1892: 190 (original description) [type locality: “Araxesthal bei Ordubad” (Azerbaijan, Nakhichevan); type material: not specified, 5 possible syntypes ♂♂ examined] Boucomont & Gillet 1927: 130 (catalogue).

Onthophagus truchmenus ab. *araxicola*: Reitter 1906: 729 (catalogue); Monnot et al. 1912: 147 (catalogue); Winkler 1929: 1033 (catalogue); Petrovitz 1961: 36 (distribution); Balthasar 1963: 567 (description); Carpaneto 1977: 40 (as synonym of *O. truchmenus*); Zunino 1978: 108 (description); Baraud 1992: 385 (diagnostic characters, key, distribution); Löbl et al. 2006: 170 (catalogue); Ziani & Bezděk 2016: 196 (catalogue).

Onthophagus araxicola: Carpaneto et al. 2000: 231 (list, as valid species).

Onthophagus truchmenus var. *latiplaga* Reitter, 1897: 219 (original description) [type locality: “Ordubad” (Azerbaijan: Nakhichevan); type material: not specified]; Boucomont & Gillet 1927: 130 (catalogue).

Onthophagus truchmenus ab. *latiplaga*: Reitter 1906: 729 (catalogue); Monnot et al. 1912: 147 (catalogue); Winkler 1929: 1033 (catalogue); Balthasar 1963: 567 (description); Zunino 1978: 108 (description); Baraud 1992: 385 (diagnostic characters, key, distribution); Löbl et al. 2006: 170 (catalogue); Ziani & Bezděk 2016: 196 (catalogue).

Onthophagus (Palaeonthophagus) truchmenus truchmenus: Kabakov 2006: 234 (key, stat. nov.); Löbl et al. 2006: 170 (catalogue); Ziani & Bezděk 2016: 196 (catalogue).

Onthophagus (Palaeonthophagus) truchmenus ssp. *turkmenicus* Kabakov, 2006: 235 (original description) [type locality: “ущелье Ай-Дере” (= Aydere canyon, Turkmenistan); type material: holotype ♂ in ZINC (examined) and 84 paratypes, 42 ♂♂ and 42 ♀♀ in ZINC and ANCR (**new synonymy**)]; Ziani & Moradi Garakhloo 2011: 70 (remarks); Ziani & Bezděk 2016: 196 (catalogue).

TYPE LOCALITY. “... prope Elisabethopolin et coloniam Helenendorf [= nowadays Gəncə and Göygöl, Azerbaijan]”.



Fig. 2. Pronotum of paratype of *Onthophagus (Palaeonthophagus) truchmenus turkmenicus* Kabakov, 2006 **syn. nov.** in dorso-lateral view (left), with a close-up of the pronotal punctation (right).

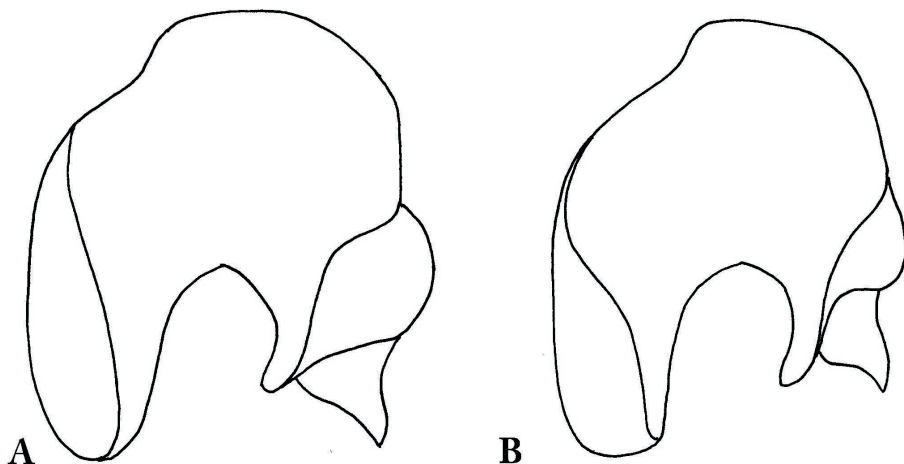


Fig. 3. Lamella copulatrix, ventral view: A – *Onthophagus (Palaeonthophagus) truchmenus truchmenus* Kolenati, 1846 (Anatolien, Nohutlu), B – *O. (P.) truchmenus xerxes* Petrovitz, 1965 (paratype, Kuh-räng, westl. Isfahan).

TYPE MATERIAL EXAMINED. *Onthophagus conspersus macedonicus* Mikšić, 1959: Holotype ♂: “20.5.1956 / Petrina plan / Macedonia 1600m [m] / leg. J. Thurner // TYPE [p] // R. Mikšić det., 1959 / *O. conspersus* Rtt. / ssp. *macedonicus* / nov. [hw] // *Onth. macedonicus* Mikšić / vidit TYPE / Det. PITTINO 1990 [hw]” (NHMK). *Onthophagus truchmenus* ssp. *truchmenus* Kolenati, 1846: lectotype ♂, herein designated: “Kolen. typ [hw] // Grusia / Kolenat. typ. [hw] // *truchmenus* / Kolen. typ Grusia [hw] // Lectotypus / *Onthophagus truchmenus* / Kolenati, 1846, O. Hillert J. Schönfeld & / S. Ziani des. 2018 [p]” (NMPC); paralectotype ♂: “Kolen. typ [hw] // Grusia / Koletani typ. [hw] // Paralectotypus / *Onthophagus truchmenus* / Kolenati, 1846, O. Hillert J. Schönfeld & / S. Ziani des. 2018 [p]”, (NMPC). *Onthophagus truchmenus* var. *araxicola* Reitter, 1846: 5 possible syntypes, as follows: 1st syntype, ♂: “Caucasus. [p] / Araxesthal. [p] / Leder.Reitter [p] // coll. Reitter [p] // Holotypus [p, clearly museal label] 1892 / *Onthophagus truch.* [hw] / v. *araxicola* [hw] / Reitter [hw]” (UNHM); 2nd, 3rd, 4th and 5th syntypes, ♂♂: “Caucasus. [p] / Araxesthal. [p] / Leder.Reitter [p] // coll. Reitter [p] // Paratypus [p, clearly museal label] 1892 / *Onthophagus truch.* [hw] / v. *araxicola* [hw] / Reitter [hw]” (UNHM); *Onthophagus (Palaeonthophagus) truchmenus* ssp. *turkmenicus* Kabakov, 2006: holotype ♂, “уш. Ай-Дере [hw] / Туркм. [p] / Ромадина 29 IV 952 [p and hw] [gorge Aj-Dere / Turkm. / Romadina] // Holotypus / *Onthophagus* 1982 / *truchmenus* / *turkmenicus* Kabakov [hw] // Zoological Institute / St. Petersburg / INS_COL_0000227 [p]”, (ZINC); 7 paratypes, 5 ♂♂, 2 ♀♀, as follows: “Turkmenia-S (Dushak) / ca. 45 km W Ashkhabad / mt. Dushak-Erekdag / 25.4.1990, h=2000–2200 m / Lg. A. Napolov [p] // A. Napolov / personal collection. / LATVIA, Riga [p] // Paratypus [p] *O. (Palaeonthoph.)* [hw] / *truchmenus* [hw] / *turkmenicus* Kabakov [hw]”, 1 ♂ (ANCR); “Turkmenia-S (Dushak) / ca. 45 km W Ashkhabad / mt. Dushak-Erekdag / 25.4.1990, h=2000–2200 m / Lg. A. Napolov [p] // A. Napolov / personal collection. / LATVIA, Riga [p] // Paratypus [p]”, 3 ♂♂, 1 ♀ (ANCR); “Turkmenia-S (Dushak) / ca. 45 km W Ashkhabad / mt. Dushak-Erekdag / 25.4.1990, h=2000–2200 m / Lg. A. Napolov [p] // A. Napolov / personal collection. / LATVIA, Riga [p] // Paratypus [p] *O. (Palaeonthoph.)* [hw] / *truchmenus* [truchmenus] [hw] / *turkmenicus* Kabakov [hw]”, 1 ♀ (JSCS); “Turkmenia-S (Dushak) / ca. 45 km W Ashkhabad / mt. Dushak-Erekdag / 25.4.1990, h=2000–2200 m / Lg. A. Napolov [p] // A. Napolov / personal collection. / LATVIA, Riga [p] // Paratypus [p]”, 1 ♂ (JSCS).

