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Checklist of the parasites of fishes of Latvia

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PREPARATION OF THIS DOCUMENT

This checklist is one of the outcomes of the Food and Agriculture Organization of the United Nations (FAO) Technical Cooperation Programme TCP/LAT/3001 – Improving Aquatic Animal Health and Quality and Safety of Aquatic Products in Latvia, implemented from 2005 to 2007, whose overall objective is to support the sustainable development of the aquaculture sector of Latvia. It addresses one of the specific objectives of the project on developing and reinforcing national policies in the area of aquatic animal health management and disease control in accordance with those of the European Union (EU).

This checklist is also part of the FAO's continuing effort to address the need for information on the occurrence of diseases and pathogens of aquatic animals. Three previous checklists, published as FAO Fisheries Technical Papers Nos. 369, 369/1 and 369/2, have summarized the parasites of fishes of the Philippines, Bangladesh and Viet Nam. These checklists of parasite series are valuable information sources that can be used when conducting pathogen risk analysis, an essential component of National Strategies on Aquatic Animal Health Management. Preparation and implementation of such national strategies are in line with FAO's Technical Guidelines on Health Management for the Responsible and Safe Movement of Live Aquatic Animals, the fifteenth of a series of technical guidelines that support the FAO's Code of Conduct for Responsible Fisheries (CCRF).

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ABSTRACT

This checklist summarizes information on the parasites of Latvia fishes contained in the world literature dating to the end of 2005. Information is presented in the form of parasite-host and host-parasite lists and includes 305 named species of parasites, distributed among the higher taxa as follows: Protista – 42, Myxozoa – 49, Digenea – 38, Monogenoidea – 81, Cestoda – 33, Nematoda – 31, Acanthocephala – 11, Hirudinida – 2, Mollusca – 6, Branchiura – 2 and Copepoda – 10. Also included are many records of parasites not identified to species level. The Parasite-Host List is organized on a taxonomic basis and provides information for each parasite species on the environment (freshwater, brackish, marine), the location (site of infection) in or on its host(s), the species of host(s) infected, the known geographic distribution (by major waterbody) in Latvia, and the published sources for each host and locality record. The Host-Parasite List is organized according to the taxonomy of the hosts, and includes for each host, the English language, Latvian and Russian common names, environment (freshwater, brackish, marine), status in Latvia (native or exotic) and the list of parasites reported. Both lists are accompanied by remarks, as warranted, giving specific information on points of systematics, nomenclature, possible misidentifications, introductions, life cycles, etc. Citations are included for all references and parasite and host indices are included.

The parasite fauna of fishes of Latvia has received considerable attention. Nevertheless, parasites have been recorded from only about 45 percent of the more than 114 species of marine and fish occurring in the country's waters. The common freshwater fish species (particularly those having economic importance, such as the cyprinids, percids, esocids and salmonids) have been particularly well studied, providing a good general picture of their parasite faunas and data having value for use in faunistic analyses.

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Abbreviations

B	brackish
CCRF	Code of Conduct for Responsible Fisheries
Dist.	distribution
EU	European Union
F	freshwater
FAO	Food and Agriculture Organization of the United Nations
FIES	Fisheries and Aquaculture Information and Statistics Service
FIMA	Aquaculture Management and Conservation Service
M	Marine
LU	Latvian University
NDC	National Diagnostic Centre
REUD	Regional Office for Europe and Central Asia
TCP	Technical Cooperation Programme

INTRODUCTION

The first major studies on the parasites of Latvian fishes were those of S.S. Shulman, who conducted pioneering research of the fauna occurring in Latvia's freshwaters and also in the Gulf of Riga and the Baltic Sea (Shulman 1949, 1959). Shulman's works are important because they contain not only descriptions of the parasite fauna and its species composition, but also examine many parasitological questions from an ecological perspective.

Other early studies on the parasites of Latvian fishes were made by A.D. Reinsone (1955a, 1955b, 1959) and K. Vismanis (1961). In the following years, great attention was given to studying the parasitological situation of fish grown in ponds, hatcheries and cages in lakes and the coastal zone of the Baltic Sea (Grapmane 1957, 1962; Vismanis 1962, 1964, 1966, 1967b, 1968, 1971, 1972, 1978, 1979; Lullu *et al*. 1989). More recently many of the country's natural waterbodies were investigated by K. Vismanis and M. Kirjusina (Vismanis *et al*. 1986, 1987, 1989, 1989a 1990, 1993, 1999; Kirjusina *et al.* 2000, 2001, 2002, 2003, 2004). At present, work on fish parasites is being conducted at the National Diagnostic Centre (NDC) and Latvian University (LU).

The theses of Shulman, Reisone, Vismanis and Kirjušina, as well as their published reports became the basis for the Russian version of *Parasites of Freshwater and Marine Fishes of Latvia. Systematic Catalogue*, which was published in 2004 (Kirjusina and Vismanis 2004). This monograph, in turn, became the basis for the present checklist, which also includes more recent publications.

The Parasite-Host List is a taxonomically arranged listing of all parasites reported from the fishes of Latvia. The higher classification used is as follows: for the Protista and Myxozoa, that Lom and Dyková (1992, 2006)[1]; for the Trematoda, that of Olson *et al*. (2003); for the Monogenoidea, that of Boeger and Kritsky (1993); for the Cestoidea, that of Khalil, Jones and Bray (1994); for the Nematoda, that of Moravec (1994, 1998); for the Acanthocephala, that of Amin (1985); for the Crustacea, that of Martin and Davis (2001); and for the Hirudinida, that derived from the recent molecular studies of Siddal *et al* (2001) and Erséus and Källersjö (2004).

[1]Readers should be aware that a new hierachical system without formal rank designations for the higher level classification of eukaryotes (with emphasis on the taxonomy of the protists) has been put forward by Adi *et al.* (2005).

The **Parasite-Host List** contains information for all parasite species reported from the fishes of Latvia. For each parasite, the currently recognized **scientific name**, including authors and dates, and any synonyms under which original records appeared are given. This is followed by the **environment** in which the parasite normally completes its life cycle, indicated as freshwater (F), brackish (B) or marine (M). The **Location** gives the site of infection where the parasite was found in or on the host. Under **Hosts**, the hosts are listed alphabetically by their currently recognized scientific names, generally in accordance with Froese and Pauly (2006). In parentheses, following each host name, are given the numbers for the references (**Records**) reporting the parasite from the host in question. The distribution (**Dist.**) provides a summary of the reported distribution of the parasite in Latvia, given by major waterbody. For freshwater systems, these include lakes, water reservoirs and rivers (including, in the case of the Daugava River, its mouth), while marine systems include the Gulf of Riga and the territorial waters of Latvia in the eastern part of the Baltic Sea (see Figure 1). Under **Records** are given the numbered individual references containing the parasite records, each followed by detailed information on the locality(ies) (waterbodies) to which they pertain. Where records pertain only to aquaculture facilities (e.g. farm ponds, hatcheries, tanks etc.) the precise name(s) are not given, the record simply being indicated as pertaining to "pond", "hatchery" etc. Under **Remarks** are given comments on various aspects, such as synonymies, pathogenicity, life cycles and zoonotic importance. The **Host-Parasite List** is organized following the classification of Eschmeyer (2006). For each host, the following information is given: the currently recognized **scientific name**, including species author(s), followed by any synonyms under which original parasite records were made, the **English common name,** the **Latvian common name** and the **Russian common name[2];** the host's **Status** in Latvia (native or exotic), and its typical **Environment** (freshwater, brackish, marine). This is followed by a listing of the parasites reported for the host in question, arranged by higher taxon and listed alphabetically, each parasite being followed by a list of the localities (waterbodies) from which

[2] Spelling of scientific names, dates of species authorships and English common names are taken from Froese and Pauly (2006).

it has been reported (unnamed localities such as fish ponds, hatcheries, tanks, etc. are not listed here except in cases where no other locality has been reported).

Records for parasites considered to be based on probable misidentifications or requiring substantiation are indicated with a "?" before the host name. Finally, where appropriate, **Remarks** are included to provide information on such topics as host taxonomy, distribution and introductions.

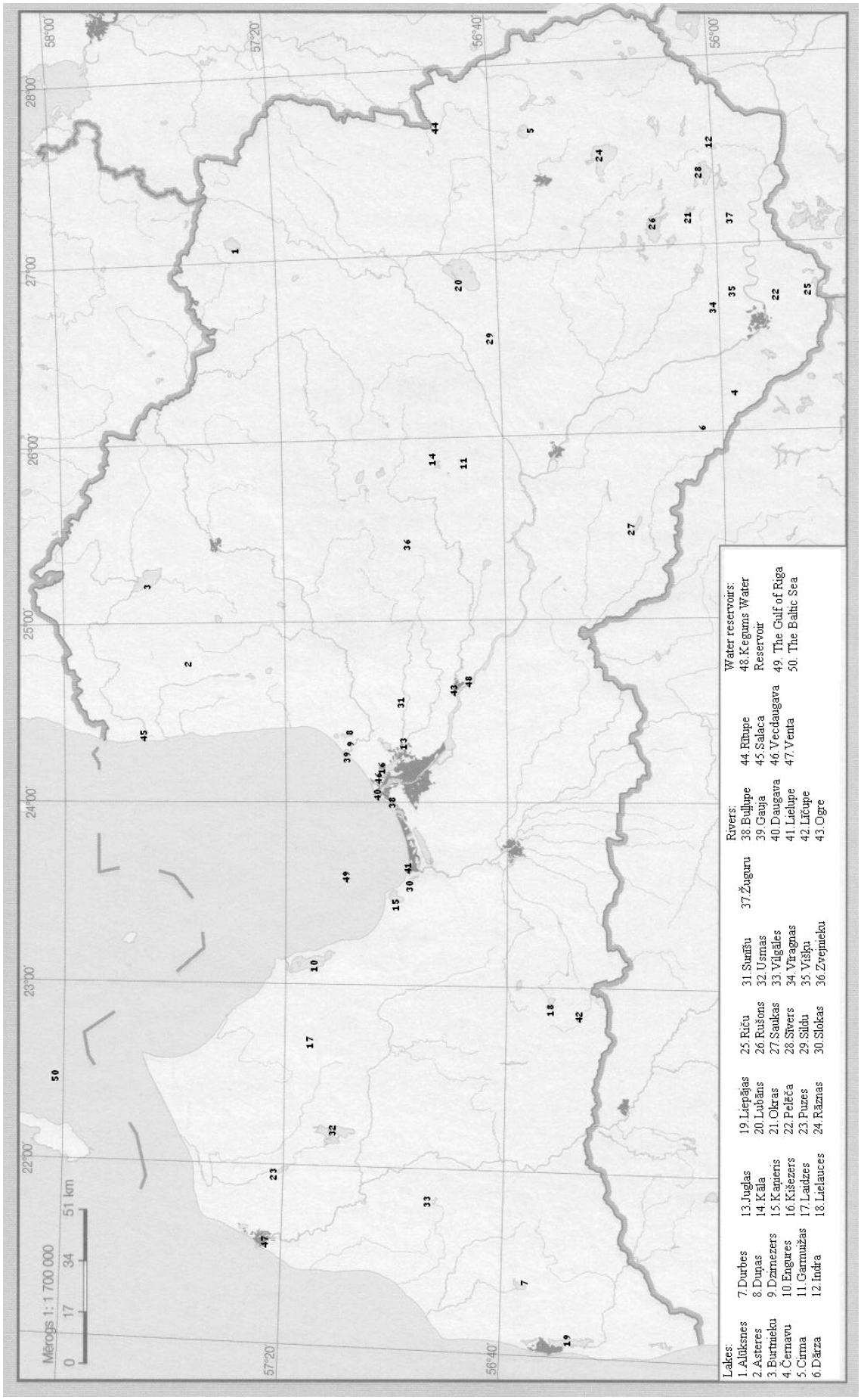
Under **References** are listed all the papers containing the records, as well as other works cited in the text. A short **Supplementary References** lists some additional articles dealing with Latvian fisheries parasitology but not containing any original reports. A **Parasite Index** and a **Host Index** complete the volume.

As at least 114 species of fish occur in the waters of Latvia (Froese and Pauly 2006). The majority of these are freshwater, anadromous or euryhaline species (71 species), while only 43 marine fishes occur in the Lativian waters of the Baltic Sea (including the Gulf of Riga).

