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The Velvet ants (Hymenoptera: Mutillidae) of Belgorod Region, Russia

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Abstract. The list of ten recorded and three possible species of velvet ants Belgorod Region is given. *Nemka viduata viduata* (Pallas, 1773) is newly recorded from Central Zone of European part of Russia and occurrence of *Ronisia brutia brutia* (Petagna, 1787) in this zone is confirmed. For these species and *Smicromyrme sicanus* (De Stefani 1887), *Dasylabris maura sungora* (Pallas, 1773) and *D. regalis* (Fabricius, 1793) Belgorod Region is the northern border of their distribution in the Central Zone of European part of Russia.

Keywords: Mutillidae, Eastern Europe, European part of Russia, Central Russian Upland.

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Осы-немки (Hymenoptera: Mutillidae) Белгородской области, Россия

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Аннотация. Приводен список из десяти зарегистрированных и трех возможных видов ос-немок (сем. Mutillidae), обитающих на территории Белгородской области. Вид *Nemka viduata viduata* (Pallas, 1773) впервые отмечен в Центральной зоне европейской части России, и подтверждено наличие в этой зоне *Ronisia brutia brutia* (Petagna, 1787). Для указанных видов, а также для *Smicromyrme sicanus* (De Stefani 1887), *Dasylabris maura sungora* (Pallas, 1773) и *D. regalis* (Fabricius, 1793) Белгородская область является северной границей их распространения в Центральной зоне европейской части России.

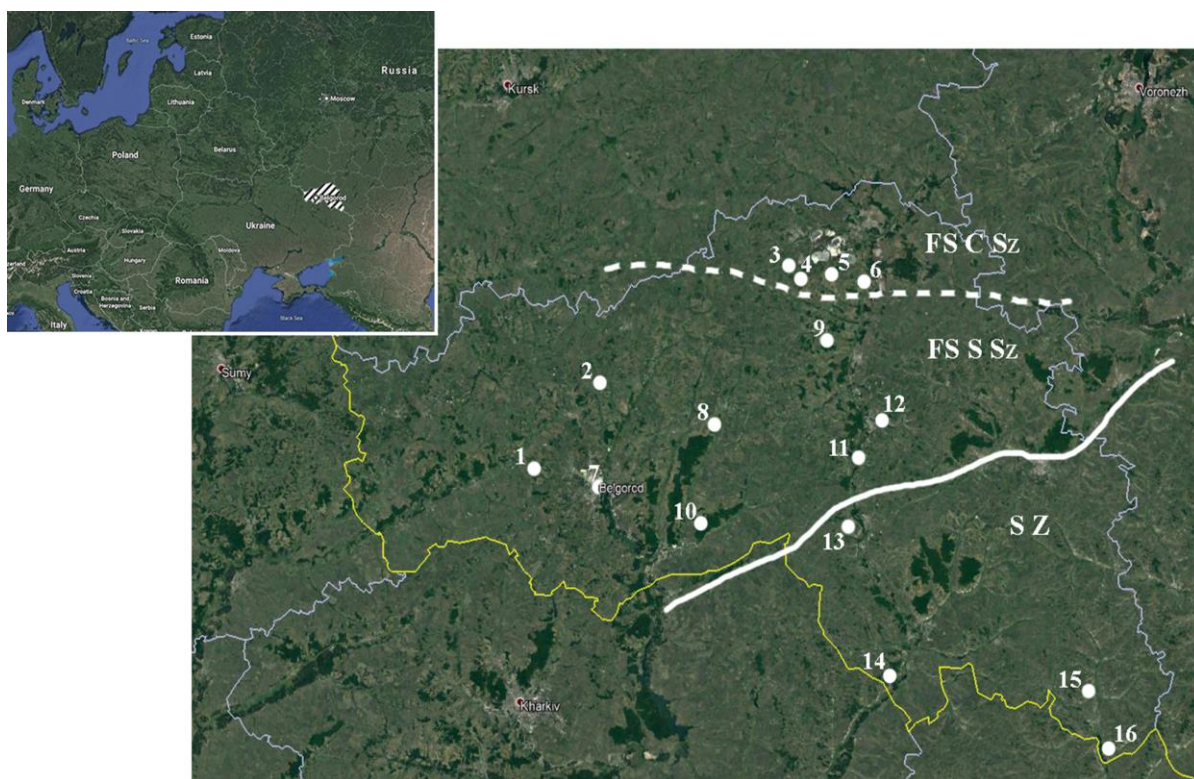
Ключевые слова: Mutillidae, Восточная Европа, Европейская часть России, Среднерусская возвышенность.

