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A contribution to the knowledge of beetles distribution in Western Poland. Part 9. Scarabaeidae: Scarabaeinae.

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ABSTRACT: The paper presents chronological data derived from the field research conducted in Western Poland in the last few decades. They concern 10 species belonging to the tribe Copriini. However, no observations concerning the representatives of the subfamily Scarabaeini were reported.

KEY WORDS: Coleoptera, Scarabaeidae, Scarabaeinae, Copriini, W. Poland, chorology, new data.

Introduction

The subfamilies of Scarabaeidae from the group Scarabaeidae laparosticti are characterized with a set of morphological and biological features that are distinctly distinguishable from the rest of Scarabaeidae. The most important morphological feature is the position of abdomen spiracles on pleural membranes, and as for the biological one—the foraging of larvae on decaying or a digested-by-mammals plant substrate (STEBNICKA 1976).

The subfamilies from this group have changed their statuses many times, and by the end of the 20th century, they were treated as separate families (BARAUD 1992, BUNALSKI 1996a, 1999, 2006). Similarly to the subfamilies from the group Scarabaeidae pleurosticti (BUNALSKI & all. 2015a, 2015b, 2015c) studied earlier, they have not been given a comprehensive study in Poland – hence the information concerning their distribution are scattered across different faunistic studies and inventory lists.

The data coming from the western part of the country contained in “Catalogue of Polish Fauna” (BURAKOWSKI & al. 1983) should be supplemented with the data published in later publications: BUNALSKI 1993, 1996b, 1997, 1999, 2003a, 2003b; BYK 2012a, 2012b; CIECHANOWSKI & al. 2009, GUTOWSKI & RUTA 2004, PRZEWOŻNY 2007, RENNER & MESSUTAT 2007; RUTA 2007, 2009a, 2009b; RUTA & MELKE 2002, ŻUK 2005.

Aim and methods

The aim of the following study is to supplement data concerning the occurrence of representatives of the afore-mentioned subfamily from the area of Western Poland, as well as to enrich them with those elements which provide faunistic observations. The data in question are derived from the authors’ studies and field researches conducted over the last few decades. In order to indicate resources, the following designations have been used: [MB] – Marek BUNALSKI, [MP] – Marek PRZEWOŻNY, [RR] – Rafał RUTA; [SK] – Szymon KONWERSKI. If not stated otherwise, the above persons were also direct observers.

The study also provides materials gathered by other persons who were indicated within the text with the following abbreviations:

A.K. – Antoni KUŚKA; A.Ł. – Antoni ŁĘSZCZAK; A.M. – Andrzej MELKE; A.P. – Arkadiusz POKOJOWCZYK; B.B.-S. – Beata BOROWIAK SOBKOWIAK; C.G. – Czesław GREŃ; C.W. – Cezary WATAŁA; D.I. – Dariusz IWAN; H.P.-B. – Hanna PIEKARSKA-BONIECKA; J.G. – Jerzy M. GUTOWSKI; J.K. – Jerzy KACZMAREK; J.S. – Jan SIEKIERSKI; K.K. – Krzysztof KARWOWSKI; K.L. – Krzysztof LUBECKI; M.W. – Maria WOLENDER; P.S. – Paweł STACHOWIAK; P.T. – Paweł TRZCIŃSKI; R. M. – Robert MATUSIAK; R.W. – Roman WĄSALA; S.A. – Stefan ALWIN; S.M. – Szymon MATUSZEWSKI; S.P. – Paweł SIENKIEWICZ; T.M. – Tomasz MAJEWSKI; Z.P. – Zbigniew PNIEWSKI.

We would like to thank all the mentioned persons.

The systematic order and nomenclature, as well as the extent of zoogeographic regions have been adopted after "Catalogue of Polish Fauna" (BURAKOWSKI & all. 1983).

Results

In the western part of the country, no occurrences of neither of the two Scarabaeini species appearing in Poland were observed. Out of 21 species of the native Copriini, new data regarding 10 of them are provided below.

Copris lunaris (Linnaeus, 1758)

The Pomeranian Lakeland: VU54 Czelin, 23 IX 2009, 1♂, leg. R.W., light trap [MB]; VU63 Kaleńsko: 22 V 2009 (1♀), 21 V 2010 (1♀), 29 VI 2010 (1♀), 21 VII 2010 (1♂), 17 VII 2015 (1♀), leg. R.W., in light trap, [MB].

- The Wielkopolsko-Kujawska Lowland: CC36 Osiek Mały, 2 VI 1999, 2♂, leg. R.M. [MP]; CC38 Białków Kościelny, IX 1999, 2♂, leg. R.M. [SK]; CC39 Osiek Mały, 2 VI 1999, 3♂1♀, leg. R.M [MP, SK]; WU43 Krobielewko, 23 V 2010, 1♂, leg. R.W., forest areas, in light trap [MB]; XU32 Murowana Goślina, 21 VI 1974, 1♂, leg. P.S., in cow dung [MB]; XU32 Biedrusko vic., 1 IX 2012, 1 ex., leg. S.M., a military training area, turf, under a pig carcass [SK].

