

The first records of lithobiid centipedes (Chilopoda: Lithobiomorpha: Lithobiidae) from the Kemerovo Area, southwestern Siberia, Russia

P.S. Nefediev^{1,2,3}, G.Sh. Farzalieva⁴, I.H. Tuf⁵, D.A. Efimov⁶

¹ Altai State University, Lenin Avenue, 61, Barnaul 656049 Russia. E-mail: p.nefediev@mail.ru

² Tomsk State University, Lenin Avenue, 36, Tomsk 634050 Russia.

³ Tigirek State Nature Reserve, Nikitina Street, 111, Barnaul 656049 Russia.

⁴ Perm State University, Bukireva Street, 15, Perm 614600 Russia. E-mail: fgsh@psu.ru

⁵ Palacký University, Šlechtitelů, 27, Olomouc 77900, Czech Republic. E-mail: ivan.tuf@upol.cz

⁶ Kemerovo State University, Krasnaya Street, 6, Kemerovo, 650043, Russia. E-mail: efim_d@mail.ru

ABSTRACT. Based on a small material from the Kemerovo Area, SW Siberia, Russia, the first data on the lithobiid centipede fauna are given from there. Six lithobiid species have been revealed: *Lithobius (Ezembius) ostiacorum* Stuxberg, 1876, *L. (E.) proximus* Sselivanoff, 1880, *L. (E.) sibiricus* Gerstfeldt, 1859, *L. (Monotarsobius) crassipes* L. Koch, 1862, *L. (M.) curtipes* C.L. Koch, 1847 and *L. (M.) fugax* Stuxberg, 1876. Moreover, the genus *Lithobius* Leach, 1814 and two subgenera, *Ezembius* Chamberlin, 1919 and *Monotarsobius* Verhoeff, 1905, and the family Lithobiidae they belong to, are new to the Kemerovo Area as well. The distributions of all species encountered in the study region are mapped.

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KEY WORDS: lithobiomorph centipedes, fauna, new records, Kemerovo Area, Siberia, Russia.

Первые находки многоножек-костянок (Chilopoda: Lithobiomorpha: Lithobiidae) в Кемеровской области (юг Западной Сибири, Россия)

П.С. Нефедьев^{1,2,3}, Г.Ш. Фарзалиева⁴, И.Х. Туф⁵, Д.А. Ефимов⁶

¹ Алтайский государственный университет, проспект Ленина, 61, Барнаул 656049 Россия. E-mail: p.nefediev@mail.ru

² Томский государственный университет, проспект Ленина, 36, Томск 634050 Россия.

³ Государственный природный заповедник «Тигирекский», улица Никитина, 111, Барнаул 656049 Россия.

⁴ Пермский государственный университет, улица Букирева, 15, Пермь 614600 Россия. E-mail: fgsh@psu.ru

⁵ Palacký University, Šlechtitelů, 27, Olomouc 77900, Czech Republic. E-mail: ivan.tuf@upol.cz

⁶ Кемеровский государственный университет, улица Красная, 6, Кемерово 650043 Россия. E-mail: efim_d@mail.ru

РЕЗЮМЕ. По небольшому материалу из Кемеровской области (юг Западной Сибири, Россия) приводятся первые сведения о фауне многоножек-костянок этого региона. Там обнаружено шесть видов: *Lithobius (Ezembius) ostiacorum* Stuxberg, 1876, *L. (E.) proximus* Sseliwanoff, 1880, *L. (E.) sibiricus* Gerstfeldt, 1859, *L. (Monotarsobius) crassipes* L. Koch, 1862, *L. (M.) curtipes* C.L. Koch, 1847 и *L. (M.) fugax* Stuxberg, 1876. Кроме того, род *Lithobius* Leach, 1814 и два подрода, *Ezembius* Chamberlin, 1919 и *Monotarsobius* Verhoeff, 1905, а также семейство Lithobiidae, к которому они принадлежат, также являются новыми для Кемеровской области. Для всех видов выполнено картирование находок в исследуемом регионе.

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КЛЮЧЕВЫЕ СЛОВА: многоножки-костянки, фауна, новые находки, Кемеровская область, Западная Сибирь, Россия.

