

## Annotated checklist of free-living flatworms (Plathelminthes: Catenulida, Rhabditophora) of the Volga–Kama basin, Russia

## Аннотированный список свободноживущих плоских червей (Plathelminthes: Catenulida, Rhabditophora) Волго-Камского бассейна

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**Abstract.** This article provides an overview of the taxonomic composition of free-living flatworms (Plathelminthes: Catenulida, Rhabditophora) in the Volga–Kama basin. A total of 143 flatworm species from 43 genera have been recorded from this region over more than 150 years of research, i.e. starting from the 1870s. The annotated checklist includes synonymy and taxonomic notes on some species. It also summarises the available data on the distribution of free-living flatworms across the largest river basin of Europe.

**Резюме.** В статье обобщены сведения по таксономическому составу свободноживущих плоских червей (Plathelminthes: Catenulida, Rhabditophora) на территории Волго-Камского бассейна. За весь период исследований, начиная с 70-х годов XIX века, в этом регионе отмечено 143 вида из 43 родов. Аннотированный список включает синонимию и таксономические заметки по некоторым видам. В нём также суммированы имеющиеся данные о распространении свободноживущих плоских червей на территории этого самого крупного речного бассейна Европы.

**Key words:** river basin, Volga, Kama, list of species, free-living flatworms, biodiversity, Catenulida, Rhabditophora

**Ключевые слова:** речной бассейн, Волга, Кама, список видов, свободноживущие плоские черви, биоразнообразие, Catenulida, Rhabditophora

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### Introduction

Free-living flatworms (Platyhelminthes: Catenulida, Rhabditophora), previously placed in the class Turbellaria, are common benthic and phytophilous invertebrates in European surface waters. They were first reported from the Volga–Kama basin as early as the last quarter of the 19th century.

Nasonov's list of microturbellarians collected near Moscow in 1875 and 1876 comprised 14 species (Nasonov, 1877). Subsequently, this group, both in Moscow and in other regions of the river basin (Upper, Middle and Lower Volga, Kama basin, sub-basins of the Vyatka and Oka rivers), attracted the interest of many researchers (Sabussow, 1895, 1903; Zykoff, 1897, 1902, 1903; Rossinskiy, 1892;

Beklemishev, 1916, 1921, 1922, 1924, 1926, 1929, 1951; Cordé, 1923, 1928, 1940; Dyganova & Porfirieva, 1983, 1988; Porfirieva & Dyganova, 1987; Korgina, 1999, 2000, 2001, 2002, 2005, 2006, 2011a, 2011b, 2014, 2018; Rogozin, 2005, 2011). After 100 years of research, the chapter in the monograph “Volga and its life” (Gagarin, 1978) was the first attempt to review the accumulated data on the species diversity of the turbellarians of the Volga River: it listed 70 species and two subspecies from 28 genera. Soon after that, the information on freshwater turbellarians was summarised for the entire Soviet Union, including 87 species in 37 genera recorded from Volga (Gagarin & Korgina, 1982). The studies that followed expanded the list of turbellarians in rivers and lakes of the Upper Volga area up to 92 species and 31 genera (Korgina, 2000, 2002). Porfirieva and Dyganova summarised the data on planarians (Rhabditophora: Tricladida) for European Russia, including five species from the Middle Volga region (Dyganova, 1980; Dyganova & Porfirieva, 1983, 1988; Porfirieva & Dyganova, 1987). Finally, Korgina (2005) reviewed the data on turbellaria of the Volga basin in her list, which included 107 species and 38 genera (excluding seven taxa reported at the genus level only). However, this list did not include turbellarians from the Kama River (Nasonov, 1919; Beklemishev, 1921), which forms a single hydrographic network with the Volga. In the recent decade, we have reported new finds of free-living flatworms from the Middle Volga region in the republics of Tatarstan and Mariy El (Tokinova et al., 2011, 2016; Tokinova & Berdnik, 2013, 2016, 2017, 2022; Berdnik & Tokinova, 2016, 2018, 2020a, 2020b).

This article aims to compile an annotated list of free-living flatworm species that occur in the catchment area of the Volga and Kama rivers.

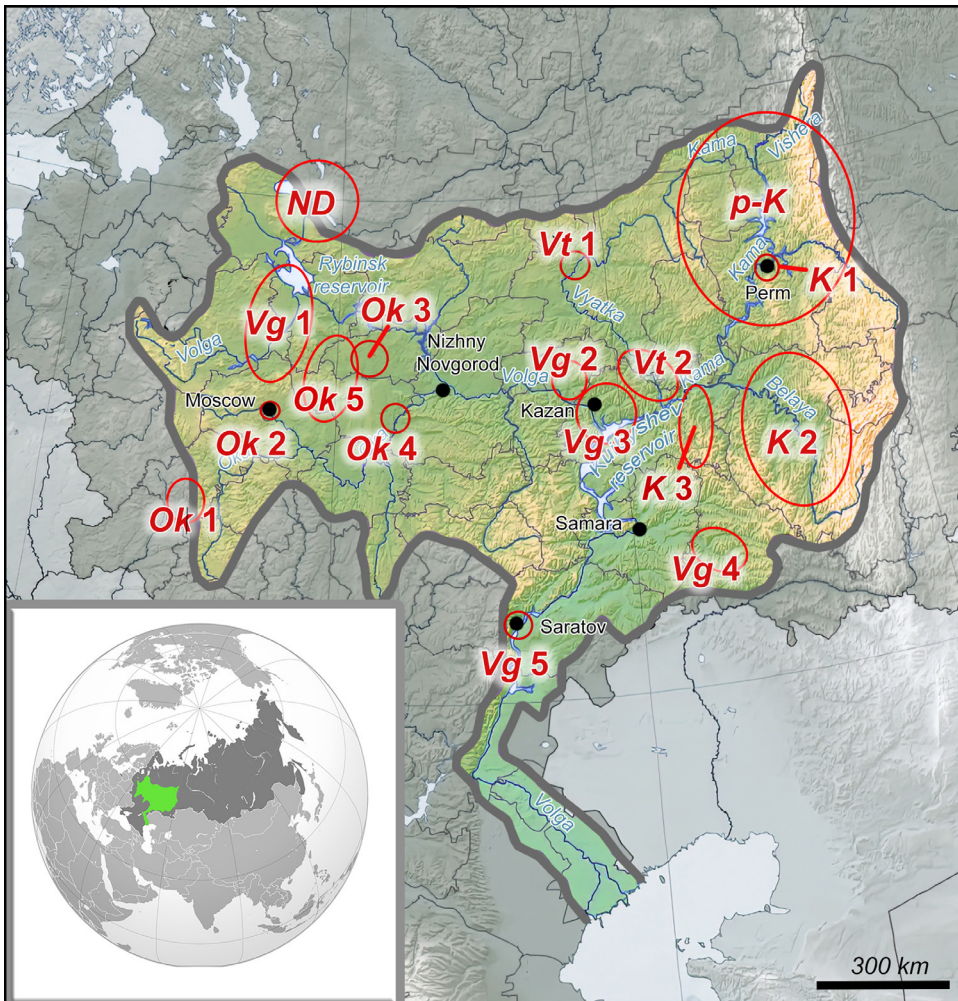
**Study region.** The Volga–Kama basin (Fig. 1), one of Russia’s most economically developed and anthropogenically influenced areas, is located almost entirely within the Russian (East European) Plain, but a small strip of its territory in the east stretches along the Ural Mountains (Ural mountainous region). The catchment area, running 1910 km from north to south and 1805 km from west to east, amounts to 1 380 000 km<sup>2</sup> (33% of European Russia and almost 13% of the territory of Europe). The Volga River (3690 km long) and its tributary

