



Crustacean fauna of Kharkiv region (Ukraine)

S. A. Sidorovskiy, M. Y. Shrestha

V. N. Karazin Kharkiv National University, 4 Maidan Svobody, Kharkiv, Ukraine

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V. N. Karazin Kharkiv National
University, Maidan Svobody, 4,
Kharkiv, 61022, Ukraine.
E-mail:
serge.sidorovskiy@karazin.ua

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The list of crustacean species of Kharkiv region, Ukraine, comprises 153 valid species, distributed in 13 orders and 28 families. This number corresponds to 0.2% of Crustacea worldwide. The order Anomopoda is the most represented, with 53 species. Numbers of species per order recorded were: Calanoida (8), Cyclopoida (23), Spinicaudata (1), Laevicaudata (1), Ctenopoda (20), Anomopoda (5), Haplopoda (1), Anostraca (5), Notostraca (2), Amphipoda (7), Isopoda (1), Decapoda (3), and Podocopida (46). The check-list includes free-living aquatic crustaceans, while parasitic and terrestrial ones are not listed herein. In the fauna of Kharkiv region, two non-indigenous species were revealed: *Neocaridina davidi* and *Procambarus virginialis*. Additionally, four species are listed in the Red Book of Ukraine: *Hemidiaptomus rylovi*, *Cyzicus tetracerus*, *Tanyastix stagnalis* and *Drepanosurus birostratus*. Fourteen species are rare for Kharkiv region: *Eudiaptomus transylvanicus*, *Gigantodiaptomus hungaricus*, *Hemidiaptomus rylovi*, *Tanyastix stagnalis*, *Chirocephalus shadini*, *Chirocephalus josephinae*, *Cyzicus tetracerus*, *Lynceus brachyurus*, *Drepanosurus birostratus*, *Streptocephalus torvicornis*, *Lepidurus apus*, *Triops cancriformis*, *Synurella ambulans*, and *Yogmelina pusilla*.

Keywords: Calanoida; Cyclopoida; Spinicaudata; Laevicaudata; Ctenopoda; Anomopoda; Haplopoda; Anostraca; Notostraca; Amphipoda; Isopoda; Decapoda; Podocopida.

Introduction

Kharkiv region is located in the northeast of Ukraine on the border of the forest-steppe and steppe physiographic zones (Fig. 1). According to natural and climatic conditions, the territory of the region can be divided into two zones: forest-steppe, covering the central, northern, and western parts, and steppe, covering the southern and eastern parts. The region is located at the watershed of the Don and Dnipro rivers. 156 rivers with a length of more than 10 km flow through its territory. The largest are the Siverskyi Donets, Orel, and Oskil (Kliesch & Maksymenko, 2019).



Fig. 1. Ukraine and Kharkiv region on the map of Europe

The world fauna includes 67,000 species of crustaceans that live in the sea and freshwater bodies, although a number of species live on land (Martin & Davis, 2001; Zhang, 2013; Rogers & Olesen, 2016; Mykitchak, 2018). Information on the occurrence of crustaceans in Kharkiv region has been published in various catalogues and articles. In 1830, Ukrainian zoologist and Kharkiv University professor Krynytskyi described a new species, *Cyzicus tetracerus*, from the Kharkiv region (Krynickyi, 1830). The first studies on the crustacean fauna of the Kharkiv region, Uk-

raine, were conducted by Fadeev, who created a list of crustacean species based on his research from 1917 to 1923. In that study, special attention was paid to the fauna of the Siverskyi Donets River (Fadeev, 1929). Other researchers made significant contributions to the knowledge about the diversity of crustacean fauna in the floodplain of the Siverskyi Donets River, such as Solodovnikov (1940). Ukrainian zoologist Shkhorbatov in his works paid special attention to crustaceans of temporary water bodies of the basin of the Siverskyi Donets River (Shkhorbatov, 1950). The species diversity of water bodies important for fisheries was studied by Kolesnik (1990, 2014), and the distribution and parasites of Astacidae in the Kharkiv region were investigated by Kolesnykova (Kolesnykova, 2007; Kolesnykova et al., 2008). In 2009 and 2011, Grabowski conducted research in the Siverskyi Donets River, specifically searching for the species *Gammarus varsoviensis* Jazdzewski, 1975. However, the species was not found during these investigations (Grabowski et al., 2012).

This article aims to highlight the diversity of freshwater crustaceans in Kharkiv region. It excludes parasitic and terrestrial species. The list was compiled using a combination of literary sources and the author's own research conducted from 2009 to 2024 (Sidorovskiy, 2012, 2014; Sidorovskiy & Kryshchal, 2017).

The classification of crustacean species follows Martin & Davis (2001), Boxshall (2007) and the World Register of Marine Species (WoRMS) (www.marinespecies.org). Moreover, the following literature was used to clarify the synonymy of the species and systematic comparison: Calanoida (Mykitchak, 2018; Marrone et al., 2019), Cyclopoida (Mykitchak, 2018; Gutiérrez-Aguirre & Cervantes-Martínez, 2016), Spinicaudata (Rogers, 2020), Laevicaudata (Rogers & Olesen, 2016), Ctenopoda, Anomopoda (Benzie, 2005), Haplopoda (Flofner, 2000), Anostraca (Rogers, 2009), Notostraca (Rogers, 2009), Amphipoda (Väinölä, 2008), Isopoda (Wilson, 2008), Decapoda (Storobogato, 1996; Harlioglu, 2004; Kouba, et al., 2014; Lyko, 2017; Son et al., 2020), and Podocopida (Hiruta et al., 2016).

The list of crustacean species includes 153 species, distributed across 13 orders and 28 families (Table 1). This represents approximately 0.2% of all known crustacean species worldwide. The order Anomopoda is the most represented, with 53 species, Calanoida 8 species, Cyclopoida 23

species, Spinicaudata 1 species, Laevicaudata 1 species, Ctenopoda 20 species, Anomopoda 5 species, Haplopoda 1 species, Anostraca 5 species, Notostraca 2 species, Amphipoda 7 species, Isopoda 1 species, Decapoda

3 species, Podocopida 46 species. The checklist of crustacean species from Kharkiv region, Ukraine, is presented below, organized by class, order, and family in alphabetical order.

Table 1

Formal conservation status, rare species outside Ukraine's Red List, non-indigenous species, first record and last record of crustaceans in Kharkiv region

