



Checklist of digeneans (Platyhelminthes, Trematoda, Digenea) of Georgia

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Abstract

Background

In the present study, we aim to provide an inventory of digenetic trematodes (Platyhelminthes, Trematoda, Digenea) from Georgia including records from the freshwater, marine and terrestrial realms. The checklist is based on a critical review of data from 109 papers, 11 monographs and four Ph.D. theses published between 1935 and 2019 and our new records. The checklist includes information on synonymy, the host species, site of infection, geographical distribution and bibliographical references. The present data will serve as a baseline for further studies on trematodes from Georgia focused on integrative taxonomy, life-cycle elucidation, parasite ecology and epidemiology.

New information

We compiled data on the digenean trematode fauna of Georgia, which is represented by 186 species (of these 173 identified to species level) belonging to 108 genera, 47 families and 17 superfamilies. This is the first checklist of the digeneans of Georgia. The majority of digenean species were recorded as adults (160 species), only a small fraction being found

as cercariae (33 species) or metacercariae (24 species), in their first or second intermediate hosts, respectively. Predominantly, records of trematodes (62 species) from birds were found, followed by those parasitising fish (50 species, i.e. 32 species as adults and 18 as metacercariae), mammals (33 species) and amphibians (25 species, i.e. 23 species as adults and 2 as metacercariae), with the least number of species reported from reptiles (12 species, i.e. 9 species as adults and 3 as metacercariae). Adult digeneans recorded together with another life-cycle stage (metacercariae and/or cercariae) comprised 28 species, i.e. for 15% of the total trematode species number, a part of their life-cycle is known.

Keywords

biodiversity, catalogue, Caucasus, helminths, host, parasite

Introduction

Digeneans (Platyhelminthes, Trematoda, Digenea) have complex life-cycles with several hosts involved (Cribb et al. 2003). They are parasites of all vertebrate groups and of a vast variety of invertebrates (Ditrich et al. 1997, Esteban et al. 1997, Dvořák et al. 1999, Faltýnková et al. 2009, Faltýnková et al. 2016, Manga-González and Ferreras 2019). Some groups of trematodes can be detrimental to human health and cause considerable loss to livestock (Ginetsinskaya 1968, Keiser and Utzinger 2009, Beesley et al. 2017, Esteban et al. 2019, Mas-Coma et al. 2019, Rizwan et al. 2022). However, trematodes are mainly important players in the functioning of ecosystems and they are an inherent part of food webs constituting a substantial part of biomass and, because of their sequential use of intermediate and definitive hosts, they reflect the biodiversity of free-living host animals (Hechinger and Lafferty 2005).

Therefore, knowledge of trematode diversity and distribution, their life-cycles and transmission pathways is crucial not only for understanding the epidemiology and application of preventative measures, but also for biodiversity conservation (Dobson et al. 2008, Han et al. 2016, Selbach et al. 2020). Since Georgia is situated in the centre of the Caucasus biodiversity hotspot and in an area with a high degree of endemism for both vertebrate and invertebrate fauna (Myers et al. 2000, Mumladze et al. 2019), it is of vital importance to assess the species spectrum of the parasites which occur in this region.

In Georgia, the first studies on trematodes were conducted in the 1930s and early 1940s (Kamalov 1935, Burdjanadze 1937a, Burdjanadze 1937b, Chulkova 1939, Gamtsemlidze 1941, Kirshenblat 1941, Kurashvili 1941). Concerning digeneans of medical and veterinary importance, data on the distribution and prevalence of fascioliasis and dicrocoeliasis were published by Kurashvili and Rodonaia (1954). Since the 1950s, authors mainly focused their studies on the helminth fauna of specific host groups, i.e. fish (Kurashvili et al. 1951, Qoiava 1966, Petriashvili 1971, Kurashvili et al. 1973, Kurashvili et al. 1975, Kurashvili et al. 1990, Gogebashvili and Petriashvili 2002), amphibians and reptiles (Petriashvili 1964,

Petriashvili 1966, Jankarashvili 1978, Jankarashvili 1985, Petriashvili et al. 1985), birds (Kurashvili 1953a, Kurashvili 1957, Kurashvili 1961b, Kurashvili et al. 1966, Kurashvili et al. 1976) and mammals (Rodonaia 1951, Matsaberidze 1961, Matsaberidze 1966a, Matsaberidze 1966b, Rodonaia 1966a, Rodonaia 1966b, Rodonaia 1971, Matsaberidze 1976). Fragmentary records of trematodes in freshwater and terrestrial molluscs serving as intermediate hosts were provided by several authors (Natsvlishvili 1968, Chiaberashvili and Javelidze 1968, Chiaberashvili 1971a, Chiaberashvili 1971b, Chiaberashvili and Javelidze 1977, Tkachenko 1988, Tkachenko 1990). The occurrence of human fascioliasis was examined by Gigitashvili (1965), Gigitashvili (1969), Zenaishvili et al. (2004a), Zenaishvili et al. (2004b) and Semyanova et al. (2006), who studied the genetic differentiation of European and Asian populations of *Fasciola hepatica* revealing that the Georgian population was of European origin and providing the only DNA sequences of trematodes from Georgia. In recent years, a few annotated checklists of helminths from different host taxa have been published by Murvanidze et al. (2008a), Murvanidze et al. (2008b) and Murvanidze et al. (2018).

Despite all the above-mentioned, a summarising review providing detailed information on the diversity of trematodes in Georgia has not been published so far. Only Kurashvili (1961a) reviewed the occurrence of some of the trematode species of medical and veterinary importance; and Kurashvili et al. (1980) published a monograph with a survey of parasites of fishes from the River Mtkvari (Kura), with digeneans included; however, there are only a few records which can be regarded as truly from the Georgian territory.

Thus, the aim of the present study was to compose a critically revised checklist of the digenetic trematodes recorded from Georgia. These data will serve as a baseline for future studies on biodiversity, taxonomy, life-cycles, ecological and epidemiological aspects of trematodes in Georgia.

Materials and methods

For records of digeneans from Georgia, we searched the following databases: Google Scholar, Science Direct, Scopus and the Host-parasite database of the Natural History Museum London, using relevant keywords ('(trematoda or digenea) and Georgia'; excluding records from Georgia, USA). Further, we searched for literary data in relevant papers and monographs. Data from monographs were checked with caution, because, in many cases, the information on geographical distribution was vague providing only general locations, for example, the rivers or mountain ranges expanding over more countries. The present checklist is based on 109 primary papers, 11 monographs and four Ph.D. theses published predominantly in Georgian or Russian language between 1935 and 2019 and our unpublished data.

We provide a parasite-host list with the parasites arranged in alphabetical order by superfamily and family; within each family, species are also listed alphabetically. The host species of each parasite are grouped by families and listed in alphabetical order by family and species. Each parasite taxon contains information on synonyms (listed under

"Nomenclature" only when appearing in Georgian literature), host species, site of infection within hosts, geographical distribution and bibliographical references associated with the parasite and its hosts in Georgia. Global geographical distribution is mainly compiled from monographs of Skryabin (1947), Dubois (1968), Dubois (1970), Yamaguti (1971), Gibson et al. (2002), Niewiadomska (2003), Jones et al. (2005), Sitko et al. (2006), Bray et al. (2008) and Fauna Europea (de Jong et al. 2014), GBIF (GBIF.org 2022) and WoRMS (WoRMS 2022). The geographical localities, indicating the distribution of trematodes in Georgia, are listed in alphabetical order. Georgia is geographically divided by the Surami (Likhi) Range into two parts, Western Georgia (WG) and Eastern Georgia (EG); and the abbreviations (WG and EG) are used throughout the text to reflect this division. These regions have different climatic conditions – humid and mild climate in the Western and dry continental in the Eastern part of the country (Maruashvili 1964, Murvanidze and Mumladze 2016).

Life-cycle stages other than the sexual adults are indicated in parentheses following the host category, i.e. intramolluscan stages in first intermediate mollusc hosts comprising sporocysts, rediae and cercariae (the latter are asexual free-living stages emerging from the snail first intermediate hosts); and metacercariae encysted or unencysted in tissue of second intermediate or paratenic hosts.

Species names were checked for their current state and, for the nomenclature of all taxa, we refer to the Fauna Europea (de Jong et al. 2014), GBIF (GBIF.org 2022), WoRMS (WoRMS 2022), Catalogue of Life (Gibson et al. 2023) and Molluscabase (2023); for the classification of trematodes at family level, we follow the "Keys to the Trematoda" (Gibson et al. 2002, Jones et al. 2005, Bray et al. 2008) and, at the superfamily level, we follow WoRMS (2022) and Catalogue of Life (Gibson et al. 2023).

Trematodes not identified to species level were included in the checklist as well; in ambiguous cases, when it was impossible to discern the identity of the records (*Echinochasmus* sp., *Cephalogonimus* sp. and *Telorchis* sp.), they were listed with 'spp.'. However, we did not include taxa of doubtful identity, but we listed them in the Discussion with an explanation of their status and history; the names of these taxa are provided exactly as they occur in literature. Records of cercarial names, which are regarded as provisional, because they do not conform to the taxonomy of adult digeneans, were not included in the checklist either. However, to have a complete view on the potential biodiversity state of trematodes in Georgia, they are included in the Discussion provided with remarks on their occurrence.

Previously unpublished trematode specimens included in the checklist are deposited in the collections of the Institute of Zoology, Ilia State University.

Annotated checklist of Digenea of Georgia

Phylum Minot, 1876

Class Trematoda Rudolphi, 1808

Subclass Digenea Carus, 1863

Order Diplostomida Olson, Cribb, Tkach, Bray & Littlewood, 2003

Superfamily Brachylaimoidea Joyeux & Foley, 1930

Family Brachylaimidae Joyeux & Foley, 1930

Genus *Brachylaima* Dujardin, 1843

Brachylaima fulvum Dujardin, 1843

Nomenclature:

Panopistus europaeus Soltys, 1952

Parasite of: mammals - Soricidae: *Sorex araneus*, *S. raddei*.

Site of infection: small intestine.

Distribution: Occurring in Europe; **in Georgia:** EG: Borjomi; WG: Batumi, Gagra, Oni, Tskaltubo reported by Matsaberidze (1966a), Matsaberidze (1966b), Matsaberidze (1967), Rodonaia (1971), Matsabaridze (1976) and Kurashvili (1984b).

Brachylaima fuscata (Rudolphi, 1819) Joyeux, Baer & Timon-David, 1932

Nomenclature:

Brachylaemus fuscatus (Rudolphi, 1819)

Parasite of: birds - Anatidae: *Mergellus albellus*; Columbidae: *Columba livia*; Phasianidae: *Meleagris gallopavo*, *Phasianus colchicus colchicus*; Turdidae: *Turdus merula*.

Site of infection: caecum, oesophagus, small intestine.

Distribution: Occurring in the Holarctic Region; **in Georgia:** EG: Marneuli, Martkhopi; WG: Samtredia reported by Kurashvili (1957), Kurashvili (1961a), Kurashvili et al.

(1966), Matsaberidze (1966b), Japaridze and Savateeva (1967), Kurashvili et al. (1976), Kurashvili et al. (1977) and Kurashvili (1984b).

***Brachylaima recurva* (Dujardin, 1845) Joyeux & Foley, 1930**

Parasite of: mammals - Erinaceidae: *Erinaceus europaeus*; Gliridae: *Dryomys nitedula*; Muridae: *Apodemus sylvaticus*.

Site of infection: small intestine.

Distribution: Occurring in Europe, Asia; **in Georgia:** EG: Borjomi, Khashuri, Tbilisi; WG: Abasha, Ambrolauri, Aphkhazeti, Kharagauli, Samtredia, Tskaltubo reported by Kirshenblat (1948), Matsaberidze (1966a), Matsaberidze (1966b), Rodonaia (1966a), Matsaberidze (1967), Matsabaridze (1976) and Kurashvili (1984b).

***Brachylaima* sp.**

Nomenclature:

Brachylaemus sp. of Sharpilo (1962)

Parasite of: reptiles - Lacertidae: *Lacerta strigata*.

Site of infection: intestine.

Distribution: Cosmopolitan distribution; **in Georgia:** EG: Khashuri reported by Sharpilo (1962) and Murvanidze et al. (2008b).

fam. Brachylaimidae gen. sp.

Parasite of: molluscs (intramolluscan stage) - Helicidae: *Helix lucorum*.

Site of infection: hepatopancreas.

Distribution: Cosmopolitan distribution; **in Georgia:** EG: Qvemo Qartli, Tbilisi; WG: Adjara, Imereti reported by Murvanidze et al. (2010) and Arabuli et al. (2019)

Genus *Ityogonimus* Lühe, 1899

***Ityogonimus talpae* (Goeze, 1782) Witenberg, 1925**

Parasite of: mammals - Talpidae: *Talpa europea*, *T. caucasica*, *T. orientalis*.

Site of infection: small intestine, stomach.

Distribution: Occurring in Europe; **in Georgia:** EG: Borjomi; WG: Abasha, Qobuleti, Samtredia, Sokhumi reported by Matsaberidze (1966b), Rodonaia (1966a), Matsaberidze (1967), Rodonaia (1971), Matsabaridze (1976) and Kurashvili (1984b).

Genus *Postharmostomum* Witenberg, 1923

Postharmostomum commutatum (Diesing, 1858) Skrjabin, 1923

Parasite of: birds - Phasianidae: *Meleagris gallopavo*, *Tetraogallus caucasicus*.

Site of infection: caecum, small intestine.

Distribution: Cosmopolitan distribution; **in Georgia:** EG: Kazbegi; WG: Samtredia reported by Dinnik (1938), Gushanskaia (1952), Kurashvili (1961a), Japaridze and Savateeva (1967) and Kurashvili et al. (1976).

Postharmostomum ularicum (Kurashvili, 1956)

Parasite of: birds - Phasianidae: *Tetraogallus caucasicus*.

Site of infection: intestine.

Distribution: Recorded only in Georgia, in Yamaguti (1971) listed as in Russia; **in Georgia:** EG: Lagodekhi, Mtatusheti, Tianeti reported by Kurashvili (1956), Kurashvili (1957) and Khrustalev and Moskvina (2021).

Family Panopistidae Yamaguti, 1958

Genus *Pseudoleucochloridium* Pojmanska, 1959

Pseudoleucochloridium soricis (Soltys, 1952) Pojmanska, 1959

Nomenclature:

Leucochloridium soricis Soltys, 1952

Parasite of: mammals - Soricidae: *Sorex araneus*, *S. minutus*, *S. raddei*.

Site of infection: small intestine.

Distribution: Occurring in Europe and Asia; **in Georgia:** EG: Borjomi; WG: Samtredia, Sokhumi, Qutaisi reported by Matsaberidze (1967), Rodonaia (1971), Matsabaridze (1976) and Kurashvili (1984b).

Superfamily Diplostomoidea Poirier, 1886

Family Cyathocotylidae Mühling, 1898

Genus *Mesostephanus* Lutz, 1933

Mesostephanus appendiculatus (Ciurea, 1916) Lutz, 1935

Parasite of: mammals - Felidae: *Felis chaus*.

molluscs (intra-molluscan stage) - Melanopsidae: *Melanopsis praemorsa*.

Site of infection: intestine.

Distribution: Occurring in the Holarctic Region; **in Georgia:** EG: Gardabani; WG: Lanchkhuti, Rivers: Pichori, Rioni reported by Rodonaia (1971), Galaktionov et al. (1980) and Ataev and Dobrovolskiy (1992).

Genus *Paracoenogonimus* Katsurada, 1914

Paracoenogonimus ovatus Katsurada, 1914

Parasite of: fishes (metacercariae) - Clupeidae: *Alosa tanaica*, *A. immaculata*; Cyprinidae: *Abramis brama*, *Barbus capito*, *Cyprinus carpio*, *Rutilus rutilus*, *Scardinius erythrophthalmus*, *Vimba vimba*; Esocidae: *Esox lucius*; Percidae: *Perca fluviatilis*, *Sander lucioperca*.

Site of infection: musculature, fins.

Distribution: Occurring in Europe; **in Georgia:** WG: Lakes: Didi Narionali, Paliastomi reported by Chernova (1973) and Murvanidze et al. (2018).

Genus *Szidatia* Dubois, 1938

Szidatia joyeuxi (Hughes, 1929) Dubois, 1938

Parasite of: reptiles - Colubridae: *Natrix natrix*.