Introduction

The Kemerovo Area is located in southwestern Siberia and lies between the West Siberian Plain and the South Siberian mountains. It spans about 500 km north to south and 300 km west to east, bordering on the Tomsk Area in the north, the Krasnoyarsk Province in the northeast, the Republic of Khakassia in the east, the Republic of Altai in the south, and the Altai Province and the Novosibirsk Area in the west. The study area is subject to a continental climate, with cold, snowy and long winters, and warm, but short summers. All watercourses in the Kemerovo Area belong to the Ob River Basin, with the Tom River as a major waterway. The vegetation of this territory is diverse, varying from the tundra and alpine meadows in the highlands and *Abies sibirica* and *Populus tremula* woodlands on mountain slopes to forested steppes and steppes over the plains.

Our knowledge of lithobiomorph centipedes of southwestern Siberia is very scarce and incomplete. While it is possible to compile preliminary lists of the regional faunas of Lithobiomorpha for the Novosibirsk, Tyumen, Tomsk and Omsk areas, the Khanty-Mansi Autonomous and Yamalo-Nenets Autonomous regions, the Altai Province, and the Republic of Altai (Gerstfeldt, 1859; Zalesskaja, 1978; Nefediev, 2001; Striganova, Poryadina, 2005; Sergeeva,

2010, 2013; Bukhhalo, Sergeeva, 2012; Bukhhalo *et al.*, 2014; Nefediev *et al.*, 2016, 2017a, b, c, 2018; Dyachkov, 2017b), the Kemerovo Area has hitherto remained a complete lacuna with respect to its lithobiid fauna. Even though a few papers by Titova (1969, 1972a, b) are known on geophilomorph centipedes from this area, there seems to exist neither published data nor material on lithobiid centipedes collected during those surveys. The present paper thus provides a primary inventory of Lithobiidae of the Kemerovo Area.

The distribution maps were composed using QGIS 3.8.0-Zanzibar.

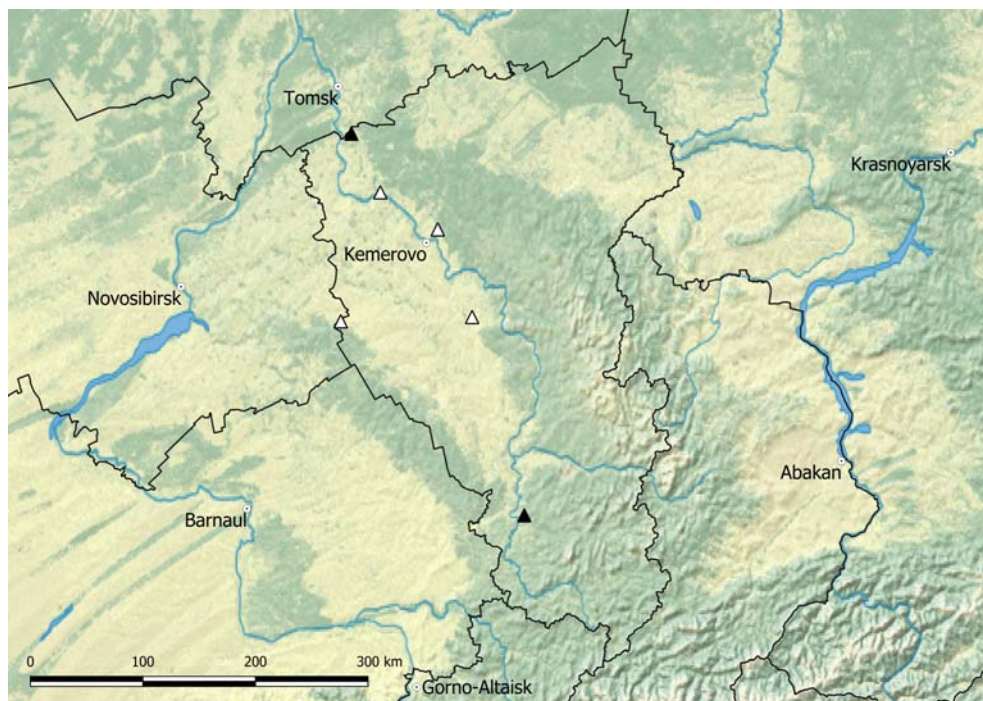
The material treated herein has been deposited in the collections of the Perm State University (PSU) and the Altai State University, Barnaul, Russia (ASU), as indicated below.

Taxonomic part

Class Chilopoda
ORDER Lithobiomorpha
Family LITHOBIIDAE

Lithobius (Ezembius) ostiacorum
Stuxberg, 1876
Map 1.

