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NEW RECORDS FOR THE FAUNA AND ZOOGEOGRAPHY OF CUCKOO WASPS (HYMENOPTERA: CHRYSIDIDAE) IN THE LOWER VOLGA REGION

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Abstract

The fauna and zoogeography of chrysidids in the steppe and forest biocenoses of the Lower Volga region in the Saratov region were studied, which include 92 species and 2 subspecies from 17 genera: *Cleptes* – 2 species; *Colpopyga* – 1; *Elampus* – 8; *Haba* – 1; *Hedychridium* – 6; *Hedychrum* – 5; *Holopyga* – 11; *Omalus* – 2; *Philoctetes* – 3; *Pseudomalus* – 5; *Chrysidea* – 1; *Chrysis* – 41; *Chrysura* – 3; *Spinolia* – 1; *Stilbum* – 2; *Trichrysis* – 1 and *Parnopes* – 1, among which 69 species are presented for the Saratov region for the first time. Two species, *Chrysis corusca* Valkeila, 1971 and *Chrysis vanlithi* Linsenmaier, 1959, and one subspecies *Chrysis frivaldszkyi sparsepunctata* du Buysson, 1895, are new records for the Russian fauna. The obtained data broaden the understanding of the fauna and diversity of Chrysididae in the Saratov region and the Lower Volga region and supplement the fauna list of the Chrysididae of Russian fauna.

KEY WORDS: Chrysididae, fauna, geographic distribution, steppe and forest biocenoses, checklist, lower Volga region

Introduction

The family of Chrysididae (Hymenoptera, Chrysididae) includes 2,815 species, which are widespread all over the world. The greatest diversity is noted in the Palaearctic (Rosa *et al*., 2017). These include active kleptoparasites or parasitoids of host larvae in the nests of wild bees, sawflies and some other wasps (Kimsey & Bohart, 1991). Cuckoo wasps prefer open, well-warmed steppe, semi-desert areas, but they are found in meadow and forest plant communities where their hosts live. At the same time, sandy areas located

on the sunny sides of rocks, dry tree trunks and stumps, clay, stone, brick and wooden buildings are also selected (Özbek & Strumia, 2018).

According to the latest data, the fauna of Russia comprises 340 species and 13 subspecies from 23 genera (Rosa *et al.*, 2019). Some taxa known from Transcaucasia and Central Asia can supplement the Chrysididae fauna of the North Caucasus and Russia (Rosa *et al.*, 2019). Currently, data on the distribution of most species on the territory of Russia and the composition of the fauna complexes of the regions remain incomplete and fragmentary. Recently, much attention has been paid to the study of materials on the Chrysididae fauna stored in the museum collections of both Russia and the Volga region, where there are collections of Chrysididae (Blagoveshchenskaya, 1990; Buganin *et al.*, 2000; Shibaev, 2006; Rozenberg, 2007; Shibaev & Polumordvinov, 2012; Ruchin & Antropov, 2014; Rosa *et al.*, 2019).
The Saratov region is part of the Lower Volga region, located in the southeast of the European part of Russia. In the east, it borders with Kazakhstan. The predominantly flat territory of the region includes forest-steppe, steppe and semi-desert landscapes (Alekseevskaya, 1985). The fauna of Chrysididae in the Saratov region has not been studied until recently, with the exception of some species associated with the protection of rare species and species in decline (Anikin & Sergeeva, 2006; Trushov & Volodchenko, 2015).

The purpose of this study was to identify the structure of the fauna and chorology of cuckoo wasps of the Lower Volga region within the boundaries of the Saratov region.

Materials and methods

The material was collected in 2015-2019 from various habitats in the Saratov region. In total, 32 localities were surveyed, among which steppe and forest ecosystems of various types are represented (Table I). The position of the localities is indicated on the map of the Saratov region (Fig. 1). They are listed in Table I, indicating the study area, the place of material collection, the characteristics of the habitat, and the area coordinates.

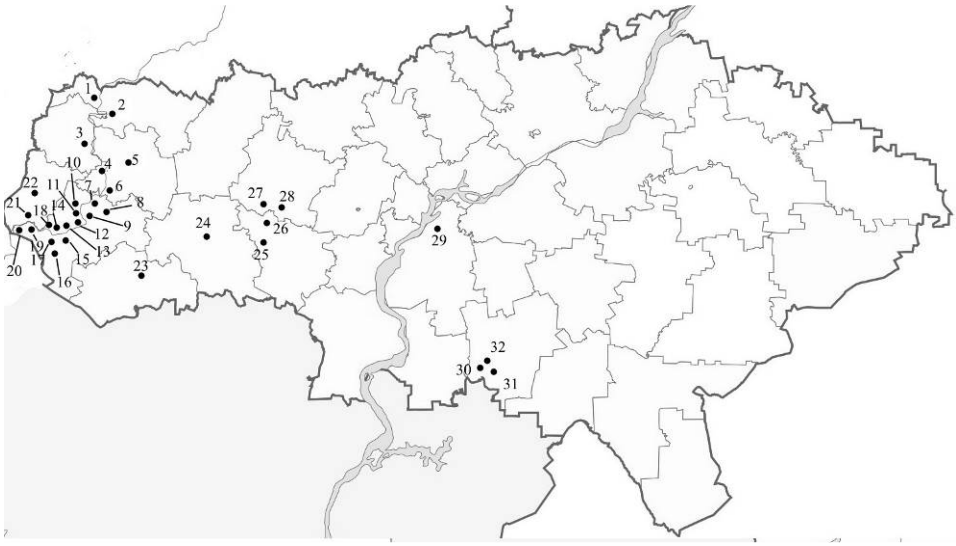

Figure 1. Map of the Saratov region, showing the administrative district. The dots indicate localities where cuckoo wasps were sampled.

Specimens were collected by methods generally accepted in entomology: insect sweep net (SN), yellow colored trap (CT) and interception trap (IT) – Malaise trap modified for targeted collecting of saproxylic insects (Nageleisen & Bouget, 2009; Vinokurov, 2015; Rosa *et al*., 2019; Vinokurov *et al*., 2019; Volodchenko & Seleznev, 2022). The material was collected by the authors: D. Trushov (localities 1, 21, 22), D. Trushov & A. Volodchenko (localities 29-32), A. Volodchenko all other localities. The collected material is deposited in the collection of the Tembotov Institute of Ecology of Mountain Territories (Nalchik, Russia).

Table I. Coordinates, characteristics of study areas, sampling methods and number of species (for map reference, see Fig. 1).

№. of sites	Location	Coordinates	Habitat type	Sampling method	Number of species
Loc. 1	Rtishchevsky district; 3 km N from Repyovka	52°25'30" N 43°14'40" E	cereal steppe of river valley	sweep net	5
Loc. 2	Rtishchevsky district; 1 km E from Krasnaya Zvezda	52°11'36" N 43°24'47" E	steppe	interception trap	3
Loc. 3	Turkovsky district; 2 km N from Turki	52°01'30" N 43°15'41" E	steppe	sweep net	2
Loc. 4	Arkadaksky district; 5 km S from Arkadak	51°53'36" N 43°29'01" E	steppe and forest edge	sweep net, interception trap	5
Loc. 5	Arkadaksky district; 1 km NE from L'vovka	51°56'08" N 43°43'36" E	steppe of river valley	sweep net	3
Loc. 6	Arkadaksky district; 1 km N from Malinovka	51°47'23" N 43°25'44" E	steppe and dry deciduous forest edge	sweep net	4
Loc. 7	Balashovsky district; 2 km W from Kotovras	51°41'29" N 43°17'05" E	steppe and dry mixed forest edge on sandy soil	interception trap	4
Loc. 8	Balashovsky district; 1.5 km SE from Klyuchi	51°39'42" N 43°27'44" E	steppe	sweep net	1
Loc. 9	Balashovsky district; 0.5 km NE from Bol'shoy Melik	51°38'27" N 43°16'36" E	steppe on sandy soil	sweep net	2
Loc. 10	Balashovsky district; 2 km S from Repnaya Vershina	51°41'53" N 43°09'54" E	alder forest edge of Choper floodplain	interception trap	3
Loc. 11	Balashovsky district; 7 km N from Repnoye	51°38'46" N 43°10'33" E	deciduous and pine forest and forest edge on sandy soil	sweep net, colored trap, interception trap	22
Loc. 12	Balashovsky district; 5 km NE from Repnoye	51°37'07" N 43°14'13" E	steppe, mixed forest and forest edge on sandy soil	sweep net, interception trap	30
Loc. 13	Balashovsky district; 3 km W from Repnoye	51°35'04" N 43°07'48" E	steppe, oak and pine forest and forest edge on sandy soil	sweep net, interception trap	24
Loc. 14	Balashovsky district; 1.5 km NW from Balashov	51°33'37" N 43°06'43" E	deciduous forest of Choper floodplain	interception trap	21
Loc. 15	Balashovsky district; Balashov	51°33'11" N 43°07'21" E	urban area	sweep net	2
Loc. 16	Balashovsky district; 3 km NE from Trostyanka	51°32'06" N 43°06'56" E	meadow on sandy soil of Trostyanka river valley	sweep net	12
Loc. 17	Balashovsky district; 1 km SE from Staryy Choper	51°27'47" N 43°01'58" E	steppe	sweep net	13
Loc. 18	Balashovsky district; 1 km SE from Almazovo	51°31'51" N 42°58'15" E	deciduous forest of Choper floodplain	sweep net, interception trap	15
Loc. 19	Balashovsky district; 4 km E from Lesnoye	51°34'35" N 42°42'47" E	oak forest of Choper floodplain	interception trap	2
Loc. 20	Balashovsky district; 5 km E from Rasskazan'	51°33'55" N 42°37'01" E	steppe and pine forest on sandy soil	sweep net, interception trap	7
Loc. 21	Romanovsky district; 1.2 km NE from Podgornoye	51°38'38" N 42°50'41" E	steppe and oak forest on sandy soil	sweep net, interception trap	6
Loc. 22	Romanovsky district; 5 km N from Romanovka	51°47'41" N 42°45'45" E	mixed forest of Karay river valley	interception trap	8
Loc. 23	Samoylovsky district; 3 km SE from Peschanka	51°16'53" N 43°41'53" E	deciduous forest	interception trap	3