Site of infection: intestine.

Distribution: Occurring in Africa; **in Georgia:** WG: Khobi, Zugdidi – Anaklia reported by Jankarashvili (1985), Jankarashvili and Sharpilo (1985) and Murvanidze et al. (2018).

Family Diplostomidae Poirier, 1886**Genus *Alaria* Schrank, 1788*****Alaria alata* (Goeze, 1782) Krause, 1914**

Parasite of: mammals - Canidae: *Canis aureus*, *C. lupus*, *C. lupus familiaris*, *Vulpes vulpes*; Mustelidae: *Martes foina*.

reptiles (metacercariae) - Colubridae: *Natrix tessellata*.

Site of infection: intestine.

Distribution: Occurring in Eurasia, North and South America, Australia; **in Georgia:** EG: Adigeni, Akhalqalaqi, Borjomi, Dedoflistskaro, Gardabani, Marneuli, Sagarejo, Signagi, surroundings of Tbilisi, Tetrtskaro. WG: Gali, Mtskheta, Zugdidi reported by Kamalov (1935), Gamtsemlidze (1941), Burjanadze (1943), Rodonaia (1951), Sharpilo (1962), Rodonaia (1966a), Rodonaia (1966b), Rodonaia (1971), Kurashvili (1984b) and Murvanidze et al. (2008b).

Genus *Bolbophorus* Dubois, 1935***Bolbophorus confusus* (Krause, 1914) Dubois, 1935**

Parasite of: fishes (metacercariae) - Cyprinidae: *Barbus barbus*, *Squalius cephalus*.

Site of infection: muscle.

Distribution: Occurring in the Holarctic, Ethiopian Regions, India, Australia; **in Georgia:** River Mtkvari reported by Kurashvili et al. (1980).

Genus *Codonocephalus* Diesing, 1850***Codonocephalus urniger* (Rudolphi, 1819) Lühe, 1909**

Parasite of: amphibians (metacercariae) - Ranidae: *Pelophylax ridibundus*.

Site of infection: kidneys, mouth cavity, muscle.

Distribution: Palaearctic distribution; **in Georgia:** EG: Tbilisi – Samgori; WG: Bebesiri Lake, Ozurgeti, Samtredia reported by Chiaberashvili and Mchedlidze (1961), Petriashvili et al. (1985) and Murvanidze et al. (2008a).

Genus *Diplostomum* von Nordmann, 1832

Diplostomum commutatum (Diesing, 1850) Dubois, 1937

Parasite of: fishes (metacercariae) - Cyprinidae: *Rutilus rutilus*.

Site of infection: no data available.

Distribution: Holarctic distribution; **in Georgia:** WG: Naronali Lake reported by Chernova (1973) and Murvanidze et al. (2018).

Diplostomum spathaceum (Rudolphi, 1819) Olsson, 1876

Parasite of: birds - Laridae: *Larus canus*, *L. minutus*, *Chroicocephalus ridibundus*.

fishes (metacercariae) - Cyprinidae: *Abramis brama*, *Acanthobrama microlepis*, *Alburnus alburnus*, *A. fasciatus*, *A. hohenackeri*, *Ballerus sapa*, *Barbus barbus*, *Capoeta sevangi*, *Carassius carassius*, *Chondrostoma cyri*, *Ctenopharyngodon idella*, *Cyprinus carpio*, *Gobio gobio*, *Leuciscus leuciscus*, *Luciobarbus capito*, *L. mursa*, *Rutilus rutilus*, *R. rutilus kurensis*, *Scardinius erythrophthalmus*, *Squalius cephalus*, *Tinca tinca*, *Varicorhinus* sp., *Vimba vimba*; Esocidae: *Esox lucius*; Gobiidae: *Ponticola constructor*; Percidae: *Sander lucioperca*.

molluscs (intramolluscan stage) - Lymnaeidae: *Lymnaea stagnalis*; *Peregriana peregra*.

Site of infection: eye (fishes), small intestine (birds).

Distribution: With Holarctic distribution; **in Georgia:** EG: Rivers: Alazani, Aragvi basin, Mtkvari (Borjomi Gorge); Lakes: Bazaleti, Jandari, Kumisi, Khrami; Samgori, Tbilisi Reservoir; WG: Batumi, Madatapa Lake, River Mtkvari, Sokhumi reported by Kurashvili (1953a), Kurashvili (1957), Kurashvili (1961b), Chiaberashvili (1962a), Qoiava (1966), Chiaberashvili (1968), Petriashvili (1971), Kurashvili et al. (1973), Burtikashvili et al. (1978), Kurashvili et al. (1980), Kurashvili (1984a), Kurashvili (1984b), Kurashvili (1988), Nikolaishvili et al. (1990), Kurashvili et al. (1991), Gogebashvili and Petriashvili (2002), Arabuli et al. (2015), Japoshvili et al. (2017) and Murvanidze et al. (2018).

Diplostomum sp.

Parasite of: fishes (metacercariae) - Cyprinidae: *Abramis brama*, *Alburnus alburnus*, *Capoeta capoeta*, *C. sevangi*, *Cyprinus carpio*, *Rutilus rutilus kurensis*, *Scardinius erythrophthalmus*, *Tinca tinca*, *Vimba vimba*; Esocidae: *Esox lucius*; Percidae: *Perca fluviatilis*.

Site of infection: eye.

Distribution: Cosmopolitan distribution; **in Georgia:** River Mtkvari reported by Kurashvili et al. (1980).

Genus *Neodiplostomum* Railliet, 1919

Neodiplostomum minor (Dubois, 1936) Pearson, 1961

Parasite of: reptiles (metacercariae) - Colubridae: *Natrix natrix*, *N. tessellata*.

Site of infection: viscera.

Distribution: Cosmopolitan distribution; **in Georgia:** EG: Bazaleti Lake, Jinvali, Kazbegi, surroundings of Tbilisi; WG: Khobi, Zugdidi, surroundings of Batumi reported by Petriashvili (1966) and Jankarashvili (1985).

Genus *Posthodiplostomum* Dubois, 1936

Posthodiplostomum brevicaudatum (von Nordmann, 1832) Wisniewski, 1958

Nomenclature:

Neascus brevicaudatus (von Nordmann, 1832) Hughes, 1928

Parasite of: fishes (metacercariae) - Esocidae: *Esox lucius*.

Site of infection: musculature, skin.

Distribution: With Holarctic distribution; **in Georgia:** EG: Bazaleti Lake, Rivers: Alazani, Iori, Mtkvari; WG: Paliastomi Lake reported by Chiaberashvili (1968), Chernova (1973) and Murvanidze et al. (2018).

Posthodiplostomum cuticola (von Nordmann, 1832) Dubois, 1936

Parasite of: fishes (metacercariae) - Cyprinidae: *Abramis brama*, *Alburnus chalcoides*, *Ballerus sapa*, *Chondrostoma cyri*, *Cyprinus carpio*, *Leuciscus aspilus*, *Luciobarbus capito*, *Scardinius erythrophthalmus*, *Tinca tinca*, *Vimba vimba*.

Site of infection: fins, gills, skin.

Distribution: Occurring in Europe and Asia; **in Georgia:** EG: River Mtkvari, Sagarejo reported by Kurashvili and Petriashvili (1977), Kurashvili et al. (1980), Kurashvili et al. (1983a), Kurashvili et al. (1990), Gogebashvili and Petriashvili (2002) and Murvanidze et al. (2018).

Posthodiplostomum sp.

Parasite of: birds - Charadriidae: *Charadrius alexandrinus*.

Site of infection: intestine.

Distribution: Cosmopolitan distribution; **in Georgia:** EG: Bazaleti Lake reported by Kurashvili (1950) and Kurashvili (1957).

Genus *Tylodelphys* Diesing, 1850

Tylodelphys clavata (von Nordmann, 1832) Diesing, 1850

Nomenclature:

Diplostomum clavatum Nordmann, 1832

Parasite of: fishes (metacercariae) - Cyprinidae: *Abramis brama*, *Alburnoides eichwaldi*, *Alburnus alburnus*, *A. chalcoides*, *A. derjugini*, *Ballerus sapa*, *Barbus tauricus rionica*, *Blicca bjoerkna*, *Capoeta capoeta*, *C. sevangi*, *Chondrostoma colchicum*, *Cyprinus carpio*, *Leuciscus leuciscus*, *L. cephalus orientalis*, *Luciobarbus capito*, *Rhodeus sericeus*, *Rutilus rutilus*, *Scardinius erythrophthalmus*, *Tinca tinca*, *Varicorhinus* sp., *Vimba vimba*; Esocidae: *Esox lucius*; Percidae: *Perca fluviatilis*, *Sander lucioperca*.

Site of infection: eye.

Distribution: Holarctic distribution; **in Georgia:** EG: Rivers: Alazani, Aragvi Basin, Iori, Mtkvari; Lakes: Bazaleti, Jandari; Khrami Reservoir; WG: Rivers: Bebesiri, Kaparchina, Rioni, Shavi; Lakes: Japana, Paliastomi reported by Chiaberashvili (1955), Chiaberashvili (1957), Chiaberashvili (1959), Chiaberashvili (1962b), Qoiava (1966), Chiaberashvili (1968), Petriashvili (1971), Chernova (1973), Burtikashvili et al. (1978) and Murvanidze et al. (2018).

Tylodelphys sp.

Parasite of: molluscs (intramolluscan stage) - Lymnaeidae: *Radix euphratica*.

Site of infection: body cavity, hepatopancreas.

Distribution: Cosmopolitan distribution; **in Georgia:** EG: Lisi Lake reported by Arabuli, unpublished data 2021.

Family Strigeidae Railliet, 1919

Genus *Apatemon* Szidat, 1928

Apatemon gracilis (Rudolphi, 1819) Szidat, 1928

Parasite of: birds - Anatidae: *Anas platyrhynchos*, *A. platyrhynchos* f. *domestica*, *Anser albifrons*, *A. anser* f. *domestica*, *Aythya ferina*, *Bucephala clangula*, *Melanitta fusca*, *Mergellus albellus*.

Site of infection: small intestine.

Distribution: Holarctic distribution; **in Georgia:** EG: Dusheti – Bazaleti Lake, Gardabani – surroundings of Tbilisi Reservoir, Jandari (Karaiazi) Lake, Marneuli, Tsalka – Khrami Reservoir; WG: Abasha, Chkhorotsku, Khobi, Lanchkhuti – Mamati, Martvili, Poti, Tsalenjikha, Zugdidi reported by Kurashvili (1953a), Kurashvili (1957), Japaridze and Savateeva (1967), Kurashvili et al. (1976) and Kurashvili (1984b).

Genus *Apharyngostrigea* Ciurea, 1927

Apharyngostrigea cornu (Zeder, 1800) Ciurea, 1927

Parasite of: birds - Ardeidae: *Egretta garzetta*, *Nycticorax nycticorax*; Scolopacidae: *Tringa ochropus*.

fishes (metacercariae) - Cyprinidae: *Rutilus rutilus*, *Scardinius erythrophthalmus*, *Tinca tinca*.

Site of infection: abdominal cavity, muscle (fishes); small intestine (birds).

Distribution: Occurring in the Holarctic, India, Madagascar; **in Georgia:** EG: Dusheti – Bazaleti Lake, Gardabani – Jandari Lake, River Mtkvari; WG: Poti – Chaladidi, River Mtkvari reported by Kurashvili (1953a), Kurashvili (1957), Kurashvili et al. (1980) and Kurashvili (1984b).

Apharyngostrigea garciai Tubangui, 1933

Parasite of: birds - Ardeidae: *Egretta garzetta*.

Site of infection: small intestine.

Distribution: Occurring in Southeast Asia; **in Georgia:** EG: Dusheti – Bazaleti Lake, Gardabani – Jandari Lake reported by Kurashvili (1953a) and Kurashvili (1957).

Genus *Cotylurus* Szidat, 1928

Cotylurus cornutus (Rudolphi, 1809) Szidat, 1928

Parasite of: birds - Anatidae: *Anser albifrons*, *A. anser* f. *domestica*, *Anas platyrhynchos* f. *domestica*, *Aythya ferina*, *A. marila*, *Mergus merganser*; Columbidae: *Columba livia*; Charadriidae: *Vanelus vanellus*.

Site of infection: intestine, small intestine.

Distribution: Cosmopolitan distribution; **in Georgia:** EG: Dedoplistskaro – Eldari, Dusheti – Bazaleti Lake, Gardabani, Kumisi Lake, Marneuli, Qareli – Zguderi, Tianeti;

WG: Abasha, Lanchkhuti – Mamati, Khobi, Lentekhi, Martvili, Paliastomi Lake, Poti, Samtredia, Tsalenjikha, Zugdidi – Axali kakhati reported by Kurashvili (1953a), Kurashvili (1957), Japaridze and Savateeva (1967), Kurashvili et al. (1973), Kurashvili et al. (1976) and Kurashvili (1984b).

***Cotylurus hebraicus* Dubois, 1934**

Parasite of: birds - Anatidae: *Anas platyrhynchos* f. *domestica*.

Site of infection: intestine.

Distribution: Occurring in the Holarctic Region and Brazil; **in Georgia:** WG: Samtredia – Ilori, Tsalenjikha reported by Japaridze and Savateeva (1967) and Kurashvili et al. (1976).

Genus *Ophiosoma* Szidat, 1928

***Ophiosoma patagiatum* (Creplin, 1846) Dubois, 1937**

Parasite of: birds - Ardeidae: *Botaurus stellaris*; Laridae: *Chroicocephalus ridibundus*.

Site of infection: intestine, small intestine.

Distribution: Occurring in Europe, Asia, Africa; **in Georgia:** EG: Kumisi Lake, Mtskheta – Natakhtari reported by Kurashvili (1953a), Kurashvili (1957) and Kurashvili et al. (1973).

Genus *Strigea* Abildgaard, 1790

***Strigea falconis* Szidat, 1928**

Parasite of: birds - Accipitridae: *Accipiter gentilis caucasicus*, *Aquila clanga*, *Circus*; Anatidae: *Anser anser* f. *domestica*; Phasianidae: *Gallus gallus* f. *domestica*, *Meleagris gallopavo*.

birds (metacercariae) - Anatidae: *Anas platyrhynchos* f. *domestica*, *Anser anser* f. *domesticus*, Phasianidae: *Gallus gallus* f. *domesticus*, *Meleagris gallopavo*.

Site of infection: intestine (adults); subcutaneous tissue of chest, neck and thighs (metacercariae).

Distribution: Holarctic Region, North Africa; **in Georgia:** EG: Borjomi, Gardabani, Kumisi Lake; WG: Gudauta reported by Kurashvili (1957), Japaridze and Savateeva (1967), Kurashvili et al. (1973), Kurashvili et al. (1976) and Kurashvili (1984b).

***Strigea strigis* (Schränk, 1788) Abildgaard, 1790**

Parasite of: birds - Accipitridae: *Buteo buteo*, *Circus aeruginosus*, *Milvus* sp.

reptiles (metacercariae) - Colubridae: *Natrix natrix*, *N. tessellata*.

amphibians: (metacercariae) - Ranidae: *Pelophylax ridibundus*.

Site of infection: intestine.

Distribution: Occurring in the Palaearctic Region, Africa; **in Georgia:** EG: Bazaleti Lake, Jinali, Khazbegi, surroundings of Tbilisi; WG: Khobi, surroundings of Batumi, Zugdidi reported by Petriashvili (1966) and Jankarashvili (1985).

Superfamily Schistosomatoidea Stiles & Hassall, 1898**Family Clinostomidae Lühe, 1901****Genus *Clinostomum* Leidy, 1856*****Clinostomum complanatum* (Rudolphi, 1814) Braun, 1899**

Parasite of: birds - Ardeidae: *Ardea cinerea*, *Egretta alba*.

fishes (metacercariae) - Cyprinidae: *Alburnus chalcoides*, *Barbus cyri*, *Leuciscus aspius*, *Rutilus rutilus*, *Scardinius erythrophthalmus*, *Squalius cephalus*, *Tinca tinca*, *Vimba vimba*; Esocidae: *Esox lucius*; Percidae: *Perca fluviatilis*, *Sander lucioperca*; Siluridae: *Silurus glanis*.

Site of infection: oesophagus, oral cavity, pharynx.

