

Contribution to the spider fauna (Arachnida: Aranei) of Russia, new records from Moscow Area

Дополнение к фауне пауков (Arachnida: Aranei) России, новые находки из Московской области

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КЛЮЧЕВЫЕ СЛОВА: Aranei, Araneae, Arachnida, фауна, пауки, новые находки, Московская область, средняя полоса России, Приокско-Террасный заповедник.

ABSTRACT. 22 spider species are reported as the first records in Moscow Area (Russia), two of which are new also for the fauna of Middle Russia (*Panatomops inconspicuus* (Miller et Valesova, 1964)) or for the Russian Federation in general (*Pardosa saltans* Töpfer-Hofmann, 2000). The mentioned species represent families Araneidae (1 sp.), Dictynidae (1 sp.), Gnaphosidae (2 sp.), Linyphiidae (5 sp.), Liocranidae (3 sp.), Lycosidae (2 sp.), Miturgidae (2 sp.), Salticidae (2 sp.), Theridiidae (1 sp.), and Thomisidae (3 sp.). Comments with species distribution and early records from the country, as well as taxonomical and biological notes are attached to the list.

РЕЗЮМЕ. Приведены 22 вида пауков, впервые отмеченные в Московской области (Россия), два из которых новые для фауны средней полосы (*Panatomops inconspicuus* (Miller et Valesova, 1964)) или Российской Федерации в целом (*Pardosa saltans* Töpfer-Hofmann, 2000). Указанные виды относятся к следующим семействам: Araneidae (1 вид), Dictynidae (1 в.), Gnaphosidae (2 в.), Linyphiidae (5 в.), Liocranidae (3 в.), Lycosidae (2 в.), Miturgidae (2 в.), Salticidae (2 в.), Theridiidae (1 в.), Thomisidae (3 в.). Список снабжен комментариями о распространении видов и их находках в стране, а также заметками по таксономии и биологии.

Introduction

Spiders are found in all the terrestrial ecosystems without exception, and it is difficult to overestimate their importance for nature in general. However, this group is still wrongly paid little attention. Even in such quite well-studied region as the Moscow Area, the knowledge of spider fauna should not be considered exhaustive. About 450 species are reported to date

from here, while a real number might be twice more according to experts (Mikhailov, Tanasevitch, pers. comm.). The regular studies was carried out in a few central localities: Zvenigorod, Solnechnogorsk, and Losinoostrovsky districts [Mikhailov, 1983; Seyfulina, 2008; Tanasevitch, 2008, respectively]. In the southern part of region, some spider material was gathered among other invertebrates by pitfall trapping (Serpukhov District). The references to this unpublished data were given in the Spider catalogue of the Moscow Area [Mikhailov, 1983]. The material for present study was collected in the same locality during three-years spider fauna inventory in the Prioksko-Terrasny Nature Reserve (e.g. Seyfulina, 2015a). The place is especially interesting from the point of view of chorology as it is considered to be the most northern locality of steppe plants on the Central Russian Upland [Smirnov, 1958]. For example, it was shown, the spider assembly in the small patches (about 1.5 ha) with typical steppe plants totally surrounded by the forest has distinct features of steppe community [Seyfulina, 2015b].

Material and Methods

Spiders for this study were collected by the author in main types of habitats of the Prioksko-Terrasnyi State Biosphere Reserve in 2014–2016. The Reserve is situated in the south of Moscow Area (in 100 km distance from Moscow) near Oka River with approximate location N 54°52' E 37°36' (Fig. 1). It covers the territory about 50 sq. kilometers and contains different types of forest (oak, spruce, pine, birch, mixed), dry and lowland meadows, steppe patches, small lakes and sphagnum bogs. Sampling was performed in all types of this biotopes; the interesting specimens mentioned below were found in some of them. These are steppe plot, dry meadow, lowland meadow, small-leaved for-



Fig. 1. Map of Moscow Area and situation of study site (marked by a square).

Рис. 1. Карта Московской области и расположение места исследования (отмечено квадратом).

est, broad-leaved forest, mixed forest, spruce forest. The material was mainly got by sweeping, pitfall trapping, sifting and by hands. All specimens are collected by the author and kept in the Reserve Spider Collection. Basic locality data for all labels listed herein are as follows: RUSSIA, Moscow Area, Serpukhov District, Prioksko-Terrasnyi Nature Reserve. Abbreviations: p.t. — pitfall traps; s.l. — same locality.

Description of sampling sites

The steppe meadow is located in 1.2 km distance from Oka River in the highly protected area named the Doly Tract. Vegetation is represented by feather-grass *Stipa pennata* L., fescue *Festuca valesiaca* Schleich. ex Gaud., purple-stem catstail *Phleum phleoides* (L.) H. Karst., Russian fritillaria *Fritillaria ruthenica* Wickstr. and other steppe flora. It is totally surrounded with the green moss pine forest. The **lowland meadow** is situated on the second terrace of Oka River in 240 m from the water edge and in 3 km from the steppe site. The examined part of flood-lands have not been inundated for last ten years. The meadow contains rich motley grass and borders with pine forest (with considerable deciduous admixture) from three sides. The **upland (dry) meadow** is located in 4.5 km distance from the river bank and lowland meadow and in 5 km from

the steppe one. This plot is occupied by gramineous and motley grass. Mixed birch and spruce forest joins to the grassland from two directions.