An important feature of the eastern Baltic Sea, including the Gulf of Riga, is its very low salinity, which allows many species of freshwater fishes to be found there. The Baltic Sea's salinity is much lower than that of ocean water (which averages 3.5 per cent). It varies from 0.1 percent in the north to 0.6–0.8 percent in the center. Below a depth of 40–70 m, it can be as much as 1.5-2.0 percent. The flow of freshwater into the sea from rivers and the flow of seawater from the south builds up a gradient of salinity in the Baltic Sea, the salinity steadily decreasing towards the north and east. The chemical composition of water, especially its salinity, and the migratory nature of many of its fish species are some of the main factors influncing the parasite fauna of fish in the Baltic Sea. That's why in the costal zone, where water is less salty, freshwater parasites are more common (e.g. *Diplostomum* spp., *Pomphorhynchus laevis* and also protistans). In the central and southern parts of the Baltic Sea the salinity level is higher and there euryhaline and stenohaline species prevail. Stenohaline marine species (e.g. *Anisakis*) are also brought in to Baltic waters from the North Sea during fish migration.

The fish parasite literature for Latvia contains records for slightly more than 50 fish species, with the parasite faunas of many common freshwater species (particularly those having economic importance, such as the cyprinids, percids, esocids and salmonids) being particularly well studied. A good general picture of the parasite fauna of these fishes is thus available and these data have value for use in faunistic analyses. To date, a total of 305 named species of parasites (42 Protista, 49 Myxozoa, 38 Digenea, 81 Monogenoidea, 33 Cestoda, 31 Nematoda, 11 Acanthocephala, 2 Hirudinida, 6 Mollusca, 2 Branchiura, 10 Copepoda) have been reported from Latvian fishes.

Figure 1. Map of Latvia showing the location of waterbodies mentioned in the text.



PARASITE-HOST LIST

KINGDOM PROTISTA[3]

SUBKINGDOM PROTOZOA

PHYLUM MASTIGOPHORA

CLASS KINETOPLASTIDEA

ORDER KINETOPLASTIDA

SUBORDER TRYPANOSOMATINA

FAMILY TRYPANOSOMATIDAE

Trypanosoma carassii (F)
Mitrophanow, 1883
Syn.: *Trypanosoma danilewskyi*
Laveran and Mesnil, 1904
Includes: *T. gracilis* of Kirjusina and Vismanis, 2004
Location: blood
Host: *Cyprinus carpio carpio*
Dist.: Latvia (ponds)
Records: Vismanis & Peslak 1963; Vismanis 1964; Kirjusina & Vismanis 2004
Remarks: This trypanosome is a pathogen of juvenile common carp. The leeches *Piscicola geometra* and *Hemiclepsis marginata* are reported to be vectors (see Lom and Dyková 1992).
The synonymy follows Lom and Dyková (1992).

Trypanosoma granulosum (F)
Laveran and Mesnil, 1909
Location: blood
Host: *Anguilla anguilla*
Dist.: Lake Usmas; Venta River; Gulf of Riga
Records: Kirjusina & Vismanis 2000 (Lake Usmas, Venta River, Gulf of Riga), 2004 (Lake Usmas)
Remarks: The leeches *Piscicola geometra* and *Hemiclepsis marginata* are reported to be vectors of this flagellate (see Lom and Dyková 1992).

SUBORDER BODONINA

FAMILY BODONIDAE

Ichthyobodo necator (F,B,M)
(Henneguy, 1884) Pinto, 1928
Syn.: *Costia necatrix* Henneguy, 1884
Location: gills, skin
Hosts:*Blicca bjoerkna*
Carassius carassius
Dist.: Lake Rāznas, Daugava River
Records: Shulman 1949; Kirjusina & Vismanis 2004
Remarks: A dangerous ectoparasite for practically all fish, *Ichthyobodo* causes mortalities mainly of young fish and those with lowered resistance (see Lom and Dyková 1992).

CLASS DIPLOMONADEA

ORDER DIPLOMONADIDA

FAMILY HEXAMITIDAE

Hexamita salmonis (Moore, 1923) (F,B)
Wenyon, 1926
Syn.: *Hexamita truttae* (Schmidt, 1920)
Octomitus truttae Schmidt, 1920
Location: gall bladder, intestine
Hosts: *Lota lota* (1,4)
Oncorhynchus mykiss (2,3,4)
Salmo salar (2,4)
Dist.: Lake Rāznas, Kegums Water Reservoir, Daugava River
Records: 1. Shulman 1949 (Lake Rāznas, Daugava River); 2. Vismanis, Kuznetsova, & Rakitsky 1983 (hatchery); 3. Lullu *et al*. 1989 (tanks); 4. Kirjusina & Vismanis 2004 (Lake Rāznas, Kegums Water Reservoir, tanks)
Remarks: The pathogenicity of this flagellate is not clear. In mass infections of salmonid fry it probably can cause mortality (see Bauer 1984). Vismanis, Kuznetsova and Rakitsky (1983) recorded mortalites in one-year-old rainbow trout and Atlantic salmon harboring mixed infections of *H. salmonis* and *Chloromyxum truttae*.

PHYLUM APICOMPLEXA

CLASS SPOROZOA

SUBCLASS COCCIDIA

ORDER EIMERIIDA

[3] Eurokaryote systematics are presently undergoing significant change based on incorporation of molecular and ultrastructural research. Readers are referred to the recent higher level classification of Adl *et al*. (2005), which proposes a hierarchical system without the use of formal rank designations.

FAMILY EIMERIIDAE

Eimeria sardinae (Thélohan, 1890) (B,M)
Reichenow, 1921
Location: testes
Host: *Clupea harengus membras*
Dist.: Gulf of Riga, Baltic Sea
Records: Shulman 1949 (Gulf of Riga, Baltic Sea); Vismanis, Eglite & Volkova 1981 (Gulf of Riga), 1982 (Gulf of Riga); Vismanis, Volkova & Eglite1984 (Gulf of Riga); Vismanis 1987 (Gulf of Riga); Kirjusina & Vismanis 2004 (Gulf of Riga, Baltic Sea)
Remarks: Heavy infections are reported to cause parasitic castration of male herring (see Lom and Dyková 1992).

Eimeria sp. (F)
Location: not given
Hosts: *Carassius carassius*
Cyprinus carpio carpio
Leucaspius delineatus
Dist.: Latvia (ponds)
Records: Grapmane 1957, 1962

Goussia carpelli (F)
(Léger and Stankovich, 1921)
Dyková and Lom, 1983
Syn.: *Eimeria carpelli*
Léger and Stankovich, 1921
E. cyprini Plehn**,** 1924.
Location: intestinal wall
Hosts: *Cyprinus carpio carpio* (1,3,4)
C. carpio haematopterus (2,4)
Dist.: Latvia (ponds)
Records: 1. Akhmerov & Grapmane 1954; 2. Vismanis & Peslak 1963; 3. Vismanis 1964, 1972; 4. Kirjusina & Vismanis 2004
Remarks: *Goussia carpelli*, an agent of coccidian enteritis, is a common pathogen in the intestine of *Cyprinus carpio carpio* in Europe (s e e Lom and Dyková 1992). Mass infection causes an increase of mortality of one-year-old carp at the end of wintering (see Bauer 1984).

Goussia gadi (Fiebiger, 1913) (M)
Dyková and Lom, 1981
Syn.: *Eimeria gadi* Fiebiger, 1913
Location: swimbladder wall
Host: *Gadus morhua callarias*
Dist.: Baltic Sea
Records: Shulman 1949; Kirjusina & Vismanis 2004

Goussia subepithelialis (F)
(Moroff and Fiebiger, 1905)
Dykova and Lom, 1983
Syn.: *Eimeria subepithelialis*
Moroff and Fiebiger, 1905
Location: subepithelial connective tissue of intestine
Host: *Cyprinus carpio carpio*
Dist.: Latvia (ponds)
Records: Vismanis 1972; Kirjusina & Vismanis 2004
Remarks: *Goussia subepithelialis* is a common agent of nodular coccidiosis of the intestine of common carp in Europe (see Lom and Dyková 1992).

PHYLUM MICROSPORA

CLASS MICROSPOREA

ORDER MICROSPORIDIA

SUBORDER PANSPOROBLASTINA

FAMILY GLUGEIDAE

Glugea anomala (Moniez, 1887) (B,M)
Gurley, 1893
Location: hypodermic and intermuscular connective tissue
Host: *Gasterosteus aculeatus*
Dist.: Daugava River
Records: Kirjusina & Vismanis 2004
Remarks: This parasite forms large xenomas in the host's connective tissue. Rarely, it causes deformities of the internal organs, resulting in mechanical pressure on tissues and organs (see Bauer 1984).

Glugea stephani (Hagenmüller, 1899) (M)
Woodcock, 1904
Location: intestinal wall
Hosts: *Platichthys flesus trachurus* (1,2,3)
Psetta maxima (1,3)
Dist.: Baltic Sea
Records: 1. Shulman; 2. Vismanis & Kondratovičs 1994; 3. Kirjusina & Vismanis 2004
Remarks: Heavily infected intestines may become completely occluded, resulting in host death (see Lom and Dyková 1992).

Loma branchialis (Nemeczek, 1911) (M)
Morrison and Sprague, 1981
Syn.: *Nosema branchialis*

Nemeczek, 1911
Location: gills
Host: *Gadus morhua callarias*
Dist.: Baltic Sea
Records: Shulman 1949; Kirjusina & Vismanis 2004

Pleistophora acerinae (F)
Vaney and Conte, 1901
Location: wall of intestine and stomach, mesenteries
Host: *Gymnocephalus cernuus*
Dist.: Lakes Kāla, Rāznas, Rušons
Records: Shulman 1949 (Lakes Rāznas, Rušons); Reinsone 1955a (Lake Kāla); Kirjusina & Vismanis 2004 (Lakes Kāla, Rāznas, Rušons)

Pleistophora mirandellae (F)
Vaney and Conte, 1901
Syn.: *Pleistophora elegans* Auerbach, 1910
Location: ovary
Host: *Rutilus rutilus*
Dist.: Lake Vīragnas
Records: Kirjusina & Vismanis 2001; Kirjusina & Vismanis 2004
Remarks: Reduction of fecundity in infected fish is likely (see Lom and Dyková 1992).

Microsporidia of Uncertain Position

Microsporidium cotti (M)
(Chatton and Courrier, 1923)
Canning and Lom, 1986
Syn.: *Nosema cotti* Chatton and Courrier, 1923
Location: liver, spleen
Host: *Taurulus bubalis*
Dist.: Gulf of Riga
Records: Shulman 1949; Kirjusina & Vismanis 2004
Remarks: *Microsporidium* is a collective group for "identifiable" species of uncertain generic assignment (see Lom and Dyková 1992).

PHYLUM CILIOPHORA

CLASS KINETOPHRAGMINOPHOREA

SUBCLASS GYMNOSTOMATA

ORDER PLEUROSTOMATA

FAMILY AMPHILEPTIDAE

Amphileptus sp. (F)
Syn.: *Hemiophrys* sp.
Location: gills
Hosts: *Aspius aspius*
Blicca bjoerkna
Leuciscus idus
L. leuciscus
Dist.: Kegums Water Reservoir; Daugava, Rītupe Rivers
Records: Shulman 1949; Kirjusina & Vismanis 2004

SUBCLASS HYPOSTOMATA

ORDER CYRTOPHORIDA

FAMILY CHILODONELLIDAE

Chilodonella piscicola (F)
(Zacharias, 1894) Jankovsky, 1980
Syn.: *Chilodonella cyprini* (Moroff, 1902)
Location: gills, skin
Hosts: *Carassius auratus auratus* (2,4,8)
C. carassius (2,4,8)
Ctenopharyngodon idella (7)
Cyprinus carpio carpio (1,2,3,4,5,6,8)
C. carpio haematopterus (3,5)
Gasterosteus aculeatus (2,9)
Leucaspius delineatus (2,4,8)
Oncorhynchus mykiss (8)
Perca fluviatilis (9)
Pungitius pungitius (2,4,8)
Dist.: Lake Juglas; Daugava River
Records: 1. Akhmerov & Grapmane 1954 (ponds); 2. Grapmane 1957 (ponds); 3. Reinsone 1958 (ponds); 4. Grapmane 1962 (ponds); 5. Vismanis & Peslak. 1963 (ponds); 6. Vismanis 1964, 1972 (ponds); 7. Vismanis & Musselius 1971 (ponds); 8. Lullu, Vismanis & Bakhtina 1989 (tanks); 9. Kirjusina & Vismanis 2004 (Lake Juglas, Daugava River, ponds)
Remarks: One of the most dangerous diseases, chlodonellosis may cause heavy losses in fish culture (see Lom and Dyková 1992).
Grapmane (1962) recorded yearly (1949–1954) mass mortality of one-year-old common carp. In some cases mortality in wintering ponds was 95–100 per cent.