The only national representative of the genus *Copris*; a coprophagic species, digging deep in the ground; more often encountered in the eastern part of the country, and in the western encountered quite rarely; taking into account its hidden lifestyle, it is the most frequently captured using light sources.

Onthophagus (Onthophagus) taurus (SCHREBER, 1759)

- The Wielkopolsko-Kujawska Lowland: CC38 Koło: 19 V 1985 (1♀), 14 IX 1985 (1♂), 9 VIII 1986 (1♂), 24 VIII 1986 (2♀), 4 VI 1989, 1♂1♀, a pasture, in cow excr. [MB], idem, 15 VIII 1986, 1♀, leg. T.M. [MB]; WU93 Ostroróg, 16 V 1983, 1♀, leg. J.K., a meadow [MB]; XT29 Wiry, 30 V 2007, 1♀, leg. B.B.-S., the edge of a forest, caught with yellow bowls [MB]; XT56 Chwałkowo Kościelne, 18 IX 2002, ♂, leg. J.K., a pasture, in cow excr. [MP]; XT57 Młodzikowice, 9 VI 1984, 2♂1♀, a pasture, in cow excr. [MB]; XT57 Gogolewo: 10 VI 2002 (1♂), 25 IX 2002 (1 ex.), leg. J.K., in cow excr. [MB, MP]; XT67 Wolica Kozia: 14 V 2002 (1♂), 16 V 2002 (2♀), leg. J.K., in horse excr. [MB, MP]; XU03 Sycyn Dolny: 19 V – 30 IX 1992 (10♀1♂), 7 V – 15 IX 1993 (9♀2♂), a

midforest pasture, into bait traps [MB], idem, 17 VI 2004, 2♀, lured by a light source [MB]; XU03 Jaryszewo, 22 IX 1993, 2♂1♀, a pasture by a forest, in cow excr. [MB]; XU04 Obrzycko, 27 V 1986, 2 exx., leg. J.K. [MB], XU04 the Bugaj Forestry: 29 V 1986 (1♂); 13 VI 1986 (1♀), leg. J.K. [MB]; XU04 the Daniele Forestry, 12 IX 1986, 1♂, leg. J.K., a forest path, in horse excr. [MB]; XU04 Brączewo: 26 V – 26 VIII 1992 (24 exx.), 7 V – 24 IX 1993 (233 exx.), a pasture within the areas of Warta, into bait traps, a pasture by the areas of the Warta River, into bait traps [MB]; XU05/06 Pianówka vic., 19 IV 2008, 1 ex., xerotherms [RR]; XU13 Sycyn Dolny: 2 VI 1997 (2♀), 1 V 2008 (1♂), 3 V 2010 (1♀), a forest road, in horse excr. [MB]; XU13 Osowo Stare: 19 VI – 28 IX 1992 (3♀), 7 V – 8 VIII 1993 (2♂7♀), a midfield pasture, into bait traps, a midmeadow pasture, into bait traps [MB].

A coprophag; adult forms feed on excrements belonging to humans and different animal species, mainly cattle and horses. It occurs more numerously during spring, especially at localities with warm and permeable grounds.

Onthophagus (Palaeonthophagus) coenobita (HERBST, 1783)

- The Baltic Coast: VV66 Lubin, 12 VI 2007, 2 exx., leg. M.W., in beechmast, into ground traps [MB].

- The Pomeranian Lakeland: VU47 Raduń, 1 IX 2009, 1♀, leg. S.P., flower turf, ground traps [MB]; VU54 Czelin, V 2010, 1♀, leg. R.W., forest areas, a light trap [MB].

- The Wielkopolsko-Kujawska Lowland: CD19 Ostromecko, 22 IX 1982, 10 exx., leg. C.W., WT87 Głodowo, 9 VIII 2007, 1♀, leg. A.Ł. [MB]; XT29 Wiry, 30 VIII 2007, 1♀, leg. P.T., the verge a forest, caught into yellow bowls [MB]; XT38 Rogalin, 12 X 1984, 1♂, water meadows, in sheep excr. [MB], idem, 5 X 1985, 3♂, a road, under a sheep excr. [MB], idem, 6 VIII 1988, 2 exx., water meadows, in cow excr. [MB]; XT38 Krajkowo Res., 14 VI 1999, 1♀, leg. S.P., a meadow, into ground traps [MB], XT38 Krajkowo, 19 VI 1999, 6 exx., leg. S.P., a pasture by a forest, into ground traps [MB]; XT56 Mchy, 19 IX 2003, 1♂, leg. J.K. [MP]; XT56 Chwałkowo Kościelne, 20 IX 2002, 1 ex., a forest, in cow excr. [MB]; XT67 Wolica Kozia: 16 V 2002 (1♀), 21 V 2002 (1♀), leg. J.K., in horse excr. [MB, MP]; XT68 Dębno n/Wartą Res., 6 VI 2003, 4♂, 2♀, leg. J. K. [MP]; XU03 Sycyn Dolny: 4 V – 6 X 1992 (5 exx.), 18 VIII – 5 IX 1993 (1♀), a midforest pasture into bait traps [MB], idem, 3 V 2010, 1♀, at night, by a light source [MB]; XU03 Sama riv. val., 8 V 2011

