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On the fauna of woodlice (Crustacea: Isopoda: Oniscidea) of south-eastern Belarus

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Seven species of woodlice have been found in the south-eastern Belarus during studies conducted in 2013–2018. Two of these species were found in territory of the republic for the first time: *Armadillidium vulgare* (Latreille, 1804) (fam. Armadillidiidae) and *Hyloniscus riparius* (C. Koch, 1838) (fam. Trichoniscidae). Synanthropic forms represent a significant part of species diversity of this region's terrestrial isopods fauna. Only one species, *Trachelipus rathkii* (Brandt, 1833) occurs in both anthropogenic as well as natural landscapes.

Keywords: terrestrial isopods, woodlice, species diversity, biotope allocation, identification key, distribution, morphology, synonymy.

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Introduction

The study of the biodiversity of the animal world is of great importance and is one of the priorities of modern zoological science.

Woodlice (Oniscidea) are one of the most important groups of terrestrial invertebrates. They are characterized by small size (5–20 mm long), dorsoventrally flattened body, low variability of colorations (brown, black, gray, red) dependent of the presence of pigments in chromatophores and a peculiar terrestrial life-style.

Sexual dimorphism is typical for woodlice: females are larger than males; males are darker (Vandel, 1960).

Over the course of evolution, woodlice have developed a number of adaptations mainly directed at the minimization of moisture loss by the organism. With the help of such adaptations, these crustaceans are able to live different environments, having colonized almost all climatic zone of the world – from cold subpolar regions to humid tropical forests and deserts (Warburg et al., 1984). They are especially numerous and diverse in the tropics (Schmalfuss, 2003), within the Russian Federation – in the steppes (Khisametdinova, 2009).

Wood lice are predominantly nocturnal, which protects them from direct sunlight. They spend the daylight hours burrowing in the surface layer of the soil, hiding under stones, in various other shelters or in burrows, which they dig out and in which the increased humidity is maintained. There are woodlice that live in rodent holes and anthills.

Woodlice may be divided into two groups according to the layer in the biocenosis they inhabit: endogeic and epigeic. Endogeic forms live deep in the soil, sometimes in burrows, briefly rising to the surface only after rain or melting snow (Vandel, 1960). Epigeic forms include woodlice that are adapted to life on the surface of the soil. This group is distinguished by larger body size, well-developed sense organs and pronounced pigmentation of integuments (Khisametdinova, 2009).

Woodlice play a significant role in natural and anthropogenic biocenoses. They participate in the circulation of substances in terrestrial ecosystems and act as important elements of the food web. Consuming dead plant residues, wood lice contribute to their further decomposition, mineralization and humification, thereby participating in soil-forming processes (Borutsky, 1958). In addition, these invertebrates have the ability to accumulate heavy metals, and therefore are convenient test objects in the environmental monitoring of the environment (Bibič et al., 1997).

However, despite the scientific and practical

importance of woodlice, very little attention was paid to the study of this group of terrestrial invertebrates in Belarus. So far, no focused work has been done on the study of the fauna and the biotopic distribution of these invertebrates. Fragmentary information (most often determined to suborder status) was published in soil-zoological work carried out in different years on the territory of the republic (Khotko, 1993; Khotko et al., 1982; Kipvenvarlits, 1961), in a summary article by Maximova (Maximova, 2005), as well as in the report by Novitsky (2013), which provides an indication of four species. Thus, the full species composition of woodlice of Belarus has not been clarified to date.

The purpose of this study is to identify the fauna of woodlice and their biotopic distribution in the territory of the southeastern Belarus.

Materials and methods

The material for the study was the author's collections in the period 2013–2018, which were carried out manually in various biogeocenoses in the territory of the city of Gomel and in its surroundings (Gomel and Buda-Koshelevo districts) (Fig. 1): grassy meadows, banks of waterbodies, forests, flower lawns, parks and yards of developed parts of settlements, as well as residential premises. In the wild, harvesting was done in plant debris, rotten wood, bedding, stubbing, etc. In anthropogenic conditions, wood lice were collected on flower lawns, paving slabs, under household and construction waste, on the outer walls of buildings and indoors.

The determination was carried out according to European keys (Hopkin, 1991; Malinkova, 2009; Urbański, 1952), and a paper of N.T. Zalesskaya and L.B. Rybalov (1982). Information on the geographical distribution and origin of the species is given from publications by Zalesskaya and Rybalov (1982), as well as a foreign report (Jedryczkowski, 1981). In total, over 400 specimens of woodlice were collected and determined during the counting period. Systematics and nomenclature are listed in the G. Schmalfuss catalog (Schmalfuss, 2003) and the electronic database (Taiti and Schotte, 2018). The collected material is in the author's collection.