SUBCLASS SUCTORIA

ORDER SUCTORIDA

FAMILY TRICHOPHRYIDAE

Capriniana piscium **(**Bütschli, 1889) (F)
Jankovsky, 1973
Syn.: *Trichophrya piscium* Bütschli, 1889
Location: gills, skin
Host: *Oncorhynchus mykiss*
Dist.: Lake Dzirnezers
Record: Vismanis, Kuznetsova & Rakitsky 1983; Kirjusina & Vismanis 2004
Remarks: Although generally considered an ectocommensal, mass infections can cause disease (see Bauer 1984).

CLASS OLIGOHYMENOPHOREA

SUBCLASS HYMENOSTOMATA

ORDER HYMENOSTOMATIDA

SUBORDER OPHRYOGLENINA

FAMILY ICHTHYOPHTHIRIIDAE

Ichthyophthirius multifiliis (F)
Fouquet, 1876
Location: gills, under skin epithelium
Hosts: *Abramis brama* (3,6,9,17)
Alburnoides bipunctatus (17)
Anguilla anguilla (14)
Blicca bjoerkna (9)
Carassius auratus auratus (5,7,8,17)
C. carassius (7,8,17)
Ctenopharyngodon idellus (13)
Cyprinus carpio carpio (2,5,7,8,10,11,12,15,17)
C. carpio haematopterus (12)
Gasterosteus aculeatus (8,17)
Leucaspius delineatus (7,8,17)
Oncorhynchus mykiss (16)
Pungitius pungitius (5,7,17)
Rutilus rutilus (3,4,6,9,17)
Salmo salar (11)
Scardinius erythrophthalmus (3,4,6,17)
Silurus glanis (1,17)
Tinca tinca (3,6,8,17)
Dist.: Lakes Burtnieku, Cirma, Juglas, Lielauces, Sīvers, Slokas; Daugava, Ogre Rivers
Records: 1. Shulman 1949 (Daugava River); 2. Akhmerov & Grapmane 1954 (ponds); 3. Reinsone 1955a (Lakes Burtnieku, Cirma, Lielauces, Sīvers), 4. 1955b (Lake Sivers), 5. 1958 (ponds), 6. 1959 (Lakes Lielauces, Sīvers); 7. Grapmane 1957 (ponds), 8. 1962 (ponds); 9. Vismanis 1961 (Lake Burtnieku), 10. 1964 (ponds), 11. 1972 (ponds); 12. Vismanis & Peslak 1963 (ponds); 13. Vismanis and Musselius 1971 (ponds); 14. Vismanis, Volkova & Tarkach 1971 (tanks); 15. Vismanis, Ivanova & Soldatkina 1975 (ponds); 16. Lullu, Vismanis & Bakhtina. 1989 (tanks); 17. Kirjusina & Vismanis 2004 (Lakes Burtnieku, Cirma, Juglas, Lielauces, Sīvers, Slokas; Daugava, Ogre Rivers, ponds)
Remarks: This ciliate, a dangerous ectoparasite in fish culture, is the agent of ichthyophthiriosis or "white spot disease" (see Lom and Dyková 1992). The disease can cause high morbidity and mortality rates and great economic losses in intensive aquaculture. Reinsone (1958) noted mass mortality of common carp spawners and yearlings in ponds, Vismanis (1972) noted disease and mortality of carp spawners in ponds, while Vismanis, Volkova and Tarkach (1971) recorded cases of disease in cultured eels. Small fishes such as *Leucaspius delineatus*, *Gasterosteus aculeatus* and *Pungitius pungitius* can act as reservoirs of infection in farm ponds.

SUBCLASS PETRITRICHIA

ORDER PETRICHIDA

SUBORDER SESSILINA

FAMILY EPISTYLIDIDAE

Apiosoma campanulatum (F)
(Timofeev in Shulman, 1962) Lom, 1966
Includes: *Apiosoma campanulatum* (Timofeev, 1962) typica
A. campanulatum var. *esoci* Scheubel, 1973
Location: gills, skin
Hosts: *Esox lucius* (1,2)
Leuciscus cephalus (2)
Dist.: Lake Sildu, Ogre River
Records: 1. Vismanis *et al.* 1989 (Lake Sildu); 2. Kirjusina & Vismanis 2004 (Lake Sildu, Ogre River)
Remarks: The designation *Apiosoma campanulatum* (Timofeev, 1962) typica" was used by N.N. Banina (see Bauer 1984) to distinguish the typical form of this species from the form from *Esox lucius*, which was considered a distinct variety, "*esoci*". Subsequent authors have treated "typica" as a

subspecific epithet. The relationship of these two forms requires clarification.

Apiosoma matthesi Scheubel, 1973 (F)
Location: fins
Host: *Leuciscus cephalus*
Dist.: Ogre River
Record: Kirjusina & Vismanis 2004

Apiosoma nasale (F)
(Timofeev in Shulman, 1962)
Lom, 1966
Location: nasal cavity
Host: *Leuciscus cephalus*
Dist.: Ogre River
Records: Kirjusina & Vismanis 2004

Apiosoma piscicolum Blanchard, 1885 (F)
Location: skin
Hosts: *Cyprinus carpio carpio* (1)
Gasterosteus aculeatus (3)
Oncorhynchus mykiss (2)
Salmo salar (3)
Dist.: Daugava River
Record: 1. Vismanis 1972 (ponds); 2. Vismanis, Ivanova & Soldatkina 1975 (ponds); 3. Lullu, Vismanis & Bakhtina 1989 (tanks); 4. Kirjusina & Vismanis 2004 (Daugava River)

Apiosoma poteriforme (F)
(Timofeev in Shulman, 1962) Lom 1966
Location: skin
Host: *Leuciscus cephalus*
Dist.: Ogre River
Record: Kirjusina & Vismanis 2004

Apiosoma sp. (F)
Location: skin
Hosts: *Alburnoides bipunctatus* (5)
Carassius auratus auratus (1,2)
C. carassius (1,2,5)
Coregonus peled (2,5)
Cyprinus carpio carpio (1,2,3,4,5)
C. carpio haematopterus (3)
Gobio gobio gobio (5)
Leucaspius delineatus (1,2,5)
Pungitius pungitius (1,2,5)
Tinca tinca (2)
Dist.: Ogre River
Records: 1. Grapmane 1957 (ponds), 2. 1962 (ponds); 3. Vismanis & Peslak 1963 (ponds); 4. Vismanis 1964 (ponds); 5. Kirjusina & Vismanis 2004 (Ogre River, ponds)

Epistylis lwoffi Fauré-Fremiet, 1943 (F)
Location: gills, skin
Host: *Cyprinus carpio carpio*
Dist.: Latvia
Records: Vismanis, Ivanova & Soldatkina 1975 (ponds)

ORDER MOBILINA

FAMILY TRICHODINIDAE

Trichodina acuta Lom, 1961 (F)
Syn.: *Trichodina domerguei* f. *acuta* Lom, 1961
Location: skin
Hosts: *Cyprinus carpio carpio* (2,4)
Oncorhynchus mykiss (3)
fish (1)
Dist.: Latvia (ponds)
Records: 1. Vismanis 1972 (ponds); 2. Vismanis, Ivanova & Soldatkina 1975 (ponds); 3. Lullu, Vismanis & Bakhtina 1989 (tanks); 4. Kirjusina & Vismanis 2004 (ponds)

Trichodina cottidarum Dogiel, 1948 (M,B)
Location: gills
Hosts: *Cottus poecilopus* (2)
Gadus morhua callarias (1,3)
Taurulus bubalis (1,3)
Triglopsis quadricornis (1,3)
Dist.: Daugava River, Gulf of Riga
Records: 1. Shulman 1949 (Daugava River, Gulf of Riga); 2. Vismanis, Volkova & Eglite 1984 (Gulf of Riga); 3. Kirjusina & Vismanis 2004 (Daugava River, Gulf of Riga)

Trichodina domerguei (F)
(Wallengren, 1897) Haider, 1964
Includes: *Trichodina domerguei domerguei* (Wallengren, 1897)
Syn.: *T. domerguei* f. *latispina* Dogiel, 1940
Location: gills
Hosts: *Abramis brama* (1,2,9)
Alburnus alburnus (1,3,9)
Carassius auratus auratus (3)
C. carassius (2)
Coregonus albula (1,9)
Cottus poecilopus (7)
Cyprinus carpio carpio (3,4,5,9)
C. carpio haematopterus (4)
Esox lucius (1,9)
Gasterosteus aculeatus (1,9)

Gobio gobio gobio (1,9)
Lota lota (1,9)
Phoxinus phoxinus (8)
Pungitius pungitius (3,9)
Rutilus rutilus (1,9)
Sander lucioperca (1,9)
Scardinius erythrophthalmus (1,9)
Tinca tinca (1,2,9)
fish (6)

Dist.: Lakes Rāznas, Sildu, Sīvers; Kegums Water Reservoir; Daugava River; Gulf of Riga

Records: 1. Shulman 1949 (Lake Rāznas, Kegums Water Reservoir, Daugava River, Gulf of Riga); 2. Reinsone 1955b (Lake Sīvers), 3. 1958 (ponds); 4. Vismanis & Peslak 1963 (ponds); 5. Vismanis 1964, 6. 1972 (ponds); 7. Vismanis, Volkova & Eglite 1984 (Gulf of Riga); 8. Vismanis *et al.* 1989 (Lake Sildu); 9. Kirjusina & Vismanis 2004 (Lake Rāznas, Kegums Water Reservoir, Daugava River, Gulf of Riga, ponds)

Remarks: As this ciliate is specific to sticklebacks (Gasterosteidae) (see Lom and Shtein 1966), records from hosts other than *Gasterosteus aculeatus* and *Pungitius pungitius* are likely to involve misidentifications.

Trichodina esocis Lom, 1960 (F)
Syn.: *Trichodina domerguei* f. *esocis* Lom, 1960
Location: gills
Host: *Esox lucius*
Dist.: Lake Sildu
Records: Vismanis *et al.* 1989; Kirjusina & Vismanis 2004

Trichodina fultoni Davis, 1947 (F)
Syn.: *Trichodina domerguei* f. *magna* Lom, 1961
Location: gills
Host: *Tinca tinca*
Dist.: Lake Sildu
Records: Vismanis *et al.* 1989; Kirjusina & Vismanis 2004

Trichodina gasterostei (F,B,M)
Shtein,1967
Location: gills
Host: *Gasterosteus aculeatus*
Dist.: Daugava River
Records: Kirjusina & Vismanis 2002, 2004

Trichodina jadranica Raabe, 1958 (F,B,M)
Location: gills
Host: *Platichthys flesus trachurus*
Dist.: Gulf of Riga, Baltic Sea
Records: Shtein & Vismanis 1982 (Gulf of Riga); Vismanis, Volkova & Eglite 1984 (Gulf of Riga); Vismanis 1987 (Gulf of Riga); Vismanis & Kondratovičs 1994 (Baltic Sea), 1995 (Baltic Sea); Kirjusina & Vismanis 2004 (Gulf of Riga)
Remarks: This ciliate has been reported to be a pathogen in eel culture (see Lom and Dyková 1992).

Trichodina modesta Lom, 1970 (F)
Location: gills
Host: *Cottus poecilopus*
Dist.: Gulf of Riga
Records: Vismanis, Volkova & Eglite 1984, 1986

Trichodina murmanica Polyanski, 1955 (M)
Location: gills
Host: *Gadus morhua callarias*
Dist.: Gulf of Riga
Records: Vismanis, Volkova & Eglite 1986, 1987; Kirjusina & Vismanis 2004

Trichodina mutabilis (F)
Kazubski and Migala, 1968
Location: gills, skin
Hosts: *Cyprinus carpio carpio* (2.3)
fish (1)
Dist.: Latvia (ponds)
Records: 1. Vismanis 1972; 2. Vismanis, Ivanova & Soldatkina 1975; 3. Kirjusina & Vismanis 2004
Remarks: Vismanis, Ivanova and Soldatkina (1975) noted that this trichodinid caused disease in common carp fry during June–August.

