

The first record of alien beetle species *Ptilodactyla exotica* CHAPIN, 1927 (Coleoptera: Dryopoidea: Ptilodactylidae) in Poland

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Abstract: *Ptilodactyla exotica* Chapin, 1927 is presumed to originate from the Mascarene Islands, where populations occurring in natural habitats are known, for example, on Réunion Island. Outside its native range, the species has been accidentally introduced to the United States and several parts of Europe. At present, it is recorded from eleven European countries. During 2024–2025, both live and dead individuals of *P. exotica* were observed inside an office building in Olsztyn (NE Poland). As the larvae of this species inhabit soil and feed on fungus-infested, decaying organic matter, indoor environments rich in ornamental plants and organic substrates provide suitable conditions for their development under the climatic conditions of Poland.

Key words: Central Europe, non-native, synantrophic species, faunistics, zoogeography, expansion

The family Ptilodactylidae (Coleoptera: Elateriformia: Dryopoidea) is represented worldwide by approximately 500 species grouped into 35 genera (Bouchard et al. 2017), of which the most species-rich is the genus *Ptilodactyla* Illiger, 1807, widely distributed in the Neotropical region (Hájek 2009). In the Palearctic region, 61 taxa are known, but no native representatives of this family occur in Europe (Hájek 2016).

The biology of the family Ptilodactylidae remains poorly understood (Nardi et al. 2020). Adults of *Ptilodactyla exotica* Chapin, 1927 are found in humid, often riparian habitats and are nocturnal, although they are readily attracted to artificial light sources (Aberlenc & Allemand 1997, Hájek 2009). Their larvae live in soil, are saprotrophic, and feed on decaying plant material (Ivie 2002). Other larval behaviours, such as gnawing on living plant roots, were described by Bertrand (1972); however, this hypothesis was not confirmed by Aberlenc & Allemand (1997), who examined root damage in pots containing larvae of *P. exotica* and observed that they consumed only dead root fragments.

Ptilodactyla exotica is presumed to originate from the Mascarene Islands, where populations living in natural habitats are known, for example, on Réunion Island (Aberlenc & Allemand 1997). Outside its native range, the species has been introduced to the United States (Chapin 1927) and Europe (Hájek 2016). At the same time, Hájek (2016), in his Palearctic catalogue, reported that the species is widely distributed in the Afrotropical, Nearctic, and Oriental regions.

At present, *Ptilodactyla exotica* is known from 11 European countries, listed chronologically: Italy (Binaghi 1972, Süss & Puppinger 1976, Espinoza et al. 1991, Aberlenc & Allemand 1997, Nardi et al. 2020), Switzerland (Schillhammer 1993), Slovakia (Majzlan 1993), France (Aberlenc & Allemand 1997), Germany (Lucht 1998), the United Kingdom (Mann 2006), the Czech Republic (Hájek

