



Atheta strandiella Brundin, 1954 (Coleoptera: Staphylinidae) – a species newly recorded in Poland

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Abstract: *Atheta strandiella* is recorded in four localities in northern Poland including two Baltic raised bogs, another record comes from the south of the country, from a montane bog. The occurrence of *A. strandiella* in Poland is not surprising, as the species was already recorded from neighboring countries, including Belarus, Czechia, and Germany. Numerous findings of *A. strandiella* in different mires of Poland, including the Baltic and montane raised bogs, show our limited and insufficient knowledge of beetles inhabiting these endangered habitats.

Key words: Baltic raised bogs, montane bogs, wetlands, Stołowe Mountains, Pomerania, Sudetes

INTRODUCTION

There are over 1350 species of Staphylinidae occurring in Poland and almost every year further species are recorded (e.g. Szujecki 2013, Marczak et al. 2013, Szujecki 2014, Szołtys & Melke 2017, Jałoszyński et al. 2018). Within the family, *Atheta* Thomson is one of the most speciose genera. Until now, 123 species have been recorded from Poland (Smetana 2015). During our field studies, we have recently collected *Atheta strandiella* in five localities.

MATERIAL AND METHODS

Samples were collected in course of different field studies conducted in the northern and southern part of Poland. In all cases, non-baited pitfall traps were used to collect beetles. Specimens are deposited in the collection of Karol Komosiński (Department of Zoology, University of Warmia and Mazury in Olsztyn) and in the collection of Rafał Ruta (Department of Biodiversity and Evolutionary Taxonomy, University of Wrocław (DBET)).

The distribution map was created with Gnomon software, photos of the beetle and its morphological structures were taken with a Nikon SMZ-1500 and Nikon Eclipse Ni microscopes combined with a Nikon D5100 digital camera. The images were generated using Helicon Focus (6.6.1 Pro) software and enhanced using Adobe® Photoshop CS4 11.0.

The regional division of Poland is adopted after the Catalogue of Polish Fauna (Burakowski et al. 1971).

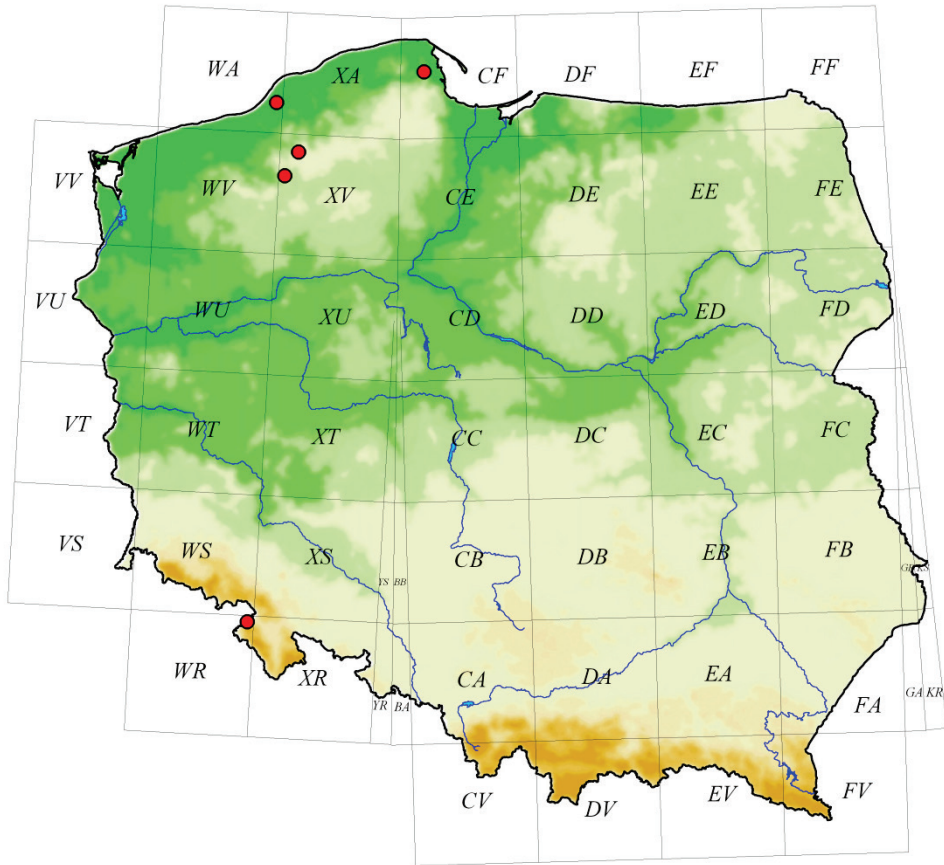


Fig. 1. Distribution of *Atheta strandiella* in Poland.