Order	Species	Ukraine's Red List conservation status	Rare species	Non-indigenous species	First record	Last record
Calanoida	<i>Diaptomus castor</i> (Jurine, 1820)	–	–	–	Fadeev (1929)	–
	<i>Diaptomus coeruleus</i> (Fischer, 1853)	–	–	–	Fadeev (1929)	–
	<i>Eudiaptomus arnoldi</i> (Siewerth, 1928)	–	–	–	Fadeev (1929)	–
	<i>Eudiaptomus gracilis</i> Lilljeborg, 1889	–	–	–	Fadeev (1929)	Sidorovsky (2013b)
	<i>Eudiaptomus transylvanicus</i> (Daday, 1890)	–	+	–	Kolesnyk (1990)	Sidorovsky (2014a)
	<i>Gigantodiaptomus amblyodon</i> Marenzeller, 1873	–	–	–	Fadeev (1929)	–
	<i>Gigantodiaptomus hungaricus</i> (Kiefer, 1932)	–	+	–	Sidorovsky (2011)	Sidorovsky (2013b)
	<i>Hemidiaptomus rylovi</i> Charin, 1929	EN	+	–	Sidorovsky (2011)	Sidorovsky (2013b)
Cyclopoida	<i>Criptocyclops bicolor</i> (Sars, 1863)	–	–	–	Fadeev (1929)	–
	<i>Cyclops incidulus</i> (Claus, 1857)	–	–	–	Fadeev (1929)	–
	<i>Cyclops strenuus</i> Fischer, 1851	–	–	–	Kolesnyk (1990)	Sidorovsky (2014a)
	<i>Cyclops vicinus</i> Uljanin, 1875	–	–	–	Kolesnyk (1990)	Sidorovsky (2014a)
	<i>Diacyclops bisetosus</i> (Rehberg, 1880)	–	–	–	Fadeev (1929)	–
	<i>Diacyclops crassicaudis</i> (Sars, 1863)	–	–	–	Fadeev (1929)	–
	<i>Eucyclops agilis</i> (Koch, 1836)	–	–	–	Fadeev (1929)	–
	<i>Eucyclops lilljeborgi</i> (Sars, 1863)	–	–	–	Fadeev (1929)	–
	<i>Eucyclops macruroides</i> (Lilljeborg, 1901)	–	–	–	Sidorovsky (2012)	Sidorovsky (2014a)
	<i>Eucyclops macrurus</i> (Sars, 1863)	–	–	–	Fadeev (1929)	–
	<i>Eucyclops serrulatus</i> (Fisher, 1851)	–	–	–	Sidorovsky (2012)	Sidorovsky (2013b)
	<i>Eucyclops speratus</i> (Lilljeborg, 1901)	–	–	–	Fadeev (1929)	–
	<i>Macrocyclus fusus</i> (Jurine, 1820)	–	–	–	Fadeev (1929)	–
	<i>Mesocyclops albidus</i> (Jurine, 1820)	–	–	–	Kolesnyk (1990)	Sidorovsky (2013b)
	<i>Mesocyclops gracilis</i> (Lilljeborg, 1901)	–	–	–	Fadeev (1929)	–
	<i>Mesocyclops leuckarti</i> (Claus, 1857)	–	–	–	Fadeev (1929)	Kolesnyk (1990)
	<i>Metacyclops gracilis</i> (Lilljeborg, 1853)	–	–	–	Fadeev (1929)	–
	<i>Mirocyclops rubellus</i> (Lilljeborg, 1901)	–	–	–	Sidorovsky (2013b)	–
	<i>Platycyclops fimbriatus</i> (Fischer, 1851)	–	–	–	Fadeev (1929)	–
	<i>Platycyclops affinis</i> (Sars, 1863)	–	–	–	Fadeev (1929)	–
<i>Termocyclops crassus</i> (Fischer, 1851)	–	–	–	Kolesnyk (1990)	Sidorovsky (2013b)	
<i>Thermocyclops obsoletus</i> (Koch, 1836)	–	–	–	Fadeev (1929)	Kolesnyk (1990)	
<i>Thermocyclops oithonoides</i> (Sars G. O., 1863)	–	–	–	Kolesnyk (1990)	Kolesnyk (2014)	
Spinicaudata	<i>Cyzicus tetracerus</i> (Krynicky, 1830)	VU	+	–	Krynicky (1830)	Sidorovsky & Kryshstal (2017)
Laevicaudata	<i>Lynceus brachyurus</i> O.F. Müller, 1776	–	+	–	Fadeev (1929)	Sidorovsky & Kryshstal (2017)
Ctenopoda	<i>Diaphanosoma brachyurum</i> (Liévin, 1848)	–	–	–	Fadeev (1929)	Kolesnyk (2014)
	<i>Sida crystallina</i> (O. F. Müller, 1776)	–	–	–	Fadeev (1929)	Sidorovsky (2014a)
Anomopoda	<i>Acroperus harpae</i> (Baird, 1834)	–	–	–	Fadeev (1929)	Kolesnyk (2014)
	<i>Alonella excisa</i> (Fischer, 1854)	–	–	–	Fadeev (1929)	Shkorbatov (1950)
	<i>Alonella exigua</i> (Lilljeborg, 1853)	–	–	–	Fadeev (1929)	–
	<i>Alona affinis</i> (Leydig, 1860)	–	–	–	Fadeev (1929)	Sidorovsky (2014a)
	<i>Alona guttata</i> Sars, 1862	–	–	–	Kolesnyk (1990)	Sidorovsky (2014a)
	<i>Alona protzi</i> Hartwig, 1900	–	–	–	Fadeev (1929)	–
	<i>Alona quadrangularis</i> (O. F. Müller, 1776)	–	–	–	Fadeev (1929)	Sidorovsky (2014a)
	<i>Bosmina coregoni</i> (Müller, 1785)	–	–	–	Kolesnyk (1990)	Kolesnyk (2014)
	<i>Bosmina longirostris</i> (O. F. Müller, 1776)	–	–	–	Fadeev (1929)	Kolesnyk (2014)
	<i>Bunops serricaudata</i> (Daday, 1888)	–	–	–	Fadeev (1929)	Sidorovsky (2014a)
	<i>Camptocercus lilljeborgi</i> Schödler, 1862	–	–	–	Fadeev (1929)	–
	<i>Camptocercus rectirostris</i> Schödler, 1862	–	–	–	Fadeev (1929)	–
	<i>Ceriodaphnia dubia</i> Richard, 1894	–	–	–	Fadeev (1929)	Kolesnyk (2014)
	<i>Ceriodaphnia laticaudata</i> P. E. Müller, 1867	–	–	–	Shkorbatov (1950)	–
	<i>Ceriodaphnia megops</i> G. O. Sars, 1861	–	–	–	Shkorbatov (1950)	–
	<i>Ceriodaphnia pulchella</i> G. O. Sars, 1862	–	–	–	Kolesnyk (1990)	Sidorovsky (2014a)
	<i>Ceriodaphnia quadrangula</i> (O. F. Müller, 1785)	–	–	–	Fadeev (1929)	–
	<i>Ceriodaphnia reticulata</i> (Jurine, 1820)	–	–	–	Fadeev (1929)	Kolesnyk (2014)
	<i>Ceriodaphnia rotunda</i> Sars, 1862	–	–	–	Fadeev (1929)	Kolesnyk (2014)
	<i>Ceriodaphnia setosa</i> Matile, 1890	–	–	–	Fadeev (1929)	Sidorovsky (2014a)
	<i>Chidorus ovata</i> Kurz, 1874	–	–	–	Kolesnyk (1990)	Sidorovsky (2014a)
	<i>Chydorus sphaericus</i> (O. F. Müller, 1776)	–	–	–	Fadeev (1929)	Sidorovsky (2012)
	<i>Coronatella rectangula</i> (G. O. Sars, 1862)	–	–	–	Shkorbatov (1950)	Kolesnyk (1990)
	<i>Daphnia cucullata</i> G. O. Sars, 1861	–	–	–	Shkorbatov (1950)	Kolesnyk (2014)
	<i>Daphnia longispina</i> (O. F. Müller, 1776)	–	–	–	Fadeev (1929)	Kolesnyk (2014)
	<i>Daphnia magna</i> Straus, 1820	–	–	–	Fadeev (1929)	Kolesnyk (2014)
	<i>Daphnia pulex</i> Leydig, 1860	–	–	–	Fadeev (1929)	Kolesnyk (2014)
	<i>Disparalona rostrata</i> (Koch, 1841)	–	–	–	Fadeev (1929)	Sidorovsky (2012)
	<i>Dunhevedia crassa</i> King, 1853	–	–	–	Fadeev (1929)	–
	<i>Eorucercus lamellatus</i> (Müller, 1776)	–	–	–	Fadeev (1929)	Sidorovsky (2014a)
<i>Graptoleberis testudinaria</i> (Fischer, 1851)	–	–	–	Fadeev (1929)	–	

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	<i>Kurzia latissima</i> (Kurz, 1875)	–	–	–	Fadeev (1929)	Shkorbatov (1950)
	<i>Lathonura rectirostris</i> (O.F. Müller, 1776)	–	–	–	Fadeev (1929)	Shkorbatov (1950)
	<i>Leydigia leydigii</i> (Schödler, 1863)	–	–	–	Fadeev (1929)	Shkorbatov (1950)
	<i>Macrothrix hirsuticornis</i> Norman & Brady, 1867	–	–	–	Shkorbatov (1950)	Kolesnyk (2014)
	<i>Macrothrix laticornis</i> (Jurine, 1820)	–	–	–	Fadeev (1929)	–
	<i>Moina brachiata</i> (Jurine, 1820)	–	–	–	Shkorbatov (1950)	Sidorovsky (2014a)
	<i>Moina micrura</i> Kurz, 1874	–	–	–	Fadeev (1929)	Kolesnyk (2014)
	<i>Monospilus dispar</i> G. O. Sars, 1862	–	–	–	Fadeev (1929)	–
	<i>Obyurella tenuicaudis</i> (G. O. Sars, 1862)	–	–	–	Kolesnyk (1990)	Sidorovsky (2014a)
	<i>Paralona pigra</i> G. O. Sars, 1862	–	–	–	Fadeev (1929)	–
	<i>Peracantha truncata</i> (O. F. Müller, 1785)	–	–	–	Fadeev (1929)	Shkorbatov (1950)
	<i>Picripleuroxus laevis</i> (G. O. Sars, 1862)	–	–	–	Fadeev (1929)	–
	<i>Pleuroxus aduncus</i> Jurine, 1820	–	–	–	Fadeev (1929)	–
	<i>Pleuroxus trigonellus</i> (O. F. Müller, 1776)	–	–	–	Fadeev (1929)	Kolesnyk (2014)
	<i>Pleuroxus uncinatus</i> (Baird, 1850)	–	–	–	Fadeev (1929)	–
	<i>Polyphemus pediculus</i> (Linnaeus, 1761)	–	–	–	Fadeev (1929)	–
	<i>Pseudochydorus globosus</i> (Baird, 1843)	–	–	–	Fadeev (1929)	–
	<i>Scapholeberis aurita</i> (Fischer, 1849)	–	–	–	Fadeev (1929)	Shkorbatov (1950)
	<i>Scapholeberis mucronata</i> (O. F. Müller, 1776)	–	–	–	Fadeev (1929)	Kolesnyk (2014)
	<i>Simoccephalus expinosus</i> (Koch, 1841)	–	–	–	Fadeev (1929)	Sidorovsky (2014a)
	<i>Simoccephalus vetulus</i> (O. F. Müller, 1776)	–	–	–	Fadeev (1929)	Kolesnyk (2014)
	<i>Tretocephala ambigua</i> (Lilljeborg, 1901)	–	–	–	Shkorbatov (1950)	Sidorovsky (2012)
Haplopoda	<i>Leptodora kindtii</i> Focke, 1844	–	–	–	Fadeev (1929)	Kolesnyk (2014)
Anostraca	<i>Chirocephalus josephinae</i> (Grube, 1853)	–	+	–	Shkorbatov (1950)	–
	<i>Chirocephalus shadini</i> (Smimov, 1928)	–	+	–	Fadeev (1929)	Sidorovsky & Kryshstal (2017)
	<i>Drepanosurus birostratus</i> (Fischer, 1851)	VU	+	–	Shkorbatov (1950)	Sidorovsky (2014b)
	<i>Streptocephalus torvicornis</i> (Waga, 1842)	–	+	–	Sidorovsky (2011)	Sidorovsky (2011)
	<i>Tanyastix stagnalis</i> Linnaeus, 1758	VU	+	–	Fadeev (1929)	Sidorovsky 92012)
Notostraca	<i>Lepidurus apus</i> (Linnaeus 1758)	–	+	–	Fadeev (1929)	Sidorovsky (2014a)
	<i>Triops cancriformis</i> (Bosc, 1803)	–	+	–	Fadeev (1929)	Sidorovsky (2014a)
Amphipoda	<i>Gammarus lacustris</i> (Sars, 1863)	–	–	–	Sidorovsky (2012)	Kolesnyk (2014)
	<i>Gammarus pulex</i> (Linnaeus, 1758)	–	–	–	Fadeev (1929)	Sidorovsky (2012)
	<i>Pontogammarus obesus</i> (G. O. Sars, 1894)	–	–	–	Fadeev (1929)	Sidorovsky (2012)
	<i>Pontogammarus robustoides</i> (Sars, 1895)	–	–	–	Kolesnyk (2014)	–
	<i>Synurella ambulans</i> (O. F. Müller, 1846)	–	+	–	Fadeev (1929)	Sidorovsky (2014b)
	<i>Yogmelina pusilla</i> (Sars, 1896)	–	+	–	Sidorovsky (2012)	Sidorovsky (2014b)
	<i>Corophium curvispinum</i> (Sars, 1895)	–	+	–	Fadeev (1929)	Kolesnyk (2014)
Isopoda	<i>Asellus aquaticus</i> (Linnaeus, 1758)	–	–	–	Fadeev (1929)	Sidorovsky (2014b)
Decapoda	<i>Neocaridina davidi</i> (Bouvier, 1904)	–	–	+	Sidorovsky et al. (2023)	–
	<i>Pontastacus leptodactylus</i> Eschscholtz, 1823	–	–	–	Fadeev (1929)	Sidorovsky (2012)
	<i>Procambarus virginalis</i> Lyko, 2017	–	–	+	Son, et al. (2020)	Sidorovsky, et al. (2023)
Podocopida	<i>Bradleystrandesia reticulata</i> (Zaddach, 1844)	–	–	–	Fadeev (1929)	–
	<i>Candona albicans</i> Brady, 1864	–	–	–	Fadeev (1929)	–
	<i>Candona angulata</i> G. W. Müller, 1900	–	–	–	Fadeev (1929)	–
	<i>Candona balatonica</i> Daday, 1894	–	–	–	Fadeev (1929)	–
	<i>Candona candida</i> O. F. Müller, 1776	–	–	–	Fadeev (1929)	–
	<i>Candona detecta</i> O.F. Müller, 1776	–	–	–	Fadeev (1929)	–
	<i>Candona neglecta</i> G.O. Sars, 1887	–	–	–	Fadeev (1929)	–
	<i>Candona stagnalis</i> Sars, 1890	–	–	–	Fadeev (1929)	–
	<i>Candona weltneri</i> Hartwig, 1899	–	–	–	Fadeev (1929)	–
	<i>Cyclocypris laevis</i> (O. F. Müller, 1776)	–	–	–	Fadeev (1929)	–
	<i>Cyclocypris ovum</i> (Jurine, 1820)	–	–	–	Fadeev (1929)	–
	<i>Cypria exsculpta</i> (Fischer, 1855)	–	–	–	Fadeev (1929)	–
	<i>Cypria fadeewi</i> Dubowsky, 1927	–	–	–	Fadeev (1929)	–
	<i>Cypria ophthalmica</i> (Jurine, 1820)	–	–	–	Fadeev (1929)	–
	<i>Cypricercus fuscatus</i> (Jurine, 1820)	–	–	–	Fadeev (1929)	–
	<i>Cypricercus obliquus</i> (Brady, 1868)	–	–	–	Fadeev (1929)	–
	<i>Cypridopsis newtoni</i> Brady & Robertson, 1870	–	–	–	Fadeev (1929)	–
	<i>Cypridopsis parva</i> G. W. Müller, 1900	–	–	–	Fadeev (1929)	–
	<i>Cypridopsis vidua</i> (O. F. Müller 1776)	–	–	–	Fadeev (1929)	–
	<i>Cyprinotus salinus</i> (Brady, 1868)	–	–	–	Fadeev (1929)	–
	<i>Cypris pubera</i> Müller O. F., 1776	–	–	–	Fadeev (1929)	Sidorovsky (2012)
	<i>Cypris marginata</i> (Straus, 1821)	–	–	–	Fadeev (1929)	–
	<i>Cythereis donetziensis</i> Dubowsky, 1926	–	–	–	Fadeev (1929)	–
	<i>Darwinula aurea</i> Darwinula & Norman, 1889	–	–	–	Fadeev (1929)	–
	<i>Dolerocypris fasciata</i> (O. F. Müller, 1776)	–	–	–	Fadeev (1929)	–
	<i>Eucypris clavata</i> (Baird, 1838)	–	–	–	Sidorovsky (2012)	Sidorovsky (2014a)
	<i>Eucypris crassa</i> (O. F. Müller, 1785)	–	–	–	Sidorovsky (2012)	Sidorovsky (2014a)
	<i>Eucypris lutaria</i> (Koch, 1838)	–	–	–	Fadeev (1929)	–
	<i>Eucypris virens</i> (Jurine, 1820)	–	–	–	Fadeev (1929)	Sidorovsky (2012)
	<i>Fabaeformiscandona fabaeformis</i> (Fischer, 1851)	–	–	–	Fadeev (1929)	–
	<i>Heterocypris incongruens</i> (Ramdohr, 1808)	–	–	–	Fadeev (1929)	–
	<i>Hungarocypris madaraszii</i> (Oerley, 1886)	–	–	–	Fadeev (1929)	–