Trichodina nigra Lom, 1961 (F)
Location: gills, skln
Hosts: *Abramis brama* (5)
Alburnoides bipunctatus (5)
Alburnus alburnus (5)
Carassius auratus auratus (2)
Cyprinus carpio carpio (2,5)
Leuciscus cephalus (5)
L. leuciscus (5)
Oncorhynchus mykiss (4,5)
Rutilus rutilus (3,5)
Salmo salar (5)
fish (1)

Dist.: Lakes Sildu, Slokas; Daugava, Ogre Rivers
Records: 1. Vismanis 1972 (ponds); 2. Vismanis, Ivanova & Soldatkina 1975 (ponds); 3. Vismanis *et al.* 1989 (Lake Sildu); 4. Lullu, Vismanis & Bakhtina 1989 (tanks); 5. Kirjusina & Vismanis 2004 (Lakes Slokas, Sildu; Daugava, Ogre Rivers, ponds)

Trichodina pediculus (F)
(O.F. Müller, 1786) Ehrenberg, 1838
Location: gills, skin
Hosts: *Carassius auratus auratus* (2)
Cyprinus carpio carpio (2)
fish (1)
Dist.: Latvia (ponds)
Records: 1. Vismanis 1972; 2. Vismanis, Ivanova & Soldatkina 1975; Kirjusina & Vismanis 2004

Trichodina raabei Lom, 1962 (B,M)
Location: gills
Host: *Platichthys flesus trachurus*
Dist.: Gulf of Riga, Baltic Sea
Records: Shtein & Vismanis 1982 (Gulf of Riga); Vismanis, Volkova & Eglite 1984 (Gulf of Riga); Vismanis 1987 (Gulf of Riga); Vismanis & Kondratovičs 1994 (Baltic Sea), 1995 (Baltic Sea); Tabolina 1994 (Gulf of Riga); Kirjusina & Vismanis 2004 (Gulf of Riga)

Trichodina reticulata (F)
Hirschmann and Partsch, 1955
Syn.: *Trichodina megamicronucleata* auctorum
T. domerguei megamicronucleata auctorum
Location: gills, skin
Hosts: *Abramis brama* (3,4,9)
Alburnus alburnus (3,9)
Blicca bjoerkna (1,9)
Carassius auratus auratus (5,8,9)
C. carassius (2,5,9)
Coregonus peled (5,9)
Cyprinus carpio carpio (2,5,9)
Leucaspius delineatus (5,9)
Perca fluviatilis (6)
Pungitius pungitius (5,9)
Rutilus rutilus (6)
Sander lucioperca (6)
Tinca tinca (3,4,5,9)
fish (7)
Dist.: Lakes Alūksnes, Burtnieku, Rāznas, Sīvers, Slokas; Kegums Water Reservoir, Daugava River
Records: 1. Shulman 1949 (Lake Rāznas, Kegums Water Reservoir, Daugava River); 2. Akhmerov & Grapmane 1954 (ponds); 3. Reinsone 1955a (Lakes Alūksnes, Sīvers), 4. 1959 (Lake Sīvers); 5. Grapmane 1957 (ponds); 6. Vismanis 1961 (Lake Burtnieku); 7. 1972 (ponds); 8. Vismanis, Ivanova, & Soldatkina 1975 (ponds); 9. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Rāznas, Sīvers, Slokas; Kegums Water Reservoir, Daugava River, ponds)
Remarks: Lom and Dyková (1992) note that this species is almost strictly host specific to *Carassius auratus auratus* and *C. carassius*.

Trichodina tenuidens (F)
Fauré-Fremiet, 1943
Location: gills
Host: *Gasterosteus aculeatus*
Dist.: Daugava River
Records: Kirjusina & Vismanis 2002, 2004

Trichodina urinaria Dogiel, 1940 (F)
Location: urinary bladder
Host: *Perca fluviatilis*
Dist.: Lakes Alūksnes, Burtnieku, Cirma, Durbes, Juglas, Lielauces, Rāznas, Sildu, Sīvers, Slokas, Usma; Kegums Water Reservoir; Salaca, Ogre Rivers; Daugava River
Records: Shulman 1949 (Lake Rāznas, Kegums Water Reservoir, Daugava River); Reinsone 1955a (Lakes Alūksnes, Cirma, Durbes, Lielauces Sīvers), 1955b (Lake Sīvers), 1959 (Lakes Lielauces, Sīvers); Vismanis 1961 (Lake Burtnieku); Vismanis *et al.* 1989 (Lake Sildu); Kirjusina & Vismanis 2004 (Lakes Alūksnes, Cirma, Durbes, Juglas, Lielauces, Rāznas, Sildu, Sīvers, Slokas, Usma; Kegums Water Reservoir; Daugava, Ogre, Salaca Rivers)

Trichodina sp. (F,B,M)
Includes: *Trichodina domerguei* f. *meridionalis* Dogiel, 1940
T. borealis of Shulman, 1949
Location: gills, skin
Hosts: *Alburnus alburnus* (6,7)
Cobitis taenia (1,7)
Ctenopharyngodon idella (2)
Gadus morhua callarias (4,5,6,7)
Platichthys flesus trachurus (1,7)
Psetta maxima (1,7)
Silurus glanis (1,7)

Vimba vimba (3)
Dist.: Daugava, Līčupe, Salaca Rivers; Gulf of Riga, Baltic Sea
Dist.: Daugava, Līčupe, Salaca Rivers; Gulf of Riga, Baltic Sea
Records: 1. Shulman 1949 (Daugava, Līčupe Rivers, Gulf of Riga); 2. Vismanis & Musselius 1971 (ponds); 3. Vismanis, Spirina & Paršuta 1971 (Gulf of Riga); 4. Vismanis, Volkova & Eglite 1984 (Gulf of Riga), 5. 1986 (Gulf of Riga); 6. Vismanis, Eglite & Volkova 1986 (Baltic Sea); 7. Kirjusina & Vismanis 2004 (Salaca River, Gulf of Riga)
Remarks: Arthur and Lom (1984) considered *Trichodina borealis* (Dogiel, 1940) to be a nomen dubium. The records of Shulman (1949) from flatfishes may possibly involve *Trichodina jadranica* Haider, 1964.

Lom and Laird (1969) considered *Trichodina domerguei* f. *meridionalis* Dogiel, 1940 to be a mixture of undetermined species and a nomen dubium.

Trichodinella epizootica (Raabe, 1950) (F)
Šrámek-Hušek, 1953
Syn.: *Trichodina domerguei* f. *percarum* Dogiel, 1940
?*T. carassii* Dogiel, 1940
Trichodinella percarum (Dogiel, 1940)
Includes: ?*Tripartiella carassii* of Vismanis, 1964
Location: gills, skin
Hosts: *Alburnoides bipunctatus* (6)
Carasius carassius (1)
Cyprinus carpio carpio (2)
Esox lucius (6)
Gymnocephalus cernuus (5,6)
Oncorhynchus mykiss (4)
Perca fluviatilis (1,6)
Tinca tinca (3,6)
Dist.: Lakes Garmuižas, Sildu; Daugava, Ogre Rivers
Records: 1. Shulman 1949 (Daugava River); 2. Vismanis 1964 (ponds); 3. Vismanis *et al.* 1989 (Lake Sildu); 4. Lullu, Vismanis & Bakhtina 1989 (tanks); 5. Kirjusina & Vismanis 2001 (Lake Garmuižas), 6. 2004 (Lakes Garmuižas, Sildu; Daugava, Ogre Rivers)
Remarks: In stressed fish this ciliate proliferates massively and becomes highly pathogenic (see Lom and Dyková 1992).

Trichodinella subtilis Lom, 1959 (F)
Location: gills
Host: *Cyprinus carpio carpio*
Dist.: Latvia (ponds)
Records: Vismanis, Ivanova, & Soldatkina 1975; Kirjusina & Vismanis 200

PHYLUM CHOANOZOA

CLASS ICHYOSPOREA

ORDER DERMOCYSTIDA

FAMILY ?

Dermocystidium percae (F)
Reichenbach-Klinke, 1950
Location: gill covers
Host: *Perca fluviatilis*
Dist.: Lake Usmas, Daugava River
Record: Kirjusina & Vismanis 2004
Remarks: The ultrastructure and taxonomic positon of this species have recently been reviewed by Pekkarinen *et al.* (2003).

Dermocystidium sp. (B?)
Location: gills
Host: *Zoarces viviparus*
Dist.: Daugava River, Gulf of Riga
Records: Shulman 1949 (Daugava River, Gulf of Riga,); Vismanis, Volkova & Eglite 1984 (Gulf of Riga); Vismanis 1987 (Gulf of Riga); Kirjusina & Vismanis 2004 (Daugava River, Gulf of Riga)

KINGDOM METAZOA

PHYLUM MYXOZOA[4]

CLASS MYXOSPOREA

ORDER BIVALVULIDA

SUBORDER VARIISPORINA

FAMILY MYXIDIIDAE

Myxidium giardi Cépède, 1906 (F)
Location: gills, kidney
Host: *Anguilla anguilla*
Dist.: Lakes Liepājas, Rāznas, Usmas; Kegums Water Reservoir; Gulf of Riga
Records: Shulman 1949 (Lake Rāznas, Kegums Water Reservoir, Gulf of Riga);

[4] The status of knowledge on the taxonomy and life cycles of the Myxozoa has been recently reviewed by Lom and Dyková (2006).

Reinsone 1955a (Lake Liepājas), 1959 (Lake Liepājas); Kirjusina & Vismanis 2004 (Lakes Liepājas, Usmas; Kegums Water Reservoir; Gulf of Riga)

Remarks: Eels become infected after their "glass eel" stage, in inland waters. Tubular and glomerular changes in the kidney are among the most serious pathological changes; elvers with tubular damage may develop dropsy and suffer mass mortalities. Skin lesions may render fish unmarketable (see Lom and Dyková 1992).

Myxidium lieberkuehni (F)
Bütschli, 1882
Location: urinary bladder
Host: *Esox lucius*
Dist.: Lakes Burtnieku, Cirma**,** Durbes, Kāla, Lielauces, Liepājas, Rāznas, Rušons, Sildu, Sīvers, Usmas; Kegums Water Reservoir; Daugava River
Records: Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava River); Reinsone 1955a (Lakes Burtnieku, Cirma, Durbes, Kāla, Lielauces, Liepājas, Sīvers), 1955b (Lakes Lielauces, Liepājas, Sīvers), 1959 (Lakes Lielauces, Liepājas, Sīvers); Vismanis 1961 (Lake Burtnieku); Vismanis *et al.* 1989 (Lake Sildu); Kirjusina & Vismanis 2004 (Lakes Burtnieku, Cirma**,** Durbes, Kāla, Lielauces, Liepājas, Rāznas, Rušons, Sildu, Sīvers, Usmas; Kegums Water Reservoir; Daugava River)

Myxidium macrocapsulare (B)
Auerbach, 1910
Location: gall bladder [?], urinary bladder
Host: *Zoarces viviparus*
Dist.: Gulf of Riga
Record: Vismanis, Volkova & Eglite 1984
Remarks: This species is a common parasite of the kidney and urinary bladder of cyprinid fishes (see Shulman 1966). Its finding in a marine host requires verification.

Myxidium pfeifferi Auerbach,1908 (F)
Location: gall bladder, kidney [?]
Hosts: *Carassius carassius* (3,5,6,7)
Cyprinus carpio carpio (2,6,7)
Rutilus rutilus (1,3,4,5,8,9)
Scardinius erythrophthalmus (3,4,5)
Tinca tinca (3,5,6,7)
Dist.: Lakes Alūksnes, Burtnieku, Cirma, Durbes, Juglas, Kāla, Lielauces, Liepājas, Rāznas, Rušons, Sīvers; Kegums Water Reservoir
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir); 2. Akhmerov & Grapmane. 1954 (ponds); 3. Reinsone 1955a (Lakes Alūksnes Burtnieku, Cirma, Durbes, Kāla, Lielauces, Liepājas, Sīvers), 4. 1955b (Lake Sīvers), 5. 1959 (Lakes Lielauces, Liepājas, Sīvers); 6. Grapmane 1957 (ponds), 7. 1962 (ponds); 8. Vismanis 1961 (Lake Burtnieku); 9. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Juglas, Kāla, Lielauces, Liepājas, Rāznas, Rušons, Sīvers; Kegums Water Reservoir, ponds)

Myxidium rhodei Léger, 1905 (F)
Location: kidney
Hosts: *Blicca bjoerkna* (2)
Leuciscus leuciscus (2)
Rutilus rutilus (1,2)
Dist.: Lakes Sildu, Slokas, Usmas; Ogre River
Records: 1. Vismanis *et al.* 1989 (Lake Sildu); 2. Kirjusina & Vismanis 2004 (Lakes Slokas, Usmas; Ogre River);
Remarks: Lom and Dyková (1992) note that plasmodia that develop in the kidney interstitium provoke an inflammatory granulomatous reaction and are eliminated before spores can reach maturity.

Zschokkella nova Klokacheva, 1914 (F)
Location: gall bladder
Hosts: *Abramis brama* (1,5)
Alburnus alburnus (1,5)
Blicca bjoerkna (1,5)
Carassius carassius (1,2,4,5)
Gobio gobio gobio (1,5)
Rutilus rutilus (1,5)
Scardinius erythrophthalmus (2,3,4,5)
Tinca tinca (1,5)
Vimba vimba (1,5)
Dist.: Lakes Lielauces, Rāznas, Rušons, Sīvers, Slokas; Kegums Water Reservoir; Daugava River; Gulf of Riga
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava River; Gulf of Riga); 2. Reinsone 1955a (Lakes Lielauces, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Lielauces, Sīvers); 5. Kirjusina & Vismanis 2004 (Lake Slokas)

FAMILY SPHAEROSPORIDAE

Hoferellus cyprini (Doflein, 1898) Mercier, 1908 (F)
Location: ureters
Host: *Cyprinus carpio carpio*
Dist.: Latvia (ponds)
Records: Akhmerov & Grapmane 1954); Grapmane 1962; Kirjusina & Vismanis 2004
Remarks: This parasite is mildly pathogenic (see Lom and Dyková 1992).

