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Microrhagus pyrenaeus Bonvouloir, 1872 – a false click beetle new for the fauna of Poland with faunistic and ecological data on Eucnemidae

(Coleoptera, Elateroidea)

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Data on the occurrence and habitat requirements of the false click beetles were collected in the years 1992–2014. New localities for seventeen species are presented including a new species for the Polish fauna – *Microrhagus pyrenaeus* Bonvouloir. The occurrence of *Rhacopus sahlbergi* (Mann.) in Poland is confirmed after 80 years, and first confirmed localities for *Otho sphondylioides* (Germar) and *Dirrhagofarsus attenuatus* (Mäklin) outside of Białowieża Primeval Forests are also presented.

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Introduction

The family Eucnemidae (the false click beetles) in Poland was so far represented by 20 species (Buchholz 2005), however in recent years two species, *Microrhagus palmi* Olexa, 1963 and *M. pygmaeus* (Fabricius, 1792), were synonymized (Muona 2007). All false click beetles lead a much concealed way of life, active mostly in the evening and at night (Burakowski 1991). Adults are very rarely encountered during the daytime hours, making it difficult to reveal the presence of a particular species in the area. Larvae of all species known from Poland develop in wood of dead or dying deciduous and coniferous trees and are thus considered saproxylic, i.e. dead-wood dependent (Speight 1989). Burakowski (1991) presented information on the characteristics of adults and preimaginal stages for many species, as well as their bionomics.

The most common species within the family Eucnemidae in Poland are *Eucnemis capucina* Ahrens,

1812 and *Melasis buprestoides* (Linnaeus, 1761). Other species are found much less frequently; hence data on their distribution are rather scanty. This paper aims to present unpublished data on the occurrence of 17 taxa of false click beetles in Poland.

Materials and methods

Results were obtained from various studies on saproxylic beetles conducted in different parts of Poland in 1992–2014. Beetles were mainly collected using various types of traps (e.g. yellow pan traps, flight interception (barrier) traps, funnel traps, sticky traps) installed on trunks of trees. Adult beetles were also reared in the laboratory from wood inhabited by larvae. Besides, individual specimens were collected at UV light and were captured in the field.

We adopted the following abbreviations for authors' names: JH – Jacek Hilszczański, RP – Radosław Plewa, TJ – Tomasz Jaworski, AS – Andrzej Sierpiński. The collecting method was abbreviated as follows: YT –

yellow pan trap, BT – barrier trap, ST – sticky trap, FT – funnel trap, UV – collected at light. The division of lands follows “Catalogue of Polish fauna” (Burakowski et al. 1971–2000). The codes after the name of the city/village denote UTM coordinates. The taxonomic nomenclatures of Eucnemidae and tree fungi follow “Catalogue of Palaearctic Coleoptera” (Muona 2007) and Index Fungorum (2013), respectively.

Material and results

Dirrhagofarsus attenuatus (Mäklin, 1845)

Wielkopolsko-Kujawska Lowland: Kobylin ad Krotoszyn, XT53, 2 VI–4 VII 2014, 1 ex., FT, leg. JH, TJ et RP.

In Poland the only reliable data on the occurrence of this species originate from Białowieża Forest and date back to the fifties and nineties of the 20th century (Burakowski 1989, 1991). According to Tenenbaum (1913) the species was also recorded from Roztocze region in the beginning of 20th century, however this information requires confirmation due to the possibility of incorrect identification of the specimen. The species is listed in the Polish Red Data Book of Animals with the category CR – Critically Endangered (Buchholz & Ossowska 2004).