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	<i>Ilyocypris biplicata</i> (Koch, 1838)	–	–	–	Fadeev (1929)	–
	<i>Ilyocypris bradyi</i> Sars, 1890	–	–	–	Fadeev (1929)	–
	<i>Ilyocypris decipiens</i> Masi, 1905	–	–	–	Fadeev (1929)	–
	<i>Ilyocypris gibba</i> (Ramdohr, 1808)	–	–	–	Fadeev (1929)	–
	<i>Isocypris arnoldi</i> Dubowsky, 1927	–	–	–	Fadeev (1929)	–
	<i>Limnocythere inopinata</i> (Baird, 1843)	–	–	–	Fadeev (1929)	–
	<i>Limnocythere relicta</i> Lilljeborg, 1863	–	–	–	Fadeev (1929)	–
	<i>Metacypris cordata</i> Brady & Robertson, 1870	–	–	–	Fadeev (1929)	–
	<i>Notodromas monacha</i> (O. F. Müller, 1776)	–	–	–	Fadeev (1929)	–
	<i>Potamocypris variegata</i> (Brady & Norman, 1889)	–	–	–	Fadeev (1929)	–
	<i>Pseudocandona insculpta</i> G. W. Muller, 1900	–	–	–	Fadeev (1929)	–
	<i>Pseudocandona marchica</i> (Hartwig, 1899)	–	–	–	Fadeev (1929)	–
	<i>Pseudocandona pratensis</i> (Hartwig, 1901)	–	–	–	Fadeev (1929)	–
	<i>Stenocypris fischeri</i> (Lilljeborg, 1883)	–	–	–	Fadeev (1929)	–

Note: the species are listed according to their systematic order (WORMS), EN – Endangered, VU – Vulnerable.

Check-list of the Crustaceans of Kharkiv region, Ukraine

Order Calanoida Sars, 1903

Diaptomus castor (Jurine, 1820)

Synonymised names: *Cyclops lacinulatus* Müller, 1776; *Cyclopsina castor* Milne, 1840; *Diaptomus sovinskyi* Guerne & Richard, 1892; *Monoculus lacinulatus* Gmelin, 1790; *M. rubens* Fabricius, 1775.

Previous records: Fadeev (1929).

Diaptomus coeruleus (Fischer, 1853)

Synonymised names: *Eudiaptomus vulgaris* (Schmeil, 1896).

Previous records: Fadeev (1929).

Eudiaptomus arnoldi (Siewerth, 1928)

Previous records: Fadeev (1929).

Eudiaptomus gracilis Lilljeborg, 1889

Synonymised names: *Diaptomus westwoodii* Lubbock, 1864.

Previous records: Fadeev (1929); Sidorovsky (2013b).

Eudiaptomus transylvanicus (Daday, 1890)

Synonymised names: *Cyclopsina coerulea* Fischer, 1853.

Previous records: Kolesnyk (1990, 2014); Sidorovsky (2011, 2013a, 2014a).

Gigantodiaptomus amblyodon Marenzeller, 1873

Synonymised names: *Diaptomus bogdanowii* Korchagin, 1887.

Gigantodiaptomus hungaricus (Kiefer, 1932)

Previous records: Sidorovsky, 2011, 2013b.

Hemidiaptomus rylowi Charin, 1929

Previous records: Sidorovsky (2011, 2013b).

Order Cyclopoida Burmeister, 1834

Criptocyclops bicolor (Sars, 1863)

Synonymised names: *C. brevisetosus* Sovinsky, 1887; *C. igneus* Poggenpol, 1874; *C. tenuicaudis* Daday, 1885.

Previous records: Fadeev (1929).

Cyclops incidulus (Claus, 1857)

Previous records: Fadeev (1929).

Cyclops strenuus Fischer, 1851

Synonymised names: *C. ankyrae* Mann, 1940; *C. bodamicus* Vosseler, 1886; *C. brevicaudatus* Claus, 1857; *C. claudiopolitanus* Daday, 1885; *C. clausii* Lubbock, 1863; *C. fedtschenkoi* Ulyanin, 1875; *C. Furfifer* Lindberg, 1956; *C. hamatus* Sovinsky, 1888; *C. lacunae* Lowndes, 1926; *C. lacustris* Sars 1863; *C. lucidulus* Koch, 1836; *C. miniatus* Lilljeborg, 1901; *C. paradyi* Daday, 1889; *C. pictus* Koch, 1838; *C. quadricornis* Lilljeborg, 1853; *C. trouchanowi* Sovinsky, 1888.

Previous records: Kolesnyk (1990, 2014); Sidorovsky (2011, 2013b, 2014a).

Cyclops vicinus Uljanin, 1875

Synonymised names: *C. uljanini* Sovinsky, 1887.

Previous records: Kolesnyk (1990, 2014); Sidorovsky (2011, 2013b, 2014a).

Diacyclops bisetosus (Rehberg, 1880)

Synonymised names: *C. kieviensis* Sovinsky, 1887. •

Previous records: Fadeev (1929).

Diacyclops crassicaudis (Sars, 1863)

Synonymised names: *Cyclops brucei* Scott T., 1899.

Previous records: Fadeev (1929).

Eucyclops agilis (Koch, 1836)

Previous records: Fadeev (1929).

Eucyclops lilljeborgi (Sars, 1863)

Previous records: Fadeev (1929).

Eucyclops macruroides (Lilljeborg, 1901)

Synonymised names: *E. lilljeborgi* Sars, 1918.

Previous records: Sidorovsky (2012, 2013b).

Eucyclops macrurus (Sars, 1863)

Synonymised names: *C. alajensis* Ulyanin, 1874; *C. maarensis* Vosseler, 1889.

Previous records: Fadeev (1929).

Eucyclops serrulatus (Fisher, 1851)

Previous records: Sidorovsky (2012, 2013b).

Eucyclops speratus (Lilljeborg, 1901)

Previous records: Fadeev (1929).

Macrocyclus fusus (Jurine, 1820)

Synonymised names: *C. fasciacornis* Cragin, 1883; *C. korostyschewi* Sovinsky, 1887; *C. palustris* Sovinsky, 1887.

Previous records: Fadeev (1929).

Mesocyclops albidus (Jurine, 1820)

Previous records: Kolesnyk (1990); Sidorovsky (2012, 2013b).

