NEW DATA ON DISTRIBUTION OF *EXOCENTRUS* DEJEAN, 1835 (CERAMBYCIDAE: LAMIINAE) SPECIES IN LITHUANIA

VYTAUTAS TAMUTIS[1],[2] ROMAS FERENCA[1]

[1]Kaunas T. Ivanauskas Museum of Zoology, Laisvės al. 106, LT-44253, Kaunas, Lithuania. E-mail: agagutta@gmail.com, entomol@zoomuziejus.lt
[2]Kaunas Botanical Garden, Vytautas Magnus University, Ž.E. Žilibero Str. 6, 46324 Kaunas, Lithuania. Email: vytautas.tamutis@vdu.lt

Introduction

The genus *Exocentrus* Dejean, 1835 (Cerambycidae: Lamiinae) includes 98 species in Palaearctic region, and only four species: *E. adspersus* Mulsant, 1846, *E. lusitanus* (Linnaeus, 1767), *E. punctipennis* Mulsant & Guillebeau, 1856, *E. stierlini* Ganglbauer, 1883, occur in Europe (Danilevsky, 2022). In Lithuania, there was reported one species, namely *E. lustitanus*, which was known only from the single old record ("Kaunas, 12.06.1937") (Pileckis & Monsevičius, 1997). Additionally, two species: *E. adspersus* and *E. punctipennis* were listed in the catalogue of Lithuanian beetles as a probable for the local fauna (Tamutis *et al*., 2011).

Adults of the genus may be recognized by having long setae on the one side of antenomeres and sparse erect setae on elytra; the lateral sides of pronotum bear a sharp spine directed to backward (Cherepanov, 1984). However due to their cryptic lifestyle and excellent camouflage, these beetles are rarely observed. Among European species of *Exocentrus* only *E. lusitanus* has a wide distribution, northward its distribution range reach southern Finland (Rassi *et al*., 2015), eastward to Western Siberia and northern Kazakhstan), also known in Caucasus region (Danilevsky, 2022). Another three species are distributed mainly in Southern and Central Europe (Danilevsky, 2022). Ecologically all European *Exocentrus* species are associated with deciduous trees, but seems tend to monophagy or oligophagy. For example, *E. adspersus* develops mainly on *Quercus* ssp., *E. lusitanus* - on *Tilia* ssp., *E. punctipennis* – on *Ulmus* ssp., and *E. stierlini* – on *Salix* ssp. (Cherepanov, 1984; Švácha, 2001; Lindhe *et al*., 2010).

Despite the fact that no special studies of *Exocentrus* have been carried in Lithuania, we are pleased to present new data on the distribution of species of this genus in local fauna.

Material and methods

The specimens were collected (observed) accidentally in the course of excursions in the nature. We include the data given from Lithuanian photographers, who photographed some well distinguished species of beetles in nature and published their photos on the websites http://www.macrogamta.lt/, https://www.inaturalist.org/, or https://www.facebook.com/ according to the licence of the authors. The collected specimens are deposited in Kaunas Tadas Ivanauskas Zoological Museum.

The specimens were identified using the keys suggested by Harde (1966), Kurzawa (2001). The macro photographs were made using photo camera "Nikon Z 50" with

objective Laowa 25mm f/2.8 2.5–5X Ultra Macro Velbon Macro Rail Super Mag Slider.

Faunistic information is presented by: geographic name of locality of collection, collection date (day, month, year), number of collected (observed) specimens, collecting peculiarities, names of collectors (col.) or observers (obs.).

Geographical names are used following the document of National land service under the ministry of Agriculture of the Republic of Lithuania "Regulation usage of geographical names on maps" Order 1P-15, 3 February, 2004 (https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/TAIS.227707).

Specifics of new records of *Exocentrus* species in Lithuania

***Exocentrus lusitanus* (Linnaeus, 1767)**

Kaunas district, Braziūkai (N54.901499, E23.484312), 12 07 2012, one female collected, on *Tilia cordata* (Fig. 1, A), col. Vytautas Tamutis; Švenčionys district, Antaviešė (N55.158649, E25.854635), 23 06 2018, three specimens observed on *Tilia cordata*, obs. Giedrius Markevičius; Vilnius town, Jeruzalė (N54.740509, E25.271141), 01 07 2020, one specimen observed on the laundry, close to *Tilia cordata* trees, obs. Jurga Motiejūnaitė.