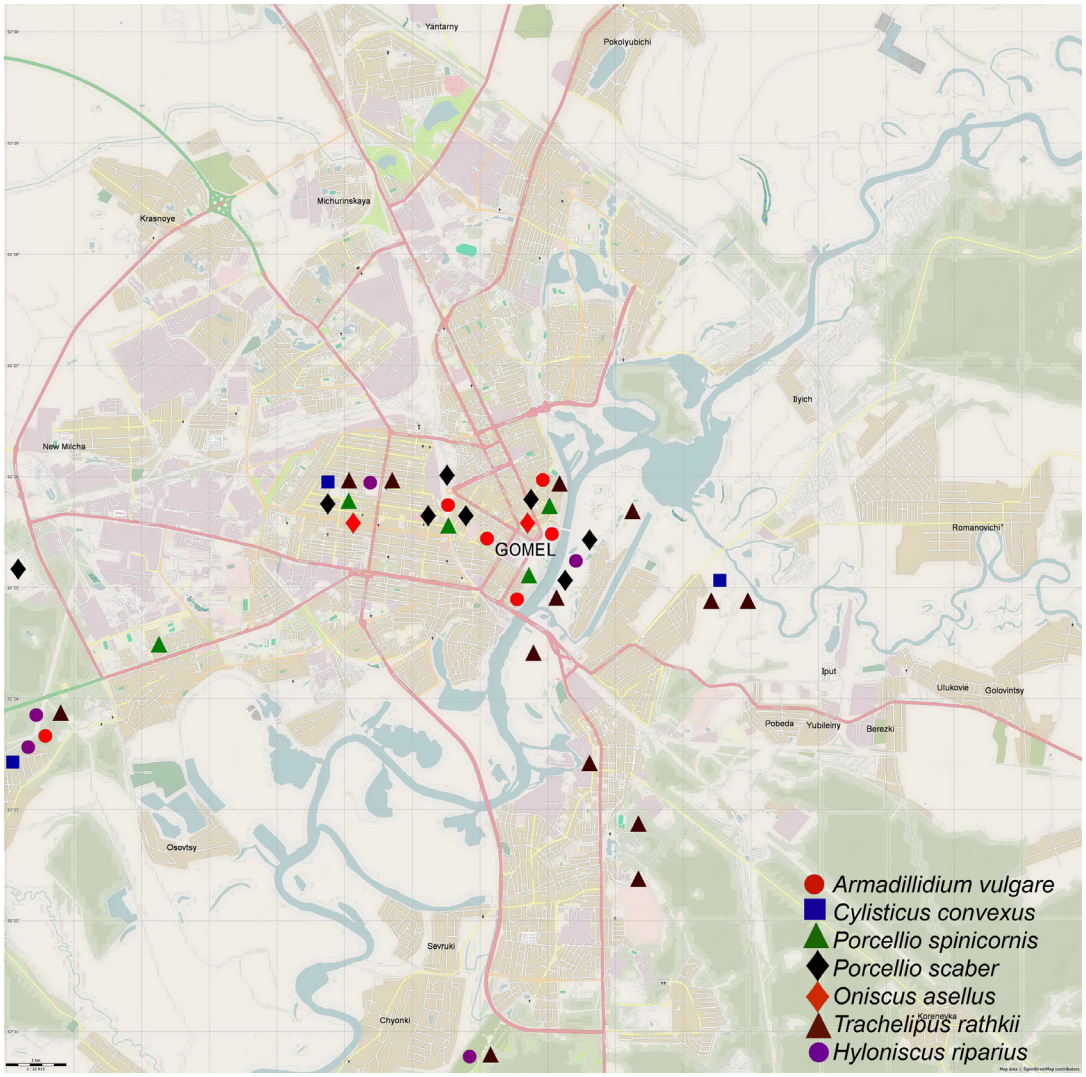

Fig. 1. Distribution of woodlice in the city of Gomel and its immediate vicinity.

Results

Seven species of woodlice were identified during the analysis of the material obtained, two of which – *Armadillidium vulgare* (Latreille, 1804) and *Hyloniscus riparius* (S. Koch, 1838) – were not previously indicated for the region and are given for Belarus for the first time. Identified species belong to six families: Porcellionidae (two species), Oniscidae, Armadillidiidae, Cylisticidae, Trachelipodidae and Trichoniscidae (one species).

Eurybiotic polyzonal *Trachelipus rathkii* (Brandt, 1833) was the most common species for the vast majority of studied biotopes. We have also identified it in forest biogeocenoses, while other types of woodlice are encountered synanthropically.

Morphological descriptions of the species found, as well as data on their ecology and distribution are given below.