Table I – continued

№. of sites	Location	Coordinates	Habitat type	Sampling method	Number of species
Loc. 24	Kalininsky district; 1.8 km NW from Kalininsk	51°28'29" N 44°28'93" E	oak forest	interception trap	5
Loc 25	Lysogorsky district; 7 km SW from Lysye Gory	51°30'49" N 44°44'56" E	steppe and deciduous forest	interception trap	24
Loc. 26	Lysogorsky district; Bolshaya Rel'nya	51°36'06" N 44°46'05" E	urban area, steppe and deciduous forest	sweep net, interception trap	17
Loc. 27	Atkarsky district; 3.5 km SE from Belgaza	51°39'01" N 44°45'03" E	steppe and deciduous forest	sweep net, interception trap	7
Loc. 28	Atkarsky district; 2.5 km W from Lopuchovka	51°41'12" N 44°48'17" E	steppe and deciduous forest	sweep net	3
Loc. 29	Engel'ssky district; 12 km W from Engels	51°28'24" N 46°17'34" E	steppe	sweep net	3
Loc. 30	Krasnokutsky District; 5 km W from D'yakovka	50°43'29" N 46°43'22" E	steppe, shrubland and deciduous forest edge on sandy soil	interception trap	34
Loc. 31	Krasnokutsky District; 2 km W from D'yakovka	50°44'01" N 46°44'58" E	steppe and deciduous forest edge on sandy soil	interception trap	10
Loc. 32	Krasnokutsky District; 5 km SW from D'yakovka	50°45'28" N 46°43'31" E	meadow, steppe, shrubland and deciduous forest edge on sandy soil	sweep net	11

The results presented in the paper are based on the study of 890 specimens of 80 species. We did not collect 12 species, which are given only from the literature. Below is an annotated list of Chrysididae in the Saratov region. Taxonomically, we applied the systematic classification used by Rosa *et al*. (2019) for the Russian fauna with some later systematic changes (Rosa *et al*., 2020; Wiesbauer *et al*., 2020). The arrangement of species within the genus is given in alphabetical order. For some species, subspecies data are reported separately. Among them, the species marked with an asterisk (*) are new for the Saratov region, and those marked with two asterisks (**) are presented for the territory of Russia for the first time. References to previously reported species are given according a compositive review of the Russian Chrysididae (Rosa *et al*., 2019) and other literature sources that are not indicated in this work.

Results

Subfamily Cleptinae

Genus *Cleptes* Latreille, 1802

***Cleptes ignitus* (Fabricius, 1787)**

Reference: Rosa *et al*., 2019.

Distribution: Russia: European part (Center, East, North Caucasus, Crimea), Urals; Caucasus; Southwestern and warm areas of Central Europe, Northern Africa, Western Asia, Turkey (Móczár, 1997).

****Cleptes semiauratus* (Linnaeus, 1761)**

Material examined: Loc. 12: 22.05-26.07.2017, IT on maple, 2 ♂♂; 24.05-23.06.2019, IT on elm stump, 1 ♂; Loc. 18: 2.06-5.07.2019, IT on poplar, 2 ♂♂; Loc. 31: 27-31.05.2019, IT on oak, 3 ♂♂.

Distribution: Russia: European part (Northwest, Center, Crimea), Urals (Rosa *et al*., 2019); widely distributed from Europe to Caucasus and Turkey (Móczár, 2001).

Subfamily Chrysidinae

Tribe Elampini

Genus *Colpopyga* Semenov, 1954

***Colpopyga flavipes flavipes* (Eversmann, 1858)**

Reference: Rosa *et al*., 2019.

Material examined: Loc. 32: 26.07.2017, SN, 1 ♂.

Distribution: Russia: European part (Center, East, South, North Caucasus, Crimea), Urals, Caucasus; Southern Europe, Northern Africa, Middle East, Turkey (Trautmann, 1927; Linsenmaier, 1959).

Genus *Elampus* Spinola, 1806

***Elampus albipennis* (Mocsáry, 1889)**

Reference: Rosa *et al*., 2019.

Material examined: Loc. 30: 26.07.2017, SN, 1 ♂.

Distribution: Russia: European part (Center, East, South, Crimea), Urals, Eastern Siberia, Far East; Caucasus, Southeastern Europe, Western Asia (Linsenmaier, 1959), Turkmenistan and Persia (Trautmann, 1927), Saudi Arabia, UEA (Linsenmaier, 1994).

***Elampus constrictus* (Förster, 1853)**

Reference: Rosa *et al*., 2019.

Distribution: Russia: European part (North, Center, East, South, North Caucasus, Crimea), Urals, Siberia, Far East; Trans-Palaearctic: from Europe and Northern Africa to China (Rosa *et al*., 2014).

***Elampus eversmanni* (Mocsáry, 1889)**

Reference: Rosa *et al*., 2019.

Distribution: Russia: European part (East, South, North Caucasus, Crimea); Caucasus, Iran, Kazakhstan, Turkestan (Linsenmaier, 1959; Rosa *et al*., 2013).

***Elampus foveatus* (Mocsáry, 1914)**

Material examined: Loc. 6: 19.07.2017, SN, 1 ♀; Loc. 13: 02-23.07.2015, SN, 3 ♀♀; Loc. 26: 22.07.2018, SN, 2 ♀♀.

Distribution: Russia: Eastern Siberia; Trans-Palaearctic: from Central Europe to Siberia (Paukkunen *et al*., 2014).

***Elampus panzeri* (Fabricius, 1804)**

Reference: Rosa *et al*., 2019.

Material examined: Loc. 30: 27-31.05.2019, IT on oak, 4 ♀♀.

Distribution: Russia: European part (North, Northwest, Center, East, South, North Caucasus, Crimea), Urals, Siberia; Trans-Palaearctic: from Europe to China (Rosa *et al*., 2014).

***Elampus pyrosomus pyrosomus* (Förster, 1853)**

Reference: Rosa *et al*., 2019.

Material examined: Loc. 5: 29.07.2018, SN, 1 ♂.

Distribution: Russia: European part (Center, East, South, North Caucasus), Urals; Southeastern Europe to Asia Minor and Caucasus (Rosa *et al*., 2019).

****Elampus sanzii* Gogorza, 1887**

Material examined: Loc. 9: 19.07.2017, SN, 1 ♂; Loc. 32: 26.07.2017, SN, 1 ♂.

Distribution: Russia: European part (Center, East, South), Eastern Siberia; Southern Europe, Middle East (Linsenmaier, 1959).

***Elampus spina* (Lepeletier, 1806)**

Reference: Rosa *et al*., 2019.

Distribution: Russia: European part (Center, East, South, North Caucasus, Crimea), Urals; Caucasus: Georgia; Southwest Palaearctic: from Southern Europe and Northern Africa to Western Asia (Linsenmaier, 1959, 1999).

Genus *Haba* Semenov, 1954

****Haba almasyana* (Mocsáry, 1911)**

Material examined: Loc. 11: 18.07.2016, SN, 1 ♂; 18.07-12.08.2016, CT,1 ♀; Loc. 17: 18.07.2017, SN, 1 ♀.

Distribution: Russia: European part (South: Astrakhan Region); Kyrgyzstan (Rosa *et al*., 2019).

Genus *Hedychridium* Abeille de Perrin, 1878

****Hedychridium ardens ardens* (Coquebert, 1801)**

Material examined: Loc. 18: 05.07.2019, SN, 1 ♂; Loc. 30: 27-31.05.2019, IT on oak, 2 ♀♀.

Distribution: Russia: European part (Northwest, Center, East, South, North Caucasus), Urals, Siberia; Caucasus; Trans-Palaearctic: from Europe to Eastern Siberia (Rosa *et al*., 2014).

***Hedychridium coriaceum coriaceum* (Dahlbom, 1854)**

Reference: Rosa *et al*., 2019.

Material examined: Loc. 6: 19.07.2017, SN, 1 ♀; Loc. 16: 19-22.07.19, SN, 1 ♀; Loc. 17: 18.07.2017, SN, 1 ♀.