Mesocyclops gracilis (Lilljeborg, 1901)

Previous records: Fadeev (1929).

Mesocyclops leuckarti (Claus, 1857)

Previous records: Fadeev (1929); Kolesnyk (1990).

Metacyclops gracilis (Lilljeborg, 1853).

Synonymised names: *Microcyclops varicans* Sars, 1863.

Previous records: Fadeev (1929).

Mirocyclops rubellus (Lilljeborg, 1901)

Previous records: Sidorovsky (2013b).

Platycyclops fimbriatus (Fischer, 1851)

Previous records: Fadeev (1929).

Platycyclops affinis (Sars, 1863)

Previous records: *C. pygmaeus* Rehberg, 1880

Previous records: Fadeev (1929).

Termocyclops crassus (Fischer, 1851)

Previous records: Kolesnyk (1990); Sidorovsky (2011, 2013b).

Thermocyclops obsoletus (Koch, 1836)

Previous records: Fadeev (1929); Kolesnyk (1990).

Thermocyclops oithonoides (Sars G. O., 1863)

Previous records: Kolesnyk (1990, 2014); Sidorovsky (2011, 2013b).

Order Spinicaudata Linder, 1945

Cyzicus tetracerus (Krynicky, 1830)

Synonymised names: *Caenestheriella cyrenaicus* Vecchi, 1922; *C. variabilis* Daday, 1913; *Cyzicus borecei* Daday, 1913; *C. chyzeri* Daday, 1913; *C. cycladoides* (Joly, 1841); *C. cyrenaicus* (Vecchi, 1922); *C. dubiosus* Daday, 1913; *C. fallax* Daday, 1913; *C. hungaricus* Daday,

1913; *C. intermedius* Daday, 1913; *C. ornatus* Smimov, 1932; *C. romanus* Daday, 1913; *C. romanus* Daday, 1914; *C. sibericus* Daday, 1913; *C. simoni* Daday, 1914; *Estheria cycladoides* (Joly, 1842); *Isaura cycladoides* Joly, 1842.

Previous records: Krynicki (1830); Fadeev (1929); Shkorbatov (1950); Sidorovsky (2012); Sidorovsky & Kryshnal (2017).

Order Laevicaudata Linder, 1945

Lynceus brachyurus O. F. Müller, 1776

Synonymised names: *L. brachyurus* Grube, 1853; *L. gouldi* Baird, 1862; *L. zichyi* Daday, 1901; *L. acanthorhynchus* Bowkiewicz, 1923; *L. andronachensis* Botnariuc, 1947.

Previous records: Fadeev (1929); Shkorbatov (1950); Sidorovsky (2012); Sidorovsky & Kryshnal (2017).

Order Ctenopoda G. O. Sars, 1865

Diaphanosoma brachyurum (Liévin, 1848)

Synonymised names: *Diaphanosoma perarmatum* Brehm, 1933; *Sida brachyura* Liévin, 1848

Previous records: Fadeev (1929); Kolesnyk (1990, 2014); Sidorovsky (2012, 2014).

Sida crystallina (O. F. Müller, 1776)

Synonymised names: *S. elongata* Sars, 1865; *S. limnetica* Burckhardt, 1899.

Previous records: Fadeev (1929); Kolesnyk (1990, 2014); Sidorovsky (2014).

Order Anomopoda G. O. Sars, 1865

Acroperus harpae (Baird, 1834)

Synonymised names: *A. bairdi* Langhans, 1911; *A. cavirostris* Müller, 1867; *A. frigida* Ekman, 1904; *A. leucocephalus* Koch, 1841; *A. striatus* Lilljeborg, 1853; *A. transylvanicus* Daday, 1884.

Previous records: Fadeev (1929); Shkorbatov (1950); Kolesnyk (1990, 2014); Sidorovsky (2012, 2014).

Alonella excisa (Fischer, 1854)

Synonymised names: *A. kulczynskii* Grochmalicki, 1915; *A. setosa* Werestchagin, 1913; *A. szczorsiana* Dybowski, 1895.

Previous records: Fadeev (1929); Shkorbatov (1950).

Alona affinis (Leydig, 1860)

Synonymised names: *A. barbata* Brehm, 1935; *A. dentata* Werestchagin, 1911; *A. elegantula* Brehm, 1933; *A. oblonga* Müller, 1867; *A. spinifera* Schödler, 1862.

Previous records: Fadeev (1929); Shkorbatov (1950); Kolesnyk (1990, 2014); Sidorovsky (2012, 2014).

Alona guttata Sars, 1862

Synonymised names: *A. anglica* Hellich, 1874; *A. bergi* Røen, 1992; *A. minuta* Poggenpol, 1874; *A. parvula* Kurz, 1875; *A. reticulata* Hartmann, 1917; *A. spinulosa* Linko, 1900.

Previous records: Fadeev (1929); Kolesnyk (1990, 2014); Sidorovsky (2014).

Alona protzi Hartwig, 1900

Synonymised names: *A. schikiejewi* Brehm, 1933.

Previous records: Fadeev (1929).

Alona quadrangularis (O. F. Müller, 1776)

Synonymised names: *A. dilatata* Werestchagin, 1911; *A. lepida* Birge, 1892; *A. sanguinea* Müller, 1867.

Previous records: Fadeev (1929); Sidorovsky (2012, 2014).

Alonella exigua (Lilljeborg, 1853)

Synonymised names: *A. hispanica* Arévalo, 1916; *A. mutica* Lilljeborg, 1901; *Pleuroxus transylvanicus* Daday, 1888.

Previous records: Fadeev (1929).

Bosmina coregoni (Müller, 1785)

Synonymised names: *B. abnobensis* Scheffelt, 1908; *B. acrocoregoni* Burckhardt, 1899; *B. acronia* Burckhardt, 1899; *B. affinis* Schödler, 1865; *B. alpine* Sars, 1890; *B. amethystina* Brehm, 1906; *B. angulata* Lilljeborg, 1901; *B. bavarica* Imhof, 1888; *B. berlinensis* Imhof, 1888; *B. bohemia* Hellich, 1877; *B. borussica* Ruhe, 1912; *B. brevirostris* Müller, 1867; *B. brevispina* Sars, 1890; *B. cerestiana* Burckhardt, 1899; *B. cisterciensis* Rühle, 1909; *B. crassicornis* Lilljeborg, 1887; *B. devergens* Lilljeborg,

1901; *B. diaphana* Müller, 1867; *B. dollfusii* Moniez, 1887; *Bosmina elegans* Sars, 1890; *Bosmina flexuosa* Sars, 1890; *B. gibba* G. O. Sars, 1890; *B. gibbera* Schödler, 1863; *B. gibberifomis* Lilljeborg, 1901; *B. gibberima* Lilljeborg, 1880; *B. gibberoides* Linko, 1901; *B. gibbosa* Sars, 1890; *B. helvetica* Burckhardt, 1899; *B. humilis* Zacharias, 1887; *B. insignis* Lilljeborg, 1901; *B. intermedia* Poppe, 1889; *B. kessleri* Uljanin, 1874; *B. kivi* Linko, 1901; *B. lacustris* Sars, 1862; *B. ladogensis* Nordquist, 1887; *B. laevis* Leydig, 1860; *B. lariana* Burckhardt, 1899; *B. lemami* Burckhardt, 1899; *B. lilleborgi* Sars, 1862; *B. longicornis* Schödler, 1865; *B. longispina* Leydig, 1860; *B. macrocerastes* Lilljeborg, 1901; *B. mixta* Lilljeborg, 1901; *B. monstrosa* Linko, 1900; *B. nitida* Sars, 1862; *B. obtusata* Sars, 1890; *B. obtusirostris* Sars, 1862; *B. peteniscensis* Burckhardt, 1899; *B. poppe* Wereschagin, 1911; *B. relicticornis* Nordquist, 1887; *B. reflexa* Seligo, 1900; *B. retroextensa* Lilljeborg, 1901; *B. rotunda* Schödler, 1865; *B. tugina* Burckhardt, 1899; *B. turicensis* Burckhardt, 1899; *B. zschokkei* Burckhardt, 1899.

Previous records: Kolesnyk (1990); Sidorovsky (2012, 2014); Kolesnyk (2014).

Bosmina longirostris (O. F. Müller, 1776)

Synonymised names: *B. africanaustralis* Methuen, 1911; *B. arostris* Schiklejew, 1930; *B. brevicornis* Hellich, 1877; *B. curvirostris* Fischer, 1854; *B. japonica* Poppe & Richard, 1890; *B. pelagica* Stingelin, 1895; *B. pellucida* Stingelin, 1895; *B. stuhlmanni* Weltner, 1898; *Garbinia adriani* Grochowski, 1910; *Monoculus cornuta* Jurine, 1820.

Previous records: Fadeev (1929); Shkorbatov (1950); Kolesnyk (1990, 2014); Sidorovsky (2012, 2014).

Bunops serricaudata (Daday, 1888)

Previous records: Fadeev (1929); Sidorovsky (2012, 2014).

Camptocercus lilljeborgi Schödler, 1862

Synonymised names: *C. latirostris* Kurz, 1875.

Previous records: Fadeev (1929).

Camptocercus retrostris Schödler, 1862

Synonymised names: *C. abrau* Schiklejew, 1933; *C. biserratus* Schödler, 1862; *C. macrurus* Schoedler, 1862; *C. serratunguis* Chiang Siehchih, 1964.

Previous records: Fadeev (1929).

Ceriodaphnia dubia Richard, 1894

Synonymised names: *C. acuminata* Ekman, 1900; *C. affinis* Lilljeborg, 1901; *C. limicola* Ekman, 1900; *C. richardi* Sars, 1901.

Previous records: Fadeev (1929); Shkorbatov (1950); Kolesnyk (1990, 2014); Sidorovsky (2012, 2014).

Ceriodaphnia laticaudata P. E. Müller, 1867

Synonymised names: *C. transylvana* Daday, 1888; *C. valentina* Arévalo, 1916.

Previous records: Shkorbatov (1950).

Ceriodaphnia megops G. O. Sars, 1861

Synonymised names: *C. alata* Werestchagin, 1911; *C. cristata* Birge, 1879; *C. intermedia* Hartmann, 1917; *C. leydigii* Schödler, 1877.

Previous records: Shkorbatov (1950).