Myxobilatus gasterostei (Parisi, 1912) Davis, 1944 (B)
Syn.: *Henneguya gasterostei* Parisi, 1912
Location: urinary bladder
Host: *Gasterosteus aculeatus*
Dist.: Gulf of Riga
Records: Shulman 1949; Kirjusina & Vismanis 2004

Myxobilatus platessae (Bazikalova, 1932) Shulman and Shulman-Albova, 1953 (B,M)
Syn.: *Henneguya platessae* Bazikalova, 1932
Location: urinary bladder
Host: *Platichthys flesus trachurus*
Dist.: Gulf of Riga, Baltic Sea
Records: Shulman 1949 (Gulf of Riga); Vismanis & Kondratovičs 1994 (Baltic Sea), 1995 (Baltic Sea); Kirjusina & Vismanis 2004 (Gulf of Riga)

Sphaerospora elegans Thélohan, 1895 (B)
Location: kidney
Host: *Gasterosteus aculeatus*
Dist.: Daugava River, Gulf of Riga
Records: Shulman 1949; Kirjusina & Vismanis 2004

FAMILY CHLOROMYXIDAE

Caudomyxum nanum Bauer, 1948 (F)
Location: kidney
Host: *Lota lota*
Dist.: Kegums Water Reservoir
Records: Shulman 1949; Kirjusina & Vismanis 2004

Chloromyxum cristatum Léger, 1906 (F)
Syn.: *Chloromyxum cyprini* Fujita, 1927
Location: gall bladder
Hosts: *Cyprinus carpio carpio* (1,4)
Ctenopharyngodon idella (2)
Tinca tinca (3)
Dist.: Lake Sildu
Records: 1. Vismanis 1964 (ponds); 2. Vismanis & Musselius 1971 (ponds), 3. Vismanis *et al*. 1989 (Lake Sildu); 4. Kirjusina & Vismanis 2004 (Lake Sildu)
Remarks: Morphologically identical populations from separate hosts may vary in size. Although known as an innocuous endocommensal, this species can nevertheless pervade the liver parenchyma of common carp and induce necrosis (see Lom and Dyková 1992).

Chloromyxum dubium Auerbach, 1908 (F)
Location: gall bladder
Host: *Lota lota*
Dist.: Lake Rāznas, Kegums Water Reservoir
Records: Shulman 1949; Kirjusina & Vismanis 2004

Chloromyxum esocinum Dogiel, 1934 (F)
Location: gall bladder
Host: *Esox lucius*
Dist.: Lake Liepājas, Kegums Water Reservoir, Daugava River
Records: Shulman 1949 (Kegums Water Reservoir, Daugava River); Reinsone 1955a (Lake Liepājas), 1959 (Lake Liepājas); Kirjusina & Vismanis 2004 (Lake Liepājas, Kegums Water Reservoir, Daugava River)

Chloromyxum fluviatile Thélohan, 1892 (F)
Location: gall bladder
Hosts: *Blicca bjoerkna* (1,4)
Carassius carassius (1,4)
Rutilus rutilus (2,3,4)
Dist.: Lakes Liepājas, Rāznas
Records: 1. Shulman 1949 (Lake Rāznas); 2. Reinsone 1955a (Lake Liepājas), 3. 1959 (Lake Liepājas); 4. Kirjusina & Vismanis 2004 (Lakes Liepājas, Rāznas)

Chloromyxum koi Fujita, 1913 (F)
Location: gall bladder
Host: *Cyprinus carpio carpio*
Dist.: Latvia (ponds)
Records: Grapmane 1957, 1962; Kirjusina & Vismanis 2004

Chloromyxum mucronatum Gurley, 1893 (F)
Location: urinary bladder
Host: *Lota lota*
Dist.: Lake Rāznas, Kegums Water Reservoir

Records: Shulman 1949; Kirjusina & Vismanis 2004

Chloromyxum truttae Léger, 1906 (F)
Location: gall bladder
Hosts: *Oncorhynchus mykiss* (2,3)
Salmo salar (1,2,3)
Dist.: Latvia (hatchery)
Records: 1. Vismanis *et al*. 1978; 2. Vismanis, Kuznetsova & Rakitsky 1983; 3. Vismanis, Volkova & Eglite 1984; 4. Kirjusina & Vismanis 2004
Remarks: Vismanis *et al.* (1978) and Vismanis, Kuznetsova and Rakitsky 1983) recorded mass mortality of *Salmo salar* fry caused by *C. truttae.* Lom and Dyková (1992) also noted that disease may persist for several months with a fatal outcome.

SUBORDER PLATYSPORINA

FAMILY MYXOBOLIDAE

Henneguya creplini (Gurley, 1894) (F)
Labbé, 1899
Location: gills
Host: *Gymnocephalus cernuus*
Dist.: Daugava River
Records: Vismanis & Popov 1990; Kirjusina & Vismanis 2004

Henneguya lobosa (Cohn, 1895) (F)
Labbé, 1899
Location: gills
Host: *Esox lucius*
Dist.: Lakes Burtnieku, Indra, Juglas, Rāznas, Slokas, Usmas; Kegums Water Reservoir
Records: Shulman 1949 (Lake Rāznas, Kegums Water Reservoir); Vismanis 1961 (Lake Burtnieku); Kirjusina & Vismanis 2004 (Lakes Indra, Juglas, Rāznas, Slokas, Usmas; Kegums Water Reservoir)

Henneguya oviperda (Cohn, 1895) (F)
Labbé, 1899
Location: ovaries, intestinal wall (?)
Host: *Esox lucius*
Dist.: Lakes Burtnieku, Durbes, Rāznas, Sildu, Usmas
Records: Shulman 1949 (Lake Rāznas); Reinsone 1955a (Lake Durbes); Vismanis 1961 (Lake Burtnieku); Vismanis *et al.* 1989 (Lake Sildu); Kirjusina & Vismanis 2004 (Lakes Durbes, Rāznas, Sildu, Usmas)
Remarks: Infection may result in atrophy of large numbers of oocytes and in local circulatory disorders (see Lom and Dyková 1992). Pike from ponds showed heavy infection with approximately 30–40 per cent of the ovary volume being comprised of the parasite's pseudocysts.

Henneguya psorospermica (F)
Thélohan, 1892
Location: gills
Hosts: *Esox lucius* (1,2,3,4,5,6,7)
Perca fluviatilis (1,2,3,4,5,6,7)
Dist.: Lakes Burtnieku, Durbes, Juglas, Kāla, Liepājas, Rāznas, Sildu, Sīvers, Usmas; Kegums Water Reservoir; Gulf of Riga
Records: 1. Shulman 1949 (Lake Rāznas, Kegums Water Reservoir, Gulf of Riga); 2. Reinsone 1955a (Lakes Durbes, Kāla, Liepājas, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Liepājas, Sīvers); 5. Vismanis 1961 (Lake Burtnieku); 6. Vismanis *et al.* 1989 (Lake Sildu); 7. Kirjusina & Vismanis 2004 (Lakes Durbes, Juglas, Kāla, Liepājas, Rāznas, Sildu, Sīvers, Usmas; Kegums Water Reservoir; Gulf of Riga)
Remarks: Intralamellar plasmodia cause deformations of lamellae, which may fuse together, reducing the respiratory surface. Infected fish may die rapidly from oxygen deficiency (see Lom and Dyková 1992).

Henneguya schizura (Gurley, 1893) (F)
Labbé, 1899
Location: vitreous humour of eye
Host: *Esox lucius*
Dist.: Kegums Water Reservoir
Records: Shulman 1949; Kirjusina & Vismanis 2004

Henneguya zschokkei (Gurley, 1894) (F)
Doflein, 1901
Location: musculature, gills (?)
Hosts: *Coregonus albula* (1,2,3)
C. lavaretus (1)
Esox lucius (4)
Dist.: Lakes Cirma, Sildu, Sīvers
Records: 1. Reinsone 1955a (Lakes Cirma, Sīvers), 2. 1955b (Lake Sīvers), 3. 1959 (Lake Sīvers); 4. Vismanis *et al.* 1989 (Lake Sildu); 5. Kirjusina & Vismanis 2004 (Lakes Cirma, Sildu, Sīvers)

Myxobolus anurum Cohn, 1895 (F)
Syn.: *Myxosoma anurus* (Cohn,1895)

Includes: *M. dujardini* auctorum
Location: gills
Hosts: *Esox lucius* (1,2,3,4,5,6,7)
Gymnocephalus cernuus (1,7)
Dist.: Lakes Burtnieku, Cirma, Durbes, Juglas, Kāla, Liepājas, Rāznas, Rušons, Sildu, Sīvers, Usmas; Kegums Water Reservoir; Daugava, Ogre Rivers
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava River); 2. Reinsone 1955a (Lakes Burtnieku, Cirma, Durbes, Kāla, Liepājas, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Liepājas, Sīvers); 5. Vismanis 1961 (Lake Burtnieku); 6. Vismanis *et al.* 1989 (Lake Sildu); 7. Kirjusina & Vismanis 2004 (Lakes Cirma, Durbes, Juglas, Kāla, Liepājas, Rāznas, Rušons, Sildu, Sīvers, Usmas; Kegums Water Reservoir; Daugava, Ogre Rivers)

Myxobolus bramae Reuss, 1906 (F)
Location: cornea of eye, gills, kidney urinary bladder
Hosts: *Abramis brama* (1,2,3,4,5,6)
Alburnus alburnus (1,2,6)
Blicca bjoerkna (1,2,4,5,6)
Carassius carassius (1,7)
Leucaspius delineatus (5)
Leuciscus cephalus (5)
Rutilus rutilus (1,2,3,4,6,7)
Scardinius erythrophthalmus (1,2,4,6)
Tinca tinca (1,6)
Vimba vimba (1,6)
Dist.: Lakes Alūksnes, Burtnieku, Černavu, Cirma, Durbes, Juglas, Kāla, Lielauces, Liepājas, Rāznas, Riču, Rušons, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava River; Gulf of Riga
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava River; Gulf of Riga); 2. Reinsone 1955a (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Kāla, Lielauces, Liepājas, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Lielauces, Liepājas, Sīvers); 5. Vismanis 1961 (Lake Burtnieku); 6. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Burtnieku, Černavu, Cirma, Durbes, Juglas, Kāla, Lielauces, Liepājas, Rāznas, Riču, Rušons, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava River; Gulf of Riga)

Myxobolus carassii Klokacheva, 1914 (F)
Location: gills, intestinal wall, liver, mesenteries, musculature
Hosts: *Alburnus alburnus* (1,6)
Carassius carassius (1,2,3,4,5,6)
Perca fluviatilis (1,6)
Dist.: Lakes Lielauces, Liepājas, Rāznas; Kegums Water Reservoir; Daugava River
Records: 1. Shulman 1949 (Lake Rāznas, Kegums Water Reservoir, Daugava River); 2. Akhmerov & Grapmane 1954 (ponds); 3. Reinsone 1955a (Lakes Lielauces, Liepājas), 4. 1959 (Lakes Lielauces, Liepājas); 5. Grapmane 1962 (ponds); 6. Kirjusina & Vismanis 2004 (Lakes Lielauces, Liepājas, Rāznas; Kegums Water Reservoir; Daugava River)
Remarks: In heavy infections, the mass of parasites may form a hump anterior to the dorsal fin (see Lom and Dyková 1992).

Myxobolus cycloides Gurley, 1893 (F)
Location: gall bladder, gills, kidney, urinary bladder
Hosts: *Aspius aspius* (1,6)
Gobio gobio gobio (1,6)
Lota lota (5)
Rutilus rutilus (2,3,4,6)
Scardinius erythrophthalmus (2,3,4,6)
Dist.: Lakes Burtnieku, Liepājas, Rāznas, Sīvers; Kegums Water Reservoir
Records: 1. Shulman 1949 (Lake Rāznas, Kegums Water Reservoir); 2. Reinsone 1955a (Lakes Liepājas, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Liepājas, Sīvers); 5. Vismanis 1961 (Lake Burtnieku); 6. Kirjusina & Vismanis 2004 (Lakes Liepājas, Rāznas, Sīvers; Kegums Water Reservoir)
Remarks: This species is common in cyprinids and may be pathogenic (see Lom and Dyková 1992).