Dromaeolus barnabita (A. Villa & J. B. Villa, 1838)

Białowieża Forest: Sacharewo ad Hajnówka, FD74, 21 VI–26 VII 2010, 2 exx., YT installed on pedunculate oak *Quercus robur* L. branch at a height of 25 m, leg. RP, JH et TJ. Showpiece Bison Reserve ad Białowieża, FD84, VI–IX 2007, 1 ex., BT installed on Scots pine *Pinus sylvestris* L., leg. JH. Małopolska Upland: Gacki ad Pińczów, DA79, 23 VI–28 VII 2010, 3 exx., YT installed on pedunculate oak *Q. robur* branch at a height of 24 m, 23 VI–28 VII 2010, 1 ex., YT installed on pedunculate oak *Q. robur* branch at a height of 4 m, leg. RP, JH et TJ. Wielkopolsko-Kujawska Lowland: Sokołówka ad Krotoszyn, XT73, 16 exx., VI–IX 2013, FT, leg. JH et AS. It is a newly recorded species for the region of Małopolska Upland.

In recent years the species was recorded from Mazowiecka Lowland (Burakowski et al. 1985), Białowieża Forest, Lower Silesia (Buchholz et al. 1996), Wielkopolsko-Kujawska Lowland (Plewa et al. 2011) and Upper Silesia (Szołtys & Grzywocz 2014). Older records date back to the late 19th and early 20th century. During our research, this eucnemid species was collected in yellow pan traps and funnel traps in canopy layer of old oak forest or mixed forest usually installed more than 20 m high, and these results are consistent with those of previous studies (Plewa et al. 2011). We hypothesize that *D. barnabita* prefers higher levels of trees, what could be related to insolation in dense forests.

Eucnemis capucina Ahrens, 1812

Mazowiecka Lowland: Warszawa, Pola Mokotowskie, DC98, 13 VI 1994, 1 ex., on trunk of horse chestnut *Aesculus hippocastanum* L., leg. JH. Krakowiany, DC86, VI–IX 2005, 1 ex., BT installed on trunk of dead elm *Ulmus* L., leg. JH. Wielkopolsko-Kujawska Lowland: Smoszew ad Krotoszyn, XT72, 22 IV–25 V 2009, 1 ex., YT installed in the canopy of oak stand, leg. RP et TJ. Smoszew ad Krotoszyn, 31 V–28 VI 2010, 1 ex., YT installed in oak stand at a height of 4 m, leg. RP, JH et TJ. Masurian Lakeland: Łódziska ad Ostrołęka, ED39, 1 ex., BT, leg. RP, TJ et LS. Białowieża Forest: Sacharewo ad Hajnówka, FD74, 1 ex., 2 VII–29 VII 2009, YT installed in the canopy of oak stand at a height of 25 m, leg. RP, JH et TJ; Nieznanowo Reserve, FD74, 1–10 V–7 VI 2011, 1 ex., BT installed on a sporocarp of the polypore fungus *Fomitopsis pinicola* (Sw.) Karst. growing on a stem of lime *Tilia cordata* Mill.; 25 VII–6 IX 2011, 1 ex., BT installed on a sporocarp of *F. pinicola* on a stem of Norway spruce *Picea abies* (L.) H. Karst., leg. RP et TJ. Małopolska Upland: Góra Puławska ad Puław, EB69, 31 V–23 VI 2010, 4 exx., YT installed in oak stand at a height of 4 m, leg. RP, JH et TJ.

The species is known to be widespread across Poland (Burakowski et al. 1985).

Hylis cariniceps (Reitter, 1902)

Wielkopolsko-Kujawska Lowland: Sokołówka ad Krotoszyn, XT73, 2 exx., VI–IX 2013, FT, leg. JH et AS.

So far the species was known from Wielkopolsko-Kujawska Lowland (Burakowski 1991, Burakowski & Buchholz 1991), Baltic Shoreland (Gruszka & Tarnawski 1994a), and Pomeranian Lakeland (Plewa & Jaworski 2011). Little is known about habitat preferences of *H. cariniceps*. In previous studies (Plewa & Jaworski 2011) the species was collected using yellow pan traps and barrier traps installed in beech forest, suggesting its preferences toward deciduous forests.