Kama (1800 km) form the hydrographic core of the basin. Volga’s and Kama’s large tributaries are the rivers Oka (1500 km), Vyatka (1310 km), and Belaya (1430 km). About 80% of the drainage network of the basin is dominated by flat landscapes with an altitude of 200 m or less, while mountains cover 5% or less. In the north, the basin lies in the forest zone, mainly the subzones of southern taiga and mixed coniferous-deciduous forests, changing southwards into the forest-steppe, semidesert and desert zones (Mordukhay-Boltovskoy, 1978; Litvinov et al., 2009).

## Material and methods

Here, we present a list of free-living flatworm species found at different sites of the Volga and Kama drainage network over the entire period of faunistic and hydrobiological research in the region. It is based on our materials collected in 2009–2022, and published in the above-mentioned papers, and on the critically revised literature data. The nomenclature and synonymy were brought up to date (Larsson & Willems, 2010; Artois et al., 2013; Atherton & Jondelius, 2019; Tyler et al., 2023; WoRMS, 2023; etc.). The list includes the following two major clades (accepted at the rank of subphyla): Catenulida and Rhabditophora. All species falling within these two clades were arranged in alphabetical order.

The paper contains an exhaustive list of all species-group and genus-group names that appeared in the literature on the free-living flatworms of the Volga–Kama basin, including not only synonyms but also erroneous identifications. The current names in the list are followed by the original combinations (basionyms), where necessary. Junior synonyms are listed only if they were used in the publications on the study area. Taxa recorded in only one publication more than 100 years old are marked with an asterisk (\*). Species for which the records in the Volga-Kama Basin are doubtful for other reasons or probable but not confirmed are marked with two asterisks (\*\*). For each species and subspecies, the areas of the Volga–Kama basin from which they are recorded are listed. The location of the areas on the map is shown in Figure 1. Further details, including localities in each area and references to publications with species records for each area, are given in Table 1.



**Fig. 1.** The areas of published records of free-living flatworms (circled) in the Volga–Kama basin. For abbreviations, see Table 1.

**Table 1.** The geographical areas and locations where free-living flatworms have been reported.

Abbreviation (Fig. 1)	Area	References
<i>p-K</i>	<b>Perm Prikamie</b> (Perm Kama Region), including the sub-basin of the Vishera River	Krasheninnikov, 2006; Pan'kov & Krasheninnikov, 2012; Pan'kov & Ovchankova, 2017
<i>K 1</i>	<b>Kama basin:</b> Perm and vicinity	Beklemishev, 1921, 1924, 1926, 1929, 1951
<i>K 2</i>	<b>Kama basin:</b> water bodies of Bashkortostan	Bayanov et al., 2015
<i>K 3</i>	<b>Kama basin:</b> Steynoy Zay River and its tributaries, Melekeska River (city of Naberezhnye Chelny)	Berdnik & Tokinova, 2020a
<i>Vt 1</i>	<b>Vyatka sub-basin:</b> near the city of Orlov	Nasonov, 1919
<i>Vt 2</i>	<b>Vyatka sub-basin:</b> lakes and small rivers – tributaries of the Vyatka River in its lower reach	Tokinova & Berdnik, 2022
<i>Ok 1</i>	<b>Oka sub-basin:</b> watershed between the tributaries of the Oka and Desna rivers	Beklemishev, 1916, 1951
<i>Ok 2</i>	<b>Oka sub-basin:</b> Moscow and vicinity	Nasonov, 1877, 1924; Rossinskiy, 1892; Zykoff, 1897; Beklemishev, 1951; Porfrieva & Dyganova, 1987



Abbreviation (Fig. 1)	Area	References
<b>Ok 3</b>	<b>Oka sub-basin:</b> Uvodskoe Reservoir	Korgina, 2011b
<b>Ok 4</b>	<b>Oka sub-basin:</b> near the city of Murom	Cordé, 1940
<b>Ok 5</b>	<b>Oka sub-basin:</b> Vladimir and Ivanovo-Voznesensk provinces (at present, Vladimir, Ivanovo, Yaroslavl' and Kostroma provinces)	Cordé, 1923; Nasonov, 1924
<b>Vg 1</b>	<b>Upper Volga</b> (from headwaters to the mouth of the Oka River): different types of water bodies, including Lake Pleshcheyevo, Rybinsk and Ivankovskoe reservoirs, ponds and small rivers, temporary water bodies	Cordé, 1928; Korgina, 2000, 2002, 2005, 2011a, 2014, 2018; Rogozin, 2011
<b>Vg 2</b>	<b>Middle Volga:</b> sub-basins of the rivers Ilet', Bol'shaya Kokshaga and Malaya Kokshaga	Dyganova & Porfirieva, 1983, 1988; Berdnik & Tokinova, 2016; Tokinova & Berdnik, 2022
<b>Vg 3</b>	<b>Middle Volga:</b> sub-basins of the rivers Sumka and Kazanka, water bodies of Kazan and vicinity, Kuybyshev Reservoir (Volga and Kama branches), etc.	Sabussow, 1895; Sabussowa, 1935; Kurban-galieva & Kashevarova, 1946; Dyganova, 1980; Dyganova & Porfirieva, 1988; Golubev & Malyutina, 1991; Tokinova et al., 2011, 2016; Tokinova & Berdnik, 2013, 2016, 2017, 2022; Berdnik & Tokinova, 2018, 2020a, 2020b
<b>Vg 4</b>	<b>Lower Volga:</b> sub-basin of the Samara River (Orenburg Province)	Beklemischev, 1922
<b>Vg 5</b>	<b>Lower Volga:</b> near the city of Saratov	Sabussow, 1903; Zykoff, 1902, 1903
<b>ND</b>	<b>Northern Dvina lock system*:</b> watershed between the basins of the Volga and the Northern Dvina rivers	Korgina, 1999

\* The name of a waterway that includes the Northern Dvina Canal, several rivers (Sukhona, Porozovitsa, etc.) and lakes (Siverskoe, Pokrovskoe, Zaulomskoe, Kishemskoe, and Blagoveshchenskoe), and a number of locks; it does not directly refer to the Northern Dvina River.