Distribution: Cosmopolitan distribution; **in Georgia:** EG: Bazaleti Lake, Gardabani – Jandari (Karaiazi) Lake, River Mtkvari; WG: Ozurgeti, Lakes: Bebesiri, Paliastomi; River Rioni reported by Kurashvili (1953a), Chiaberashvili (1955), Chiaberashvili (1957) Kurashvili (1957), Kurashvili (1961a), Chiaberashvili (1962b), Chernova (1977), Kurashvili and Petriashvili (1977), Kurashvili et al. (1980), Kurashvili (1984b) and Murvanidze et al. (2018).

***Clinostomum piscidium* Southwell & Prashad, 1918**

Parasite of: fishes (metacercariae) - Clupeidae: *Alosa immaculata*; Mugilidae: *Liza saliens*, *L. aurata*; Percidae: *Perca fluviatilis*.

Site of infection: oesophagus, oral cavity.

Distribution: Cosmopolitan distribution; **in Georgia:** WG: Batumi, Black Sea coast, Sokhumi, surroundings of Poti; Lakes: Japana, Paliastomi reported by Kurashvili and Tabidze (1947), Kurashvili et al. (1951), Kurashvili (1961a), Kurashvili and Petriashvili (1977) and Murvanidze et al. (2018).

Genus *Euclinostomum* Travassos, 1928

Euclinostomum heterostomum (Rudolphi, 1809) Travassos, 1928

Nomenclature:

Euclinostomum skrjabini Kurashvili, 1948

Parasite of: birds - Ardeidae: *Ardea cinerea*, *A. purpurea*.

Site of infection: oesophagus.

Distribution: In the Holarctic Region, India, Southeast Asia, Africa; **in Georgia:** EG: Dusheti – Bazaleti Lake, Tbilisi – Digomi, Tsalka reported by Kurashvili (1948), Kurashvili (1950), Kurashvili (1953a), Kurashvili (1957) and Kurashvili (1961a).

Family Schistosomatidae Stiles & Hassall, 1898

Genus *Bilharziella* Looss, 1899

Bilharziella polonica (Kowalewski, 1895) Looss, 1899

Parasite of: birds - Anatidae: *Anas crecca*, *A. penelope*, *A. platyrhynchos* f. *domestica*.

Site of infection: abdominal cavity, blood vessels of liver.

Distribution: Holarctic distribution; **in Georgia:** EG: Dusheti – Bazaleti Lake, Gardabani – Tbilisi Sea, Kumisi Lake, Tsalka; WG: Mestia – Lenjeri, Zugdidi reported by Kurashvili et al. (1976) and Kurashvili (1984b).

Genus *Dendritobilharzia* Skrjabin & Zakharov, 1920

Dendritobilharzia pulverulenta (Braun, 1901) Skrjabin, 1924

Parasite of: birds - Anatidae: *Anas crecca*, *A. penelope*, *A. platyrhynchos* f. *domestica*, *Anser anser* f. *domestica*.

Site of infection: blood vessels – large veins.

Distribution: Holarctic distribution; **in Georgia:** EG: Gardabani – Tbilisi Sea, Lagodekhi, Lisi Lake; WG: Surroundings of Poti reported by Kurashvili et al. (1976).

Order Plagiorchiida La Rue, 1957**Superfamily Azygioidea Lühe, 1909****Family Azygiidae Lühe, 1909****Genus *Azygia* Looss, 1899*****Azygia lucii* (Müller, 1776) Lühe, 1909**

Parasite of: fishes - Esocidae: *Esox lucius*; Percidae: *Sander lucioperca*; Salmonidae: *Salmo trutta labrax*; Siluridae: *Silurus glanis*.

Site of infection: esophagus.

Distribution: Occurring in the Holarctic; **in Georgia:** WG: Japana Lake, Poti reported by Kurashvili and Tabidze (1947), Chernova (1973) and Murvanidze et al. (2018).

Superfamily Bucephaloidea Poche, 1907**Family Bucephalidae Poche, 1907****Genus *Bucephalus* von Baer, 1827*****Bucephalus polymorphus* von Baer, 1827**

Parasite of: fishes - Cyprinidae: *Abramis brama*, *Alburnus chalcoides*, *A. derjugini*, *Ballerus sapa*, *Phoxinus colchicus*, *Rutilus rutilus*, *Scardinius erythrophthalmus*; Esocidae: *Esox lucius*; Percidae: *Perca fluviatilis*, *Sander lucioperca*; Siluridae: *Silurus glanis*.

Site of infection: fins, gills, intestine.

Distribution: Occurring in the Holarctic Region; **in Georgia:** EG: River Mtkvari; WG: Rivers: Rioni, Shavi, rRver Shavi's Fish-Factory; Bebesiri Lake reported by Chiaberashvili (1955), Chiaberashvili (1957), Chiaberashvili (1959), Chiaberashvili (1962b), Kurashvili et al. (1980) and Murvanidze et al. (2018).

Genus *Rhipidocotyle* Diesing, 1858

Rhipidocotyle campanula (Dujardin, 1845) Dollfus, 1968

Nomenclature:

Rhipidocotyle illense (Ziegler, 1883) Dyk, 1954

Parasite of: fishes - Cyprinidae: *Abramis brama*, *Blicca bjoerkna*, *Rhodeus*; Esocidae: *Esox lucius*; Gobiidae: *Gobius*; Percidae: *Sander lucioperca*; Siluridae: *Silurus glanis*.

Site of infection: fins, gills, intestine.

Distribution: Occurring in Europe, Asia; **in Georgia:** River Mtkvari; WG: Lakes: Didi Narionali, Paliastomi reported by Chernova (1973), Kurashvili et al. (1980) and Murvanidze et al. (2018).

Superfamily Echinostomatoidea Looss, 1902

Family Cyclocoelidae Stossich, 1903

Genus *Harrahium* Witenberg, 1926

Harrahium halli (Harrah, 1922) Witenberg, 1926

Nomenclature:

Cyclocoelum halli Harrah, 1922

Parasite of: birds - Anatidae: *Anas querquedula*.

Site of infection: abdominal cavity, air sacs of lungs.

Distribution: Occurring in North America; **in Georgia:** EG: Mtkvari River, Mtskheta reported by Kurashvili (1957) and Kurashvili (1961a).

Genus *Hyptiasmus* Kossack, 1911

Hyptiasmus magniproles Witenberg, 1928

Parasite of: birds - Anatidae: *Mergellus albellus*.

Site of infection: infraorbital cavity, nasal cavity.

Distribution: Occurring in Asia; **in Georgia:** EG: Marneuli reported by Kurashvili (1957).

Genus *Morishitium* Witenberg, 1928***Morishitium bivesiculatum* (Prudhoe, 1944) Yamaguti, 1958****Nomenclature:**

Cyclocoelum (*Pseudhyptiasmus*) *bivesiculatum* Prudhoe, 1944

Parasite of: birds - Turdidae: *Turdus merula aterrimus*.

Site of infection: abdominal cavity.

Distribution: Occurring in Asia; **in Georgia:** EG: Lagodekhi National Park reported by Kurashvili (1957) and Kurashvili (1961a).

Genus *Selfcoelum* Dronen, Gardner & Jiménez, 2006***Selfcoelum orientale* (Skrjabin, 1913) Dronen & Blend, 2015****Nomenclature:**

Cyclocoelum orientale Skrjabin, 1913

Parasite of: birds - Scolopacidae: *Tringa glareola*; Turdidae: *Turdus philomelos*, *T. merula aterrimus*.

Site of infection: abdominal cavity, air sacs of lungs.

Distribution: Recorded in Turkestan; **in Georgia:** EG: Borjomi reported by Bayer (1941), Kurashvili (1957) and Kurashvili (1961a).

Genus *Skrjabinocoelum* Kurashvili, 1953***Skrjabinocoelum petrowi* Kurashvili, 1953**

Parasite of: birds - Scolopacidae: *Lymnocyptes minimus*.

Site of infection: abdominal cavity, body cavity.

Distribution: Occurring in the Caucasus Region - Georgia and Azerbaijan; **in Georgia:** EG: Bolnisi reported by Kurashvili (1953a), Kurashvili (1953b), Kurashvili (1957) and Kurashvili (1961a).

Family Echinochasmidae Odhner, 1910

Genus *Echinochasmus* Dietz, 1909

Echinochasmus dietzevi Issaitschikov, 1927

Parasite of: birds - Anatidae: *Aythya nyroca*; Podicipedidae: *Colymbus caspicus*, *Podiceps cristatus*.

Site of infection: small intestine.

Distribution: Palaerctic distribution; **in Georgia:** EG: Samgori; WG: Batumi, Poti – Rioni Valley reported by Kurashvili (1957), Kurashvili (1961a), Kurashvili (1961b) and Kurashvili (1984b).

Echinochasmus mathevossianae Schakhtakhtinskaya in Kurashvili, 1957

Parasite of: birds - Anatidae: *Aythya fuligula*, *Netta rufina*.

Site of infection: bursa Fabricii, intestine.

Distribution: Occurrence recorded only in Georgia; **in Georgia:** EG: Tsalka (Khrami) Reservoir; WG: Sokhumi reported by Kurashvili (1957), Kurashvili (1961a) and Kurashvili (1984b).

Echinochasmus perfoliatus (Ratz, 1908) Gedoelst, 1911

Parasite of: mammals - Canidae: *Canis lupus familiaris*.

fishes (metacercariae) - Cyprinidae: *Alburnus alburnus*, *Alburnus filippii*.

Site of infection: gills, small intestine.

Distribution: Occurring in the Holarctic region; **in Georgia:** EG: Tbilisi; WG: Batumi reported by Burdjanadze (1937a), Gamtsemidze (1941), Burjanadze (1943), Kurashvili (1961a), Kurashvili et al. (1980) and Kurashvili (1984b).

Echinochasmus spp.

Parasite of: fishes (metacercariae) - Cyprinidae: *Luciobarbus escherichii*, *Squalius cephalus*.

mollusc (intramolluscan stages) - Melanopsidae: *Melanopsis praemorsa*.

Site of infection: gills.

Distribution: Cosmopolitan distribution; **in Georgia:** WG: Rivers: Pichori, Rioni reported by Chiaberashvili (1962b), Olenev and Dobrovolsky (1975), Kurashvili (1984a) and Manafov (2011).

Genus *Stephanoprora* Odhner, 1902

Stephanoprora pseudoechinata (Olsson, 1876) Yamaguti, 1958

Nomenclature:

Mesorchis pseudoechinatus (Olsson, 1876) Dietz, 1909

Parasite of: birds - Anatidae: *Aythya nyroca*; Laridae: *Hydrocoloeus minutus*, *Larus canus*.

Site of infection: small intestine.

Distribution: Occurring in the Holarctic, Africa; **in Georgia:** EG: Kumisi Lake, Lagodekhi, Marneuli; WG: River Kaparchina, Rioni Valley – Poti, Sokhumi reported by Kurashvili (1950), Kurashvili (1953a), Kurashvili (1957), Kurashvili (1961a) and Kurashvili (1984b).

Family Echinostomatidae Looss, 1899

Genus *Chaunocephalus* Dietz, 1909

Chaunocephalus ferox subsp. *orientalis* Baschkirova, 1941

Parasite of: birds - Ciconiidae: *Ciconia ciconia*, *Ciconia* sp.

Site of infection: small intestine.

Distribution: Occurring in Eurasia, Australia; **in Georgia:** EG: Sagarejo, surroundings of Tbilisi; WG: surroundings of Samtredia reported by Kurashvili (1941), Kurashvili (1957) and Kurashvili (1984b).

Genus *Echinoparyphium* Dietz, 1909

Echinoparyphium colchicum Javelidze, 1958

Parasite of: molluscs (intramolluscan stage) - Viviparidae: *Viviparus viviparus*.

Site of infection: reproductive organs and ducts.

Distribution: Recorded only in Georgia; **in Georgia:** WG: freshwaters reported by Javelidze (1958).

***Echinoparyphium mordwilkoii* Skrjabin, 1915**

Parasite of: birds - Scolopacidae: *Scolopax rusticola*, *Tringa ochropus*.

Site of infection: intestine.

Distribution: Occurring in Asia; **in Georgia:** WG: Poti – Chaladidi reported by Kurashvili (1957), Kurashvili (1961a), Kurashvili et al. (1976) and Kurashvili (1984b).

***Echinoparyphium recurvatum* (von Linstow, 1873) Lühe, 1909**

Parasite of: birds - Anatidae: *Anas acuta*, *A. crecca*, *A. platyrhynchos*, *A. platyrhynchos* f. *domestica*, *Anser anser*, *Marmaronetta angustirostris*; Ardeidae: *Botaurus stellaris*; Phasianidae: *Gallus gallus* f. *domestica*.

molluscs (intramolluscan stage) - Planorbidae: *Ancylus fluviatilis*, *Planorbis planorbis*.

Site of infection: caecum, small intestine.

Distribution: Cosmopolitan distribution; **in Georgia:** EG: Dusheti – Bazaleti Lake, Gardabani, Marneuli, Sartichala, Tsalka; WG: Abasha, Khobi, Lanchkhuti – Mamati, Poti – River Kaparchina, Samtredia, Senaki, Tsageri, Tsalenjikha reported by Kurashvili (1957), Kurashvili (1961a), Japaridze and Savateeva (1967), Chiaberashvili (1971a), Kurashvili et al. (1976) and Kurashvili (1984b).

Genus *Echinostoma* Rudolphi, 1809

***Echinostoma miyagawai* Ishii, 1932**

Nomenclature:

Echinostoma robustum Yamaguti, 1935

Parasite of: birds - Anatidae: *Anas platyrhynchos*, *A. platyrhynchos* f. *domestica*, *Anser anser* f. *domestica*, *Netta rufina*; Columbidae: *Spilopelia chinensis*, *Streptopelia turtur*; Phasianidae: *Gallus gallus* f. *domestica*, *Meleagris gallopavo*.

molluscs (intramolluscan stage) - Lymnaeidae: *Ampullaceana lagotis*.

Site of infection: hepatopancreas, intestine.

Distribution: Occurring in Europe, Asia; **in Georgia:** EG: Dedoflistskaro – Qvemo qedi, Dusheti – Bazaleti Lake, Gardabani – Jandari Lake, Marneuli, Mtskheta, Sartichala, Tbilisi – Samgori, Lisi Lake, Shuakhevi, Tetriwkaro – Koda, Tsalka; WG: Paliastomi Lake, Qareli, Rioni Valley, Samtredia, Sokhumi, Terjola, Zugdidi reported by Kurashvili (1941), Kurashvili (1953a), Chiaberashvili (1954), Chiaberashvili (1957), Kurashvili (1961a), Japaridze (1962), Japaridze and Savateeva (1967), Chiaberashvili (1971a), Kurashvili et al. (1976) and Kurashvili (1984b).

***Echinostoma paraulum* Dietz, 1909**

Parasite of: birds - Anatidae: *Anas clypeata*, *A. platyrhynchos*, *A. platyrhynchos* f. *domestica*, *Anser anser* f. *domestica*, *Aythya ferina*, *Cygnus cygnus*, *Netta rufina*; Columbidae: *Columba livia*.

molluscs (intramolluscan stage) - Lymnaeidae: *Ampullaceana balthica*.

Site of infection: hepatopancreas, intestine.

Distribution: Occurring in Europe, Asia; **in Georgia:** EG: Gardabani, Sartichala, Tskhinvali; WG: Lanchkhuti, lowland of Rioni, Samtredia, surroundings of Poti, Tetriskaro, Zugdidi reported by Kurashvili (1950), Kurashvili (1953a), Chiaberashvili (1954), Kurashvili (1957), Kurashvili (1961a), Japaridze and Savateeva (1967), Chiaberashvili (1971a), Kurashvili et al. (1976) and Kurashvili (1984b).

***Echinostoma revolutum* (Fröhlich, 1802) Looss, 1899**

Parasite of: birds - Anatidae: *Anas clypeata*, *A. platyrhynchos*, *A. platyrhynchos* f. *domestica*, *Anser anser* f. *domestica*, *Mergellus albellus*, *Mergus merganser*, *M. serrator*; Ardeidae: *Ardea cinerea*; Phasianidae: *Gallus gallus* f. *domestica*.

molluscs (intramolluscan stage) - Lymnaeidae: *Ampullaceana balthica*, *A. lagotis*, *Peregriana peregra*, *Galba truncatula*; Planorbidae: *Planorbis planorbis*.

