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New records of the genus *Smicronyx* Schönherr, 1843 (Coleoptera: Curculionidae) in the Latvia

Līga Anna Leitāne, Maksims Balalaikins, Uldis Valainis

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Weevils of the genus *Smicronyx* Schönherr, 1843 are a relatively widespread taxonomic group in the Western Palaearctic. Despite its widespread distribution, faunistic data on it are scarce, and there are even entire regions with no current faunistic data. Here, we report on the first records of the genus from Latvia. Two species have been recorded in Latvia for the first time: *Smicronyx jungermanniae* Reich, 1797 and *Smicronyx coecus* Reich, 1797. Faunistic data on this taxonomic group in the Baltic region are scarce. The aim of this article is to raise knowledge of this taxon in the hope that it will lead to new discoveries elsewhere.

Key words: Smicronychini, dodder weevils, *Cuscuta*, new faunistic records.

Līga Anna Leitāne. Daugavpils University, Institute of Life Sciences and Technologies, Parādes Str. 1A, Daugavpils, LV-5401, Latvia; e-mail: liga.kozinda@inbox.lv

INTRODUCTION

The genus *Smicronyx* contains over 120 described species. The genus is widely distributed throughout the world, with most species of the genus inhabiting North America. Species of the genus also occur in the Palaearctic, the Afrotropics, the Neotropics and Australia (Alonso-Zarazaga and Lyal 1999, Smreczynsky 1972). Representatives of the genus *Smicronyx* often infest the parasitic plant, dodder (*Cuscuta* Linnaeus, 1753), so they are known as dodder weevils. In some articles, therefore, representatives of this genus have been highlighted as a biological control agent for dodder (Zhekova et al. 2014, Aistova & Bezborodov 2017). Species of the genus *Smicronyx* are quite small and their morphology is rather homogeneous. As a result, this group is relatively poorly studied and faunistic data are lacking or incomplete for many species (Haran 2014). Articles on the fauna and taxonomy of the genus have been published periodically in recent years (Haran et al. 2017, Haran 2018, 2021). At the same time, only a few articles have published faunistic data and new findings in Europe (Heijerman & Alders 2000, Dauphin 2002, Haran 2014).

The occurrence of *Smicronyx* in Fennoscandia and the Eastern Baltic is also not completely studied. Four species of dodder weevil are known in the region, but all four species are not registered in any country in the region (Silfverberg 2010). *Smicronyx* species are not registered in Latvia until now, although one species, *S. coecus* (fig. 1A), is known from neighbouring Lithuania and Estonia. Based on species ranges and occurrence of host plants in the region, some authors

predict a wider distribution of *Smicronyx* species in the region, e.g. *S. coecus* has been predicted in Latvia, and even four species in Lithuania Estonia (Tamutis et al. 2011, Silfverberg 2010). The aim of this study was to confirm the occurrence of dodder weevils in Latvia and to instigate further research on this genus in East Baltic region.

MATERIAL AND METHODS

A total of 20 specimens of weevils were examined in this study. As part of the study, the collection of Daugavpils University Coleopterological Research Centre (DUBC – Ilgas, Daugavpils Distr., Latvia) was reviewed and all *Smicronyx* specimens were identified. In addition to analysing collection materials, several collection expeditions were carried out. During the expeditions, material was collected by sweeping with insect net and shaking specimens from host plants, and the following host plants were searched for and checked: European *dodder Cuscuta europaea* L. (Fig. 2A), lesser dodder *Cuscuta epithymum* L. and common centaury *Centaurium erythraea*. The material was determined using the following keys: Lohse (1983), Smreczynski (1972). Specimens of dodder weevils were studied using a Nikon SMZ745T stereomicroscope, and photographs were taken with a Canon 60D DSLR camera. All studied specimens are deposited in the DUBC collection.