The **deciduous forest**, as the small-leaved one, is essentially a mixed wood with some number of the conifers. We investigated the forest with an oak prevalence (*Quercus robur* L.). The **small-leaved forest** is dominated by birch (*Betula* spp.) and partly linden (*Tilia cordata* Mill.). In the **mixed forest**, oaks and a variety of small-leaved species grow; pine (*Pinus sylvestris* L.) prevails among the conifers. Common spruce (*Picea abies* (L.) Karst) prevails in the **composite spruce forest**. This woodland was quit lighted due to the eight-spined engraver invasion (*Ips typographus* L.) happened in 2010–2011 and further withering of the trees.

Results and discussion

In total, 245 spider species of 23 families were registered during the study (full list see in Seyfulina, 2015b, 2016). Twenty two of them new for the fauna of Moscow Area are listed below. They represent families Araneidae (1 sp.), Dictynidae (1 sp.), Gnaphosidae (2 sp.), Linyphiidae (5 sp.), Liocranidae (3 sp.), Lycosidae (2 sp.), Miturgidae (2 sp.), Salticidae (2 sp.), Theridiidae (1 sp.), and Thomisidae (3 sp.). Besides that,

Pardosa saltans Töpfer-Hofmann, 2000 is reported for the first in the Russian and *Panamomops inconspicuus* (Miller et Valesova, 1964) reported as a new species for the fauna of Middle Russia.

List of species

ARANEIDAE

Araniella opisthographa (Kulczyński, 1905)

A. o.: Heimer, Nentwig, 1991: 78, f. 176.

A. o.: Almquist, 2005: 154, f. 162a–g.

MATERIAL EXAMINED. 2 ♂♂, 19 block, dry meadow, N 54°53.670' E 37°38.635', sweeping, 28.05.2014, 14.06.2014; 1 ♂, s.l., mixed forest, N 54°53.655' E 37°38.602', on vegetation, 14.06.2014.

BIOLOGICAL NOTES. On low vegetation (tall grass, dwarf shrubs, bushes, lower branches of trees). Often display their nets almost horizontally over the large leaf. Prefer edges of woodlands. The specimens reported here were found in standard habitats.

COMMENTS. The first record in Moscow Area (see also Seyfulina, 2015b). Distributed from Europe to Middle Asia. In Russia, reported from Caucasia, Altai, Ural (Orenburg Area: Esyunin et al., 2007). Besides that, known from Leningrad Area [Oliger, 1995], Belgorod Area [Ponomarev, Polchaninova, 2006], Ulyanovsk Area [Krasnobaev, 2003], Saratov Area [Belosludtsev, Krasnobaev, 2002], Samara Area [Krasnobaev, Matveev, 1993].

DICTYNIDAE

Argenna subnigra (O. Pickard-Cambridge, 1861)

A. s.: Almquist, 2006: 304, f. 267a–f.

A. s.: Kuzmin, Esyunin, 2016: 30, f. 1–8.

MATERIAL EXAMINED. 1 ♀, 40 block, the second terrace lowland meadow, N 54°51.287' E 37°39.125', sweeping, 22.05.2014; 1 ♂, s.l., p.t., 11–21.05.2014; 11 ♂♂, s.l., p.t., 21–31.05.2014; 2 ♂♂, s.l., 34 block, steppe meadow, N 54°51.316' E 37°36.247', p.t., 11–21.05.2014; 2 ♀♀, s.l., sweeping, 28.05.2014; 5 ♂♂, s.l., p.t., 31.05.2014; 1 ♀, s.l., sweeping, 10.06.2015; 5 ♂♂, s.l., p.t., 31.05–10.06.2015; 1 ♂, same locality and habitat, p.t., 15–25.06.2015; 2 ♂♂, s.l., 19 block, dry meadow, N 54°53.670' E 37°38.635', p.t., 21–31.05.2014.

BIOLOGICAL NOTES. In open habitats on the ground, in leaf litter, under stones. Prefers sunny localities. We found this species in meadows only. Most of specimens were caught in steppe meadow, which is characterized by vegetation cover thinner and humidity lesser than in other grasslands studied. The minimal numbers found in upland meadow with comparably high moisture.

COMMENTS. The first record in Moscow Area. Not frequent species, distributed in Palearctic. Northernmost locality in European Russia registered in Leningrad Area [Oliger, 1996]. Also known from Ural, West Siberia (Tyumen, Tomsk, Kemerovo Area), Chernozem Zone (Belgorod Area: Ponomarev, Polchaninova, 2006) and some more southern regions (e.g. Stavropol Prov., Volgograd and Rostov areas). Report-

ed from Middle Volga Region (Penza Area: Pyatin, 1988; Ulyanovsk and Samara areas, Mariy-El, Chuvashia: Krasnobaev, 2004), as well as from Kirov Area [Esyunin et al., 2011].