Infraorder LIGIAMORPHA Vandel, 1943

Family Armadillidiidae Brandt, 1833

Armadillidium vulgare (Latreille, 1804)

Synonyms: *A. affine* Brandt, 1833*; A. armeniensis* Vandel, 1980*; A. brevicaudatum* Tua, 1900*; A. commutatum* Brandt, 1833*; A. decipiens* Brandt, 1833*; A. marmoreum* (C. Koch, 1841)*; A. nitidulum* Collinge, 1915*; A. oliveti* L. Koch, 1901*; A. pilulare* Stuxberg, 1875*; A. schellenbergi* Strouhal, 1929*; A. sorattinum* Verhoeff, 1951*; A. subdentatum* Haswell, 1882*; A. trivialе* Schöbl, 1861*; A. variegatum* Brandt, 1833*; Armadillo ater* Schnitzler, 1853*; A. convexus* C. Koch, 1841*; A. marmoreus* C. Koch, 1847*; A. pilularis* Say, 1818*; A. pustulatus* C. Koch, 1841*; A. trivialis* C. Koch, 1841*; A. variegatus* Latreille, 1804*; A. vulgaris* Latreille, 1804.

The body is up to 17 mm in length, smooth, shiny and convex (Fig. 2). When in danger, it is able to fold into a tight sphere, while the antennae hide under the expanded side plates of the first thoracic segment. The color is very changeable, as a rule, the body has a metallic gray color with a more or less yellow tint. In most individuals, the head is of a uniform dark gray color, the sides of the breast are yellow, while the back is more variegated. The abdomen, including telson, is also yellow, with the exception of only the caudal appendages, which are dark gray. The frontal lobe is small, although wide, and the edge along which it adjoins the head is rounded and slightly curved. Antenna flagellum consists of 2 segments, its proximal segment is slightly shorter. There are two pairs of pseudotrachea on the exopods of the pleopod, the pereon transforms smoothly into the pleone. This species is characterized by short, not protruding uropods, the outer sections of which are much wider than their length. Telson has the shape of a triangle with truncated angles (Webb and Sillem, 1906). Females of this species are known to have the ability to store and reuse sperm multiple times (Suzuki and Ziegler, 2005).

Synanthropic Mediterranean species, widespread in Europe. Introduced in North America, to a lesser extent – in other regions of the world (Jedryczkowski, 1981). The most studied land representative of the order of isopod crustaceans. Most often found in dry sunny places, on limestone, under stones, fallen leaves, in moss. This wood louse is better adapted to terrestrial life than other European species. In 2016, we found a population of *A. vulgare* in the territory of the Gomel Central City Park of Culture and Rest of A.V. Lunacharsky near the embankment of River Sozh. The collection was represented by young individuals. With the onset of darkness woodlice became active, left their shelters, located in the recesses and crevices of reinforced concrete plates of the embankment, and crawled to the surface. And already on April 10, 2018, the first adult specimen was caught near the pedestrian bridge near the Gomel railway station, crossing an asphalted footpath in the morning hours (about 7.30 hours). Subsequently (July 2018) a rather large colony of the species was found here. Elsewhere, several more were captured:

Fig. 2. *Armadillidium vulgare* (Latreille, 1804).

– under the pieces of wood lying on the ground among household garbage near the Gomel protein-fat plant in the village of Bolshevik, Gomel district of the Gomel region (19.06.2018);

– under construction garbage on the edge of a broad-leaved forest in the vicinity of the consumer cooperative gasification “Gorodskaya sloboda” (27.06.2018);

– on the concrete fence of StankoGomel OJSC (Gomel Machine-Tool Plant named after S.M. Kirov) (07.26.2018).

Family Cylisticidae Verhoeff, 1949

Cylisticus convexus (De Geer, 1778)

Synonyms: *C. laevis* Schnitzler, 1852*; C. spinifrons* (Brandt, 1833)*; Oniscus convexus* De Geer, 1778*; Porcellio armadilloides* Lereboullet, 1853*; P. convexus* (De Geer, 1778)*; P. spinifrons* Brandt, 1833.

Body length 10–14 mm (Fig. 3). In case of danger, the species has the ability to fold, but, unlike *Armadillidium vulgare*, it forms a very imperfect sphere, from which the antennae and limbs protrude. Body color is brown-violet with a light line pattern. Antenna flagellum consists of 2 segments, there are five pairs of pseudotrachea on the pleopod exopods and pereon gradually transforms into pleone. The lateral lobes of the head are the same width as the eye fields. The epimera of the tergite V of the abdomen (pleone) are long, go beyond the end of the uropodit protopodits. The endopodit I of the pleopod (abdominal leg) of the male is curved outward at the rear end (Zalesskaya and Rybalov, 1982). The females have the ability to store and reuse sperm (Suzuki and Ziegler, 2005).