MATERIAL EXAMINED (all Russia, southwestern Siberia, **Kemerovo Area**). 1 cf.



Map 1. Distribution of *Lithobius (Ezembius) ostiacorum* (white triangle) and *L. (E.) proximus* (black triangle) in the Kemerovo Area.

Карта 1. Распространение *Lithobius (Ezembius) ostiacorum* (белый треугольник) и *L. (E.) proximus* (черный треугольник) в Кемеровской области.

ostiacorum subadult ♀ (PSU-919), **Krapivinskii District**, 5–6 km N of Taradanovo, 54°40'N, 86°41'E, *Populus tremula* forest, in litter and rotten logs, 13.VIII.2017; 1 ♂ (PSU-803), **Yashkino District**, 2–3 km N of Pacha, 55°43'23.8"N 85°29'28.6"E, *Betula pendula* forest, 20.VI.2018; 1 subadult ♀ (PSU-805), **Promyshlennaya District**, N of Salair Ridge, W part of Tanaev Pond, 54°49'N, 85°09'E, *Betula pendula* and *Pinus sylvestris* forest, 160 m a.s.l., 8.VIII.2018; 2 ♀♀ (PSU-802), **Kemerovo District**, near Andreevka, 55°27'11.3"N, 86°13'55.9"E, *Abies sibirica* forest with *Populus tremula* and *Pinus sibirica*, 14.VIII.2018, all leg. D.A. Efimov.

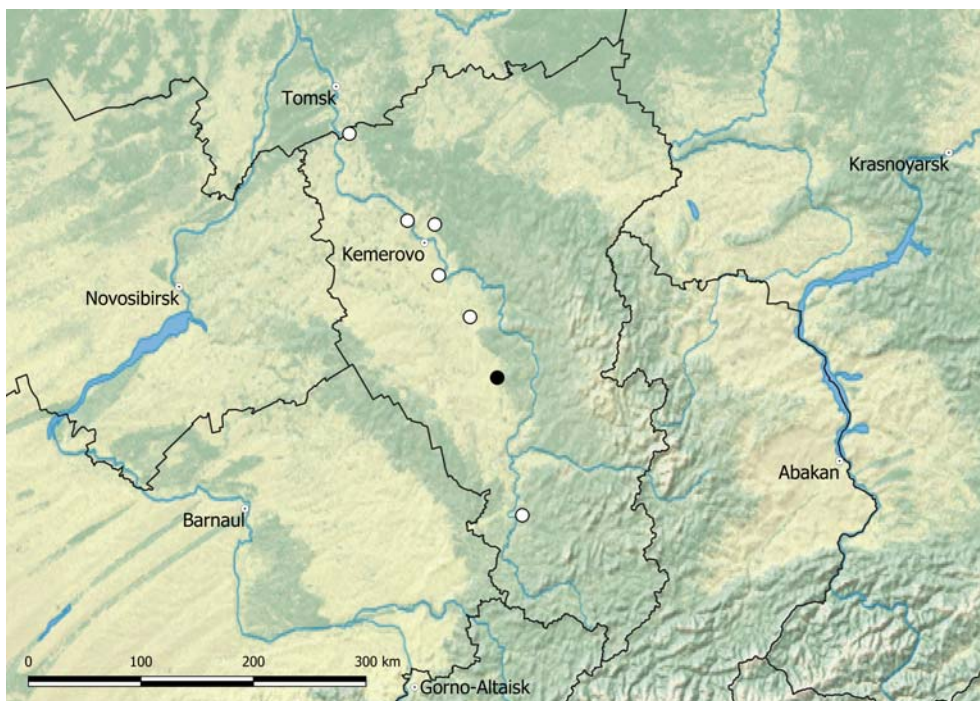
DISTRIBUTION. Originally described from the Yenisei River valley, Krasnoyarsk Province, central Siberia (Stuxberg, 1876a, b), *L. (E.) ostiacorum* was later redescribed from type material (Eason, 1976). The distribution of this species is mostly confined to central and south-

western Siberia (the Krasnoyarsk Province, the Irkutsk Area, the Altai Province and the Republic of Altai) (Eason, 1976; Zalesskaja, 1978; Nefediev *et al.*, 2017a, b, 2018). It is also known from N Mongolia (Poloczek *et al.*, 2016).

REMARK. This species is found in the Kemerovo Area for the first time.

Lithobius (Ezembius) proximus
Sselivanoff, 1880
Map 1.