GNAPHOSIDAE

Drassodes pubescens (Thorell, 1856)

D. p.: Esyunin, Tuneva, 2002: 174, f. 26–32.

D. p.: Kovblyuk, 2008: 18, f. 5.1–3.

MATERIAL EXAMINED. 2 ♂♂, 40 block, the second terrace lowland meadow, N 54°51.287' E 37°39.125', p.t., 11–31.05.2014; 2 ♂♂, s.l., 34 block, steppe meadow, N 54°51.316' E 37°36.247', p.t., 21–31.05.2014; 2 ♂♂, s.l., p.t., 29.05–10.06.2015; 2 ♂♂ 1 ♀, s.l., p.t., 10–25.06.2015; 1 ♂, s.l., p.t., 25.06–10.07.2015.

BIOLOGICAL NOTES. Occurs in different nature zones from tundra to steppes, do not permeating to arid landscapes. Occupies various open and semiopen habitats, active on soil surface mostly. In our study, this species clearly preferred the most dry grassland (steppe meadow).

COMMENTS. The first record in Moscow Area. Palearctic species, reported from many localities in Russia. Distributed from Kareliya and Yamalo-Nenets Distr. southward to Caucasia and eastward to Transbaikalia. Repeatedly found in Middle Russia, in particular: Ryazan Area [Osipov, 2004], Ivanovo Area [Uzenbaev, Okulova, 1996], Mariy-El, Chuvashia, Tatarstan, and Samara Area [Krasnobaev, 2004], Kursk Area [Pichka, 1984], Lipetsk Area [Polchanonova, 2014], Belgorod Area [Ponomarev, Polchaninova, 2006], Saratov Area [Martynovchenko et al., 2010], Penza Area [Polchanonova, 2008], Ulyanovsk Area [Aleksenko, Kuzmin, 2010], Mordovia [Mikhailov, Trushina, 2013], Leningrad Area [Oliger, 1996].

Zelotes azsheganovae Esyunin et Efimik, 1992

Z. a.: Esyunin, Efimik, 1992: 139, f. 1–5.

Z. a.: Marusik, Hippa, Koponen, 1996: 36, f. 71–74.

Z. a.: Ponomarev, Tsvetkov, 2006: 11, f. 20–21.

Z. a.: Evtushenko, Polchaninova, Esyunin, 2015: 305, f. 2.1–9.

MATERIAL EXAMINED. 4 ♂♂ 1 ♀, 40 block, the second terrace lowland meadow, N 54°51.287' E 37°39.125', p.t., 11–21.05.2014; 1 ♂, s.l., p.t., 21–31.05.2014; 1 ♂ 2 ♀♀ 29.08–8.09.2014; 1 ♀, s.l., p.t., 8–18.09.2014; 1 ♂, s.l., 34 block, steppe meadow, N 54°51.316' E 37°36.247', p.t., 11–21.05.2014; 1 ♂, s.l., p.t., 10–25.06.2015.

BIOLOGICAL NOTES. Although this epigeic species was originally described from steppe zone, it inhabit mainly forest-steppe zone [Evtushenko et al., 2015]. Occurs more often in open mild wet grass biotopes. In our study, this species occurred in two grasslands: steppe plot and flood-free lowland meadow with evident preference for the last. Hence it chooses more humid of two suitable habitats.

COMMENTS. The first record in Moscow Area (see also Seyfulina, 2015b). Distributed from Eastern Europe to Western Siberia. Described recently by Esyunin & Efimik [1992] from Chelyubinsk Area and Bashkortostan. Than this species was found in other locali-

ties of Ural (e.g. Tuneva, Esyunin, 2002) and in South-western Siberia (Altai, Novosibirsk Area, Northern Kazakhstan: Marusik et al., 1996). Some specimens were discovered in previous collections under wrong names (e.g. *Z. apricorum* (L. Koch, 1876) in Polchaninova, 2003b, per Polchaninova, 2009a) or described as a new species (*Zelotes arzanovi* Ponomarev et Tsvetkov, 2006, synonymy in Mikhailov, 2010). Up to date found in many localities of East European Plain: Ukraine, Krasnodar Prov., Middle Russia. The letter includes Kursk, Belgorod, Lipetsk, Kirov, Penza areas [Evtushenko et al., 2015], Ulyanovsk Area [Kuzmin, 2015].

LINYPHIIDAE¹

Abacoproeces saltuum (L. Koch, 1872)

A. s.: Palmgren, 1976: 40, f. 8.20–24.

A. s.: Heimer, Nentwig, 1991: 110, f. 316.

MATERIAL EXAMINED. 9 ♂♂ 5 ♀♀, 41 block, oak forest, N 54°51.280' E 37°40.237', p.t., 21–31.05.2014.