A widespread Holarctic species of European origin (Zalesskaya and Rybalov, 1982). It was introduced to North Africa, North and South America, as well as to Australia. Known from the Crimea, Rostov, Voronezh, Moscow and Chelyabinsk regions of Russia. On the territory of Belarus found in anthropogenic habitat. It is a synanthropic species that has partially lost its ability to live outside of human-made habitats (Khisametdinova, 2009). Found in the yards of the built-up part of settlements, it was found on the littered slope of a sand pit in the village of Uza, Gomel District, but scarce everywhere.

Family Porcellionidae Verhoeff, 1918

Porcellio spinicornis Say, 1818

Synonyms: *P. germanicus* Verhoeff, 1896*; P. melanocephalus* C. Koch, 1841*; P. mixtus* Fitch, 1855*; P. pictus* Brandt, 1833.

Body length 12–14 mm (Fig. 4). The color is very characteristic: the head and the pleone are black; pereon brown with light spots; epimers, the end of the telson and the base of the uropods are light. Antenna flagellum consists of 2 segments, on the pleopod exopods there are 2 pairs of pseudotrachea, and it gradually passes into the pleone. The lateral lobes of the head are trapezoidal, large, 2 times longer than the rounded triangular median lobe, a sharp angle forms between it and the lateral lobes. The posterior margin of the pereon's I tergite epimers has a deep arcuate notch. The tubercula on the head and tergites is well defined; in large specimens, the tubercles of the anterior rows are toothlike. Exopod I pleopod male with a rounded inner lobe. Karpopodit VII of the pereiopod (thoracic leg) of the male along the upper edge with a low crest. The ischiopodite VII of the pereopod of the male from the bottom with a very weak notch, finger-shaped, on the widest part of the rostral side of the segment there is a wide transverse strip of dense setae occupying more than two thirds of the segment. The pore fields are egg-shaped, located in the anterior half of the epimers (Zalesskaya and Rybalov, 1982).

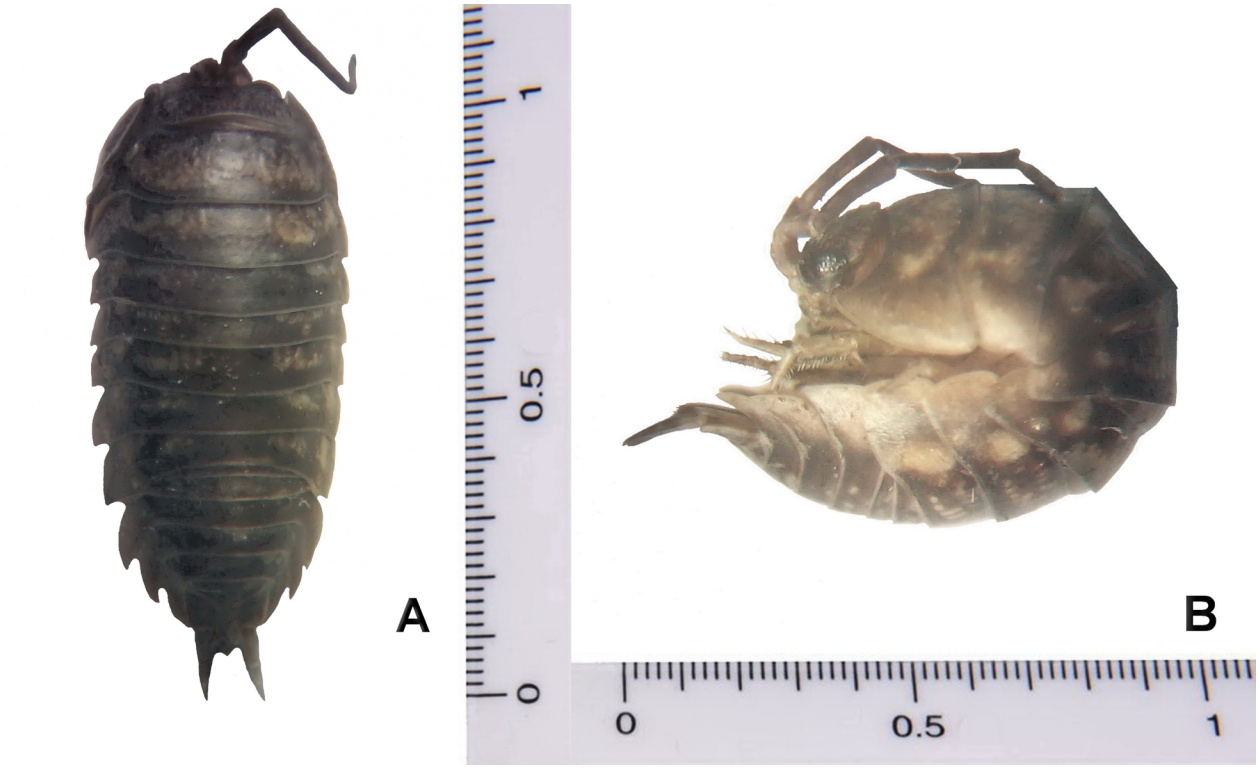

Fig. 3. *Cylisticus convexus* (De Geer, 1778). A – top-down view, B – view from the side.

