

Amarochara bonnairei (FAUVEL, 1865) – a rove beetle new to the fauna of Poland (Coleoptera: Staphylinidae)

Amarochara bonnairei (FAUVEL, 1865) – kusak nowy dla fauny Polski (Coleoptera: Staphylinidae)

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ABSTRACT. *Amarochara bonnairei* is recorded in Poland for the first time. Five localities are reported: environs of Tuczo (Pomeranian Lake District), Oborniki Śląskie (Trzebnica Hills), two collecting sites in the Niepołomice Forest (Sandomierz Lowland), and one find in environs of Kalwaria Paławska (Eastern Beskid Mts.). Data on the distribution and ecological preferences of *A. bonnairei* are summarised. According to the cartographic sources, all newly reported localities of *A. bonnairei* are situated in forests characterized by long ecological continuity, although size of forest patches varied significantly within the last 200-250 years.

KEY WORDS: myrmecophile, new records, faunistics, forest continuity.

Introduction

Amarochara THOMSON is a member of the Aleocharinae rove beetles. The genus includes 27 species in the Palaearctic region and is divided into three subgenera (SCHÜLKE & SMETANA 2015). Only three species have wide geographical ranges: *A. (Mniobates) forticornis* (LACORDAIRE, 1835), *A. (s. str.) umbrosa* (ERICHSON, 1837), and *A. (Lasiochara) bonnairei* (FAUVEL, 1865). Two former species were recorded in Poland although are rarely collected, and the first data on the occurrence of *A. bonnairei* in Poland are reported in the present paper.

Amarochara bonnairei (Fig. 1) is a Ponto-Mediterranean species (ASSING 2002) that was described based on specimens collected in environs of Paris and was reported from a number of countries in Europe, including Austria, Belgium, Bosnia-Herzegovina, Croatia, Czech Republic, Denmark, France, Germany, Great Britain, Hungary, Italy, the Netherlands, Slovakia, Sweden, Switzerland, and also

from the Asian region of Turkey (ASSING 2002, SCHÜLKE & SMETANA 2015).

Knowledge of ecological requirements of *A. bonnairei* is restricted to field observations. This species has been recorded in various forests, including beech forests, mixed deciduous forests and xerothermic oak forests, but also in grasslands, arable land and even in bogs (ASSING 2002). According to some authors (ASSING 2002, ALEXANDER 2002, JACHTENFUCHS & WAGNER 2012, BOUGET et al. 2019) *A. bonnairei* is a myrmecophilous species associated mainly with *Lasius fuliginosus* (LATR.) and *L. brunneus* (LATR.). In Britain this species is restricted to ancient forests (ALEXANDER 2002), i.e. woods that have existed continuously since the year 1600 (for other European countries the threshold date is around 1750, as no older detailed maps are available, WULF 2004).

In Czech Republic *A. bonnairei* is known mainly from old records (BENEDIKT & SIEBER 2018) and is considered critically endangered (VÁVRA et al. 2017).

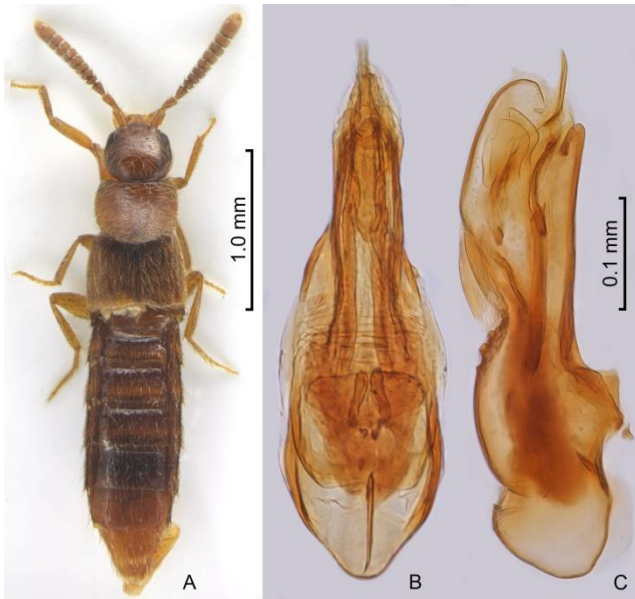


Fig. 1. *Amarochara bonnairei* (FAUVEL), A) dorsal view, B) aedeagus in dorsal view, C) aedeagus in lateral view. Photo R. RUTA.