ADDITIONAL MATERIAL EXAMINED (733 specimens). **Albania:** Korçë, 22 km N Korçë, Mt. Pillaja e Pusit, 1500–1900 m, 40°48–50' N 20°50–51' E, (horse dung), 25.v.2010, D.W. Wrase leg. 1 ♀ (JSCS). **Armenia:** Биоракан[и] [Bjurakan], 1700 m, 7.vi.1962, Y. Abramov leg. 1 ♀ (JSCS); Bjurakan, 1700 m, 4 ♂♂, 4 ♀♀ (ZMML); Cauc., 1 ♀ (JSCS); Caucasus. Armen. Geb., Leder/Reitter, 1 ♀ (JSCS); Cauc. Armenia, Leder/Reitter, 1 ♀ (JSCS); Caucasus. Armen. Geb., Leder/Reitter, 1 ♀ (NMPC); Kaukasus, Eiljar, E. Koenig leg. 1 ♂ (NMPC); Covagjuk, 2.vi.1988, S. Bečvář leg. 8 exx. (SZCM); Kotayk prov. – Garni 1780 m, 15.iv.2000, A. Amiryany leg. 1 ex. (SZCM); Kotayk prov. – Eghvard-Arailer, 1600 m, 30.iv.2001, A. Amiryany leg. 1 ex. (SZCM); Kotayk prov. – Tapchan Ioloh, 2100 m, 24.vi.2001, S. Ziani leg. 9 exx. (SZCM); Kotayk prov. – Gagarin env., 1850 m, 27.vi.2001, S. Ziani leg. 1 ex. (SZCM); Aragatzotn prov. – road > Karilich, 2500 m, 28.vi.2001, S. Ziani leg. 34 exx. (SZCM); Kotayk prov. – Ohanavan, 1650 m, 30.vi.2001, S. Ziani leg. 1 ex. (SZCM).

Azerbaijan: Baku, NNW Altyagach, 1200 m, 21.vi.1996, M. Hauser leg. 1 ♂ (JSCS), 1 ♂, 1 ♀ (SMNS); Altyagach NNW Baku, 1200 m, 1 ♀ (JSCS); NW Baku, Altyagach, 1200 m, 21.–23.vi.1996, W. Schawaller leg. 1 ♀ (JSCS), 1 ♀ (SMNS); Kalan Arasbaran Wildlife Refuge, 2450–2650 m, 6–10.vi.1978 Mattenzone, Martens & Pieper leg. 1 ♀ (SMNS); Talysh-Mts, Kjurektschi, 1700 m, 25–31.v.2008, K. Hadulla leg. 4 ♀♀ (KHCB), 1 ♂, 1 ♀ (JSCS); Talysh – Zuvand, Kalvaz vill., 1700/1800 m, 22.v.1999, Pijushitch leg. 1 ex. (SZCM). **BULGARIA:** Plovdiv, Klisura, 850 m, 13.vi.1956, Bielanski & Goljan leg. 1 ♀ (SZCM). **Georgia:** 7 km S Akhaltsikhe, 10.vi.1962, Y. Abramov leg. 1 ♀ (ANCR); Baeti., Schlagintweit, 1 ♀ (NMPC). **Greece:** Florina, Vevi, Mt. 1100, 2.vi.1992, A. Ballerio leg. 2 ♂♂, 1 ♀ (ABCB), 2 ♂♂, 1 ♀ (JSCS); Macedonia, 15 km E Smolalikas Oros, 25 km W Grevena, 24.v.2000, O. Hillert leg. 1 ♀ (OHCB); Kastoria, 2 km N of Ieropigi, 18 km WNW of Kastoria, 20.v.1983, P. Kanaar leg. 1 ♀ (MHCG), 2 ♂♂, 1 ♀ (RMNH); Oiti-Gebirge, 1500 m, 18.–25.v.1956, 1 ♀ (NMPC); Thessalia Sterea Ellada, Larissa, Ossa Mts., ca. 1600 m, 39,79694 22,68694, 7–14.vi.1986, I. Wolf leg. 1 ♂, 1 ♀ (DRCB); Macedonia, Kozani, Vermion Oros, 100–2050 m, 18–25.v.1988, I. Wolf & M. Hiermaier leg. 1 ♂, 1 ♀ (JSCS); Larissa, Mt. Ossa – EOS Larisis ref., 1500 m / 1600 m, 24.v.2010, M. Bollino leg. 2 exx. (SZCM); Edessa, Mt. Kaimaktsalan 1650 m, 28.v.2010, M. Bollino leg. 1 ex. (SZCM). **Iran:** Golestan, Astarabad, 1 ♂ (NMPC); W. Polour, ca. 2400 m, Demavend (N), 23.vi.1998 Heinz leg. 1 ♂, 2 ♀♀ (JSCS); Babak-kale env., 2100 m, 1 ♂ (JSCS); Khvoy, 1 ♀ (RMNH); Kopet–Dagh Mts, 1000 m, Sayvana valley, cca 5 km SW of Sayvana, 28.vi.1992, Gy. Fábián, B. Herczig, A. Podlussány and Z. Varga leg. 1 ♂, 1 ♀ (JSCS), 1 ♂, 3 ♀♀ (HNHM). Tehran Prov., Elburz Mts., Kandovan-Pass N Tajrish 2850 m, 36°09'35.3" N 51°17'50.5" E (horse dung), 10.vi.2014, Wrase & Laser leg. 17 ♂♂, 9 ♀♀ (ZFMK), 8 ♂♂, 4 ♀♀ (JSCS); Mazandaran, M. Elburz – Valiabad, 2100 m, 21.v.1999, L. Saltini leg. 1 ex. (SZCM); Gilan, Mt. Tales – Masouleh, 750–1000 m, 23.v.1999, L. Saltini leg. 1 ex. (SZCM); West Azerbaijan, Qusci-Bajorge, 1700–1800 m, 28.v.1999, Padovani & Malmusi leg. 1 ex. (SZCM); West Azerbaijan, Choplu, 2000–2200 m, 30.v.1999, L. Saltini leg. 8 exx. (SZCM); Tehran, Elburz mts., Kendeval Val. Azad Bar, 3200 m, 24.vi.1999, Bieber leg. 4 exx. (SZCM); Khorosan, 50 km NE Mashhad, 2000 m., 24.iv.2000, Kalab leg. 1 ex. (SZCM); Golestan, 20 km S Gorgan, 1100 m, 24.v.2001, G. Sama leg. 1 ex. (SZCM); East Azerbaijan, Dizaj 1500 / 1850 m, 15.v.2002, P. Rapuzzi leg. 3 exx. (SZCM); East Azerbaijan, 40 km S Orumiye, 1400 m, 15.v.2002, G. Sama, leg. 1 ex. (SZCM); Lorestan, Kuh-e-Oshuran, 2000 m, 22.v.2005, G. Sama leg. 1 ex. (SZCM); Mazandaran, 12 km SW Reineh Kuh-e-Damavand 2950 m, 20.vi.2007, L. Nadai, leg. 1 ex. (SZCM); Golestan, Colaleh, iii.2010, M. Moradi leg. 1 ex. (SZCM); Golestan, Minodasht, iii.2010, M. Moradi leg. 1 ex. (SZCM); Ardabil, Ashtjin, 1450 m, iii.2010, M. Moradi leg. 1 ex. (SZCM); Golestan, Aliabad, iii.2010, M. Moradi leg. 2 exx. (SZCM); Zanjan, Ziaran, 1500 m, 17.v.2010, G. Sama leg. 1 ex. (SZCM); Mazandaran, 32 km NE Shahmirzad – Fulad Mahalle 2330 m, 18.v.2010, D. Baiocchi leg. 5 exx. (SZCM); Khorasan, Caman Bid, 1215 m, 21.v.2010, D. Baiocchi leg. 1 ex. (SZCM); Semnan, Abr, 23.v.2010, D. Baiocchi leg. 4 exx. (SZCM); Mazandaran, Foulad Mahallè – 32 km NE Shahmirzad, 2330 m, 18.v.2011, D. Baiocchi leg. 4 exx. (SZCM); Ardabil, Bila Savar, 7.iii.2012, M. Moradi leg. 11 exx. (SZCM); Ardabil, Aslan Dooz, 950 m, 19.iii.2012, M. Moradi leg. 9 exx. (SZCM); Ardabil, Garmi, 1100 m, 23.iii.2012, M. Moradi leg. 3 exx. (SZCM); Ardabil, Namin, 1450 m, 27.iii.2012, M. Moradi leg. 1 ex. (SZCM); Ardabil, Khalkhal, 1750 m, 31.iii.2012, M. Moradi leg. 1 ex. (SZCM); East Azerbaijan, Aghkand, 1025 m, 4.iv.2012, M. Moradi leg. 9 exx. (SZCM); East Azerbaijan, Mianeh 1100 m, 6.iv.2012, M. Moradi leg. 9 exx. (SZCM); West Azerbaijan, Jofa 710 m, 12.iv.2012, M. Moradi leg. 18 exx. (SZCM); East Azerbaijan, Marand, 1334 m, 13.iv.2012, M. Moradi leg. 6 exx. (SZCM); West Azerbaijan, Takab, 1790 m, 27.iv.2012, M. Moradi leg. 15 exx. (SZCM); West Azerbaijan, Shahin Dej, 1370 m, 27.iv.2012, M. Moradi leg. 21 exx. (SZCM); West Azerbaijan, Sardasht, 1500 m,