## Results

### Annotated checklist of Catenulida and Rhabditophora of the Volga–Kama basin

#### Subphylum Catenulida

Genus *Catenula* Dugés, 1832

*Catenula lemnae* Dugés, 1832

*Regions:* Kama basin, Vyatka sub-basin, Oka sub-basin, Middle Volga.

Genus *Myostenostomum* Luther, 1960

*Myostenostomum bulbocaudatum* Luther, 1960

*Region:* Middle Volga.

*Myostenostomum vanderlandi* Rogozin, 1992

*Region:* Middle Volga.

Genus *Rhynchoscolex* Leidy, 1851

*Rhynchoscolex simplex* Leidy, 1851

*Stenostomum coluber* Leydig, 1854.

*Regions:* Upper Volga, Middle Volga.

*Rhynchoscolex simplex plotnikovi* Beklemischev, 1923\*

*Region:* Kama basin.

Genus *Stenostomum* Schmidt, 1848

*Stenostomum anatirostrum* Marcus, 1945

*Region:* Middle Volga.

***Stenostomum bryophilum* Luther, 1960**

*Regions:* Northern Dvina lock system, Upper Volga.

*Remarks.* Kolasa & Young (1974) compared their *Stenostomum* specimens from the Great Britain, Kenya and Poland with the published descriptions of similar flatworms from Brazil and concluded that *S. bryophilum* should be treated as a synonym of *S. anatirostrum* because they share a number of morphological characters, including a duckbill-shaped prostomium (Luther, 1960: 28, 43; Kolasa & Young, 1974: 154, 156). Larsson & Willems (2010) regarded *S. bryophilum* and *S. anatirostrum* as separate species, with the former having a much larger prostomium.

***Stenostomum caudatum* Markow, 1904**

*Region:* Upper Volga.

***Stenostomum constrictum* Luther, 1960**

*Region:* Middle Volga.

*Remarks.* See comments under *S. unicolor*.

***Stenostomum grabbskogense* Luther, 1960**

*Regions:* Kama basin, Upper Volga, Middle Volga.

***Stenostomum heebuktense* Larsson et Willems, 2010**

*Region:* Middle Volga.

***Stenostomum ignavum* Vejdovsky, 1880\***

*Region:* Middle Volga.

***Stenostomum leucops* (Dugés, 1828)**

*Derostoma leucops* Dugés, 1828.

*Stenostomum tenuicauda* Graff, 1911.

*Regions:* Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga, Lower Volga.

***Stenostomum unicolor* Schmidt, 1848**

*Stenostomum unicolor unicolor* Schmidt, 1848: Luther, 1960.

*Stenostomum sphagnetorum* Luther, 1960 (unnecessary replacement name).

*Regions:* Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga.

*Remarks.* Luther (1960: 36) pointed out that the original description of *S. unicolor* (made by Schmidt, 1848: 60) does not meet today's requirements and that what was subsequently referred to in the literature as *S. unicolor* belongs to more than one species. All species of the *S. unicolor* group share a common structure of refractile bodies, spherical and indented on one side, and have an elongated shape of the pharynx.

The anterior end of the body in *S. unicolor* can vary greatly, from being more or less pointed to having an annular constriction that separates it from the rest of the body. Since this body part is highly mobile and contractive, it poses certain problems for the diagnostics of the species: it is often difficult to distinguish between species-specific and random contractions. Initially, Luther (1960) designated the form with a pointed anterior end as the subspecies *S. unicolor unicolor* and described the constricted form as *S. unicolor constrictum* Luther, 1960 (Luther, 1960: 41–43). He found both of these forms in the waters of Finland.

Some authors consider *S. unicolor* and *S. constrictum* as two valid species (Kolasa, 1971; Tulp, 1977; Larsson & Willems, 2010), but others consider *S. constrictum* a junior synonym of *S. unicolor* (van der Land, 1965; Bauchhenss, 1971). Until a special study is carried out, we consider *S. unicolor* and *S. constrictum* to be valid species; the specimens corresponding to both are present in our material.

In the appendix to his monograph (published together with its main part, on the same date), Luther (1960: 154) wrote that Papi, a reviewer of this work, had supposed that the name *S. unicolor* must be rejected for the sake of clarity. Following this advice, Luther (1960: 154) proposed a new replacement name *S. sphagnetorum* for *S. unicolor unicolor* and considered *S. unicolor constrictum* as a separate species, *S. constrictum*. However, the author made no changes to the main text of the monograph, probably because it had already been typed and was ready for printing by that moment.

According to Article 50.1 of the International Code of Zoological Nomenclature (ICZN) (International..., 1999), the author of the names *S. sphagnetorum* and *S. constrictum* is Luther. The indication in some databases (Tyler et al., 2023; WoRMS, 2023) of the authorship of these names as “Papi in Luther 1960” is incorrect because Lu-

ther was the only author of the monograph, Papi acted only as a reviewer (see Luther, 1960: 154), and there is no evidence that Papi could be responsible for the new names and description.

The replacement of the name *S. unicolor* Schmidt, 1848 with the new name *S. sphagnetorum* Luther, 1960 is inconsistent with the ICZN for the following reasons. A new replacement name is applied to the taxon under Article 23.3.5 of the ICZN: "If a name in use for a taxon is found to be unavailable or invalid it must be replaced by the next oldest available name from among its synonyms, including the names of the contained taxa of the same group [...], providing that that name is not itself invalid. If the rejected name has no potentially valid synonym a new substitute name must be established in its place". The name *S. unicolor* Schmidt, 1848 fulfills the criteria of availability listed in Chapter 4 of the ICZN. Among the criteria of availability given in Chapter 4 of the ICZN, the "interests of clarity" mentioned above are missing. So, when choosing between the names *S. unicolor* and *S. sphagnetorum*, one should be guided by the principle of priority (Article 23.1 of the ICZN), according to which the oldest available name applied to the taxon is *S. unicolor*, while *S. sphagnetorum* is an unnecessary replacement name.

#### Subphylum Rhabditophora

Genus *Bdellocephala* de Man, 1875

*Bdellocephala punctata* (Pallas, 1774)

*Fasciola punctata* Pallas, 1774.

*Regions:* Oka sub-basin, Upper Volga, Middle Volga.

Genus *Bothrioplana* Braun, 1881

*Bothrioplana semperi* Braun, 1881

*Euporobothria bohémica* (Vejdovsky, 1895).

*Regions:* Kama basin, Vyatka sub-basin, Oka sub-basin.

Genus *Bothromesostoma* Braun, 1885

*Bothromesostoma essenii* Braun, 1885

*Regions:* Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga.