Site of infection: intestine.

Distribution: Occurring in the Holarctic Region; **in Georgia:** EG: Bazaleti Lake, Sarthichala, Tbilisi – Samgori, River Iori; WG: Batumi, Lentekhi, Mestia, Paliastomi Lake, Samtredia reported by Kirshenblat (1941), Burjanadze (1943), Chiaberashvili (1954), Kurashvili (1957), Kurashvili (1961a), Japaridze (1962), Japaridze and Savateeva (1967), Chiaberashvili (1971a), Kurashvili et al. (1973), Kurashvili et al. (1983b) and Kurashvili (1984b).

***Echinostoma stantschinskii* Semenov, 1927**

Parasite of: birds - Scolopacidae: *Gallinago gallinago*.

Site of infection: large intestine.

Distribution: Occurring in Asia; **in Georgia:** WG: Poti – valley of Rioni reported by Kurashvili (1953a), Kurashvili (1957), Kurashvili (1961a) and Kurashvili et al. (1976).

Genus *Hypoderaeum* Dietz, 1909

Hypoderaeum conoideum (Bloch, 1782) Dietz, 1909

Parasite of: birds - Anatidae: *Anas acuta*, *A. platyrhynchos*, *A. platyrhynchos* f. *domestica*, *Anser anser*, *A. anser* f. *domestica*, *Mergus merganser*; Phasianidae: *Meleagris gallopavo* f. *domestica*; Scolopacidae: *Scopolax rusticola*, *Tringa ochropus*.

Site of infection: small intestine.

Distribution: Holarctic distribution; **in Georgia:** EG: Dmanisi, Dusheti – Bazaleti Lake, Gardabani, Lisi Lake, Samgori; WG: Batumi, Khobi, Ozurgeti, Poti, Samtredia reported by Kurashvili (1941), Kurashvili (1957), Kurashvili (1961a), Japaridze and Savateeva (1967), Kurashvili et al. (1976) and Kurashvili (1984b).

Hypoderaeum gnedini Baschkirova, 1941

Parasite of: birds - Anatidae: *Anas platyrhynchos*, *A. platyrhynchos* f. *domestica*, *Netta rufina*; Podicipedidae: *Podiceps cristatus cristatus*; Rallidae: *Fulica atra*.

Site of infection: intestine.

Distribution: Occurring in Asia (Azerbaijan); **in Georgia:** EG: Lagodekhi – Alazani Valley; WG: Lachkhuti, Poti – Rioni Valley, Samtredia reported by Kurashvili (1957), Kurashvili (1961a), Japaridze and Savateeva (1967) and Kurashvili et al. (1976).

Hypoderaeum vigi Baschkirova, 1941

Parasite of: birds - Anatidae: *Anas platyrhynchos*, *A. platyrhynchos* f. *domestica*.

Site of infection: intestine.

Distribution: Occurring in Asia (Kazakhstan); **in Georgia:** WG: Samtredia reported by Japaridze and Savateeva 1967, Kurashvili et al. (1976) and Kurashvili (1984b).

Genus *Moliniella* Hübner, 1939

Moliniella anceps (Molin, 1859) Hübner, 1939

Parasite of: molluscs (intramolluscan stage) - Lymnaeidae: *Lymnaea stagnalis*.

Site of infection: hepatopancreas.

Distribution: Occurring in Europe; **in Georgia:** WG: Madatapa Lake reported by Arabuli et al. (2015).

Genus *Neopetasiger* Baschkirova, 1941***Neopetasiger megacanthus* (Kotlán, 1922) Tkach, Kudlai & Kostadinova, 2016****Nomenclature:**

Petasiger megacanthus (Kotlán, 1922) Pande, 1939

Parasite of: birds - Anatidae: *Aythya nyroca*; Podicipedidae: *Podiceps cristatus*.

Site of infection: caecum, small intestine.

Distribution: Occurring in the Palaearctic; **in Georgia:** WG: Batumi, Gudauta, Poti, Rioni lowland, River Kaparchina reported by Kurashvili (1957), Kurashvili (1961a), Kurashvili (1961b) and Kurashvili (1984b).

Genus *Patagifer* Dietz, 1909***Patagifer bilobus* (Rudolphi, 1819) Dietz, 1909**

Parasite of: birds - Threskiornithidae: *Plegadis falcinellus*.

Site of infection: intestine, stomach.

Distribution: Cosmopolitan distribution; **in Georgia:** EG: Bazaleti Lake, Gardabani; WG: Paliastomi Lake reported by Kurashvili (1957), Kurashvili (1961a) and Kurashvili (1984b).

***Patagifer* sp.**

Parasite of: birds - Threskiornithidae: *Platalea leucorodia*.

Site of infection: small intestine.

Distribution: Cosmopolitan distribution; **in Georgia:** EG: Lisi Lake reported by Kurashvili (1957).

Genus *Pegosomum* Ratz, 1903***Pegosomum petrowi* Kurashvili, 1949**

Parasite of: birds - Ardeidae: *Egretta alba*.

Site of infection: gallbladder.

Distribution: Records exist only from Georgia; **in Georgia:** EG: Kumisi Lake, Lagodekhi, Marneuli reported by Kurashvili (1949), Kurashvili (1950), Kurashvili (1953a), Kurashvili (1957) and Kurashvili (1961a).

***Pegosomum skrjabini* Shakhtakhtinskaya, 1949**

Parasite of: birds - Ardeidae: *Ardea cinerea*, *Egretta alba*.

Site of infection: gallbladder, liver.

Distribution: Occurring in Asia (Azerbaijan); **in Georgia:** EG: Gardabani, Marneuli reported by Kurashvili (1950), Kurashvili (1953a), Kurashvili (1957) and Kurashvili (1961a).

Genus *Petasiger* Dietz, 1909

***Petasiger exaeretus* Dietz, 1909**

Parasite of: birds - Phalacrocoracidae: *Phalacrocorax carbo*.

Site of infection: small intestine.

Distribution: Eurasia, Africa, Australia; **in Georgia:** EG: Gardabani – Jandari (Karaiazi) Lake; WG: Surroundings of Sokhumi reported by Kurashvili (1941), Kurashvili (1957), Kurashvili (1961a) and Kurashvili (1984b).

***Petasiger radiatus* (Dujardin, 1845) Tkach, Kudlai & Kostadinova, 2016**

Nomenclature:

Paryphostomum radiatum (Dujardin, 1845) Dietz, 1909

Parasite of: birds - Phalacrocoracidae: *Phalacrocorax carbo*.

Site of infection: intestine.

Distribution: Cosmopolitan distribution; **in Georgia:** EG: Gardabani reported by Kurashvili (1941), Kurashvili (1957) and Kurashvili (1961a).

Family Fasciolidae Railliet, 1895**Genus *Fasciola* Linnaeus, 1758*****Fasciola gigantica* Cobbold, 1855**

Parasite of: mammals - Bovidae: *Bos taurus*, *Ovis aries*; Cervidae: *Capreolus capreolus*.

Site of infection: hepatic duct, liver.

Distribution: Cosmopolitan distribution; **in Georgia:** EG: Dusheti, Tsalka; WG: Gudauta, Khobi, Lanchkhuti, Poti, Samtredia, Senaki, Zugdidi reported by Gamtsemlidze (1941), Burjanadze and Baratashvili (1941), Burjanadze (1943), Kurashvili and Rodonaia (1954), Kurashvili (1961a), Rodonaia (1962), Rodonaia (1966a), Rodonaia (1971) and Kurashvili (1984b).

***Fasciola hepatica* Linnaeus, 1758**

Parasite of: mammals - Bovidae: *Bos taurus*, *Bubalus bubalis*, *Capra hircus*, *Ovis aries*; Cervidae: *Capreolus capreolus*; Equidae: *Equus caballus*; Leporidae: *Lepus europaeus*; Myocastoridae: *Myocastor coypus*; Suidae: *Sus scrofa*.

molluscs (intramolluscan stage) - Lymnaeidae: *Galba truncatula*, *Lymnaea stagnalis*; Sphaeriidae: *Pisidium* sp.

Site of infection: gallbladder, hepatic ducts, hepatopancreas, intestine, liver, lungs.

Distribution: Cosmopolitan distribution; **in Georgia:** EG: Akhaltsikhe, Akhmeta, Bakuriani, Dusheti, Gardabani, Gori, Samgori, Signagi, Tbilisi, Telavi; WG: Chiatara, Batumi, Khobi, Khulo, Kobuleti, Kutaisi, Lanchkhuti, Poti, Qobuleti, River Shavtskali, Samtredia, Senaki, Sokhumi, Tsalenjikha, Vani, Zugdidi reported by Gamtsemlidze (1941), Burjanadze (1943), Kurashvili and Rodonaia (1954), Qoiava (1956a), Qoiava (1956b), Qoiava (1961), Kurashvili (1961a), Rodonaia (1962), Chiaberashvili (1964), Rodonaia (1966a), Rodonaia (1966b), Rodonaia (1971), Chiaberashvili (1971a), Kurashvili et al. (1983b), Kurashvili (1984a) and Kurashvili et al. (1990).

Family Philophthalmidae Looss, 1900**Genus *Philophthalmus* Looss, 1899*****Philophthalmus rhionica* Tichomirov, 1976**

Parasite of: molluscs (intramolluscan stage) - Melanopsidae: *Melanopsis praemorsa*.

Site of infection: hepatopancreas.

Distribution: Recorded in Georgia only; **in Georgia:** WG: River Rioni reported by Tichomirov (1976), Ataev (1991) and Ataev and Dobrovolskiy (1992).

Family Psilostomidae Looss, 1900

Genus *Psilochasmus* Lühe, 1909

*Psilochasmus longicirratu*s Skrjabin, 1913

Parasite of: birds - Anatidae: *Anas acuta*, *A. clypeata*, *Anas platyrhynchos* f. *domestica*, *Anser anser* f. *domestica*, *Aythya nyroca*.

Site of infection: caecum, intestine.

Distribution: Europe, North America; **in Georgia:** EG: Dusheti – Bazaleti Lake, Tsalka – Khrami Reservoir. WG: Gurianta, Khobi, Ozurgeti – Gomi, Samtredia, surroundings of Poti reported by Kurashvili (1957), Kurashvili (1961a), Japaridze and Savateeva (1967), Kurashvili et al. (1976) and Kurashvili (1984b).

Psilochasmus oxyurus (Creplin, 1825) Lühe, 1909

Parasite of: birds - Anatidae: *Anas acuta*, *Anas platyrhynchos*, *Tadorna tadorna*; Phasianidae: *Gallus gallus* f. *domestica*.

Site of infection: intestine.

Distribution: North America, Europe, Asia (Iraq); **in Georgia:** EG: Lagodekhi – Alazani Valley; WG: Khobi, Rioni Valley, Samtredia, Senaki, surroundings of Poti reported by Kurashvili (1953a), Kurashvili (1957), Kurashvili (1961a), Japaridze and Savateeva (1967), Kurashvili et al. (1976) and Kurashvili (1984b).

Family Typhlocoelidae Harrah, 1922

Genus *Tracheophilus* Skrjabin, 1913

Tracheophilus sisowi Skrjabin, 1913

Parasite of: birds - Anatidae: *Anas acuta*, *A. clypeata*, *A. platyrhynchos*, *A. platyrhynchos* f. *domestica*, *A. querquedula*, *Anser anser* f. *domestica*, *Aythya fuligula*.

Site of infection: abdominal cavity, lungs, trachea.

Distribution: Holarctic distribution; **in Georgia:** EG: Bolnisi, Dusheti – Bazaleti Lake, Gardabani, Marneuli, Tetritskaro. WG: Samtredia reported by Burjanadze (1943), Kurashvili (1957), Kurashvili (1961a), Japaridze and Savateeva (1967) and Kurashvili et al. (1976).

Superfamily Gorgoderoidea Looss, 1901

Family Allocreadiidae Looss, 1902

Genus *Allocreadium* Looss, 1900

Allocreadium dogieli Koval, 1950

Parasite of: fishes - Cyprinidae: *Luciobarbus mursa*.

Site of infection: intestine.

Distribution: Occurring in Europe; **in Georgia:** EG: River Alazani reported by Chiaberashvili (1968) and Murvanidze et al. (2018).

Allocreadium isoporum (Looss, 1894) Looss, 1902

Parasite of: fishes - Cyprinidae: *Abramis brama*, *Alburnus chalcoides*, *Capoeta*, *Barbus barbus*, *B. cyri*, *B. lacerta*, *Leuciscus leuciscus*, *Luciobarbus mursa*, *Romanogobio persus*, *Rutilus rutilus*, *Varicorhinus* sp.

Site of infection: intestine.

Distribution: Occurring in Europe, Asia, North America; **in Georgia:** EG: Paravani Lake; Rivers: Alazani, Aragvi, Iori, Mtkvari; Khrami Reservoir; WG: River Mtkvari reported by Kurashvili et al. (1951), Kurashvili (1961a), Chiaberashvili (1962a), Chiaberashvili (1968), Kurashvili and Petriashvili (1977), Burtikashvili et al. (1978) and Kurashvili et al. (1980).

Allocreadium markewitschi Koval, 1949

Parasite of: fishes - Cyprinidae: *Alburnoides*, *Chondrostoma cyri*.

Site of infection: intestine.

Distribution: Occurring in Europe; **in Georgia:** River Mtkvari; EG: River Alazani reported by Chiaberashvili (1968), Kurashvili et al. (1980) and Murvanidze et al. (2018).

***Allocreadium transversale* (Rudolphi, 1802) Odhner, 1901**

Parasite of: fishes - Cyprinidae: *Alburnus filippii*, *Leuciscus leuciscus*, *Rutilus rutilus*.

Site of infection: intestine.

Distribution: Occurring in Europe, Asia; **in Georgia:** EG: Rivers: Iori, Mtkvari (surroundings of Borjomi, Mtskheta, Tbilisi, Khashuri); WG: River Rioni reported by Chiaberashvili (1962b), Chiaberashvili (1968), Kurashvili et al. (1980), Kurashvili et al. (1991) and Murvanidze et al. (2018).

Genus *Bunodera* Railliet, 1896

***Bunodera luciopercae* (Müller, 1776) Lühe, 1909**

Parasite of: fishes - Esocidae: *Esox lucius*; Percidae: *Sander lucioperca*; Siluridae: *Silurus glanis*.

Site of infection: intestine.

Distribution: Occurring in the Holarctic region; **in Georgia:** River Mtkvari reported by Kurashvili et al. (1980).

Genus *Crepidostomum* Braun, 1900

***Crepidostomum farionis* (Müller, 1780) Lühe, 1909**

Parasite of: fishes - Cyprinidae: *Barbus barbus*, *B. lacerta*, *Luciobarbus mursa*; Salmonidae: *Salmo trutta fario*.

mollusc (intramolluscan stages) - Sphaeriidae: *Euglesa casertana*.

Site of infection: gall bladder, intestine.

Distribution: Occurring in the Holarctic; **in Georgia:** EG: Khrami Reservoir, Rivers: Alazani, Iori, Mtkvari (Borjomi Gorge), Ortachala, Khashuri; WG: Abkhazian coast of Black Sea, River Rioni reported by Kurashvili et al. (1951), Kurashvili (1961a), Chiaberashvili (1968), Chiaberashvili (1971a), Kurashvili et al. (1991) and Murvanidze et al. (2018).

***Crepidostomum metoecus* (Braun, 1900) Braun, 1900**

Parasite of: molluscs (intramolluscan stage) - Sphaeriidae: *Pisidium* sp.

Site of infection: no data.

Distribution: Occurring in the Holarctic; **in Georgia:** WG: River Shavtskali reported by Chiaberashvili (1964).

Family Dicrocoeliidae Looss, 1899

Genus *Brachylecithum* Shtrom, 1940

Brachylecithum attenuatum (Dujardin, 1845) Shtrom, 1940

Parasite of: birds - Fringillidae: *Carduelis carduelis*; Turdidae: *Turdus merula*, *T. merula atterimus*.

Site of infection: gallbladder.

Distribution: Occurring in Europe, Asia; **in Georgia:** EG: Lagodekhi National Park, Martkopi; WG: Sokhumi, surroundings of Samtredia reported by Kurashvili (1957), Kurashvili (1961a) and Kurashvili (1984b).