BIOLOGICAL NOTES. Prefer dry and warm localities [Nentwig et al., 2017]. The only habitat we met given species: dark coniferous and deciduous nemoral forest with *Quercus robur* L. prevalence. Leaf-litter-dwelling spiders.

COMMENTS. The first record in Moscow Area (see also Seyfulina, 2015b). Distributed from Europe to Baikal, reported from many localities across Russia from Kola Peninsula to Black Sea steppes and eastward to Buryatia. Recorded throughout Middle Russia: Ryazan Area and Tatarstan [Esjunin et al., 1993], Kursk and Voronezh areas [Pichka, 1965], Chuvashia, Mariy-El, and Samara Area [Krasnobaev, 2004], Kirov Area [Esyunin, Tselishcheva, 2009], Ulyanovsk Area [Kuzmin, Alekseenko, 2011], Mordovia [Mikhailov, Trushina, 2013], Lipetsk Area [Polchaninova, 2014], Belgorod Area [Polchaninova, 2003], Leningrad Area [Oliger, 2010].

Ceratinella major Kulczyński, 1894

C. m.: Bosmans, Janssen, 1982: 285, f. 5–6, 9.

C. m.: Heimer, Nentwig, 1991: 134, f. 382.

MATERIAL EXAMINED. 1 ♀, 34 block, steppe meadow, N 54°51.316' E 37°36.247', p.t., 11–21.05.2014; 2 ♂♂, s.l., 19 block, dry meadow, N 54°53.670' E 37°38.635', p.t., 11–21.05.2014; 1 ♂, s.l., 24 block, spruce forest, N 54°52.584' E 37°37.286', p.t., 29.04–15.05.2015; 1 ♀, s.l., sweeping, 8.07.2015; 2 ♀♀, s.l., sweeping, 16.07.2015.

BIOLOGICAL NOTES. According to Nentwig et al. [2017], biology unknown. On our data, this species shows relatively high ecological plasticity similarly to more abundant *C. brevis* (Wider, 1834). The latter species inhabited all types of forests studied excluding green-moss pine forest, as well as in all grasslands excluding steppe plot [Seyfulina, 2015]. *C. major* were met in cleared spruce forest (most specimens), steppe plot, upland meadow. In forest, it collected mostly on low vegetation (in contrast to *C. brevis*). It may be

supposed that given species requires more dry and sunny conditions than congeneric species.

COMMENTS. The first record in Moscow Area. Wide distributed, but rare Palearctic species. Reported from Middle Russia (Yaroslavl Area: Fedotov, 1915; Leningrad Area: Kharitonov, 1928), as well as from Ural (Perm Prov.: Esyunin, 1991; Sverdlovsk Area: Ukhova, Olshvang, 2014). Found in Latvia [Sternbergs, 1988] and Ukraine [e.g. Mikityuk, 1991].

Diplocephalus dentatus Tullgren, 1955

D. d.: Heimer, Nentwig, 1991: 142, f. 397.

D. d.: Thaler, 1991: 166, f. 1–3.

MATERIAL EXAMINED. 1 ♂ 1 ♀, 40 block, the second terrace lowland meadow, N 54°51.287' E 37°39.125', p.t., 11–21.05.2014; 13 ♂♂, s.l., 19 block, dry meadow, N 54°53.670' E 37°38.635', p.t., 11–21.05.2014; 1 ♂, s.l., 5 block, small-leaved forest, N 54°54.418' E 37°34.367', p.t., 21–31.05.2014.

BIOLOGICAL NOTES. Soil-dwelling species. Nearly all specimens were collected in upland meadow (mostly close to ecotone with birch forest). Rather prefers shadow conditions in open habitats.

COMMENTS. The first record in Moscow Area. Rarely found species, distributed in Europe. In Russia, reported recently only from two localities: Kursk Area [Polchaninova, 2009b] and Mordovia [Mikhailov, Trushina, 2013]. Known also from some neighbor states: Estonia [Vilbaste, 1980], Lithuania [Rėlys et al., 2002], Belarus [e.g. Zhukovets, 1992], and Ukraine [e.g. Gnelitsa, 2001].

Erigonoplus foveatus (Dahl, 1912)

Mecynargus f.: Heimer, Nentwig, 1991: 240, f. 646.

M. f.: Gnelitsa, 2011: 61, f. 12–16.

E. f.: Hollá et al., 2016: 81, f. 2a–c, 3a–d, 4a–b.

MATERIAL EXAMINED. 1 ♂, 40 block, the second terrace lowland meadow, N 54°51.287' E 37°39.125', p.t., 21–31.05.2014.

BIOLOGICAL NOTES. Thermophilic species, preferred open grass biotopes with sunny and dry conditions [Hollá et al., 2016; Nentwig et al., 2017]. Found in meadows, fields, steppe plots, peat bogs, etc. Flood-free lowland forb meadow in our case corresponds with this data.

