


First record of *Zaslavskypera libanotidis* (Reitter, 1896) (Coleoptera: Curculionidae) from the late Pleistocene of Western Siberia

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Abstract

The first record of *Zaslavskypera libanotidis* (Reitter, 1896) (Curculionidae: Entiminae: Hyperini) from the late Pleistocene of the deposit Ustyanka-1 (Ustyanka River, Loktevsky District, Altaiskii Krai) is given. The first find of this species from Central Altai (Ongudaisky District, Altai Republic) is also reported. The present and past distribution of *Zaslavskypera libanotidis* and illustrations of this species are given.

Key words: Biodiversity, Curculionoidea, Entiminae, Hyperini, West Siberia, Quaternary.

Introduction

The tribe Hyperini is a monophyletic group distributed everywhere. In total, 54 species from 15 genera were recorded from Siberia (Legalov 2020b, 2022, 2023; Legalov & Reshetnikov 2020, 2022). Many of them are stenotopic and prefer steppe or meadow biotopes. Representatives of the tribe develop on herbaceous plants of different families. Moreover, most species have trophic specialization and they are associated with several plant genera within a family, and often with only a few species within a genus. A lot of endemic species of the tribe are known in different regions. Thus, representatives of the Hyperini are convenient objects for faunogenetic studies and environmental reconstructions of the past.

The oldest records of the tribe were known from late Eocene Baltic amber (Legalov 2013), the terminal Eocene of Florissant, USA (Scudder 1893; Legalov 2015), and the lower Oligocene of Primorskii Krai, the Russian Far East (Zherikhin 1989). The species of Hyperini were described from the Pleistocene of Ukraine (Lomnicki 1894). One (*Hypera glacialis* Lomnicki, 1894) of these species is considered extinct, and

the second (*Hypera praecomata* Lomnicki, 1894) is considered a synonymous of *Eremochorus concinnus* (Boheman, 1842) (Kuska 1992). Ten species (*Eremochorus (Eremochorus) steppensis* (Motschulsky, 1860), *E. (Proeremochorus) mongolicus* (Motschulsky, 1860), *Metadonus distinguendus* (Boheman, 1842), *Pachypera* sp., *Boreohypera diversipunctata* (Schrank, 1798), *Eririnomorpha rumicis* (Linnaeus, 1758), *Hypera (Hypera) ornata* (Capiomont, 1868), *H. (Kippenbergia) misella* (Faust, 1882), *Zaslavskypera conmaculata* (Herbst, 1795) and *Limobius borealis* (Paykull, 1792)) of the Hyperini were recorded from the Pleistocene of Western Siberia and Urals (Borodin et al. 2001; Zinovyev 2003, 2011; Legalov et al. 2016; Zinovyev et al. 2016; Gurina et al. 2018, 2019a, 2019b, 2023; Dudko et al. 2022, etc.), and three species (*Boreohypera diversipunctata*, *Hypera (Hypera) ornata*, and *H. nigrirostris* (Fabricius, 1775)) – from the Pleistocene of North-Eastern Siberia (Kuzmina, Matthews 2012).

Zaslavskypera libanotidis (Reitter, 1896) was described from Moravia (Czech Republic) (Reitter 1896). Distribution of this rare species is still unclear; it is known only from two local regions of Eastern Europe and Western Siberia. This work presents a first record of *Z. libanotidis* in the late Pleistocene from the site Ustyanka-1 (Western Siberia, Altai foothills). Known and new records of the species for modern fauna of Western Siberia are also summarized.