Myxobolus cyprini Doflein, 1898 (F)
Syn.: *Myxobolus pseudodispar* Gorbunova, 1936
Disparspora pseudodispar (Gorbunova, 1936)
Location: musculature
Hosts: *Rutilus rutilus* (1,2,3,4,7,8)
Cyprinus carpio carpio (5,6,8)
Tinca tinca (5,6,8)
Dist.: Lakes Burtnieku, Juglas, Lielauces, Riču, Sīvers; Kegums Water Reservoir
Records: 1. Shulman 1949 (Kegums Water Reservoir); 2. Reinsone 1955a (Lakes Burtnieku, Lielauces, Sīvers); 3. 1955b (Lake Sīvers), 4. (Lakes Lielauces, Sīvers); 5. Grapmane 1957 (ponds), 6. 1962 (ponds); 7. Vismanis 1961 (Lake Burtnieku); 8.

Kirjusina & Vismanis 2004 (Lakes Burtnieku, Juglas, Lielauces, Riču, Sīvers; Kegums Water Reservoir, ponds)

Myxobolus dispar Thélohan, 1895 (F)
Syn.: *Dispaspora dispar* (Thélohan, 1895)
Includes: *Myxobolus diversicapsularis* of Kirjusina & Vismanis, 2004
Location: gills, musculature, peritoneal epithelium, urinary bladder, wall of gall bladder
Hosts: *Aspius aspius* (1,11)
Carassius carassius (1,2,3,5,6,8,10,11)
Cyprinus carpio carpio (2,4,5,7,8,9,10,11)
Gobio gobio gobio (1,11)
Leuciscus cephalus (1,11)
L. leuciscus (1,11)
Rutilus rutilus (1,3,4,6,11)
Scardinius erythrophthalmus (1,3,11)
Tinca tinca (5,8)
Dist.: Lakes Cirma, Lielauces, Liepājas, Rāznas, Rušons, Sīvers; Kegums Water Reservoir; Daugava, Rītupe Rivers
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava, Rītupe Rivers); 2. Akhmerov & Grapmane 1954 (ponds); 3. Reinsone 1955a (Lakes Cirma, Lielauces, Liepājas, Sīvers), 4. 1955b (Lake Sīvers), 5. 1958 (ponds), 6. 1959 (Lakes Lielauces, Liepājas, Sīvers); 7. Grapmane 1957 (ponds), 8. 1962 (ponds); 9. Vismanis & Peslak 1963 (ponds); 10. Vismanis 1964 (ponds); 11 Kirjusina & Vismanis 2004 (Lakes Cirma, Lielauces, Liepājas, Rāznas, Rušons, Sīvers; Kegums Water Reservoir; Daugava, Rītupe Rivers, ponds)
Remarks: This parasite's normal and abnormal forms were described by Shulman (1949).
In heavy infections, damage to the gill tissue impairs respiration (see Lom and Dyková 1992).

Myxobolus ellipsoides Thélohan, 1892 (F)
Location: cornea, gills, gill archs, internal organs, mesenteries, swimbladder, urinary bladder
Hosts: *Abramis brama* (6,8)
Alburnus alburnus (1,2,8)
Blicca bjoerkna (1,2,6,8)
Carassius carassius (1,4,8)
Cyprinus carpio carpio (4,5,8)
Leucaspius delineatus (4,6)
Perca fluviatilis (1,8)
Rutilus rutilus (1,2,3,8)
Scardinius erythrophthalmus (2,3,8)
Tinca tinca (1,8)
Vimba vimba (7,8)
Dist.: Lakes, Burtnieku, Cirma, Durbes, Rāznas, Sīvers, Usmas; Kegums Water Reservoir; Daugava, Salaca Rivers; Gulf of Riga
Records: 1. Shulman 1949 (Lake Rāznas, Kegums Water Reservoir, Daugava River); 2. Reinsone 1955a (Lakes Burtnieku, Cirma, Durbes, Sīvers), 3. 1959 (Lake Sīvers); 4. Grapmane 1957 (ponds), 5. 1962 (ponds); 6. Vismanis 1961 (Lake Burtnieku); 7. Vismanis, Spirina & Paršuta 1971 (Gulf of Riga); 8. Kirjusina & Vismanis 2004 (Lakes, Burtnieku, Cirma, Durbes, Rāznas, Sīvers, Usmas; Kegums Water Reservoir; Daugava, Salaca Rivers)
Remarks: Shulman (1949) recorded many anomalous four-capsuled spores.
This species is common in cyprinids and may be pathogenic (see Lom and Dyková 1992).

Myxobolus exiguus Thélohan, 1895 (F)
Location: gills, kidney
Hosts: *Abramis brama*
Aspius aspius
Blicca bjoerkna
Leuciscus idus
Rutilus rutilus
Dist.: Lake Rušons, Kegums Water Reservoir, Daugava River
Records: Shulman 1949; Kirjusina & Vismanis 2004

Myxobolus gigas Auerbach, 1906 (F)
Location: gills
Host: *Abramis brama*
Dist.: Lakes Rāznas, Sildu, Usmas
Records: Kirjushina & Vismanis 2003 (-), 2004 (Lakes Rāznas, Sildu, Usmas)

Myxobolus lomi Donets and Kulakovskaya in Shulman, 1962 (F)
Location: gills
Host: *Phoxinus phoxinus*
Dist.: Lake Sildu
Records: Vismanis *et al.* 1989; Kirjusina & Vismanis 2004

Myxobolus macrocapsularis (F)

Reuss, 1906
Location: gills
Hosts: *Abramis brama* (1,2,3,4)
Blicca bjoerkna (1,2,4)
Rutilus rutilus (1,4)
Dist.: Lakes Burtnieku, Cirma, Kāla, Rāznas, Rušons; Kegums Water Reservoir
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir); 2. Reinsone 1955a (Lakes Burtnieku, Cirma, Kāla); 3. Vismanis 1961 (Lake Burtnieku); 4. Kirjusina & Vismanis 2004 (Lakes Burtnieku, Cirma, Kāla, Rāznas, Rušons; Kegums Water Reservoir)

Myxobolus magnus Awerinzew, 1913 (F)
Location: vitreous humor of eye
Host: *Gymnocephalus cernuus*
Dist.: Kegums Water Reservoir, Daugava River
Records: Shulman 1949; Kirjusina & Vismanis 2004

Myxobolus minutus Nemeczek, 1911 (F)
Location: gill filaments
Hosts: *Leuciscus cephalus* (1,3)
L. leuciscus (1,3)
Perca fluviatilis (2,3)
Dist.: Lakes Burtnieku, Slokas, Usmas; Daugava, Ogre, Rītupe Rivers
Records: 1. Shulman 1949 (Daugava, Rītupe Rivers); 2. Vismanis 1961 (Lake Burtnieku); 3. Kirjusina & Vismanis 2004 (Lakes Slokas,Usmas; Ogre, Rītupe Rivers)

Myxobolus muelleri Bütschli, 1882 (F)
Location: gills, gill covers, kidney musculature, wall of gall bladder
Hosts: *Abramis brama* (2,3,4,7)
Aspius aspius (1,7)
Blicca bjoerkna (7)
Carassius carassius (6,7)
Gobio gobio gobio (7)
Leuciscus cephalus (1,7)
L. idus (1,7)
L. leuciscus) (1,7)
Lota lota (1,2,4,7)
Rutilus rutilus (2,3,4,5,6,7)
Scardinius erythrophthalmus (7)
Tinca tinca (6,7)
Vimba vimba (7)
Dist.: Lakes Alūksnes, Burtnieku, Cirma, Durbes, Juglas, Rāznas, Sildu, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava, Ogre, Rītupe, Salaca Rivers
Records: 1. Shulman 1949 (Lake Rāznas; Kegums Water Reservoir; Daugava, Rītupe Rivers); 2. Reinsone 1955a (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Sīvers), 3. 1955b (Lake Sivers), 4. 1959 (Lake Sivers); 5. Vismanis 1961 (Lake Burtnieku); 6. Vismanis *et al.* 1989 (Lake Sildu); 7. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Juglas, Rāznas, Sildu, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava, Ogre, Rītupe, Salaca Rivers)
Remarks: Populations from the same and different hosts show differences in spore size and shape, indicating great variability but also the possibility that *M. muelleri* comprises several closely related species (see Lom and Dyková 1992).

Myxobolus musculi Keysselitz, 1908 (F)
Location: musculature, skin
Hosts: *Abramis brama*
Perca fluviatilis
Dist.: Lakes Juglas, Usmas
Record: Kirjusina & Vismanis 2004

Myxobolus nemeczeki Shulman, 1962 (F)
Location: gills
Hosts: *Aspius aspius* (1)
Leuciscus idus (1,2)
L. leuciscus (1,2)
Dist.: Kegums Water Reservoir; Daugava, Rītupe Rivers
Records: Shulman 1949 (Kegums Water Reservoir; Daugava, Rītupe Rivers); Kirjusina & Vismanis 2004 (Daugava, Rītupe Rivers)

Myxobolus oviformis Thélohan, 1882 (F)
Location: gills, i n testine, kidney, mesenteries
Hosts: *Abramis brama* (1,3)
Alburnus alburnus (1,2,3)
Aspius aspius (1,3)
Blicca bjoerkna (1,3)
Gobio gobio gobio (1,3)
Vimba vimba (1,3)
Dist.: Lakes Alūksnes, Rāznas, Rušons; Kegums Water Reservoir; Daugava River; Gulf of Riga
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava River; Gulf of Riga); 2. Reinsone 1955a (Lake Alūksnes); 3. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Rāznas, Rušons; Kegums Water Reservoir; Daugava River;

Gulf of Riga)

Myxobolus permagnus Wegener, 1910 (F)
Syn.: *Myxobolus physophilus* Reuss, 1906
Location: walls of gall bladder and swimbladder
Hosts: *Gobio gobio gobio* (1,3)
Scardinius erythrophthalmus (2)
Dist.: Lakes Burtnieku, Rāznas; Kegums Water Reservoir
Records: 1. Shulman 1949 (Lake Rāznas, Kegums Water Reservoir); 2. Vismanis 1961 (Lake Burtnieku); 3. Kirjusina & Vismanis 2004 (Lake Rāznas; Kegums Water Reservoir)

Myxobolus rotundus Nemeczek, 1911 (F)
Location: gills
Host: *Gobio gobio gobio*
Dist.: Lake Rāznas
Records: Shulman 1949; Kirjusina & Vismanis 2004

Myxobolus rutili (F)
Donets and Tozyjakova, 1984
Location: fins, gills
Host: *Rutilus rutilus*
Dist.: Lake Slokas
Record: Kirjusina & Vismanis 2004

Myxobolus sandrae Reuss, 1906 (F)
Syn.: *Myxobolus luciopercae* Dogiel, 1933
Location: gill archs and filaments
Host: *Sander lucioperca*
Dist.: Lake Juglas, Daugava River
Records: Shulman 1949 (Daugava River); Kirjusina & Vismanis 2004 (Lake Juglas, Daugava River)
Remarks: Infections in the spinal cord of European perch (*Perca fluviatilus*) can result in severe deformations of the vertebral column (see Lom and Dyková 2006).

Myxobolus thelohanellus (F)
Shulman and Vikhrova, 1952
Location: gill covers
Host: *Carassius carassius*
Dist.: Lake Rāznas
Records: Shulman 1949; Kirjusina & Vismanis 2004

Myxobolus sp. (F)
Location: gills
Hosts: *Rutilus rutilus*
Dist.: Lake Durbes
Records: Reinsone 1955a; Kirjusina & Vismanis 2004

Thelohanellus fuhrmanni (F)
(Auerbach, 1909) Kudo, 1933
Location: gills
Host: *Rutilus rutilus*
Dist.: Lake Durbes
Records: Reinsone 1955a; Kirjusina & Vismanis 2004

Thelohanellus oculileucisci (F)
(Trojan, 1909) Kudo, 1933
Location: vitreous humour of eye
Hosts: *Abramis brama* (1,4)
Rutilus rutilus (2,3,4)
Dist.: Lake Sīvers, Daugava River
Records: 1. Shulman 1949 (Daugava River); 2. Reinsone 1955a (Lake Sīvers), 3. (Lake Sīvers); 4. Kirjusina & Vismanis 2004 (Lake Sīvers, Daugava River)

Thelohanellus pyriformis (F)
(Thélohan, 1892) Kudo, 1933
Location: gills, kidney
Hosts: *Tinca tinca*
Dist.: Lakes Cirma, Lielauces, Rāznas, Sīvers; Daugava River
Records: Shulman 1949 (Lake Rāznas, Daugava River); Reinsone 1955a (Lakes Cirma, Lielauces, Sīvers), 1955b (Lake Sīvers), Reinsone 1959 (Lakes Lielauces, Sīvers); Grapmane 1957 (ponds), 1962 (ponds); Kirjusina & Vismanis 2004 (Lakes Cirma, Lielauces, Rāznas, Sīvers; Daugava River, ponds)
Remarks: Mass infection causes “lump disease” of cyprinids and coregonids (see Bauer 1984).

