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The bees of the genus *Colletes* Latreille 1802 of the European part of Russia, with keys to species (Hymenoptera: Apoidea: Colletidae)

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Abstract

For the European part of Russia 30 species of the bee genus *Colletes* are recorded. *Colletes subnitens* Noskiewicz 1936, *C. wacki* Kuhlmann 2002 and *C. warnckeii* Kuhlmann 2002 were found in Russia for the first time and *C. kozlovi* Friese 1913 is newly recorded from the European part of Russia. For *Colletes kozlovi*, *C. subnitens* and *C. wacki* this is the first record for Europe. The female of *C. subnitens* Noskiewicz is here described for the first time. Illustrated keys to males and females of all species known from European part of Russia are provided.

Key words: taxonomy, new records, fauna, Palearctic region

Introduction

This paper continues our study of the *Colletes* Latreille bees of Russia that started in 2010 with the fauna of the Asian part of Russia (Kuhlmann & Proshchalykin 2011). The goal of the present paper is to review the *Colletes* fauna of the European part of the country.

Russia stretches over a vast expanse of Eurasia between the Baltic Sea in the west and the Pacific Ocean in the East. The European part of Russia comprises 52 administrative units covering 3.96 million km² (about 23% of the total area of Russia) (Fig. 1). In the east, the European part of Russia is delimited by the Ural Mountains and in the south it is defined by the border with Kazakhstan.

Colletes hylaeiformis, *C. juvenculus* [= *C. senilis*], *C. floralis*, *Andrena senilis* [= *Colletes senilis*], and *A. xanthothorax* [= *Colletes succinctus*] were the first five species of the genus to be recorded from the European part of Russia (Orenburg Province, Saratov Province, Astrakhan Province and Tatarstan Republic) (Eversmann 1852) and a total of seven species have been described from the European part of Russia, with five of them still valid (see section on taxonomy for details). Up until now a total of twenty six *Colletes* species have been recorded from the European part of Russia (Eversmann 1852; Morawitz 1874; Radoszkowski 1891; Noskiewicz 1936; Osytshnjuk *et al.* 1978). Based on a comprehensive study of specimens in various collections we here list 30 species of the genus *Colletes*, with three species newly recorded from Russia (*C. subnitens*, *C. wacki*, *C. warnckeii*), *C. kozlovi* found in the European part of Russia for the first time and three species newly recorded for Europe (*C. kozlovi*, *C. subnitens*, *C. wacki*). In total now 40 *Colletes* species are known from Russia (European part—30; Asian part—27). The female of *C. subnitens* is here described for the first time. Illustrated keys for species identification are presented to facilitate research on this bee genus.

Material and methods

Terminology for the description of species is based on Michener (2007) for general morphology. Puncture density is expressed as the relationship between puncture diameter (d) and the space between them (i), such as $i = 1.5d$ or $i < d$. The following abbreviations were used for morphological structures: T—metasomal tergum, S—metasomal sternum, Bl—body length. Measurements follow the guidelines of Michener (2007). Body length was measured from the vertex to the apex of the body. The definition of species groups in *Colletes* follows Kuhlmann *et al.* (2009). Acronyms for collections from which specimens were borrowed or are deposited are as follows:

forwarded *Colletes* specimens from Russia to London. Claus Rasmussen and Holger H. Dathe reviewed the manuscript.

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