COMMENTS. The rare European species. Found for the first in Moscow Area and for the second time in Middle Russia. Before registered in the southern part of Ulyanovsk Area by Tanasevitch & Alekseenko [2012]. Other finds in European Russia were in Karelia [Kamaev, 2008] and in Caucasus (Karachay-Cherkessia: Tanasevitch, 2011). Registered in Western Siberia (Kemerovo and Tomsk areas: Romanenko, 2007) and in Ural mountains (Chelyabinsk Area: Tuneva, Esyunin, 2012). Previously reported from the last locality as *Erigonoplus glopipes* (L. Koch, 1872) [Eskov, Marusik, 1994; Esyunin et al., 1995], misidentified per Tuneva & Esyunin [2012].

Panamomops inconspicuus (Miller et Valesova, 1964)

P. i.: Heimer, Nentwig, 1991: 228, f. 611.

¹All linyphiid specimens are verified by Dr A.V. Tanasevitch.

P. i.: Thaler, 1993: 646, f. 6.

MATERIAL EXAMINED. 5 ♂♂, 34 block, steppe meadow, N 54°51.316' E 37°36.247', p.t., 11–21.05.2014.

BIOLOGICAL NOTES. Presumably thermophilic spiders [Nentwig et al., 2017]. Soil-dwelling. Described from limestone steppe, later found from different similar localities (sunny and covered with steppe plants). We also collected it in steppe plot only.

COMMENTS. Rarely found European species. Reported for the first for Moscow Area and Middle Russia. Known from a few localities on the Russian Plain South-East (Rostov Area: Ponomarev, 2008, etc.) and from Western Siberia (Kemerovo and Tomsk areas: Romanenko, 2007).

LIOCRANIDAE

Agroeca cuprea Menge, 1873

A. c.: Grimm, 1986: 35, f. 31, 37–38.

A. c.: Heimer, Nentwig, 1991: 390, f. 1016.

MATERIAL EXAMINED. 1 ♀, the second terrace lowland meadow, N 54°51.287' E 37°39.125', p.t., 11–21.05.2014; 1 ♀, s.l., 34 block, steppe meadow, N 54°51.316' E 37°36.247', p.t., 21–31.05.2014; 1 ♂, s.l., p.t., 8–18.09.2014; 3 ♂♂, s.l., p.t., 16.09–2.10.2015; 1 ♂ 1 ♀, s.l., p.t., 2–16.10.2015; 1 ♀, s.l., p.t., 16.10–2.11.2015.

BIOLOGICAL NOTES. Epigeic spiders inhabited dry localities (steppe, rocks, dry meadows and forests, etc.). Almost all our specimens were found in steppe plot.

COMMENTS. Registered for the first in Moscow Area (see also Seyfulina, 2015b). Distributed from Europe to Middle Asia, found in Southern and Central European Russia, Ural, Western Siberia. The easternmost record of this species (Krasnoyarsk Area) discovered by Holm [1973] under survey of materials collected in 19th century. Middle Russia localities: Kursk and Belgorod areas [Polchaninova, 2004], Lipetzka Area [Polchaninova, 2014], Voronezh Area [Pichka, Skufyin, 1981], Saratov Area [Martynovchenko et al., 2010], Ulyanovsk Area [Kuzmin, Alekseenko, 2011], Penza Area [Polchaninova, 2008], Mariy-El, Tatarstan, and Samara Area [Krasnobaev, 2004].

Agroeca lusatica (L. Koch, 1875)

A. l.: Grimm, 1986: 30, f. 23, 26–27.

A. l.: Heimer, Nentwig, 1991: 390, f. 1017.

MATERIAL EXAMINED. 1 ♂, 19 block, dry meadow, N 54°53.670' E 37°38.635', p.t., 11–21.05.2014; 1 ♂, s.l., 34 block, steppe meadow, N 54°51.316' E 37°36.247', p.t., 16.10–2.11.2015.

BIOLOGICAL NOTES. Prefers dry and sunny conditions in open habitats and pine forests [Nentwig, 2017]. Our finds in steppe and upland meadows do not contradict this information.

COMMENTS. The first record in Moscow Area. Widely distributed from Europe to Kazakhstan, but very rarely found. Known from Ural, Kola Peninsula, South of Russian Plain, Western Siberia. In Middle Russia recorded in Kursk and Belgorod areas [Polchaninova, 2004], Saratov Area [Martynovchenko et al., 2010], Penza Area [Polchaninova, 2008], Samara

Area [Krasnobaev, Matveev, 1993], Leningrad Area [Oliger, 2004].

Liocranoeca striata (Kulczyński, 1882)

Agraecina s.: Heimer, Nentwig, 1991: 388, f. 1011.