Fig. 4. *Porcellio spinicornis* Say, 1818.

A widespread species in Europe. Known from Moldova, Ukraine and Moscow region. It is found in damp buildings, on their walls and outdoors in cities. In 2017, we discovered the population of *P. spinicornis* on the territory of the Gomel Central City Park of Culture and Rest of A.V. Lunacharsky in the area of St. Peter and Paul Cathedral and the embankment River Sozh, at the Gomel railway station and on the household plot on the 2nd Vstrechyi Lane. In these habitats, individuals of this species were found on reinforced concrete slabs, outdoor flowerpots, among construction debris and pieces of brick. The species exhibits twilight and nighttime activity. Probably breeds in damp premises, since females with eggs and prejuvenile individuals were not observed in terrestrial biotopes. In other regions, this calciphilous species lives in wet basements on walls with cracked plaster (Alexanov, 2008).

Porcellio scaber Latreille, 1804

Synonyms: *Oniscus granulatus* Lamarck, 1818*; Philoscia tuberculata* Stimpson, 1856*; Porcellio asper* C. Koch, 1847*; P. brandtii* Milne Edwards, 1840*; P. cayennensis* Miers, 1877*; P. dubius* C. Koch, 1841*; P. gemmulatus* Dana, 1853*; P. graniger* Miers, 1876*; P. graniger* White, 1847*; P. granulatus* Brébisson, 1825*; P. granulatus* Milne Edwards, 1840*; P. marginalis* Mulaik, 1960*; P. montesumae* Saussure, 1857*; P. niger* Say, 1818*; P. nodieri* Dollfus, 1898*; P. paulensis* Heller, 1865*; P. sociabilis* L. Koch, 1901*; P. toyamaensis* Nunomura, 1980*; P. tristis* Zaddach, 1844.

Body length 13–16 mm (Fig. 5). The color is very variable: from dark to almost complete lack of pigment, but most often the representatives of the species are of monochromatic dark gray color. It is characterized by a powerfully developed system of tubercules. Antenna flagellum consists of 2 segments, there are 2 pairs of pseudotrachea on the pleopod exopodits and it gradually passes into the pleone. The median lobe of the head is normally developed, its shape varies from rounded triangular in large specimens to more rounded in young specimens. Telson is triangular, its end is pointed, lateral edges with a notch. The exopod I of the male pleopod along the edge of the tracheal field with a distinct notch, its posterior lobe rounded with a small notch on the posterior margin; inner margin to the end of the posterior lobe with a number of strong spines. Karpopodit VII of male pereopod with parallel edges. Male ischiopodite VII of the pereopod with a weakly concave lower margin. The pores are located on the edge of the epimers and have the shape of a semi-ellipse (Zalesskaya and Rybalov, 1982).

Cosmopolitan of European Atlantic origin, commonly found in Western Europe; typical synanthrope in Eastern Europe and other regions (Zalesskaya and Rybalov, 1982). Known from Moldova, Kiev (Ukraine), Tallinn (Estonia), Moscow and Nizhny Novgorod (Russia). On the territory of Belarus is found in anthropogenic environments. Occurs in various places – damp buildings and basements, greenhouses, conservatories and near them, in gardens, under heaps of garbage, etc. In its habitats can reach quite large numbers. A high concentration of woodlice of this species was repeatedly observed in the household plots under building material and heaps of household garbage, as well as in damp places near

Fig. 5. *Porcellio scaber* Latreille, 1804.

the outer walls of buildings and basements in large settlements. Active at dark time.

Family Oniscidae Latreille, 1802

Oniscus asellus Linnaeus, 1758

Synonyms: *O. affinis* Say, 1818*; O. fossor* C. Koch, 1838*; O. lamperti* L. Koch, 1901*; O. languidus* L. Koch, 1901*; O. murarius* Cuvier, 1792*; O. nodulosus* Verhoeff, 1934*; O. vicarius* Stuxberg, 1872*; Porcellio lineatus* Fitch, 1855*; P. taeniola* C. Koch, 1835.