***Exocentrus punctipennis punctipennis* (Mulsant & Guillebeau, 1856)**

Kaunas town, Žaliakalnis (N54.916118, E23.934024), 27 06 2019, one female collected, flew indoors through the window (Fig. 1, B), col. Vitalijus Bačianskas; Vilnius district, Kiemeliai (N54.851098, E24.998086), 10 07 2022, one specimen observed landing on clothes, obs. Agnė Našlėnienė.

Figure 1. Habitus of *Exocentrus* species collected in Lithuania: A – *E. lusitanus*; B – *E. p. punctipennis* (Photo by Kazimieras Martinaitis)

Discussion

Exocentrus lusitanus was considered as very rare species in Lithuania (Pileckis & Monsevičius, 1997), previously known from a single specimen collected in Kaunas environs, in 12 06 1937, collected possibly by Alfonsas Palionis (judging by the handwriting on the label). This specimen is stored in collection of Kaunas Tadas Ivanauskas Zoological Museum. The next finding of this species happened only 75 years later, though in general the beetles, especially dendrophagous, were studied quite intensively in period 1954–1986 in local fauna (Pileckis, 1958; Pileckis & Monsevičius, 1995). Despite wide distribution of this species in Europe, it is considered rare in northern and western parts (Bíly & Mehl, 1989; Burakowski *et al*., 1990; Peña *et al*., 2007; Alekseev, 2007; Lindhe *et al*., 2010; Barševskis & Savenkovs, 2013), or only locally abundant in some Central European countries (Sláma, 1998). Ecologically, this species is associated with lindens (*Tilia* ssp.) (Cherepanov, 1984; Sama, 2002), however some authors mentioned also *Corylus* ssp. as possible host for this species (Sláma, 1998; Lindhe *et al*., 2010). According to Cherepanov (1984), the larvae develop in dead twigs and small branches, and the adults feed additionally gnawing the bark of young shoots; life cycle lasts two years. Our new findings of this species situated in three different places (Fig. 2) may represent an increase in the local population of *E. lusitanus* in Lithuania in the last decade.

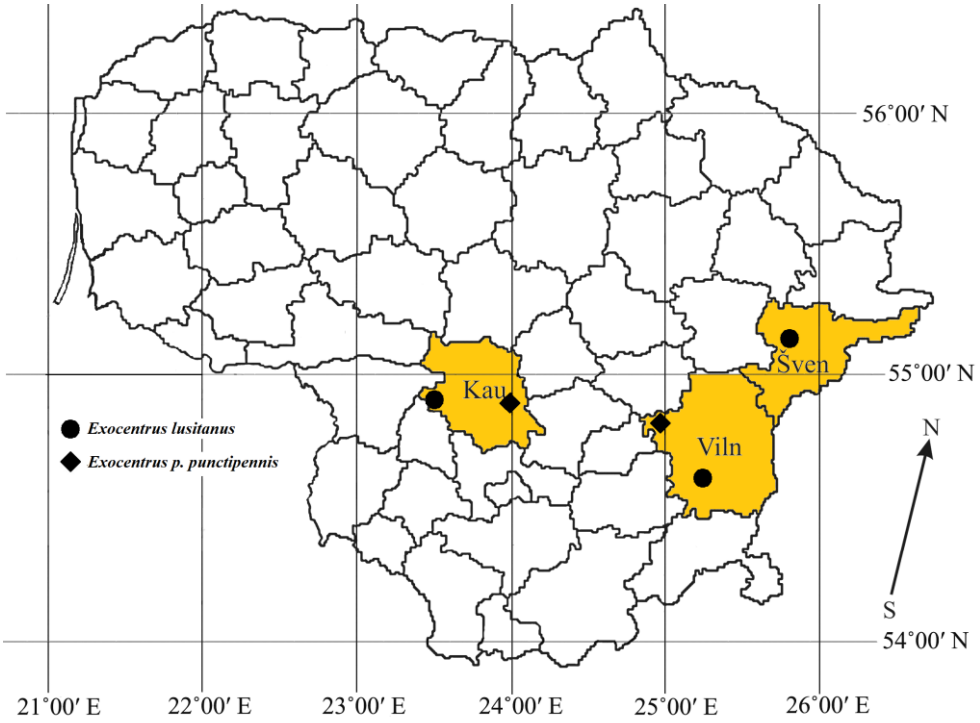

Figure 2. Map of Lithuania with administrative districts, marked locations of the records of *Exocentrus* species and coloured areas of districts: Kau – Kaunas, Šven – Švenčionys, Viln – Vilnius.