Genus *Corrigia* Shtrom, 1940

Corrigia viktori Gushanskaya, 1952

Parasite of: birds - Phasianidae: *Coturnix coturnix*.

Site of infection: small intestine.

Distribution: Recorded in Georgia only; **in Georgia:** WG: surroundings of Samtredia reported by Kurashvili (1957), Kurashvili (1961a) and Kurashvili (1984b).

Corrigia vitta (Dujardin, 1845) Shtrom, 1940

Parasite of: mammals - Muridae: *Apodemus sylvaticus*.

Site of infection: pancreas.

Distribution: Occurring in Europe; **in Georgia:** EG: Borjomi reported by Matsaberidze (1966a), Matsaberidze (1966b) and Matsabaridze (1976).

Genus *Dicrocoelium* Dujardin, 1845

Dicrocoelium dendriticum (Rudolphi, 1819) Looss, 1899

Nomenclature:

Dicrocoelium lanceatum Stiles & Hassall, 1898

Parasite of: mammals - Bovidae: *Bos taurus*, *Capra hircus*, *Ovis aries*; Cervidae: *Cervus*, *Capreolus capreolus*; Leporidae: *Lepus*; Suidae: *Sus scrofa*; Ursidae: *Ursus arctos*; Muridae: *Chionomys*.

molluscs (intramolluscan stage) - Enidae: *Georginapaeus hohenackeri*; Geomitridae: *Xeropicta derbentina*; Hygromiidae: *Harmozica ravergiensis*.

Site of infection: gallbladder, hepatic ducts, liver.

Distribution: Cosmopolitan distribution; **in Georgia:** EG: Akhmeta, Borjomi, Dedoplistskaro, Dusheti, Kazbegi, Lagodekhi, Tianeti, Highland regions of southern and northern Georgia; WG: Akhalqalaqi, Akhaltsikhe, Batumi, Khobi, Lentekhi, Samtredia, Tsalenjikha, Zugdidi reported by Burdjanadze (1937b), Gamtsemlidze (1941), Kurashvili and Rodonaia (1954), Qoiava (1956a), Qoiava (1961), Kurashvili (1961a), Rodonaia (1962), Rodonaia (1966a), Rodonaia (1966b), Natsvlishvili (1968), Rodonaia (1971) and Matsabaridze (1976).

***Dicrocoelium macrostomum* Odhner, 1910**

Parasite of: birds - Phasianidae: *Coturnix coturnix*; Numididae: *Numida meleagris*.

Site of infection: hepatic ducts, liver.

Distribution: Occurring in Africa; **in Georgia:** WG: Samtredia reported by Kurashvili (1957), Kurashvili (1961a) and Kurashvili (1984b).

***Dicrocoelium* sp.**

Parasite of: molluscs (intramolluscan stage) - Oxychilidae: *Oxychilus mingrelicus*.

Site of infection: hepatopancreas.

Distribution: Cosmopolitan distribution; **in Georgia:** WG: Samegrelo reported by Arabuli (2018).

Genus *Eurytrema* Looss, 1907

***Eurytrema pancreaticum* (Janson, 1889) Looss, 1907**

Parasite of: mammals - Bovidae: *Bos taurus*.

Site of infection: liver.

Distribution: Occurring in Europe, Madagascar, Asia, and South America; **in Georgia:** WG: lowland of Kolkheti reported by Burjanadze (1943) and Kurashvili (1984b).

Genus *Lyperosomum* Looss, 1899***Lyperosomum petiolatum* (Railliet, 1900)****Nomenclature:**

Skrjabinus popovi Kassimov, 1952

Zonorchis petiolatum (Railliet, 1900)

Parasite of: birds - Phasianidae: *Tetraogallus caucasicus*.

Site of infection: gallbladder, liver.

Distribution: Occurring in Europe; **in Georgia:** EG: Lagodekhi National Park reported by Kurashvili (1957).

Genus *Platynosomum* Looss, 1907***Platynosomum fallax* Heidegger & Mendheim, 1938**

Parasite of: birds - Picidae: *Picus viridis karelini*.

Site of infection: gallbladder, liver.

Distribution: Occurring in Asia; **in Georgia:** EG: Lagodekhi National Park, Telavi – Alazani River; WG: surroundings of Samtredia reported by Kurashvili (1957), Kurashvili (1961a) and Kurashvili (1984b).

Family Encyclometridae Mehra, 1931**Genus *Encyclometra* Baylis & Cannon, 1924*****Encyclometra colubrimurorum* (Rudolphi, 1891) Dollfus, 1931**

Parasite of: reptiles - Colubridae: *Natrix natrix*.

Site of infection: oesophagus, intestine, stomach.

Distribution: Palaearctic distribution; **in Georgia:** EG: Jinali, Kazbegi, surroundings of Tbilisi; WG: surroundins of Batumi – Kakhaber Lake, Anaklia, Kulevi, Khobi, Zugdidi reported by Kurashvili (1984b) and Jankarashvili (1985).

Family Gorgoderidae Looss, 1899

Genus *Gorgodera* Looss, 1899

Gorgodera asiatica Pigulewski, 1943

Parasite of: amphibians - Ranidae: *Pelophylax ridibundus*, *Rana macrocnemis*.

Site of infection: urinary bladder.

Distribution: Palaearctic distribution; **in Georgia:** EG: Akhaldaba, Borjomi, Aragvi River, Lakes: Bazaleti, Jandari Lake, Kumisi; WG: Ozurgeti, Tkibuli Reservoir reported by Chiaberashvili and Mchedlidze (1961), Kurashvili et al. (1973), Kurashvili et al. (1975), Burtikashvili and Getzadze (1981), Giorgadze (1985), Petriashvili et al. (1985), Kurashvili et al. (1991) and Murvanidze et al. (2008a).

Gorgodera cygnoides (Zeder, 1800) Looss, 1899

Parasite of: amphibians - Bufonidae: *Bufo viridis*, Ranidae: *Pelophylax ridibundus*, *Rana macrocnemis*.

Site of infection: urinary bladder.

Distribution: Holarctic and Australasian distribution; **in Georgia:** EG: Bazaleti Lake, Kumisi Reservoir, Tbilisi Reservoir; WG: Khobi, Ozurgeti, Senaki, Tkibuli Reservoir reported by Chiaberashvili and Mchedlidze (1961), Petriashvili (1964), Kurashvili (1984b), Giorgadze (1985), Kurashvili et al. (1991) and Murvanidze et al. (2008a).

Gorgodera dollfusi Pigulewsky, 1946

Parasite of: amphibians - Bufonidae: *Bufo bufo*, *Bufo viridis*; Ranidae: *Pelophylax ridibundus*.

Site of infection: urinary bladder.

Distribution: Occurring in Asia; **in Georgia:** EG: Aragvi River, Martkhopi reported by Kurashvili et al. (1977), Burtikashvili et al. (1978), Burtikashvili and Getzadze (1981), Petriashvili et al. (1985) and Murvanidze et al. (2008a).

Gorgodera pagenstecheri Sinizin, 1905

Parasite of: amphibians - Ranidae: *Pelophylax ridibundus*, *Rana macrocnemis*.

molluscs (intramolluscan stage) - Sphaeriidae: *Sphaerium corneum*.

Site of infection: urinary bladder.

Distribution: Occurring in Europe; **in Georgia:** EG: Akhaldaba, Kodjori, Tbilisi Botanic Garden; WG: Ozurgeti, Sukhumi, Tkibuli Reservoir reported by Chiaberashvili and Mchedlidze (1961), Kurashvili (1984b), Giorgadze (1985), Petriashvili et al. (1985), Kurashvili et al. (1991) and Murvanidze et al. (2008a).

Genus *Gorgoderina* Looss, 1902

Gorgoderina vitelliloba (Olsson, 1876) Looss, 1902

Parasite of: amphibians - Ranidae: *Pelophylax ridibundus*, *Rana macrocnemis*.

molluscs (intramolluscan stage) - Sphaeriidae: *Euglesa casertana*, *Sphaerium corneum*

Site of infection: hepatopancreas, urinary bladder.

Distribution: With Palaearctic distribution; **in Georgia:** EG: Jandari Lake, Kazbegi, Tbilisi – Samgori; WG: Bebesiri Lake, Khobi, Ozurgeti, Samtredia, Tkibuli Reservoir reported by Chiaberashvili and Mchedlidze (1961), Chiaberashvili (1971a), Kurashvili et al. (1975), Kurashvili (1984a), Kurashvili (1984b), Giorgadze (1985), Petriashvili et al. (1985) and Murvanidze et al. (2008a).

Genus *Phyllodistomum* Braun, 1899

Phyllodistomum folium (Olfers, 1816) Braun, 1899

Nomenclature:

Phyllodistomum elongatum Nybelin, 1926

Parasite of: fishes - Cyprinidae: *Abramis brama*, *Alburnus chalcoides*, *Barbus barbus*, *Luciobarbus capito*, *Rutilus rutilus*, *Scardinius erythrophthalmus*, *Squalius cephalus*, *Vimba vimba*.

Site of infection: urinary bladder.

Distribution: Palaearctic distribution; **in Georgia:** EG: River Mtkvari; WG: Rivers: Mtkvari, Rioni, Tekhura; Bebesiri Lake reported by Chiaberashvili (1962b), Kurashvili et al. (1980) and Murvanidze et al. (2018).

Phyllodistomum pseudofolium Nybelin, 1926

Parasite of: fishes - Cyprinidae: *Alburnus derjugini*, *Chondrostoma colchicum*, *Vimba vimba*.

Site of infection: urinary bladder.

Distribution: Occurring in Europe; **in Georgia:** WG: Bebesiri Lake, River Rioni reported by Chiaberashvili (1962b) and Murvanidze et al. (2018).

Superfamily Haploporoidea Nicoll, 1914

Family Haploporidae Nicoll, 1914

Genus *Saccocoelium* Looss, 1902

Saccocoelium obesum Looss, 1902

Parasite of: fishes - Mugilidae: *Chelon auratus*, *Mugil cephalus*.

Site of infection: intestine.

Distribution: Occurring in Europe; **in Georgia:** WG: Paliastomi Lake reported by Chernova (1973) and Murvanidze et al. (2018).

Superfamily Haplospalchnoidea Poche, 1925

Family Haplospalchnidae Poche, 1926

Genus *Haplospalchnus* Looss, 1902

Haplospalchnus pachysoma (Eysenhardt, 1829) Looss, 1902

Parasite of: fishes - Mugilidae: *Chelon auratus*, *Mugil cephalus*.

Site of infection: intestine.

Distribution: Occurring in Europe, Africa, Oceanian Regions; **in Georgia:** WG: Paliastomi Lake reported by Chernova (1973) and Murvanidze et al. (2018).

Genus *Schikhobalotrema* Skrjabin & Guschanskaya, 1955

Schikhobalotrema sparisomae (Manter, 1938) Skrjabin & Guschanskaya, 1955

Parasite of: fishes - Mugilidae: *Chelon auratus*.

Site of infection: digestive tract.

Distribution: Holarctic distribution; **in Georgia:** WG: Paliastomi Lake reported by Chernova (1973) and Murvanidze et al. (2018).

Superfamily Hemiuroidea Looss, 1899

Family Hemiuridae Looss, 1899

Genus *Aphanurus* Looss, 1907

Aphanurus stossichii (Monticelli, 1891) Looss, 1907

Parasite of: fishes - Clupeidae: *Alosa tanaica*.

Site of infection: no data.

Distribution: Palaearctic distribution; **in Georgia:** WG: Paliastomi Lake reported by Chernova (1973).

Genus *Hemiurus* Rudolphi, 1809

Hemiurus appendiculatus (Rudolphi, 1802) Looss, 1899

Parasite of: fishes - Clupeidae: *Alosa tanaica*, *A. immaculata*; Mugilidae: *Chelon auratus*, *Mugil cephalus*; Percidae: *Perca fluviatilis*.

Site of infection: stomach.

Distribution: Occurring in Europe, North America, North Africa; **in Georgia:** WG: Paliastomi Lake reported by Kurashvili et al. (1951), Kurashvili (1961a), Kurashvili and Petriashvili (1977) and Murvanidze et al. (2018).

Hemiurus luehei Odhner, 1905

Parasite of: fishes - Clupeidae: *Alosa immaculata*.

Site of infection: stomach.

Distribution: Holarctic distribution; **in Georgia:** WG: Sokhumi reported by Kurashvili and Tabidze (1947).

Family Lecithasteridae Odhner, 1905

Genus *Aponurus* Looss, 1907

Aponurus tschugunovi Issaitschikov, 1927

Parasite of: fishes - Mugilidae: *Mugil cephalus*.

Site of infection: no data

Distribution: Occurring in the Black sea, European part of Russia; **in Georgia:** WG: Paliastomi Lake reported by Chernova (1973).

Genus *Lecithaster* Lühe, 1901

Lecithaster confusus Odhner, 1905

Nomenclature:

Lecithaster musteli Srivastava, 1966

Parasite of: fishes - Cyprinidae: *Alburnus derjugini*; Clupeidae: *Alosa immaculata*.

Site of infection: intestine.

Distribution: Occurring in the Holarctic Region, Africa; **in Georgia:** WG: Paliastomi Lake reported by Chernova (1977) and Murvanidze et al. (2018).

Lecithaster tauricus Pigulewsky, 1938

Parasite of: fishes - Esocidae: *Esox lucius*; Percidae: *Perca fluviatilis*.

Site of infection: intestine.

Distribution: Occurring in the Black Sea; **in Georgia:** WG: Paliastomi Lake reported by Chernova (1977) and Murvanidze et al. (2018).

Superfamily Microphalloidea Ward, 1901**Family Eucotylidae Skrjabin, 1924****Genus *Eucotyle* Cohn, 1904*****Eucotyle popowi* Skrjabin & Evramova, 1942**

Parasite of: birds - Anatidae: *Anas platyrhynchos*, *Melanitta fusca*; Podicipedidae: *Podiceps cristatus*.

Site of infection: ureter, urethra.

Distribution: Holarctic distribution; **in Georgia:** WG: Batumi, Paliastomi Lake, Poti reported by Kurashvili (1961b), Kurashvili et al. (1976) and Kurashvili (1984b).

Genus *Neoeucotyle* Kanev, Radev & Fried, 2002***Neoeucotyle zakharowi* (Skrjabin, 1920) Kanev, Radev & Fried, 2002**

Nomenclature:

Eucotyle zakharowi Skrjabin, 1920

Parasite of: birds - Anatidae: *Anas penelope*, *A. platyrhynchos*, *A. platyrhynchos* f. *domestica*, *A. querquedula*.

Site of infection: kidney, ureter, urethra.

Distribution: Occurrence in Palaearctic Region; **in Georgia:** EG: Dusheti – Bazaleti Lake, Gardabani, surroundings of Tbilisi Sea, Tetrtskaro, Tsalka; WG: Samtredia reported by Kurashvili et al. (1976).

Genus *Tamerlania* Skrjabin, 1924***Tamerlania zarudnyi* Skrjabin, 1924**

Parasite of: birds - Passeridae: *Passer domesticus*.

Site of infection: kidneys, ureter, urethra.

Distribution: Occurring in the Holarctic, Madagascar; **in Georgia:** EG: surroundings of Tbilisi reported by Kurashvili (1941), Kurashvili (1957), Kurashvili (1961a) and Kurashvili et al. (1976).

Family Eumegacetidae Travassos, 1922**Genus *Eumegacetes* Looss, 1900*****Eumegacetes ibericus* Kurashvili, 1941**

Parasite of: birds - Passeridae: *Passer domesticus*.

Site of infection: large intestine.

Distribution: Occurring in Europe; **in Georgia:** EG: surroundings of Tbilisi reported by Kurashvili (1940), Kurashvili (1941), Kurashvili (1957) and Kurashvili (1961a).

Family Faustulidae Poche, 1926**Genus *Pronoprymna* Poche, 1926*****Pronoprymna ventricosa* (Rudolphi, 1819) Poche, 1926**

Nomenclature:

Pentagramma symmetricum Chulkova, 1939

Parasite of: Fish - Clupeidae: *Alosa tanaica*, *A. immaculata*.

Site of infection: no data.

Distribution: Occurring in the Palaearctic; **in Georgia:** WG: Paliastomi Lake reported by Chernova (1973).

Family Lecithodendriidae Lühe, 1901**Genus *Lecithodendrium* Looss, 1896*****Lecithodendrium dryomi* Mazaberidze & Chotenovskiy, 1966**

Parasite of: mammals - Gliridae: *Dryomys nitedula*; Myoxidae.

