

First records of the American wasps *Sceliphron caementarium* (Drury, 1770) and *Isodontia mexicana* (de Saussure, 1867) (Hymenoptera: Sphecidae) from Bulgaria

DENIS GRADINAROV

Faculty of Biology, Sofia University "St. Kliment Ohridski", 8 Dragan Tzankov Blvd., 1164 Sofia, Bulgaria; e-mail: dgradinarov@abv.bg

Abstract. Two alien sphecid species are reported for the first time for Bulgaria. Nearctic species *Sceliphron caementarium* (Drury, 1770) and *Isodontia mexicana* (de Saussure, 1867) were found in Sofia. The first species is collected as well from the Bulgarian Black Sea Coast, near Varna.

Key words: *Isodontia mexicana*, *Sceliphron caementarium*, Bulgaria.

Introduction

In August 2017, specimens from Sphecidae (Hymenoptera), identified later as the alien for Europe species *Isodontia mexicana* (de Saussure, 1867), were accidentally collected by the author in the city of Sofia, Bulgaria. During examination of the Zoological Collection of Sofia University "St. Kliment Ohridski", Faculty of Biology (BFUS), specimens from second alien sphecid species - *Sceliphron caementarium* (Drury, 1770), collected by students in a field practice in Zoology near Varna, NE Bulgaria, were identified. In the collection of the Institute of Biodiversity and Ecosystem Research (IBER) in Sofia, specimens from the both species were also found. Both species have not been reported for the country to date. In the present article the available data on the distribution of the both alien species in Bulgaria are reported.

Results and Discussion

Sceliphron caementarium (Drury, 1770) (Fig. 1).

Material examined: Bulgaria, Sofia, Druzha II sub., 30.IV.2012, 1 ♀, T. Ljubomirov leg. & det. (IBER); Bulgaria, Black Sea Coast, Varna, University Botanic garden, 43°14'06.6"N, 28°00'05.94"E, 55 m a. s. l., 11.VI.2012, 1 ♀, A. Gerasimov leg., D. Gradinarov det. (BFUS); the same locality, but 24-28.VII.2013, 1 ♀, D. Dimitrova leg., D. Gradinarov det. (BFUS).

Natural distribution of the species from genus *Sceliphron* Klug, 1801 includes temperate and tropical areas, as the most of the species are found in the Old World (Bohart & Menke 1976). In Bulgaria, three native species of the genus are presented - *S. destillatorium* (Illiger, 1807), *S. spirifex* (Linnaeus, 1758) and *S. madraspatanum tubifex* (Latreille, 1809) (Pulawski 2017). Along them, alien Asian species *S. curvatum* (F. Smith, 1870) have been reported for Bulgaria (Jacobs, 2005) and recently it is widely distributed in the country (Guéorguiev & Ljubomirov, 2009). *S. caementarium*, native for North and Central America (Bohart & Menke 1976), is now presented in many region of the World (Pulawski 2017). The species has been accidentally introduced to Europe, probably several times (Bogusch & Macek 2005). To date, in Europe, *S. caementarium* is established for

Belgium, Luxembourg, France, Germany, Austria, Switzerland, Czech Republic, Slovakia, Croatia, Italy, Spain, Portugal and Ukraine (Turrisi & Altadonna 2017).



Fig. 1. Female of *Sceliphron caementarium* from Varna locality, 11.VI.2012.

Isodontia mexicana (de Saussure, 1867) (Fig. 2).

Material examined: Bulgaria, Sofia, Hipodruma sub., 42°40'58"N, 23°17'34"E, 582 m a. s. l., 23.VII.2016, 1 ♀, in a hollow of a metallic pipe (part of security fence along a boulevard), T. Ljubomirov leg. & det. (IBER); Bulgaria, Sofia-city district, res. area Lyulin 2, 42°43'18.3"N, 23°15'15.00"E, 570 m a. s. l., 11.VIII.2017, 1 ♀, 11:30 to 13:00 h., on flowering *Solidago canadensis* L., D. Gradinarov leg. & det., (BFUS); Bulgaria, Sofia-city district, res. area Lyulin 2, 42°43'15.1"N, 23°15'11.9"E, 575 m a. s. l., 27.VIII.2017, 1 ♂, 1 ♀, on flowering *Fallopia japonica* (Houtt.), D. Gradinarov leg. & det. (BFUS).

The species from the genus *Isodontia* Patton, 1880 are distributed mainly in Neotropical and Oriental Regions (Bohart & Menke 1976). Two native species of the genus are known from Europe - *I. paludosa* (Rossi, 1790) and *I. splendidula* (A. Costa, 1858), both presented in Bulgaria (Pulawski 2017, Guéorguiev & Ljubomirov 2009 e.g.). *I. mexicana*, a North American species, was established in France in the early 1960s and recently is east and north-eastwards spreading in Europe (Četković *et al.* 2012). To date, the known range of the species in Europe include France, Italy, Spain, Switzerland, Slovenia, Croatia, Germany, Hungary, Austria, Netherlands, Serbia, Belgium, Czech Republic, Slovakia, Crimea, Greece and Great Britain (Semelbauer 2015, Pulawski 2017).



Fig. 2. Female of *Isodontia mexicana* from Sofia, Lyulin locality, 27.VIII.2017.

This discovery of both *S. caementarium* and *I. mexicana* in Bulgaria is not unexpected. In the case of *S. caementarium*, which was found in two distant regions of the country, a significantly wider recent distribution in Bulgaria can be expected.

Like other species of *Sceliphron*, females of *S. caementarium* build mud-nests and utilize as prey a variety of Aranaeae species. The females of *I. mexicana* are nonfossorial and nest in pre-existing natural cavities, e.g. hollow branches and stems (Četković *et al.*, 2012). Normally, prey of *Isodontia* species are members of ensifer families Gryllidae and Tettigoniidae (Bohart & Menke 1976). It is difficult to assess the existence of negative impact of the both alien species on the spider and ensifer populations in Bulgaria, as well as the impact on the native digger wasps of the respective genera. Further investigations are desirable to clarify the distribution of the both species in the country, including in natural habitats, as well as the species composition of their prey in Bulgaria.

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