*Bothromesostoma personatum* (Schmidt, 1848)

*Mesostoma personatum* Schmidt, 1848.

*Regions:* Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga.

*Bothromesostoma truncatum* Beklemishev, 1921\*

*Region:* Kama basin.

Genus *Castrada* Schmidt, 1861

*Castrada (Castrada) affinis* Hofsten, 1907

*Region:* Upper Volga.

*Castrada (Castrada) armata* (Fuhrmann, 1894)

*Mesostoma armata* Fuhrmann, 1894.

*Regions:* Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga.

*Castrada (Castrada) borealis* Steinböck, 1931

*Region:* Upper Volga.

*Castrada (Castrada) chlorea* Braun, 1885\*

*Region:* Middle Volga.

*Castrada (Castrada) hofmanni* Braun, 1885

*Mesostoma viridatum* non Schultze, 1851: Sabussow, 1895.

*Regions:* Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga, Lower Volga.

*Castrada (Castrada) inermis* Hofsten, 1911

*Region:* Northern Dvina lock system.

*Castrada (Castrada) instructa* Hofsten, 1907

*Region:* Upper Volga.

*Castrada (Castrada) intermedia* (Volz, 1898)

*Diplopenis intermedia* Volz, 1898.

*Regions:* Kama basin, Oka sub-basin, Upper Volga.

*Castrada (Castrada) lanceola* (Braun, 1885)

*Mesostoma lanceola* Braun, 1885.

*Regions:* Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga.

***Castrada (Castrada) luteola*** Hofsten, 1907

*Regions:* Middle Volga, Northern Dvina lock system.

***Castrada (Castrada) mamkaevi*** Korgina, 2001

*Region:* Upper Volga.

***Castrada (Castrada) neocomensis*** Volz, 1898

*Regions:* Kama basin, Oka sub-basin, Upper Volga.

***Castrada (Castrada) orloviensis*** Nasonov, 1919\*

*Region:* Vyatka sub-basin.

***Castrada (Castrada) papii*** Luther, 1963

*Region:* Upper Volga.

***Castrada (Castrada) perspicua*** (Fuhrmann, 1894)

*Mesostoma perspicua* Fuhrmann, 1894.  
*Castrada segne* (Fuhrmann, 1894).

*Regions:* Kama basin, Vyatka sub-basin, Oka sub-basin, Middle Volga.

***Castrada (Castrada) sphagnetorum*** Luther, 1904

*Region:* Upper Volga.

***Castrada (Castrada) viridis*** Volz, 1898

*Regions:* Kama basin, Oka sub-basin, Upper Volga.

***Castrada (Castradella) granea*** Braun, 1885

*Region:* Upper Volga.

***Castrada (Castradella) granea andreja*** Nasonov, 1919\*

*Castrada andreja* Nasonov, 1919.

*Region:* Vyatka sub-basin.

***Castrada (Castradella) quinquentata*** Nasonov, 1924

*Castrada nigropontica* non Nasonov, 1919: Cordé, 1923.

*Region:* Oka sub-basin.

Genus ***Castrella*** Fuhrmann, 1900

***Castrella (Castrella) truncata*** (Abildgaard, 1789)

*Planaria truncata* Abildgaard, 1789.

*Vortex truncatus* Ehrenberg, 1831.

*Vortex millportensis* Graff, 1882.

*Vortex millportianus* Graff, 1882.

*Regions:* Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga, Lower Volga.

***Castrella (Castrella) vernalis*** Beklemishev, 1921\*

*Region:* Kama basin.

***Castrella (Nasonoviella) lutheri*** (Nasonov, 1917)

*Dalyellia lutheri* Nasonov, 1917.

*Regions:* Oka sub-basin, Upper Volga.

Genus ***Dalyellia*** Gieysztor, 1938

***Dalyellia penicilla*** (Braun, 1885)

*Vortex penicilla* Braun, 1885.

*Regions:* Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga.

*Remarks.* In addition to *D. penicilla*, *D. penicilla diminuta* Gieysztor, 1929 was included in the list of turbellarians of the Volga basin (Gagarin, 1978). However, *D. penicilla diminuta* was subsequently excluded by Gagarin & Korgina (1982) from the list of flatworms of Russia.

***Dalyellia scoparia*** (Schmidt, 1858)\*

*Vortex scoparia* Schmidt, 1858.

*Region:* Middle Volga.

***Dalyellia viridis*** (Shaw, 1791)

*Hirudo viridis* Shaw, 1791.

*Vortex viridis* (Shaw, 1791).

*Regions:* Oka sub-basin, Upper Volga, Middle Volga.

Genus ***Dendrocoelum*** Örsted, 1844

***Dendrocoelum lacteum*** (Müller, 1774)

*Fasciola lactea* Müller, 1774.

*Regions:* Kama basin, Oka sub-basin, Upper Volga, Middle Volga.



Genus ***Dochmiotrema*** Hofsten, 1907

***Dochmiotrema limicola*** Hofsten, 1907

*Regions*: Oka sub-basin, Upper Volga, Middle Volga.

Genus ***Geocentrophora*** de Man, 1876

***Geocentrophora baltica*** (Kennel, 1883)

*Prorhynchus balticus* Kennel, 1883.

*Regions*: Upper Volga, Middle Volga.

***Geocentrophora sphyrocephala*** de Man, 1876

*Prorhynchus sphyrocephala* de Man, 1876.

*Regions*: Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga.

Genus ***Gieysztor*** Ruebush et Hayes, 1939

***Gieysztor chlynovica*** (Nasonov, 1919)

*Dalyellia chlynovica* Nasonov, 1919.

*Regions*: Vyatka sub-basin, Upper Volga.

***Gieysztor cuspidata*** (Schmidt, 1861)

*Vortex cuspidatus* Schmidt, 1861.

*Dalyellia cuspidata* (Schmidt, 1861).

*Vortex sexdentatus* Graff, 1882.

*Vortex sexdentatus quinquedentatus* Wassilieff, 1891 (as “*quinquedentata*”).

*Regions*: Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga.

***Gieysztor expedita*** (Hofsten, 1907)

*Dalyellia expedita* Hofsten, 1907.

*Regions*: Kama basin, Oka sub-basin, Upper Volga, Middle Volga.

***Gieysztor infundibuliformis*** (Fuhrmann, 1894)

*Vortex infundibuliformis* Fuhrmann, 1894.

*Regions*: Oka sub-basin, Upper Volga.

***Gieysztor lugubris*** (Reisinger, 1924)

*Dalyellia lugubris* Reisinger, 1924.

*Region*: Upper Volga.

***Gieysztor pavimentata*** (Beklemishev, 1926)

*Dalyellia pavimentata* Beklemishev, 1926.

*Region*: Kama basin.