Site of infection: small intestine.

Distribution: Occurrence recorded in Georgia only; **in Georgia:** EG: Borjomi – Gujareti reported by Matsaberidze (1966b), Matsaberidze and Khotenovskii (1966b), Matsaberidze and Khotenovskii (1967) and Matsaberidze (1976).

***Lecithodendrium linstowi* Dollfus, 1931**

Parasite of: mammals - Vespertilionidae: *Eptesicus serotinus*, *Pipistrellus nathusii*.

Site of infection: small intestine.

Distribution: Occurring in Europe; **in Georgia:** EG: Aspindza, Borjomi, Dmanisi, Khashuri, Lagodekhi, Sagarejo; WG: Tkibuli reported by Matsaberidze (1966b), Matsaberidze and Khotenovskii (1967) and Matsabaridze (1976).

***Lecithodendrium rysavyi* Dubois, 1960**

Parasite of: mammals - Vespertilionidae: *Pipistrellus kuhlii*.

Site of infection: small intestine.

Distribution: Occurring in Europe; **in Georgia:** EG: Tbilisi; WG: Tsalenjikha reported by Matsaberidze and Khotenovskii (1967) and Matsabaridze (1976).

***Lecithodendrium semen* Kirschenblatt, 1941**

Parasite of: mammals - Gliridae: *Dryomys nitedula*.

Site of infection: small intestine.

Distribution: Recorded in Georgia only; **in Georgia:** WG: Bakhmaro, Chokhatauri reported by Kirshenblat (1941), Kurashvili (1961a), Rodonaia (1971) and Matsabaridze (1976).

***Lecithodendrium skrjabini* Matsaberidze, 1963**

Parasite of: mammals - Vespertilionidae: *Pipistrellus nathusii*.

Site of infection: small intestine.

Distribution: Occurring in Europe; **in Georgia:** WG: Tkibuli reported by Matsaberidze (1963), Matsaberidze and Khotenovskii (1967) and Matsabaridze (1976).

Genus *Ophiosacculus* Macy, 1935***Ophiosacculus mehelyi* (Mödlinger, 1930) Macy, 1935**

Nomenclature:

Ophiosacculus eptesicus Matsaberidze & Chotenowsky, 1965

Parasite of: mammals - Vespertilionidae: *Eptesicus serotinus*.

Site of infection: small intestine.

Distribution: Occurring in Europe; **in Georgia:** EG: Mtskheta, Sagarejo – Gombori, Tbilisi reported by Matsaberidze (1966b), Matsaberidze and Khotenovskii (1966a), Matsaberidze and Khotenovskii (1967), Matsabaridze (1976) and Tkach et al. (2002).

Genus *Prosotocus* Looss, 1899

Prosotocus confusus (Loos, 1896) Looss, 1899

Parasite of: amphibians - Ranidae: *Pelophylax ridibundus*, *Rana macrocnemis*.

Site of infection: small intestine.

Distribution: With Palaearctic distribution; **in Georgia:** WG: Ozurgeti, Samtredia, Senaki reported by Chiaberashvili and Mchedlidze (1961) and Kurashvili (1984b).

Prosotocus fuelleborni Travassos, 1930

Parasite of: amphibians - Ranidae: *Pelophylax ridibundus*.

Site of infection: small intestine.

Distribution: Occurring in Europe; **in Georgia:** EG: Lakes: Bazaleti, Kumisi reported by Petriashvili (1964) and Kurashvili et al. (1973).

Genus *Prosthodendrium* Dollfus, 1931

Prosthodendrium ascidia (van Beneden, 1873) Bhalerao, 1936

Parasite of: mammals - Vespertilionidae: *Eptesicus serotinus*, *Pipistrellus kuhlii*, *P. nathusii*, Rhinolophidae: *Rhinolophus ferrumequinum*.

Site of infection: small intestine.

Distribution: Occurring in Europe; **in Georgia:** EG: Dedoflistskaro – Shiraqi, Gareji, Sagarejo-Gombori; WG: Tkibuli reported by Matsaberidze and Khotenovskii (1967) and Matsabaridze (1976).

Prosthodendrium chilostomum (Mehlis, 1831) Travassos, 1921

Parasite of: mammals - Vespertilionidae: *Eptesicus serotinus*, *Pipistrellus nathusii*; Rhinolophidae: *Rhinolophus ferrumequinum*.

Site of infection: small intestine.

Distribution: Occurring in Europe; **in Georgia:** EG: Mtskheta, Natakhtari, Sagarejo-Gombori; WG: Tkibuli reported by Matsaberidze and Khotenovskii (1967) and Matsabaridze (1976).

***Prosthodendrium parvouterus* (Bhalerao, 1926) Skrjabilovich, 1948**

Parasite of: mammals - Vespertilionidae: *Eptesicus serotinus*, *Nyctalus noctula*.

Site of infection: small intestine.

Distribution: Occurring in the Holarctic Region, Africa; **in Georgia:** EG: Borjomi, Dedoflistskaro – Shiraqi, Sagarejo-Gombori; WG: Tkibuli reported by Matsaberidze and Khotenovskii (1967) and Matsabaridze (1976).

***Prosthodendrium skrjabini* (Shaldybin in Skarbilovich, 1948)**

Nomenclature:

Paralecithodendrium skrjabini Shaldybin, 1948

Parasite of: mammals - Vespertilionidae: *Eptesicus serotinus*; Rhinolophidae: *Rhinolophus ferrumequinum*.

Site of infection: intestine.

Distribution: Occurring in Europe; **in Georgia:** EG: Borjomi, Davit Gareji reported by Matsaberidze (1966b) and Matsabaridze (1976).

Genus *Pycnopus* Looss, 1899

***Pycnopus kuraschvili* Matzaberidze, 1976**

Parasite of: mammals - Vespertilionidae: *Myotis mystacinus*.

Site of infection: small intestine.

Distribution: Recorded in Georgia only; **in Georgia:** EG: Tbilisi reported by Matsabaridze (1976).

Family Phaneropsolidae Mehra, 1935

Genus *Combesia* Mas-Coma, Roset & Montoliu, 1985

Combesia macrobursata (Tschertkova & Rodonaja, 1965) Mas-Coma, Roset & Montoliu, 1985

Nomenclature:

Plagiorchis macrobursatum Tschertkova & Rodonaja, 1965

Parasite of: mammals - Talpidae: *Talpa europea*, *T. orientalis*.

Site of infection: small intestine.

Distribution: Recorded from Georgia and Spain; **in Georgia:** WG: Sokhumi reported by Chertkova and Rodonaia (1965), Rodonaia (1971) and Matsabaridze (1976).

Family Pleurogenidae Looss, 1899

Genus *Pleurogenes* Looss, 1896

Pleurogenes claviger (Rudolphi, 1819) Looss, 1896

Parasite of: amphibians - Ranidae: *Pelophylax ridibundus*, *Rana macrocnemis*.

Site of infection: intestine.

Distribution: Occurring in Europe; **in Georgia:** WG: Bebesiri Lake, Gali, Gudauta reported by Chiaberashvili and Mchedlidze (1961), Kurashvili (1984b), Petriashvili et al. (1985) and Murvanidze et al. (2008a).

Pleurogenes intermedius Issaitschikov, 1926

Parasite of: amphibians - Bufonidae: *Bufo viridis*; Ranidae: *Pelophylax ridibundus*, *Rana macrocnemis*.

Site of infection: intestine.

Distribution: Palaearctic distribution; **in Georgia:** EG: Akhaldaba, Borjomi reported by Kurashvili et al. (1991) and Murvanidze et al. (2008a).

Genus *Pleurogenoides* Travassos, 1921***Pleurogenoides medians* (Olsson, 1876) Travassos, 1921**

Parasite of: amphibians - Bufonidae: *Bufo viridis*; Ranidae: *Pelophylax ridibundus*, *Rana macrocnemis*.

Site of infection: small intestine.

Distribution: Holarctic distribution; **in Georgia:** EG: Aragvi River Basin, Bazaleti Lake, Martkhopi; WG: Gali, Khobi reported by Petriashvili (1964), Kurashvili et al. (1977), Burtikashvili and Getzadze (1981), Petriashvili et al. (1985) and Murvanidze et al. (2008a).

Family Prosthogonimidae Lühe, 1909**Genus *Prosthogonimus* Lühe, 1899*****Prosthogonimus ovatus* (Rudolphi, 1803) Lühe, 1899**

Parasite of: birds - Anatidae: *Anas platyrhynchos*, *A. platyrhynchos* f. *domestica*, *A. strepera*, *Anser anser*; Phasianidae: *Gallus gallus* f. *domestica*, *Phasianus colchicus*.

molluscs (intramolluscan stages) - Bithyniidae: *Bithynia tentaculata*.

Site of infection: bursa Fabricii, oviduct.

Distribution: Occurring in Europe, Asia, Americas; **in Georgia:** EG: Dusheti – Bazaleti Lake, Gardabani, Lisi Lake, Tetrtskaro, Tsalka; WG: Bebesiri Lake, Gagra, Samtredia reported by Burjanadze (1943), Kurashvili (1957), Kurashvili (1961a), Japaridze and Savateeva (1967), Kurashvili et al. (1976), Kurashvili (1984a) and Kurashvili (1984b).

Family Stomylotrematidae Poche, 1926**Genus *Stomylotrema* Looss, 1900*****Stomylotrema spasskii* Sobolev, 1946**

Parasite of: birds - Scolopacidae: *Gallinago media*.

Site of infection: bursa Fabricii, large intestine.

Distribution: Occurring in Europe; **in Georgia:** WG: Sokhumi reported by Kurashvili (1950), Kurashvili (1953a), Kurashvili (1957), Kurashvili (1961a) and Kurashvili (1984b)

Superfamily Monorchioidea Odhner, 1911

Family Deropristidae Cable & Hunninen, 1942

Genus *Skrjabinopsolus* Ivanov in Ivanov & Murygin, 1937

Skrjabinopsolus semiarmatus (Molin, 1858) Ivanov in Ivanov & Murygin, 1937

Nomenclature:

Skrjabinopsolus acipenseris Ivanov & Murygin, 1937

Skrjabinopsolus minor Bychowskaya-Pavlovskaya & Mikailov, 1969

Parasite of: fishes - Acipenseridae: *Acipenser persicus*, *A. stellatus*, *Huso huso*.

Site of infection: oesophagus, intestine, stomach.

Distribution: Occurring in the Holarctic; **in Georgia:** River Mtkvari; WG: River Rioni (Orpiri Village), surroundings of Batumi reported by Chulkova (1939), Kurashvili et al. (1980) and Murvanidze et al. (2018).

Family Lissorchiidae Magath, 1917

Genus *Asymphylodora* Looss, 1899

Asymphylodora demeli Markowski, 1935

Parasite of: fishes - Gobiidae: *Ponticola constructor*.

Site of infection: intestine.

Distribution: Occurring in Europe; **in Georgia:** River Mtkvari reported by Kurashvili et al. 1980.

Asymphylodora kubanica Issaitschikov, 1923

Parasite of: fishes - Cyprinidae: *Abramis brama*, *Alburnus chalcoides*, *Ballerus sapa*, *Blicca bjoerkna*, *Cyprinus carpio*, *Leuciscus aspius*, *Rutilus rutilus*; Esocidae: *Esox lucius*; Siluridae: *Silurus glanis*.

Site of infection: intestine.

Distribution: Occurring in Europe, Asia; **in Georgia:** River Mtkvari reported by Kurashvili et al. (1980).

***Asymphylogora markewitschi* Kulakowskaya, 1947**

Parasite of: fishes - Cyprinidae: *Barbus lacerta*, *Cyprinus carpio*.

Site of infection: oesophagus, intestine.

Distribution: Occurring in Europe, Asia; **in Georgia:** EG: River Mtkvari reported by Kurashvili et al. (1980) and Kurashvili et al. (2005).

***Asymphylogora tincae* (Modeer, 1790) Lühe, 1909**

Parasite of: fishes - Clupeidae: *Alosa tanaica*, *A. immaculata*; Cyprinidae: *Luciobarbus capito*, *Tinca tinca*; Esocidae: *Esox lucius*; Mugilidae: *Mugil cephalus*.

Site of infection: oesophagus, intestine.

Distribution: Occurring in Europe; **in Georgia:** River Mtkvari; WG: Lakes: Japana, Paliastomi reported by Chernova (1973), Kurashvili et al. (1980) and Murvanidze et al. (2018).

Superfamily Opecoeloidea Ozaki, 1925**Family Opecoelidae Ozaki, 1925****Genus *Sphaerostoma* Rudolphi, 1809*****Sphaerostoma bramae* (Müller, 1776) Lühe, 1909**

Parasite of: fishes - Cyprinidae: *Alburnus chalcoides*, *Ballerus sapa*, *Blicca bjoerkna*; Esocidae: *Esox lucius*.

Site of infection: intestine.

Distribution: Palaearctic distribution; **in Georgia:** River Mtkvari reported by Kurashvili et al. (1980).

***Sphaerostoma globiporum* (Rudolphi, 1802) Looss, 1899**

Parasite of: fishes - Cyprinidae: *Rutilus rutilus*.

Site of infection: intestine.

Distribution: Occurrence in Europe, North America; **in Georgia:** WG: Paliastomi Lake reported by Chernova (1973) and Murvanidze et al. (2018).

Sphaerostoma salmonis* Slusarski, 1958*Nomenclature:**

Sphaerostoma kurensis Mikailov, 1969

Parasite of: fishes - Cyprinidae: *Alburnus chalcoides*.

Site of infection: intestine.

Distribution: Occurring in Europe; **in Georgia:** River Mtkvari reported by Kurashvili et al. (1980).

Superfamily Opisthorchioidea Looss, 1899**Family Cryptogonimidae Ward, 1917****Genus *Timoniella* Rebecq, 1960*****Timoniella imbutiformis* (Molin, 1859) Brooks, 1980**

Parasite of: fishes - Clupeidae: *Alosa tanaica*.

Site of infection: no data.

Distribution: Occurring in the Mediterranean Region, Caspian Sea, Black Sea, northeast Atlantic; **in Georgia:** WG: Paliastomi Lake reported by Burjanadze (1943) and Murvanidze et al. (2018).

Family Heterophyidae Leiper, 1909**Genus *Ascocotyle* Looss, 1899*****Ascocotyle italica* Alessandrini, 1906****Nomenclature:**

Parascocotyle italica (Alessandrini, 1906) Price, 1932

Parasite of: mammals - Canidae: *Canis lupus familiaris*.

Site of infection: intestine.

Distribution: Occurring in Europe, Africa; **in Georgia:** WG: Kolkheti Lowland reported by Burjanadze (1943) and Kurashvili (1984b).

Ascocotyle longa* Ransom, 1920*Nomenclature:**

Parascocotyle longa (Ransom, 1920) Stunkard & Haviland, 1924

Metascocotyle witenbergi Ciurea, 1933

Parasite of: mammals - Felidae: *Felis catus*.

fishes - Cyprinidae: *Blicca bjoerkna*, *Luciobarbus mursa*.

Site of infection: gills, intestine, muscles.

Distribution: Occurring in Europe, Asia, Africa, America; **in Georgia:** EG: Rivers: Alazani, Mtkvari; WG: Kolkheti reported by Gamtsemlidze (1941), Burjanadze (1943), Chiaberashvili (1957), Chiaberashvili (1968) and Murvanidze et al. (2018).

Genus *Metagonimus* Katsurada, 1912***Metagonimus ciureanus* (Witenberg, 1929) Price, 1931****Nomenclature:**

Dexiagonimus ciureanus Witenberg, 1929

Parasite of: mammals - Canidae: *Canis aureus*, *Vulpes vulpes*; Felidae: *Felis chaus*.

Site of infection: intestine.

Distribution: Occurring in Asia; **in Georgia:** EG: Adigeni, Bolnisi, Marneuli, Rivers: Khrami, Mashavera, Mtkvari; Tbilisi – Samgori reported by Rodonaia (1966b), Rodonaia (1971) and Kurashvili (1984b).

***Metagonimus yokogawai* (Katsurada, 1912) Katsurada, 1912**

Parasite of: mammals - Canidae: *Canis lupus familiaris*; Felidae: *Felis catus*.

molluscs (intramolluscan stage) - Melanopsidae: *Melanopsis praemorsa*.