L. s.: Wunderlich, 1999: 68, f. 1–7.

L. s.: Ponomarev, Belosludtsev, Dvadenko, 2008: 173, f. 12.

MATERIAL EXAMINED. 2 ♂♂, 19 block, dry meadow, N 54°53.670' E 37°38.635', p.t., 11–21.05.2014; 9 ♂♂, s.l., p.t., 21–31.05.2014; 1 ♂, s.l., p.t., 1–2.06.2016; 11 ♂♂, s.l., small-leaved forest, N 54°54.418' E 37°34.367', 11–21.05.2014; 8 ♂♂, the s.l., 21–31.05.2014; 2 ♂♂, s.l., oak forest, N 54°51.280' E 37°40.237', 11–21.05.2014; 1 ♂, s.l., 21–31.05.2014.

BIOLOGICAL NOTES. Occurs in dump habitats and deciduous forests [Nentwig, 2017]. More than a half of our specimens were caught in birch and linden forest. Another large part was collected in upland meadow (especially near to birch forest ecotone), and minimal quota was found in oak forest. There was no pine, nor spruce woodland, nor mixed forest among recorded habitats. Seemingly, areas with less developed litter are more preferable for this species. *L. striata* were met during spring time only, whereas *Agroeca* species including abovementioned kept activity till late autumn.

COMMENTS. The first record in Moscow Area (see also Seyfulina, 2015b). Distributed in Europe, reported from Chernozem Zone (Kursk Area: Polchaninova, 2001; Belgorod Area: Ponomarev, Polchaninova, 2006), as well as from many localities in Southern European Russia and from some localities of South-Western Siberia.

LYCOSIDAE

Pardosa saltans Töpfer-Hofmann, 2000

P. lugubris Tongiorgi, 1966: 296, f. 56–59 (misidentified).

P. s.: Töpfer-Hofmann, in Töpfer-Hofmann, Cordes, von Helversen, 2000: 269, f. 26–27.

P. s.: Almquist, 2005: 218, f. 216a–e.

P. s.: Aakra et al., 2016: 28, f. 23A–D.

MATERIAL EXAMINED. 3 ♂♂, 24 block, spruce forest, N 54°52.584' E 37°37.286', p.t., 10–25.06.2015.

BIOLOGICAL NOTES. Forest epigeic species, active in leaf litter. Occurs also on forest edges. Reside syntopically with closely-related species, having the same phenology and ecological preference [Töpfer-Hofmann et al., 2000]. The courtship behavior provides the only isolation mechanism in given case. In our study, *P. saltans* have been found only in spruce forest so far (syntopically with *P. lugubris* (Walckenaer, 1802), inhabited all forests studied).

COMMENTS. The first record in Russian Federation. Newly described species with European range. To the moment, registered in many of European countries including one neighbor to Russia — Belarus [Ivanov, 2013].

N.B. *P. saltans* belongs to *Pardosa lugubris*-group, from which it was distinguished by Töpfer-Hofmann. The group is characterized by high similarity between

species. *P. saltans* can be easily misidentified as *P. lugubris* in earlier publications on European Russia.

Pirata tenuitarsis Simon, 1876

P. t.: Logunov, 1992: 61, f. 6.

P. t.: Nadolny, Kovblyuk, 2011: 188, f. 5, 9, 15, 109–113, 117–123, 125.

P. t.: Omelko, Marusik, Koponen, 2011: 213, f. 44–45.

MATERIAL EXAMINED. 1 ♀, 19 block, dry meadow, N 54°53.670' E 37°38.635', p.t., 11–21.05.2014.

BIOLOGICAL NOTES. Leave near still or slowly water [Nentwig et al., 2017] or in other dump habitats. Our specimens collected in dry (upland) meadow, occupied by gramineous and motley grass not far from birch forest edge. The nearest water sources are situated at several hundreds meters distance.

COMMENTS. The first record in Moscow Area (see also Seyfulina, 2015b). Distributed from Europe to Mongolia, reported from Karelia, Ural (Chelyabinsk, Orenburg Area), Crimea. Within Middle Russia, found in Belgorod Area [Ponomarev, Polchaninova, 2006], Tatarstan [Mel'nichnova, Bespyatyh, 2009], Chuvashia [Krasnobaev, 2004], Leningrad Area [Oliger, 1996].

MITURGIDAE

Zora armillata Simon, 1878

Z. a.: Heimer, Nentwig, 1991: 456, f. 1200.

Z. a.: Aakra et al., 2016: 37, f. 32A, C, E, G.

MATERIAL EXAMINED. 1 ♂, 40 block, the second terrace lowland meadow, N 54°51.287' E 37°39.125', p.t., 21–31.05.2014; 2 ♂♂, s.l., 24 block, spruce forest, N 54°52.584' E 37°37.286', p.t., 29.05–10.06.2015, 25.06–6.07.2015.

BIOLOGICAL NOTES. Usually associated with wet and moist habitats [Almquist, 2006]. We found this species in birch and linden forest, as well as in flood-free lowland meadow, that may be assess as moderate in humidity.