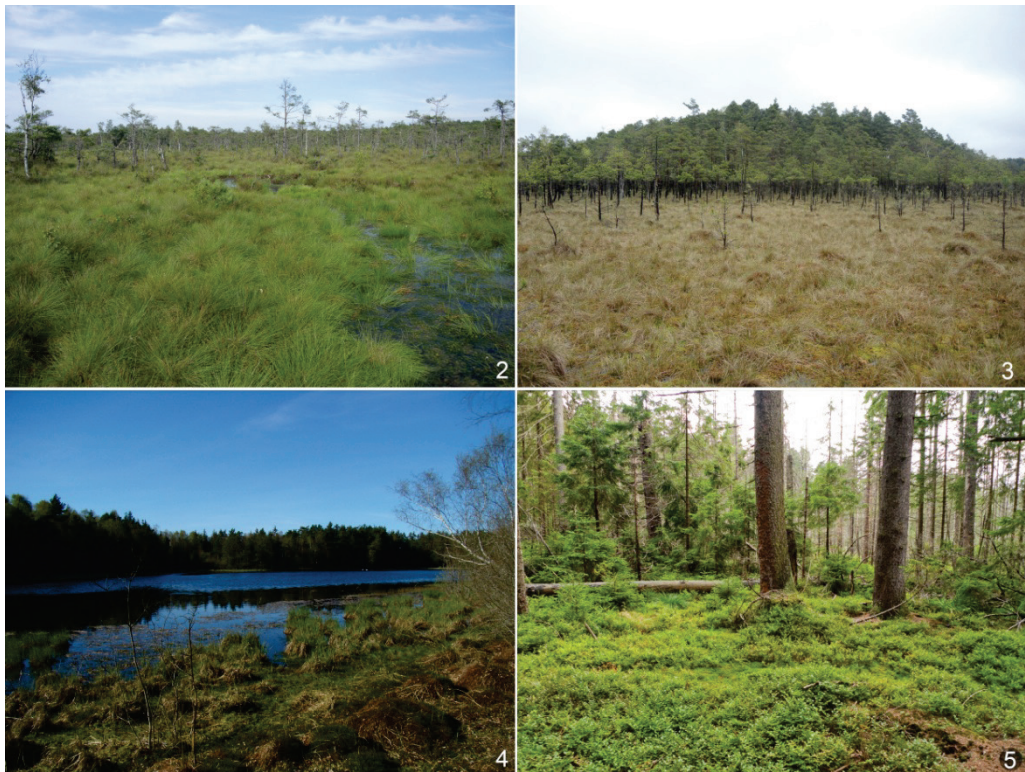
RESULTS

Records of *Atheta strandiella* Brundin, 1954 in Poland (Fig. 1):

- Baltic Coast, “Słowińskie Błota” nature reserve near Słowo (UTM code: WA92), scots pine bog woodland, 54.3605°N, 16.4817°E, pitfall trap, 4 May–10 Jul 2017, 1 ex., bog with low scots pines, 54.3614°N, 16.4810°E, pitfall traps, 11 Jun–10 Jul 2017, 5 exx., open part of a bog, 54.3621°N, 16.4797°E, pitfall traps, 11 Jun–10 Jul 2017, 2 exx., leg. P. Sienkiewicz & T. Rutkowski, coll. DBET;
- Pomeranian Lake District, Stoborowe lake vic., near Wejherowo (CF25), 54.6507°N, 18.2134°E, 11–25 Jun 2006, 1♂, pitfall trap in a wet area, leg. I. Miotk, det. and coll. K. Komosiński;
- Pomeranian Lake District, “Bagno Kusowo” nature reserve ad Kusowo (XV06), scots pine bog woodland, 53.8120°N, 16.5824°E, pitfall trap, 5 May–10 Jun 2017, 1 ex., open part of a bog, 53.8128°N, 16.58521°E, pitfall traps, 10 Jun–11 Jul 2017, 17 exx., leg. P. Sienkiewicz & T. Rutkowski, coll. DBET;

- Pomeranian Lake District, vicinity of Kwiecko lake ad Żydowo (XV18), 54.0227°N, 16.6803°E, 89 m a.s.l., an alkaline fen (ca 2 ha) in a land depression, surrounded by forest, pitfall trap, 27 Jun–22 Jul 2018, 2♂♂, leg. K. Wiśniewski, coll. DBET;
- Western Sudety Mts., Stołowe Mts. (SW Poland), “Wielkie Torfowisko Batorowskie” bog (WR99), 50.4544°N, 16.3792°E, 727m a.s.l., ecotone between a bog and a spruce forest, with *Vaccinium myrtillus* L. and patches of *Sphagnum* sp. in understory, pitfall trap, 19 Jun–8 Jul 2010, 1♂, leg. K. Wiśniewski, coll. DBET.