The body is up to 18 mm in length (Fig. 6), broadly oval with a rough-grained surface. The color is gray-brown, shiny on top with dark and light spots, the edges of tergites are bright. The median lobe of the head is normally developed, its shape is obtuse-angled. The lateral lobes are well developed, prominently protruding. Antenna flagellum consists of 3 segments, its proximal segment is relatively long. There are 5 pairs of pseudotrachea on the exopodites of the pleopod; pereon gradually transforms into pleone. The posterior margin of I–III tergites of pereone epimeres is even, the epimers of the pleone are well developed, the posterior margin of the tergite V of the pleone almost reaches the end of the telson. Male pleopod exopodit I deeply excised, endopodit with two spines. Male exopodit II of the pleopod is long and pointed; the endopod with a narrowed end, markedly exceeds the exopodit. Uropod protopodites are long, exopodites with prominent tips. Telson is strongly elongated, pointed (Malinkova, 2009).

The species is widely distributed in Northern and Western Europe, introduced to North and South America. It is found in damp places, for example, under the bark of stumps and fallen leaves in deciduous forests and gardens, in basements, under stones, etc. One individual was observed running across the asphalted footpath on July 2, 2018, on the Schmidt street in Gomel in the morning hours (about 9.00 o'clock). Another individual (female) was found on July 24, 2018 on a reinforced concrete slab of the embankment of River Sozh near Gomel Central City Park of Culture and Rest of A.V. Lunacharsky. In connection with individual finds, the distribution of the species in the territory of the south-east of Belarus remains insufficiently studied.

Family Trachelipodidae Strouhal, 1953

Trachelipus rathkii (Brandt, 1833)

Synonyms: *Porcellio affinis* C. Koch, 1841*; P. confluens* C. Koch, 1841*; P. ferrugineus* Brandt, 1833*; P. ochraceus* C. Koch, 1841*; P. parietinus* L. Koch, 1901*; P. rathkii* Brandt, 1833*; P. striatus* Schnitzler, 1853*; P. sylvestris* Schöbl, 1891*; P. taeniatus* Schöbl, 1861*; P. tetramoerus* Schnitzler, 1853*; P. trilineatus* C. Koch, 1841*; P. trivittatus* Lereboullet, 1853*; P. varius* C. Koch, 1841*; Tracheoniscus pleonglandulatus* Radu, 1950*; T. rathkii* Brandt, 1833

Body length 12–15 mm (Fig. 7). Color changeable. Individuals with a brown or grayish color and a lighter pattern that connects in longitudinal stripes on the sides of the body are more common. Antenna flagellum consists of 2 segments, its distal segment is slightly longer. There are 5 pairs of pseudotrachea on the exopodites of the pleopod; The tuberculae of tergites are weakly pronounced. The median lobe of the head is short, curved; lateral lobes protrude forward a little further than the median. The posterior margins of pereone I tergite epimers with a deep notch. Pseudotrachea fields are wide, with grooves and bulges; their outer edge is jagged. The posterior margin of male's pleopod exopodite I with a narrow, rather short end directed outwards. Karpopodit VII of male's pereopod with a raised rib in the proximal half of the segment, having a round-billowed protuberance at its highest point. The ischiopodite VII of male pereopod is club-shaped, slightly concave from the ventral side. Large pore fields on all tergites are located in the middle of the edge of the epimers (Zalesskaya and Rybalov, 1982).

Fig. 6. *Oniscus asellus* Linnaeus, 1758.

It is one of the most widely spread species of woodlice in Russia (Kuznetsova and Gongalsky, 2012) and one of the most common types of woodlice in the middle zone of Europe and North America (Zalesskaya and Rybalov, 1982). It is most abundant in the forest and forest-steppe zones. This species is very plastic ecologically, being able to tolerate both drought and excessive moisture, also having a high fecundity (Tishler, 1971). The most common representative of woodlice of the south-east of Belarus, found everywhere, but preferring well-drained biotopes with closed herbage or rich leaf litter. We have

Fig. 7. *Trachelipus rathkii* (Brandt, 1833).

found it in forests, meadows, lawns and yards of the built-up part of settlements. It should be noted that in the built-up part of large populated areas, woodlice are found more often than in floodplain meadows and in marshy forests. At the same time, in the backyards of cities, this species avoids areas of intensive and frequent tillage and tends to inhabit areas of gardens with thick grass, creating the increased humidity in the near-soil layer of air necessary for woodlice normal life (Alexanov, 2008).