COMMENTS. The first record in Moscow Area. Distributed in Europe with some records in Middle Asia (Kyrgyzstan: Zonshtein et al., 1996) and Western Siberia (Altai: Volkovskiy, Romanenko, 2005). Reported from Ural (Chelyabinsk Area) and Southern European Russia (Rostov Area, Dagestan). The northernmost locality in Russia registered in Leningrad Area [Oliger, 1995, 1996]. Other localities in the country: Bryansk Area [Esjunin et al., 1993], Penza Area [Polchaninova, 2008], Ulyanovsk Area [Krasnobaev, 2004], Saratov Area [Tkachev, Martynovchenko, 2011], Kursk Area [Pichka, 1984], Belgorod Area [Ponomarev, Polchaninova, 2006], Voronezh Area [Pichka, 1967].

Zora silvestris Kulczyński, 1897

Z. s.: Heimer, Nentwig, 1991: 454, f. 1193.

Z. s.: Almquist, 2006: 446, f. 386a–g.

MATERIAL EXAMINED. 5 ♂♂, 40 block, the second terrace lowland meadow, N 54°51.287' E 37°39.125', p. t., 21–31.05.2014; 2 ♂♂, s.l., 34 block, steppe meadow, N 54°51.316' E

37°36.247', p.t., 21–31.05.2014; 1 ♂, s.l., 41 block, oak forest, N 54°51.280' E 37°40.237', p.t., 11–21.05.2014.

BIOLOGICAL NOTES. On Almquist's opinion [2006], this species requires less humid conditions than *Zora armillata*. Our date supports this position: apart from lowland meadow, the specimens were found in more dry steppe plot, as well as in oak forest, which yields to small-leaved forest in moisture.

COMMENTS. The first record in Moscow Area (see also Seyfulina, 2015b). Widely distributed from Europe to Middle Asia, but not frequent. Known from Caucasia, Ural, Altai. The most northern locality registered in Leningrad Area [e.g. Oliger, 1996]. Found also in Kursk Area [Polchaninova, 2009], Belgorod Area [Ponomarev, Polchaninova, 2006], and in Middle Volga Region [Krasnobaev, 2004].

SALTICIDAE

Phlegra fasciata (Hahn, 1826)

P. f.: Logunov, Koponen, 2002: 264, f. 3, 8–10.

P. f.: Azarkina, 2004: 87, f. 118, 120–121.

MATERIAL EXAMINED. 1 ♂ (subadult), 34 block, steppe meadow, N 54°51.316' E 37°36.247', p.t., 25.06–6.07.2015; 1 ♂, s.l., 19 block, on the road, N 54°53.713' E 37°38.676', 1.06.2016.

BIOLOGICAL NOTES. Inhabits dry and sunny localities, active in grass, on ground and stones. We found it in the very sunny and dry of studied sites. One specimens was observed jumping along the old asphalted road. In general, this species is more typical further southern.

COMMENTS. The first record in Moscow Area. Distributed in Palearctic, recorded in many localities of Russia from Crimea to Yakutia and Maritime Province. The nearest finds to Moscow Area made in Ryzan Area [Osipov, 2004]. Reported also from Leningrad Area [Oliger, 1996], Chernozem Zone (Belgorod Area: Ponomarev, Polchaninova, 2006; Lipetsk Area: Polchaninova, 2014; Voronezh Area: Pichka, Skufyin, 1981) and Middle Volga Region (Tatarstan: Gaynutdinova, 2005; Ulyanovsk Area: Kuzmin, Alekseenko, 2011, Penza Area: Polchaninova, 2015, Samara Area: Krasnobaev, Matveev, 1993). Other close localities: Kirov Area [Garkusha, 1980], Mordovia [Mikhailov, Trushina, 2013], Mariy-El [Krasnobaev, 2004].

Talavera aequipes (O. Pickard-Cambridge, 1871)

Euophrys a.: Fuhn, Gherasim, 1995: 88, f. 36A–F.

T. a.: Logunov, Kronstedt, 2003: 1136, f. 13, 15–16, 29, 38, 44, 53, 118, 122–132, 134–136.

T. a.: Wunderlich, 2008: 725, f. 3–8.

MATERIAL EXAMINED. 1 ♂, 34 block, steppe meadow, N 54°51.316' E 37°36.247', p.t., 29.05–10.06.2015.

BIOLOGICAL NOTES. Similar with privies species in biology. Also attracted by partly sandy areas [Nentwig et al., 2017]. In our study, the singleton was found in steppe meadow.

COMMENTS. The first record in Moscow Area. Distributed in Palearctic mostly in temperate areas [Nentwig et al., 2017]. Reported from many localities

throughout Russia, both southern (e.g. Caucasia, Rostov Area) and northern (Murmansk Area, Yakutia). Known from Mariy-El, Samara and Ulyanovsk areas [Krasnobaev, 2004], Penza Area [Polchaninova, 2008], Kursk and Belgorod areas [Polchaninova, 2004], Voronezh Area [Pichka, Skufyin, 1981], Saratov Area [Martynovchenko et al., 2010].

THERIDIIDAE

Theridion pinastri L. Koch, 1872

Th. p.: Heimer, Nentwig, 1991: 306, f. 819.