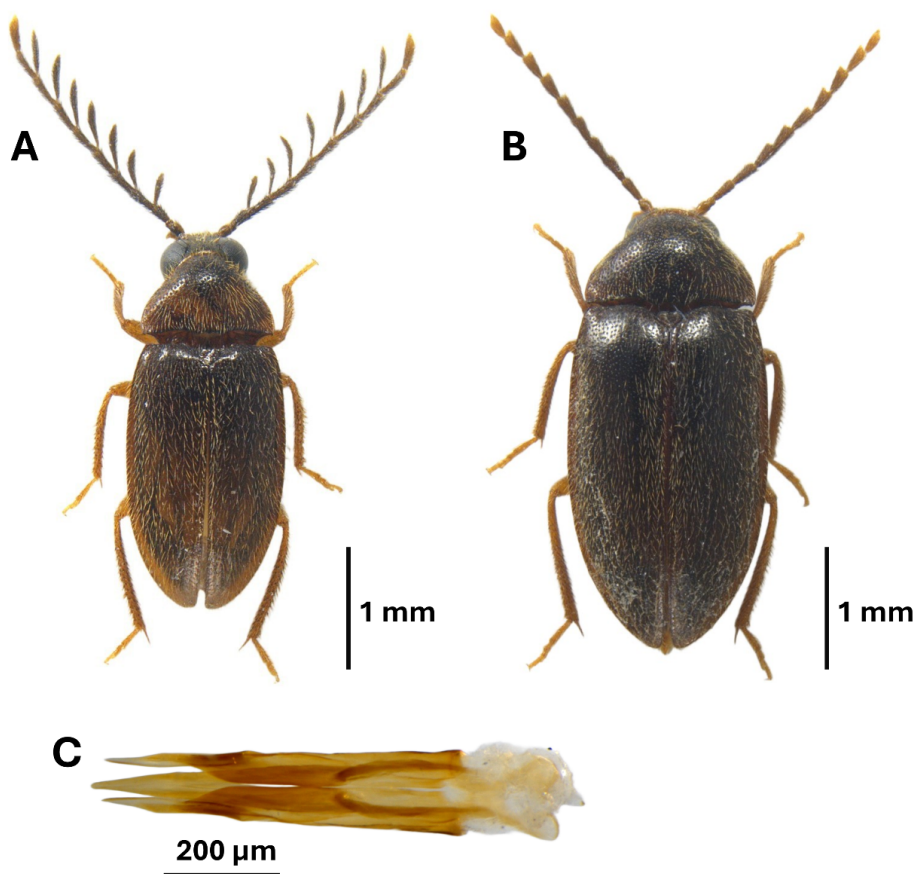


Figure 1. Habitus of a male (A), a female (B) and aedeagus in dorsal (C) of *Ptilodactyla exotica* Chapin, 1927 collected in Olsztyn (NE Poland). [habitus and aedeagus pictures were taken by a Prokyon digital camera Jenoptik AG, mounted on a Nikon SMZ1500 stereomicroscope; image stacks were processed using Helicon Focus v. 8.2.18 Pro]

2009, Zúber & Krejčíř 2020), Spain (Viñolas et al. 2020), as well as Slovenia, Sweden, and Norway (EASIN 2025). In nearly all of these cases, specimens were collected indoors, particularly in rooms containing potted ornamental plants belonging to genera such as *Chlorophytum* Ker Gawl., *Codiaeum* A.H.L. Jussieu, *Fatsia* Decne. & Planch., *Ficus* L., *Monstera* Adans., and *Sansevieria* Thunb. (Aberlenc & Allemand 1997), or in greenhouses cultivating plants such as *Aechmea fasciata* (Lindl.) Baker, *Dracaena fragrans* (L.) Ker Gawl. (Süss & Puppini 1976), and *Anthurium andreanum* Linden ex André (Binaghi 1972).

In this article, we present the first confirmed record of *Ptilodactyla exotica* in Poland (Fig. 1). Specimens of this species were observed in an office building in Olsztyn, NE Poland (53°46'29"N, 20°29'25"E; UTM Grid: DE65) (Fig. 2). The sampling site of *P. exotica* is located within the Masuren Lake District, according to the faunistic regionalization of Poland (Burakowski et al. 1973). Specimens were collected on 8 April 2024 (1 female), 20 October 2025 (1 female), 22 October 2025

(2 females and 9 males) and 31 October 2025 (3 males). Observations conducted over two years indicate that this species is able to survive the winter at this location. The voucher specimens are deposited in authors' collections.

In the building where *Ptilodactyla exotica* was recorded, the plantings included species such as *Aglaonema* Schott, *Epipremnum* Schott, *Sansevieria cylindrica* Bojer ex Hook., *Spathiphyllum* Schott, *Monstera deliciosa* Liebm., *Ficus lyrata* L., and *Ficus elastica* L.