Hylis foveicollis (Thomson, 1874)

Podlasie: Ruchenka ad Węgrów, ED70, 2 VII–29 VII 2009, 2 exx., YT installed in oak stand at a height of 5 m, leg. RP, JH et TJ. Wielkopolsko-Kujawska Lowland: Potrzebówce Forest District, Miały ad Sieraków, WU74, 1 ex., 4 VII–14 VII 2011, BT, leg. L. Sukovata. Sokołówka ad Krotoszyn, XT73, 2 exx., VI–IX 2013, FT, leg. JH et AS. It is a newly recorded species for the Podlasie region.

The species is the most frequent among the four in *Hylis* known from Poland. Current localities for this species are widespread across most regions of Poland (Burakowski et al. 2000, Gutowski et al. 2010, Rutkiewicz et al. 2013). Literature data suggests that the species is associated with deciduous and mixed old-growth forests, however, our findings from

Potrzebowice Forest District (i.e. in vast monoculture with Scots pine) may indicate its occurrence in broader range of habitats.

Hylis olexai (Palm, 1955)

Białowieża Forest: Nieznanowo Reserve, FD74: 7 VI–25 VII 2011, 5 ex., BT installed on the sporocarp of *Fomitopsis pinicola* on trunk of Norway spruce *P. abies*; 7 VI–25 VII 2011, 1 ex., BT installed on the sporocarp of Tinder fungus *Fomes fomentarius* (L.) Kickx growing on birch *Betula pendula* Roth; 7 VI–25 VII 2011, 1 ex., BT installed on the sporocarp of polypore fungus *Phellinus igniarius* (L.) Quél. on hornbeam *Carpinus betulus* L.; 7 VI–25 VII 2011, 1 ex., BT installed on trunk of black alder *Alnus glutinosa* Gaertn. near tree cavity; 7 VI–25 VII 2011, 3 ex., BT installed near tree cavity on trunk of pedunculate oak *Q. robur*; 7 VI–25 VII 2011, 4 ex., BT installed near tree cavity on ash *Fraxinus excelsior* L.; Starzyna Reserve, FD73: 7 VI–25 VII 2011, 3 ex., BT installed on sporocarp of *F. fomentarius* on dead birch *B. pendula*; 7 VI–25 VII 2011, 2 ex., BT installed on sporocarp of *F. pinicola* on Norway spruce *P. abies*; 7 VI–25 VII 2011, 2 ex., BT installed near tree cavity on birch *B. pendula*; 7 VI–25 VII 2011, 2 ex., BT installed near the resupinate form of polypore fungus *Inonotus obliquus* (Pers.) Pil. on birch *B. pendula*; 7 VI–25 VII 2011, 1 ex., BT installed near the resupinate of tree fungus *Bjerkandera adusta* (Willd.) P. Karst. on pedunculate oak *Q. robur*; 7 VI–25 VII 2011, 4 ex., BT installed near tree cavity on birch *B. pendula*; 7 VI–25 VII 2011, 3 ex., BT installed near tree cavity on pedunculate oak *Q. robur*; 7 VI–25 VII 2011, 5 ex., BT installed on the sporocarp of *F. fomentarius* on birch *B. pendula*; 25 VII–6 IX 2011, 1 ex., BT installed near the canker on the stem of pedunculate oak *Q. robur*; 25 VII–6 IX 2011, 3 ex., BT installed near the sporocarp of *I. obliquus* on birch *B. pendula*, leg. RP et TJ.

In Poland, this eucnemid species is known from Białowieża Forest, the Mazurian Lake District, and Świętokrzyskie Mts (Buchholz et al. 1996, Byk & Byk 2004, Byk et al. 2004, Mokrzycki 2007, 2011). In the 1920's, it was recorded from Upper Silesia (Burakowski et al. 1985). The species has been collected with flight intercept traps installed on sporocarps of various bracket fungi, which may indicate that *H. olexai* is a polyphagous species.