Material and methods

The Quaternary deposit Ustyanka-1 is located on the right bank of Ustyanka River, right tributary of the Alei River in Loktevsky District of Altaiskii Krai. It is located in the western foothills of Northern Altai. Elytra of *Zaslavskypera libanotidis* were extracted from sample 18, layer 11 of section I in 2020. Description of the section was given in Tshenyshev et al. (2021). The basal layer 11, 4.10-5.62 m, blue and blue-grey clay with interlayers of dark-grey loam and mollusc shells in the upper portion of the layer and a coarse sand in the lower; alluvial plant detritus and insect remains included. Radiocarbon date 11880±120 BP (SPb-3408) was obtained for the plant detritus of the sample 18, using liquid scintillation counting for measuring ¹⁴C activity. It was undertaken by M.A. Kul'kova in the Herzen State Pedagogical University, Saint-Petersburg. Obtained radiocarbon date was calibrated in the Calib Rev 8.1.0. software, using curve IntCal20, range ± 2σ. Corresponding calibrated date is 14034-13503 cal BP.

Studied material is deposited in the collection of the Institute of Systematics and Ecology of Animals Siberian Branch of RAS.

Locality map of *Z. libanotidis* was made based on original materials from the collection of the Institute of Systematics and Ecology of Animals, and also sensu references (Skuhrovec 2003; Podlussány et al. 2017; Szénási 2023).

The systematics of studied taxa are based on the works of Legalov (2011, 2020a) and Alonso-Zarazaga et al. (2023).

Results

Insecta: Coleoptera: Curculionoidea: Curculionidae: Entiminae: Hyperini: Hyperina

Genus: *Zaslavskypera* Legalov, 2011

Zaslavskypera libanotidis (Reitter, 1896)

(Figs. 1-2)

Fossil material: 2 pieces of left elytron (Fig. 1), 1 right elytron, Altaiskii Krai, Loktevsky District, Ustyanka River, 8 km NNE of Pokrovka, section I, sample 18, depth of 4.88-4.94 m, fragment Nos 115-117, 51°15'38.0"N, 81°28'57.2"E, 30.VI.-3.VII.2020, A. Gurina, R. et E. Dudko, N. Golosova.

Recent material: RUSSIA, 1 male, Novosibirskaya Oblast, Chanovsky District, near Karachi Lake, 24-28.V.1971, V. Mordkovich; 2 males, Novosibirskaya Oblast, Zdvinsky District, 5 km NE of Shirokaya Kurja, near Fadikha Lake, meadow-steppe fallow, sifting, 54.6046°N, 78.1896°E, 17.IX.2023, R. Dudko; 1 female, Altai Republic, Ongudaisky District, near Tuekta, 50°51'N, 85°52'E, 30.IX.2016, R. Dudko; 1 female, Krasnoyarskii Krai, Krasnoyarsk, Enisei River, left bank, southern slope, 23.V.2010, H. Borisova; 1 female, CZECH REPUBLIC, "Moravie".