Site of infection: intestine.

Distribution: Holarctic distribution; **in Georgia:** WG: Batumi, Kolkheti, Rivers of western Georgia reported by Gamtsemlidze (1941), Burjanadze (1943), Kurashvili (1984b) and Ataev and Dobrovolskiy (1992).

Genus *Pygidiopsis* Looss, 1907

Pygidiopsis genata Looss, 1907

Parasite of: fishes (metacercariae) - Gobiidae: *Babka gymnotrachelus*, *Neogobius melanostomus*.

Site of infection: gills, muscles.

Distribution: Occurring in Europe, Africa; **in Georgia:** WG: Paliastomi Lake reported by Chernova (1973), Kurashvili and Petriashvili (1977) and Murvanidze et al. (2018).

Family Opisthorchiidae Looss, 1899

Genus *Aphallus* Lühe, 1909

Aphallus donicus (Skrjabin & Lindtrop, 1919) Price, 1931

Parasite of: fishes (metacercariae) - freshwater fishes.

Site of infection: fins, skin.

Distribution: Holarctic distribution; **in Georgia:** WG: freshwaters of West Georgia reported by Chiaberashvili (1955) and Murvanidze et al. (2018).

Aphallus muehlingi (Jägerskiöld, 1899) Lühe, 1909

Parasite of: fishes (metacercariae) - Cyprinidae: *Abramis brama*.

Site of infection: fins, skin.

Distribution: Palaeartic distribution; **in Georgia:** WG: Paliastomi Lake reported by Chernova (1977), Kurashvili and Petriashvili (1977) and Murvanidze et al. (2018).

Genus *Cryptocotyle* Lühe, 1899

Cryptocotyle concava (Creplin, 1825) Lühe, 1899

Parasite of: fishes (metacercariae) - Gobiidae: *Babka gymnotrachelus*, *Neogobius melanostomus*.

Site of infection: skin, musculature.

Distribution: Holarctic distribution; **in Georgia:** WG: Paliastomi Lake reported by Chernova (1977), Kurashvili and Petriashvili (1977) and Murvanidze et al. (2018).

Genus *Metorchis* Looss, 1899***Metorchis bilis* (Braun, 1790) Odening, 1962**

Parasite of: fishes (metacercariae) - Cyprinidae: *Cyprinus carpio*, *Rutilus rutilus*, *Scardinius erythrophthalmus*.

Site of infection: muscle.

Distribution: Holarctic distribution; **in Georgia:** WG: Didi Narionali Lake, Paliastomi Lake reported by Chernova (1977), Kurashvili and Petriashvili (1977) and Murvanidze et al. (2018).

***Metorchis xanthosomus* (Creplin, 1846) Braun, 1902**

Nomenclature:

Metorchis intermedius Heinemann, 1937

Parasite of: birds - Anatidae: *Anas acuta*, *A. crecca*, *A. platyrhynchos* f. *domestica*, *Anser anser*, *Aythya fuligula*.

Site of infection: gallbladder, hepatic ducts.

Distribution: Occurring in Europe; **in Georgia:** EG: Marneuli; WG: Abasha – Tskhenistskali, Samtredia, Zugdidi reported by Kurashvili (1957), Kurashvili (1961a), Kurashvili et al. (1976) and Kurashvili (1984b).

Genus *Opisthorchis* Branchard, 1895***Opisthorchis geminus* (Looss, 1896) Looss, 1899**

Parasite of: birds - Ardeidae: *Ardeola ralloides*.

Site of infection: gallbladder, hepatic ducts.

Distribution: Occurring in Southeast Asia, Africa; **in Georgia:** EG: Gardabani – Jandari Lake, surroundings of Tbilisi reported by Kurashvili (1957) and Kurashvili (1961a).

***Opisthorchis simulans* (Looss, 1896) Kowalewski 1898**

Parasite of: birds - Anatidae: *Anas platyrhynchos* f. *domestica*.

Site of infection: hepatic ducts.

Distribution: Occurring in Africa; **in Georgia:** WG: Samtredia reported by Kurashvili et al. (1976) and Kurashvili (1984b).

Superfamily Paramphistomoidea Fiscoeder, 1901

Family Diplodiscidae Cohn, 1904

Genus *Diplodiscus* Diesing, 1836

Diplodiscus mehrai Pande, 1937

Parasite of: amphibians - Ranidae: *Pelophylax ridibundus*.

Site of infection: large intestine, rectum.

Distribution: Occurring in Europe and India; **in Georgia:** EG: Aragvi River Basin, Bazaleti Lake, Tbilisi – Samgori reported by Chiaberashvili and Mchedlidze (1961), Petriashvili (1964), Burtikashvili and Getzadze (1981), Petriashvili et al. (1985), Sey (2001) and Murvanidze et al. (2008a).

Diplodiscus subclavatus (Pallas, 1760) Diesing, 1836

Parasite of: reptiles - Colubridae: *Natrix natrix*.

amphibians - Bufonidae: *Bufo viridis*; Ranidae: *Pelophylax ridibundus*, *Rana macrocnemis*.

mollusc (intramolluscan stage) - Planorbidae: *Planorbis planorbis*.

Site of infection: large and small intestine, rectum.

Distribution: Occurring in Europe, Asia, Africa; **in Georgia:** EG: Aragvi River Basin, Bazaleti Lake, Borjomi, Jinali, Kazbegi, Kodjori, Samgori, Sartichala – River Iori, surroundings of Tbilisi; WG: Gali, Khobi, Ozurgeti, Senaki, surroundings of Batumi, Tkibuli Reservoir, Zugdidi reported by Chiaberashvili and Mchedlidze (1961), Petriashvili (1964), Petriashvili (1966), Chiaberashvili (1971a), Burtikashvili and Getzadze (1981), Giorgadze (1985), Jankarashvili (1985), Petriashvili et al. (1985), Sey (2001), Murvanidze et al. (2008a) and Murvanidze et al. (2008b).

Family Paramphistomidae Fiscoeder, 1901**Genus *Calicophoron* Näsmark, 1937*****Calicophoron calicophorum* (Fiscoeder, 1901) Näsmark, 1937**

Parasite of: mammals - cattle.

molluscs (intramolluscan stage) - Planorbidae: *Planorbis planorbis*.

Site of infection: omasum, rumen.

Distribution: Occurring in Asia, Africa, Oceania; **in Georgia:** EG: Akmeta, Gardabani, Gurjaani, Krtsanisi, Kvareli, Lagodekhi, Signagi, Telavi, Teritskaro, Tsalka; WG: Khobi, Lanchkhuti, Samtredia reported by Kurashvili (1984b), Sey (2001) and Fotskhveria (2002).

Genus *Paramphistomum* Fiscoeder, 1901***Paramphistomum cervi* (Zeder, 1790) Fiscoeder, 1901**

Parasite of: mammals - Bovidae: *Bos taurus*, *Ovis aries*; Cervidae: *Capreolus capreolus*.

molluscs (intramolluscan stage) - Planorbidae: *Planorbis planorbis*.

Site of infection: omasum, rumen, small intestine, stomach.

Distribution: Cosmopolitan distribution; **in Georgia:** EG: Bakuriani; WG: Akhalqalaqi, Khobi (Qarieta), Lanchkhuti, Poti, Samtredia, Sokhumi, Qutaisi reported by Gamtsemlidze (1941), Burjanadze (1943), Rodonaia (1962), Rodonaia (1966a), Chiaberashvili (1971a), Kurashvili (1984b) and Sey (2001).

***Paramphistomum scotiae* Willmott, 1950**

Nomenclature:

Liorchis scotiae (Willmott, 1950) Velichko, 1966

Parasite of: mammals - Cervidae: *Capreolus capreolus*.

Site of infection: rumen.

Distribution: Occurring in Europe; **in Georgia:** WG: Khobi, Poti, Qarieta reported by Rodonaia (1971) and Kurashvili (1984b).

***Paramphistomum skrjabini* Popova, 1927**

Parasite of: mammals - Bovidae: *Bos taurus*, *Bubalus bubalis*.

molluscs (intramolluscan stage) - Planorbidae: *Planorbis planorbis*.

Site of infection: rumen.

Distribution: Reported from Georgia only; **in Georgia:** EG: Eastern Georgia reported by Burjanadze (1943), Rodonaia (1960) and Rodonaia (1971).

"fam. Paramphistomidae" gen. sp.

Parasite of: molluscs (intramolluscan stage) - Planorbidae: *Planorbis planorbis*.

Site of infection: no data.

Distribution: Cosmopolitan distribution; **in Georgia:** EG: Gori, Khashuri, Lagodekhi, Manglisi, Qareli, Tetrtskaro, Tsalka reported by Matsaberidze et al. (1989).

Superfamily Plagiorchioidea Lühe, 1901

Family Brachycoeliidae Looss, 1899

Genus *Brachycoelium* Dujardin, 1845

***Brachycoelium salamandrae* (Frölich, 1789) Lühe, 1909**

Parasite of: reptiles - Salamandridae: *Mertensiella caucasica*.

Site of infection: small intestine.

Distribution: Occurring in Europe, North America, North Africa; **in Georgia:** EG: Bakuriani reported by Petriashvili et al. (1985) and Murvanidze et al. (2008b).

Family Cephalogonimidae Looss, 1899

Genus *Cephalogonimus* Poirier, 1886

***Cephalogonimus europaeus* Blaizot, 1910**

Parasite of: amphibians - Ranidae: *Pelophylax ridibundus*.

molluscs (intramolluscan stages) - Lymnaeidae: *Galba truncatula*.

Site of infection: gallbladder, hepatopancreas, intestine.

Distribution: Occurring in Europe; **in Georgia:** EG: Samgori, Sartichala; WG: Ozurgeti reported by Chiaberashvili and Mchedlidze (1961), Chiaberashvili (1971a) and Kurashvili (1984b).

***Cephalogonimus retusus* (Dujardin, 1845) Odhner, 1910**

Parasite of: amphibians - Ranidae: *Pelophylax ridibundus*.

Site of infection: small intestine.

Distribution: Occurring in Europe; **in Georgia:** EG: Aragvi River Basin, Bazaleti Lake, Tbilisi – Samgori; WG: Samtredia, Tkibuli Reservoir reported by Chiaberashvili and Mchedlidze (1961), Petriashvili (1964), Burtikashvili and Getzadze (1981), Kurashvili (1984b), Giorgadze (1985), Petriashvili et al. (1985) and Murvanidze et al. (2008a).

***Cephalogonimus* spp.**

Parasite of: amphibians - Ranidae: *Pelophylax ridibundus*.

mollusc (intramolluscan stage) - Lymnaeidae: *Lymnaea stagnalis*.

Site of infection: body cavity, liver, lymph sac, small intestine.

Distribution: Occurring in North and South America, India; **in Georgia:** EG: River Iori, Sartichala, Tabatskuri Lake reported by Javelidze and Chiaberashvili (1985) and Murvanidze et al. (2008a).

Family Haematoloechidae Freitas & Lent, 1939

Genus *Haematoloechus* Looss, 1899

Nomenclature:

Pneumonoeces Looss, 1902

***Haematoloechus asper* Looss, 1899**

Parasite of: amphibians - Bufonidae: *Bufo bufo*; Ranidae: *Pelophylax ridibundus*.

Site of infection: lungs.

Distribution: Occurring in Europe; **in Georgia:** EG: Aragvi River Basin, Jandari Lake reported by Burtikashvili et al. (1978), Burtikashvili and Getzadze (1981), Petriashvili et al. (1985) and Murvanidze et al. (2008a).

***Haematoloechus variegatus* (Rudolphi, 1819) Looss, 1899**

Parasite of: amphibians - Bufonidae: *Bufo bufo*, *Bufo viridis*; Ranidae: *Pelophylax ridibundus*, *Rana macrocnemis*.

Site of infection: lungs.

Distribution: Occurring in Europe, Asia; **in Georgia:** EG: Aragvi River Basin, Lakes: Bazaleti, Jandari; Kumisi Reservoir, Samgori, surroundings of Tbilisi; WG: Ozurgeti, Poti, Samtredia, Tkbuli Reservoir reported by Chiaberashvili and Mchedlidze (1961), Petriashvili (1964), Kurashvili et al. (1973), Burtikashvili et al. (1978), Giorgadze (1985), Petriashvili et al. (1985), Kurashvili et al. (1991) and Murvanidze et al. (2008a).

***Haematoloechus* sp.**

Parasite of: amphibians - Ranidae: *Pelophylax ridibundus*.

Site of infection: lungs.

Distribution: Cosmopolitan distribution; **in Georgia:** WG: Ozurgeti reported by Kurashvili (1984b).

Family Leptophallidae Dayal, 1938

Genus *Leptophallus* Lühe, 1909

***Leptophallus nigrovenosus* (Bellingham, 1844) Lühe, 1909**

Parasite of: reptiles - Colubridae: *Natrix natrix*.

Site of infection: intestine.

Distribution: Palaearctic distribution; **in Georgia:** EG: Jinvali, Kazbegi, Lagodekhi, Surroundings of Tbilisi; WG: Khobi, surroundings of Batumi – Kakhaber Lake, Zugdidi reported by Sharpilo (1962) and Jankarashvili (1985).

Genus *Macrodera* Looss, 1899

***Macrodera longicollis* (Abildgaard, 1788) Looss, 1899**

Parasite of: reptiles - Colubridae: *Natrix natrix*, *N. tessellata*.

Site of infection: lungs, respiratory tract.

Distribution: Palaearctic distribution; **in Georgia:** EG: Bazaleti Lake, Jinvali, Kazbegi surroundings of Borjomi, surroundings of Tbilisi; WG: Khobi, Surroundings of Batumi,

Zugdidi reported by Sharpilo (1962), Petriashvili (1966), Kurashvili (1984b), Jankarashvili (1985) and Kurashvili et al. (1991).

Genus *Paralepoderma* Dollfus, 1950

Paralepoderma cloacicola (Lühe, 1909) Dollfus, 1950

Parasite of: reptiles - Colubridae: *Natrix natrix*, *N. tessellata*.

Site of infection: intestine.

Distribution: Occurring in the Palaearctic, Africa; **in Georgia:** EG: Borjomi, Jinvali, Kazbegi, surroundings of Tbilisi; WG: Khobi, Kulevi, surroundings of Batumi, Zugdidi reported by Sharpilo (1962), Kurashvili (1984b), Jankarashvili (1985) and Kurashvili et al. (1991).

Family Orientocreadiidae Yamaguti, 1958

Genus *Orientocreadium* Tubangui, 1931

Orientocreadium pseudobagri Yamaguti, 1934

Nomenclature:

Paratormopsolus siluri Dubinina & Bychowsky, 1954

Orientocreadium siluri (Dubinina & Bychowsky in Skrjabin, 1954) Yamaguti, 1958

Parasite of: fishes - Siluridae: *Silurus glanis*.

Site of infection: intestine.

Distribution: Known from Asia (Iraq); **in Georgia:** WG: Bebesiri Lake, River Tekhura reported by Chiaberashvili (1962b) and Murvanidze et al. (2018).

Family Plagiorchiidae Lühe, 1901

Genus *Haplometra* Looss, 1899

Haplometra brevicaeca Timon-David, 1962

Parasite of: amphibians - Ranidae: *Rana macrocnemis*.

Site of infection: lungs.

Distribution: Occurring in Europe; **in Georgia:** EG: Kazbegi, Cross Pass, Minor Caucasus reported by Petriashvili et al. (1985) and Murvanidze et al. (2008a).

Genus *Plagiorchis* Lühe, 1899

Plagiorchis maculosus (Rudolphi, 1802) Braun, 1901

Parasite of: birds - Caprimulgidae: *Caprimulgus europaeus meridionalis*; Hirundinidae: *Hirundo rustica rustica*.

Site of infection: intestine.

Distribution: Occurrence in the Holarctic Region, India, Australia; **in Georgia:** EG: Gardabani, Lagodekhi National Park, Tbilisi; WG: Samtredia, Surroundings Poti reported by Kurashvili (1957) and Kurashvili (1961a).

Plagiorchis vespertilionis (Müller, 1780) Braun, 1900

Parasite of: mammals - Vespertilionidae: *Eptesicus serotinus*, *Myotis mystacinus*, *Nyctalus leisleri*, *N. noctula*, Rhinolophidae: *Rhinolophus hipposideros*, *R. mehelyi*, *Vespertilio subtilis*.

