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Revisionary study on European species of the *Empria candidata* complex (Hymenoptera, Symphyta, Tenthredinidae)

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Abstract

Two species of the *Empria candidata* species complex, *E. candidata* (Fallén, 1808) and *E. magnicornis* (Eversmann, 1864) spec. rev., comb. nov., are revised and redescribed. The males and larvae of both species are identified, described and the males are associated with the corresponding females. The species are redefined based on the revision of the available types. Lectotypes are designated for *Tenthredo (Allantus) repanda* Klug, 1816 and *Tenthredo (Macrophya) magnicornis* Eversmann, 1864.

Key words: *Empria magnicornis*, taxonomy, types, larvae, males, host plants

Introduction

The genus *Empria* Lepeletier & Serville, 1828 with about 50 species (Taeger *et al.* 2010) is a member of the subfamily Allantinae (Prous *et al.* 2011; Prous 2012). Many *Empria* species look very similar, which can in some cases make reliable identification difficult unless the male genitalia or ovipositor lancets are examined. An exception is the *Empria candidata* species complex, now composed of three species—the Nearctic *E. multicolor* (Norton, 1862), the Holarctic *E. candidata* (Fallén, 1808) and the newly recognized West Palearctic *E. magnicornis* (Eversmann, 1864), added in this work. This species complex is distinguished from the rest of *Empria* by the absence of cell M on the hind wings and by the association with birches as larval host plants.

The main aim of this paper is to provide improved descriptions of adults and larvae of both European species of the *Empria candidata* complex, to enable their easy identification. We were at first convinced that the newly detected species was undescribed, until Dr. A. Taeger (SDEI), while visiting ZIN in St Petersburg (Russia), drew our attention to the type of *Tenthredo magnicornis* Eversmann, 1864, a synonym of *Macrophya albicincta* (Schrank, 1776). He recommended that we compare the type with our newly discovered species before its description.

Material and methods

This article is based on results of the long-term research project on birch-associated insects in Děčínský Sněžník (North Bohemia, Czech Republic) conducted by the Faculty of Forestry and Wood Technology of Mendel University in Brno. The project employs quantitative collecting methods (yellow pan traps, Malaise traps), as well as rearing larvae. Many additional interesting data were obtained concerning the occurrence, distribution and ecology of some sawfly species, which it is planned to summarize in forthcoming papers. Long series of specimens preliminarily identified as *Empria candidata* were found in large samples of various sawfly species associated with birches, but thorough morphological analysis revealed that these series consisted of two distinct species. This was subsequently confirmed by rearing larvae swept from birches at the same locality. Most of the adult specimens which we studied were collected with yellow pan traps or swept from vegetation, mostly from birch trees, at Děčínský Sněžník. A minority of adults were obtained from Malaise traps and from rearing larvae. The living larvae

19.v.2004, 1 ♀ 1 ♂, MT, J. Macek lgt.; Železné hory PLA: Vratkov, 49°47'43"N, 15°42'11"E, 8.v.2005, 1 ♂, MT, F. Bárta lgt.; Slávičká obora (game preserve), 49°51'49"N, 15°46'58"E, 31.v.2006, 1 ♂, MT, F. Bárta lgt. **Moravia:** Bystrc, 49°13'44"N, 16°31'34"E, 1.v.1937, 1 ♀, swept, F. Gregor lgt.; Bílé Karpaty PLA, Ploštiny NR, 49°8'17.82"N, 18°3'39.89"E, 11.v.2006, 1 ♂, MT, J. Macek lgt. All J. Macek det., all NMPC.

Variability. The length of females varies between 6–8 mm, in males 5–7 mm; in females the number of the pale paired patches on abdominal terga varies in shape, size and number from four to six, two posterior patches becoming more or less obliterated and coalescent with pale strip on the posterior margin of terga; the pale patches in males vary from two to three; in some male specimens the posterior patches becoming obliterated to absent; in female the pale spot on the posterior part of mesepisternum of variable size, large or small, triangular to suboval, often expanded forwards to form a large triangular patch; the hind femora in females black with pale apices, to pale with dark interior side.

Bionomics. Habitat: deciduous and mixed forests with birch, birch stands from colline to montane zone; flight period April to mid May; larval period from June to mid July. Host plants: *Betula pubescens* (new record), *B. carpatica* (new record).

Distribution. Europe: Czech Republic (new record), Germany, Russia: Kasan (Eversmann in Kawall 1864).

Discussion. The name *Tenthredo magnicornis* was published by Kawall (1864), based on the description of a male in an unaltered manuscript in Eversmann's legacy. Konow (1890) placed this name as a synonym of *Macrophya albicincta* (Schrank, 1776) without any comments or explanation. Since then, the taxon had been neglected until A. Taeger visited the ZIN collection in St. Petersburg in order to revise types in Eversmann's collection. The examination of the type revealed that this taxon belongs to *Empria*, not *Macrophya*. Morphological comparison of images of the distinct penis valves (Figs 4f, 5g) confirmed the status of this species as valid and enabled its separation from the closely similar *E. candidata*. *Empria magnicornis* and *E. candidata* are also clearly distinguishable by their different larvae (Figs. 6, 7). Both species are associated with birch stands and in most places they occur syntopically.

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