***Gieysztor rubra*** (Fuhrmann, 1894)

*Vortex rubra* Fuhrmann, 1894.

*Dalyellia rubra* (Fuhrmann, 1894).

*Regions*: Kama basin, Oka sub-basin, Upper Volga, Middle Volga.

***Gieysztor sibirica*** (Plotnikow, 1905)

*Vortex sibirica* Plotnikow, 1905.

*Region*: Middle Volga.

***Gieysztor virgulifera*** (Plotnikow, 1906)

*Vortex virgulifera* Plotnikow, 1906.

*Dalyellia virgulifera* (Plotnikow, 1906).

*Regions*: Kama basin, Vyatka sub-basin, Oka sub-basin, Middle Volga.

***Gieysztor zykovi*** (Nasonov, 1919), species inquirenda

*Dalyellia zykovi* Nasonov, 1919.

*Vortex coronaries* non Schmidt, 1858; Zykov, 1903.

*Region*: Lower Volga.

*Remarks*. According to Luther (1955: 184), *G. zykovi* belongs to the same species group with *G. expedita*, *G. ornata* (Hofsten, 1907) and *G. rubra*, but it is probably impossible to recognise it with certainty due to inaccurate description of the stylet by Nasonov (1919).

***Gieysztor* sp.**

*Gieysztor* sp. 1: Tokinova & Berdnik, 2022.

*Region*: Middle Volga.

Genus ***Girardia*** Ball, 1974

***Girardia tigrina*** (Girard, 1850)\*\*

*Planaria tigrina* Girard, 1850.

*Region*: Not found in nature, possibly occurs in aquarium culture.

*Remarks*. *Girardia tigrina* is possible but not confirmed species in the Volga–Kama basin. It is a species of North American origin, which was brought to Europe accidentally as part of aquarium culture. This alien species was first recorded in Germany but later spread to the rest of Western Europe. The latest findings of *G. tigrina* specimens have been reported from Ukraine, in the Dnieper basin bordering the Volga basin (Kostenko et al., 2021). In the European part of Russia, *G. tigrina* may occur in indoor aquariums (Porfirieva & Dy-



ganova, 1987). For example, one of the authors observed several asexual individuals of *Girardia* sp. in a home aquarium in Kazan while working on this article.

The list of Volga species (Korgina, 2005) includes another species of the same family Dugesidae, *Dugesia gonocephala* (Dugès, 1830), allegedly found in the Oka River according to Cordé (1940). However, as stated in the original data source (Cordé, 1940), the sampling locality of this species (referred to as cf. *Planaria gonocephala*) is a spring on the bank of the Zanga River near Yerevan (Armenia, Transcaucasia). This species could have been erroneously included in the list, as we could not find any records of *D. gonocephala* from the Volga basin in the literature.

Genus ***Gyratrix*** Ehrenberg, 1831

***Gyratrix hermaphroditus*** Ehrenberg, 1831, sensu lato

*Gyrator hermaphroditus* (Ehrenberg, 1831) (in particular, as “*hermaphroditus* Ehrenberg, 1835”).  
? *Gyrator notops* Dugès, 1828.

*Regions*: Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga, Lower Volga.

*Remarks*. *Gyrator notops* is listed as a junior synonym of *Gyratrix hermaphroditus* in the databases (Artois et al., 2013; WoRMS, 2023).

***Gyratrix hermaphroditus coecus*** Graff, 1882\*

*Gyrator coecus* Graff, 1882.

*Region*: Oka sub-basin.

Genus ***Koinocystis*** Meixner, 1924

***Koinocystis neocomensis*** (Fuhrmann, 1904)

*Hyporhynchus neocomensis* Fuhrmann, 1904.

*Region*: Upper Volga.

Genus ***Macrostomum*** van Beneden, 1870

***Macrostomum appendiculatum*** (Fabricius, 1826), species inquirenda

*Planaria appendiculata* Fabricius, 1826.

*Region*: Oka sub-basin.

*Remarks*. In the original description of *P. appendiculata* there is no information on the structure of the reproductive system. According to Beklemi-

shev (1951: 31), *P. appendiculata* clearly belongs to the genus *Macrostomum*, but it cannot be readily distinguished from other species of this genus.

***Macrostomum distinguendum*** Papi, 1951

*Macrostomum rossicum* Beklemishev, 1951.

*Macrostomum appendiculatum* (non Fabricius, 1826): Beklemishev, 1916, 1921.

*Macrostomum hystrix* non Örsted, 1843: Sabussow, 1895.

*Regions*: Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga.

***Macrostomum finlandense*** Ferguson, 1940

*Macrostomum viride* non van Beneden, 1870: Sabussow, 1895.

*Regions*: Middle Volga.

*Remarks*. Beklemishev (1951) and Luther (1960) have argued that the European morphotype referred to as *M. viride* van Beneden, 1870 may in fact be represented by several distinct species (*M. finlandense*, *M. rostratum* or others). Nasonov (1924) identified the specimens collected near Moscow as *Macrostomum viride* but it is difficult to judge which species Nasonov was actually dealing with because of incomplete data on the morphology of the specimens he examined.

***Macrostomum hamatum*** Luther, 1947

*Region*: Upper Volga.

***Macrostomum inflatum*** Beklemishev, 1951\*

*Region*: Kama basin.

***Macrostomum longituba*** Papi, 1953

*Region*: Middle Volga.

***Macrostomum lutheri*** Beklemishev, 1927

*Region*: Middle Volga.

***Macrostomum mosquense*** Beklemishev, 1951

*Region*: Oka sub-basin.

***Macrostomum obtusum*** Vejdovsky, 1895

*Region*: Upper Volga.

***Macrostomum orthostylum*** Braun, 1885

*Regions*: Kama basin, Upper Volga, Middle Volga.

**Macrostomum rostratum** Papi, 1951

*Macrostomum phytophilum* Beklemishev, 1951.  
*Macrostomum viride* non van Beneden, 1870: Beklemishev, 1916, 1921, 1922.

Regions: Kama basin, Oka sub-basin, Upper Volga, Middle Volga.

**Macrostomum stepposus** Rogozin, 2012

Regions: Kama basin, Middle Volga.

**Macrostomum tuba** Graff, 1882

Region: Upper Volga.

Genus **Mesocastrada** Volz, 1898

**Mesocastrada fuhrmanni** Volz, 1898

*Castrada fuhrmanni* (Volz, 1898).

Regions: Oka sub-basin, Upper Volga.

Genus **Mesostoma** Ehrenberg, 1837

**Mesostoma craci** Schmidt, 1858

Regions: Kama basin, Oka sub-basin, Upper Volga, Middle Volga.

**Mesostoma ehrenbergii** (Focke, 1836)

*Planaria ehrenbergii* Focke, 1836.

Regions: Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga.