(14 exx.), a meadow, in cervid excr. [MB], idem, 29 V 2011, 1♀, with a butterfly net, from plants [MB]; XU04 Brączewo: 5 V – 6 X 1992 (38 exx.), 1 V – 24 X 1993 (611 exx.), a pasture within the areas of the Warta River, into bait traps [MB]; XU04 the Daniele Forestry, 12 IX 1986, 1♂, leg. J.K., a forest road, in horse excr. [MB]; XU04 the Bugaj Forestry, 30 IV 1986, 7 exx., leg. J.K. [MB]; XU04 Antoniny, 19 IV 1991, 3 exx., leg. J.K., a bank of the Warta River, in cow excr. [MB]; XU04 Obrzycko vic, 3-15 VI 2002, 2 exx., meadows by the Warta River [RR]; XU13 Sycyn Dolny: 1 V 2008 (3 exx.), 4 IX 2008 (1♀), pastured wasteland, in cow excr. [MB], idem, 5 V 2015, 1♂, a midforest meadow [MB]; XU21 Poznań Wola, 18 IV 1983, 2 exx., areas by a forest, under human excr. [MB]; XU28 Dziembówko vic., 4 V 2002, 1 ex., by the Noteć River [RR]; XU29 Trzebaw: 13 VII 2006 (2 exx.), 30 VIII 2007 (10 exx.), leg. P.T., into yellow bowls [MB]; XU30 Poznań, 9 VI 1986, 1♀, leg. P.S., on the grass [MB], idem, 29 V 1995, 1♀, leg. P.S., into a butterfly net [MB]; XU30 Poznań-Dębina, 10 V 1985, 3 exx., wastelands, in dog excr. [MB]; XU30 Poznań-Krzesiny, 23 IV 2000, 1♂1♀ [MP]; XU30 Poznań-Rataje, V 2008, 1♀, the Czecha Housing Estate [MP]; XU31 Poznań-Golećcin, 13 V 1983, 1♂1♀, a mixed forest, under human excr. [MB]; XU32 Biedrusko, 31 VIII 2000, 1♀, leg. S.P. [MP].

- Lower Silesia: WT21 Żagań-Karliki, 17 VI 1990, 1♀, leg. C.G. [MB].

A coprophagous species observed in excrements belonging to different animals species and humans, as well as on carcasses. In the western part of the country, it creates relatively abundant populations, which disperse towards East and South.

Onthophagus (Palaeonthophagus) fracticornis (PREYSSLER, 1790)

- The Pomeranian Lakeland: XU19 Piła vic., 13 VII 1998, 1 ex., “Bagno Dolaszewskie” [RR]; XU19 Piła-Gładyszewo, 2 V 1999, 1 ex., the verge of a field [RR]; XU19 Piła vic., 2 V 1999, 1 ex., dept. 240, a clearcutting, in excrements of *Sus scrofa* [RR]; XV41 Kujanki, 22-23 V 1999, 1 ex., in a fertilizer [RR].

- The Wielkopolsko-Kujawska Lowland: CC02 Bałdoń, 31 III 1983, 1♂, leg. A.M. [MB]; CC12 Brzeziny, 3 V 1987, 1♀, leg. A.M. [MB]; CD55 Miszek: VIII 1975 (1♂), 15 IV 1979 (1♀), leg. J.G. [MB]; WT13 Nowogród Bobrzański: 14 VIII 1981 (1♂), 8 IX 1981 (1♂), 28 IX 1981 (1♀), leg. P.S., pine crops, into ground traps [MB]; WT99 Porążyn, 10 IX