RESULTS AND DISCUSSION

This study is the first report of representatives of the genus *Smicronyx* in Latvia. Two species of dodder weevil *Smicronyx coecus* and *S. jungermanniae* (Fig. 1B) were recorded. Twenty specimens of *S. coecus* were found in three localities, in the Aiviekste, Daugava and Gauja river valleys, while two specimens of *S. jungermanniae* were found in South-East Latvia, Aglonas and Ilukste municipalities (Fig. 3). All specimens collected during the study were found on *Cuscuta europaea* L. This is due to the more frequent occurrence of the species in Latvia and easier identification of suitable habitats. *C. europaea* is not rare in Latvia, growing in groups (mainly on nettles) in river valleys on floodplains and in floodplain shrubs. All specimens of *S. coecus* surveyed in this study were found in the valleys of large rivers, which confirms the association of this species with *C. europea* and allows predicting its occurrence in Latvia. *C. europea* is also on the list of typical species of European protected habitat, *Hydrophilous tall herbfringe communities of plain and of montane to alpine levels*, code 6430 (Fig. 2B), according to Annex I of Directive 92/43/EEC (Commission 1992, Rūsiņa et al. 2017). This habitat is also the most potential habitat for *S.coecus* in Latvia. *S. jungermanniae* found only in collection material, with no indication of a host plant, and both sites are not associated with major river valleys. *S. coecus* and *S. jungermanniae* have the same association with food plants, but for *S. jungermanniae* the connection with specific habitats has not yet been established. Two more species *Smicronyx smreczynskii* Solari, 1952 (Fig. 4A) and *Smicronyx reichii* Gyllenhal, 1835 (Fig. 4B) are predicted for the Lithuanian fauna based on their distribution range, both species are known from Scandinavia and Poland (Tamutis et al. 2011). The occurrence of these species is also expected in Latvia. *S. smreczynskii* is associated with dodders, including *C. europea* (Dieckmann 1986). Therefore, further study of already known species of the genus Smicronyx in Latvia can be expected to record this species either. *S. reichii* associated with *Centaurium erythraea* Rafn. This plant species is not rare in Latvia, but it neither forms large groups nor has a specific habitat, which makes it complicated to find this Smicronix species. Particular attention has been devoted to discovering this species, but until now it has not been found. This article continues a series of studies aimed at increasing faunal knowledge of weevils in Latvia (Balalaikins 2011a, 2011b, 2012, Balalaikins & Bukejs 2011, 2012 and etc.). By studying the weevil fauna of Latvia, we contribute to understanding the fauna of neighbouring countries, which also motivates scientists to do further research.

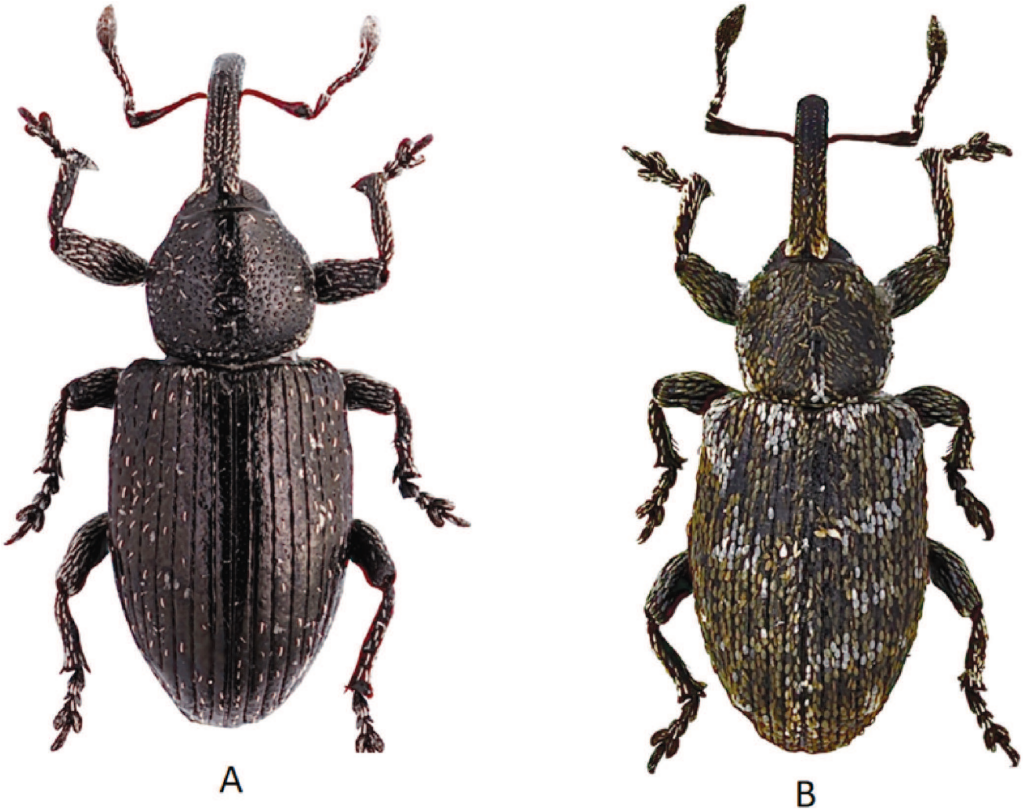

Fig. 1. Habitus of dodder weevils: A – *Smicronyx coecus*, and B – *S. jungermanniae*.

Fig. 2. The habitat of S*micronyx* sp. A – a host plant *Cuscuta europaea* L. and B – *Smicronyx coecus* habitat (code 6430) in the Daugava valley.