Ceriodaphnia pulchella G. O. Sars, 1862

Synonymised names: *C. microcephala* Sars, 1890; *C. pseudohamata* Bowkiewicz, 1926.

Previous records: Kolesnyk (1990); Sidorovsky, (2012, 2014).

Ceriodaphnia quadrangula (O. F. Müller, 1785)

Synonymised names: *C. connectens* Drost, 1925; *C. hamata* Sars, 1890; *C. muelleri* Langhans, 1911; *C. punctata* Müller, 1867; *Monoculus clathratus* Jurine, 1820.

Previous records: Fadeev (1929).

Ceriodaphnia reticulata (Jurine, 1820)

Synonymised names: *C. fisheri* Leydig, 1860; *C. kuerzi* Stingelin, 1895; *C. oculata* Werestchagin, 1911; *C. serrata* Sars, 1890.

Previous records: Fadeev (1929); Shkorbatov (1950); Kolesnyk (1990, 2014); Sidorovsky (2012, 2014).

Ceriodaphnia rotunda Sars, 1862

Previous records: Fadeev (1929); Shkorbatov (1950); Kolesnyk (2014).

Ceriodaphnia setosa Matile, 1890

Synonymised names: *C. echinata* Moniez, 1887.

Previous records: Fadeev (1929); Sidorovsky (2012, 2014).

- Chydorus ovata* Kurz, 1874
Previous records: Kolesnyk (1990); Sidorovsky (2012, 2014).
Chydorus sphaericus (O. F. Müller, 1776)
Synonymised names: *C. arcticus* Roen, 1987; *C. coelatus* Werestchagin, 1913; *C. lynceus* Langhans, 191; *C. mutilus* Kreis, 192; *Monoculus infusorius* Schrank, 1781.
Previous records: Fadeev (1929); Shkorbatov (1950); Sidorovsky (2012).
- Coronatella rectangula* (G. O. Sars, 1862)
Synonymised names: *Alona aculeata* Werestchagin, 1911; *A. caucasica* Shikleev, 1933; *A. eucostata* Sars, 1894; *A. moniezi* Richard, 1888; *A. pseudopulchra* Smirnov, 1968; *A. pulchra* Hellich, 1874; *A. serrata* Daday, 1908; *Lynceus leydigoides* Brehm, 1908
Previous records: Shkorbatov (1950); Kolesnyk (1990).
Daphnia cucullata G. O. Sars, 1861
Previous records: Shkorbatov (1950); Kolesnyk (1990, 2014); Sidorovsky (2012, 2014).
Daphnia longispina (O. F. Müller, 1776)
Previous records: Fadeev (1929); Shkorbatov (1950); Kolesnyk (1990, 2014); Sidorovsky (2012, 2014).
Daphnia magna Straus, 1820
Previous records: Fadeev (1929); Shkorbatov (1950); Kolesnyk (1990, 2014); Sidorovsky (2012, 2014).
Daphnia pulex Leydig, 1860
Synonymised names: *D. schoedleri* Sars, 1862.
Previous records: Fadeev (1929); Shkorbatov (1950); Kolesnyk (1990, 2014); Sidorovsky (2012, 2014).
Disparalona rostrata (Koch, 1841)
Synonymised names: *Alonella neumanni* Weltner, 1899, *Lynceus griseus* Fischer, 1859, *L. nargielewiczii* Dybowski & Grochowski, 1898, *Rhynchotalona tuberculata* Herr, 1917.
Previous records: Fadeev (1929); Shkorbatov (1950); Sidorovsky (2012).
- Dunhevedia crassa* King, 1853
Synonymised names: *D. divihallyana* Ponyi, 1955; *D. eureticolata* Kottász, 1913; *D. interrupta* Brehm, 1936; *D. neglecta* Daday, 1903.
Previous records: Fadeev (1929).
Eorucercus lamellatus (Müller, 1776)
Previous records: Fadeev (1929); Shkorbatov (1950); Sidorovsky (2014).
- Graptoleberis testudinaria* (Fischer, 1851)
Synonymised names: *Alona esocirostris* Schödler, 1862; *G. Alexandrinae* Negrea, 1982; *G. husheki* Radzimovski, 1982; *G. inermis* Birge, 1879; *G. orientalis* Daday, 1910; *G. pannonica* Daday, 1903; *G. slovenica* Šrámek-Hušek et al., 1962.
Previous records: Fadeev (1929).
Kurzia latissima (Kurz, 1875)
Synonymised names: *Alona angusticaudata* Hudendorff, 1876.
Previous records: Fadeev (1929); Shkorbatov (1950).
Lathonura rectirostris (O. F. Müller, 1776)
Synonymised names: *Daphnarella longisetata* Rousset, 1966; *Daphnia brachyura* Zaddach, 1884; *D. mystacina* Fischer, 1851; *Lathonura lacustris* Leydig, 1860; *L. spinosa* Schödler, 1858; *Macrothrix agilis* Herrick, 1879.
Previous records: Fadeev (1929); Shkorbatov (1950).
Leydigia leydigi (Schödler, 1863)
Synonymised names: *L. quadrangularis* (Leydig, 1860). •
Previous records: Fadeev (1929); Shkorbatov (1950).
Macrothrix hirsuticornis Norman & Brady, 1867
Synonymised names: *Drepanomacrothrix stschelkanowzewi* Werestchagin, 1913; *Macrothrix arctica* Sars, 1890; *M. carpatica* Orghidan & Negrea, 1959; *M. cornuta* Daday, 1903; *M. groenlandica* Lilljeborg, 1901.
Previous records: Shkorbatov (1950); Kolesnyk (1990, 2014); Sidorovsky (2012, 2014).
Macrothrix laticornis (Jurine, 1820)
Synonymised names: *M. bialatus* Mota, 1948; *M. singalensis* Daday, 1898.
Previous records: Fadeev (1929).
- Moina brachiata* (Jurine, 1820)
Synonymised names: *M. magnanennula* Cosmovici, 1900; *M. caucasica* Shikleev, 1930; *M. lilljeborgi* Schödler, 1877.
Previous records: Shkorbatov (1950); Sidorovsky (2012, 2014).
Moina micrura Kurz, 1874
Synonymised names: *M. dodhui* Rane, 1987; *M. lacustris* Rammner, 1931; *M. latidens* Brehm, 1933; *M. macrocephala* Rammner, 1933; *M. parva* Jenkin, 1934; *M. weberi* Richard, 1888.
Previous records: Fadeev (1929); Shkorbatov (1950); Kolesnyk (1990, 2014); Sidorovsky (2012, 2014).
Monospilus dispar G. O. Sars, 1862
Synonymised names: *M. kromanensis* Dybowski & Grochowski, 1898.
Previous records: Fadeev (1929).
Oxyurella tenuicaudis (G. O. Sars, 1862)
Synonymised names: *Alona camptocercoides* Schödler, 1862; *A. fennicaudis* Klocke, 1893; *O. lindbergi* Brehm, 1953.
Previous records: Kolesnyk (1990); Sidorovsky (2014); Kolesnyk (2014).
Paralona pigra G. O. Sars, 1862
Synonymised names: *Chydorus grandis* Rammner, 1940; *C. nodulosa* Lilljeborg, 1901; *C. perspique* Lilljeborg, 1901; *C. piger* G. O. Sars, 1862; *C. thienemanni* Meuche, 1937; *Lynceus barbata* Brady, 1868.
Previous records: Fadeev (1929).
Peracantha truncata (O. F. Müller, 1785)
Synonymised names: *Lynceus truncatus* Müller, 1785; *Peracantha brevisrostris* Schödler, 1862; *Pleuroxus poppei* Klocke, 1892.
Previous records: Fadeev, 1929; Shkorbatov, 1950.
Picripleuroxus laevis (G. O. Sars, 1862)
Synonymised names: *Pleuroxus sinkiangensis* Chiang Siehchih & Dyu Nanshan, 1979.
Previous records: Fadeev (1929).
Pleuroxus trigonellus (O. F. Müller, 1776)
Synonymised names: *P. bairdi* Schödler, 1863, *P. csikii* Daday, 1901, *P. entzi* Kottász, 1913, *P. ornatus* Schödler, 1862.
Previous records: Fadeev, 1929; Kolesnyk, 1990; Sidorovsky, 2012, 2014; Kolesnyk, 2014.
Pleuroxus aduncus Jurine, 1820
Previous records: Fadeev (1929).
Pleuroxus uncinatus (Baird, 1850)
Synonymised names: *Lynceus personatus* Leydig, 1860; *P. balatonicus* Daday, 1884; *P. convexus* Smirnov, 1966; *P. deflexa* Sars, 1891; *P. glaber* Schödler, 1862.
Previous records: Fadeev (1929).
Pseudochydorus globosus (Baird, 1843)
Synonymised names: *Chydorus globiformis* Dybowski & Grochowski, 1898; *C. paradoxus* Shikleev, 1930.
Previous records: Fadeev (1929).
Polyphemus pediculus (Linnaeus, 1761)
Synonymised names: *Monoculus polyphemus* Jurine, 1820; *P. kochi* Schoedler, 1863; *P. occidentalis* Herrick, 1879; *P. oculus* O. F. Müller, 1785; *P. stagnorum* Fischer, 1848.
Previous records: Fadeev (1929).
Scapholeberis aurita (Fischer, 1849)
Previous records: Fadeev (1929); Shkorbatov (1950).
Scapholeberis mucronata (O. F. Müller, 1776)
Synonymised names: *Monoculus bispinosus* De Geer, 1778; *S. cornuta* Schödler, 1858; *S. frontelaevi* Müller, 1867; *S. longicornis* Lutz, 1878.
Previous records: Fadeev (1929); Shkorbatov (1950); Kolesnyk (1990, 2014).
Simocephalus expinosus (Koch, 1841)
Previous records: Fadeev (1929); Shkorbatov (1950); Sidorovsky (2014).
Simocphalus vetulus (O. F. Müller, 1776)
Synonymised names: *Daphnia brandti* Fischer, 1848; *D. sima* Müller, 1785; *Monoculus nasutus* Jurine, 1820; *Simocephalus angustifrons* Lilljeborg, 1901; *S. beianensis* Shi Xinlu & Shi Xinbai, 1994; *S. gebhardtii* Ponyi, 1955; *S. hungaricus* Ponyi, 1956.