1997, 1♀ [MP]; WU94 Nadolnik, 7 VI 1986, 5 exx., leg. J.K., in sheep excr. [MB]; XT07 Sepno: 17 IX 2007 (1♂), 25 VIII 2008 (1♀), leg. B.B.-S., a field, into yellow bowls [MB]; XT29 Wiry, 30 V 2007, 1♀, leg. B.B.-S., the verge of a forest, into yellow bowls [MB]; XT38 Krajkowo, 28 VI 1999, 2♀, leg. S.P., a meadow, into ground traps [MB]; XT38 Baranowo, 6 XI 1966, 1♂, leg. Z.P. [MB]; XT38 Rogalin, 7 IV 1984, 5 exx., water meadows, in horse excr. [MB], idem, 23 IX 1984, 3 exx., water meadows, in sheep excr. [MB], idem, 6 VIII 1988, 2 exx., water meadows, in cow excr. [MB]; XT38 Krajkowo Res., idem, 16 V 1993, 2♀, water meadows, under boar excr. [MB]; XT55 the Stawiszyn Forestry, 10 V 2002, 2♀, leg. J.K. [MP]; XT56 Mchy, Kołacin, Niedźwiady, Sebastianowo, Chwałkowo Kościelne, IV – X 2002, locally numerous, leg. J.K., forest areas, in cow and horse excr. [MB, MP]; XT57 Młodzikowice: 9 VI 1984 (5 exx.), 15 X 1984 (5 exx.), 28 X 1984 (1♀), water meadows, under cow excr. [MB]; XT57 Boguszynek, 17 V 2002, 2 exx., leg. J.K., a forest, in horse excr. [MB]; XT57 Gogolewo: 10 VI 2002 (2 exx.), 25 IX 2002 (2 exx.), leg. J.K., sandbars by the Warta River, in cow excr. [MB]; XT67 Wolica Kozia: 23 IV – 24 VI 2002 (numerous), 2 IX – 11 X 2002 (6 exx.), leg. J.K., in horse excr. [MB, MP]; XU03 the Sama riv.val., 31 V 2009, 2 exx., riverine meadows, into a butterfly net [MB], idem, 8 V 2011, 2♀, riverine meadows, in cervid excr. [MB]; XU03 Sycyn Dolny: 11 V – 30 X 1992 (158 exx.), 1 V – 31 X 1993 (237 exx.), a midforest pasture, into bait traps [MB]; XU03 Jaryszewo, 22 IX 1993, 3♂2♀, a pasture, in cow excr. [MB], idem, 12 IX 1986, 1♀, leg. J.K., a forest, in cow excr. [MB]; XU04 Brączewo: 5 V – 20 X 1992 (27 exx.), 1 V – 24 IX 1993 (108 exx.), a pasture within the Warta River areas, into bait traps [MB]; XU04 the Bugaj Forestry: 30 IV 1986 (2 exx.), 10 V 1986 (3 exx.), leg. J.K., wastelands, in cow excr. [MB], idem, 22 VII 1986, 5 exx., leg. J.K., a forest road, in horse excr. [MB]; XU13 Sycyn Dolny: 10 IV 1994 (1♀), 4 IX 2008 (2 exx.), 3 V 2010 (1 ex.), on a forest road [MB]; XU13 Osowo Stare: 18 V – 28 IX 1992 (29 exx.), 30 IV – 24 IX 1993 (62 exx.), midmeadow pasture, into bait traps [MB]; XU18 Piła, 12 IV 1998, 1 ex., the Górne housing estate, urban forests [RR]; XU20 Luboń, 7 V 1975, 1♂, leg. P.S., in a hole in the ground [MB]; XU28 Dziembówko vic., 12 VII 1999, 1 ex., Noteć riv.val. [RR]; XU29 Jeziorki vic., 29 V 1999, 1 ex. [RR]; XU31 Owińska, 15 V 1989, 2 exx., leg. K.K., a pasture, in cow excr. [MB]; XU32 Murowana Goślina, 21 VI 1974, 1♂, leg. P.S., in cow excr. by Lake Głębozec [MB]; XU32 Biedrusko: 20 VIII 2000 (2♂2♀), 13 V 2001 (1♂♀) [MP]; XU43 Skoki,

12 IV 2007, 2♂1♀ [MP]; XU89 Wojnowo, 21 IV 1987, 1♀, leg. A.M. [MB].

- The Trzebnickie Hills: CB07 Siemianice: 4 IV 1982 (3 exx.), 1 V 1982 (1♀), 10 VII 1982 (4 exx.), 26 VII 1982 (2 exx.), leg. P.S., a pine coppice, into ground traps [MB], idem, 5 X 1985, 1♂, leg. P.S. [MB]; CB07 the Dobrygość Forestry, 28 VIII 1985 (5 exx.), leg. A.P., a forest road, in horse excr. [MB]. Śląsk Dolny: XS79 Twardogóra Sycowska, 10 IX 1989, 1♀, leg. A.M. [MB].

A species encountered not only in rotting plant remains but also in animal ones, though animal excrements is much more preferred. In the west of the country, it is one of the most frequently observed representatives of the genus.

Onthophagus (Palaeonthophagus) joannae GOLJAN, 1953

- The Pomeranian Lakeland: VU99 Stary Przylep Res., 11 IV 1991, 1♀, collected from the threshold of a rabbit burrow [MB]; XV30 Wąsosz, 27 VI 1999, 1♂ [RR]; XV41 Kujan, 23 V 1999, 1♀, the Złotów Forest Inspectorate, dept. 116 [RR].

- The Wielkopolsko-Kujawska Lowland: CC02 Bałdoń, 11 VII 1984, 1 ex., leg. A.M. [MB]; XU03 Sycyn Dolny, 26 V 1992, 1 ex., a midforest pasture, into bait traps [MB].

