



Atheta (Dimetrota) knabli G. Benick, 1938 (Coleoptera: Staphylinidae) – a new species for the Polish fauna

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Abstract: In 2021, two specimens of *Atheta knabli*, a rare beetle species known mostly from subalpine/alpine regions in Europe, were discovered with dung-baited traps in a lowland habitat of Białowieża Forest, NE Poland. To our knowledge, this is the first record of this species for Poland and the first confirmed for a lowland habitat.

Key words: Białowieża Forest, Aleocharinae, rove beetle, staphylinid distribution, dung-baited trap, Poland

INTRODUCTION

Atheta Thomson, 1858 is among the species-richest genera of rove beetles (Staphylinidae). Up to date, ca. 1900 species have been described worldwide (GBIF, 2021), including 136 species recorded from Poland (Ruta et al. 2018). The subgenus *Dimetrota* Mulsant et Rey, 1873 is represented by 171 species in the Palaearctic region, 17 species were recorded from Poland (Schülke & Smetana 2015).

Białowieża Forest (Puszcza Białowieska, 52°44'19.7"N 23°54'44.7"E) is one of the last remnants of natural forests covering lowlands of Europe since the last glaciation. It covers ca. 1500 km² between Poland and Belarus. Because of the limited anthropogenic impact, parts of the forest (especially the strictly protected part of Białowieża National Park) are often described as primeval (Jaroszewicz et al. 2019). Białowieża is a hotspot of forest biodiversity and hosts a large diversity of beetles, including some of the rarest species in Europe (Gutowski et al. 2020).

Here, we report the recent record of *Atheta knabli* Benick from Białowieża Forest, NE Poland.

MATERIALS AND METHODS

Rove beetles were trapped in two locations, both situated ca. 1 km south from Pogorzelce village, Białowieża Forest (52°43'00.9"N 23°48'26.8"E, Figs 1 & 2a): one in arable fields (A in Fig. 1) and one in continuous broad-leaved forest (B in Fig. 1). On each site, we set up two dung-baited traps, similar to those described in Ambrožová et al. 2022 (Fig. 2b, c) and an uncovered dung, collected in whole after exposure (Fig. 2d). Traps were exposed for 3 days (72 hours) in 2021 during late spring (9–12 June), early autumn (20–23 September) and late autumn (30 October–2 November). In each setup, three traps were located ca. 20 m from each other. Each dung bait consisted of 400g of homogenized fresh domestic cattle *Bos primigenius* f. *taurus*

dung collected from local cattle herds, frozen directly after collection, and defrosted immediately prior to setting up the traps.