Distribution: Russia: European part (Northwest, Center, East, North Caucasus), Urals; Europe (Rosa & Soon, 2012) and Turkey (Strumia & Yildirim, 2008).

***Hedychridium lucidiventre* Semenov, 1967**

Material examined: Loc. 32: 26.07.2017, SN, 1 ♀.

Distribution: Russia: European part (North Caucasus); Kazakhstan (Rosa *et al*., 2019).

***Hedychridium roseum roseum* (Rossi, 1790)**

Material examined: Loc. 6: 19.07.2017, SN, 1 ♂; Loc. 11: 1-2.07.2015, CT, 1 ♂; 25.06.2017, SN, 1 ♀; Loc. 26: 22.07.2018, SN, 1 ♀.

Distribution: Russia: European part (North, Northwest, Center, East, South, North Caucasus, Crimea), Urals, Siberia, Far East; Caucasus; Trans-Palaearctic: from Western Europe to China (Rosa *et al*., 2019).

***Hedychridium rossicum* Gussakovskij, 1948**

Reference: Rosa *et al*., 2019.

Distribution: Russia: European part (Center, East, South, North Caucasus, Crimea), Urals; Caucasus: Azerbaijan (Rosa *et al*., 2019).

***Hedychridium zelleri* (Dahlbom, 1845)**

Material examined: Loc. 30: 27-31.05.2019, IT on oak, 2 ♀♀.

Distribution: Russia: European part (Center, East, North Caucasus); Northern and Central Europe (Paukkunen *et al*., 2014).

Genus *Hedychrum* Latreille, 1802

***Hedychrum gerstaeckeri gerstaeckeri* Chevrier, 1869**

Material examined: Loc. 16: 19-22.07.19, SN, 2 ♂♂.

Distribution: Russia: European part (North, Northwest, Center, East, South, North Caucasus), Urals, Siberia, Far East; Caucasus: Georgia; Trans-Palaearctic and Oriental: from Western Europe to Far Eastern Russia, Japan, China and Taiwan (Rosa *et al*., 2014).

***Hedychrum longicolle* Abelle de Perrin, 1877**

Material examined: Loc. 16: 19-22.07.2019, SN, 1 ♀; Loc. 17: 16.07.2017, SN, 1 ♂; Loc. 32: 26.07.2017, SN 1 ♂.

Distribution: Russia: European part (Center, East, South, North Caucasus, Crimea), Urals, Siberia, Far East; Caucasus: Georgia; Trans-Palaearctic: from Southern Europe and Northern Africa, to Western Asia, Siberia and China (Rosa *et al*., 2014).

***Hedychrum niemelai* Linsenmaier, 1959**

Material examined: Loc. 13: 2-15.07.2015, SN, 2 ♂♂; Loc. 16: 19-22.07.19, SN, 1 ♀.

Distribution: Russia: European part (Northwest, Center, East, North Caucasus), Urals, Siberia, Far East; Trans-Palaearctic, from Europe to China (Rosa *et al*., 2014).

***Hedychrum nobile* (Scopoli, 1763)**

Reference: Rosa *et al*., 2019.

Material examined: Loc. 11: 18.07.2016, SN, 1 ♂; 10.08.2016, SN, 1 ♂; Loc. 17: 18.07.2017, SN, 1 ♂; 03.08.2017, SN, 1 ♀; Loc. 26: 10.08.2016, SN, 1 ♂.

Distribution: Russia: European part (North, Northwest, Center, East, South, North Caucasus, Crimea), Urals, Siberia; Caucasus; Trans-Palaearctic: from Western Europe to Siberia (Paukkunen *et al*., 2014).

****Hedychrum rutilans rutilans* Dahlbom, 1854**

Material examined: Loc. 15: 9-11.09.2019, SN, 2 ♂♂; Loc. 16: 19-22.07.19, SN, 2 ♂♂, 2 ♀♀; Loc. 18: 05.07.2019, SN, 1 ♂, 2 ♀♀.

Distribution: Russia: European part (North, Northwest, Center, East, South, North Caucasus, Crimea), Urals, Siberia; Caucasus; Trans-Palaearctic: from Western Europe to Siberia (Paukkunen *et al*., 2014).

Genus *Holopyga* Dahlbom, 1845

****Holopyga amoenula amoenula* Dahlbom, 1845**

Material examined: Loc. 12: 24.05-23.06.2019, IT on oak log, 1 ♂; IT on oak stump, 1 ♂, SN, 2 ♂♂; Loc. 14: 25.06-29.07.2017, IT on oak, 1 ♀; Loc. 16: 19-22.07.19, SN, 2 ♂♂; Loc. 17: 18-28.07.2017, SN, 1 ♂, 1 ♀; Loc. 18: 05.07.2019, SN, 1 ♂; Loc. 26: 10.08.2016, SN, 1 ♀; Loc. 28: 08.08.2016, SN, 1 ♂.

Distribution: Russia: European part (North Caucasus); Rhodes Island, Greece (Rosa *et al*., 2019).

***Holopyga chrysonota* (Förster, 1853)**

Material examined: Loc. 9: 19.07.2017, SN, 1 ♂, 1 ♀; Loc. 12: 24.05-23.06.2019, IT on oak log, 3 ♂♂; SN, 1 ♀; Loc. 16: 09.07.19, SN, 2 ♂♂; Loc. 17: 03.08.2017, SN, 1 ♂; Loc. 21: 07.06.2019, SN, 1 ♂; Loc. 24: 12-24.07.2018, IT on oak, 4 ♂♂; Loc. 29: 31.05.2019, SN, 1 ♀; Loc. 30: 27-31.05.2019, IT on oak, 1 ♂; Loc. 32: 26.07.2017, SN, 1 ♀.

Distribution: Russia: European part (Center, East, North Caucasus, Crimea), Urals, Siberia; Caucasus; Western Palaearctic, Southern Europe to Middle East and Central Asia (Arens, 2004).

Remarks: In the annotated checklist of the Russian cuckoo wasps (Rosa *et al*., 2019) it is given as *Holopyga ignicollis* Eversmann, 1858; this name is a synonym of *Holopyga chrysonota* (Förster, 1853) (Rosa *et al*., 2020).

****Holopyga fervida fervida* (Fabricius, 1781)**

Material examined: Loc. 13: 02-29.07.2017, IT on oak, 1 ♀.

Distribution: Russia: European part (Center, South, North Caucasus, Crimea), Urals; Europe, North Africa, Middle East, Iran, Turkey (Rosa *et al*., 2013).

****Holopyga generosa asiatica* Trautmann, 1926**

Material examined: Loc. 32: 26.07.2017, SN, 2 ♀♀.

Distribution: Russia: Siberia; Caucasus; Trans-Palaearctic: from Southern Europe to China (Rosa *et al*., 2014).

***Holopyga inflammata inflammata* Mocsáry, 1889**

Material examined: Loc. 16: 19-22.07.2019, SN, 2 ♀♀.

Distribution: Russia: European part (Center); Europe, Northern Africa, Western Asia (Linsenmaier, 1997, 1999).

***Holopyga jurinei* Chevrier, 1862**

Material examined: Loc. 11: 30.06.2015, SN, 1 ♀; 18.07.2016, SN, 1 ♀; 18.07-12.08.2016, CT, 1 ♂, 1 ♀; Loc. 32: 26.07.2017, SN, 1 ♂.

Distribution: Russia: European part (South, North Caucasus); Europe, Northern Africa, Western Asia, Turkey (Linsenmaier 1997, 1999).

***Holopyga minuma* Linsenmaier, 1959**

Material examined: Loc. 12: 24.05-23.06.2019, IT on oak log, 2 ♀♀; Loc. 18: 02.06-05.07.2019, IT on oak stump, 1 ♀.

Distribution: Russia: European part (Samara Prov.), Eastern Siberia; Central and Southeastern Europe, Iran, Middle East, Turkey (Linsenmaier, 1968; Schmidt, 1977).

***Holopyga pavlovskii* Semenov & Nikol′skaya, 1954**

Material examined: Loc. 11: 18.07.201, SN, 1 ♂; Loc. 30: 27-31.05.2019, IT on oak, 1 ♂.

Distribution: Russia: European part (North Caucasus); Caucasus, Palestine (Linsenmaier, 1959), Turkey (Schmidt, 1977).

***Holopyga punctatissima punctatissima* Dahlbom, 1854**

Reference: Rosa *et al*., 2019.

Distribution: Russia: European part (Center, South, North Caucasus, Crimea), Urals; Caucasus, Southeastern Europe, Caucasus, Iran, Turkey (Rosa *et al*., 2013).

***Holopyga similis* Mocsáry, 1889**

Material examined: Loc. 8:12.06.2017, SN, 1 ♀; Loc. 14: 25.06-29.07.2017, IT on oak, 1 ♂; Loc. 16: 19-22.07.19, SN, 2 ♀♀; Loc. 32: 26.07.2017, SN, 1 ♀.

Distribution: Russia: European part (Center, East, South, North Caucasus, Crimea), te Urals, Siberia; Caucasus; Trans-Palaearctic: from Europe to China (Rosa *et al*., 2014).

