

OTIORHYNCHUS SMRE CZYNSKII (COLEOPTERA: CURCULIONIDAE) – A NEW TO ESTONIA AND LITHUANIA WEEVIL SPECIES WITH NOTES ON ITS OCCURRENCE AND BIONOMY IN THE EASTERN BALTIC REGION

Maksims BALALAIKINS, Andris BUKEJS

Institute of Systematic Biology, Daugavpils University, Vienības St.13, LV-5401 Daugavpils, Latvia.
E-mail: maksims.balalaikins@biology.lv; carabidae@inbox.lv

Abstract. Information on the distribution and bionomy of *Otiorhynchus smreczynskii* Cmoluch, 1968 (Coleoptera: Curculionidae) in the Eastern Baltic region is presented. This weevil species is reported from Lithuania and Estonia for the first time. A large population of the species was discovered in Daugavpils (Latvia), where it was observed on *Syringa vulgaris*, *S. villosa*, *Ligustrum vulgare*, *Ribes alpinum*, *Spiraea chamaedrifolia*, *Cydonia oblonga* and *Aronia melanocarpa*. Pictures of *O. smreczynskii* aedeagus are presented for the first time. Illustrations of typical leaf-edge-cuts made by this weevil are given.

Key words: Coleoptera, Curculionidae, *Otiorhynchus smreczynskii*, bionomy, new records, Baltic region

INTRODUCTION

The *Otiorhynchus*-complex comprises about 1500 species and its systematics is complicated (Magnano 1998). Silfverberg (2004) reported 27 species of this genus in the catalogue 'Enumeratio nova Coleopterorum Fennoscandiae, Daniae et Baltiae'. A total of 12 species of *Otiorhynchus* Germar, 1824 were reported from Belarus (Alexandrovich *et al.* 1996), 12 species from Estonia (Silfverberg 2004), 13 species from Latvia (Telnov 2004), and 12 species from Lithuania (Tamutis *et al.* 2011).

All species of *Otiorhynchus* are apterous, foliophagous in an adult stage, while larvae develop in soil feeding on roots. They are polyphagous in both stages, though sometimes with evident plant preferences. The imago of most species exhibits nocturnal activity, spending the whole day hidden in ground crevices or near the root base of their host plants. Due to this combination of biological features many species are predestined to be transported by humans with young garden and forest plants, and they are well known as inhabitants of gardens, hedgerows, and other types of urban green areas (Wanat *et al.* 2011).

Otiorhynchus smreczynskii Cmoluch, 1968 is a typical representative of the genus. It is a stenotopic, synanthropic, arboreal, phyllophagous (larvae rhizophagous), polyphagous species (Koch 1992) feeding on ornamental shrubs, especially on lilac (*Syringa vulgaris*) and privet (*Ligustrum vulgare*). The species is parthenoge-

netic (Yunakov 2003). The imago of this species feeds on host foliage only at night and usually remains in soil beneath their host during the day. Anderson (2009) and Fägerström *et al.* (2010) indicate that different weevil species make different types of leaf-edge-cuts. In Sweden *O. smreczynskii* and *Dodecastichus inflatus* (Gyllenhal, 1834) are mentioned as weevils feeding on lilac and privet, and these species can be identified from types of leaf-edge-cuts they produce (Anderson 2009; Fägerström *et al.* 2010).

Detailed data on the biology of *O. smreczynskii* were published by Dieckmann (1980), who described feed preferences, typical leaf-edge-cuts, phenology and provided some faunal data pointing out that the species lives only in cities and villages. Some papers with notes and faunal data on this species appeared subsequently (Sprick 1989; Palm 1996; Bialooki 2005; Germann 2006; Runge 2008; Anderson 2009; Fägerström *et al.* 2010; Kärnestam 2011).

O. smreczynskii is distributed in Eastern and Northern Europe (Belarus, Denmark, Germany, the European part of Russia, Latvia, Poland, Sweden, Switzerland and the Ukraine) and Western Siberia (Omsk and Novosibirsk regions) (Anderson 2009; Bialooki 2005; Dieckmann 1980; Germann 2006; Legalov 2010; Telnov 2004; Yunakov 2003).

The aim of the current study is to improve our knowledge on the distribution and bionomy of *O. smreczynskii* in the Eastern Baltic region.