Ryc. 1. *Amarochara bonnairei* (FAUVEL), A) widok grzbietowy, B) eedeagus, widok grzbietowy, C) eedeagus, widok boczny. Fot. R. RUTA.

Material and methods

The present paper is based on specimens collected during several surveys of saproxylic species inhabiting forest complexes in Pomeranian Lake District, Trzebnica Hills, Sandomierz Lowland, and Eastern Beskid Mts. Two types of barrier traps were used to collect insects: IBL-2 and IBL-5 traps (KOMOSIŃSKI & MARCZAK 2018, MARCZAK 2020).

To verify the continuity of the forest cover in all four areas within the last 200-250 years, the following maps were studied: 1) SCHMETTAU'S map (1767-1787) – Kabinettkarte Preussischer Provinzen oestlich der Weser und angrenzender Gebiete (deposited in Staatsbibliothek zu Berlin – Preussischer Kulturbesitz, pressmark Kart. L 5420, sheet 42); 2) SCHROETTER'S map (1796-1802) – Karte von den Provinzen Litthauen, Ost und West Preussen und dem Netz Distrikte (deposited in Staatsbibliothek zu Berlin – Preussischer Kulturbesitz, pressmark Kart. N 1020, sheets 105-106); 3) Urmesstischblaetter (deposited in Staatsbibliothek zu Berlin – Preussischer Kulturbesitz, pressmark Kart. N 729, sheets 2705, 2766); 4) Galizien und Lodomerien map (1779-1783) – First Military Survey (georeferenced maps available from <http://maps.arcanum.com/en/map/firstsurvey-galicia/>).

Subsequent changes in the forest cover were verified with the German Messtischblaetter maps and the Polish Military Geographical Institute (WIG) maps

(available from <http://mapy.amzp.pl/> and <http://polski.mapywig.org/news.php>).

Data on the age and composition of tree stands are given after the Forest Data Bank (<http://www.bdl.lasy.gov.pl/portals/mapy>).

Results

New localities:

- Pomeranian Lake District: “Nad Jeziorem Liptowskim” nature reserve (UTM: WU89; 53.1812°, 16.2048°), forest sub-compartment [f. s. comp.] 388w (Fig. 2), 30 IV – 22 VII 2018, IBL-2 barrier trap, 1 ex., leg. R. RUTA;
- Trzebnica Hills: Kowalska Góra near Oborniki Śląskie (UTM: XS38; 51.2988°, 16.9419°), f. s. comp. 388m, 2 V – 19 VI 2016, IBL-2 barrier traps, 2 exx., leg. R. RUTA;
- Sandomierz Lowland: Niepołomice Forest, “Koło Grobli” Habitats Directive Site (PLH120008) (UTM: DA55; 50.09947°, 20.36926°), f. compartment [f. comp.] 432, 1 V – 9 VI 2017, IBL-2 barrier trap, 1 ex., leg. E. BARANIAK, T. GRZEGORCZYK, M. PRZEWOŹNY;
- Sandomierz Lowland: Niepołomice Forest, “Lipówka” Habitats Directive Site (PLH120010), “Lipówka” nature reserve (UTM: DA54; 50.08815°, 20.37283°), f. comp. 460, 1 V – 9 VI 2017, IBL-2 barrier trap, 1 ex., leg. E. BARANIAK, T. GRZEGORCZYK, M. PRZEWOŹNY;
- Eastern Beskid Mts.: Kalwaria Paławska vic. (UTM: FV29; 49.62175°, 22.71627°), “Pogórze Przemyskie” Habitats Directive Site (PLH180012), f. s. comp. 16f, 4-23 V 2015, IBL-5 barrier trap, 1 ex., leg. T. OLBRYCHT.

Discussion

Amarochara bonnairei has been recently recorded in four regions of Poland. As this species is native to the area and numerous historical records are known from neighboring countries it is plausible that *A. bonnairei* had not been collected previously due to its rarity or specific habitat preferences. It is also possible that the use of the barrier traps significantly facilitates collecting species that are difficult to capture with other methods.

All localities of *A. bonnairei* are located in forested areas with a long history of forest cover (Fig. 3), however only Niepołomice Forest is a large forest complex. In all remaining areas rather small patches of forests were present ca. 200-250 years ago. The situation is especially interesting in the environs of Tuczno (Fig. 3A, B), where only very small patches of forest were present on the slope of the Liptowskie Lake at the turn of the 18th and 19th centuries. According to one of the studied maps

(Fig. 3A), the forest consisted mainly of oaks. In all localities the area of forest was increasing in subsequent years according to the cartographic sources. It seems that even though all current localities are situated in ancient forests, *A. bonnairei* does not require large forest complexes.