Remarks: In the annotated checklist of the Russian cuckoo wasp (Rosa *et al*., 2019) it is given as *Holopyga chrysonota* Linsenmaier (1959); this name is a synonym of *Holopyga similis* Mocsáry, 1889 (Rosa *et al*., 2020).

***Holopyga turkestanica* Mocsáry, 1909**

Material examined: Loc. 32: 26.07.2017, SN (1 ♂).

Distribution: Russia: European part (North Caucasus); Caucasus, Middle Asia, Turkey, Iran (Kimsey and Bohart, 1991).

Remarks: To diagnose the species, the type material of the Zoological Institute of the Russian Academy of Sciences (St. Petersburg) as well as our collections from Uzbekistan (1990) and Tajikistan (1991) were studied. The description of the species is given according to Semenov (1954).

Genus *Omalus* Panzer, 1801

***Omalus aeneus* (Fabricius, 1787)**

Material examined: Loc. 2: 02-11.07.2018, IT on elm, 1 ♀; Loc. 12: 22.05-26.07.2017, IT on oak, 1 ♀; Loc. 11: 25.06.2017, SN, 1 ♂; Loc. 14: 25.06-29.07.2017, IT on oak, 1 ♀; Loc. 26: 12-23.07.2018, IT on elm, 1 ♀; Loc. 29: 31.05.2019, SN, 1 ♀; Loc. 30: 27-31.05.2019, IT on oak, 1 ♂.

Distribution: Russia: European part (North, Northwest, Center, East, South, North Caucasus, Crimea), Urals, Siberia, Far East; Georgia; Trans-Palaearctic and Oriental: from Europe and North Africa to Japan and Taiwan (Wei *et al*., 2014).

***Omalus biaccinctus* (du Buysson, 1892)**

Material examined: Loc. 12: 24.05-23.06.2019, IT on linden, 1 ♀.

Distribution: Russia: European part (Northwest, Center, North Caucasus, Crimea); Western Palaearctic: from Europe to Western Asia (Linsenmaier, 1959).

Genus *Philoctetes* Abeille de Perrin, 1879

***Philoctetes bidentulus* (Lepeletier, 1806)**

Material examined: Loc. 16: 19-22.07.19, SN, 6 ♂♂, 2 ♀♀; Loc. 26: 16.07.2016, SN, 1 ♂; Loc. 17: 28.07.2016, SN, 1 ♀; 18.07.2017, SN, 1 ♂.

Distribution: Russia: European part (Center, East, South, North Caucasus), Urals, Eastern Siberia; Caucasus; Trans-Palaearctic, from Europe and Northern Africa to Turkey and Western Asia (Linsenmaier, 1999; Rosa *et al*., 2019).

***Philoctetes bogdanovii bogdanovii* (Radoszkovski, 1877)**

Material examined: Loc. 17: 03.08.2017, SN, 2 ♂♂, 1 ♀; Loc. 26: 12-23.07.2018, IT on oak, 1 ♀; Loc. 30: 27-31.05.2019, IT on oak, 1 ♀.

Distribution: Russia: European part (Center, North Caucasus, Crimea), Urals; Caucasus: Azerbaijan; Western Palaearctic: Southern Europe, Western Asia, Iran and Turkey (Rosa *et al*., 2013).

***Philoctetes sareptanus* (Mocsáry, 1889)**

Material examined: Loc. 30: 27-31.05.2019, IT on oak, 2 ♀♀.

Distribution: Russia: European part (Center, East, South, North Caucasus), Urals, Eastern Siberia, Far East; Trans-Palaearctic: from Southern Russia and Iran to Siberia (Rosa *et al*., 2013).

Genus *Pseudomalus* Ashmead, 1902

***Pseudomalus auratus auratus* (Linnaeus, 1758)**

Material examined: Loc. 11: 03.06.2015, SN, 1 ♀; 23.07.2017, SN, 1 ♀; Loc. 12: 19.06.2017, SN, 1 ♀; 23.06.2019, SN, 1 ♀; Loc. 13: 10.06-03.07.2018, IT on pine, 1 ♀; Loc. 17: 15.07.2016, SN, 2 ♂♂; Loc. 20: 01.07.2018, SN, 1 ♀; Loc. 27: 01.08.2019, SN, 1 ♀; Loc. 28: 08.07.2016, SN, 1 ♀; Loc. 30: 27-31.05.2019, IT, on oak, 1 ♂, 1 ♀; Loc. 31: 24-28.07.2017, SN, 1 ♀.

Distribution: Russia: European part (North, Northwest, Center, East, South, North Caucasus, Crimea), Urals, Eastern Siberia, Far East; Trans-Palaearctic and Holarctic: from Europe and Northern Africa to China, Korea and Japan (Rosa *et al*., 2014).

***Pseudomalus auratus viridiventris* (Mocsáry, 1890)**

Material examined: Loc. 12: 16.06.2017, SN, 1 ♀; Loc. 17: 15.07.2016, SN, 1 ♂; Loc. 32: 26.07.2017, SN, 1 ♂, 2 ♀♀.

Distribution: Russia: European part (North Caucasus); Caucasus (Rosa *et al*., 2019).

***Pseudomalus pusillus pusillus* (Fabricius, 1804)**

Reference: Rosa *et al*., 2019.

Material examined: Loc. 3: 11.07.2018, SN, 2 ♂♂; Loc. 13: 2-29.07.2017, SN, 2 ♂♂; Loc. 17: 04.07.2016, SN, 1 ♂; Loc. 21: 07.06.2019, SN, 1 ♂; Loc. 29: 31.05.2019, SN, 2 ♂♂; Loc. 30: 27-31.05.2019, IT on oak, 2 ♂♂.

Distribution: Russia: European part (Center, East, South, North Caucasus, Crimea), Urals, Siberia; Kazakhstan; Trans-Palaearctic: from Europe and Northern Africa to Eastern Siberia (Paukkunen *et al*., 2014).

***Pseudomalus pusillus semicupreus* (Linsenmaier, 1959)**

Material examined: Loc. 6: 19.07.2017, SN, 2 ♀♀.

Distribution: Russia: European part (North Caucasus); Spain (Vinokurov, 2013; Rosa *et al*., 2019).

***Pseudomalus triangulifer* (Abeille de Perrin, 1877)**

Material examined: Loc. 20: 01.07.2018, SN, 1 ♀.

Distribution: Russia: European part (North, Northwest, Center, North Caucasus), Urals, Siberia, Far East; Trans-Palaearctic: from Europe and Turkey to China (Rosa *et al*., 2014).

Tribe Chrysidini

Genus *Chrysidea* Bischoff, 1913

***Chrysidea pumila* (Klug, 1845)**

Material examined: Loc. 11: 30.06.2015, SN, 2 ♀♀; 25.06.2017, SN, 1 ♂.

Distribution: Russia: European part (Center, South, North Caucasus), Urals; Trans-Palaearctic and Afrotropical (Kimsey and Bohart 1991; Madl and Rosa 2012; Rosa *et al*., 2014).

Genus *Chrysis* Linnaeus, 1761

***Chrysis angustula angustula* Schenck, 1856**

Material examined: Loc. 2: 02-11.07.2018, IT on oak, 2 ♀♀; Loc. 7: 15.06-02.07.2018, IT on oak, 3 ♀♀; Loc. 12: 22.05-26.07.2017, IT on oak, 1 ♀; IT on oak stump, 1 ♂, 2 ♀♀; IT on aspen, 1 ♀; 20-30.06.2018, IT on elm, 2 ♀♀; IT on oak, 1 ♂, 2 ♀; 24.05-23.06.2019, IT on linden, 2 ♂♂, 1 ♀; IT on elm stump, 1 ♀; Loc. 13: 02-29.07.2017, IT on oak, 1 ♂; 10.06-03.07.2018, IT on pine, 2 ♀♀; Loc. 14: 25.06-29.07.2017, IT on aspen, 5 ♀♀; IT on oak, 4 ♀♀); IT on Tatar maple, 1 ♀; 21.06-22.07.2018, IT on aspen, 3 ♀♀; IT on elm, 2 ♀♀; IT on oak, 1 ♀; Loc. 30: 27-31.05.2019, IT on oak, 3 ♀♀; Loc. 31: 27-31.05.2019, IT on oak, 1 ♀.

Distribution: Russia: European part (North, Northwest, Center, North Caucasus), Urals, Eastern Siberia; Caucasus; Trans-Palaearctic: from Europe to Southwestern Asia and China (Manchuria) (Linsenmaier, 1997; Rosa *et al*., 2014).

***Chrysis borealis* Paukkunen, Ødegaard & Soon, 2015**

Material examined: Loc. 12: 24.05-23.06.2019, IT on linde, 2 ♂♂, 1 ♀; SN, 1 ♀; Loc. 14: 21.06-22.07.2018, IT on aspen, 1 ♂; IT on oak, 1 ♀; Loc. 25: 12-24.07.2018, IT on oak, 1 ♂; Loc. 30: 27-31.05.2019, IT on oak 1 ♀.

Distribution: Russia: European part (North, Northwest); Denmark, Estonia, Finland, Norway, Sweden (Paukkunen *et al*., 2014; Rosa *et al*., 2019).