MATERIAL EXAMINED (all Russia, southwestern Siberia, **Kemerovo Area**). 2 ♀♀ (ASU), **Novokuznetsk District**, ca 8 km E Kuzedeevo, right bank of Malyi Tiosh River, *Tilia sibirica*, on hill slope, by hand, 9.VIII.2000, leg. P.S. Nefediev, A.V. Udaloj; 2 ♂♂, 2 ♀♀, 2 juv. (ASU), same District, ca 7 km E Kuzedeevo, Malyi Tiosh River valley, 9.VIII.2000; 2 ♀♀ (ASU), same District, ca 6 km E Kuzedeevo,



Map 2. Distribution of *Lithobius (Ezembius) sibiricus* (white circle) and *L. (Monotarsobius) fugax* (black circle) in the Kemerovo Area.

Карта 2. Распространение *Lithobius (Ezembius) sibiricus* (белый круг) и *L. (Monotarsobius) fugax* (черный круг) в Кемеровской области.

Tilia sibirica grove, on hill top, by hand, 12.VIII.2000; 1 ♂, 1 ♀, 4 juv. (ASU), **Yashkino District**, near Kosogorovo, *Populus tremula* and *Betula pendula* forest, on mushrooms, 15–18.VIII.2000, all leg. P.S. Nefediev.

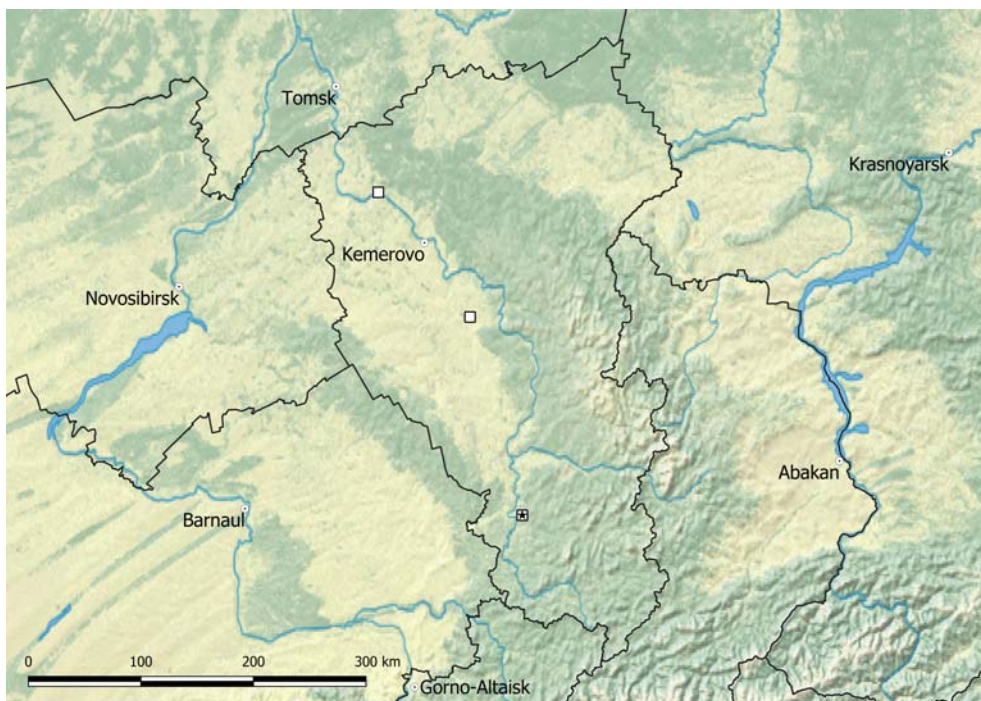
DISTRIBUTION. Originally described from Irkutsk, central Siberia (Sselivanoff, 1880b), *L. (E.) proximus* is widespread in European Russia, Ukraine, the Urals, southwestern and southeastern Siberia, as well as the Far East of Russia, both mainland and insular (Alekseeva, 1974; Kurcheva, 1977; Zalesskaja, 1978; Chorny, Kosyanenko, 2003; Striganova, Poryadina, 2005; Farzalieva, Esyunin, 2008; Bukhhalo, Sergeeva, 2012; Sergeeva, 2013; Bukhhalo *et al.*, 2014; Nefediev *et al.*, 2017a, b, 2018; Vorobiova, 1999; Rybalov, 2002; Vorobiova *et al.*, 2002), and also in Eastern Kazakhstan (Tuf, 2007; Tuf *et al.*, 2010; Dyachkov, 2017b, 2019). The westernmost record of this species is presently the Wigry National Park, Poland (Wytw-

er, Tajovský, 2019).