Polish localities are mostly old forests with domination of oaks: 20% of 172 years old and 80% of 132 years old oaks in Trzebnica Hills; 80% of 154 years old oaks in “Koło Grobli” Habitats Directive Site; 50% of 189 years old oaks in “Lipówka” nature reserve; and 60% of 100 years old oaks in Kalwaria Paławska. Only in the nature reserve “Nad Jeziorem Liptowskim” (Fig. 2) the beetle was collected in old beech forest (90% of 156 years old *Fagus sylvatica* L.). No microhabitat data is available for most of the Polish localities, although it was noted that *Lasius fuliginosus* was common in the area where the trap

was established in the “Nad Jeziorem Liptowskim” nature reserve in Tuczno.

Most specimens were collected in late spring and early summer, from May to July, what corroborates data from Germany (ASSING 2002).

Acknowledgements

The Map Department of the Staatsbibliothek zu Berlin – Preussischer Kulturbesitz (<http://staatsbibliothek-berlin.de>) is thanked for allowing us to use scans of the maps. Research in Pogórze Przemyskie was financed through the project “Oak woods in rural landscapes of the Carpathian region: origin, dynamics and conservation values” by the National Science Centre, Poland, following the decision DEC-2013 /11/B/NZ9/00793. Paweł JAŁOSZYŃSKI (University of Wrocław, Poland) is thanked for important comments to the previous version of the manuscript.



Fig. 2. Locality of *Amarochara bonnairei* – beech forest in the nature reserve “Nad Jeziorem Liptowskim” near Tuczno, 30 IV 2018. Photo R. RUTA.

Ryc. 2. Stanowisko *Amarochara bonnairei* – buczyna w rezerwacie „Nad Jeziorem Liptowskim” koło Tuczna, 30 IV 2018. Fot. R. RUTA.