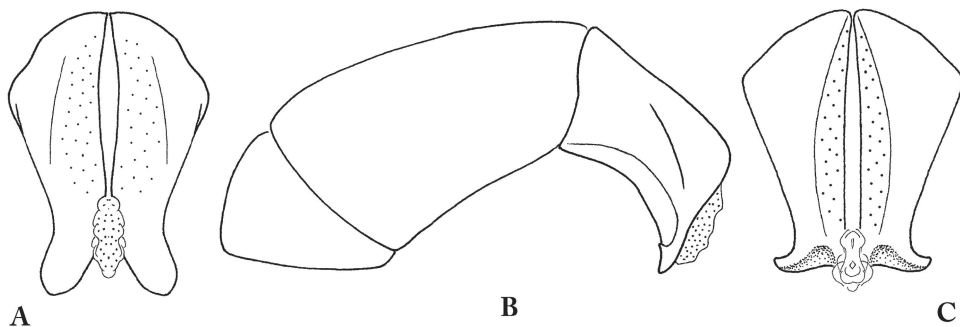


Fig. 4. Aedeagus of *Onthophagus (Palaeonthophagus) truchmenus truchmenus* Kolenati, 1846 (Turkey, Nohutlu, 90 km SO Malatya): A – fronto-ventral view, B – lateral view, C – frontal view.

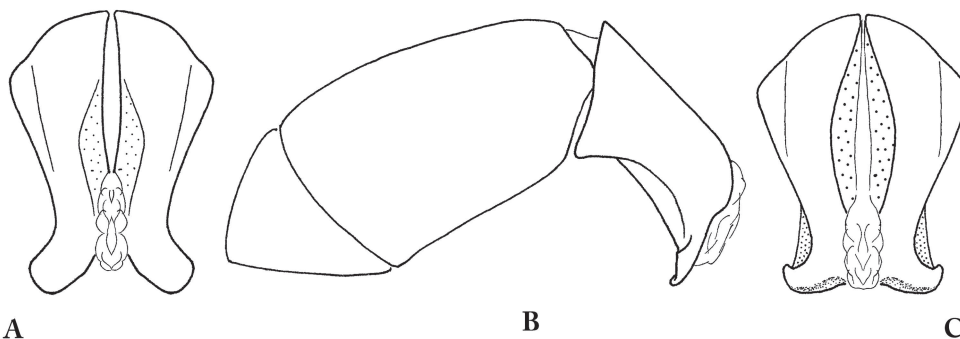


Fig. 5. Aedeagus of *Onthophagus (Palaeonthophagus) truchmenus xerxes* Petrowitz, 1965 (paratype: Kuh-räng / west. Isfahan): A – fronto-ventral view, B – lateral view, C – frontal view.