Family Trichoniscidae Sars, 1899

Hyloniscus riparius (C. Koch, 1838)

Synonyms: *H. germanicus* (Verhoeff, 1901)*; Itea riparia* C. Koch, 1838*; Philoscia notata* Waga, 1857*; Trichoniscus germanicus* Verhoeff, 1901*; T. montanus* Carl, 1908*; T. notatus* (Waga, 1857)*; T. riparius* (C. Koch, 1838)*; T. tirolensis* Verhoeff, 1901*; T. violaceus* Schöbl, 1861*; T. vividus* var. *montanus* Carl, 1908.

Body length 4–6 mm (Fig. 8). Body color is pinkish its surface is smooth. Head without pronounced median lobe, lateral lobes small, trihedral with 3 short setae. Antenna flagellum consists of 2–3 little-distinguished segments, with males possessing antennae thinner than females. The eyes are simple, consist of one ommatidium. The base of the pleone is narrower than pereone, II and III tergites of the pleone are lighter than the rest of the body. Epimers of the III–V tergites of the pleone are weakly pronounced. The exopod of the first pleopod of the male is broad at the base, narrows in the distal third, covers the short endopod; the end of the exopodite is straight. The exopod II of the male pleopod is small, rectangular; endopod is long, two-segmented, distal segment elongated and narrowed at the end. The meropod VII of the pereopod of the male at the base with a hooked ridge below, its width at the base is less than the length (Malinkova, 2009).

It is distributed in Central and Eastern Europe (Schmalfuss, 2003), introduced to North America (Jass and Klausmeier, 2003). This species of woodlice is unstable to dryness, therefore, it is mainly inhabits the soil and rotten wood. This is an invasive species, actively spreading in the central European part of Russia over household plots and deciduous forests (Gongalsky et al., 2013). Occurs in mesophytic forests located in the vicinity of human settlements, as well as in ruderal ecosystems. This species was first discovered by us in the fall of 2016 in the suburban area of Gomel. The material was collected by the author on September 24, 2016 in the area of the Central Park of Culture and Rest of A.V. Lunacharsky on the opposite bank of the river Sozh. A year later, the existence of this population in the same habitat was confirmed by new findings. All individuals were found under trees and household garbage lying on the ground in a wet floodplain meadow near the village of Yakubovka, Novo-Belitsky district of the city of Gomel. In addition, another specimen (female) was caught on September 10, 2017 under a piece of wood at a clay mining site in a sand pit, located on the outskirts of the village of Uza, Gomel District. Several mature specimens were found on May 6, 2018 under a rotten fallen deadwood on the side of a forest road in the vicinity of the settlement. Chenki Gomel region, as well as June 27, 2018 under construction and household garbage on the outskirts of deciduous forests in the vicinity of the consumer cooperative gasification “City Settlement”. The species is characterized by a rather high hygrophilicity (Hopkin, 1991): this is evidenced by its detection in humidified sites near water bodies. It seems quite likely that this species is found in many other similar habitats in the territory of both the south-east of Belarus and the republic as a whole.

Key to the species of woodlice living in the south-east of Belarus

1. Eyes are simple, consist of one ommatidium. The base of the pleone is narrower than the pereone. Relatively small forms..... ..... *Hyloniscus riparius* (C. Koch, 1838)

– Eyes are complex. Pereon transforms smoothly into the pleone. Larger.....2

2. Antenna flagellum consists of 3 segments .... *Oniscus asellus* Linnaeus, 1758

– Antenna flagellum consists of 2 segments 3

3. Tail appendages with a rounded end, not protruding beyond the end of the telson, endo-antennal folding into a sphere ....*Armadillidium vulgare* (Latreille, 1804)