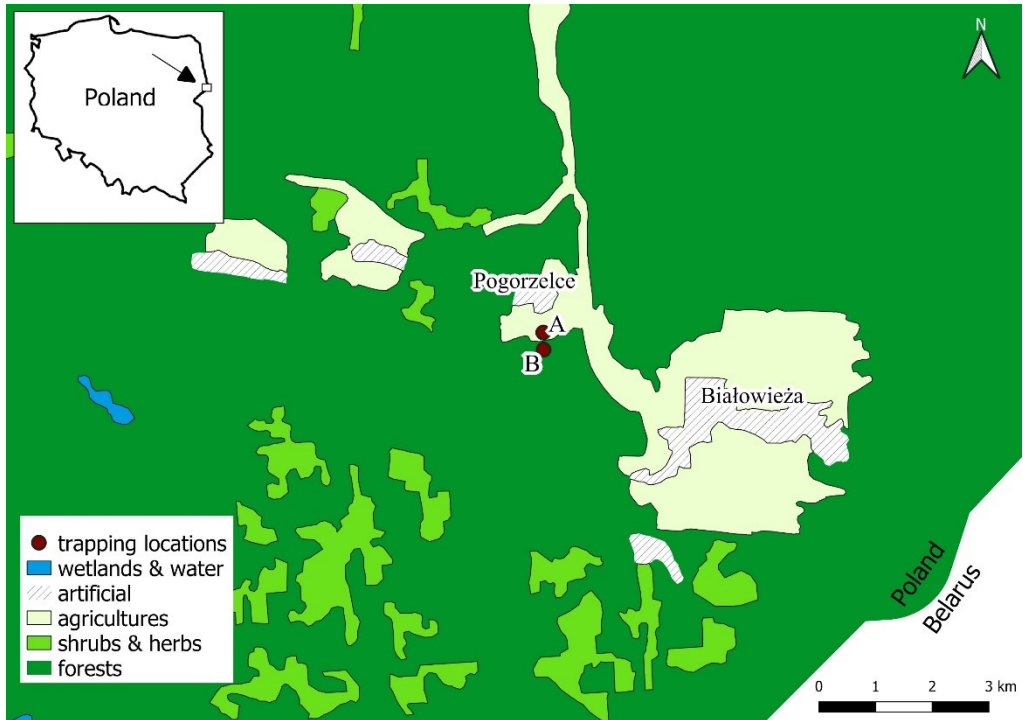


Fig. 1. Study site with both trapping locations marked. Habitat types were assigned according to Corine land cover map (Buchhorn et al. 2020).

RESULTS

Two specimens of *Atheta knabli* (Fig. 3) were recorded during late autumn trap exposure (30 Oct–2 Nov). One specimen was recorded in the arable fields (A in Fig. 1), the other one in a broad-leaved forest (B in Fig. 1).

DISCUSSION

Atheta knabli is a rare species, yet recorded exclusively in a few European and Western Asian countries: Austria, Bulgaria, France, Germany, Italy, Spain, Switzerland, Turkey and Armenia (Schülke & Smetana 2015, Assing & Schülke 2019). It is listed on multiple local Red Lists of rare species, particularly in Germany (Binot et al. 1998, Apfel 2001, Bussler & Hofmann 2003). The majority of the records originate from high mountainous regions in the Alps, for example Upper Bavaria (Riffelriss), Tyrol (Innsbruck, Gramais, Reutte, Alpein), Styria (Hallertauern ad Admont) (Brundin 1953). To our knowledge, the record from Thuringia, Germany (collection of August Kellner (1794–1883)), is the only confirmed record of *A. knabli* from lower altitudes (Benick 1938, Brundin 1953, Kellner 1875).

Atheta knabli is described as a coprophilic species, mainly associated with plant detritus. It is commonly recorded in bovine (domestic cattle and chamois) faeces, but also fruiting bodies of fungi (*Tricholoma aurantium*) (Koch 1989, Zanetti 2015). In Białowieża Forest, large bovines (i.e. European bison *Bison bonasus*, Auroch *Bos primigenius* or domestic cattle) were present

continuously since the last glaciation, providing habitat for *A. knabli* (Kraśńska & Kraśński 2007, Samojlik et al. 2016).



Fig. 2 (a–d). Study site and trap types: a – overall view of the edge of broad-leaved forest and arable fields, where both trapping locations were established; b – dung trap with bait placed on cardboard; c – dung trap with bait hanging from metal gallows; d – dung exposed without any bucket or cover. Photos by M. Walesiak.

Atheta knabli differs from other members of subgenus *Dimetrota* by a black body, with bronze gloss and black antennae and legs (Fig. 3a). The elytra, femur and tibia are sometimes tinged with brown. Lateral parts and tibia of 2nd and 3rd pair of legs are covered with long setae. Rear margin of VIIIth tergite in males is augmentative, angularly indented. Rear margin of VIIIth tergite in females is bluntly trimmed or only with shallow, rounded indentation. Aedagus is very characteristic and makes an important identification feature, because of highly reduced upper part and small seminal vesicle (Fig. 3b). In contrary, female spermatheca highly resembles similar *Dimetrota* species, such as *A. leonhardi* Bernhauer, 1911 and *A. episcopalis* Bernhauer, 1910. *Atheta knabli* identification is possible because of precise description and detailed drawings which can be found in Brundin (1953).