2.v.2012, M. Moradi leg. 16 exx. (SZCM); West Azerbaijan, Mahabad, 1340 m, 4.v.2012, M. Moradi leg. 3 exx. (SZCM); West Azerbaijan, Uromieh, 1322 m, 20.v.2102, M. Moradi leg. 3 exx. (SZCM); Zanjan, 10 km E Gharavolkhane, 2470 m – 47°24'32" N, 36°36'00" E, 30.iv.2017, M. Bollino, G. Sabatinelli & M. Uliana leg. 25 exx. (SZCM). **North Macedonia:** Prespa & Ohrid lakes, v.1970, 1 ♀ (ZFMK). **Lebanon:** Oberh. Bcharré, ca. 2300 m, 1 ♀ (JSCS); Kab Elias Cuye, 33, [Quabb Ilyas, Kab Elias, in Lebanon's Bekaa Valley], marmoratus men., Slg. R. Oberthür Eing. Nr. 4, 1956, 1 ♂ (ZFMK); Dj. Sannin (b. Faqra), 1900–2100 m, 17–31.v.1999, Heinz leg. 1 ♂ (JSCS); Chouf Dj. Barouk, Kefraya pass, 1700 m, 5.v.2000, G. Sama leg. 1 ex. (SZCM); Bekaa, Chtaura, 900 m, 12.iv.2001, S. Ziani leg. 2 exx. (SZCM); Mount Lebanon, Maasser e. Couf, 1600 m, 13.iv.2001, S. Ziani leg. 1 ex. (SZCM); North Lebanon, Bcharre, 1940 m, 15.iv.2001, S. Ziani leg. 7 exx. (SZCM); Mount Lebanon, Faraya, 1700 m, 16.iv.2001, S. Ziani leg. 3 exx. (SZCM). **Syria:** Anti-Lebanon, Zebdani, Syr., 31.v, Kulzer leg. 1 ♂ (NMPC); Damascus, Bludan, 1750 / 2100 m, 27.v.2000, G. Magnani & G. Sama leg. 37 exx. (SZCM). **Turkey:** Aksehir, Petrovitz & Ressler leg. 1 ♀ (JSCS); w. Kuruca gec, w. Bingöl, 1300 m, 21.iv.1981, D. Bernh leg. 1 ♀ (JSCS); Bulghar Maaden, v. Bodemeyer, 1 ♀ (RMNH); Camlibel Geçidi, 1650 m, 10–11.vii.1986, 1 ♂ (RMNH); Corum, 10 km NE di Corum, 9.vi.1992, A. Ballerio leg. 3 ♂♂ (JSCS); 14 km E Cerkes, env. Suzu, 1400 m, 1 ♀ (JSCS); 10 km NE Corum, 1 ♀ (ABCB), 2 ♀♀ (JSCS); Dagyuolu, 40 km ESE Erzincan, 1 ♀ (RMNH); Dagyuolu, 43 km ESE Erzincan, 1 ♀ (MHCG); Antalya, 5 km ESE of Dirim Gecidi, 30.iv.1996, sheep dung, A. Hielkema leg. 1 ♀ (MHCG); Igdir, Dogankonak, 35 km N Gökösun, 1 ♂ (MHCG); Igdir, 28 km S of Dogübayazit, cow dung, 2500 m, 22.vi.2005, M. A. Hielkema leg. 1 ♀ (MHCG); Konya, Aglasun, 1400 m, 1 ♂, 4 ♀♀ (ZFMK), 2 ♂♂, 1 ♀ (JSCS); Erzincan, > Kelkit, 2100 m, 12.v.1992, A. Ballerio leg. 2 ♂♂, 2 ♀♀ (JSCS); Erzincan, 17 km NW of Erzincan, 19.v.1990, 1 ♂ (RMNH); Erzincan, 10 km NW of Erzincan, 19.v.1990, P. Kanaar leg. 1 ♂ (RMNH); Erzincan, Dagyuolu, 43 km ESE of Erzincan, 18.v.1990, P. Kanaar leg. 1 ♂ (MHCG), 1 ♂ (RMNH); Erzincan, 15 km NW of Erzincan, 17.v.1990, P. Kanaar leg. 5 ♂♂ (RMNH); Mt. Nemrut, ca. 1800 m, 29.v.1989, 1 ♂ (JSCS); Erzincan, 18 km NW of Erzincan, horse dung,

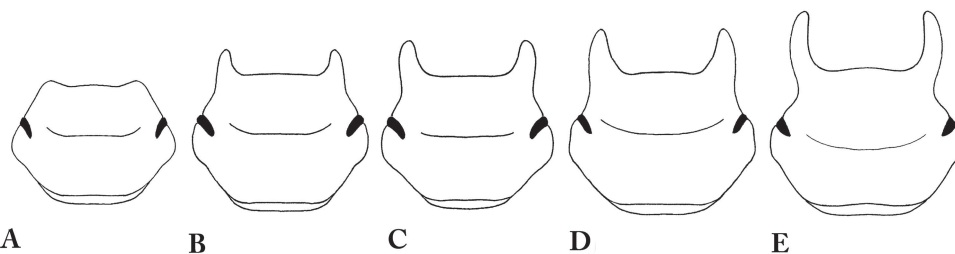


Fig. 6. Head of male of *Onthophagus (Palaeonthophagus) truchmenus truchmenus* Kolenati, 1846, from minor to major specimens: A–D Turkey, Nohutlu; E – Iran, Pass b. Gach-i-sar, 2700 m a. s. l.

24–26.v.1989, P. Kanaar leg. 1 ♂ (RMNH); 15 km NW Erzincan, 1 ♀ (RMNH); Erzican, > Kelkit, 2100 m, 6 ♂♂, 1 ♀ (ABCB), 4 ♂♂, 1 ♀ (JSCS); 10 km N Erzincan, 2 ♂♂, 1 ♀ (MHCG), 1 ♀ (RMNH); S Isparta, Sagalassos, 1 ♀ (JSCS); Pass S Ilgaz (Ücoluk), ca. 1400 m, 1 ♂ (JSCS); 5 km N Kolcekmez dagi Geçidi, 2 ♂♂ (MHCG); N of Kolcekmez dagi Geçidi, cow dung, 16.vi.2005, M. A. Hielkema leg. 1 ♀ (MHCG); Karaman, Karahazan Geçidi, cow dung, 6.vi.2004, M. A. Hielkema leg. 1 ♂ (MHCG); Konya, Taskent, 10.v.1996, K. Hadulla leg. 2 ♂♂, 4 ♀♀ (KHCB), 1 ♀ (JSCS); Konya, Aglasun, 1400 m, 28.v.1974, M. Forst leg. 1 ♀ (ZFMK), 1 ♂ (JSCS); Taskent (Konya), 2 ♂♂ (KHCB), 1 ♂ (JSCS); Puturgi near Malatya, 1 ♂ (OHCB); Püren Gecidi, 80 km N Kahramanmaraş, 1 ♀ (MHCG); 30 km SW Malatya, SE env. Eskiköy, 1570 m / 1620 m, 1 ♂, 1 ♀ (ANCR); Malatya, 30 km SW Malatya, SE env. Eskiköy vill., 1570 m / 1620 m, 30.v.2011, A. Napolov & I. Roma leg. 1 ♂, 2 ♀♀ (ANCR); Erekli (N Mersin), Bodemeyer leg. 1 ♀ (RMNH); Nohutlu, 90 km SO Malatya, 1700 m, 5.vi.1993, Schröder leg. 10 ♂♂, 30 ♀♀ (OHCB); Pulumur env., 1500 m / 1875 m, 39.4932 N 39.9135 E, 16–23.v.2011, J. Hron & S. Murzin leg. 2 ♂♂, 1 ♀ (JSCS); Pulumur env. 1500 m / 1875 m, 1 ♂, 2 ♀♀ (JSCS); Kahramanmaraş, Püren Geçidi, 80 km N of Kahramanmaraş, 22.v.1997, M. A. Hielkema leg. 1 ♂ (MHCG); Saimbeyli/ Yalakköy, 1 ♂ (JSCS); Sertavul Pass, 1650 m, 1 ♂, 1 ♀ (DRCB); Konya, Sertavul geç. 1600 m, 5.vi.2011, L. Saltini leg. 1 ex. (SZCM); Gumushane, Bayburt, 2000 m, 3.vii.1992, S. Ziani leg. 3 exx. (SZCM); Erzurum, Kop dagi geçidi – Kandilli, 2500 m, 3.vii.1992, S. Ziani leg. 3 exx. (SZCM); Cankiri, Kursunlu, 3.vii.1992, S. Ziani leg. 7 exx. (SZCM); Van, Kocapinar, 1900 m, 4.vii.1992, S. Ziani leg. 11 exx. (SZCM); Agri, Tutak, 1600 m, 4.vii.1992, S. Ziani leg. 1 ex. (SZCM); Van, Gurpinar, 2100 m, 5.vii.1992, S. Ziani leg. 16 exx. (SZCM); Bolu, Abant Golu, 29.v.1995, G. Dellacasa leg. 1 exx. (SZCM); Erzurum, Kirecli geç., 6.vi.1995, G. Dellacasa leg. 1 ex. (SZCM); Kayseri, Erciyes, 2000 m, 9.vi.1995, G. Dellacasa leg. 1 ex. (SZCM); Adiyaman, Nemrut dag., 1000 / 1800 m, 13.v.1997, G. Sama leg. 1 ex. (SZCM); Antalya, 5 km N Yarpuz, 1500 m, 20.v.1997, G. Sama leg. 1 ex. (SZCM); Antalya, Irmasan geç., 1300 m, 22.vi.1997, G. Sama