**Mesostoma lingua** (Abildgaard, 1789)

*Planaria lingua* Abildgaard, 1789.

*Mesostoma cyathum* Schmidt, 1858 (as “*cyathus*”).

*Mesostoma chromobactrum* Braun, 1885.

Regions: Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga.

**Mesostoma nigrirostrum** Braun, 1885

Region: Upper Volga.

**Mesostoma platygastricum** Hofsten, 1924

Regions: Upper Volga, Middle Volga.

**Mesostoma productum** (Schmidt, 1848)

*Schizostomum productum* Schmidt, 1848.

Regions: Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga, Lower Volga.

**Mesostoma punctatum** Braun, 1885

Regions: Oka sub-basin, Upper Volga, Middle Volga.

**Mesostoma rhynchotum** Braun, 1885

Regions: Upper Volga.

**Mesostoma tetragonum** (Müller, 1774)

*Fasciola tetragonum* Müller, 1774.

Regions: Kama basin, Oka sub-basin, Lower Volga.

Genus **Microdalyellia** Gieysztor, 1938

**Microdalyellia armigera** (Schmidt, 1861)

*Vortex armiger* Schmidt, 1861.

*Dalyellia armigera* (Schmidt, 1861).

Regions: Kama basin, Oka sub-basin, Upper Volga, Middle Volga.

**Microdalyellia brevimana** (Beklemishev, 1921)

*Dalyellia brevimana* Beklemishev, 1921.

Regions: Kama basin, Upper Volga, Middle Volga.

**Microdalyellia brevispina** (Hofsten, 1911)

*Dalyellia brevispina* Hofsten, 1911.

Region: Upper Volga.

**Microdalyellia fairchildi** (Graff, 1911)

*Dalyellia fairchildi* Graff, 1911.

*Dalyellia striata* (Plotnikow, 1905).

*Dalyellia polychaeta* Nasonov, 1919.

Regions: Kama basin, Vyatka sub-basin, Upper Volga, Middle Volga.

**Microdalyellia fusca** (Fuhrmann, 1894)

*Vortex fuscus* Fuhrmann, 1894.

Regions: Kama basin, Upper Volga, Middle Volga.

**Microdalyellia fusca filifera** (Nasonov, 1919)\*

*Dalyellia fusca filifera* Nasonov, 1919.

Region: Vyatka sub-basin.

Remarks. According to Luther (1955: 107), morphological differences in the cuticular armament of the male copulatory organ in *Microdaly-*

*ellia fusca* from the Vyatka River that were described by Nasonov (1919) are not sufficient to classify these specimens as a separate subspecies *M. fusca filifera*.

***Microdalyellia kupelwieseri*** (Meixner, 1915)

*Dalyellia kupelwieseri* Meixner, 1915.

Region: Middle Volga.

***Microdalyellia microphthalma*** (Vejdovsky, 1895)

*Vortex microphthalma* Vejdovsky, 1895.

*Dalyellia microphthalma* (Vejdovsky, 1895).

Regions: Oka sub-basin, Upper Volga.

***Microdalyellia mollosovi*** (Nasonov, 1920)\*

*Dalyellia mollosovi* Nasonov, 1920.

*Dalyellia sphagnetica* Beklemishev, 1921.

Region: Kama basin.

***Microdalyellia nanella*** (Beklemishev, 1921)

*Dalyellia nanella* Beklemishev, 1921.

Regions: Kama basin, Upper Volga, Middle Volga.

***Microdalyellia ohlsoni*** Luther, 1955

Region: Upper Volga.

***Microdalyellia picta*** (Schmidt, 1848)

*Vortex pictus* Schmidt, 1848.

*Dalyellia picta* (Schmidt, 1848).

*Dalyellia hallezi* Graff, 1882.

Regions: Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga.

***Microdalyellia rossi*** (Graff, 1911)

*Dalyellia rossi* Graff, 1911.

*Dalyellia karisalmica* Nasonov, 1917.

*Dalyellia hallezii* (non Graff, 1882): Beklemishev, 1916.

Regions: Kama basin, Oka sub-basin.

Remarks. Beklemishev (1916) mentioned this species as “*Dalyellia hallezii* (non Gr.)”.

***Microdalyellia tennesseensis*** (Ruebush et Hayes, 1939)

*Dalyellia rossi tennesseensis* Ruebush et Hayes, 1939

Region: Middle Volga.

Genus ***Microstomum*** Örsted, 1843

***Microstomum canum*** Fuhrmann, 1894

Region: Oka sub-basin.

***Microstomum giganteum*** Hallez, 1878

Regions: Vyatka sub-basin, Oka sub-basin, Middle Volga.

***Microstomum lineare*** (Müller, 1774)

*Fasciola linearis* Müller, 1774.

Regions: Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga, Lower Volga.

Genus ***Morimiurella*** Timoshkin, 2010

***Morimiurella lacustris*** (Meixner, 1926)

*Koinocystis lacustris* Meixner, 1926.

Region: Middle Volga.

Remarks. Timoshkin (2010: 1515) attributed *Koinocystis lacustris* to the genus *Morimiurella*, taking into account the morphological features of this species (protonephridial system, copulatory apparatus, and multiplicity of cocoons). We support this opinion, having the opportunity to study the morphology of this species using the individuals from Lake Kaban in Kazan (Tokinova & Berdnik, 2013: 199–200).

Genus ***Olisthanella*** Voigt, 1892

***Olisthanella elegans*** Nasonov, 1919, species insertae sedis

Regions: Vyatka sub-basin, Oka sub-basin.

Remarks. According to Marcus (1946: 83), it is unclear if the species belongs to *Olisthanella*, since the description does not indicate the relative position of the testes and vitellaria.

***Olisthanella multispina*** Beklemishev, 1924, species incertae sedis

Region: Kama basin.

Remarks. *Olisthanella multispina* is considered as species incertae sedis in the Turbellaria databank (Tyler et al., 2023). In addition, Rogozin (2005) remarked on the poor description of *O. multispina*: it lacks critical information about some diagnostic features, such as the position of



testes relative to the vitellaria, as well as the location of the excretory opening.

***Olisthanella obtusa*** (Schultze, 1851)

*Mesostoma obtusa* Schultze, 1851.

Regions: Oka sub-basin, Upper Volga, Middle Volga, Lower Volga.

***Olisthanella palmeni*** Nasonov, 1917

Regions: Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga.

***Olisthanella palmeni rhynchocephala*** Beklemischev, 1921\*

Regions: Kama basin.

***Olisthanella truncula*** (Schmidt, 1858)

*Mesostomum trunculum* Schmidt, 1858.

*Mesostomum* sp.: Nasonov, 1877.

*Mesostoma nassonoffii* Graff, 1892.

Regions: Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga, Lower Volga.