Previous records: Fadeev (1929); Kolesnyk (1990, 2014); Sidorovsky (2012, 2014).

Tretocephala ambigua (Lilljeborg, 1901)

Previous records: Shkorbatov (1950); Sidorovsky (2012).

Order Haplopoda G. O. Sars, 1865

Leptodora kindtii Focke, 1844

Synonymised names: *Hyalosoma dux* Wagner, 1868; *L. angusta* Sars, 1890; *L. hyalina* Lilljeborg, 1861; *L. pellucida* Joseph, 1882.

Previous records: Fadeev (1929); Kolesnyk (1990); Sidorovsky (2012, 2014); Kolesnyk (2014).

Order Anostraca G. O. Sars, 1867

Chirocephalus shadini (Smimov, 1928)

Synonymised names: *Pristicephalus hungaricus* Kertész, 1956.

Previous records: Sidorovsky (2012, 2014); Sidorovsky & Kryshal (2017).

Chirocephalus josephinae (Grube, 1853)

Previous records: Shkorbatov (1950).

Drepanosurus birostratus (Fischer, 1851)

Previous records: Shkorbatov (1950); Sidorovsky (2012, 2014).

Streptocephalus torvicornis (Waga, 1842)

Synonymised names: *Branchipus auritus* Koch, 1840; *B. raddeanus* Walter, 1888.

Previous records: Sidorovsky (2011).

Tymmastix stagnalis Linnaeus, 1758

Synonymised names: *T. lacunae* (Guérin, 1829); *Branchipus lacunae* (Guérin, 1829); *Chirocephalus lacunae* Frauenfeld, 1873.

Previous records: Fadeev (1929); Shkorbatov (1950); Sidorovsky (2012).

Order Notostraca G. O. Sars, 1867

Lepidurus apus (Linnaeus 1758)

Synonymised names: *Apus extensus* Braem, 1893; *A. productus* Bosc, 1801; *Lepidurus angasi* Baird, 1866; *L. barcaeus* Ghigi, 1921; *L. compressus* Thompson, 1879; *L. kirki* Thompson, 1879; *L. macrourus* Lilljeborg, 1877; *L. viridulus* Tate, 1879.

Previous records: Fadeev (1929); Shkorbatov (1950); Sidorovsky (2012, 2014).

Triops cancriformis (Bosc, 1803)

Synonymised names: *Apus cancriformis* Schaeffer, 1756; *A. halicensis* Fizera, 1885; *A. himalayensis* Packard, 1871; *A. lublinensis* Fizera, 1885; *A. montagui* Leach, 1816; *A. varsavianus* Fizera, 1885; *A. viridis* Bosc, 1801; *Triops apulius* Ghigi, 1921; *T. palustris* Schrank, 1803.

Previous records: Fadeev, 1929; Shkorbatov (1950); Sidorovsky (2012, 2014).

Order Amphipoda Latreille, 1816

Gammarus lacustris (Sars, 1863)

Previous records: Sidorovsky (2012, 2014b); Kolesnyk (2014).

Gammarus pulex (Linnaeus, 1758)

Synonymised names: *G. aquaticus* Leach, 1816; *G. fluviatilis* H. Milne Edwards, 1830; *G. polymorphus* Helpfer, 1914.

Previous records: Fadeev (1929); Solodovnikov (1940); Sidorovsky (2012).

Pontogammarus obesus (G. O. Sars, 1894)

Previous records: Fadeev (1929); Sidorovsky (2012, 2014b).

Pontogammarus robustroides (Sars, 1895)

Previous records: Kolesnyk (2014).

Synurella ambulans (O. F. Müller, 1846)

Synonymised names: *Gammarus recurvus* Grube, 1861; *S. jugoslava* S. Karaman, 1929; *S. meschtscherica* Borutzky, 1929; *S. polonica* Wrześniowski, 1877.

Previous records: Fadeev (1929); Sidorovsky (2012, 2014b).

Yogmelina pusilla (Sars, 1896)

Previous records: Sidorovsky (2012, 2014b).

Corophium curvispinum (Sars, 1895)

Synonymised names: *C. devium* Wundsch, 1912.

Previous records: Fadeev (1929); Solodovnikov (1940); Kolesnyk (2014).

Order Isopoda Latreille, 1817

Asellus aquaticus (Linnaeus, 1758)

Synonymised names: *A. patoni* Collinge, 1945.

Previous records: Fadeev (1929); Solodovnikov (1940); Kolesnyk (2014); Sidorovsky (2012, 2014).

Order Decapoda Latreille, 1802

Neocaridina davidi (Bouvier, 1904)

Synonymised names: *Caridina davidi* Bouvier, 1904; *C. denticulata* Kemp, 1918; *N. heteropoda* Liang, 2002.

Previous records: Sidorovsky et al. (2023).

Pontastacus leptodactylus Eschscholtz, 1823

Synonymised names: *Astacus angulosus* Rathke, 1837; *A. leptodactylus* Eschscholtz, 1823.

Previous records: Fadeev (1929); Solodovnikov (1940); Kolesnikova (2007); Kolesnikova, et al., (2008); Sidorovsky (2012).

Procambarus virginalis Lyko, 2017

Previous records: Son et al. (2020); Sidorovsky et al. (2023).

Order Podocopa Sars, 1866

Bradleystrandesia reticulata (Zaddach, 1844)

Synonymised names: *Bradleycypris affinis* (Fischer, 1851); *Cypricerus affinis* (Fischer, 1851); *C. reticulata* Zaddach, 1844; *C. tessellata* Fischer, 1851; *Cypris affinis* Fischer, 1851; *C. reticulata* Zaddach, 1844; *Eucypris affinis* (Fischer, 1851).

Previous records: Fadeev (1929).

Candona albicans Brady, 1864

Previous records: Fadeev (1929).

Candona angulata G. W. Müller, 1900

Previous records: Fadeev (1929).

Candona balatonica Daday, 1894

Synonymised names: *C. lucens* Baird, 1850; *Cypris lucens* Baird, 1835; *C. lucida* Koch, 1838; *C. pellucida* Koch, 1837; *Eucandona candida* (O. F. Mueller, 1776); *Monoculus candidus* (O. F. Mueller, 1776).

Previous records: Fadeev (1929).

Candona candida O. F. Müller, 1776

Previous records: Fadeev (1929).

Candona detecta O. F. Müller, 1776

Previous records: Fadeev (1929).

Candona neglecta G. O. Sars, 1887

Previous records: Fadeev (1929).

Candona stagnalis Sars, 1890

Previous records: Fadeev (1929).

Candona weltmeri Hartwig, 1899

Previous records: Fadeev (1929).

Cyclocypris laevis (O. F. Müller, 1776)

Synonymised names: *Cyclocypris rubida* Zaddach, 1844

Previous records: Fadeev (1929).

Cyclocypris ovum (Jurine, 1820)

Synonymised names: *C. impressopunctata* Hirschmann, 1909; *C. minuta* Baird, 1835; *C. pygmaea* Cronenberg, 1895; *C. vulgaris* Zaddach, 1844; *Monoculus ovum* Jurine, 1820.

Previous records: Fadeev (1929).

Cypria exsculpta (Fischer, 1855)

Synonymised names: *C. striolata* Brady, 1868

Previous records: Fadeev (1929).

Cypria fadeewi Dubowsky, 1927

Previous records: Fadeev (1929).

Cypria ophtalmica (Jurine, 1820)

Previous records: Fadeev (1929).

Cypricercus fuscatus (Jurine, 1820)

Synonymised names: *C. adusta* Koch, 1837; *C. fuscakta* Muller, 1900.

Previous records: Fadeev (1929).

Cypricercus obliquus (Brady, 1868)

Previous records: Fadeev (1929).

Cypridopsis newtoni Brady & Robertson, 1870
 Synonymised names: *C. aldabrae* G. W. Müller, 1908
 Previous records: Fadeev (1929).
Cypridopsis parva G. W. Müller, 1900
 Previous records: Fadeev (1929).
Cypridopsis vidua (O. F. Müller 1776)
 Synonymised names: *C. helvetica* Kaufmann, 1900; *C. tumida* Kaufmann, 1900; *C. mariae* Rome, 1943; *C. obesa* Brady & Robertson, 1869; *C. tumida* Kaufmann, 1900; *C. pincta* Straus, 1821.
 Previous records: Fadeev (1929).
Cyprinotus salinus (Brady, 1868)
 Previous records: Fadeev (1929).
Cypris pubera O. F. Müller, 1776
 Synonymised names: *C. cuneata* Baird, 1850; *C. punctillata* Norman, 1861; *C. striata* Zaddach, 1844; *Monoculus striata* Jurine, 1820.
 Previous records: Fadeev (1929); Sidorovsky (2012).
Cypris marginata (Straus, 1821)
 Synonymised names: *C. flava* Zaddach, 1844; *C. dispar* Fischer, 1854.
 Previous records: Fadeev (1929).
Cythereis donetziensis Dubowsky, 1926
 Previous records: Fadeev (1929).
Darwinula aurea Darwinula Brady & Norman, 1889
 Previous records: Fadeev (1929).
Dolerocypris fasciata (O. F. Müller, 1776)
 Synonymised names: *D. ehippiata* Koch, 1837.
 Previous records: Fadeev (1929).
Eucypris clavata (Baird, 1838)
 Previous records: Sidorovsky (2012, 2014a).
Eucypris crassa (O. F. Müller, 1785)
 Synonymised names: *E. dromedarius* Fischer, 1854.
 Previous records: Sidorovsky (2012, 2014a).
Eucypris lutaria (Koch, 1838)
 Previous records: Fadeev (1929).
Eucypris virens (Jurine, 1820)
 Previous records: Fadeev (1929); Sidorovsky (2012).
Fabaeformiscandona fabaeformis (Fischer, 1851)
 Synonymised names: *Candona diaphana* Brady & Robertson, 1870; *C. bradyi* Hartwig, 1898.
 Previous records: Fadeev (1929).
Heterocypris incongruens (Ramdohr, 1808)
 Synonymised names: *Cyprinotus hertwigi* Lindner, 1920; *Heterocypris aurentius* Jurine, 1820; *H. fusca* Straus, 1821.
 Previous records: Fadeev (1929).
Hungarocypris madaraszi (Oerley, 1886)
 Synonymised names: *Cypris dispar* Chyzer, 1858.
 Previous records: Fadeev (1929).
Ilyocypris biplicata (Koch, 1838)
 Previous records: Fadeev (1929).
Ilyocypris bradyi Sars, 1890
 Previous records: Fadeev (1929).
Ilyocypris decipiens Masi, 1905
 Synonymised names: *I. almi* Sywula, 1968; *I. iners* Kaufmann, 1900.
 Previous records: Fadeev (1929).
Ilyocypris gibba (Ramdohr, 1808)
 Previous records: Fadeev (1929).
Isocypris arnoldi Dubowsky, 1927
 Previous records: Fadeev (1929).
Limnocythere inopinata (Baird, 1843)
 Synonymised names: *Limnocythere incisa* Dahl, 1888.
Limnocythere relicta Lilljeborg, 1863
 Previous records: Fadeev (1929).
Metacypris cordata Brady & Robertson, 1870
 Previous records: Fadeev (1929).
Notodromas monacha (O. F. Müller, 1776)
 Synonymised names: *Cypris nubilosa* Koch, 1837; *N. bimuricata* Koch, 1837.
 Previous records: Fadeev (1929).
Potamocypris variegata (Brady & Norman, 1889)