Hylis procerulus (Mannerheim, 1823)

Mazowiecka Lowland: Wólka Kikolska ad Nowy Dwór Mazowiecki, DD81, 5 VI 2011, 1 ex., BT, leg. C. Kieszek. Białowieża Forest: Nieznanowo Reserve, 7 VI–25 VII 2011, 1 ex., BT installed on the sporocarp of *P. igniarius* on hornbeam *C. betulus*; Starzyna Reserve, FD73: 7 VI–25 VII 2011, 2 ex., BT on the sporocarp of *F. fomentarius* on dead birch *B. pendula*; 7 VI–25 VII 2011, 1 ex., BT installed on the sporocarp of *Phellinus robustus* (P. Karst.) Bour. on pedunculate oak *Q. robur*; 7 VI–25 VII 2011, 1 ex., BT installed on the sporocarp of polypore fungus *Ganoderma applanatum* (Pers.) Pat. on pedun-

culate oak *Q. robur*, leg. RP et TJ. Małopolska Upland: Gacki ad Pińczów, DA79, 23 VI–28 VII 2010, 1 ex., YT installed in oak stand at a height of 4 m, leg. RP, JH et TJ.

The species was known from its historical localities in three regions of southwestern Poland (Burakowski et al. 1985). In recent years, it was recorded from the Świętokrzyskie Mts, Mazowiecka Lowland, Białowieża Forest, Masurian Lake District and from Małopolska Upland (Burakowski 1991, Burakowski & Buchholz 1991, Buchholz & Królik 1992, Kubisz et al. 2000, Byk 2007, Mokrzycki 2007, Gutowski et al. 2010, Byk et al. 2013). *Hylis procerulus* has been collected from traps installed on sporocarps of several species of bracket fungi causing white rot, which may suggest its preference toward this type of wood decay.

Isorhipis marmottani (Bonvouloir, 1871)

Białowieża Forest: Pogorzelle ad Białowieża, FD84, 21 VII 2004, 1 ex., captured on the bark of dead lying stem of Norway spruce *P. abies*, leg. RP; ad Białowieża, FD94, 7 VII 2005, 1 ex., collected at flight, leg. RP; Gruszki ad Narewka, FD85, 1 ex., VII 2013 reared from dead wood of hornbeam *C. betulus* infested with the fungus *Hypoxyylon* Bull. sp., leg. RP et TJ. Guszczewina ad Narewka, FD85, 14 VI 2013, 5 ex., UV, leg. TJ. Showpiece Bison Reserve, FD84, VI–IX 2007, 1 ex., BT installed on trunk of Scots pine *P. sylvestris*, leg. JH. Wielkopolsko-Kujawska Lowland: Sokołówka ad Krotoszyn, XT73, 1 ex., VI–IX 2013, FT, leg. JH et AS. New species for Wielkopolsko-Kujawska Lowland.

Thus far, the eucnemid was recorded from Białowieża Forest, Eastern Beskids, Sandomierz Lowland, and Świętokrzyskie Mts (Burakowski et al. 2000, Byk et al. 2004, Byk 2007). Recently, it was also recorded in Central Poland (Byk et al. 2013). Previously, *I. marmottani* was mostly recorded using yellow pan traps and barrier traps, consistent with the results of our studies.

Isorhipis melasoides (Laporte, 1835)

Wielkopolsko-Kujawska Lowland: Różopole ad Krotoszyn, XT73, 2 VI–4 VII 2014, 1 ex., FT, leg. JH, TJ et RP.

In Poland the species was recorded from Baltic Shoreland, Upper and Lower Silesia and Eastern Beskids (Burakowski et al. 1985, Buchholz & Osowska 1993). In the recent years it was also recorded from Wielkopolsko-Kujawska Lowland (Gruszka & Tarnawski 1994b) and Pomeranian Lakeland (Buchholz 2008).