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Introduction

Belgorod Region is situated between 49°41' and 51°26' of northern latitude and 35°20' and 39°167' of eastern longitude. The area of Belgorod Region is 27 100 km²; the distance from the most northern point to the most southern one is 190 km; that from east to west is 270 km. The Belgorod Region is located on the south-west of the Central Zone of European part of Russia (Central Russian Upland) and border with Kursk and Voronezh Regions on the north and west and with Lugansk, Kharkov and Sumy Regions of Ukraine on the south and west. Two major habitat zones can be recognized in Belgorod Region: true steppes and forest steppes, the latter includes southern and central subzone [Prisniy, 2000, 2005; Avramenko et al., 2007] (see Figure).



Belgorod Region (maps from Google): on the insert marked with oblique stripes in the Eastern Europe;
1–16 – collecting sites (see in text) in 1975–2020; FS C Sz – forest steppes, central subzone;

FS S Sz – forest steppes, southern subzone; SZ – true steppes zone

Белгородская область (карты из Google): на вставке обозначена косыми полосами на территории
Восточной Европы; 1–16 – пункты сбора ос-немков (см. в тексте) в 1975–2020 гг.;

FS C Sz – центральная подзона лесостепи; FS S Sz – южная подзона лесостепи; SZ – степная зона

Most velvet ants, or mutillids, are solitary ectoparasitoids of the enclosed immatures (usually larvae or pupae) of other insects, mainly bees and wasps, rarely flies, beetles, or moth [Brothers et al., 2000; Amini et al., 2014]. Because of Mutillidae are thermophilic group the number of taxa (genera and species) are dramatically reduced from south to north. Number of the valid taxa: World – 220 genera, more than 4600 species, Palearctic – 61/525, Russia – 20/74, Centre of the European part of Russia – 7/9 [Lelej, 2017; Pagliano et al., 2020]. In the last used geoscheme for Russia [Belokobylskij and Lelej, 2019] Belgorod Region belongs to the Central Zone of European part. There is no special research on Mutillidae of the Belgorod Region, but information about 8 species of velvet ants in the south of the Central Russian Upland was given in the monograph by A.V. Prisniy [2003] and three species are included in the Red Data Book of the Belgorod Region [2019]. An updated list of Mutillidae from this area is given.

Material and methods

This paper based on the material collected in 1975–2020 (mainly by A.V. Prisniy and Yu.A. Prisniy) which is deposited in the collection of the Belgorod State University. The material was collected by net and pitfall traps. The scientific names of the species as their distribution outside of Belgorod Region follow Lelej [2017].

The mutillids were collected in the next sites of the Belgorod Region (see Fig.): Yakovlevskiy district: **1.** vicinity of Tomarovka village (5 km to the east and southeast); Prokhorovskiy district: **2.** vicinity of Belenikhino village; Gubkinskiy district: **3.** vicinity of Sergiyevka village; **4.** vicinity of Dubravka village; Starooskol'skiy district: **5.** vicinity of Kotenevka village; **6.** vicinity of Nizhne-Chufichevo village; Belgorodskiy district: **7.** Belgorod and vicinity; Korochanskiy district: **8.** vicinity of Afanasovo village; Chernyanskiy district: **9.** vicinity of Kohegury village; Shebekinskiy district; **10.** vicinity of Malomikhaylovka village, preserve «Bekaryukovskiy bor»; Novooskol'kiy district: **11.** vicinity of Makeshino village, «Stenki-Izgorya» area of Belogorye State Nature Reserve; **12.** vicinity of Nechayevka village, natural boundary «Khanova balka»; Volokonovskiy district: **13.** vicinity of Volokonovka urban village; Valuyskiy district: **14.** vicinity of Nizhniye Mel'nitsy village; Roven'skiy district: **15.** vicinity of Roven'ki urban village, «Aydarskiy» section of Natural Park «Roven'skiy» (natural boundary «Kalyuzhniy Yar»); **16.** vicinity of Nizhnyaya Serebryanka village, «Nizhneserebryanskiy» section of Natural Park «Roven'skiy». Specimens examined: 63 ♀ and 11 ♂ in total.

Results

Annotates list below includes ten recorded species and three possible species which widely distributed in the Central Zone of European part of Russia.

Subfamily Myrmosinae

1. *Myrmosa atra atra* Panzer, 1801

MATERIAL EXAMINED. **1:** VII.1986, near road, 1 ♀; **4:** 28.VIII.2020, natural boundary «Dyomin les», steppified valley slope, pitfall traps, 1 ♀.