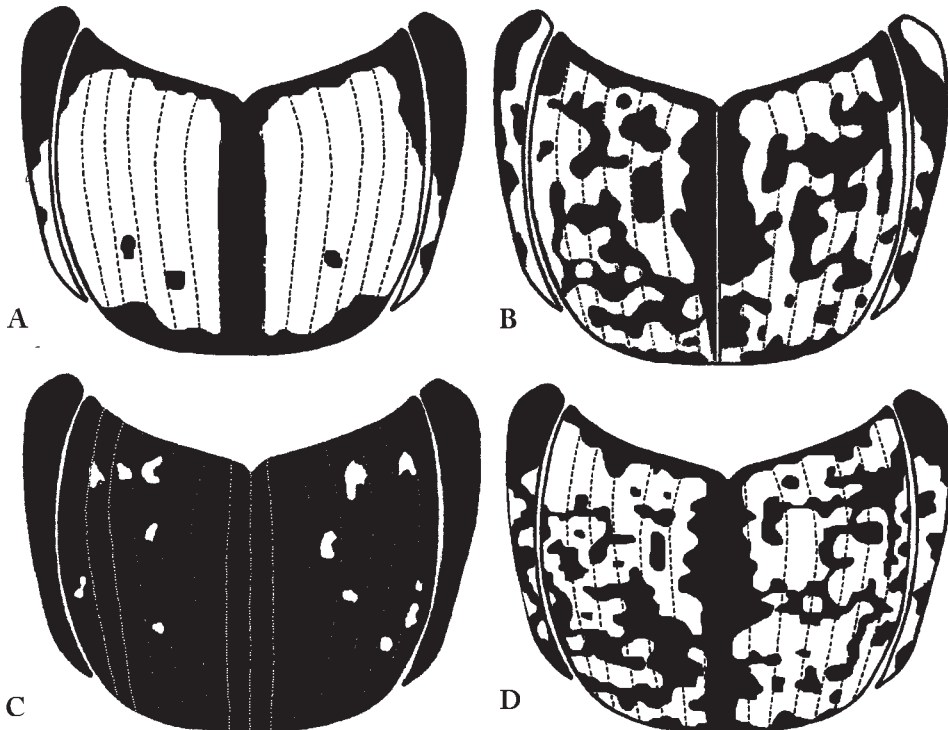


Fig. 7. Variability of elytral maculation (minimal, medial, maximal) of *Onthophagus (Palaeonthophagus) truchmenus truchmenus* Kolenati, 1847: A – *O. (P.) t. truchmenus* (Turkey, Nohutlu), B – *O. (P.) t. truchmenus* (Turkey, Nohutlu), C – *O. (P.) t. truchmenus* (Turkey, Nohutlu), D – *O. conspersus macedonicus* Mikšić, 1959 **syn. nov.** (holotype).



A

20.5. 1956
 Petrina plan,
 Macedonis 1600m
 leg. J. Thurner

TYPE

R. Mikšić det., 1959
O. conspersus Kth.
 sp. *mbiceps* *macar*
 nov.

Onth. Mikšić
 macedonicus
 Det. Pittido 1990
 TYPE



B



C



D

Fig. 8. *Onthophagus conspersus macedonicus* Mikšić, 1959, **syn. nov.**, holotype ♂: A – habitus; labels; B – lamella copulatrix; C – aedeagus in fronto-ventral view; D – lateral view.

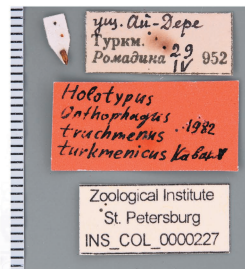
leg. 4 exx. (SZCM); Bingol, 12 km S Karliova, 1800 m, 1.vi.1998, G. Sama leg. 1 ex. (SZCM); Van, Guzeldere geç., 2700 m, 5.vi.1998, G. Sama leg. 1 ex. (SZCM); Kars, 14 km S-E Sarikamis, 2000 m, 7.vi.1998, G. Sama leg. 1 ex. (SZCM); Malatya, Resadiye geçidi, 1510 m., 13.iv.2004, S. Ziani leg. 3 exx. (SZCM); Burdur, Burdur > Isparta, 1.vi.2007, C. Sola leg. 1 ex. (SZCM); Isparta, Davraz dag., 1450 m, 1.vi.2007, C. Sola leg. 6 exx. (SZCM); Sivas, Osmandede 1770 m, 20.v.2010, M. Uliana leg. 1 ex. (SZCM); Adijaman, Nemrut dag, 1700 m, 13.v.2011, P. Rapuzzi & G. Sama leg. 1 ex. (SZCM); Hakkari, SE of Yuksekova – road Karabey > Güzelkonak, 1920 m, 13.v.2014, D. Baiocchi leg. 20 exx. (SZCM); Şirnak, NE of Hakkari / env. W of Kolbaşı, 1980 m, 15.v.2014, D. Baiocchi leg. 10 exx. (SZCM); Karaman, Pass 10 km SW Insaniye, 1940 m – 36°49'N, 32°56'E, 9.v.2017, G. Sabatinelli leg. 17 exx. (SZCM); Karaman, Karadag – edge of crater, 1960 m – 37°23'N, 33°07'E, iv.2018, G. Sabatinelli leg. 54 exx. (SZCM); Karaman, 2 km W Yesildere, 1120 m – 37°09'N, 33°28'E, iv.2018, G. Sabatinelli leg. 1 ex. (SZCM); Hakkari, NE Kolbaşı, 1403 m – 37°41'N, 43°55'E, 17.v.2018, G. Magnani leg. 5 exx. (SZCM); Bitlis, SE Yolalan, 1800 m – 38°15'N, 42°19'E, 20.v.2018, G. Magnani leg. 2 exx. (SZCM). **Turkmenistan:** Kara-Kala env., 2.v.1981, C. Kpoiko leg. 1 ♀ (ZMML); Kopet-Dagh Mts., Kurkulab, 6 km W Germob, 1000 m, 3.x.1991, No. L34, A. Podlussány, L. Ronkay & Z. Varga leg. 1 ♂, 1 ♀ (JSCS), 3 ♂♂, 5 ♀♀ (HNHM); Podlussány, 1 ♂, 1 ♀ (JSCS), 2 ♂♂, 1 ♀ (HNHM); Firjuza, Vanovski, 26.iv.1989, S. Bečvář leg. 3 exx. (SZCM). **Uzbekistan:** W Tien Shan Mts. – Ugam ridge / Sidjak, 11.v.1990, Kostantinov leg. 1 ex. (SZCM). We have also examined 3 specimens, 2 ♂♂, 1 ♀, labelled: “Caucas [p] // Kolenati [p]”, (OUMNH).