Melasis buprestoides (Linnaeus, 1761)

Upper Silesia: Ziemiećice, CA38, 16 IV 1992, 1 ex., reared from dead branch of oak *Quercus* sp., leg. JH. Ma-



Fig. 1. *Microrhagus pyrenaicus* – male (scale bar = 1 mm).

zowiecka Lowland: Sękocin Stary, DC97, II 2009, 3 exx., reared from 15 cm thick stem of birch *Betula* L. collected 30 II 2008, leg. JH. Wielkopolsko-Kujawska Lowland: Sokółówka ad Krotoszyn, XT73, 15 II 2009, 1 ex., reared from dead wood of hornbeam *C. betulus* collected VIII 2008, leg. JH. Podlasie: Ruchenka ad Węgrów, ED70, 27 IV–24 V 2010, 1 ex., YT installed in oak stand at a height of 4 m, leg. RP, JH et TJ. Czarna Białostocka Forest District, Forestry Szyndziel, FE52, compartment 144c, 27 IV–9 VI 2008, 3 exx., BT; Dojlidy Forest District, Forestry Antoniuk, FD49, comp. 120a, 27 IV–9 VI 2008, 2 exx., BT; Supraśl Forest District, Forestry Lipina, FE60, comp. 112g, 27 IV–9 VI 2008, 2 exx., BT, leg. RP. Białowieża Forest: ad Białowieża, FD94, 21 I–23 III 2005, 7 exx., reared from dead stem of hazel *Corylus avellana* L. collected 8 IX 2004, leg. RP. Małopolska Upland: Góra Puławska ad Puław, EB69, 29 IV–3 VI 2009, 1 ex., 19 IV–31 V 2010, 1 ex., YT installed in oak stand at a height of 4 m, leg. RP, JH et TJ. It is a newly recorded species for the Podlasie Region.

The species is one of the most common representatives of the family and is widespread across Poland. (Burakowski et al. 1985).

Microrhagus lepidus (Rosenhauer, 1847)

Białowieża Forest: Starzyna Reserve, FD73, 7 VI–25 VII 2011, 1 ex., BT installed near tree cavity on *Q. robur*; 7 VI–25 VII 2011, 1 ex., BT installed near the resupinate form of *B. adusta* on pedunculate oak *Q. robur*, leg. RP et TJ.

Recent data for this species in Poland came from the area of the Świętokrzyskie Mts, the Masurian Lake District, Upper Silesia and Białowieża Forest (Buchholz & Ossowska 1998, Borowski 2001, Byk 2001a, Byk & Byk 2004, Byk et al. 2004, 2006, Byk 2007, Mokrzycki 2007, 2011, Szoltys & Grzywocz 2014). Previous occurrence data on *M. lepidus* included in the Catalogue of Polish fauna (Burakowski et al. 1985) refer to records older than 80 years. The species was collected using various traps.

Microrhagus pygmaeus (Fabricius, 1792)

Białowieża Forest: Nieznanowo Reserve, FD74, 7 VI–25 VII 2011, 2 exx., BT installed on the sporocarp of *F. pinicola* on Norway spruce *P. abies*, leg. RP et TJ.

In Poland, the species was recorded from the Świętokrzyskie Mts, Podlasie Region, the Masurian Lake District, Pomeranian Lakeland, Białowieża Forest and Eastern Beskids (Gruszka & Tarnawski 1994b, Borowski 2001, Byk 2001a, Byk & Byk 2004, Byk et al. 2004, 2006, Mokrzycki 2007, Buchholz 2008, Mokrzycki 2011, Plewa & Jaworski 2011). Previous data for this species come from the areas of Baltic Shoreland and the Eastern Beskids (Burakowski et al. 1985). Previously, the species have been collected with use of various barrier traps.