- The Trzebnickie Hills: CB08 Ustronie, 11 V 1995, 1♂, leg. J.K. [MP].

A coprophag encountered during late spring and summer in cow and sheep excrements, as well as in rabbit burrows. In Western Poland, it is observed very rarely and only in warm localities.

Onthophagus (Palaeonthophagus) nuchicornis (LINNAEUS, 1758)

- The Baltic Coast: XA04 Jarosławiec: 17 VI 1986 (2 exx.), 18 VI 1986 (3 exx.), 21 VI 1986 (5 exx.), dune, under human excrements [MB].

- The Pomeranian Lakeland: VU47 Raduń vic.: 7 VII 2009 (1♀), 1 IX 2009 (2 exx.), leg. S.P., a flower turf, into ground traps [MB]; WU78 Człopa, 16 V 2009, 1 ex., a gravel pit by a road to Załom [RR]; XU19 Zawada vic., 18 III 2000, 1 ex., dept. 178 [RR]; XU19 Piła vic., 2 V 1999, 1 ex., dept. 240, a clearcutting, in excr. of *Sus scrofa* [RR]; XV41 Kujanki: 14 VI 1997 (1 ex.), 22-23 V 1999 (2 exx.), in a fertilizer [RR].

- The Wielkopolsko-Kujawska Lowland: CC38 Koło, 9 V 1985, 5 exx., a pasture, in sheep excr. [MB], idem: 9 VI 1985, (3 exx.), 14 IX

1985 (5 exx.), 5 V 1986 (2 exx.), 30 V 1986 (1♂5♀), 9 VIII 1986 (5 exx.), 24 VIII 1986 (1♀), 4 VI 1989 (1♂3♀), a pasture, in cow excr. [MB], idem, 10 V 1985, 2 exx., a road on an bank, in cow excr. [MB], idem, 19 V 1985, 7 exx., a road on an bank, in horse excr. [MB]; WT19 Nowogród Bobrzański, 6 IX 1982, 1♀, leg. P.S., dept. 318, a pine coppice, into ground traps [MB]; WU60 Leśny Folwark, 8 VI 1961, 1♂, leg. S.A. [MB]; WU75 the Dzięwanna Forestry, 19 V 1989, 1 ex., dept. 75, in a straling's chicks' food [MB]; WU76 Mniszek, 28 VIII 2007, 1♀, leg. B.B-S., a swamp meadow, into yellow bowls [MB]; XT29 Rogalinek, 9 VII 1997, 6♀ [MP]; XT38 Rogalin: 12 X 1984 (2♂), 5 X 1985 (1♂), a water meadow, in sheep excr. [MB], idem, 8 X 1987, 1♂, a pasture, in cow excr. [MB]; XT38 Krajkowo, 29 VII 1984, 1 ex., a pasture, in cow excr. [MB]; XT56 Sebastianowo, 5 V 2002, 1 ex., leg. J.K., a forest, in horse excr. [MB]; XT56 Kołacin, 20 VIII 2002, 1♀, leg. J.K. [MP]; XT56 Niedźwiady, 10 V 2002, 5 exx., leg. J.K., a coppice, in cow excr. [MB]; XT56 the Stawiszyn Forestry, 10 V 2002, 1♀, leg. J.K., in cow excr. [MB, MP]; XT57 Młodzikowice: 9 VI 1984 (24 exx.), 12 VII 1984 (8 exx.), water meadows, in cow excr. [MB]; XT57 Gogolewo, 10 VI 2002, 1 ex., leg. J.K., sandbars by the Warta River, in cow excr. [MB]; XT67 Wolica Kozia, 16 V – 24 VI 2002, numerous, leg. J.K., an enclosure, in horse excr. [MB, MP], XU03 Sama riv. val., 8 V 2011, 7 exx., riverine meadows, in cervid excr. [MB]; XU03 Sycyn Dolny: 4 V – 30 IX 1992 (325 exx.), 1 V – 23 IX 1993 (895 exx.), a midforest pasture, into bait traps [MB]; XU03 Jaryszewo, 22 IX 1993, 1♂1♀, a pasture by a forest, in cow excr. [MB]; XU04 Brączewo: 5 V – 30 VII 1992 (133 exx.), 7 V – 30 IX 1993 (131 exx.); a pasture by the Warta River areas, into bait traps [MB], idem, 3 VIII 2004, 1♀, at night with a light source [MB]; XU04 the Bugaj Forestry, 10 V 1986, 1♀, leg. J.K., wastelands, in cow excr. [MB]; XU11 Przybroda, 20 VII 1999, 2 exx., leg. H.P.-B., tree buffer strips, into yellow bowls [MB]; XU13 Piotrkówko, 10 VI 1991, 1♂, a meadow road, under dried cow excr. [MB]; XU13 Sycyn: 3 V 2008 (1♀), 13 VI 2010 (2 exx.), forest areas, on a road [MB], idem, 27 V 2000, 6 exx., forest areas, in horse excr. [MB]; XU13 Osowo Stare: 18 V – 26 VIII 1992 (56 exx.), 30 IV – 24 IX 1993 (315 exx.), a midmeadow pasture, into bait traps [MB]; XU20 Poznań-Sołacz, 8 V 1985, 1♀, The Sołacki Park, on a path [MB]; XU28 Dziembówko vic., 12 VII 1999, 1 ex., Noteć riv. val. [RR]; XU29 Jezioriki vic., 29 V 1999, 1 ex. [RR]; XU30 Poznań-Dębina, 19 VIII 1985, 2 exx., a riparian forest, from herbaceous plants [MB]; XU31 Owińska, 15 V 1989, 3 exx., leg. K.K., a pasture, in cow excr. [MB];