DISTRIBUTION. Albania (first record, see Material examined), Armenia, Azerbaijan, Bulgaria (*O. macedonicus* was recorded by Bunalski, 2001), Georgia, Greece (Balthasar 1963), Iran, Macedonia [North Macedonia], Lebanon, Russia South European Territory, Syria, Turkey, Turkmenistan (*O. truchmenus truchmenicus* was recorded by Ziani & Bezděk 2016) and Uzbekistan (first record, see Material examined).

REMARKS. According to the original description (Kolenati 1846) *Onthophagus truchmenus* was described from more than 1000 specimens. Kolenati didn't fix a holotype and, to our knowledge, no subsequent author fixed a lectotype. These “more than 1000 specimens” should have been deposited in Saint Peterburg Museum, but Andrey Frolov personally communicated to us that in ZINC there are no records of any scarabs type by Kolenati. We came across two specimens, housed in NMPC, which according to the curator (Jiří Hájek, pers. comm.) may be syntypes belonging to Kolenati's type material. The specimens are conspecific, consistent with the original description and their labels appropriate and suitable (cf. the paragraph “Type material examined” for *O. truchmenus*), therefore we have no reasons for believing that they don't belong to the type series of *O. truchmenus*. Because of possible implications connected with the synonymies proposed in this paper, we think that it is necessary to define the nominal taxon objectively. For this aim a lectotype (preserved in NMPC) is designated from paratypes to become the unique name-bearing type of the taxon (cf. “Type material examined” paragraph).

In 1892 and 1897, respectively, Reitter described the varieties *O. t. araxicola* and *O. t. latiplaga* of *O. truchmenus*, without specifying the number of specimens on which the descriptions were based. According to the art. 45.6.4 of the Code of Zoological Nomenclature (ICZN 1999), the rank of a taxon is deemed to be subspecific if first published before 1961 and its author expressly used the term “var.”. But Reitter himself, a few years later (Reitter 1906) deemed both of them as aberrations, i.e., expressly giving them infrasubspecific rank. No subsequent author gave them a subspecific rank, except Carpaneto et al. (2000) who even attributed to *araxicola* the rank of species but without justifying the nomenclatural act. The study of five specimens, that according to Zunino (1978) possibly belong to the type material of the var. *O. t. araxicola* and of a specimen corresponding to the description of the *O. t. latiplaga* [“Caucasus. [p] / Araxesthal. [p] / Leder. Reitter [p] // truchmenus [hw] / v. latiplaga m [hw] // *O. truchmenus* [hw] / Coll. Reitter [p] / SYNTYPE ? [hw] / VAR. RTT. [hw] / LATIPLAGA [hw]”] and already identified as such by Boucomont (Zunino 1978), confirmed the infrasubspecificity of the two taxa, mere manifestations of the remarkable chromatic variability of *O. truchmenus*, as already stated by Zunino (1978).

Kabakov (2006) described the subspecies *O. t. turkmenicus* of *O. truchmenus*, based on 85 specimens from Turkmenistan, Aýdere, Kopet Dag mountains (holotype and 63 paratypes) and Mt.



Figs. 9–11. Habitus of *Onthophagus (Palaeonthophagus) trachmenus turkmenicus* Kolenati, 1847 syn. nov.: 9 – holotype ♂ with labels; 10 – paratype ♀, Turkestan-S, mt. Dushak-Erkdag; 11 – paratype ♀, Туркмения [Turkmenia], Ай-дере [Aj-Dere].

Table 1. Character matrix of *Onthophagus (Palaeonthophagus) truchmenus truchmenus* Kolenati, 1846 and *O. (P.) t. xerxes* Petrovitz, 1965

	<i>O. (P.) t. truchmenus</i>	<i>O. (P.) t. xerxes</i>
surface of pronotum	matt, densely microsculptured (Figs 1A–F, 2, 8–11)	strongly glossy, not microsculptured (Figs 12–17)
surface of elytron	matt (Figs. 8A, 9–11, 18–19)	strongly glossy (Figs. 12–16)
structure of elytral intrerstriae	each interstria with 2 or 3 lines of points, situated on completely flattened interval	each interstria with 2 or 3 lines of points, enclosed on irregularly sculptured interval with distinctly uneven texture
aedeagus	as in Fig. 4	as in Fig. 5
lamella copulatrix	as in Fig. 3A	as in Fig. 3B
occipital carina of female	bent weakly backward	straight

Dushak-Erekdag (21 paratypes), distinguishable from the nominotypical subspecies by punctuation of interstriae and by a pronotal feeble bronze lustre. We don't believe that these differences are systematically meaningful, and therefore we propose the synonymy *Onthophagus (Palaeonthophagus) truchmenus* ssp. *turkmenicus* Kabakov, 2006 **syn. nov.** = *Onthophagus (Palaeonthophagus) truchmenus* ssp. *truchmenus* Kolenati, 1846.

Onthophagus macedonicus Mikšić, 1959 was described, as subspecies of *Onthophagus conspersus* Reitter, 1892, based on a single male collected in Macedonia (Petrina Planina), presently the Republic of North Macedonia. The same author (Mikšić 1964) claimed that *O. conspersus* was at that moment unknown to him.

For what we know, no subsequent authors directly compared *O. macedonicus* with *O. truchmenus*, except Kabakov (2006) who has supposed that the former was probably a subspecies of the latter, but without delving deeper into the issue and proposing nomenclatural acts.

According to the literature, *O. macedonicus* differs from *O. truchmenus* for the density and shape of pronotal punctures. But as already noted, *O. truchmenus* shows a great variability in such punctuation (Figs. 1A–F, 2, 8A, 9–11, 18–19). After studying the relevant type material, we did not find any morphological character to separate the two taxa. Consequently, we propose the synonymy *Onthophagus conspersus* ssp. *macedonicus* Mikšić, 1959 **syn. nov.** = *Onthophagus (Palaeonthophagus) truchmenus* ssp. *truchmenus* Kolenati, 1846. Such synonymy is also based on the examination of a large number of specimens from the Balkan regions of Macedonia, Albania and Greece that represent the western part of the distribution of *O. t. truchmenus*.

The species is recorded also from north-western Alps (France) by the following authors:

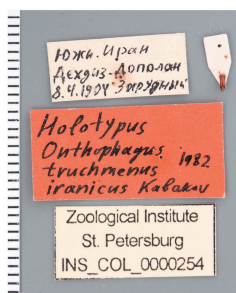
- d'Orbigny (1898): "France: Embrun (Abeille de Perrin!)"
- Bedel (1911): "Espèces surtout orientale, mais qui se retrouve, vers l'ouest, jusque dans le département des Hautes-Alpes";
- Sainte-Claire-Deville (1935): "H.-Alp.: Embrun (Abeille); B.-Alp.: Boscodon (Sietti)";
- Paulian (1941): "Très rare et très localisé à quelques points des Alpes: Embrun (Abeille), Boscodon (Sietti)".