Site of infection: small intestine.

Distribution: Holarctic distribution; **in Georgia:** EG: Akhmeta, Bolnisi, Gomareti, Lagodekhi reported by Matsaberidze (1961), Rodonaia (1966b), Matsaberidze and Khotenovskii (1967) and Matsabaridze (1976).

Plagiorchis sp.

Parasite of: molluscs (intramolluscan stage) - Lymnaeidae: *Radix euphratica*.

Site of infection: body cavity, liver.

Distribution: Cosmopolitan distribution; **in Georgia:** EG: Turtle Lake reported by Arabuli, unpublished data 2021.

Genus *Skrjabinoeces* Sudarikov, 1950

Skrjabinoeces similis Looss, 1899

Parasite of: molluscs (intramolluscan stage) - Planorbidae: *Planorbis planorbis*.

Site of infection: no data.

Distribution: Palaearctic distribution; **in Georgia:** EG: Rustavi reported by Tkachenko (1990).

Family Telorchiiidae Looss, 1899

Genus *Opisthioglyphe* Looss, 1899

Opisthioglyphe ranae (Frölich, 1791) Looss, 1907

Parasite of: reptiles - Colubridae: *Natrix natrix*.

amphibians - Bufonidae: *Bufo bufo*, *Bufo viridis*; Hylidae: *Hyla arborea*; Ranidae: *Pelophylax ridibundus*, *Rana macrocnemis*.

molluscs (intramolluscan stage) - Lymnaeidae: *Galba palustris*, *Peregriana peregra*.

Site of infection: gall bladder, large intestine, small intestine.

Distribution: Occurring in Europe, Asia (Iraq), North Africa; **in Georgia:** EG: Aragvi River Basin, Borjomi, Jinali, Kazbegi, Kodjori, Samgori, Surroundings of Tbilisi, Tbilisi – Botanic Garden; WG: Batumi, Bebesiri Lake, Gali, Khobi, Lanchkhuti, Ozurgeti, Samtredia, Senaki, Tkibuli Reservoir, Zugdidi reported by Chiaberashvili and Mchedlidze (1961), Javelidze (1964), Burtikashvili and Getzadze (1981), Kurashvili (1984a), Kurashvili (1984b), Giorgadze (1985), Jankarashvili (1985), Petriashvili et al. (1985), Kurashvili et al. (1991) and Murvanidze et al. (2008a).

Opisthioglyphe rastellus (Olsson, 1876) Looss, 1907

Nomenclature:

Dolichosaccus rastellus (Olsson, 1876) Travassos, 1930

Parasite of: amphibians - Ranidae: *Pelophylax ridibundus*, *Rana macrocnemis*.

molluscs (intramolluscan stage) - Lymnaeidae: *Ampullaceana balthica*.

Site of infection: intestine, hepatopancreas.

Distribution: With Palaearctic distribution; **in Georgia:** EG: Central Caucasus (Georgia); Samgori reported by Chiaberashvili (1971a) and Petriashvili et al. (1985).

Genus *Telorchis* Lühe, 1899

Telorchis assula (Dujardin, 1845) Dollfus, 1957

Parasite of: reptiles - Colubridae: *Natrix natrix*, *N. tessellata*; Emydidae: *Emys orbicularis*.

Site of infection: intestine.

Distribution: Palaearctic distribution; **in Georgia:** EG: Borjomi, Jinali, Kazbegi, Lagodekhi, Tbilisi, Lakes: Bazaleti, Jandari; WG: Anaklia, Khobi, Kulevi, surroundings of Batumi, Zugdidi reported by Sharpilo (1962), Petriashvili (1966), Kurashvili et al. (1975), Kurashvili (1984b), Jankarashvili (1985), Kurashvili et al. (1991) and Murvanidze et al. (2008b).

Telorchis stossichi Goldberger, 1911

Parasite of: reptiles - Emydidae: *Emys orbicularis*.

Site of infection: intestine.

Distribution: Occurring in Europe; **in Georgia:** EG: Lakes: Bazaleti, Jandari reported by Petriashvili (1966), Kurashvili et al. (1975), Jankarashvili (1978) and Murvanidze et al. (2008b).

Telorchis spp.

Parasite of: reptiles - Lacertidae: *Lacerta strigata*.

molluscs (intramolluscan stage) - Lymnaeidae: *Radix euphratica*.

Site of infection: intestine, liver.

Distribution: In North and South America, Europe, Asia; **in Georgia:** EG: Lakes: Jandari, Turtle reported by Kurashvili et al. (1975) and Arabuli, unpublished data 2021.

Superfamily Pronocephaloidea Looss, 1899**Family Notocotylidae Lühe, 1909****Genus *Notocotylus* Diesing, 1839*****Notocotylus attenuatus* (Rudolphi, 1809) Kossack, 1911**

Parasite of: birds - Anatidae: *Anas clypeata*, *A. platyrhynchos*, *A. platyrhynchos* f. *domestica*, *Anser anser*, *Aythya fuligula*, *A. ferina*, *Cygnus cygnus*.

molluscs (intramolluscan stage) - Lymnaeidae: *Lymnaea stagnalis*, *Peregriana peregra*, *Radix auricularia*.

Site of infection: caecum, large intestine, rectum (birds), hepatopancreas (molluscs).

Distribution: Cosmopolitan distribution; **in Georgia:** EG: Bolnisi, Dedoplistskaro – Qvemo qedi, Dmanisi, Gardabani, Marneuli, Tetrtskaro, Tsalka – Khrami Reservoir, Lakes: Bazaleti, Paravani; WG: Lakes: Bebesiri, Madatafa; Samtredia, surroundings of Poti – Paliastomi Lake reported by Burjanadze (1943), Kurashvili (1957), Kurashvili (1961a), Japaridze and Savateeva (1967), Kurashvili et al. (1976), Kurashvili (1984a), Kurashvili (1984b), Tkachenko (1988) and Arabuli et al. (2015).

***Notocotylus ephemera* (Nitzsch, 1817) Harwood, 1939**

Parasite of: molluscs (intramolluscan stage) - Planorbidae: *Planorbis planorbis*.

Site of infection: no data.

Distribution: Occurring in Europe; **in Georgia:** EG: Gori – Khidistavi reported by Chiaberashvili (1971a).

***Notocotylus noyeri* Joyeux, 1922**

Parasite of: mammals - Cricetidae: *Arvicola terrestris*.

Site of infection: small intestine.

Distribution: Occurrence in Europe; **in Georgia:** EG: Gori – Khidistavi reported by Matsabaridze (1976).

***Notocotylus ponticus* Tshiaberashwili, 1964**

Parasite of: molluscs (intramolluscan stage) - Bithyniidae: *Bithynia tentaculata*.

Site of infection: no data.

Distribution: Recorded only in Georgia; **in Georgia:** WG: Bebesiri Lake reported by Chiaberashvili (1971b), Kurashvili (1984a) and Cribb (1991).

***Notocotylus zduni* Chiaberashvili & Dzavelidze, 1968**

Parasite of: molluscs (intramolluscan stage) - Neritidae: *Theodoxus fluviatilis*.

Site of infection: no data.

Distribution: Occurrence in Europe; **in Georgia:** WG: West Georgia reported by Chiaberashvili and Javelidze (1968).

Analysis

Results

Based on data from literature and our new records, digeneans in Georgia are currently represented by 186 taxa, of which 173 are identified to species level, belonging to 108 genera, 47 families and 17 superfamilies. The majority of trematode species comprised adult stages (160 species), a small proportion being made up by cercariae (33) or metacercariae (24) in their first and second intermediate hosts, respectively. For 28 species (15%), at least two life-cycle stages were recorded (adult in combination with cercariae/metacercariae). Birds and mammals were recorded as definitive hosts only, while the other groups were recorded as definitive and also as second intermediate hosts - fish hosted 32 species as adults and 18 as metacercariae, amphibians hosted 23 species as adults and two as metacercariae and reptiles hosted nine species as adults and three as metacercariae. A total of 35 trematode species were recorded in molluscs, which were used as first or second intermediate hosts. Predominantly, freshwater digeneans were recorded (154 species), while a much lower number of marine (12) and terrestrial (21 species) digeneans was found. A total of 202 free-living vertebrate and mollusc species were recorded as hosts for digeneans – fish of 57 species, amphibians of six species, reptiles of four species, birds of 74 species, mammals of 40 species and molluscs of 21 species.

Discussion

In the present study, we compiled data on digenean trematode fauna of Georgia, which is represented by 186 species. Amongst these, 37 species belong to the order Diplostomida and 149 species to Plagiorchiida. Predominantly, trematode species using birds as hosts were recorded (62 species), followed by those parasitising fishes (50), mammals (33) and amphibians (25) and the fewest species were reported from reptiles (12), a trend common in trematodes (see Yamaguti (1971)). Adult digeneans, recorded together with a metacercarial and/or cercarial stage, comprised 28 species (15%), which indicates that the Georgian fauna of trematodes and their life-cycles are understudied and large-scale

investigations of molluscs are needed to assess the trematode species spectrum completing their life-cycles in Georgia. The majority of species were recorded as associated with freshwater, most probably because of lack of investigation in the marine realm.

Apart from well-identified species, there are taxa of dubious identity appearing in the Georgian scientific literature, which we decided not to include in the checklist above. One of them is *Clinostomum* sp. of Kurashvili (Kurashvili 1950, Kurashvili 1953a, Kurashvili 1957, Kurashvili 1961a), which was not identified to species level, but it was claimed to be closest to *Clinostomum hornum*; however, there is no voucher specimen available for checking, leaving the question of the identity of this record unanswered. The next record is *Petasiger jubilarum* (Elperina in Skrjabin, Petrov & Baschkirova, 1947) Skrjabin & Baschkirova, 1956 found in *Anas platyrhynchos* from Paliastomi Lake (Kurashvili 1957, Kurashvili 1961a, Kurashvili 1984b); however, this species is currently considered a species inquirendum (see Faltýnková et al. (2008)). In another study, Javelidze (1976) obtained an adult experimentally from *Melanopsis praemorsa* and presumed it could be *Philophthalmus* sp. (*nyrocae*? Yamaguti, 1934); however, there is no clear species delimitation.

A specific topic in the literature on digeneans are reports of cercariae (the motile larval stages of digenean trematodes emerging from mollusc hosts). Due to the historical development of understanding of trematode life-cycles, the nomenclature and taxonomy of cercariae was originally separated from that of adult trematodes. This resulted in a substantial amount of cercarial names, many of which now have to be regarded as provisional, unless they can be assigned to a valid species described, based on an adult. In Georgia, surveys of larval trematodes from snails were carried out and some of the cercariae found can be identified to genus level or only to family: *Cercaria monostomi* Linstow, 1884 ex *Ampullaceana balthica* and *A. lagotis* from surroundings of Sartichala (Chiaberashvili 1971a) belongs to the Notocotylidae; *Cercaria stylosa* Linstow, 1884 (Chiaberashvili 1971a) could possibly belong to *Ichtyocotylurus* sp.; while *Cercaria limnaeae ovatae* Linstow, 1884 ex *A. balthica* (Chiaberashvili 1971a) most probably belongs to Plagiorchiidae (for all compare with Cichy et al. (2011)). The following cercariae most probably belong to the family Lecithodendriidae: *Cercaria ksaniensis* ex *Melanopsis praemorsa* from the River Qsani (Eastern Georgia) (Javelidze 1973), *Cercaria thezamiensis* from River Thezami (Eastern Georgia) (Javelidze 1973), *Cercaria rosetae* and *Cercaria ginetzinskaiae* ex *M. praemorsa* from the River Qsani (Javelidze and Chiaberashvili 1973) and *Cercaria colchica* I ex *Peregriana peregra* from Kolkheti lowland water reservoirs (Kurashvili 1984a). There were more cercariae recorded which could not be assigned to any genus or family and, because of lack of information, we do not make any attempt for grouping into families; they are the following: *Cercaria samgoriensis* ex *A. balthica* from surroundings of Samgori (Chiaberashvili 1971a); *Cercaria joriensis* ex *A. balthica* and *P. planorbis* from Sartichala and Gardabani (Chiaberashvili 1971a); *Cercaria burti* ex *P. planorbis* from Samgori (Chiaberashvili 1971a); *Cercaria gracilis* ex *A. balthica* from surroundings of Sartichala and Gardabani (Chiaberashvili 1971a); *Cercaria rhionica* I from River Pichori (Kurashvili 1984a); *Cercaria rhionica* VIII Olenov & Doborovolskiy, 1975

and *Cercaria rhionica* XII Olenov & Dobrovolskiy, 1975 ex *M. praemorsa* from rivers of Western Georgia (Ataev and Dobrovolskiy 1992); *Cercaria ascanica* Chiaberashvili & Javelidze 1977 ex *M. praemorsa* (Chiaberashvili and Javelidze 1977). Many of them were designated by the authors (Chiaberashvili 1971a, Javelidze 1973, Javelidze and Chiaberashvili 1973, Kurashvili 1984a) as new species, however, without providing any adults as vouchers.

Our revision of digenean species listed in the monograph by Kurashvili et al. (1980) revealed that some of the data on species distribution are vague and inaccurate. This is mainly because the transboundary River Mtkvari (Kura) and the mountain ranges (Caucasus Mountains), which stretch over all Caucasian countries, are frequently considered a continuous distributional area for the taxa and their locations were not distinguished by country. As a result, subsequent sources, citing Kurashvili et al. (1980) and listing the Caucasian countries for species distribution, are frequently imprecise. For instance, according to the NHM London database (NHML 2022), all digenean species recorded in the South Caucasus, based on Kurashvili et al. (1980), are also indicated for Georgia. However, after checking the original literary sources (Kurashvili et al. 1951, Chiaberashvili 1955, Chiaberashvili 1957, Chiaberashvili 1959, Qoiava 1966, Chiaberashvili 1968, Petriashvili 1971), we found out that the following digenean species (that were actually recorded in Azerbaijan) were not reported from Georgia: *Acanthocreadium araxicus* Mikailov, 1969; *A. talischiensis* Mikailov, 1969; *Ascocotyle coleostoma* (Looss, 1896) Looss, 1899; *Asymphylodora imitans* (Muhling, 1898) Looss, 1899; *A. kurensis* Paschajev, 1970; *Bunocotyle cingulata* Odhner, 1928; *Bychowskycreadium bychowsky* Mikailov, 1968; *B. schiliani* Mikailov, 1967; *Hysteromorpha triloba* (Rudolphi, 1819) Lutz, 1931; *Ichthyocotylurus pileatus* (Rudolphi, 1802) Odening, 1969 and *Sanguinicola inermis* Plehn, 1905. Similar results were found for host species and their distribution. Careful checking of the original literature (Petriashvili 1964, Petriashvili 1966) cited by Sey (2001) revealed that *R. esculenta* is not a host for *D. mehrai* in Georgia; while *Emys orbicularis* and *Triturus vulgaris* are not hosts of *D. subclavatus*; however, they are listed as such in the database of NHM London. This highlights the continuing importance of assessing primary sources.

In recent years, we recorded trematode intramolluscan stages (sporocysts, rediae, cercariae and metacercariae) in snails, which were new host records for trematodes in Georgia: *Helix lucorum* for Brachylaimidae (Murvanidze et al. 2010, Arabuli et al. 2019); *Oxychilus mingrelicus* for *Dicrocoelium* sp. (Arabuli 2018); *Lymnaea stagnalis* for *Diplostomum spathaceum*, *Moliniella anceps* and *Notocotylus attenuatus*; *Radix euphratica* for *Telorchis* sp., *Tylodelphys* sp. and *Plagiorchis* sp. (Arabuli, unpublished data). *Moliniella anceps* (Molin, 1859) Hübner, 1939 was recorded for the first time in Georgia by Arabuli et al. (2015).

Conclusion

Data on the digeneans of Georgia are mainly represented by adults in their definitive hosts and they are predominantly from freshwater. Most of the research was conducted many decades ago and was based solely on morphology and was published predominantly in

Georgian or Russian language. Since there is a striking shortage of studies on intermediate hosts (i.e. molluscs), large-scale and site-intensive investigations are needed to explore species diversity and distribution and to obtain data on life-cycles and transmission pathways to be further used for ecological and epidemiological studies, as well as for biodiversity conservation in Georgia.

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