Here we report first findings of *Exocentrus p. punctipennis* in Lithuania. This subspecies is distributed in Europe, however more widespread in southern and south-eastern parts (Sama, 2002). Another subspecies *E. p. signatus* Mulsant & Rey, 1863 occurs in southern part of European Russia, Transcaucasia and Turkey (Ösdikmen, 2007;

Danilevsky, 2022). This species is considered as very rare in Poland (Burakowski *et al*., 1990) and Ukraine (Zamorka & Mishustin, 2020). Our findings of this species seem to be further north (Fig. 2). Though traditionally this species is considered as monophagous on elms (*Ulmus* ssp.) (Švácha, 2001; Sama, 2002), the larvae can develop also in other deciduous trees such as *Quercus*, *Alnus*, *Betula*, *Salix*, *Tilia*, *Acer* (Sláma, 1998; Vitali, 2018). The life cycle is very similar to *E. lusitanus* (Sláma, 1998; Sama, 2002).

Though host trees of both *E. lusitanus* and *E. p. punctipennis* are quite common in Lithuania, and it appears that nutritional resources would not limit the populations of these species, to this moment we have just a few records. Possibly, the climatic conditions are more important in this case, especially for *E. p. punctipennis*, which is considered as termophilic species. The recent records of both species could be related to climate changes, especially higher means of summer temperatures in last two decades, which contributed to the climatic niche of the species.

Both these species are quite similar in body form and may be easily confused. However, the specific characters may be recognized using the microscope. One of the most certain could be the shape and size of eyes, which are distinctly more brought together on the vertex and with distinctly larger facets in *E. punctipennis* than in *E. lusitanus* (Fig. 2.). Another character that distinguishes between these two species is the shape of pronotum and lateral spines, which are more distant backward from the middle line in *E. punctipennis* than in *E. lusitanus* (Fig. 2.). Also, the presence of larger hairless (dark) spots on elytra may be a good character distinguishing character of *E. p. punctipennis*. Finally, according to Sama (2002) European *Exocentrus* species may be easily distinguished by the shape of endophalic sclerites, which unfortunately we can't confirm in this paper due to the lack of sufficient number of males in our material.

Taking into account the composition of *Exocentrus* species in the neighbouring countries as well as their spreading trends, two more species - *E. adspersus* and *E. stierlini* are also expected to be found in Lithuania. *E. adspersus* is widely distributed in central and southern part of Europe (northward from southern Sweden, also it is known in Caucasus region, Turkey and Syria (Danilevsky, 2022; Lindhe *et al*., 2010), however the north-eastern border of its distribution range is not completely known. The closest findings to Lithuania are know from central Mazovia (Poland) (Gorski & Tatur-Ditkowski, 2015). *E. stierlini* is widely distributed in Estern Palaearctic region (Danilevsky, 2022), however it is considered one of rarest species of longhorn beetles in Europe (Kurzawa & Gutowski, 2021). To this moment this species trustworthy is reported from European part of Russia, Ukraina, Czech and Poland (Kurzawa & Gutowski, 2021). The closest findings of *E. stierlini* to Lithuania is know from Biebrzański Park Narodowy (Poland) (Kurzawa & Gutowski, 2021).

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Nauji duomenys apie palvių (*Exocentrus* Dejean, 1835) genties (Cerambycidae: Lamiinae) rūšių paplitimą Lietuvoje

V. TAMUTIS, R. FERENCA

Santrauka

Pateikiami nauji faunistiniai duomenys apie palvių (*Exocentrus* Dejean, 1835) genties ūsuočių (Cerambycidae: Lamiinae) liepinio (*E. lusitanus* (Linnaeus, 1767) ir ąžuolinio (*E. p. punctipennis* Mulsant & Guillebeau, 1856) paplitimą Lietuvoje. Informacija apie ąžuolinio palvio (*Exocentrus p. punctipennis*) aptikimą Lietuvoje yra skelbiama pirmą kartą. Trumpai aprašomi minėtų rūšių biologijos ir morfologijos ypatumai, pastarieji yra iliustruoti originaliomis nuotraukomis. Taip pat pateikiamas komentaras apie galimas *Exocentrus* genties rūšių paplitimo tendencijas Lietuvoje.

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