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New records of hothouse millipedes (Diplopoda) from Moscow City, Russia

Новые находки оранжерейных многоножек-диплопод (Diplopoda) в городе Москве (Россия)

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КЛЮЧЕВЫЕ СЛОВА: фаунистика, Главный ботанический сад РАН, оранжереи.

ABSTRACT. A recent survey of the tropical and subtropical hothouses of the Main Botanical Garden in Moscow City, Russia, has revealed four species of millipedes, all apparently introductions. *Oxidus gracilis* (C.L. Koch, 1847) (Polydesmida: Paradoxosomatidae) is certainly the most common and widespread among the hot- or greenhouse Diplopoda not only in and around Moscow City, but perhaps across entire Russia, encountered on open grounds only in the Kanev Nature Reserve, Cherkassy Region, central Ukraine and along the Black Sea coast in southern Russia and Abkhazia. *Poratia digitata* (Porat, 1889) (Polydesmida: Pyrgodesmidae), a tropical, largely parthenogenetic species, is formally new to the fauna of European Russia, previously recorded in Russia only from a hothouse in Siberia. *Nopoiulus kochii* (Gervais, 1847) (Julida: Blaniulidae), a ubiquitous species very common in and around Moscow City, occurring both on open grounds and in hothouses. *Cylindroiulus britannicus* (Verhoeff, 1891) (Julida: Julidae), a subcosmopoitan species long reported from the environs of Moscow and St. Petersburg, but recorded in Russia from a hothouse for the first time.

РЕЗЮМЕ. Недавнее обследование тропических и субтропических оранжерей в Главном ботаническом салу РАН в Москве (Россия) выявило четыре вида двупарноногих многоножек, несомненно, все интродуценты. Вид *Oxidus gracilis* (C.L. Koch, 1847) (Polydesmida: Paradoxosomatidae), очевидно, самый обычный и широко распространенный среди оранжерейных диплопод не только внутри и вокруг Москвы, но, вероятно, и по всей России, встречен в открытом грунте лишь в Каневском заповеднике (Черкасская область Центральной Украины) и вдоль черноморского побережья России и Абхазии. *Poratia digitata* (Porat, 1889) (Polydesmida: Pyrgodesmidae), тропический, в основном партеногенетический вид, формально новый для фауны европейской России, прежде отмечен в России только в оранжерее в Сибири. Вид-космополит *Nopoiulus kochii* (Gervais, 1847) (Julida: Blaniulidae) весьма обычен в пределах и вокруг Москвы, где живет как в открытых, так и закрытых грунтах. Кивсяк-убиквист *Cylindroiulus britannicus* (Verhoeff, 1891) (Julida: Julidae) давно известен из окрестностей Москвы и Санкт-Петербурга, но впервые отмечен в закрытом грунте.

Introduction

Combined, the millipede faunas of both Moscow City and the Moscow Region, Russia, are presently known to comprise 19 species from 15 genera, five families and three orders [Zalesskaja *et al*., 1982]. Most largely inhabit natural habitats, chiefly woodlands, occasionally coupled with urbanized parklands, orchards and gardens, but none have been found in hothouses yet: *Brachydesmus superus* Latzel, 1884, *Polydesmus complanatus* (Linnaeus, 1761), *P. denticulatus* (C.L. Koch, 1847), *P. inconstans* Latzel, 1884, *Schizoturanius dmitriewi* (Timotheew, 1897), *Strongylosoma stigmatosum* (Eichwald, 1830), *Leptoiulus proximus* (Němec, 1896), *Brachyiulus jawlowskii* Lohmander, 1928, *Megaphyllum sjaelandicum* (Meinert, 1868), *Ommatoiulus sabulosus* (Linnaeus, 1758), *Rossiulus kessleri* (Lohmander, 1927), *Polyzonium germanicum* Brandt, 1837, etc. In the Moscow Region, some anthropochore diplopods appear to clearly be inclined to dwelling in man-made places alone, especially parklands: *Kryphiulus occultus* (C.L. Koch, 1847), *Archiboreoiulus pallidus* (Brade-Birks, 1920) (new records from near Moscow City), *Blaniulus guttulatus* (Fabricius, 1798) or *Cylindroiulus latestria-*

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tus (Curtis, 1844). *Nopoiulus kochii* (Gervais, 1847), a very common species, has been encountered both on open grounds such as parklands, orchards and gardens, and in hothouses [Zalesskaja *et al*., 1982]. Finally, only *Choneiulus palmatus* (Němec, 1895) has hitherto been recorded from hothouses alone, i.e. in the Main Botanical Garden in Moscow City [Lokshina, 1969].