2. *Paramyrmosa brunnipes* (Lepeletier, 1845)

MATERIAL EXAMINED. **7:** 02.VIII.1977, clay valley slope, 1 ♀; 23.VII.1997, natural boundary «Sosnovka», meadow in pine forest, 1 ♀; **11:** 26.VI.1999, chalk slope near southwestern edge of upland oakery, 3 ♂.

Subfamily Dasylabrinae

3. *Dasylabris (Baltilla) adversa* Skorikov, 1935

MATERIAL EXAMINED. **15:** 08.VII.2008, 1 ♂.

4. *Dasylabris (Dasylabris) maura sungora* (Pallas, 1773)

MATERIAL EXAMINED. **13:** ?? .1975, 1 ♀.

REMARK. This species is included in Red Data Book [2019] and did not find in last time.

5. *Dasylabris (Inbaltilla) regalis* (Fabricius, 1793)

MATERIAL EXAMINED. **15:** 02.VIII.2009, 1 ♀ (leg Ya.N. Kovalenko).

REMARK. This species is included in Red Data Book [2019].

Subfamily Myrmillinae

6. *Myrmilla (Pseudomutilla) glabrata* (Fabricius, 1775)

MATERIAL EXAMINED. **1:** 12.VII.1992, valley slopes, steppified meadow, 1 ♀; **5:** 24.VII.2020, valley slopes, chalk outcrops, pitfall traps, 2 ♀; 27.VIII.2020, valley slopes, chalk outcrops, pitfall traps, 2 ♀ и 2 ♂; **6:** 23.VII.2020, calciphyte steppe, pitfall traps, 9 ♀ и 2 ♂;

27.VIII.2020, calciphyte steppe, pitfall traps, 3♀ и 1♂; **7**: 18.V.1988, valley, chalk slope, 1♀; ?? 1992, 1♀; 28.VI.1992, southern exposure slopes along left bank of Vezelitsa River, 1♀; VI.2000, Botanical Garden of Belgorod National Research University, pitfall traps, 4♀; VI–X.2000, same place, pitfall traps, 1♀; 24.VII.2003, valley slopes, steppified meadow, 1♀; **8**: 11.VIII.1992, southern exposure slopes near edge of forest, 1♀; **10**: 08.VII.2003, 1♀; **12**: 14.VII.2000, chalk outcrops, pitfall traps, 1♀ (leg A.V. Gusev); **14**: 13.VII.2004, bank of Oskol River, chalk slope, 1♀.

Subfamily Mutillinae

7. *Nemka viduata viduata* (Pallas, 1773)

MATERIAL EXAMINED. **6**: 23.VII.2020, calciphyte steppe, pitfall traps, 1♀; 27.VIII.2020, calciphyte steppe, pitfall traps, 1♀; **15**: 21.VIII.2001, bank of Aydar River, sand quarry, 3♀; 10.VII.2003, 1♀.

REMARK. This species is newly recorded from the Central Zone of European part of Russia.

8. *Physetopoda halensis* (Fabricius, 1787)

REMARK. This species is widely distributed in the European part of Russia including Central Zone (Lelej, 2017) and can be found in Belgorod Region.

9. *Smicromyrme (Erimyrme) sicanus* (De Stefani, 1887)

MATERIAL EXAMINED. **6**: 23.VII.2020, calciphyte steppe, pitfall traps, 4♀; 27.VIII.2020, calciphyte steppe, pitfall traps, 1♀; **9**: 23.X.2007, meadow, pitfall traps, 1♀; **15**: 08.VII.2008, 1♀.

REMARK. This species is included in Red Data Book [2019].

10. *Smicromyrme (Smicromyrme) rufipes* (Fabricius, 1787)

MATERIAL EXAMINED. **3**: 14.VI–14.VII.2007, forest, pitfall traps, 1♀; **7**: 03.VII.1986, natural boundary «Sosnovka», pine forest, 1♂; VI.1993, 1♀; VI.2000, Botanical Garden of Belgorod National Research University, pitfall traps, 2♀; **11**: 26.VI.1999, chalk slope near south-western edge of upland oakery, 1♀; **12**: 19.XI.2000, chalk outcrops, pitfall traps, 1♀ (leg A.V. Gusev); **15**: 10.VII.2003, 1♀; **17**: 15.VIII.2006, chalk outcrops, 1♀.

11. *Mutilla europaea* Linnaeus, 1758

REMARK. This species is the parasite of *Bombus* spp., widely distributed in the European part of Russia, including Central Zone [Lelej, 2017] and can be found in Belgorod Region.