Remarks: The distribution of the species has not been thoroughly studied. Quite recently this species was singled out of the *ignita* species group, which is of close morphology, on the basis of deep analysis using the methods of molecular diagnosis (Paukkunen *et al*., 2015).

***Chrysis clarinicollis* Linsenmaier, 1951**

Material examined: Loc. 2: 02-11.07.2018, IT on oak, 1 ♀; Loc. 12: 20-30.06.2018, IT on elm, 2 ♀♀; Loc. 13: 02-29.07.2017, IT on oak, 1 ♀; 10.06-3.07.2018, IT on pine, 2 ♀♀; Loc. 14: 21.06-22.07.2018, IT on aspen, 2 ♂♂, 2 ♀♀; IT on elm, 2 ♀♀; IT on oak, 4 ♀♀. Loc. 24: 12-24.07.2018, IT on maple, 1 ♂, 2 ♀♀.

Distribution: Russia: European part (South: Kalmykia), Urals; Western Palaearctic: Southern and Central Europe, Northern Africa (Linsenmaier, 1997).

***Chrysis comparata* Lepeletier, 1806**

Material examined: Loc. 4: 29.07.2018, SN, 1 ♂; Loc. 13: 01.07.2016, SN, 1 ♂; Loc. 27: 16.07-01.08.2019, IT on oak, 1 ♂.

Distribution: Russia: European part (South: Kalmykia), Urals; Western Palaearctic: Southern and Central Europe, Northern Africa (Linsenmaier, 1997).

****Chrysis corusca* Valkeila, 1971**

Material examined: Loc. 12: 22.05-26.07.2017, IT on oak, 1 ♀; 24.05-23.06.2019, IT on oak log, 1 ♀; IT on linden, 2 ♂♂, 1 ♀; IT on elm stump, 2 ♀♀; SN, 1 ♂, 1 ♀; Loc. 20: 15.06-01.07.2018, IT on pine, 1 ♀; Loc. 22: 14-24.06.2018, IT on oak, 1 ♀.

Distribution: North Europa (Sweden); Iran (Kimsey & Bohart, 1991; Paukkunen *et al*., 2015).

Remarks: The diagnosis of *Chrysis* species is given according to Paukkunen *et al*. (2015).

***Chrysis cylindrica* Eversmann, 1858**

Reference: Rosa *et al*., 2019.

Distribution: Russia: European part (East, South, North Caucasus, Crimea), Urals, Eastern Siberia; Caucasus; Southeastern Europe (Linsenmaier, 1959, 1968).

***Chrysis equestris* Dahlbom, 1854**

Reference: Rosa *et al*., 2019.

Material examined: Loc. 7: 15.06-02.07.2018, IT on oak, 1 ♂, 3 ♀♀; Loc. 12: 24.05-23.06.2019, IT on linden, 3 ♀♀; IT on elm stump, 3 ♀♀; Loc. 13: 10.06-3.07.2018, IT on pine, 1 ♀; Loc. 14: 21.06-22.07.2018, IT on aspen, 1 ♂, 6 ♀♀; IT on oak, 1 ♂, 2 ♀♀; Loc. 18: 12.06-02.07.2018, IT on poplar, 1 ♀; IT on oak, 1 ♀; Loc. 26: 12-23.07.2018, IT on oak, 1 ♂; Loc. 30: 27-31.05.2019, IT on oak, 1 ♀; Loc. 31: 27-31.05.2019, IT on oak, 3 ♀♀.

Distribution: Russia: European part (Center, East), Urals, Far East; Western Palaearctic, from Western Europe to Russian Far East (Linsenmaier, 1997).

****Chrysis frivaldszkyi sparsepunctata* du Buysson, 1895**

Material examined: Loc. 30**:** 27**-**31.05.2019, IT on oak, 4 ♂♂.

Distribution: Transcaspian, Asia Minor, Syria, Palestine (Linsenmaier, 1959).

Remarks: The subspecies is close to *Chrysis frivaldszkyi frivaldszkyi* Mocsáry, 1882, but differs from it, as indicated by W. Linsenmaier (1959).

***Chrysis fulgida* Linnaeus, 1761**

Reference: Rosa *et al*., 2019.

Material examined: Loc. 11: 23.04-30.07.2017, IT on oak, 1 ♀; Loc. 12: 22.05-26.07.2017, SN, 3 ♀♀; IT on maple, 2 ♀♀; Loc. 13: 02-29.07.2017, IT on oak, 2 ♀♀; IT on oak stump, 2 ♀♀; IT on Tatar maple, 2 ♀♀; Loc. 14: 25.06-29.07.2017, IT on oak, 4 ♀♀; IT on aspen log, 2 ♀♀; IT on Tatar maple, 2 ♀♀; Loc. 21: 08-14.07.2017, IT on oak, 1 ♀; Loc. 26: 12-23.07.2018, IT on elm, 1 ♂.

Distribution: Russia: European part (North, Northwest, Center, East, North Caucasus), Urals, Siberia, Far East; Caucasus; Trans-Palaearctic: from Europe to Northeastern China (Manchuria) and Russian Far East (Linsenmaier, 1997; Rosa *et al*., 2014).

****Chrysis glasunovi* Semenov, 1967**

Material examined: Loc. 11: 25.06.2017, SN, 1 ♂.

Distribution: Russia: European part (South, North Caucasus, Crimea). Caucasus: Georgia (Rosa *et al*., 2019).

****Chrysis gracillima gracillima* (Förster, 1853)**

Material examined: Loc. 13: 10.06-03.07.2018, IT on pine, 1 ♂, 1 ♀; Loc. 26: 16.07.2016, SN, 1 ♂; 12-23.07.2018, IT on oak, 1 ♂; Loc. 30: 27-31.05.2019, IT on oak, 1 ♀.

Distribution: Russia: European part (Center, South, North Caucasus), Urals, Western Siberia; Europe and Northern Africa, Middle East, Iran (Rosa *et al*., 2013).

***Chrysis grumorum* Semenov, 1892**

Material examined: Loc. 1: 30.06.2016, SN, 1 ♂; Loc. 11: 25.06.2017, SN, 1 ♀; 23.04-30.07.2017, IT on birch, 1 ♀; Loc. 12: 22.05-26.07.2017, IT on elm, 1 ♂; SN, 1 ♀; Loc. 13: 01.07.2016, SN, 1 ♂; Loc. 14: 25.06-29.07.2017, IT on oak, 1 ♀; Loc. 19: 01-12.07.2017, IT on oak, 1 ♀.

Distribution: Russia: European part (North Caucasus); Tibet (Rosa *et al*., 2017).

***Chrysis ignita ignita* (Linnaeus, 1758)**

Material examined: Loc. 12: 24.05-23.06.2019, IT on linden, 1 ♀; IT on elm stump, 2 ♀♀; Loc. 13: 10.06-03.07.2018, IT on pine, 1 ♀; Loc. 14: 21.06-22.07.2018, IT on oak, 1 ♀; Loc. 26: 12-23.07.2018, IT on elm, 1 ♂; Loc. 30: 27-31.05.2019, IT on oak, 2 ♀♀.

Distribution: Russia: European part (North, Northwest, Center, East, South, North Caucasus, Crimea), Urals, Siberia, Far East; Trans-Palaearctic: from Europe and Northern Africa to India and China (Linsenmaier, 1959; Rosa *et al*., 2014).

***Chrysis illigeri* Wesmael, 1839**

Material examined: Loc. 12:15.07.2015, IT on elm, 1 ♂.

Distribution: Russia: European part (Northwest, Center, East, South, North Caucasus), Urals, Siberia, Far East; Western Palaearctic: Europe (Paukkunen *et al*., 2014).

***Chrysis immaculata* du Buysson, 1898**

Material examined: Loc. 1: 30.06.2016, SN, 1 ♂; Loc. 5: 29.07.2018, SN, 1 ♀; Loc. 12: 24.05-23.06.2019, IT on linden, 2 ♀♀; IT on elm stump, 4 ♀♀; Loc. 13: 10.06-3.07.2018, IT on pine, 1 ♂; Loc. 20: 15.06-01.07.2018, IT on pine, 1 ♂; Loc. 22: 14-24.06.2018, IT on pine, 1 ♂; Loc. 23: 11-20.07.2019, IT on oak, 1 ♂; Loc. 26: 12-23.07.2018, IT on oak, 1 ♀; 23.07.2018, IT on elm, 1 ♂; Loc. 30: 27-31.05.2019, IT on oak, 1 ♂.

Distribution: Russia: European part (Center: Belgorod Prov.; North Caucasus); Central and Southern Europe (Rosa & Soon, 2012).

***Chrysis impressa* Schenck, 1856**

Material examined: Loc. 4: 11-29.07.2018, IT on oak, 1 ♂; Loc. 10: 10-28.07.2019, IT on elm, 2 ♀♀; Loc. 11: 25.06.2017, SN, 1 ♂; Loc. 12: 24.05-23.06.2019, IT on linden, 3 ♂♂; IT on oak log, 2 ♀♀; Loc. 14: 21.06-22.07.2018, IT on aspen, 2 ♀♀; Loc. 18: 12.06-02.07.2018, IT on poplar, 1 ♀; 12.06.2019, on oak, 1 ♀; 12.06.2019, IT on aspen, 1 ♀; Loc. 30: 27-31.05.2019, IT on oak, 1 ♀.