A recent survey of the tropical and subtropical hothouses of the Main Botanical Garden has revealed four species of millipedes, apparently all introductions.

Material and methods

All material underlying the present contribution is housed in the Zoological Museum of the Moscow State University (ZMUM), collected recently by a team from the Moscow State Pedagogical University.

Faunistic records

Order Polydesmida

Family PARADOXOSOMATIDAE

Oxidus gracilis (C.L. Koch, 1847)

MATERIAL. 1 ♂, 4 juv. (ZMUM), Moscow City, Main Botanical Garden, hothouse with tropical vegetation, 9.II.2024; 2 ♀♀, 5 juv. (ZMUM), same place and hothouse, 9.II.2024; 2 juv. (ZMUM), same place, hothouse with dry subtropical vegetation, 9.II.2024; 1 juv. (ZMUM), same place, hothouse with orchids, 9.II.2024, all K. Panina, A. Bokova and M. Potapov leg.

REMARK. This is certainly the most common and widespread species among the hot- or greenhouse Diplopoda (Stoev et al., 2010) not only in and around Moscow City, but perhaps across entire Russia, naturalized on open grounds only in the Kanev Nature Reserve, Cherkassy Region, central Ukraine [Chornyi, Golovatch, 1993] and along the Black Sea coast in southern Russia and Abkhazia [Lignau, 1907, 1915; Chumachenko, 2016]. Zuev [2021] recorded *O. gracilis* both inside and next to a greenhouse at Stavropol, northern Caucasus.

Family PYRGODESMIDAE

Poratia digitata (Porat, 1889)

MATERIAL. 1 ♀ (ZMUM), Moscow City, Main Botanical Garden, hothouse with tropical vegetation, 9.II.2024, K. Panina, A. Bokova and M. Potapov leg.

REMARKS. An obligatory hothouse-dweller in Western and Central Europe, as well as a hothouse in the city of Chicago, Ohio, U.S.A., but free-living at least in the southern U.S.A., the U.S. Virgin Islands and Java, Indonesia, probably also in Panama and Costa Rica [Golovatch, Sierwald, 2000; Stoev *et al*., 2010]. Above is the second record of *P. digitata* from Russia, the first being a greenhouse at Barnaul, Altai Province, Siberia [Nefediev *et al*., 2014].

Order Julida

Family BLANIULIDAE

Nopoiulus kochii (Gervais, 1847)

MATERIAL. 1 ♀ (ZMUM), Moscow City, Main Botanical Garden, hothouse with orchids, 9.II.2024, K. Panina, A. Bokova and M. Potapov leg.

REMARK. This is a ubiquitous species [Stoev *et al*., 2010] very common in and around Moscow City, occurring both on open grounds and in hothouses [Zalesskaja *et al*., 1982].

Family JULIDAE

Cylindroiulus britannicus (Verhoeff, 1891)

MATERIAL. 1 juv. (ZMUM), Moscow City, Main Botanical Garden, hothouse with tropical vegetation, 9.II.2024; 4 ♂♂, 1 ♀, 3 juv. (ZMUM), same place and hothouse, 9.II.2024; 1 ♂ (ZMUM), same place, hothouse with orchids, 9.II.2024, all K. Panina, A. Bokova and M. Potapov leg.

REMARK. This is a subcosmopoitan species [Stoev *et al*., 2010] long reported from the environs of Moscow and St. Petersburg [Lokshina, 1969], yet being recorded in Russia from a hothouse for the first time.

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