12. *Mutilla marginata* Baer, 1848

REMARK. This species is the parasite of *Bombus* spp., widely distributed in the European part of Russia, including Central Zone [Lelej, 2017] and can be found in Belgorod Region.

13. *Ronisia brutia brutia* (Petagna, 1787)

MATERIAL EXAMINED. **1**: IX.2000, 1♀; **2**: 09.VIII.2011, 1♀; **7**: 06.VII.2002, clay quarry, 1♀; 01.XI.2012, chalk mountain, chalk outcrops, 1♀ (leg A.A. Sychev); 24.VII.2003, meadow behind Belgorod State Technological University, 1♀; **16**: 12.VIII.2011, bank of Aydar River, edge of pine forest, 1♀ и 1♂.

REMARK. This species was included in the Red Data Book of the Tambov Region [Ishin, 2012], based on material: Tambov Region, Rzhaksinskiy district, vicinity of Bolshaya Rzhaksa village, 13.VIII.1997, field road, steppified valley slope, meadow steppe, 1♀ [Belevitin, Ishin, 1999]. Our material confirms the distribution of this species in the Central Zone of European part of Russia.

Discussion

In the table below we give the update distribution of the recorded and possible mutillid species of Belgorod Region in the European part of Russia.

Mutillidae of Belgorod Region. Update distribution in the European part of Russia
Осы-немки (сем. Mutillidae) Белгородской области. Обновленные данные распространения видов
в европейской части России

№	Subfamilies/species/ subspecies	EE	NT	NWT	CT	ET	ST	NC	CR
	Myrmosinae								
1	<i>Myrmosa atra atra</i> Panzer, 1801	+	+	+	+	+	+	+	+
2	<i>Paramyrmosa brunnipes</i> (Lepeletier, 1845)	+			+		+	+	+
	Dasylabrinae								
3	<i>Dasylabris (Baltilla) adversa</i> Skorikov, 1935	+			+	+	+	+	
4	<i>Dasylabris</i> (s. str.) <i>maura sungora</i> (Pallas, 1773)				+	+	+	+	
5	<i>Dasylabris (Inbaltilla) regalis</i> (Fabricius 1793)	+			*	+	+	+	+
	Myrmillinae								
6	<i>Myrmilla (Pseudomutilla) glabrata</i> (Fabricius, 1775)	+			+	+	+	+	+
	Mutillinae								
7	<i>Nemka viduata viduata</i> (Pallas, 1773)	+			**	+	+	+	+
8	<i>Physetopoda halensis</i> (Fabricius, 1787)	+			+	+	+	+	+
9	<i>Smicromyrme (Erimyrme) sicanus</i> (De Stefani 1887)	+			*		+		+
10	<i>Smicromyrme</i> (s. str.) <i>rufipes</i> (Fabricius, 1787)	+	+	+	+	+	+		+
11	<i>Mutilla europaea</i> Linnaeus, 1758	+	+	+	+	+		+	+
12	<i>Mutilla marginata</i> Baer, 1848	+	+	+	+	+			+
13	<i>Ronisia brutia brutia</i> (Petagna, 1787)	+			***	+	+	+	+

Notes. EE – Eastern Europe; European part of Russia: NT – North, NWT – North-West, CT – Centre, ET – East, ST – south, NC – North Caucasus, CR – Crimea; * – based on [Red Data Book, 2019]; ** – newly recorded species from Central Zone; *** – based on [Ishin, 2012] and current data.

Примечания. EE – Восточная Европа; европейская часть России: NT – север, NWT – северо-запад, CT – центр, ET – восток, ST – юг, NC – Северный Кавказ, CR – Крым; * – по данным Красной книги [2019]; ** – новые данные для Центральной зоны; *** – на основе опубликованных данных [Ишин, 2012] и собственных сборов.

Myrmosa atra atra and *Paramyrmosa brunnipes* are recorded from the forest steppes. These species may occur in true steppes also because they are widely distributed in the European part of Russia.

Three species of genus *Dasylabris*: *D. adversa*, *D. regalis* и *D. maura sungora* occur in true steppes only. For these species Belgorod Region is a northern border of their distribution; furthermore *D. maura sungora* did not observed last time which may indicate a reduction in the range of this species.

Myrmilla glabrata, *Smicromyrme rufipes*, *S. sicanus*, *Nemka viduata viduata* and *Ronisia brutia brutia* habit in the forest steppes and true steppes. For three latter species Belgorod Region is a northern border their distribution; *N. viduata viduata* and *S. sicanus* penetrate northward thanks to unique biotopes along the Oskol River.

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