Distribution: Russia: European part (Center, North Caucasus); Western Palaearctic: from Western Europe to Central Asia (Linsenmaier, 1997).

***Chrysis interjecta interjecta* du Buysson, 1895**

Material examined: Loc. 16: 19-22.07.19, SN, 1 ♀.

Distribution: Russia: European part (North Caucasus), Urals; Western Palaearctic: from Southern Europe to Middle East (Rosa *et al*. 2017).

***Chrysis iris* Christ, 1791**

Material examined: Loc. 7: 15.06-2.07.2018, IT on oak, 2 ♀♀; Loc. 11: 25.06.2017, SN, 1 ♀; Loc. 12: 22.05-26.07.2017, IT on elm, 1 ♂, 1 ♀; 24.05-23.06.2019, IT on linden, 7 ♀♀; SN, 1 ♂; IT on elm stump, 3 ♀♀; Loc. 14: 25.06-29.07.2017, IT on aspen, 1 ♂; Loc. 18: 02.06-05.07.2019, IT on aspen, 1 ♀; IT on poplar, 1 ♀; Loc. 20: 15.06-01.07.2018, IT on pine, 1 ♀; Loc. 23: 11-20.07.2019, IT on oak, 1 ♀; Loc. 31: 27-31.05.2019, IT on oak, 1 ♂.

Distribution: Russia: European part (Northwest, Center, East, North Caucasus), Urals, Siberia; Caucasus; Trans-Palaearctic: from Central and Northern Europe to Siberia (Paukkunen *et al*. 2014).

***Chrysis leachii* Shuckard, 1837**

Material examined: Loc. 30: 27-31.05.2019, IT on oak, 2 ♂♂; Loc. 13: 02-29.07.2017, IT on oak, 1 ♀.

Distribution: Russia: European part (Center, East, South, North Caucasus, Crimea), Western Siberia; Caucasus: Azerbaijan; Western Palaearctic: Central and Southern Europe, Northern Africa, Middle East, Iran (Rosa *et al*., 2013).

***Chrysis leptomandibularis* Niehuis, 2000**

Material examined: Loc. 12: 22.05-26.07.2017, IT on aspen, 1 ♀; 24.05-23.06.2019, IT per linden, 7 ♀♀; SN, 1 ♀; IT on elm stump, 3 ♀♀; IT on linden stump, 1 ♂, 1 ♀; Loc. 13: 10.06-03.07.2018, IT on pine, 1 ♀; Loc. 14: 21.06-22.07.2018, IT on oak, 5 ♀♀; IT on aspen, 1 ♂, 7 ♀♀; IT on elm, 1 ♀; Loc. 18: 12.06-02.07.2018, IT on poplar, 3 ♀♀; 12.06.2019, IT on aspen, 1 ♀; Loc. 22: 14-24.06.2018, IT on oak, 1 ♂; Loc. 24: 12-24.07.2018, IT on maple, 1 ♀; Loc. 25: 12-24.07.2018, IT on oak, 1 ♀; Loc. 26: 12-23.07.2018, IT on oak, 1 ♀; Loc. 30: 27-31.05.2019, IT on oak, 4 ♀♀; Loc. 31: 27-31.05.2019, IT on oak, 1 ♂, 3 ♀♀.

Distribution: Russia: European part (North, Northwest), Urals; Western Palaearctic: from Europe to Turkey and Urals (Niehuis, 2000; Paukkunen *et al*. 2014).

***Chrysis longula longula* Abeille de Perrin, 1879**

Material examined: Loc. 1: 30.06.2016, SN, 1 ♂; Loc. 7: 15.06-02.07.2018, IT per oak, 1 ♀; Loc. 12: 24.05-23.06.2019, IT per elm, 2 ♀♀; IT per oak log, 6 ♀♀; IT per linden, 5 ♂♂, 7 ♀♀; SN, 2 ♂♂, 6 ♀♀; Loc. 13: 02-29.07.2017, IT per oak, 1 ♀; Loc. 14: 25.06-29.07.2017, IT per aspen, 3 ♂♂, 6 ♀♀; IT per oak, 1 ♂, 2 ♀♀, 21.06-09.07.2018, IT per elm, 2 ♀♀; IT per aspen, 3 ♂♂, 6 ♀♀; IT per oak, 7 ♀♀; Loc. 22: 14-24.06.2018, IT per pine, 1 ♀; Loc. 23: 11-20.07.2019, IT per oak, 1 ♀; Loc. 26: 12-23.07.2018, IT per oak, 1 ♀; IT per aspen, 1 ♀; Loc. 27: 16.07-01.08.2019, IT per oak, 2 ♀♀; Loc. 31: 27-31.05.2019, IT per oak, 5 ♀♀.

Distribution: Russia: European part (North, Northwest, Center, East, North Caucasus, Crimea), Urals, Siberia; Trans-Palaearctic: from Europe to Central Asia and Siberia (Linsenmaier, 1959, 1997).

***Chrysis maderi* Linsenmaier, 1959**

Material examined: Loc. 11: 18.07-12.08.2016, CT, 1 ♂.

Distribution: Russia: European part (North Caucasus); Southeastern Europe (Linsenmaier, 1959).

***Chrysis mediadentata* Linsenmaier, 1951**

Material examined: Loc. 12: 28.06.2017, IT on oak stump, 1 ♀.

Distribution: Russia: European part (East: Tatar Rep.; North Caucasus); Eastern Siberia, Europe (Rosa & Soon, 2012).

***Chrysis mediata mediata* Linsenmaier, 1951**

Material examined: Loc. 12: 22.05-26.07.2017, IT on oak, 2 ♀♀; IT on linden stump, 1 ♀; SN, 1 ♀; Loc. 13: 02-29.07.2017, IT on alder, 1 ♀.

Distribution: Russia: European part (North Caucasus), Siberia, Far East; Caucasus; Palaearctic Region excluding Japan (Linsenmaier, 1997).

***Chrysis mesasiatica* Semenov, 1912**

Reference: Rosa *et al*., 2019.

Distribution: Russia: European part (East: Saratov Prov.; South: Volgograd Prov.; North Caucasus; Crimea). Kazakstan; Kyrgyzstan; Turkmenistan; Transcaspia; Iran; Turkey; Palestine (Rosa *et al*., 2019).

***Chrysis placida* Mocsáry, 1879**

Material examined: Loc. 30: 27-31.05.2019, IT on oak, 1 ♂.

Distribution: Russia: European part (South, North Caucasus), Urals; Caucasus, Southeastern Europe to Urals (Rosa & Soon, 2012).

***Chrysis pseudobrevitarsis* Linsenmaier, 1951**

Material examined: Loc. 10: 10-28.07.2019, IT on elm, 1 ♀; Loc. 30: 27-31.05.2019, IT on oak, 1 ♂; 28.07.2017, IT on oak, 1 ♂.

Distribution: Russia: European part (North, Northwest, North Caucasus, Crimea), Siberia; Trans-Palaearctic: from Western Europe to Mongolia (Paukkunen *et al*., 2014).

***Chrysis rutilans rutilans* Oliver, 1791**

Reference: Rosa *et al*., 2019.

Material examined: Loc. 11: 25.06.2017, SN, 1 ♀; Loc. 12: 24.05-23.06.2019, IT on oak log, 2 ♂♂, 1 ♀; Loc. 13: 15.07.2015, SN, 1 ♀; Loc. 15: 18.08.2019, SN, 1 ♀; Loc. 18: 02.06-05.07.2019, IT on oak, 1 ♂; Loc. 20: 15.06-01.07.2018, IT on pine, 1 ♂; Loc. 27: 16.07-01.08.2019, IT on oak, 2 ♂♂, 1 ♀; Loc. 30: 27-31.05.2019, IT on oak, 1 ♂.

Distribution: Russia: European part (North, Northwest, Center, East, South, North Caucasus, Crimea), Urals, Siberia, Far East; Caucasus, Trans-Palaearctic: from Western Europe and North Africa to China and Japan (Linsenmaier, 1997).

***Chrysis schencki* Linsenmaier, 1968**

Material examined: Loc. 12:15.06.2019, IT on linden stump, 1 ♀; Loc. 22: 14-24.06.2018, IT on oak, 1 ♀; Loc. 30: 27-31.05.2019, IT on oak, 1 ♀.

Distribution: Russia: European part (North, Northwest, North Caucasus), Western Siberia; Trans-Palaearctic: from Western Europe to Central Asia, Siberia and Japan (Paukkunen *et al*., 2014).

***Chrysis scutellaris* Fabricius, 1794**

Material examined: Loc. 3: 11.07.2018, SN, 2 ♂♂.

Distribution: Russia: European part (North, Northwest, North Caucasus), Western Siberia; Trans-Palaearctic: from Western Europe to Central Asia, Siberia and Japan (Paukkunen *et al*., 2014).