XU32 Biedrusko, 13 V 2001, 2♂1♀ [MP]; YT04 Gołuchów: 26 V 1986 (1♀), 30 V 1991 (2♀), leg. A.M., next to sap tapping from a birch [MB].

- The Trzebnickie Hills: CB07 Siemianice: 14 IV 1981 (1♀), 6 VII 1981 (1♂), leg. P.S., a pine coppice, into ground traps [MB]; CB07 the Dobrygość Forestry, 16 VIII 1984, 1♀, leg. A.P., a pasture by the river, in cow excrements [MB].

A species usually encountered in warm riverine pastures, dry wastelands, pastured banks, and at forest verges. Observed mainly under excrements of different animals and humans, as well as under the rotting plant remains and on carcasses. Widely distributed in the western part of the country, where locally it creates quite numerous populations.

Onthophagus (Palaeonthophagus) ovatus (LINNAEUS, 1758)

- The Baltic Coast: VV66 Lubin: 16 VI 2007 (14 exx.), 3 VII 2007 (2 exx.), leg. M.W., into ground traps [MB].

- The Pomeranian Lakeland: VU45 Cedynia: 20 IV – 15 V 2009 (1 ex.), 5 VI – 7 VII 2009 (2 exx.), leg. S.P., Stipa grass, into ground traps [MB]; VU45 Stary Kostrzynek, 8 VII – 1 VIII 2009, 2 exx., leg. S.P., Stipa grass, into ground traps [MB]; VU46 rez. Bielinek n/Odrą: 20 IV – 15 V 2009 (2 exx.), 5 VI – 7 VII 2009 (7 exx.), 8 VII – 1 VIII 2009 (84 exx.), 2 VIII – 1 IX 2009 (79 exx.), 2 IX – 6 X 2009 (2 exx.), leg. S.P., Stipa grass, into ground traps [MB]; VU47 Raduń: 20 IV – 15 V 2009 (10 exx.), 15 V – 4 VI 2009 (19 exx.), 5 VI – 7 VII 2009 (4 exx.), 8 VII – 1 VIII 2009 (64 exx.), 2 VIII – 1 IX 2009 (28 exx.), leg. S.P., Stipa grass, into ground traps [MB]; VU54 Gozdowice: 15 V – 4 VI 2009 (5 exx.), 2 VIII – 1 IX 2009 (5 exx.), leg. S.P., Stipa grass, into ground traps [MB]; VU71 Laski: 15 V – 4 VI 2009 (3 exx.), 5 VI – 7 VII 2009 (2 exx.), 8 VII – 1 VIII 2009 (3 exx.), 2 VIII – 1 IX 2009 (2 exx.), leg. S.P., Stipa grass, ground traps [MB]; VU71 Owczary: 20 IV – 14 V 2009 (8 exx.), 14 V – 4 VI 2009 (6 exx.), 5 VI – 7 VII 2009 (35 exx.), 8 VII – 1 VIII 2009 (20 ex.), 2 VIII – 1 IX 2009 (70 exx.), 2 IX – 6 X 2009 (12 exx.), 7 X – 2 XI 2009 (1 ex.), leg. S.P., Stipa grass, ground traps [MB], idem, 4 VI 2004, 1 ex., xerothermic grass [RR]; VU71 Pamięcin: 5 VI – 7 VII 2009 (4 exx.), 8 VII – 1 VIII 2009 (4 exx.), 2 VIII – 1 IX 2009 (3 exx.), 2 IX – 6 X 2009 (3 exx.), leg. S.P., Stipa grass, ground traps [MB]; VU99 Stary Przylep Res.: 11 IV 1991 (1 ex.), 12 IX 1991 (5 exx.), xerothermic grass, from rabbit burrows [MB]; XU19 Piła Gładyszewo, 2 V 1999, 3 exx., the verge of a field [RR], idem, 19 VI 1997, 1 ex., by a road to Zawady [RR].