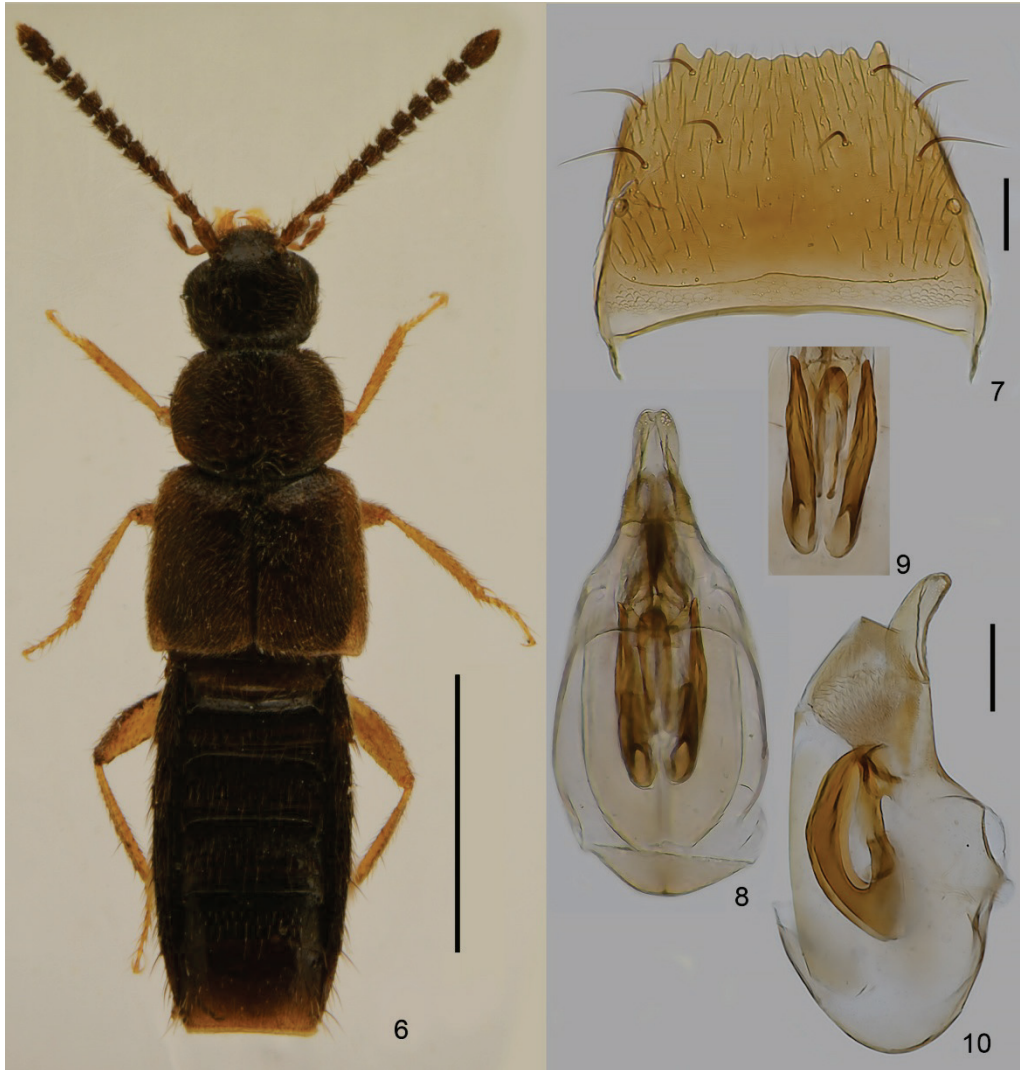
Both “Słowińskie Błota” and “Bagno Kusowo” (Figs 2–3) nature reserves protect Baltic raised bogs, that are listed among the best preserved bogs of this type in Poland (Herbichowa et al. 2007). Beetles were collected both in open bogs and in surrounding woodlands. The third collecting site is situated on the marshy shore of Lake Stoborowe (Fig. 4), another one on a small alkaline fen, which was supposed to be included in a planned “Kwiecko” nature reserve. The only record in southern Poland comes from the “Wielkie Torfowisko Batorowskie” bog, which is protected within the Stołowe Mountains National Park (Fig. 5). This is one of the largest mires in this part of the Sudetes, and although it was largely degraded by drainage, it is still relatively well preserved.



Figs 2–5. Localities of *Atheta strandiella* in Poland: 2 – “Słowińskie Błota” nature reserve; 3 – “Bagno Kusowo” nature reserve; 4 – Stoborowe lake; 5 – spruce forest by the “Wielkie Torfowisko Batorowskie” bog. Photos by R. Ruta (2, 3), I. Miotk (4), and K. Wiśniewski (5).