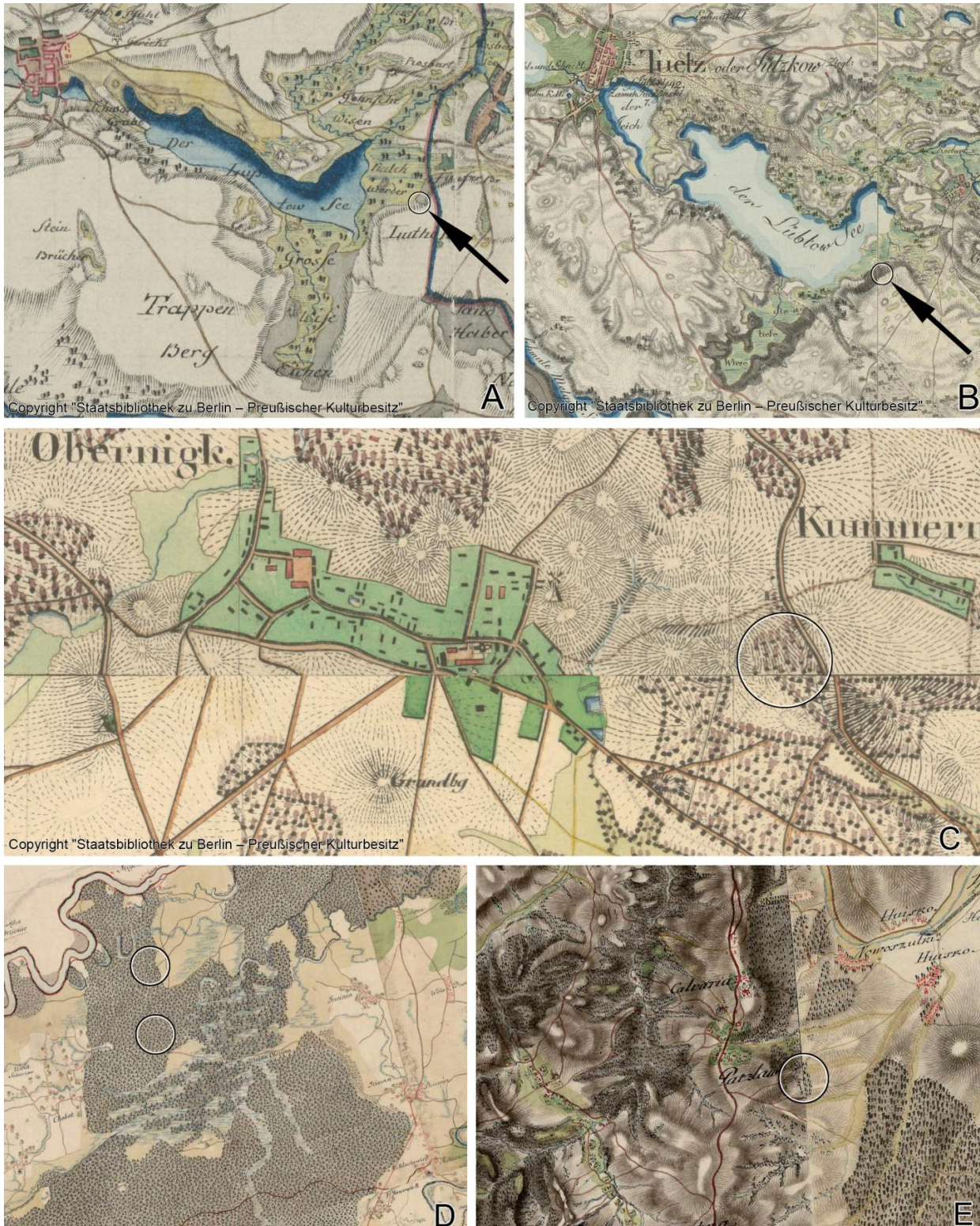


Fig. 3. Localities of *Amarochara bonnairei* marked with circles on archival maps: A-B) “Nad Jeziorem Liptowskim” nature reserve, (A – 1767-1787, B – 1796-1802); C) Kowalska Góra near Oborniki Śląskie (1826); D) Niepołomice Forest (1779-1783), E) Kalwaria Pałacowska (1779-1783).
A-C – Copyright Staatsbibliothek zu Berlin – Preussischer Kulturbesitz.

Ryc. 3. Stanowiska *Amarochara bonnairei* zaznaczone okręgami na archiwalnych mapach: A-B) rezerwat przyrody „Nad Jeziorem Liptowskim”, (A – 1767-1787, B – 1796-1802); C) Kowalska Góra ad Oborniki Śląskie (1826); D) Puszcza Niepołomicka (1779-1783), E) Kalwaria Pałacowska (1779-1783).
A-C – własność Staatsbibliothek zu Berlin – Preussischer Kulturbesitz.

STRESZCZENIE

Amarochara THOMSON to rodzaj liczący w Palearktyce 27 gatunków. Dwa z nich, *A. (Mniobates) forticornis* (LACORDAIRE, 1835) i *A. (s. str.) umbrosa* (ERICHSON, 1837), były wykazywane z Polski, choć należą do rzadko spotykanych kusakowatych. Trzeci przedstawiciel rodzaju, *A. (Lasiochara) bonnairei* (FAUVEL, 1865), jest po raz pierwszy wykazana z Polski na podstawie materiałów zebranych w różnych częściach kraju – na Pojezierzu Pomorskim, Wzgórzach Trzebnickich, Nizinie Sandomierskiej i w Beskidzie Wschodnim.

Amarochara bonnairei to gatunek o ponto-mediterreneńskim zasięgu, opisany z okolic Paryża i wykazany z wielu krajów Europy, głównie zachodniej i południowej, a także z azjatyckiej części Turcji.

Wymagania ekologiczne *A. bonnairei* są słabo poznane i ograniczają się do informacji o okolicznościach zebrania osobników. Były one znajdowane w lasach różnych typów, w tym w buczynach, lasach mieszanych i ciepłolubnych dąbrowach, ale także na murawach, gruntach ornych, a nawet na torfowiskach. Wielu autorów uznaje *A. bonnairei* za gatunek myrmekofilny, związany głównie z *Lasius fuliginosus* (LATR.) i *L. brunneus* (LATR.). Brytyjscy autorzy uważają, że *A. bonnairei* to gatunek typowy dla starolasów (ang. ancient forest, old-growth forests).

Analiza danych kartograficznych od drugiej połowy XVIII w. wykazała, że wszystkie stanowiska omawianego kusakaka zlokalizowane są na obszarach o zachowanej ciągłości ekologicznej lasów, choć w niektórych przypadkach lasy te miały niewielką powierzchnię, zwłaszcza w drugiej połowie XVIII w.

Prace Instytutu Badawczego Leśnictwa – Rozprawy i Monografie, Sękocin Stary. [in Polish]

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Wpłynęło: 30 czerwca 2022
Zaakceptowano: 4 lipca 2022

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