- The Wielkopolsko-Kujawska Lowland: WU76 Mniszek, 11 VII 2007, 1 ex., leg. B.B.-S., a humid meadow, into yellow bowls [MB]; XT07 Sepno, 2 VIII 2007, 1 ex., leg. B.B.-S., a meadow, into yellow bowls [MB]; XT19 Kraplewo: 9 VI 2008 (1 ex.), 3 VII 2008 (1 ex.), 27 X 2008 (1 ex.), leg. B.B.-S., into yellow bowls [MB]; XT29 Trzebaw, 26 VI 2006, 1 ex., leg. P.T., tree buffer strips, into yellow bowls [MB]; XT38 Krajkowo Res., 27 V 1995, 1 ex., leg. P.S., into a butterfly net [MB]; XT38 Krajkowo, 29 V 1999, 2 exx., leg. S.P., a pasture, into ground traps [MB]; XT56 Niedźwiady: 10 V 2002 (1 ex.), 24 VI 2003 (1 ex.), 5 IX 2003 (1 ex.), leg. J.K., a coppice, in cow excrements [MB, MP]; XT56 the Stawiszyn Forestry, 10-15 V 2002, 6 exx., leg. J.K., forest areas, in cow excr. [MB, MP]; XT57 Młodzikowice: 9 VI 1984 (6 exx.), 12 VII 1984 (1 ex.), meadow waters, in cow excr. [MB]; XT67 Wolica Kozia, 16 V 2002, 1 ex., leg. J.K., an enclosure, in horse excr. [MB, MP]; XU03 Sama riv. val.: 11-14 V 2009 (2 exx.), 20-24 V 2009 (3 exx.), 1-8 VI 2009 (16 exx.), riverine meadows, into ground traps [MB], idem, 8 V 2011, 9 exx., riverine meadows, in crevid excr. [MB]; XU03 Sycyn Dolny: 4 V – 15 IX 1992 (26 exx.), 7 V – 8 X 1993 (82 exx.), a midforest pasture, into bait traps [MB], idem: 1-3 V 2009 (17 exx.), 8-10 V 2009 (4 exx.), 11-14 V 2009 (7 exx.), 17 VI 2009 (1 ex.), a forest crop, into ground traps [MB]; XU04 Brączewo: 5 V – 23 VII 1992 (154 exx.), 1 V – 8 X 1993 (583 exx.), a pasture by the Warta River areas, into bait traps [MB]; XU04 the Bugaj Forestry, 30 IV 1986, 1 ex., leg. J.K. [MB]; XU11 Lusowo, 11 V 1997, 1♂, leg. S.K., the bank of Lake Lusowskie, on a sandy road [MB]; XU13 Sycyn Dolny: 2 V 2001 (1 ex.), 12 V 2005 (1 ex.), 1 V 2009 (4 exx.), on a forest road [MB]; idem: 5 V 2010 (4 exx.), 25 IV 2011 (1 ex.), in sand excavations [MB], idem, 23 VI 2012, 1 ex., a meadow by a forest, from herbaceous plants [MB]; XU13 Osowo Stare: 3 V – 5 X 1992 (370 exx.), 30 IV – 24 IX 1993 (1302 exx.), a midmeadow pasture, into bait traps [MB]; XU21 Baranowo, 20 V 1983, 2 exx., leg. D.I., on wild Apiaceae [MB]; XU30 Poznań-Dębina, 19 VIII 1985, 1 ex., a riparian forest, on herbaceous plants [MB]; XU30 Poznań-Rataje, 26 IV 1998, 1 ex., the Czecha housing estate [MP]; XU31 Poznań-Koziegłowy, 24 V 1995, 1 ex., leg. P.S. [MB]; XU31 Owińska, 15 V 1989, 4 exx., leg. K.K., a pasture, in cow excr. [MB]; XU32 Poznań-Winogrady, 8 V 1990, 1 ex., the Cytadela Park, a dry slope, in a rabbit excr. [MB]; XU32 Biedrusko, 13 V 2001, 10 exx. [MP]; XU43 Skoki: 12 IV 2007 (6 exx.), 19 IV 2009 (4 exx.) [MP]; YT04 Gołuchów, 30 V 1991, 1♀, leg. A.M., next to sap

tapping from the trunk of a birch [MB], idem, 16 V 1998, 1 ex., leg. A.M., a forest, in horse excrements [MB].

- Upper Silesia: CA88 Podlesin, 13 V 1979, 1 ex., leg. A.K. [MB].

A species occurring not infrequently among rotting plant remains, though evincing more preferences towards animal and human excrements. Encountered also on blooming plants, by sag tapping from trees, on carcasses, and in rabbit burrows. In Western Poland, it is widely distributed and locally numerous. One of the most frequently observed representative of its genus.

Onthophagus (Palaeonthophagus) semicornis (PANZER, 1798)

- The Pomeranian Lakeland: VU45 Cedyňa, 8 VII – 1 VIII 2009, 1♂, leg. S.P., Stipa grass, into ground traps [MB]; VU54 Gozdowice, 15 V – 4 VI 2009, 1♂, leg. S.P., Stipa grass, into ground traps [MB].