REMARKS. The above are the first formal records of this species from the Kemerovo Area.

Lithobius (Ezembius) sibiricus Gerstfeldt,
1859
Map 2.

MATERIAL EXAMINED (all Russia, southwestern Siberia, **Kemerovo Area**). 1 ♀ (ASU), **Novokuznetsk District**, ca 8 km E Kuzedeevo, right bank of Malyi Tiosh River, *Tilia sibirica*, on hill slope, soil sampling, 9.VIII.2000, leg. P.S. Nefediev, A.V. Udaloj; 1 ♂, 1 ♀, 1 juv. (ASU), same District, ca 8 km E Kuzedeevo, Malyi Tiosh River valley, *Tilia sibirica*, 9.VIII.2000; 2 ♂♂, 3 ♀♀ (ASU), same District, ca 6 km E Kuzedeevo, *Tilia sibirica* grove, on hill top, soil sampling, by hand, 12.VIII.2000; 1 ♂ (ASU), same District, ca 6 km E Kuzedeevo, *Betula pendula* forest, pitfall



Map 3. Distribution of *Lithobius (Monotarsobius) curtipes* (white square) and *L. (M.) crassipes* (black asterisk) in the Kemerovo Area.

Карта 3. Распространение *Lithobius (Monotarsobius) curtipes* (белый квадрат) и *L. (M.) crassipes* (черная звезда) в Кемеровской области.

traps, 12.VIII.2000; 2 ♂♂ (ASU), same District, near Kuzedeevo Forestry, 12.VIII.2000; 1 ♀ (ASU), **Yashkino District**, near Kosogorovo, *Populus tremula* and *Betula* forest, on mushrooms, 15–18.VIII.2000, all leg. P.S. Nefediev; 1 subadult ♂ (PSU-715), **Krapivinskii District**, floodplain of Beriozovka River, 55°04'N, 86°18'E, forest-steppe, 14.V.2017; 1 ♂ cf. *sibiricus* (PSU-917), same District, 5–6 km N of Taradanovo, 54°40'N, 86°41'E, *Populus tremula* forest, in litter and rotten logs, 13.VIII.2017; 1 ♂, 1 ♀ (PSU-920), **Kemerovo District**, Kriokovo, 55°31'N, 85°52'E, 20.V.2017; 1 ♂ (PSU-801), same District, *Pinus sylvestris* forest planting, 55°29'19.6"N, 86°13'09.5"E, 14.VIII.2018, all leg. D.A. Efimov.

DISTRIBUTION. Originally described by Gerstfeldt (1859) from several localities in Siberia and the Russian Far East, this species was later redescribed by Eason (1976) from one of

Stuxberg's female syntypes of *Lithobius fugax* from Krasnoyarsk. At present, *L. (E.) sibiricus* is widely distributed across the Asian part of Russia (Sselivanoff, 1880a, b, 1881; Attems, 1909; Molodova, 1972; Alekseeva, 1974; Eason, 1976; Kurcheva, 1977; Zaleskaja, 1978; Nefediev, 2001; Vorobiova, 1999; Vorobiova *et al.*, 2002; Nefediev, Aripov, 2013; Nefediev *et al.*, 2016, 2017a, b, 2018; Dyachkov, 2017a, b), also known from northern Mongolia (Polo-czek *et al.*, 2016).

REMARK. *Lithobius (E.) sibiricus* is formally recorded from the Kemerovo Area for the first time.

Lithobius (Monotarsobius) crassipes
L. Koch, 1862
Map 3.

MATERIAL EXAMINED 1 ♂, 1 juv. (ASU), Russia, southwestern Siberia, **Kemero-**

vo Area, Novokuznetsk District, ca 8 km E Kuzedeevo, *Tilia sibirica* grove, under bark and in moss on trunks, 10.VIII.2000, leg. P.S. Nefediev.

DISTRIBUTION. A western Palaearctic species, *L. (M.) crassipes* is widespread in mainland Europe and the Caucasus, the Canaries, Madeira, North Africa and eastern Kazakhstan (Zalesskaja, 1978; Bonato *et al.*, 2016; Dyachkov *et al.*, 2016). In Asian Russia, this species has previously been known only from the Yenisei River region, Krasnoyarsk Province, central Siberia (Stuxberg, 1876a, b), as well as the Tyumen Area (Sergeeva, 2010, 2013; Bukhhalo *et al.*, 2014) and the Altai Province (Nefediev *et al.*, 2016), both last regions listed lying in southwestern Siberia.