Microrhagus pyrenaicus Bonvouloir, 1872 (Fig. 1)

Lubelska Upland: Okuninka ad Włodawa, FC70, 1 VII–8 VIII 2013, 1 ex., FT, leg. JH et AS; Osowa ad Włodawa, 16 VII–28 VIII 2014, 1 ex., BT, leg. RP et TJ; Wolica ad Hrubieszów, GB02, 1 ex., FT, leg. JH et AS. This represents a new species for the fauna of Poland.

The species is considered one of the rarest beetle in Europe (Brustel & Van Meer 2008). It is very rarely recorded throughout its range of distribution (Fig. 2). Most recent records for the species were known from France and Italy, where it has been mainly collected using traps. It was also recorded from Bulgaria, Greece, Czech Republic and Switzerland (Muona 2007, Brustel & Van Meer 2008, Chambord et al. 2009, Mertlik et al. 2009, Chittaro & Blanc 2012, De Zan et al. 2014, Vávra et al. 2014), as well as from Germany



Fig. 2. Distribution of *M. pyrenaicus*. ▲: records before 1900; ■: 1901–1950; ◆: 1951–2000; ●: after 2000.

(Burakowski 1991), where it is now considered extinct (Horák et al. 2010). The species is most probably more widespread in Europe and implementation of effective methods of collecting, especially flight intercept traps, would increase our knowledge on the distribution of this species. Larvae develop in dead branches of deciduous trees infested with fungi causing white rot of wood. Hornbeam *Carpinus* L., alder *Alnus* Mill., and oak *Quercus* L. were recorded as host plants for *M. pyrenaicus* (Muona 1993, Brustel & Van Meer 2008). Current records for this species in Poland were obtained from deciduous old forest dominated by ash *Fraxinus* L.

Otho sphondylioides (Germar, 1818)

Białowieża Forest: Starzyna Reserve, FD73, 7 VI–25 VII 2011, 1 ex., BT installed near tree cavity on birch *B. pendula*, leg. RP et TJ; Starzyna Reserve, FD73, 7 VI–25 VII 2011, 1 ex., BT installed on sporocarp of *F. fomentarius* on birch *B. pendula*; leg. RP et TJ; Starzyna ad Hajnówka, FD73, comp. 728A, VII 2012, 2 exx., reared from sporocarps of *Phellinus tremulae* (Bond.) collected on trunk of aspen *Populus tremula* L., leg. RP et TJ. Podlasie: Czuprynowo ad Kuźnica Białostocka, FE72, VI–IX 2012, 1 ex, ST, leg. JH et AS. Lubelska Upland: Mircze Forest District, ad Wereszyn, GB00, 3 VI–16 VII 2014, 1 ex., FT,

leg. JH, TJ et RP. This is a new species for the fauna of the Podlasie and Lubelska Upland Region.

So far, the species was known only from Białowieża Forest (Burakowski et al. 1985, Byk 2001a, 2001b, Buchholz & Ossowska 2001).

Rhacopus sahlbergi (Mannerheim, 1823)

Podlasie: Czuprynowo ad Kuźnica Białostocka, FE72, VI–IX 2012, 2 exx., ST, leg. JH et AS. Białowieża Forest: Wysokie Bagno Reserve, FD94, 3 VII 2013, 2 exx., UV, leg. JH et TJ. Lubelska Upland: Mircze Forest District, ad Wereszyn, GB00, 3 VI–16 VII 2014, 1 ex., FT, leg. JH, TJ et RP. These are newly recorded for the Białowieża Forest, Podlasie and Lubelska Upland.

The species is distributed in most European countries, Mongolia, and west Siberia (Muona 2007). The only record in Poland came from the Masurian Lakeland (Jedwabno) in the 1930's (Burakowski et al. 1985). According to the Red List of threatened animals (Pawłowski et al. 2002), the species is considered extinct in Poland. It is hard to conclude about preferred habitat of the species, because of scarce data on its occurrence. In our case, *R. sahlbergi* was collected in bog-type forest reserve of Białowieża Forest and at the edge of typically managed forest.