- The Wielkopolsko-Kujawska Lowland: VCT99 Gądków, V 1980, 8♂, leg. K.L., a road, under horse excrements [MB]; XU11 Lusowo, 30 IV 1996, 1♂, leg. S.K., a field [MB]; XU32 Biedrusko, 13 V 2001, 1 ex. [MP].

A coprophag and a cavernicole, foraging on excrements of different animals, most frequently of rodents and logomorphs. In the western part of the country, it is encountered very rarely, mainly at warm localities.

Onthophagus (Palaeonthophagus) similis (SCRIBA, 1790)

- The Pomeranian Lakeland: XU19 Piła vic., 2 V 1999, 1 ex., dept. 240, a clearcutting, in excr. of *Sus scrofa* [RR], idem, 9 V 2000, 1 ex., „Bagno Dolaszewskie” [RR]; XV41 Kujanki, 22-23 V 1999, 1 ex., in a fertilizer [RR].

- The Wielkopolsko-Kujawska Lowland: CC02 Bałdoń, 5 IV 1983, 1 ex., leg. A.M. [MB]; XT38 Rogalin, 7 IV 1984, 1 ex., water meadows, in horse excr. [MB]; XT38 Krajkowo, 29 VII 1984, 1♀, a pasture, in cow excr. [MB]; XT56 Chwałkowo Kościelne, Stawiszyn, Kołacin, Niedźwiady, Wolica Kozia, the Zabawa Forestry, the Stawiszyn Forestry: 29 IV – 2 X 2002, locally numerous, leg. J.K., in cow and horse excr. [MB, MP]; XT57 Młodzikowice, 15 X 1987, 1 ex., a pasture, in cow excr. [MB]; XT57 Boguszynek, 17 V 2002, exx., leg. J.K., a forest, in cow excr. [MB]; XT57 Gogolewo, 15 VI 2002, 2 exx., leg. J.K., sandbars by the Warta River, in cow excrements [MB]; XT67 Wolica Kozia, 23 IV –

18 VI 2002, 8 exx., leg. J.K., an enclosure, in cow excr. [MB]; XU03 Sycyn Dolny: 4 V – 30 IX 1992 (180 exx.), 1 V – 31 X 1993 (379 exx.), a midforest pasture, into bait traps [MB]; XU04 Obrzycko: 23 IV 1983 (1♂), 14 VII 1983 (1♀), leg. J.K. [MB]; XU04 Brączewo: 1 V – 15 VIII 1992 (51 exx.), 1 V – 30 IX 1993 (95 exx.), a pasture by the Warta River areas, into bait traps [MB]; XU04 the Daniele Forestry, 9 VIII 1983, 1 ex., leg. J.K. [MB]; XU04 Jaryszewo, 22 IX 1993, 2 exx., a pasture by a forest, in cow excr. [MB]; XU13 Osowo Stare: 19 VI – 5 IX 1992 (32 exx.), 7 V – 23 X 1993 (257 exx.), a midmeadow pasture, into bait traps [MB]; XU13 Sycyn Dolny, 2 V 2009, 6 exx., a forest road, in horse excr. [MB]; XU29 Jeziorki vic., 29 V 1999, 1 ex. [RR]; XU31 Owińska, 15 V 1989, 4 exx., leg. K.K., a pasture, in cow excr. [MB]; XU32 Biedrusko: 20 VIII 2000 (1♂), 13 V 2001 (1♀) [MP]; XU43 Skoki: 12 IV 2007 (2♀), 24 IV 2007 (1♀) [MP]; YT04 Gołuchów, 30 V 1991, 2♂, leg. A.M., by sap tapping from a birch [MB], idem, 3 V 1996, 1♂, leg. A.M., in horse excrements [MB].

A coprophagous species encountered on warm pastures, pastured wastelands, and forest areas. Adult forms appear during early spring, creating in the western part of the country quite abundant populations (BUNALSKI 1996b).

Onthophagus (Palaeonthophagus) verticicornis (LAICHATING, 1781)

- The Wielkopolsko-Kujawska Lowland: XT62 Krotoszyn, 22 V 1983, 1♀, a sandy road, in horse excrements [MB].

A coprophagous species encountered both in open and forest areas. In Poland, it has been recorded mainly from the southern and southeastern part of the country. The locality in Krotoszyn is currently the northwesternmost locality of occurrence of this species in the country.

Conclusion

The chronological data presented above pertain to 10 species from the tribe Copriini. The analysis of the numerous localities demonstrates that the discussed taxa are widely distributed in Western Poland, though remarkably thermophilic species are definitely less often observed within this area than in the eastern part of the country (BUNALSKI 2006). The record of *O. verticicornis* in Krotoszyn is at the same time the northwesternmost locality of the occurrence of this species in Poland.

In the analysed material, the representatives of the subfamily Scarabaeinae were not recorded, which confirms other authors' earlier

observations (BURAKOWSKI et al. 1983), as well as remains in regard to the climate-natural circumstances occurring in Western Poland.

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