REMARKS. The above is the first formal record of this species from the Kemerovo Area.

Lithobius (Monotarsobius) curtipes

C.L. Koch, 1847

Map 3.

MATERIAL EXAMINED (all Russia, southwestern Siberia, **Kemerovo Area**). 3 ♂♂, 3 ♀♀ (ASU), **Novokuznetsk District**, ca 8 km E Kuzedeevo, left bank of Malyi Tiosh River, mixed forest, 9.VIII.2000; 4 ♂♂, 4 ♀♀, 3 juv. (ASU), same District, ca 8 km E Kuzedeevo, right bank of Malyi Tiosh River, *Tilia sibirica*, on hill slope, soil sampling, by hand, 9.VIII.2000, all leg. P.S. Nefediev, A.V. Udaloj; 2 ♀♀, 1 juv. (ASU), same District, ca 6 km E Kuzedeevo, left bank of Malyi Tiosh River, *Betula pendula* and *Populus tremula* forest, soil sampling, by hand, 10.VIII.2000, leg. A.V. Udaloj; 1 ♂, 1 ♀, 6 juv. (ASU), same District, ca 8 km E Kuzedeevo, left bank of Malyi Tiosh River, mixed forest, 10.VIII.2000; 4 ♂♂, 4 ♀♀, 5 juv. (ASU), same District, ca 6 km E Kuzedeevo, *Tilia sibirica* grove, on hill top, soil sampling, by hand, 12.VIII.2000, all leg. P.S. Nefediev; 1 ♂ (PSU-918), **Krapivinskii District**, 5–6 km N of Taradanovo, 54°40'N, 86°41'E, *Populus tremula* forest, in litter and rotten logs, 13.VIII.2017; 1 ♀ (PSU-804), **Yashkino District**, 2–3 km N of Pacha, 55°43'23.8"N 85°29'28.6"E, *Betula pendula* forest, 26.VI.2018, all leg. D.A. Efimov.

DISTRIBUTION. A trans-Palaearctic species widely distributed in Europe, the Urals, the Near East, the Arabian Peninsula, Asian Russia, Kazakhstan, and northern Mongolia (Zalesskaja, 1978; Farzalieva, Eyunin, 2008; Bonato *et al.*, 2016; Poloczek *et al.*, 2016; Dyachkov, 2019). In Siberia, this species has previously been recorded from the Krasnoyarsk Province (Stuxberg, 1876a, b: as *L. captivus*; Vorobiova, 1999; Rybalov, 2002; Vorobiova *et al.*, 2002), the Altai and the Novosibirsk Area (Zalesskaja, 1978), the Tyumen Area (Striganova, Poryadina, 2005; Sergeeva, 2010, 2013; Bukhhalo, Sergeeva, 2012; Bukhhalo *et al.*, 2014), the Khanty-Mansi Autonomous and Yamalo-Nenets Autonomous regions (Striganova, Poryadina, 2005), the Altai Province and the Tomsk Area (Nefediev *et al.*, 2016, 2017b, 2018), the Omsk Area (Nefediev *et al.*, 2017c), and the Republic of Altai (Nefediev *et al.*, 2017a).

REMARKS. This species is herewith recorded from the Kemerovo Area for the first time.

Lithobius (Monotarsobius) fugax

Stuxberg, 1876

Map 2.

MATERIAL EXAMINED. 1 ♀ (PSU-1158), Russia, southwestern Siberia, **Kemerovo Area**, Kuznetsk Depression, **Prokopievsk District**, 6–7 km NE of Tykhta, Karakanskii Mt. Range, meadow steppe, under stone, 16.VI.2015, leg. D.A. Efimov.

DISTRIBUTION. Zalesskaja (1978) stated this species as being known from western and central Siberia, as well as Mongolia. Originally described from the Yenisei River valley, Krasnoyarsk Province (Stuxberg, 1876a, b), this species was later redescribed by Eason (1976) from Stuxberg's type material and synonymized it with *Monotarsobius kaszabi* Loksa, 1965, the latter species found in Mongolia.

REMARKS. This species is found in the Kemerovo Area for the first time.

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