Genus ***Opisthocystis*** Sekera, 1911

***Opisthocystis goettei*** (Bresslau, 1906)

*Polycystis goettei* Bresslau, 1906.

Regions: Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga.

Genus ***Opisthomum*** Schmidt, 1848

***Opisthomum arsenii*** Nasonov, 1917.

Regions: Oka sub-basin, Upper Volga, Middle Volga.

***Opisthomum dimitrii*** Nasonov, 1919\*

Region: Vyatka sub-basin.

***Opisthomum fuscum*** Weise, 1942

Region: Upper Volga.

***Opisthomum immigrans*** Ax, 1956

Regions: Upper Volga, Middle Volga.

***Opisthomum pallidum*** Schmidt, 1848

*Opisthomum schultzeanum* Diesing, 1862.

Regions: Oka sub-basin, Upper Volga.

Genus ***Otomesostoma*** Graff, 1882

***Otomesostoma auditivum*** (Forel et du Plessis, 1874)

*Mesostomum auditivum* Forel et du Plessis, 1874.

Region: Upper Volga.

Genus ***Phaenocora*** Ehrenberg, 1837

***Phaenocora clavigera*** Hofsten, 1907

*Phaenocora stagnalis* (Fuhrmann, 1894).

Regions: Oka sub-basin, Upper Volga.

***Phaenocora gagarini*** Korgina, 2014

*Megaloderostoma polycirra* non Beklemischev, 1929: Korgina, 2002.

Region: Upper Volga.

***Phaenocora gracilis*** (Vejdovsky, 1895)

*Derostoma gracilis* Vejdovsky, 1895.

Regions: Vyatka sub-basin, Oka sub-basin.

***Phaenocora polycirra*** Beklemischev, 1929

*Phaenocora* (*Megaloderostoma*) *polycirra* Beklemischev, 1929.

Regions: Kama basin, Middle Volga.

***Phaenocora rufodorsata*** (Sekera, 1904)

*Derostoma rufodorsata* Sekera, 1903.

Regions: Oka sub-basin, Upper Volga, Middle Volga.

***Phaenocora typhlops*** (Vejdovsky, 1880)

*Derostoma typhlops* Vejdovsky, 1880.

*Phaenocora vjatkensis* Nasonov, 1919.

*Phaenocora typhlops vjatkensis* Nasonov, 1919.

Regions: Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga.

Remarks. *Phaenocora vjatkensis* was described by Nasonov (1919) as a new species and then placed by Beklemischev (1921) in synonymy with *P. typhlops*. Later on, it was mentioned by Nasonov (1924) as *P. typhlops vjatkensis*.

***Phaenocora unipunctata*** (Örsted, 1843)

*Derostoma unipunctatum* Örsted, 1843.

Regions: Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga.

***Phaenocora variodentata*** Meixner, 1915

*Region*: Middle Volga.

Genus ***Plagiostomum*** Schmidt, 1852

***Plagiostomum lemani*** (Forel et du Plessis, 1874)

*Vortex lemani* Forel et du Plessis, 1874.

*Regions*: Kama basin, Oka sub-basin, Upper Volga, Middle Volga, Lower Volga.

Genus ***Planaria*** Müller, 1776

***Planaria torva*** (Müller, 1774)

*Fasciola torva* Müller, 1774.

*Regions*: Kama basin, Oka sub-basin, Upper Volga, Middle Volga.

Genus ***Polycelis*** Ehrenberg, 1831

***Polycelis nigra*** (Müller, 1774)\*\*

*Fasciola nigra* Müller, 1774 .

*Regions*: Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga.

*Remarks*. The presence of this species in the Volga–Kama basin needs further confirmation. Porfirieva & Dyganova (1987: 84–85) considered *Polycelis tenuis* Ijima, 1884, which is morphologically similar to *P. nigra*, as widespread in the European part of Russia. Interestingly, there have been no reliable finds of *P. nigra* in this region; the specimens sampled from a number of habitats (near Perm and Orlov) and identified as *P. nigra* (Nasonov, 1919; Beklemischev, 1921) most probably are *P. tenuis*. The status of *Polycelis cornuta* (Johnston, 1822) recorded from the lakes of Moscow and its vicinities (Rossinskiy, 1892) is unclear as well. Although some doubts remain, it seems that these flatworms should also be regarded as *P. tenuis* because there are confirmed finds of this species from the water bodies near Moscow (Porfirieva & Dyganova, 1987: 80).

***Polycelis tenuis*** Ijima, 1884

*Regions*: Kama basin, Oka sub-basin, Upper Volga, Middle Volga.

Genus ***Pontaralia*** Mack-Fira, 1968

***Pontaralia beklemichevi*** Mack-Fira, 1968

*Region*: Middle Volga.

Genus ***Prorhynchus*** Schultze, 1851

***Prorhynchus stagnalis*** Schultze, 1851

*Regions*: Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga, Lower Volga.

Genus ***Provortex*** Graff, 1882

***Provortex pallidus*** Luther, 1948

*Region*: Upper Volga.

***Provortex sphagnorum*** (Sekera, 1911)

*Pilgramilla sphagnorum* Sekera, 1911.

*Region*: Middle Volga.

Genus ***Pseudosyrctis*** Ax, 1956

***Pseudosyrctis fluviatilis*** (Gieysztor, 1938)

*Otoplana fluviatilis* Gieysztor, 1938.

*Region*: Oka sub-basin.

Genus ***Rhynchomesostoma*** Luther, 1904

***Rhynchomesostoma lutheri*** Papi, 1963

*Region*: Upper Volga.

***Rhynchomesostoma rostratum*** (Müller, 1774)

*Fasciola rostrata* Müller, 1774.

*Mesostoma rostratum* Ehrenberg, 1836.

*Regions*: Kama basin, Vyatka sub-basin, Oka sub-basin, Middle Volga.

Genus ***Schmidtea*** Ball, 1974

***Schmidtea lugubris*** (Schmidt, 1861)

*Planaria lugubris* Schmidt, 1861.

*Dugesia lugubris* (Schmidt, 1861).

*Planaria polychroa* non Schmidt, 1861: Beklemischev, 1916; Kurbangalieva & Kashevarova, 1946.

*Regions*: Oka sub-basin, Upper Volga, Middle Volga.

*Remarks*. According to Porfirieva & Dyganova (1987: 63), of the two similar species, *Schmidtea lugubris* and *S. polychroa* (Schmidt, 1861), only the former has been reliably reported for the European part of Russia. This is also indicated by the recent studies of *Schmidtea* in Europe: *S. polychroa* is widespread in Western Europe, while the range of *S. lugubris* is shifted to Eastern Europe and Russia (Leria et al., 2018). All the early refer-

ences to *S. polychroa* (including those to *Planaria polychroa*) in European Russia should be considered erroneous identifications.