Other authors, more recently, denied its presence in France:

- Baraud (1977): "Espèce du Moyen-Orient, connue pour l'Europe uniquement en Russie. Les captures dans les Alpes: Embrun (Abeille) et Boscodon (Sietti), rapportées par R. Paulian comme "très rares et très localisées" sont pour le moins étonnantes; Balthasar n'hésite pas à les



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13



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Figs. 12–14. Habitus of *Onthophagus* (*Palaeonthophagus*) *truchmenus iranicus* Kabakov, 2006 (n. syn.): 12 – holotype ♂ with labels; 13, 14 – paratypes ♂ ♀, Дехдиз-Дополак [Iran, Dehdiz-Dopolak].

qualifier d'erreurs. A notre avis cette espèce doit être considérée, jusqu'à preuve au contraire, comme étrangère à notre faune”;

- Paulian & Baraud (1982): “France: les ancienne citations sont très probablement dues à des erreurs de détermination ou de provenance”.

What's more, Cosandey et al. (2017) quoted three specimens of *O. truchmenus* collected in Switzerland, 2 ♂♂ from Martigny (examined by S. Z.) and 1 ♀ from Fully, but considering them as specimens accidentally imported or with label mistake.

Waiting for new and certain records, we prefer not to consider France and Switzerland in the distribution of the species, in agreement with Ziani & Bezděk (2016).

***Onthophagus (Palaeonthophagus) truchmenus* ssp. *xerxes* Petrovitz, 1965**

(Figs. 3B, 5A–C, 12–17, 20)

Onthophagus truchmenus ssp. *xerxes* Petrovitz, 1965: 674 (original description).

Onthophagus (Palaeonthophagus) truchmenus ssp. *xerxes*: Baraud 1992: 385 (diagnostic characters, key, distribution);

Löbl et al. 2006: 170 (catalogue); Ziani & Moradi Garakhloo 2011: 70 (remarks); Bunalski et al. 2014: 159 (checklist);

Ziani & Bezděk 2016: 196 (catalogue); Montreuil 2017: 274 (remarks).

Onthophagus (Palaeonthophagus) truchmenus ssp. *iranicus* Kabakov, 2006: 235 (original description) [type locality:

“Персия, между Дехдиз и Дополян [Persia, between Dehdiz and Dopolan (Iran)”]; type material: holotype ♂

(examined) and 5 paratypes, sex non specified, in ZINC (new synonymy); Ziani & Moradi Garakhloo 2011:

70 (remarks); Bunalski *et al.*, 2014: 158 (checklist); Ziani & Bezděk 2016: 196 (catalogue); Montreuil 2017: 274

(remarks).

TYPE LOCALITY. “Kuh-räng, westl. Isfahan, 2400 m” [Iran].

TYPE MATERIAL EXAMINED. *Onthophagus truchmenus* ssp. *xerxes* Petrovitz, 1965: Holotype ♂: Holotypus [p] // *Onthophagus* s. str. / *truchmenus* / ssp. *xerxes* m. / Petrovitz [p] // Osterr. Iran- / Exp. 1949–50 [p] // an Kot von / Bos taurus [p] // Kuh-räng / westl. Isfahan [p] // 2400 m. / teilw. Schnee [p] // MHNG / ENTO / 00010016 [p] // *xerxes* [p] // Coll. / R. Petrovitz [p] (MHNG). Paratypes: 1 ♂, 1 ♀, “Kuh-räng / west. Isfahan / 8.v.[19]50 [p] // 2400 m. / teilw. Schnee [p] // an Kot von / Bos taurus [p] // Österr. Iran- / Exp. 1949–50 [p] // PARATYPUS [p] // *Onthophagus* s.str. / *truchmenus* / ssp. *xerxes* m. / Petrovitz [p] // Coll. / R. Petrovitz [p]” (JSCS). *Onthophagus truchmenus* ssp. *iranicus* Kabakov, 2006: Holotype ♂: “Южн. Иран [South Iran] / Дехдиз–Дополак [Dehdiz-Dopolak] / 8.4.1904 Зарудный [Zarudnyj] [hw] // Holotypus / *Onthophagus* / *truchmenus* / *iranicus* Kabakov 1982 [hw] // Zoological Institute / St. Petersburg / INS_COL_0000254 [p]”, (ZINC). Paratypes: 1 ♂, 1 ♀, studied only by pictures, as follows: 1 ♂: “Ту.с. / 7.iv.[1]904 / Зарудный [Zarudnyj] [hw] // Иран Юг [South Iran] / Дехдиз–Дополак [Dehdiz-Dopolak] / 7.4.1904 Зарудный [Zarudnyj] [hw] // O. (Palaeonthophagus) / *truchmenus* / *iranicus* Kabakov [hw] // Paratypus *Onthophagus* / *truchmenus* / *iranicus* Kabakov 1982 [hw] // Zoological Institute / St. Petersburg / INS_COL_0000256 [p]”, (ZINC); 1 ♀: “Ту.с. / 7.iv.[1]904 / Зарудный [Zarudnyj] [hw] // Иран Юг [South Iran] / Дехдиз–Дополак [Dehdiz-Dopolak] / 7.4.1904 Зарудный [Zarudnyj] [hw] // O. (Palaeonthophagus) / *truchmenus* / *iranicus* Kabakov [hw] // Paratypus *Onthophagus* / *truchmenus* / *iranicus* Kabakov 1982 [hw] // Zoological Institute / St. Petersburg / INS_COL_0000255 [p]”, (ZINC).

FURTHER MATERIAL EXAMINED (8 specimens). **Iran**: Hamadan, Hamadan env., 12.vi.1963, Herman leg. 1 ♂ (SZCM); Fars, Mts. Zagros – Komehr, 2700 m, 27.iv.2008, Hacz leg. 1 ♂ (SZCM); Chaharmahaal Bak., Shahrekord, vi.2009, 2 ♂♂, 1 ♀ (SZCM); Fars, Tangari, 2081 m – 30°35'N, 51°30'E, 4.iv.2018, G. Sabatinelli leg. 1 ♂ (SZCM); Fars, Bowan road, 2078 m – 29°56'28"N, 51°46'17"E, 8.iv.2018, G. Sabatinelli leg. 2 ♀♀ (SZCM).

DISTRIBUTION. Afghanistan, Iran (Ziani & Bezděk 2016).