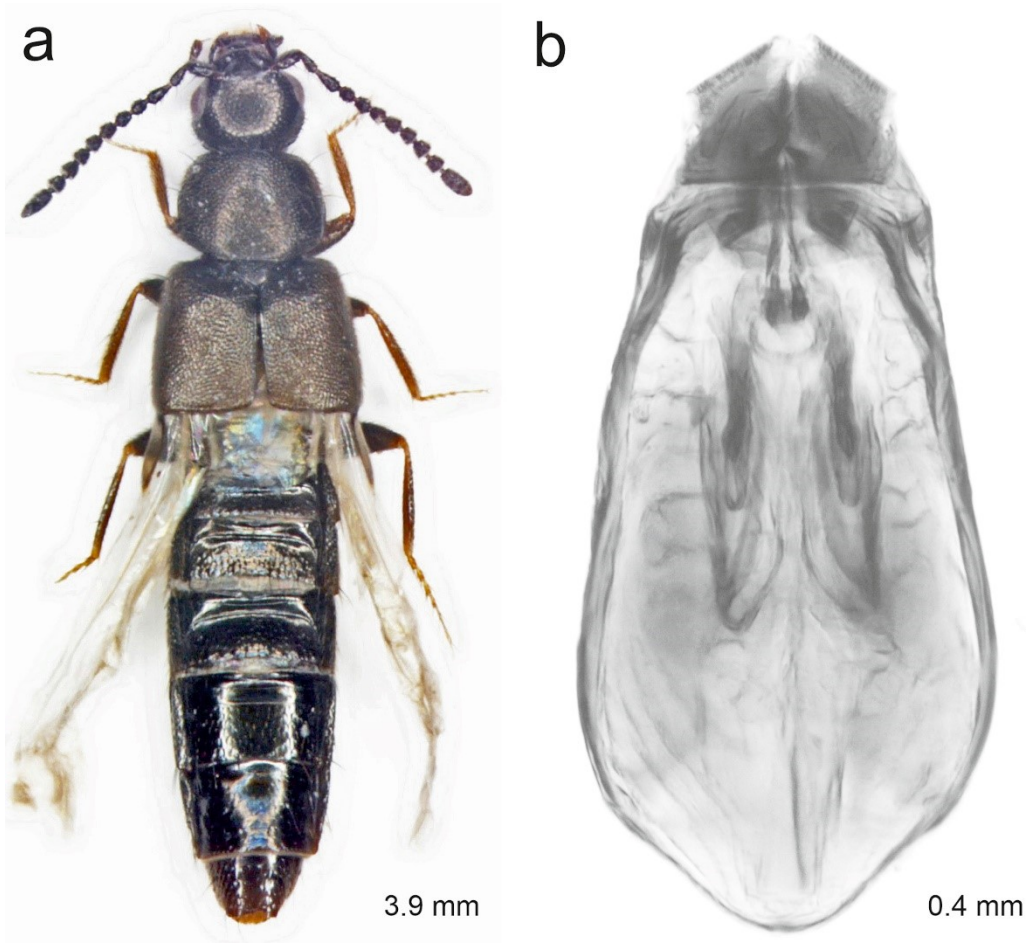


Fig 3. Captured male specimen of *A. knabli*: habitus (a) and dorsal view of the aedeagus (b). Presented lengths refer to distance from anterior margin of labrum to apex of abdomen (a) and total length of the aedeagus from base to apex (b). Photos by B. Feldmann.

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STRESZCZENIE

[*Atheta (Dimetrota) knabli* G. Benick, 1938 (Coleoptera: Staphylinidae) – nowy gatunek dla fauny Polski]

W Puszczy Białowieskiej, na granicy lasu i łąk na południe od wsi Pogorzelce odkryto pierwsze w Polsce stanowisko *Atheta knabli* G. Benick, 1938. Chrząszcz został złowiony na przełomie października i listopada 2021 roku, w pułapkę zanęcającą odchodami bydłęcymi. Jest to rzadko łowiony, koprofilny kusak, notowany dotychczas niemal wyłącznie ze stanowisk wysokogórskich m.in. w Niemczech, Szwajcarii, Francji, Austrii, Bułgarii i Turcji. Poza tym, jak do tej pory jedyne potwierdzone miejsce występowania tego gatunku poza wysokimi górami znajduje się w Turynii (Niemcy; informacja pochodząca z XIX w.). Stanowisko w Puszczy Białowieskiej, zgodnie z naszą najlepszą wiedzą, jest pierwszym typowo nizinnym stanowiskiem dla *Atheta knabli*.