Th. p.: Almquist, 2005: 103, f. 125a–f.

MATERIAL EXAMINED. 1 ♂, 34 block, steppe meadow, N 54°51.316' E 37°36.247', sweeping, 30.06.2014.

BIOLOGICAL NOTES. Occur on low vegetation and lower branches of trees. Among forests, prefer coniferous ones, among grasslands choose moist meadows. The only specimen was collected on herbage of steppe meadow.

COMMENTS. The first record in Moscow Area. Distributed in Palearctic, reported from Southern European Russia, Ural, Maritime Province. Found in Leningrad Area [Oliger, 1996], Mariy-El and Samara Area [Krasnobaev, Matveev, 1993], Ulyanovsk Area [Aleksenko, Kuzmin, 2010], Tatarstan [Azheganova, Gorshkov, 1973], Saratov Area [Kuzmin, 2015].

THOMISIDAE

Heriaeus graminicola (Doleschall, 1852)

H. hirtus: Tyschchenko, 1971: 114, f. 277 (misidentified).

H. g.: Loerbroks, 1983: 100, f. 2–5, 15.

H. g.: Utochkin, 1985: 112, f. 7, 27–30.

H. g.: Heimer, Nentwig, 1991: 470, f. 1235.

MATERIAL EXAMINED. 1 ♂ 1 ♀, 40 block, the second terrace lowland meadow, N 54°51.287' E 37°39.125', sweeping, 7.06.2014; 1 ♀, s.l., 19 block, dry meadow, N 54°53.670' E 37°38.635', sweeping, 7.06.2014; 1 ♂, s.l., 5 block, N 54°91.166' E 37°57.056', on outer building wall, 13.06.2015.

BIOLOGICAL NOTES. Occurs in dense vegetation of humid places [Nentwig et al., 2017]. Our specimens were collected in herbage of grasslands excluding steppe plot.

COMMENTS. The first record in Moscow Area, the second record in Middle Russia. Distributed from Europe to Middle Asia, registered in some south regions of Russia (Rostov and Astrakhan areas, Crimea). Found in Middle Volga (Ulyanovsk Area: Krasnobaev, 2004; Aleksenko, 2000). Reported from adjacent territories: Ukraine, Belarus, Estonia, Azerbaijan.

N.B. *H. graminicola* was repeatedly confused with *H. hirtus* or *H. mellottei* Simon, 1886 and vice versa in different publications. In general, taxonomy and synonymy of this genus represent a difficult and knotty problem.

Heriaeus hirtus (Latreille, 1819)

H. h.: Loerbroks, 1983: 103, f. 1, 13, 15, 25–28 (♂♀).

H. h.: Roberts, 1995: 157, f.

MATERIAL EXAMINED. 1 ♀, 19 block, dry meadow (“Lagernaya polyana”), N 54°53.801', E 37°38.644', on grass, by hand, 22.06.2014.

BIOLOGICAL NOTES. Occurs on hairy vegetation of open areas. Our singleton was observed in similar conditions.

COMMENTS. The first record in Moscow Area, the second record in Middle Russia (see also Seyfulina, 2015b). Distributed from Europe to Transcaucasia, reported from Bryansk Area [Petrova, 1979] and Crimea [Spassky, 1927]. Also known from Estonia, Ukraine, Moldova, Georgia, Uzbekistan.

Heriaeus oblongus Simon, 1918

H. o.: Azheganova, 1968: 117, f. 254, 297.

H. mellottei: Utochkin, 1985: 109, f. 10, 17–19 (misidentified).

H. m.: Heimer, Nentwig, 1991: 470, f. 1236 (misidentified).

H. m.: Danilov, 1993: 61, f. 4–5 (misidentified).

MATERIAL EXAMINED. 1 ♀, 19 block, dry meadow, N 54°53.670' E 37°38.635', sweeping, 28.05.2014.

BIOLOGICAL NOTES. Consider to be the most common of abovementioned congeneric species, similar to them in habitat preference. Typical for steppe zone, associated with dry and warm localities. We found this species in upland meadow. Some juveniles (*Heriaeus* sp.) were observed in adjacent birch forest edge (several meters inside the woodland).

COMMENTS. The first record in Moscow Area. Distributed in Palearctic, registered in many localities including southern Russia, Ural, eastward to Baikal. Middle Russia points: Ryazan Area [Osipov, 2001], Tatarstan, Ulyanovsk and Samara areas [Krasnobaev, 2004], Saratov Area [Kuzmin, 2015], Mordovia [Timraleev, 1998].

N.B. There were many misidentifications between *H. oblongus* and *H. mellottei* specimens. Loerbroks' suggestion to synonymise these species [1983] was rejected by Ono [1988], who considered *H. oblongus* to be a valid taxon widely distributed in Palearctic eastward to Mongolia or China. Whereas *H. mellottei* Palearctic range was prejudiced. According to Logunov & Marusik [1995], this species occurs in Far East only.

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