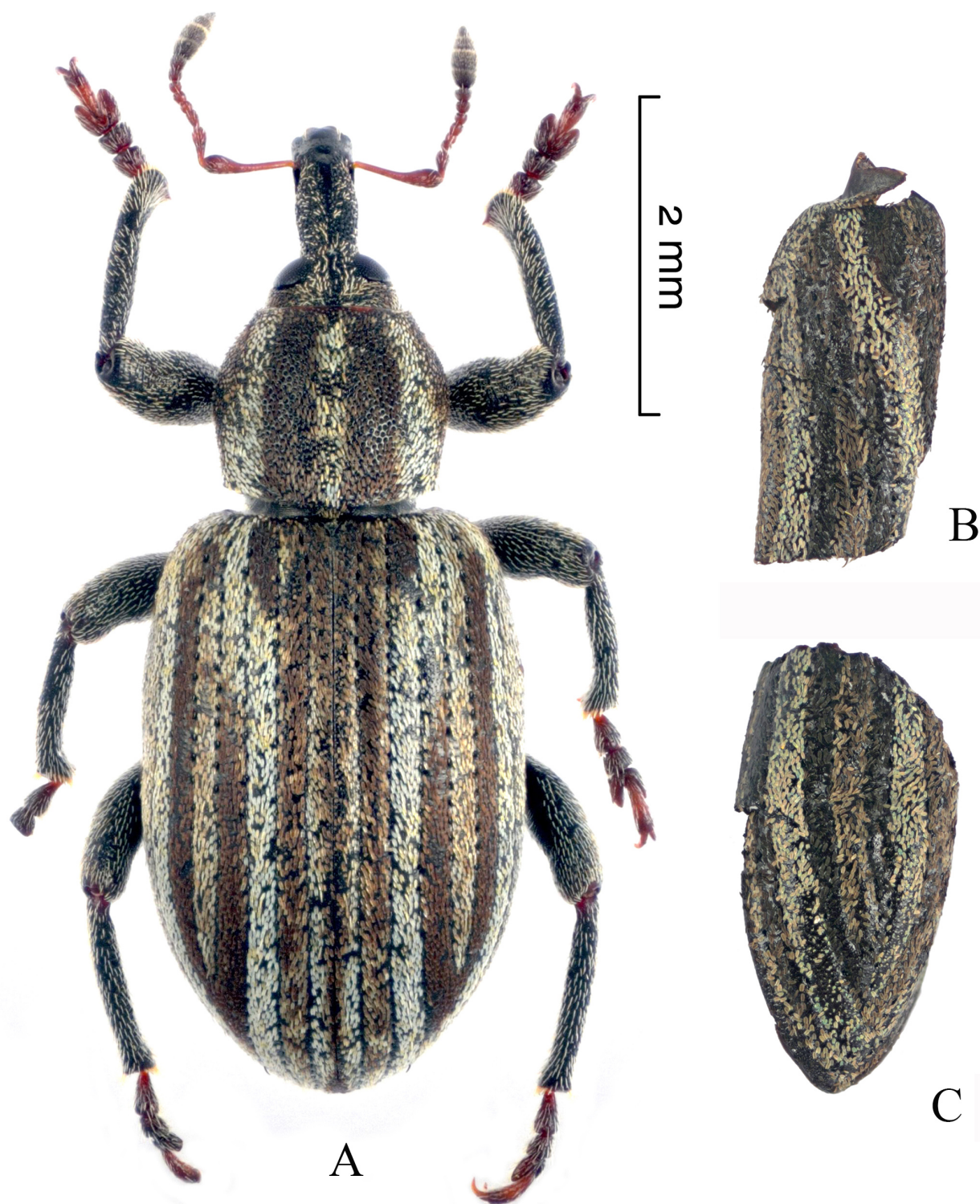


Figure 1. *Zaslavskypera libanotidis*, modern (A) and late Pleistocene (B, C). A – body, male, habitus, dorsally, Novosibirskaya Oblast, Fadikha Lake; B – part of left elytron, C – part of right elytron.

Remarks. This species was previously known from Altaiiskii Krai and Novosibirskaya Oblast (Legalov 2020b). The records of *Z. interruptovittata* (Desbrochers des Loges, 1875) from Novosibirskaya Oblast, Kemerovo Oblast and Krasnoyarskii Krai (Legalov, Opanassenko 2000; Krivets, Legalov 2002; Legalov 2020b) were based on an incorrect determination of *Z. libanotidis*.

Z. libanotidis differs from *Z. interruptovittata* and *Z. rogenhoferi* (Ferrari, 1866) in the middle part of third to fifth elytral interstriae bearing pale or white scales, and also the widest part of the elytra is in the posterior half (Skuhrovec 2009).

Host plants. *Z. libanotidis*, like other species of the genus *Zaslavskypera*, develops on plants of the family Apiaceae. *Seseli libanotis* (L.) (= *Libanotis montana*, = *L. pyrenaica*) was recorded as the host plant (Reitter 1896; Smreczyński 1968; Skuhrovec 2005).

Habitats. Specimens from Western Siberia were collected in dry meadows or meadow-steppe.

Distribution. South-Eastern Europe and Western Siberia.