***Chrysis sexdentata sexdentata* Christ, 1791**

Material examined: Loc. 11: 25.06.2017, SN, 1 ♀; Loc. 10: 10-28.07.2019, IT on elm, 1 ♂; Loc. 18: 05.07.2019, SN, 1 ♂; 02.06-05.07.2019, IT on poplar, 1 ♀; Loc. 30: 24-28.07.2017, IT on oak, 4 ♂♂, 31.05.2019, IT on oak, 2 ♂♂; Loc. 31: 27-31.05.2019, IT on oak, 1 ♂.

Distribution: Russia: European part (Center, South, North Caucasus), Urals, Siberia; Caucasus; Western Palaearctic: from Western Europe and Northern Africa, to Central Asia and Iran (Rosa *et al*., 2013).

***Chrysis sybarita* Foerster, 1853**

Material examined: Loc. 27: 16.07-1.08.2019, IT on oak, 1 ♂, 1 ♀; Loc. 30: 27-31.05.2019, IT on oak, 4 ♂♂; Loc. 31: 27-31.05.2019, IT on oak, 1 ♂; Loc. 32: 26.07.2017, SN, 1 ♂.

Distribution: Russia: European part (North, Center, North Caucasus, Crimea), Urals, Siberia; Caucasus; Trans-Palaearctic: from Western Europe and Asia Minor to China (Linsenmaier, 1959; Rosa *et al*., 2014).

Remarks: In the annotated checklist of Russian cuckoo wasps (Rosa *et al*., 2019), it is given as *Chrysis graelsii graelsii* Guérin-Méneville, 1842. Wiesbauer *et al*. (2020), when looking for type materials, discovered that Linsenmaier's (1959) interpretation of the species was correct and that the central European (and Russian) specimens belong to *Chrysis sybarita* Foerster, 1853.

***Chrysis solida* Haupt, 1957**

Material examined: Loc. 12:19.06-26.07.2017, IT on oak, 1 ♂, 2 ♀♀; 16-27.06.2018, IT on elm, 1 ♀, 1 ♂; 24.05-15.06.2019, IT on linden, 1 ♂, 1 ♀; IT on elm stump, 2 ♀♀; Loc. 13: 10.06-03.07.2018, IT on pine, 2 ♀♀; Loc. 14: 21.06-22.07.2018, IT on elm, 2 ♂♂, 1 ♀; IT on aspen, 1 ♀; IT on oak, 1 ♀; Loc. 18: 12.06-02.07.2018, IT on poplar, 1 ♀; Loc. 20: 15.06-01.07.2018, IT on pine, 1 ♂, 1 ♀; Loc. 22: 14-24.06.2018, IT on oak, 1 ♀; Loc. 24: 12-24.07.2018, IT on maple, 2 ♀♀; Loc. 30: 27-31.05.2019, IT on oak, 1 ♀.

Distribution: Russia: European part (North, North Caucasus), Eastern Siberia, Far East; Caucasus; Trans-Palaearctic: from Europe to Japan (Paukkunen *et al*., 2014).

***Chrysis splendidula splendidula* Rossi, 1790**

Material examined: Loc. 5: 29.07.2018, SN, 1 ♂; Loc. 13: 01.07.2016, SN, 1 ♂; Loc. 18: 05.07.2019, SN, 1 ♂; Loc. 26: 22.07.2018, SN, 1 ♂; Loc. 27: 16.07-1.08.2019, IT on oak, 1 ♂; Loc. 30: 27-31.05.2019, IT on oak, 1 ♂.

Distribution: Russia: European part (Center, East, South, North Caucasus), Urals; Caucasus; Trans-Palaearctic: Europe, Central Asia (Linsenmaier, 1997), China (Rosa *et al*., 2014), Japan and Korea (Kurzenko & Lelej, 2007).

***Chrysis subcoriacea* Linsenmaier, 1959**

Material examined: Loc. 11: 23.04-30.07.2017, IT on birch, 1 ♀; Loc. 12: 22.05-26.07.2017, IT on oak, 4 ♀♀; IT on linden, 5 ♀♀; IT on maple, 3 ♀♀; 20-30.06.2018, IT on elm, 1 ♂; 24.05-23.06.2019, IT on

linden 2 ♂, 32 ♀♀; SN, 2 ♀♀; Loc. 13: 02-29.07.2017, IT on alder, 1 ♀; IT on oak, 3 ♀♀; Loc. 14: 25.06-29.07.2017, IT on aspen, 20 ♀♀; IT on oak, 4 ♀♀; IT on linden, 1 ♀; IT on Tatar maple, 2 ♀♀; Loc. 22: 14-24.06.2018, IT on pine, 1 ♀; Loc. 24: 12-24.07.2018, IT on maple, 1 ♀; Loc. 28: 8.07.2016, SN, 1 ♀.

Distribution: Russia: European part (North, North Caucasus), Trans-Palaearctic, from Europe to Central Asia and Japan (Linsenmaier, 1997; Rosa, 2006).

***Chrysis succincta* Linnaeus, 1767**

Material examined: Loc. 1: 30.06.2016, SN, 1 ♀; Loc. 11: 25.06.2017, SN, 1 ♀; Loc. 17: 16.07.2017, SN, 1 ♂; Loc. 30: 27-31.05.2019, IT on oak, 2 ♂♂, 1 ♀.

Distribution: Russia: European part (North, Center, South), Urals, Eastern Siberia; Caucasus; Trans-Palaearctic: from Europe to Russian Far East (Linsenmaier, 1959, Kurzenko & Lelej, 2007).

***Chrysis terminata* Dahlbom, 1854**

Material examined: Loc. 4: 11-29.07.2018, IT on oak, 1 ♂; Loc. 12: 24.05-23.06.2019, IT on linden, 1 ♂; IT on elm stump, 1 ♂; IT on oak, 1 ♂, 3 ♀♀; SN, 2 ♀♀; Loc. 14: 21.06-22.07.2018, IT on aspen, 1 ♂; IT on oak, 1 ♂, 1 ♀; Loc. 27: 16.07-01.08.2019, IT on oak, 1 ♂.

Distribution: Russia: European part (South), Urals; Western Palaearctic: from Europe to Central Asia (Paukkunen *et al*., 2015).

****Chrysis vanlithi* Linsenmaier, 1959**

Material examined: Loc. 4: 11-29.07.2018, IT on oak, 1 ♂; Loc. 12: 24.05-23.06.2019, IT on linden, 1 ♂; Loc. 13: 10.06-03.07.2018, IT on pine, 1 ♀; Loc. 25: 12-24.07.2018, IT on oak, 1 ♂.

Distribution: Northern Europe (Holland, England, Schweden, Schweiz) (Linsenmaier, 1959).

Remarks: The species is diagnosed according to Paukkunen *et al*. (2015).

***Chrysis viridula* Linnaeus, 1761**

Material examined: Loc. 30: 27-31.05.2019, IT on oak, 1 ♂.

Distribution: Russia: European part (North, Center, North Caucasus, Crimea), Urals, Siberia, Far East; Trans-Palaearctic: from Europe to Russian Far East, China and Japan (Linsenmaier, 1997; Kurzenko & Lelej, 2007; Rosa *et al*., 2014).

***Chrysis zetterstedti* Dahlbom, 1845**

Reference: Rosa *et al*. 2019.

Material examined: Loc. 11: 23.04-30.07.2017, IT on birch, 1 ♀; Loc. 14: 25.06-29.07.2017, IT on aspen, 1 ♂, 2 ♀♀; IT on oak, 1 ♂, 1 ♀; Loc. 30: 24-28.07.2017, IT on oak, 1 ♀.

Distribution: Russia: European part (Northwest, Center, North Caucasus, Crimea), Urals, Siberia, Far East; Northern Europe, Ukraine (Rosa *et al*., 2019).

***Chrysis zonata zonata* Dahlbom, 1854**

Reference: Rosa *et al*. 2019.

Distribution: Russia: European part (Center, East, South, North Caucasus, Crimea), Urals; Caucasus: Azerbaijan; Trans-Palaearctic: from Western Europe to Middle, Syria, Iran and China (Rosa *et al*., 2014).

Genus *Chrysura* Dahlbom, 1845

***Chrysura dichroa* (Dahlbom, 1854)**

Material examined: Loc. 11: 30.06.2015, SN, 1 ♀; Loc. 12: 22.05-26.07.2017, SN, 1 ♂; IT on elm, 1 ♀; IT on oak stump, 1 ♀; Loc. 14: 25.06-29.07.2017, IT on aspen log, 1 ♂; Loc. 26: 16.07.2016, SN, 1 ♀.

Distribution: Russia: European part (Center, East, North Caucasus), Urals, Western Siberia; Caucasus; Western Palaearctic: from Western Europe to Central Asia (Rosa *et al*., 2019).

***Chrysura laevigata laevigata* (Abeille de Perrin, 1879)**

Material examined: Loc. 4: 11-29.07.2018, IT on oak, 1 ♀; Loc. 30: 27-31.05.2019, IT on oak, 1 ♀.

Distribution: Russia: European part (North Caucasus), Urals, Caucasus: Azerbaijan; Western Palaearctic: Europe, North Africa, Middle East, Iran (Rosa *et al*., 2013).