Previous records: Fadeev (1929).
Pseudocandona insculpta G. W. Müller, 1900
 Previous records: Fadeev (1929).
Pseudocandona marchica (Hartwig, 1899)
 Synonymised names: *Candona limbata* Sars, 1890.
 Previous records: Fadeev (1929).
Pseudocandona pratensis (Hartwig, 1901)
 Synonymised names: *Candona fossulensis* Winkler, 1960; *C. leightoni* Staplin, 1963; *C. pubsecens* G. W. Müller, 1900; *C. setigera* Jones, 1850.
 Previous records: Fadeev (1929).
Ilyocypris gibba (Brady & Norman, 1889)
 Previous records: Fadeev (1929).
Stenocypris fischeri (Lilljeborg, 1883)
 Previous records: Fadeev (1929).

Discussion

Kharkiv region harbours quite a rich fauna of crustaceans that has been explored by generations of researchers for a century. Altogether, 153 crustacean species have been recorded, distributed across 13 orders and 28 families, representing approximately 0.2% of all known crustacean species worldwide. The order Anomopoda is the most diverse in terms of the number of species. The majority of species registered are rather common for this part of the world except for the two non-indigenous species: *Procambarus virginalis* and *Neocaridina davidi*, which originate from North America and East Asia respectively (Wang et al., 2009; Lyko, 2017; Marenkov et al., 2018). These species were introduced into local water bodies mainly due to the activities of aquarists, which may lead to ecological disturbances. Both species have already been found in other European countries. *Procambarus virginalis* has been recorded from Austria (Pichler & Timaeus, 2020), Estonia (Ercoli et al., 2019), France (Grandjean et al., 2021), Romania (Părvulescu et al., 2017), Slovakia (Liptak et al., 2016), Germany (Martin et al., 2010), Italy (Marzano et al., 2009) while *Neocaridina davidi* occurs in Germany (Klotz et al., 2013), Poland (Jabłońska et al., 2018), Hungary (Weiperth et al., 2019).

It is worth mentioning that four species are listed in the Red Book of Ukraine, one species has the status of Endangered (EN): *Hemidiaptomus rylowi* Charin, 1929, three species are Vulnerable (VU): *Drepanosurus birostratus* (Fischer, 1851); *Tanymastix stagnalis* Linnaeus, 1758; *Cyzicus tetracerus* (Krynicky, 1830). Furthermore, 14 species from the list are rare for Kharkiv region and Ukraine as a whole: *Eudiaptomus transylvanicus*, *Gigantodiaptomus hungaricus*, *Hemidiaptomus rylowi*, *Tanymastix stagnalis*, *Chirocephalus shadini*, *Ch. josephinae*, *Cyzicus tetracerus*, *Lynceus brachyurus*, *Drepanosurus birostratus*, *Streptocephalus torvicornis*, *Lepidurus apus*, *Triops cancriformis*, *Synurella ambulans*, and *Yogmelina pusilla*. Obviously, the habitats of those species should be protected from agricultural activities and any hydraulic changes (Akimov, 2009).

Among the 120 species of crustaceans listed by Fadeev (1929), 74 have not been recorded by subsequent authors. These include 4 species of Calanoidea, 13 species of Cyclopoida, 5 species of Anomopoda, and 42 species of Podocopida. The absence of a significant number of crustacean species may indicate changes in the climate or hydrological regime resulting from the construction of the Kochetok Reservoir in 1936. This reservoir was later replaced by the Pechenihy Reservoir, built between 1958 and 1962 (Palamarchuk & Zakorchevna, 2001). Another possible reason why these species were not recorded by other researchers could be erroneous identification by Fadeev (1929), due to the lack of suitable keys to identify species for this area.

Conclusion

Our study revealed that 153 species of freshwater crustacean have been recorded in Kharkiv region over the last century, though 74 of these have not been recorded since Fadeev's study in 1929. The order Anomopoda is the best represented with 53 species. Two species, *Procambarus virginalis* and *Neocaridina davidi*, are of alien origin and may prove to be ecologically hazardous. Four species are listed in the Red Book of Ukraine: *Hemidiaptomus rylowi*, *Drepanosurus birostratus*, *Tanymastix*

stagnalis and *Cyzicus tetracerus*. A further fourteen species are rare for Kharkiv region. Further explorations of the region should be conducted to obtain a comprehensive picture of the distribution of crustaceans in the region's diverse water bodies.