MATERIAL AND METHODS

The study material was collected using an entomological net. Research was conducted in the daytime, at twilight and at night. The examined material is deposited in the collection of the Institute of Systematic Biology of Daugavpils University (DUBC, Daugavpils, Latvia).

The photos were taken with an Axiocam digital camera using a stereomicroscope Zeiss Stereo Lumar V12.

RESULTS AND DISCUSSION

Morphology

The body of *O. smreczynskii* is dark-brown, antennae and legs are paler. Pronotum is with long setae and large punctures, often confluent on the disc, forming short longitudinal lines. Interstriae are flat, with very fine and rare punctures, which are not covered with pubescence. Elytra are oval with two different in shape kinds of yellow-grey scales, very thin ones and lanceolate ones. Fore femora are with a sharp biapical tooth; fore tibia on the inner edge are distinctly notched. Length 4.3–5.9 mm. Habitus (Fig. 1A) and, for the first time, aedeagus (Fig. 1B) of this species are presented.

During the current research *O. smreczynskii* was registered for Estonia and Lithuania for the first time. The first actual faunal data on this weevil species from Latvia are given, because previously it was reported only in check lists (Telnov 2004).



Figure 1. *O. smreczynskii*: A – habitus, B – aedeagus, dorsal and lateral views.

New data on the distribution of *O. smreczynskii* in the Eastern Baltic region: Estonia: Tartu (herbarium of *Syringa vulgaris* with typical leaf-edge-cuts, coll. K. Voolma).

Kaliningrad region (Russia): Kaliningrad, 12 June 2011 (1, on *Syringa vulgaris*, leg. M. Balalaikins); the authors also observed many shrubs of *Syringa vulgaris* with typical leaf-edge-cuts in the city.

Latvia: Daugavpils, 6 May 2011 (2, on *Syringa vulgaris*, leg. A. Bukejs), 27 May 2011 (3, on *Syringa vulgaris*, leg. A. Bukejs), 3 June 2011 (6, on *Syringa vulgaris*, leg. A. Bukejs), 12 July 2011 (4, on *Syringa vulgaris*, leg. A. Bukejs); in Daugavpils, the authors also observed numerous *Syringa vulgaris* and other deciduous shrubs (see below) with typical leaf-edge-cuts; Daugavpils district, Stropi, August 2011 (1, on *Syringa vulgaris*, leg. A. Bukejs); Krāslava district, Ūdrīši, Zapoļņiki house, 8–10 May 2009 (1, leg. M. Janovska); leaf-edge-cuts typical of *O. smreczynskii* were also observed in Jēkabpils, Rēzekne, Rīga and Tukums.

Lithuania: Utena district, Zarasai, 6 August 2011 (9, on *Syringa vulgaris*, leg. M. Balalaikins, A. Bukejs); in the city the authors also observed many shrubs of *Syringa vulgaris* with typical leaf-edge-cuts.

Bionomy

This weevil species produces typical leaf-edge-cuts on feeding plants. In the current research this damage was found on *Syringa vulgaris*, *S. villosa*, *Ligustrum vulgare*, *Ribes alpinum*, *Spiraea chamaedrifolia*, *Cydonia oblonga*, and *Aronia melanocarpa* (Fig. 2). In the literature (Anderson 2009; Dieckmann 1980; Fägerström *et al.* 2010; Sprick 1989; Yunakov 2003), *Syringa vulgaris*, *Ligustrum vulgare*, *Cornus alba*, *Lonicera* sp., *Cornus sanguinea*, *Laburnum vulgare*, *Robinia pseudoacacia*, *Spiraea* sp., *Crataegus crus-galli*, *Ribes aureum*, *R. sanguineum*, *Symphoricarpus albus*, and *Convolvulus* sp. are mentioned as host plants of *O. smreczynskii*, but it is more common on *Syringa* and *Ligustrum*.

Anderson (2009) and Fägerström *et al.* (2010) indicate that similar leaf-edge-cuts on *Syringa* and *Ligustrum* can be made by another weevil species – *Dodecastichus inflatus* (Gyllenhal, 1834). The damage inflicted by this species is wider (cuts are 2–6 mm wide), often double, rounded, with large spaces between cuts (Fig. 3).

Data on the phenology of *O. smreczynskii* are presented in Dieckmann (1980): the species is recorded from the end of April to mid-October. During the current research specimens of *O. smreczynskii* were collected from the first decade of May till the middle of October.