PHYLUM PLATYHELMINTHES

CLASS TREMATODA

SUBCLASS DIGENEA

ORDER DIPLOSTOMIDA

SUBORDER DIPLOSTOMATA

SUPERFAMILY DIPLOSTOMOIDEA

FAMILY CYATHOCOTYLIDAE

Paracoenogonimus ovatus (F)
Katsurada, 1914 metacercaria
Syn.: *Diplostomulum hughesi* Markevich, 1934
Neodiplostomum hughesi (Markevich, 1934)
Location: gills, intestine, kidney, liver, musculature, vitreous humor of eye
Hosts: *Abramis brama* (1,2,3)
Alburnus alburnus (1,3)
Aspius aspius (1,3)
Blicca bjoerkna (1,2,3)
C. carassius (1,3)
Esox lucius (1,3)
Gobio gobio gobio (1,3)
Gymnocephalus cernuus (1,3)
Leuciscus cephalus (1,3)
L. idus (1,3)
L. leuciscus (1,3)
Perca fluviatilis (3)
Rutilus rutilus (1,2,3)
Sander lucioperca (1,3)
Scardinius erythrophthalmus (1,2,3)
Tinca tinca (1,3)
Vimba vimba (1,3)
Dist.: Lakes Černavu, Dārza, Juglas, Lielauces, Liepājas, Rāznas, Riču, Rušons, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava, Līčupe, Lielupe Rivers; Gulf of Riga
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava, Līčupe Rivers; Gulf of Riga); 2. Reinsone 1959 (Lakes Lielauces, Liepājas, Sīvers); 3. Kirjusina & Vismanis 2004 (Lakes Černavu, Dārza, Riču; Daugava River)

FAMILY DIPLOSTOMIDAE

Diplostomum commutatum (F)
(Diesing, 1850) Dubois, 1937
metacercaria
Syn.: *Diplostomum rutili* Razmashkin, 1969
Location: lens, vitreous humor of eye
Hosts: *Esox lucius* (2)
Rutilus rutilus (1,2)
Dist.: Lakes Sildu, Slokas, Usmas; Daugava River
Records: 1. Vismanis *et al.* 1989 (Lake Sildu); 2. Kirjusina & Vismanis 2004 (Lakes Sildu, Slokas, Usmas; Daugava River)

Remarks: Adults of members of this genus are found in the intestines of piscivorous birds.

Diplostomum petromyzifluviatilis (F)
Diesing, 1860 metacercaria
Location: brain
Host: *Lampetra fluviatilis*
Dist.: Daugava River, Gulf of Riga
Records: Shulman 1949 (Daugava River); Vismanis, Eglite & Volkova 1981 (Gulf of Riga); Vismanis, Volkova & Eglite 1984 (Gulf of Riga); Kirjusina & Vismanis 2004 (rivers entering Gulf of Riga); Kirjusina 2005 (Daugava River)

Diplostomum pungiti Shigin, 1965 (F)
metacercaria
Location: lens, vitreous humor of eye
Host: *Gasterosteus aculeatus*
Dist.: Daugava River
Record: Kirjusina & Vismanis 2004

Diplostomum spathaceum (F)
(Rudolphi, 1819) Olsson, 1876
metacercaria
Location: lens, vitreous humor of eye
Hosts: *Abramis brama* (1,2,3,4,6,21)
Alburnoides bipunctatus (1,21)
Alburnus alburnus (1,2,21)
Alosa fallax fallax (1,21)
Anguilla anguilla (1,21)
Aspius aspius (1,21)
Belone belone (1,21)
Blicca bjoerkna (1,2,4,6,21)
Carassius carassius (1,3,5,21)
Clupea harengus membras (1,13,15,21)
Coregonus albula (2,3,21)
C. lavaretus (1,21)
*C. peled (*5,21)
Cottus gobio (1,21)
C. poecilopus (15)
Ctenopharyngodon idella (11)
Cyprinus carpio carpio (5,7,10,21)
C. carpio haematopterus (9)
Esox lucius (1,2,3,4,6,17,21)
Gadus morhua callarias (1,8,14,15,16,21)
Gasterosteus aculeatus (1,21)
Gobio gobio gobio (1,21)
Gymnocephalus cernuus (1,2,3,4,6,21)
Lampetra fluviatilis (1,13,15,21,21)
Leucaspius delineatus (5,6,21)
Leuciscus cephalus (1,6,21)

L. idus (1,21)
L. leuciscus (1,21)
Lota lota (1,2,4,21)
Oncorhynchus mykiss (18)
Osmerus eperlanus (1,15,21)
O. eperlanus spirinchus (3,21)
Pelecus cultratus (1,21)
Perca fluviatilis (1,2,3,4,6,21)
Phoxinus phoxinus (14,21)
Platichthys flesus trachurus (1,8,15,19,20,21)
Psetta maxima (1,21)
Rutilus rutilus (1,2,3,4,6,21)
Salmo trutta morpha *fario* (1,21)
Sander lucioperca (1,21)
Scardinius erythrophthalmus (1,2,3,4,21)
Silurus glanis (1,21)
Taurulus bubalis (1,21)
Tinca tinca (1,2,4,21)
Triglopsis quadricornis (1,21)
Vimba vimba (1,12,21)
Zoarces viviparus (1,8,15,21)

Dist.: Lakes Alūksnes, Burtnieku, Cirma, Durbes, Juglas, Kāla, Lielauces, Liepājas, Rāznas, Rušons, Sildu, Sīvers, Slokas,Usmas; Kegums Water Reservoir; Daugava, Līčupe, Ogre, Rītupe, Salaca Rivers; Gulf of Riga; Baltic Sea

Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Gulf of Riga); 2. Reinsone 1955a (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Kāla, Lielauces, Liepājas, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Lielauces, Liepājas, Sīvers); 5. Grapmane 1957 (ponds); 6. Vismanis 1961 (Lake Burtnieku), 7. 1964 (ponds), 8. 1987 (Gulf of Riga); 9. Akhmerov 1961 (ponds); 10. Vismanis & Peslak_1963 (ponds); 11. Vismanis & Musselius 1971 (ponds); 12. Vismanis, Spirina & Paršuta 1971 (Gulf of Riga); 13. Vismanis, Eglite & Volkova 1981 (Gulf of Riga), 14. 1986 (Baltic Sea); 15. Vismanis, Volkova & Eglite 1984 (Gulf of Riga), 16. 1986 (Gulf of Riga);. 17. Vismanis *et al.* 1989 (Lake Sildu); 18. Lullu, Vismanis & Bakhtina 1989 (tanks); 19. Vismanis & Kondratovičs 1994 (Baltic Sea); 20. Tabolina 1994 (Gulf of Riga &/or Baltic Sea); 21. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Juglas, Kāla, Lielauces, Liepājas, Rāznas, Rušons, Sildu, Sīvers, Slokas,Usmas; Kegums Water Reservoir; Daugava, Līčupe, Ogre, Rītupe, Salaca Rivers; Gulf of Riga)

Remarks: A number of diplostomid species are probably included under this taxon (see Bauer 1987).

Diplostomulum sp. metacercaria (F)
Includes*: Diplostomum* sp**.** metacercaria auctorum
Location: lens, vitreous humor of eye
Hosts: *Abramis brama* (6)
Alburnus alburnus (6)
Anguilla anguilla (6)
Blicca bjoerkna (6)
Carassius carassius (6)
Coregonus peled (2)
Clupea harengus membras (1)
Ctenopharyngodon idella (2)
Cyprinus carpio carpio (2)
Esox lucius (6)
Gadus morhua callarias (5,6)
Gymnocephalus cernuus (2,6)
Lampetra fluviatilis (1)
Oncorhynchus mykiss (4)
Osmerus eperlanus (1)
Perca fluviatilis (6)
Platichthys flesus (5)
P. flesus trachurus (1,3)
Rutilus rutilus (6)
Sander lucioperca (6)
Scardinius erythrophthalmus (6)
Tinca tinca (6)
Vimba vimba (6)
Zoarces viviparus (1,3)

Dist.: Lakes Černavu, Dārza, Juglas, Riču, Slokas, Usmas, Žuguru; Daugava, Ogre, Salaca Rivers; Gulf of Riga; Baltic Sea

Records: 1. Vismanis, Eglite & Volkova 1982 (Gulf of Riga); 2. Vismanis 1972, 3. 1987 (Gulf of Riga); 4. Lullu *et al.* 1989 (tanks); 5. Vismanis & Kondratovičs 1995 (Baltic Sea); 6. Kirjusina & Vismanis 2004 (Lakes Černavu, Dārza, Juglas, Riču, Slokas, Usmas, Žuguru; Daugava, Ogre, Salaca Rivers; Baltic Sea)

Remarks: The genus *Diplostomulum* Brandes, 1892 contains diplostomid larvae of similar morphology that cannot, because of their immaturity, be assigned to adult genera (see Niewiadomska 2002).

Larval eye flukes cause diplostomosis (parasitic cataract) in fish, which may result in blindness and death. Vismanis (1972), for example, noted mass mortality of *Gymnocephalus cernuus* and *Coregonus peled* due to these parasites. Vismanis (1978) recorded mass mortality of fry of rainbow trout (*Oncorhynchus mykiss*) due to cercarial diplostomosis.

Hysteromorpha triloba (F)
(Rudolphi, 1819) Lutz, 1931 metacercaria
Syn.: *Neascus musculicola* (Waldenburg, 1860)

Location: musculature
Hosts: *Abramis brama* (1,2,3,4)
Blicca bjoerkna (1,4)
Rutilus rutilus (1,2,3,4)
Sander lucioperca (4)
Scardinius erythrophthalmus (1,2,4)
Tinca tinca (1,4)
Dist.: Lakes Burtnieku, Černavu, Cirma, Juglas, Lielauces, Liepājas, Riču, Sīvers, Usmas
Records: 1. Reinsone 1955a (Lakes Burtnieku, Cirma, Lielauces, Liepājas, Sīvers), 2. 1955b (Lake Sīvers); 3. Vismanis 1961 (Lake Burtnieku); 4. Kirjusina & Vismanis 2004 (Lakes Burtnieku, Černavu, Cirma, Juglas, Lielauces, Liepājas, Riču, Sīvers, Usmas)

Neodiplostomulum sp. metacercaria (F)
Includes: *Neodiplostomum* sp. metacercaria auctorum
Location: vitreous humor of eye
Hosts: *Gymnocephalus cernuus*
Lota lota
Perca fluviatilis
Dist.: Lake Rāznas, Kegums Water Reservoir
Records: Shulman 1949; Kirjusina & Vismanis 2004
Remarks: As *Neodiplostomum* type metacercariae cannot be assigned to adult genera with confidence (see Niewiadomska 2002), these records are referred to the larval genus *Neodiplostomulum*.

Ornithodiplostomum scardinii (F)
(Shulman, 1952) Sudarikov and Kurotshkin, 1968 metacercaria
Syn.: ?*Neascus* sp. of Shulman, 1949
Location: brain
Hosts: *Abramis brama* (3)
Rutilus rutilus (3)
Scardinius erythrophthalmus (1,2,3)
Dist.: Lakes Dārza, Rāznas, Rušons, Sīvers, Slokas, Usmas; Daugava River
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Daugava River); 2. Kirjushina & Vismanis 2003 (Lakes Sīvers, Slokas), 3. 2004 (Lakes Dārza, Rāznas, Rušons, Slokas, Usmas)
Remarks: Based on the host and location, we tentatively refer the report of *Neascus* sp. by Shulman (1949) to this species.