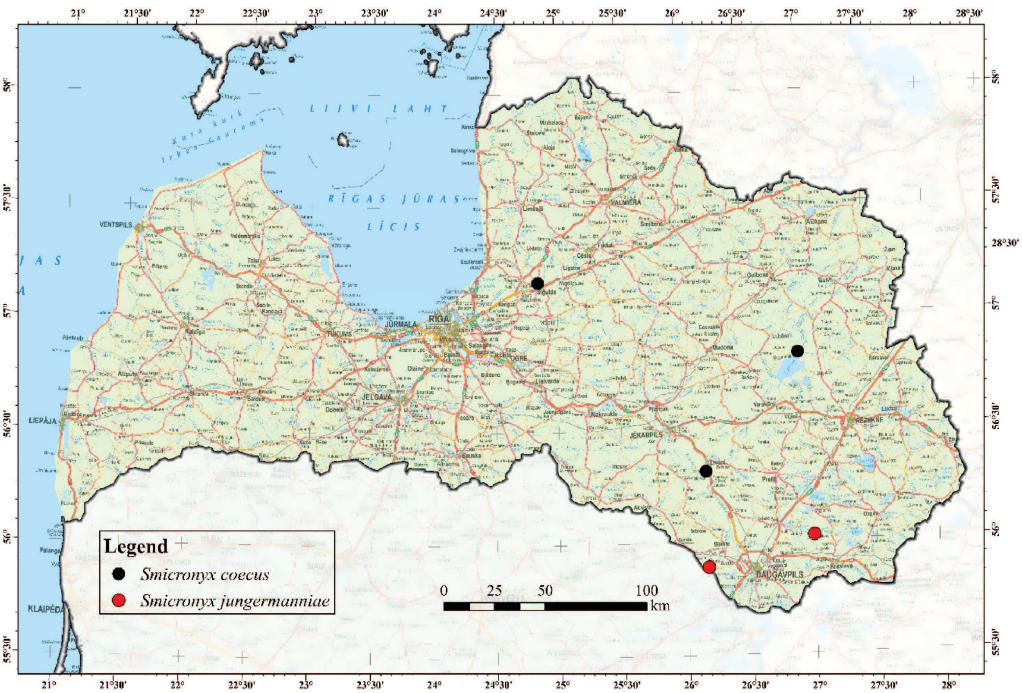

Fig. 3. Localities of *S. coecus* and *S. jungermanniae* in Latvia.

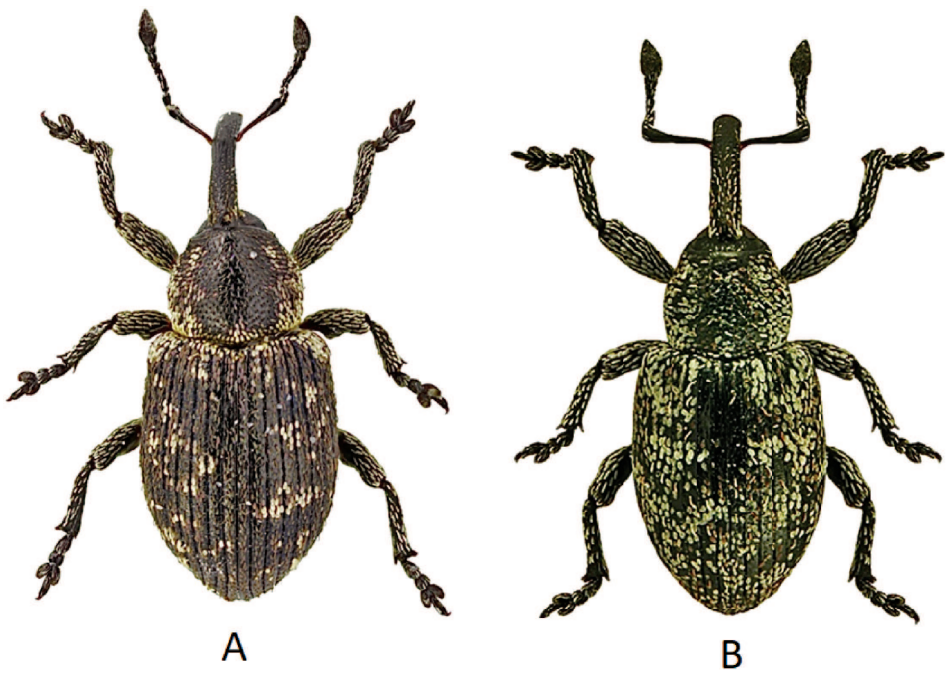

Fig. 4. Habitus of dodder weevils: A – *Smicronyx smreczynskii*, and B – *S. reichii*. Author of the *S. reichii* photo Lech Borowiec (https://baza.biomap.pl/en/taxon/species-smicronyx_reichii/photos_tx)

MATERIAL STUDIED:

Smicronyx coecus

20 specimens: LATVIA, Madona distr., wet meadow and bank of river Aiviekste, NE lake Lubāns, 56º50' 03N, 26º56'05E, 6 July 2008 (1, leg. M. Balalaikins, A. Bukejs); LATVIA, Sigulda, Gauja National park, near bridge over the Gauja river, 16 August 2008 (1 leg. A. Barševskis), LATVIA, Jēkabpils distr., Dignāja, Daugava river walley, 23 July 2022 (18, on *Cuscuta europaea*, leg. M. Balalaikins).

Smicronyx jungermanniae

2 specimens: LATVIA, Aglona, Škeltova, 'Barševski', 11 August 2009 (1 leg. A. Barševskis); LATVIA, Daugavpils distr., Šedere, Nature park 'Raudas meži', 11 May 2008 (1 leg. K. Aksjuta).

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