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References

- Adamowicz, S. J., & Purvis, A. (2005). How many branchiopod crustacean species are there? Quantifying the components of underestimation. *Global Ecology and Biogeography*, 14, 455–468.
- Akimov, I. A. (2009). Red book of Ukraine. Animal World. Globalconsulting, Kyiv (in Ukrainian).
- Benzie, J. A. H. (2005). The genus *Daphnia* (including *Daphniopsis*) (Anomopoda: Daphniidae). In: Dumont, H. J. (Ed.). Guide to the identification of the microinvertebrates of the continental waters of the world. Backhuys Publishers, Leiden. Vol. 21. Pp. 1–376.
- Boxshall, G. A. (2007). Crustacean classification: On-going controversies and unresolved problems. *Zootaxa*, 1668(1), 313–325.
- Ercoli, F., Kaldre, K., Paaver, T., & Gross, R. (2019). First record of an established marbled crayfish *Procambarus virginalis* (Lyko, 2017) population in Estonia. *BioInvasions Records*, 8(3), 675–683.
- Fadeev, N. N. (1929). Katalog vodnykh zhivotnykh najdenykh v bassejne r. Dona i prilozhashih mestnostej za period rabot 1917–1927 gg. [Catalog of aquatic animals found in the basin of the Donets River and adjacent areas during the period from 1917 to 1927]. Proceedings of the Society of Nature Testers at Kharkov University, 52(1), 7–32 (in Russian).
- Flössner, D. (2000). Die Haplopoda and Cladocera (Bosminidae) Mitteleuropas. Backhuys Publishers, Leiden.
- Grabowski, M., Mamos, T., Rewicz, T., Bacela-Spychalska, K., Ovcharenko, M. (2012). *Gammarus varsoviensis* Jazdzewski, 1975 (Amphipoda, Gammaridae): A long overlooked species in Ukrainian rivers. *North-Western Journal of Zoology*, 8(1), 198–201.
- Grandjean, F., Collas, M., Uriarte, M., & Rousset, M. (2021). First record of a marbled crayfish *Procambarus virginalis* (Lyko, 2017) population in France. *BioInvasions Records*, 10(2), 341–347.
- Gutiérrez-Aguirre, M. A., & Cervantes-Martínez, A. (2016). Taxonomic evaluation of eleven species of *Microcyclops* Claus, 1893 (Copepoda, Cyclopoida) and description of *Microcyclops inarmatus* sp. n. from America. *ZooKeys*, 603, 33–69.
- Harlioglu, M. M. (2004). The present situation of freshwater crayfish, *Astacus leptodactylus* (Eschscholtz, 1823) in Turkey. *Aquaculture*, 230(4), 181–187.
- Hiruta, S., Kobayashi, N., Kato, T., & Kajihara, H. (2016). Molecular phylogeny of cyprinoid freshwater ostracods (Crustacea: Ostracoda), inferred from 18S and 28S rDNA sequences. *Zoological Science*, 33(2), 179–185.
- Jabłońska, A., Mamos, T., Gruszka, P., Szlauer-Lukaszewska, A., & Grabowski, M. (2018). First record and DNA barcodes of the aquarium shrimp, *Neocaridina davidi*, in Central Europe from thermally polluted River Oder Canal, Poland. *Knowledge and Management of Aquatic Ecosystems*, 419, 14.
- Klieshch, A. A., & Maksymenko, N. V. (2019). Transformation of the watershed basin of Udy River within Kharkiv. *Visnyk of V. N. Karazin Kharkiv National University, Series Ecology*, 21, 6–22.
- Klotz, W., Miesen, F. W., Hüllen, S., & Herder, F. (2013). Two Asian fresh water shrimp species found in a thermally polluted stream system in North Rhine-Westphalia, Germany. *Aquat Invasions*, 8, 333–339.
- Kolesnikova, M. Y., Utevsy, S., & Utevsy, S. (2008). First record on *Branchiobdella kozarovi* (Clitellata: Branchiobdellida) from Eastern Ukraine. *Lauterbornia*, 65, 77–81.
- Kolesnyk, A. M. (1990). Do pytannia vyvchennia vydovogo skladu zooplanktonu Pecheniz'kogo vodoshovyscha [To the issue of studying the species composition of zooplankton of the Pecheneg Reservoir]. *Bulletin of Kharkiv University*, 226, 63–64 (in Ukrainian).
- Kolesnyk, A. M. (2014). Zooplankton of water bodies located within the territory of the Dvorichansky National Park. *The Journal of V. N. Karazin Kharkiv National University, Series Biology*, 19, 30–35.
- Kolesnykova, M. Y. (2007). New information on branchiobdellidans (Clitellata: Branchiobdellida) distribution in pools of the Kharkiv Region. *The Journal of V. N. Karazin Kharkiv National University, Series Biology*, 788, 97–103.
- Korovchinsky, N. M. (2000). Trends in Cladocera and Copepoda taxonomy. *Arthropoda Selecta*, 9(3), 153–158.
- Kouba, A., Petrussek, A., & Kozak, P. (2014). Continental-wide distribution of crayfish species in Europe: Update and maps. *Knowledge and Management of Aquatic Ecosystems*, 413, 5.
- Krynicky, I. (1830). Des Limnadies. *Bulletin de la Société impériale des naturalistes de Moscou*, 2, 173–182.
- Liptak, B., Mrugała, A., Pekarík, L., Mutkovič, A., Grulá, D., Petrussek, A., & Kouba, A. (2016). Expansion of the marbled crayfish in Slovakia: Beginning of an invasion in the Danube catchment? *Journal of Limnology*, 75(2), 305–312.
- Lyko, F. (2017). The marbled crayfish (Decapoda: Cambaridae) represents an independent new species. *Zootaxa*, 4363(4), 544–552.
- Maiphae, S., Pholpunthin, P., & Dumont, H. J. (2007). Taxon richness and biogeography of the Cladocera (Crustacea: Ctenopoda, Anomopoda) of Thailand. *Annales de Limnologie*, 44, 33–43.
- Marenkov, O., Prychepa, M., & Kovalchuk, J. (2018). The influence of heavy metal ions on the viability and metabolic enzyme activity of the marbled crayfish *Procambarus virginalis* (Lyko, 2017). *International Letters of Natural Sciences*, 70, 11–23.
- Marrone, F., Alfonso, G., Stoch, F., Pieri, V., Alonso, M., Dretakis, M., & Naselli-Flores, L. (2019). An account on the non-malacostracan crustacean fauna from the inland waters of Crete, Greece, with the synonymization of *Arctodiaptomus piliger* Brehm, 1955 with *Arctodiaptomus alpinus* (Imhof, 1885) (Copepoda: Calanoida). *Limnetica*, 38, 167–187.
- Martin, J. W., & Davis, G. E. (2001). An updated classification of the recent Crustacea. *Natural History Museum of Los Angeles County, Contributions in Science*, 39, 1–124.
- Martin, P., Shen, H., Füllner, G., & Scholtz, G. (2010). The first record of the parthenogenetic marmorkrebs (Decapoda, Astacida, Cambaridae) in the wild in Saxony (Germany) raises the question of its actual threat to European freshwater ecosystems. *Aquatic Invasions*, 5(4), 397–403.
- Marzano, F. N., Scalici, M., Chiesa, S., Gherardi, F., Piccinini, A., Gibertini, G. (2009). The first record of the marbled crayfish adds further threats to fresh waters in Italy. *Aquatic Invasions*, 4(2), 401–404.
- Mykitchak, T. (2018). A preliminary annotated checklist of Calanoida and Cyclopoida (Crustacea) in the Ukrainian Carpathians. *Studia Biologica*, 12(2), 87–98.
- Palamarchuk, M. M., & Zakorchevna, N. B. (2001). Vodnyi fond Ukrainy [Water fund of Ukraine]. Nika-Center, Kyiv (in Russian).
- Pârvulescu, L., Togor, A., Lele, S. F., Scheu, S., Sinca, D., & Panteleit, J. (2017). First established population of marbled crayfish *Procambarus fallax* (Hagen, 1870) f. *virginalis* (Decapoda, Cambaridae) in Romania. *BioInvasions Record*, 6(4), 357–362.
- Pichler, A., & Timaeus, L. (2020). Erstnachweis des marmorkrebses (*Procambarus virginalis*) in Wien. *Biodiversität und Naturschutz in Ostösterreich*, 5(2), 94–96.
- Rogers, C., & Olesen, J. (2016). *Laevicaudata catalogus* (Crustacea: Branchiopoda): An overview of diversity and terminology. *Arthropod Systematics and Phylogeny*, 74(3), 221–240.
- Rogers, D. C. (2009). Branchiopoda (Anostraca, Notostraca, Laevicaudata, Spinicaudata, Cyclotherida). In: Likens, G. E. (Ed.). *Encyclopedia of inland waters*. Elsevier, Oxford. Vol. 2. Pp. 242–249.
- Rogers, D. C. (2013). *Anostraca catalogus*. *Raffles Bulletin of Zoology*, 61, 525546.
- Rogers, D. C. (2020). *Spinicaudata catalogus*. *Zoological Studies*, 59, 45.
- Shkorbatov, Y. L. (1950). Ocherk fauny zhabemnykh rakoobraznykh vremennykh vodoenov [Essay on the fauna of brachial crustaceans of temporary reservoirs]. *Proceedings of the Research Institute of Kharkiv State University named after A. M. Gorky*, 14–15, 241–250 (in Russian).
- Sidorovsky, S. A. (2012). Fauna rakopodibnykh (Crustacea) ta kolovortok (Rotifera) Natsional'noho Pryrodnoho Parku "Gomil'shanski Lisy" [The fauna of crustaceans (Crustacea) and rotifers (Rotifera) of the National Natural Park "Gomil'shanski Lisy"]. *The Journal of V. N. Karazin Kharkiv National University, Series Biology*, 16, 105–109 (in Ukrainian).
- Sidorovsky, S. A. (2013a). Cyclopoida (Maxillopoda) Kharkivskoyi oblasti [Cyclopoida (Maxillopoda) of the Kharkiv region]. *Biological Journal of Melitopol State Pedagogical University named after Bohdan Khmelnytskyi*, 2(8), 280–288 (in Ukrainian).
- Sidorovsky, S. A. (2013b). Calanoida (Copepoda) Kharkivskoyi oblasti [Calanoida (Copepoda) of the Kharkiv region]. *Biological Journal of Melitopol State Pedagogical University named after Bohdan Khmelnytskyi*, 1(7), 106–112 (in Ukrainian).
- Sidorovsky, S. A. (2014a). Fauna rakopodibnykh (Crustacea) Natsional'noho Pryrodnoho parku "Dvorichanskyi" Kharkiv'skoyi oblasti [The fauna of crustaceans (Crustacea) of the National Nature Park "Dvorichanskyi", Kharkiv Region]. *The Journal of V. N. Karazin Kharkiv National University, Series Biology*, 1097, 35–39 (in Ukrainian).
- Sidorovsky, S. A. (2014b). Amphipoda (Crustacea) of Kharkov region. *Ukrainian Journal of Ecology*, 4(2), 59–66.
- Sidorovsky, S., & Kryshtal, E. (2017). Ridkisi vydy rakopodibnykh pryrodnozapovidnykh terytoriy Kharkiv'skoyi oblasti [Rare species of crustaceans of natural protected areas of the Kharkiv region]. *The Journal of V. N. Karazin Kharkiv National University, Series Biology*, 28, 196–200 (in Ukrainian).
- Sidorovskiy, S. A., Turiziani, G. D., Rahmatillaeva, M. B., Utevskiy, G. S., Utevskiy, A. Y., & Utevskiy, S. Y. (2023). Akvariumistyka, terariumistyka i nekontrollovana akvakultura ta zookultura yak dzhерelo invazii chuzhoridnykh vydiv ros-

- lyn i tvaryn [Aquarium science, terrarium science and uncontrolled aquaculture and zooculture as a source of invasive alien plant and animal species]. In: Finds of alien species of plants and animals in Ukraine, Series "Conservation Biology in Ukraine". Druk Art, Chemivtsi. Vol. 29. Pp. 474–476 (in Ukrainian).
- Solodovnikov, S. V. (1940). Donnaya fauna poymennykh ozer Donetskoj gidrobiologicheskoy stantsii [The bottom fauna of floodplain lakes of the Donets River Hydrobiological Station]. In: Trudy Donetskoj Hidrobiologicheskoy stantsii imeni Professora V. M. Amoldi. Kharkiv State University, Kharkiv. Pp. 57–100 (in Russian).
- Son, M. O., Morhun, H., Novitskiy, R. O., Sidorovskiy, S., Kulyk, M., & Utevskiy, S. (2020). Occurrence of two exotic decapods, *Macrobrachium nipponense* (de Haan, 1849) and *Procambarus virginalis* Lyko, 2017, in Ukrainian waters. Knowledge and Management of Aquatic Ecosystems, 421, 40.
- Storobogatov, Y. I. (1996). Taxonomy and geographical distribution of crayfishes of Asia and East Europe (Crustacea: Decapoda: Astacoidei). Arthropoda Selecta, 4(3/4), 325.
- Sidorovskiy, S. A. (2011). First record of *Streptocephalus torvicornis* (Branchiopoda, Anostraca) from the Kharkiv Region (Ukraine). Vestnik Zoologii, 45(4), 306.
- Sidorovskiy, S. A. (2012). First record of *Chirocephalus shadini* (Branchiopoda, Anostraca) from the Kharkiv Region (Ukraine). Vestnik Zoologii, 46(1), 82.
- Vainölä, R., Witt, J. D. S., Grabowski, M., Bradbury, J. H., Jazdzewski, K., & Sket, B. (2008). Global diversity of amphipods (Amphipoda: Crustacea) in freshwater. Hydrobiologia, 595, 241–255.
- Wang, H., Cal, D., Xiao, G., Zhao, C., Wang, Z., Xu, H., & Guan, Y. (2009). Effects of selenium on the activity of antioxidant enzymes in the shrimp, *Neocaridina heteropoda*. The Israeli Journal of Aquaculture – Bamidgah, 61(4), 322–329.
- Weiperth, A., Gábris, V., Danyik, T., Farkas, A., Kuřiková, P., Kouba, A., & Patoka, J. (2019). Occurrence of non-native red cherry shrimp in European temperate waterbodies: A case study from Hungary. Knowledge and Management of Aquatic Ecosystems, 420(9), 351–358.
- Wilson, G. D. F. (2008). Global diversity of isopod crustaceans (Crustacea: Isopoda) in freshwater. Hydrobiologia, 595, 231–240.
- Zhang, Z. Q. (2013). Animal biodiversity: An update of classification and diversity in 2013. In: Zhang, Z.-Q. (Ed.). Animal biodiversity: An outline of higher-level classification and survey of taxonomic richness. Zootaxa, 3703(1), 5–11.