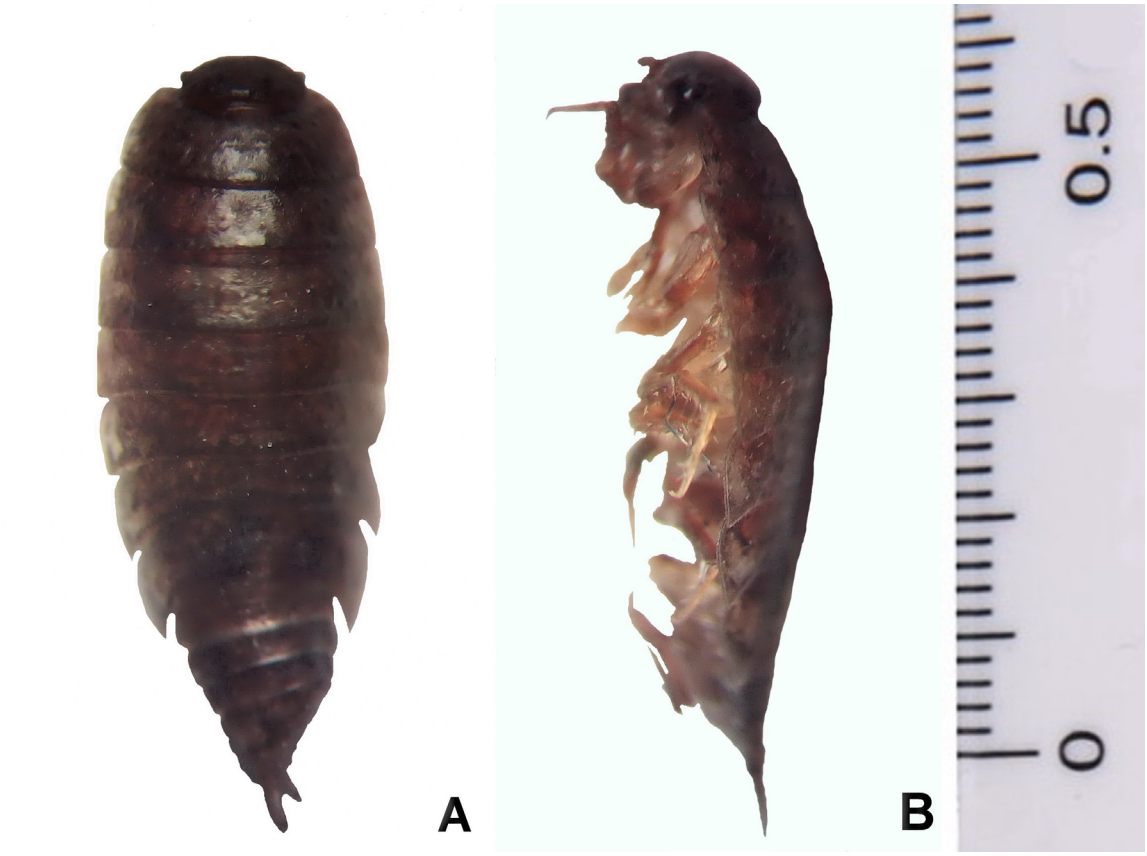

Fig. 8. *Hyloniscus riparius* (C. Koch, 1838). A – top-down view, B – view from the side.

– Pointed tail appendages clearly protruding beyond the end of the telson 4

4. The median lobe of the head is more or less rounded, non-folding forms..... .....*Cylisticus convexus* (De Geer, 1778)

– The median lobe of the head is more or less rounded, non-folding forms.....5

5. Pleopod exopodites carry five pairs of pseudotrachea..... ..... *Trachelipus rathkii* (Brandt, 1833).

– Pleopod exopodites carry only two pairs of pseudotrachea..... 6

6. The lateral lobes of the head are trapezoidal, large, and 2 times longer than the rounded triangular median lobe, a sharp angle is formed between the latter and the lateral lobes. The color is very characteristic: the head and the pleone are black; pereone brown with light spots; epimers, end of telson and base of tail appendages light ....*Porcellio spinicornis* Say, 1818

– The median lobe of the head is normally developed, its shape can vary from rounded triangular in large specimens to more or less rounded in young individuals. Color varies from dark to almost complete lack of pigment; however, it usually has a uniform dark gray color and is characterized by a well-developed system of tubercules..... .....*P. scaber* Latreille, 1804

Conclusions

Seven species of woodlice were identified on the territory of the city of Gomel and in its immediate vicinity, two of which were noted for the fauna of the republic for the first time. The most widespread and abundant species is *Trachelipus rathkii*, which is found in both natural and anthropogenic habitats. The greatest species diversity of woodlice is found in synanthropic ecosystems. In relation to the synanthropy, the woodlouse fauna of the south-east of Belarus can be divided into two groups. Obligate synanthropies are represented by *Porcellio scaber*, *P. spinicornis*, *O. asellus*, *Cylisticus convexus*, *Armadillidium vulgare* and *Hyloniscus riparius*, while the most abundant species – *T. rathkii* is relatively indifferent to anthropogenic transformation of the landscape. In general, the woodlouse biodiversity in Gomel is higher than in non-urbanized territories of the southeastern region, which is apparently due to the pattern commonly observed in temperate latitudes when the diversity of these terrestrial invertebrates increases along with an increase in anthropogenic transformation of the territory (Alexanov, 2008). The discovery of two invasive species of woodlice (*A. vulgare* and *H. riparius*) which have recently been actively expanding the boundaries of their ranges (Gongalsky et al., 2013; Schmalfuss, 2003; Taiti and Stefano, 2018) new for the fauna of the republic is of particular interest. Since 15 species of woodlice

are registered in the territory of neighboring states (Novitsky, 2013), in the future we should expect an expansion of the species list of this group of terrestrial invertebrates, for which it is planned to continue further study of woodlice of Belarus.

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