REMARKS. The subspecies *O. t. xerxes* of *O. truchmenus* was described by Petrovitz (1965) on the basis of three specimens collected in Iran, distinguished from the nominotypical subspecies for having the size smaller and especially the upper side very glossy (“almost as if it were varnished”, according to the original description). Without taking in consideration this last taxon, Kabakov (2006) described the *O. t. ssp. iranicus* of *O. truchmenus*, from six specimens from south Iran. Petrovitz's subspecies is clearly different from the nominotypical subspecies in the shininess of pronotum and elytra, and in the elytral punctation. The aedeagus shows also great diversity



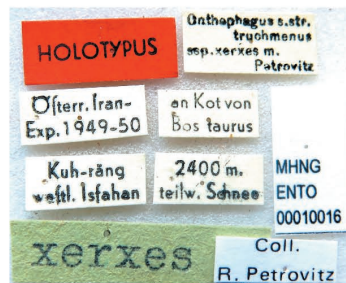
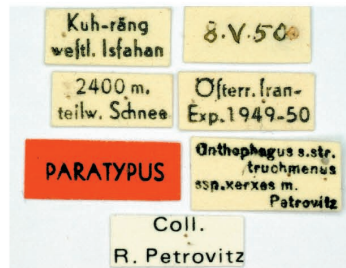
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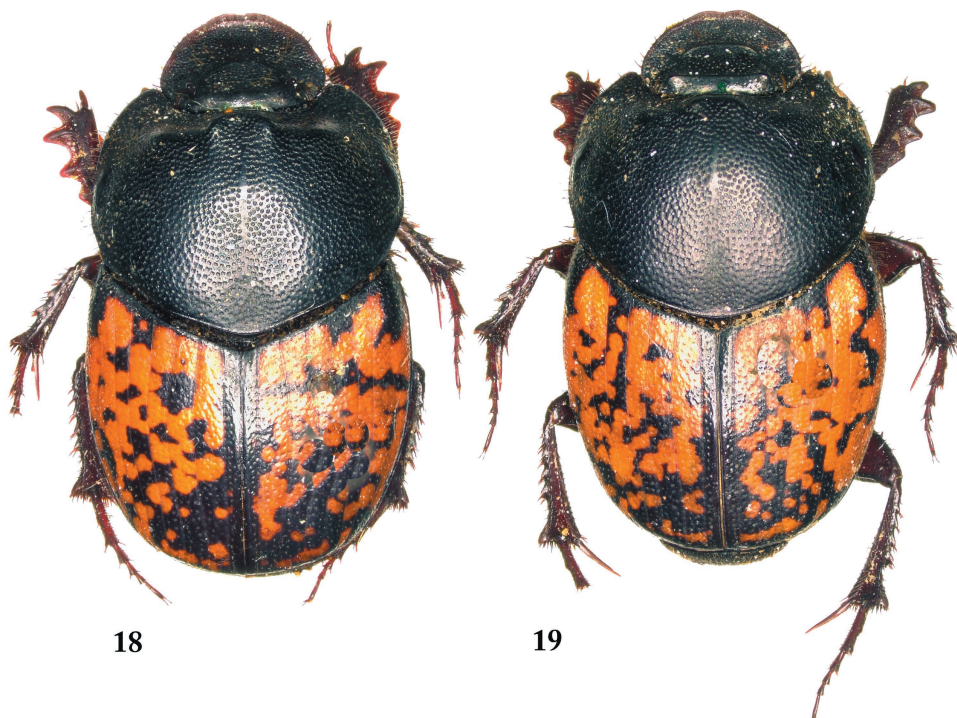


17



Figs. 15–17. Habitus of *Onthophagus* (*Palaeonthophagus*) *truchmenus xerxes* Petrovitz, 1965: 15, 17 – paratype ♂ and label (A); 16 – holotype ♂ and label (B).

especially at the apex of the parameres, cf. Figs. 4 and 5. In contrast, *Onthophagus truchmenus iranicus* Kabakov, 2006 has diagnostic characters almost indistinguishable from those of *O. t. xerxes*, and its type locality is very close to the type locality of Petrovitz's taxon (Fig. 20). After studying the type material of *O. t. xerxes* and the holotype of *O. t. iranicus*, we herein propose



18

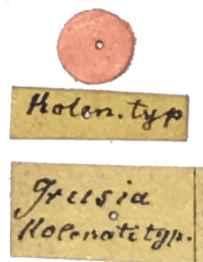
19

LECTOTYPUS
Onthophagus truchmenus
 Kolenati, 1846, O. Hillert,
 J. Schönfeld & S. Ziani des. 2019

PARALECTOTYPUS
Onthophagus truchmenus
 Kolenati, 1846, O. Hillert,
 J. Schönfeld & S. Ziani des. 2019



A



B

Figs. 18–19. Habitus of *Onthophagus (Palaeonthophagus) truchmenus truchmenus* Kolenati, 1847: 18 – lectotype ♂ and label (A); 19 – paralectotype ♂ and label (B).

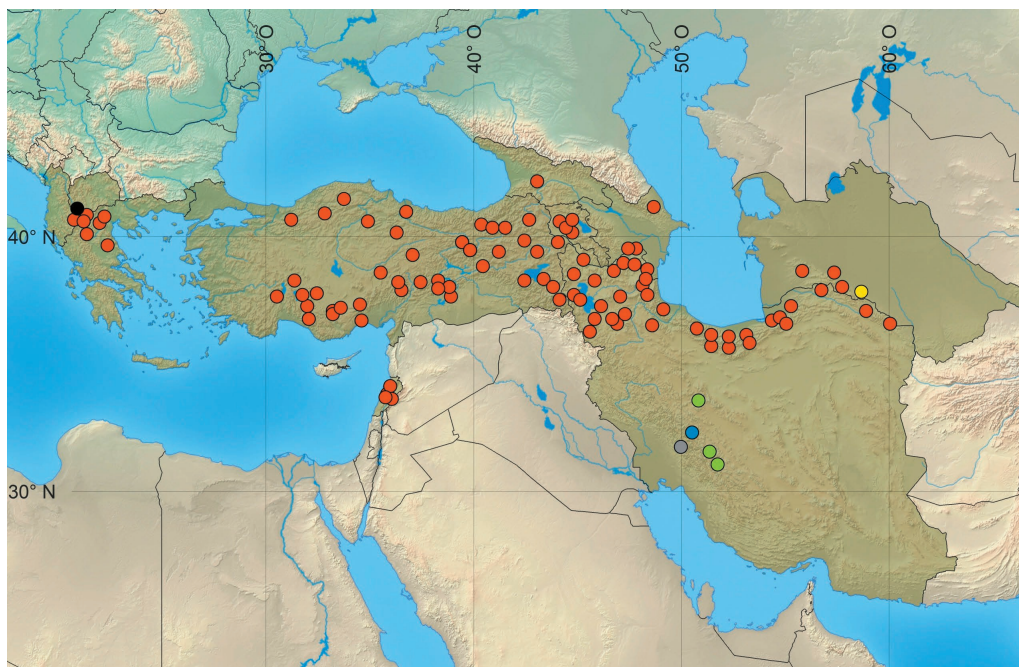


Fig. 20. Revised distribution of *Onthophagus (Palaeonthophagus) truchmenus truchmenus* Kolenati, 1847: black circle – *Onthophagus macedonicus* Mikšič, 1959 (n. syn.) (holotype); red circle – *O. (P.) t. truchmenus* [material examined]; yellow circle – *O. (P.) t. turkmenicus* Kabakov, 2006 (n. syn.) (holotype); gray circle – *O. (P.) t. xerxes* Petrovitz, 1964 (holotype); green circle – *O. (P.) t. xerxes* [material examined]; blue circle – *O. (P.) t. iranicus* Kabakov, 2006 (n. syn.) (holotype).

the synonymy *Onthophagus (Palaeonthophagus) truchmenus* ssp. *iranicus* Kabakov 2006 **syn. nov.** = *Onthophagus (Palaeonthophagus) truchmenus* ssp. *xerxes* Petrovitz, 1965.

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