Xylophilus corticalis (Paykull, 1800)

Sandomierz Lowland: Zawada ad Dębica, EA34, 6 VI 1993, 1 ex., captured on trunk of dead poplar *Populus*, leg. JH. Podlasie: Supraśl Forest District, Forestry Iwniki, FE60, comp. 193m, 9 VI–13 VII 2008, 9 ex., BT, leg. RP. Knyszyn Forest District, Forestry Krzemianka, FE40, comp. 243f, 9 VI–13 VII 2008, 1 ex., BT, leg. RP. Białowieża Forest: Nieznanowo Reserve, FD74, 7 VI–25 VII 2011, 2 ex., BT installed on the sporocarp of *F. pinicola* on Norway spruce *P. abies*; 7 VI–25 VII 2011, 3 ex., BT installed near the canker on trunk of pedunculate oak *Q. robur*; 7 VI–25 VII 2011, 1 ex., BT installed near the canker on trunk of ash *F. excelsior*; 7 VI–25 VII 2011, 1 ex., BT installed on the sporocarp of *F. fomentarius* on dead maple *Acer platanoides* L.; 7 VI–25 VII 2011, 1 ex., BT installed on the sporocarp of *F. fomentarius* on hornbeam *C. betulus*; 25 VII–6 IX 2011, 2 ex., BT installed on the sporocarp of *F. pinicola* on Norway spruce *P. abies*, leg. RP et TJ. These are newly recorded for the Sandomierz Lowland, and Podlasie Regions.

The species is known from scattered localities in northern and southern Poland. Previously, it was also recorded in the Świętokrzyskie Mts and Białowieża Forest (Burakowski et al. 1985, Borowski 2001, Byk 2001a, Byk et al. 2006, Borowski & Szujewski 2007, Mokrzycki 2011). *Xylophilus corticalis* was collected using flight intercept traps installed on sporocarps of white-rot as well as brown-rot fungi on deciduous and coniferous trees; thus, we assume this eucnemid is a polyphagous species.

Xylophilus testaceus (Herbst, 1806)

Małopolska Upland: Góra Puławska ad Puław, EB69, 29 VI–27 VII 2009, 1 ex., YT installed in oak stand at a height of 4 m, leg. RP, JH et TJ. Newly recorded for the Małopolska Upland region.

The species was known from the Eastern Beskids, Świętokrzyskie Mts, Mazowiecka Lowland, Baltic Shoreland, Białowieża Forest and Upper Silesia (Burakowski et al. 1985, Kubisz et al. 2000, Borowski 2001, Byk 2001a, 2001b, Borowski & Mazur 2007, Mokrzycki 2011, Szołtyś & Grzywacz 2014). Majority of previous records for *X. testaceus* were revealed using various barrier traps.

Discussion

The false click beetles are among the most rarely encountered beetles in Poland, especially as adults, and the majority of species recorded in recent years were captured using various traps. In particular, these methods were highly effective in research aimed at the evaluation of forest ecosystems of the Białowieża Forest and Świętokrzyskie Mts (Szujewski 2001, Borowski & Mazur 2007). Conclusions were

confirmed through our studies conducted in various parts of Poland. We revealed the presence of 85 % of eucnemid beetle fauna known from the area of our country. One species, *M. pyrenaicus* Bon., was recorded for the first time in Poland. New records for *R. sahlbergi* (Mann.) were revealed more than 80 years after the last finding. New localities for other rare eucnemid, *O. sphondylioides* (Germar) and *Dirrhagofarsus attenuatus* (Mäklin), were found outside their known area of distribution.

Four types of traps, i.e. barrier traps, yellow pan traps, funnel traps and sticky traps, proved to be very effective for collecting false click beetles and should be considered as main tools for future studies on the family. Other methods, e.g. rearing the insects from dead wood and use of UV light traps may serve as complementary methods.

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