The humid soil environment with a high presence of fungi, typical of greenhouses or pots containing cultivated plants, provides ideal conditions for the development of local populations of this species, allowing settlement and reproduction over several generations (Aberlenc & Allemand 1997). As a result, *Ptilodactyla exotica* is frequently and unintentionally introduced into various European countries (Schillhammer 1993, Hájek 2009). The record of *P. exotica* in Poland supports earlier hypotheses regarding the rapid spread of the species through the trade of ornamental plants (Hájek 2009, Nardi et al. 2020). Observations made in Olsztyn over a two-year period indicate that, under heated indoor conditions, *P. exotica* can establish viable populations in Poland. This species is probably more widespread in the country, particularly in greenhouses and heated buildings rich in potted ornamental plants, such as hotels, conference centers, office buildings, and even private apartments.

The accidental import of exotic insect species is relatively common, although it rarely results in the permanent establishment of a species in a new area. Such species typically do not encounter suitable environmental conditions that would allow them to become acclimatized. However, human activity can facilitate their adaptation, particularly in the case of anthropophilous species, and especially those that feed on food products or cultivated plants. In recent years, several alien insect species developing in human-associated environments have been recorded in Poland, such as *Lasioidites pictus* (Macleay, 1825) (Nitidulidae) (Lasoń & Marczak 2025) and *Aclees taiwanensis* Kôno, 1933 (Curculionidae) (Mazur et al. 2024). It is evident that ongoing globalization and the

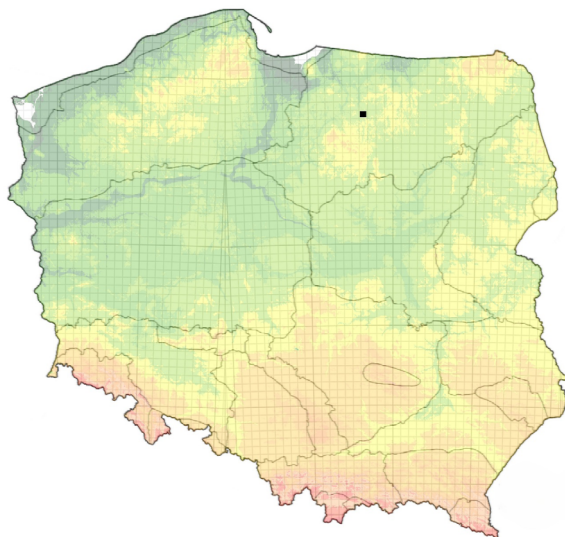


Figure 2. Distribution of *Ptilodactyla exotica* in Poland. [map generated with MapaUTM ver. 6 (Gierlasiński 2025); distribution of UTM squares based on the zoogeographical division of Poland from KFP (Burakowski et al. 1973)]

increasing exchange of goods, particularly natural commodities such as fruits, vegetables, wood, and plant seedlings, are expected to contribute to a continued rise in the number of species accidentally introduced to Poland in the coming years. It should also be emphasized that potted ornamental plants imported to Europe, and consequently to Poland, have been and continue to be an important vector for the introduction of alien animal and plant species (Marczak & Peplowska-Marczak 2024, Mazur et al. 2024, Pulighe et al. 2025).

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STRESZCZENIE

Pierwsze stwierdzenie obcego gatunku chrząszcza *Ptilodactyla exotica* Chapin, 1927 (Coleoptera: Byrrhoidea: Ptilodactylidae) w Polsce

Ptilodactyla exotica Chapin, 1927 pochodzi prawdopodobnie z Maskarenów, gdzie m.in. na wyspie Reunion znane są populacje żyjące w naturalnym środowisku. Poza swój zasięg naturalny gatunek został zawleczony do USA i Europy. Współcześnie znany jest z 11 krajów europejskich. W latach 2024–2025 obserwowano żywe osobniki tego gatunku w jednym z budynków biurowych w Olsztynie (północno-wschodnia Polska). Larwy zasiedlają glebę gdzie odżywiają się przegryzbią, martwą materią organiczną. W Polsce *Ptilodactyla exotica* jest prawdopodobnie szerzej rozpowszechniona, zwłaszcza w szklarniach i ogrzewanych budynkach z dużą ilością kwiatów doniczkowych, jak hotele, centra konferencyjne, biurowce, a nawet prywatne mieszkania, gdzie może tworzyć zdolne do przetrwania populacje.

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