Discussion

The genus *Zaslavskypera* includes six species (Legalov in lit.). The Palearctic *Z. conmaculata* (Herbst, 1795), Euro-Siberian *Z. arundinis* (Paykull, 1792) and European *Z. kunzei* (Germar, 1822) are easily determined. It is more difficult to distinguish three steppe species, *Z. libanotidis*, *Z. interruptovittata* and *Z. rogenhoferi* (Ferrari, 1866), from each other, despite the fact that the key was compiled by Reitter (1896). Zaslavskij (1961) included only *Z. interruptovittata* and *Z. rogenhoferi* in the key. *Z. libanotidis* was firstly recorded for the fauna of Russia based on a beetle from Novosibirskaya Oblast identified by V. Zaslavskij (Legalov, Opanassenko 2000). Note that *Z. libanotidis* is determined as *Z. interruptovittata* according to the Zaslavskij's key.

Z. libanotidis is reliably distributed in steppes of South-Eastern Europe (Czech Republic, Slovakia, Hungary, and Romania) (Podlussány et al. 2017), and Western Siberia (Novosibirskaya Oblast, Kemerovo Oblast, Krasnoyarskii Krai, Altaiiskii Krai and Altai Republic) (Fig. 2). The wide disjunction of the range and the absence of the species in the south of European Russia are possibly false due to incorrect identification of some individuals of *Z. interruptovittata*. On the other hand, similar disjunction ranges are known for other steppe Coleoptera, such as *Ceutorhynchus rusticus* Gyllenhal, 1837 (Curculionidae, Conoderinae, Ceutorhynchini) (Legalov, Reshetnikov 2022) and *Harpalus hospes* Sturm, 1818 (Carabidae) (Kataev, Dudko 2019). The reasons for such disjunctions are unclear. A recent introduction of *Z. libanotidis* from Europe to Western Siberia is excluded due to the new record of the species in the late Pleistocene. It is likely that the species' wide range of the late Pleistocene declined during the Holocene due to climate change. Human economic activity, especially the plowing of the steppes, could hasten the species extinction.

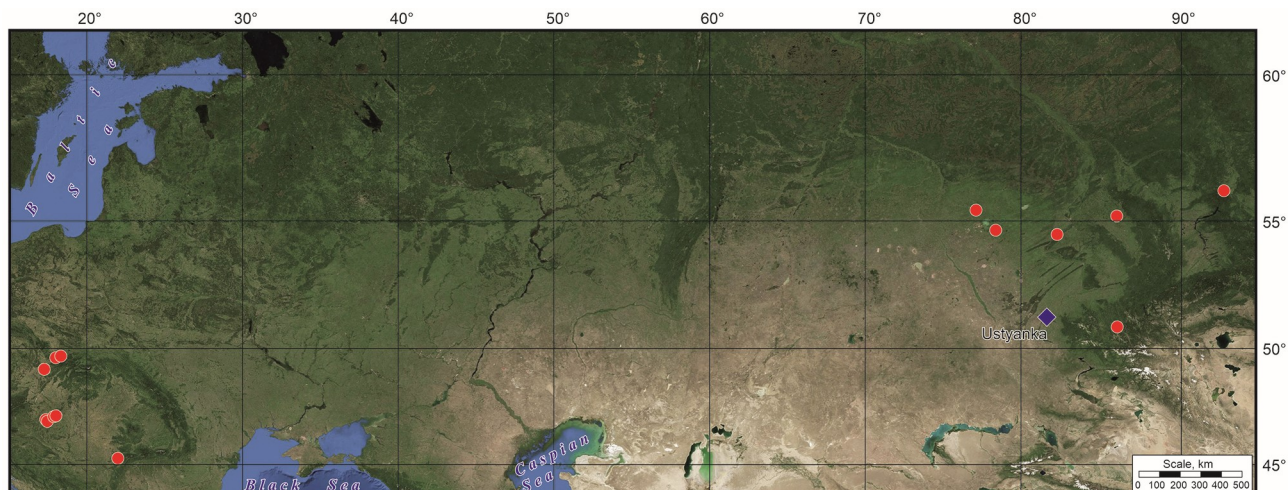


Figure 2. Distribution map of *Zaslavskypera libanotidis*. Red circles – modern finds, blue rhombus – the Pleistocene record.

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