***Chrysura radians* (Harris, 1776)**

Material examined: Loc. 12: 24.05-23.06.2019, IT on linden, 1 ♂, 1 ♀; IT on oak log, 1 ♀; IT on elm, 1 ♀.

Distribution: Russia: European part (North, East, South, North Caucasus, Crimea), Urals, Eastern Siberia; Caucasus: Abkhazia; Trans-Palaearctic: from Western Europe and Northern Africa to Western Asia and Siberia (Paukkunen *et al*., 2014).

Genus *Spinolia* Dahlbom, 1854

***Spinolia chalcites* (Mocsáry, 1890)**

Reference: Rosa *et al*. 2019.

Distribution: Russia: European part (East, South, North Caucasus); Iran, Turkey (Rosa *et al*., 2013).

Genus *Stilbum* Spinola, 1806

***Stilbum calens* (Fabricius, 1781)**

Reference: Rosa *et al*., 2019.

Distribution: Russia: European part (East, South, North Caucasus), Eastern Siberia; Trans-Palaearctic: from Europe and Northern Africa to Central Asia, Siberia, China and Japan (Linsenmaier, 1999; Rosa *et al*., 2014).

Remarks: According to the system of Rosa *et al*. (2019) *Stilbum calens* has the rank of an independent species. Probably future molecular research will clarify the taxonomy of this species.

***Stilbum cyanurum cyanurum* (Forster, 1771)**

Reference: Rosa *et al*., 2019.

Distribution: Russia: European part (Center, East; South, North Caucasus, Crimea), Urals; Caucasus; Worldwide except for North and South America (Kimsey & Bohart, 1991).

Genus *Trichrysis* Lichtenstein, 1876

***Trichrysis cyanea* (Linnaeus, 1758)**

Material examined: Loc. 11: 30.06.2015, SN, 1 ♂; 23.04-30.07.2017, IT on birch, 8 ♂♂; IT on oak, 6 ♂♂, 2 ♀♀; SN, 2 ♂♂; Loc. 12: 22.05-26.07.2017, SN, 1 ♀; IT on oak, 33 ♂♂, 8 ♀♀; IT on linden, 1 ♂; 20-30.06.2018, IT on elm, 4 ♂♂, 7 ♀♀; 24.05-23.06.2019, IT on linden, 2 ♂♂, 5 ♀♀; IT on oak stump, 2 ♂♂, 2 ♀♀; Loc. 13: 02-29.07.2017, IT on oak, 3 ♀♀; IT on Tatar maple, 1 ♀; 10.06-03.07.2018, IT on pine, 6 ♂♂, 7 ♀♀; Loc. 14: 25.06-29.07.2017, IT on aspen, 1 ♂, 1 ♀; IT on oak, 1 ♀; IT on linden, 2 ♂♂, 1 ♀; IT on Tatar maple, 2 ♀; 21.06-22.07.2018, IT on oak, 3 ♀♀; IT on aspen, 4 ♂♂, 7 ♀♀; Loc. 16: 19-22.07.19, SN, 1 ♂; Loc. 17: 28.07.2016, SN, 1 ♂; Loc. 21: 08-14.07.2017, IT on oak, 1 ♂, 1 ♀; Loc. 18: 12.06-02.07.2018, IT on poplar, 4 ♀♀; IT on oak, 1 ♀; Loc. 22: 14-24.06.2018, IT on oak, 4 ♂♂, 1 ♀; Loc. 24: 12-24.07.2018, IT on maple, 4 ♂♂, 1 ♀♀; Loc. 25: 12-24.07.2018 IT on oak, 5 ♂♂, 3 ♀♀; Loc. 26: 12-23.07.2018, IT on oak, 1 ♂; IT on aspen, 3 ♂♂, 2 ♀♀; Loc. 30: 24-28.07.2017, IT on oak, 1 ♂, 1 ♀; 27-31.05.2019, IT on oak, 7 ♀♀; Loc. 31: 27-31.05.2019, IT on oak, 2 ♀♀.

Distribution: Russia: European part (North, Northwest, Center, East, South, North Caucasus, Crimea), Urals, Siberia, Far East; Trans-Palaearctic: from Europe and Northern Africa to Central Asia, Siberia, China and Japan (Linsenmaier, 1999; Rosa *et al*., 2014).

Tribe Parnopini

Genus *Parnopes* Latreille, 1797

***Parnopes grandior grandior* (Pallas, 1771)**

References: Anikin and Sergeeva, 2006; Trushov and Volodchenko, 2015; Rosa *et al*., 2019.

Material examined: Loc. 18: 27.06.2018, SN, 4 ♀♀; 05.07.2019, SN, 1 ♂; Loc. 21: 21.06-22.07.2018 SN, 2 ♀♀; Loc. 31: SN, 2 ♀♀.

Distribution: Russia: European part (Northwest, Center, East, South, North Caucasus, Crimea), Urals, Eastern Siberia; Caucasus: Azerbaijan; Western Palaearctic: from Europe to North Africa and Central Asia. (Rosa *et al*., 2019).

Discussion

The fauna of Chrysididae identified in the Saratov region at the present time include 92 species and 2 subspecies from 17 genera: *Cleptes* – 2 species; *Colpopyga* – 1; *Elampus* – 8; *Haba* – 1; *Hedychridium* – 6; *Hedychrum* – 5; *Holopyga* – 11*; Omalus* – 2; *Philoctetes* – 3; *Pseudomalus* – 5; *Chrysidea* – 1; *Chrysis* – 41; *Chrysura* – 3; *Spinolia* – 1; *Stilbum* – 2; *Trichrysis* – 1 and *Parnopes* – 1. Among the 80 species registered in the course of the research, 69 species are recorded for the Saratov region for the first time. Two species are recorded for the fauna of Russia for the first time: *Chrysis corusca* and *C. vanlithi*. The subspecies *Chrysis frivaldszkyi sparsepunctata* du Buysson, 1895 is reported for the fauna of Russia for the first time. An overview of newly registered species (73%) shows that the fauna of the Saratov region is still largely unexplored and needs additional research. Of interest is the discovery of species and subspecies until recently thought to inhabit the more southern territories of the Caucasus, Central Asia and the Middle East:

Hedychridium lucidiventre, Holopyga turkestanica, H. pavlovskii, Pseudomalus auratus viridiventris, Chrysis frivaldszkyi sparsepunctata, C. maderi and some other species.

The detected species are resource-significant insects. Cuckoo wasps regulate the numbers of certain insects in nature. Representatives of the Cleptes genus can influence the number of sawflies, which are plant pests. Chrysidinae are parasitoids and kleptoparasites of solitary wasps and parasitoids of wild bees (Megachilidae), which are pollinators of plants. Chrysididae depend on the abundance and distribution of host species and therefore some of them may be sensitive to anthropogenic impact, and they are threatened with extinction at the regional level. Currently, only one species, *Parnopes grandior*, is in the Red Data Book of threatened species in the region (Anikin & Sergeeva, 2006).

In our view, 65-70% of the species inhabiting the region have been identified (130-140 species are expected in the fauna). This estimate is based on the total number of recorded species of cuckoo wasps in the regions of Russia that neighbor the Saratov region (Rosa *et al*., 2019). The fauna of Chrysididae associated with a dry forest stand has been studied most fully. Less attention has been paid to the study of cuckoo wasps from steppe and semi-desert habitats. Also, interesting results can be obtained when studying the chalk hills of the Volga Upland. The eastern parts of the region remain unexplored, and new records of Chrysididae will probably be found there.

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НОВИ ПОДАЦИ ЗА ФАУНУ И ЗООГЕОГРАФИЈУ ЗЛАТНИХ ОСА (HYMENOPTERA: CHRYSIDIDAE)У РЕГИОНУ ДОЊЕ ВОЛГЕ

АЛЕКСЕЈ Н. ВОЛОДЧЕНКО, НИКОЛАЈ Б. ВИНОКУРОВ и ДИМИТРИЈ А. ТРУШОВ

Извод

Истраживана је фауна и зоогеографија златних оса у степским и шумским биоценозама Доње Волге у Саратовској области, које обухватају 92 врсте и 2 подврсте из 17 родова: *Cleptes* – 2 species; *Colpopyga* – 1; *Elampus* – 8; *Haba* – 1; *Hedychridium* – 6; *Hedychrum* – 5; *Holopyga* – 11*; Omalus* – 2; *Philoctetes* – 3; *Pseudomalus* – 5; *Chrysidea* – 1; *Chrysis* – 41; *Chrysura* – 3; *Spinolia* – 1; *Stilbum* – 2; *Trichrysis* – 1 and *Parnopes* – 1, међу којима је по први пут представљено 69 врста за Саратовску област. Две врсте, *Chrysis corusca* Valkeila, 1971 и *Chrysis vanlithi* Linsenmaier, 1959, и једна подврста *Chrysis frivaldszkyi sparsepunctata* du Buysson, 1895, нови су рекорди за руску фауну. Добијени подаци проширују разумевање фауне и разноврсности Chrysididae у Саратовској области и Доње Волге и допуњују фаунистичку листу Chrysididae руске фауне.

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