DISCUSSION

Atheta strandiella (Figs 6–10) is widely distributed in Europe. It was recorded from Austria, Belarus, Belgium, Czechia, Denmark, Estonia, Finland, France, Germany, Great Britain, Ireland, Lithuania, the Netherlands, Norway, North European Territory of Russia, Slovakia, Sweden, and Switzerland. Its range extends eastwards to West Siberia (Sushko et al. 2008, Smetana 2015). Mossakowski et al. (2003) noticed that *A. strandiella* abundance decreases from west to east – the species was common in bogs studied in Germany, occurred in low numbers in Latvian bogs and was missing in Estonian localities. Our observations seem to conform to this pattern.



Figs 6–10. *Atheta strandiella*: 6 – male, dorsal view (length 2.8 mm, scale bar = 1.0 mm); 7 – tergite VIII (length 0.45 mm, scale bar = 0.1 mm); 8 – median lobe of aedeagus, ventral view (length 0.53 mm, scale bar = 0.1 mm), 9 – detail of internal sac of aedeagus, dorsal view, 10 – median lobe of aedeagus, lateral view. Photos by R. Ruta.

Brundin (1954) supposed this is a eurytopic species with a boreo-alpine distribution. Knowledge of the habitat preferences and life history of *A. strandiella* is very scarce. There are numerous studies showing that the species inhabits peat bogs (Brundin 1954, Mossakowski et al. 2003, Sushko 2016) and Boyce (2004) provisionally included *A. strandiella* on a list of beetles associated with acid mires. Sometimes *A. strandiella* occurs in forests as well. For example in Norway, the species was collected in pitfall traps in heather pine woodland and bilberry pine woodland (Skartveit et al. 2004). *Atheta strandiella* was repeatedly collected on carrion (Hammond & Bacchus 1972, Owen 1989, Good 1992), but also on dead fish (Brundin 1954), in dung (Owen 1989), and on oozing sap of a birch (Brundin 1954). In Koch (1989), based on German records, the species is described as a eurytopic hygrophil and phytodetrirical, occurring in spruce forests and mires, where it inhabits rotting materials, carrion and also *Sphagnum* mosses.

Atheta strandiella is included in the red lists of Germany (Geiser 1998), Denmark (Stolze & Pihl 1998), Czechia (Farkač et al. 2005) and also in regional red lists (e.g. Esser 2017). As our knowledge on distribution and habitat requirements of the discussed species in Poland is very limited, it would be premature to consider *A. strandiella* for inclusion in the Polish Red List of Animals. The fact that *A. strandiella* was recorded in Poland much later than in neighboring countries shows that mires of Poland are understudied and require more attention from entomologists.

Atheta strandiella differs from other members of the *Atheta crassicornis*-group in the following characters: antennae are narrower, antennomere 3 is almost as long as antennomere 2. Antennomeres 6–10 are cylindrical, ca. 1.5x wider than long (this character is particularly well visible in males). Remaining members of the group have more robust antennae, with antennomere 3 distinctly longer than antennomere 2. Antennomeres 6–9 are more than 1.5x wider than long. The apex of tergite VIII of males is denticulate in all members of the group (Fig. 7), denticles are subtle in *Atheta fungicola* (C. G. Thomson, 1852), intermediate in *A. strandiella* and largest in *A. paracrassicornis* Brundin, 1954. Sternite VIII of females of *A. strandiella* is regularly semicircular, without long setae on posterior margin. Sternite VIII of females in remaining members of the group have distinct setae on posterior margin that are either yellow (*Atheta britanniae* M. Bernhauer et Scheerpeltz, 1926) or dark (*Atheta fungicola*, *A. crassicornis* (Fabricius, 1793), *A. paracrassicornis* Brundin, 1954). *Atheta strandiella* can be identified using the key by Freude et al. (1974), additional figures of male and female genitalia are included in the original description (Brundin 1954), Strand & Vik (1964), and the present paper (Figs 8–10).

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STRESZCZENIE

[*Atheta strandiella* Brundin, 1954 (Coleoptera: Staphylinidae) – gatunek nowy dla Polski]

W latach 2006–2018 na czterech stanowiskach w północnej Polsce oraz jednym w Sudetach odnaleziono *Atheta strandiella*. Gatunek ten jest szeroko rozmieszczony w Europie, znany był do tej pory ze Skandynawii, Litwy, Estonii, Łotwy, Białorusi, Rosji, Czech, Słowacji, Niemiec, Austrii, Danii, Holandii, Belgii, Francji, Wielkiej Brytanii i Irlandii. Preferuje siedliska wilgotne, zwłaszcza torfowiska sfagnowe. W dwóch przypadkach polskie stanowiska zlokalizowane były na terenie rezerwatów przyrody chroniących torfowiska wysokie typu bałtyckiego: „Bagno Kusowo” i „Słowińskie Błota”, natomiast „Wielkie Torfowisko Batorowskie” jest chronione w obrębie Parku Narodowego Gór Stołowych.

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