Genus *Sergia* Nasonov, 1923

*Sergia sergia* (Beklemishev, 1918)

*Dalyellia sergia* Belemishev, 1918.

Region: Middle Volga.

Genus *Strongylostoma* Örsted, 1844

*Strongylostoma cirratum* Beklemishev, 1921

Region: Middle Volga.

*Strongylostoma elongatum* Hofsten, 1907

*Strongylostoma bologoviense* (Plotnikow, 1906).

Regions: Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga.

*Strongylostoma radiatum* (Müller, 1774)

*Fasciola radiata* Müller, 1774.

*Castrada radiata* Graff, 1882.

*Mesostoma gonocephalum* non Silliman, 1884: Sabussow, 1895.

Regions: Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga, Middle Volga.

*Strongylostoma simplex* Meixner, 1915

Regions: Oka sub-basin, Upper Volga, Middle Volga.

Genus *Tetracelis* Ehrenberg, 1831

*Tetracelis marmorosa* (Müller, 1774)

*Fasciola marmorosa* Müller, 1774.

Region: Upper Volga.

Genus *Typhloplana* Ehrenberg, 1831

*Typhloplana minima* (Fuhrmann, 1894)\*

*Mesostoma minima* Fuhrmann, 1894.

Region: Vyatka sub-basin.

*Typhloplana viridata* (Abildgaard, 1789)

*Planaria viridata* Abildgaard, 1789.

*Mesostoma viridatum* (Abildgaard, 1789).

Regions: Kama basin, Vyatka sub-basin, Oka sub-basin, Upper Volga.

Genus *Typhloplanella* Sekera, 1912

*Typhloplanella opaca* Nasonov, 1923

Region: Middle Volga.

**Typhloplanidae gen. sp.**

Typhloplanidae gen. sp. 1: Tokinova & Berdnik, 2022.

Regions: Middle Volga.

Remarks. This species differs from all others known from the Volga–Kama basin. At present, it is difficult to assign it to any genus. Further study is required to clarify its taxonomic position within the Typhloplanidae.

## Conclusion

Our analysis shows that the list of free-living flatworms inhabiting the Volga–Kama basin includes 143 species and 43 genera from the clades Catenulida (13 species) and Rhabditophora (130 species) (Table 2).

Four species of rhabditoform worms in this list have dubious taxonomic status: *Macrostomum appendiculatum* and *Gieysztoria zykovi* (species inquirenda), *Olisthanella elegans* and *O. multispina* (species incertae sedis).

Ten other species and five subspecies in the list are based on single finds that were made more than 100 years ago: *Castrada chlorea*, *Dalyellia scoparia*, and *Stenostomum ignavum* (for Kazan and vicinity, by Sabussow, 1895); *Bothromesostoma truncatum*, *Castrella vernalis*, *Macrostomum inflatum*, *Microdalyellia mollosovi*, *Olisthanella palmeni rhynchocephala*, and *Rhynchoscolex simplex plotnikovi* (for Perm, by Beklemishev, 1921, 1924, 1951), *Castrada granea andreja*, *Castrada orloviensis*, *Microdalyellia fusca filifera*, *Opisthomum dimitrii*, and *Typhloplana minima* (near the city of Orlov, by Nasonov, 1919), and *Gyratrix hermaphroditus coecus* (for Moscow vicinity, by Zykoff, 1897). The records of two more species, *Girardia tigrina* and *Polycelis nigra*, need confirmation for other reasons. To exclude the possibility of erroneous identifications, further evidence is needed that all these taxa occur in the study region.

The checklist of free-living flatworm species makes it easier to access the literature data available to date on the geographical distribution of turbellarians across the largest river basin of Eu-



**Table 2.** Number of species and genera of Catenulida and Rhabditophora in the Volga–Kama basin.

Taxa (species number for genera, in parentheses)	Species number for river basins						Total number of species/ genera
	Kama	Vyatka	Oka	Upper Volga	Middle Volga	Lower Volga	
<b>CATENULIDA:</b> <i>Catenula</i> (1), <i>Myostenostomum</i> (2), <i>Rhynchosclex</i> (1), <i>Stenostomum</i> (9)	4	3	3	6	11	1	13/4
<b>RHABDITOPHORA</b> , including:	52	40	67	82	69	12	130/39
<b>Macrostomorpha:</b> <i>Macrostomum</i> (13), <i>Microstomum</i> (3)	6	3	7	7	7	2	16/2
<b>Prorhynchida:</b> <i>Geocentrophora</i> (2), <i>Prorhynchus</i> (1)	1	2	2	3	3	1	3/2
<b>Prolecithophora:</b> <i>Plagiostomum</i> (1)	1		1	1	1	1	1/1
<b>Tricladida:</b> <i>Bdellocephala</i> (1), <i>Dendrocoelum</i> (1), <i>Girardia</i> (1), <i>Planaria</i> (1), <i>Polycelis</i> (2), <i>Schmidtea</i> (1)	4	1	6	6	5		7/6
<b>Proseriata:</b> <i>Otomesostoma</i> (1), <i>Pseudosyrthis</i> (1)	1		1				2/2
<b>Bothrioplanida:</b> <i>Bothrioplana</i> (1)	1	1	1				1/1
<b>Rhabdoceola: Kalyptorhynchia:</b> <i>Gyratrix</i> (1), <i>Koinocystis</i> (1), <i>Morimiurella</i> (1), <i>Opisthocystis</i> (1), <i>Pontaralia</i> (1)	2	2	2	3	3	1	5/5
<b>Rhabdoceola: Neodalyellida:</b> <i>Provortex</i> (2)				1	1		2/1
<b>Rhabdoceola: Limnotyphloplanida:</b> <i>Bothromesostoma</i> (3), <i>Castrada</i> (19), <i>Castrella</i> (3), <i>Dalyellia</i> (3), <i>Dochmiotrema</i> (1), <i>Gieysztorina</i> (11), <i>Mesocastrada</i> (1), <i>Mesostoma</i> (9), <i>Microdalyellia</i> (13), <i>Olisthanella</i> (5), <i>Opistomum</i> (5), <i>Phaenocora</i> (8), <i>Rhynchomesostoma</i> (2), <i>Sergia</i> (1), <i>Strongylostoma</i> (4), <i>Tetracelis</i> (1), <i>Typhloplana</i> (2), <i>Typhloplanella</i> (1), <i>Typhloplanidae</i> gen. indet. (1)	36	31	47	61	49	7	93/19

rope, which were previously scattered throughout numerous publications. This contributes to our understanding of the diversity of this group and allows us to compare it with other river basins. However, the list presented here is far from complete. When more geographical localities are covered in future faunistic research, new species may be added, mainly due to the limnotyphloplanid families of Rhabdoceola (Dalyelliidae and Typhloplanidae), which predominate in the taxocoenoses of free-living flatworms in the Palaearctic freshwaters.

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