During our research, 357 *Syringa vulgaris* shrubs were surveyed in Daugavpils (SE Latvia), and 328 of them



Figure 2. Typical leaf-edge-cuts produced by *Otiiorhynchus smreczynskii*: A – *Syringa vulgaris*, B – *S. villosa*, C – *Aronia melanocarpa*, D – *Cydonia oblonga*, E and F – *Spiraea chamaedrifolia*, G – *Ribes alpinum*, H – *Ligustrum vulgare*.

were found to be damaged by *O. smreczynskii*. Most of the undamaged shrubs were 1.5–2.0 meters high cut regrowths. This is probably the factor limiting the distribution of the species. Some authors (Dieckmann 1980; Sprick 1989) note that *O. smreczynskii* can only feed on host plants shorter than 1.5–2.0 m, which was also confirmed by our study.

Several authors mention *O. smreczynskii* as a rare species or indicate only a few records of it (Dieckmann 1980; Sprick 1989; Palm 1996; Bialooki 2005). Is *O. smreczynskii* a rare species or just an insufficiently studied one? Rare records of this species can be explained by its mode of life. It is a nocturnal species, spending the whole day hidden in the ground. Only once we succeeded in finding a single specimen on

a cloudy morning on lilac leaves with typical edge cuts. So, specific methods should be used to record this species (Sprick 1989; Fägerström *et al.* 2010; Kärnestam 2011).

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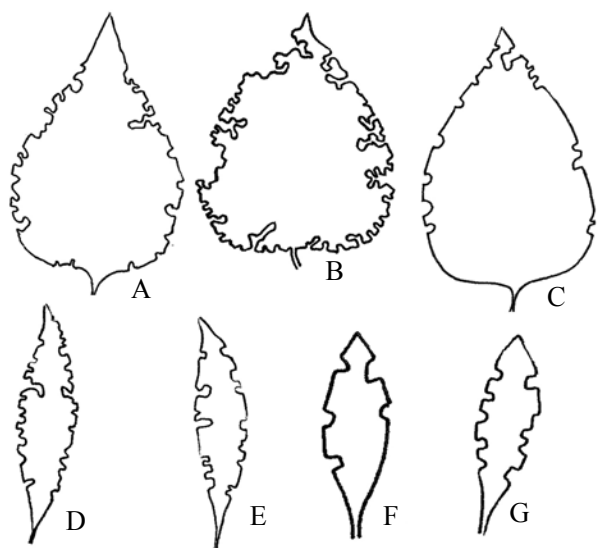


Figure 3. Comparison of leaf-edge-cuts made by *Otiorhynchus smreczynskii* and *Dodecastichus inflatus*: A and B (on *Syringa vulgaris*), C and D (on *Ligustrum vulgare*) – *O. smreczynskii*; E (on *Syringa vulgaris*), F and G (on *Ligustrum vulgare*) – *D. inflatus* (after Fägerström *et al.* 2010; Anderson 2009).

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APIE *OTIORHYNCHUS SMRECYNSKII* (COLEOPTERA: CURCULIONIDAE), NAUJĄ STRAUBLIUKŲ RŪŠĮ ESTIJOJE IR LIETUVOJE, JOS PAPLITIMĄ IR BIONOMIJĄ RYTINIAME BALTIJOS ŠALIŲ REGIONE

M. Balalaikins, A. Bukejs

SANTRAUKA

Pateikta informacija apie *Otiorhynchus smreczynskii* Cmoluch, 1968 (Coleoptera: Curculionidae) paplitimą bei bionomiją rytiniame Baltijos šalių regione. Ši

straubliukų rūšis pirmą kartą užregistruota Lietuvoje ir Estijoje. Didelė šių vabalų populiacija buvo aptikta Daugpilyje (Latvija) ant *Syringa vulgaris*, *S. villosa*, *Ligustrum vulgare*, *Ribes alpinum*, *Spiraea chamaedrifolia*, *Cydonia oblonga*, ir *Aronia melanocarpa*. Straipsnyje pirmą kartą pateiktos šios rūšies patinų genitalijų nuotraukos. Iliustracijos su tipiškais lapų apgraužimo pavyzdžiais papildo žinias apie šią vabalų rūšį.

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