Posthodiplostomum brevicaudatum (F)
(Nordmann, 1832) Wisniewski, 1958 metacercaria
Syn.: *Neascus brevicaudatus* (Nordmann, 1832)
Location: brain, eyes
Hosts: *Carassius carassius* (6)
Esox lucius (9)
Gasterosteus aculeatus (1,9)
Gymnocephalus cernuus (9)
Perca fluviatilis (1,2,3,4,9)
Platichthys flesus trachurus (1,5,7,8,9)
Rutilus rutilus (1,9)
Scardinius erythrophthalmus (1,9)
Tinca tinca (9)
Zoarces viviparus (5)
Dist.: Lakes Alūksnes, Burtnieku, Juglas, Kāla, Liepājas, Rāznas, Riču, Rušons, Sildu, Sīvers, Slokas, Usmas, Žuguru; Kegums Water Reservoir; Daugava, Ogre, Salaca Rivers; Gulf of Riga; Baltic Sea
Records: 1. Shulman 1949 (Lake Rāznas, Rušons; Kegums Water Reservoir; Daugava River; Gulf of Riga); 2. Reinsone 1955a (Lakes Alūksnes, Burtnieku, Kāla, Liepājas), 3. 1959 (Lakes Liepājas, Sīvers); 4. Vismanis 1961 (Lake Burtnieku); 5. Vismanis, Volkova & Eglite 1984 (Gulf of Riga); 6. Vismanis *et al*. 1989 (Lake Sildu); 7. Vismanis & Kondratovičs 1994 (Baltic Sea), 8. 1995 (Baltic Sea); 9. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Burtnieku, Juglas, Kāla, Liepājas, Riču, Slokas, Usmas, Žuguru; Kegums Water Reservoir; Daugava, Ogre, Salaca Rivers; Gulf of Riga)

Posthodiplostomum cuticola (F)
(Nordmann, 1832) Dubois, 1936 metacercaria
Syn.: *Neascus cuticola* Nordmann, 1832
Location: skin
Hosts: *Abramis brama* (1,2,8)
Alburnus alburnus (1,8)
Blicca bjoerkna (1,2,8)
Carassius carassius (2,4,8)
Cyprinus carpio carpio (4,6,7,8)
C. carpio haematopterus (5)
Gymnocephalus cernuus (1,8)
Leuciscus cephalus (8)
L. idus (1,8)
Perca fluviatilis (8)
Rutilus rutilus (1,2,8)
Scardinius erythrophthalmus (1,2,3,8)
Vimba vimba (8)
Dist.: Lakes Cirma, Dārza, Durbes, Juglas, Rāznas, Riču, Rušons, Sīvers, Slokas, Usmas,

Žuguru; Kegums Water Reservoir; Daugava, Lielupe, Ogre, Salaca Rivers

Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava River); 2. Reinsone 1955a (Lakes Cirma, Durbes, Sīvers), 3. 1959 (Lake Sīvers); 4. Grapmane 1957 (ponds); 5. Akhmerov 1961 (ponds); 6. Vismanis & Peslak 1963 (ponds); 7. Vismanis 1964 (ponds); 8. Kirjusina & Vismanis 2004 (Lakes Cirma, Dārza, Durbes, Juglas, Rāznas, Riču, Rušons, Sīvers, Slokas, Usmas, Žuguru; Kegums Water Reservoir; Daugava, Lielupe, Ogre, Salaca Rivers)

Remarks: This larval digenean is the agent of posthodiplostomosis ("blackspot" disease) in fry. The disease causes backbone deformation, tissue distruction, retarded growth and frequent mortality (see Bauer 1987).

Tylodelphys clavata (F)
(Nordmann, 1832) Diesing, 1850
metacercaria

Syn.: *Diplostomum clavatum* Nordmann, 1832

Location: vitreous humor of eye

Hosts: *Abramis brama* (1,2,3,5,6,10)
Alburnus alburnus (2,10)
Aspius aspius (1,10)
Blicca bjoerkna (1,2,5,6,10)
Carassius carassius (5,10)
Cobitis taenia (1,10)
Coregonus albula (2,10)
C. lavaretus (2,10)
Cyprinus carpio carpio (4,7,8,10)
Esox lucius (1,2,3,5,6,10)
Gobio gobio gobio (10)
Gymnocephalus cernuus (1,2,3,5,6,10)
Leucaspius delineatus (5,6,10)
Leuciscus cephalus (6)
L. idus (10)
L. leuciscus (10)
Lota lota (1,2,3,5,10)
Perca fluviatilis (1,2,3,5,6,10,11)
Rutilus rutilus (1,2,3,5,6,9,10)
Sander lucioperca (1,10)
Scardinius erythrophthalmus (1,2,3,5,10)
Tinca tinca (2,5,10)
Vimba vimba (1,10)

Dist.: Lakes Alūksnes, Burtnieku, Černavu, Cirma, Dārza, Durbes, Indra, Juglas, Kāla, Lielauces, Liepājas, Rāznas, Riču, Sildu, Sīvers, Slokas, Rušons, Usmas, Žuguru; Kegums Water Reservoir; Daugava, Līčupe, Ogre, Salaca Rivers; Gulf of Riga

Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava, Līčupe Rivers; Gulf of Riga); 2. Reinsone 1955a (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Kāla, Lielauces, Liepājas, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Lielauces, Liepājas, Sīvers); 5. Grapmane 1957 (ponds); 6. Vismanis 1961 (Lake Burtnieku), 7. 1964 (ponds); 8. Vismanis & Peslak 1963 (ponds); 9. Vismanis *et al.* 1989 (Lake Sildu); 10. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Burtnieku, Černavu, Cirma, Dārza, Durbes, Indra, Juglas, Kāla, Lielauces, Liepājas, Rāznas, Riču, Sildu, Sīvers, Slokas, Rušons, Usmas, Žuguru; Kegums Water Reservoir; Daugava, Līčupe, Ogre, Salaca Rivers; ponds)

FAMILY STRIGEIDAE

Ichthyocotylurus erraticus (F)
(Rudolphi, 1809) Odening, 1969
metacercaria

Syn.: *Tetracotyle coregoni* Dogiel and Akhmerov, 1941
T. intermedia Hughes, 1928

Location: heart, kidney, mesenteries

Hosts: *Coregonus albula* (1,2,3,4,5)
C. lavaretus (2)
Osmerus eperlanus (1,5)

Dist.: Lakes Alūksnes, Cirma, Rāznas, Sīvers; Daugava River

Records: 1. Shulman 1949 (Lake Rāznas, Daugava River); 2. Reinsone 1955a (Lakes Alūksnes, Cirma, Sīvers), 3. 1955b (Lake Alūksnes), 4. 1959 (Lake Sīvers); 5. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Cirma, Rāznas, Sīvers; Daugava River)

Ichthyocotylurus pileatus (F)
(Rudolphi, 1802) Odening, 1969
metacercaria

Location: mesenteries

Hosts: *Gobio gobio gobio* (2)
Gymnocephalus cernuus (2)
Perca fluviatilis (2)
Rutilus rutilus (1,2)
Sander lucioperca (2)

Dist.: Lakes Sildu, Usmas; Ogre River

Records: 1. Vismanis *et al.* 1989 (Lake Sildu); 2. Kirjusina & Vismanis 2004 (Lakes Sildu,Usmas, Ogre River)

Ichthyocotylurus platycephalus (F)
(Creplin, 1825) Odening, 1969
metacercaria
Syn.: *Tetracotyle ovata*
von Linstow, 1877
T. *variegata* (Creplin, 1825)
Cotylurus pileatus auctorum
Location: brain, gills, heart, internal organs, mesenteries
Hosts: *Abramis brama* (1,3,8,11)
Alburnus alburnus (3,11)
Blicca bjoerkna (1,3,8,11)
Carassius auratus auratus (7,11)
C. carassius (1,2,3,5,6,7,11)
Cyprinus carpio carpio (2,5,7,9,11)
C. carpio haematopterus (2)
Esox lucius (3,5,6,11)
Gobio gobio gobio (1,11)
Gymnocephalus cernuus (1,3,4,6,8,11)
Leucaspius delineatus (7,8,11)
Leuciscus cephalus (1,11)
L. idus (1,10,11)
Perca fluviatilis (1,3,4,8,11)
Pungitius pungitius (7,11)
Rutilus rutilus (1,3,6,11)
Sander lucioperca (1,8,11)
Tinca tinca (6,7,11)
Vimba vimba (10)
Dist.: Lakes Burtnieku, Cirma, Durbes, Juglas, Kāla, Liepājas, Rāznas, Rušons, Sīvers, Usmas; Kegums Water Reservoir; Daugava, Lielupe Rivers; Gulf of Riga
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava River; Gulf of Riga); 2. Akhmerov & Grapmane 1954 (ponds); 3. Reinsone 1955a (Lakes Burtnieku, Cirma, Durbes, Kāla, Liepājas, Sīvers), 4. 1955b (Lake Sīvers), 5. 1959 (Lakes Liepājas, Sīvers); 6. Grapmane 1957 (ponds), 7. 1962 (ponds); 8. Vismanis 1961 (Lake Burtnieku), 9. 1964 (ponds); 10. Vismanis, Spirina & Paršuta 1971 (Gulf of Riga); 11. Kirjusina & Vismanis 2004 (Lakes Burtnieku, Cirma, Durbes, Juglas, Kāla, Liepājas, Rāznas, Rušons, Sīvers, Usmas; Kegums Water Reservoir; Daugava, Lielupe Rivers; Gulf of Riga)
Remarks: Vismanis (1961) recorded mortality of *Gymnocephalus cernuus* caused by this species.

Ichthyocotylurus variegatus (F)
(Creplin, 1825) metacercaria
Syn.: *Tetracotyle percaefluviatilis*
von Linstow, 1856
Location: mesenteries
Hosts: *Abramis brama* (1,7)
Blicca bjoerkna (7)
Gymnocephalus cernuus (2,5,7)
Perca fluviatilis (1,2,3,4,5,6,7)
Rutilus rutilus (1,7)
Sander lucioperca (1,7)
Vimba vimba (7)
Dist.: Lakes Alūksnes, Burtnieku, Cirma, Durbes, Juglas, Kāla, Rāznas, Rušons, Sildu, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava River; Gulf of Riga
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava River; Gulf of Riga); 2. Reinsone 1955a (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Kāla, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lake Sīvers); 5. Vismanis 1961 (Lake Burtnieku); 6. Vismanis *et al.* 1989 (Lake Sildu); 7. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Juglas, Kāla, Rāznas, Rušons, Sildu, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava River; Gulf of Riga)

Tetracotyle sp. metacercaria (F)
Location: not given
Hosts: *Cyprinus carpio carpio*
C. carpio haematopterus
Dist.: Latvia (ponds)
Record: Akhmerov 1961
Remarks: *Tetracotyle* De Filippi, 1854 is a larval genus containing diplostomid larvae of similar morphology that cannot be assigned to adult genera (see Niewiadomska 2002).

SUPERFAMILY SCHISTOSOMATOIDEA

FAMILY SANGUINICOLIDAE

Sanguinicola inermis Plehn, 1905 (F)
Location: circulatory system
Host: *Cyprinus carpio carpio*
Dist.: Latvia (ponds)
Records: Akhmerov & Grapmane 1954; Grapmane 1957; Reinsone 1958; Akhmerov 1961; Vismanis 1964, 1972; Kirjusina & Vismanis 2004
Remarks: This blood fluke causes sanguinicolosis and mass mortality in carp fingerlings (see Bauer 1987).

ORDER PLAGIORCHIIDA

SUBORDER HEMIURATA

SUPERFAMILY AZYGIOIDEA

FAMILY AZYGIIDAE

Azygia lucii (O.F. Müller, 1776) Lühe, 1909 (F)
Location: esophagus, intestine, stomach
Hosts: *Esox lucius* (1,2,3,4,5,6,7)
Perca fluviatilis (1,2,3,4,7)
Sander lucioperca (1,7)
Dist.: Lakes Burtnieku, Cirma, Indra, Juglas, Kāla, Liepājas, Rāznas, Rušons, Sildu, Sīvers, Slokas, Usmas; Daugava, Ogre Rivers; Gulf of Riga
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Daugava River; Gulf of Riga); 2. Reinsone 1955a (Lakes Burtnieku, Cirma, Kāla, Liepājas, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Liepājas, Sīvers); 5. Vismanis 1961 (Lake Burtnieku); 6. Vismanis *et al.* 1989 (Lake Sildu); 7. Kirjusina & Vismanis 2004 (Lakes Burtnieku, Cirma, Indra, Juglas, Kāla, Liepājas, Rāznas, Rušons, Sildu, Sīvers, Slokas, Usmas; Daugava, Ogre Rivers; Gulf of Riga)
Remarks: The northern pike (*Esox lucius*) is the primary definitive host for this digenean (see Bauer 1987).

SUPERFAMILY HEMIUROIDEA

FAMILY HEMIURIDAE

Brachyphallus crenatus (Rudolphi, 1802) Odhner, 1905 (B,M)
Location: intestine
Hosts: *Clupea harengus membras* (2,3,4)
Salmo salar (1,4)
Dist.: Daugava River, Gulf of Riga
Records: 1. Shulman 1949 (Daugava River); 2. Vismanis, Eglite & Volkova 1981 (Gulf of Riga); 3. Vismanis, Volkova & Eglite 1984 (Gulf of Riga); 4. Kirjusina & Vismanis 2004 (Daugava River, Gulf of Riga)

SUBORDER BUCEPHALATA

SUPERFAMILY BUCEPHALOIDEA

FAMILY BUCEPHALIDAE

SUBFAMILY BUCEPHALINAE

Bucephalus polymorphus Baer, 1827 (F)
adult and metacercaria
Location: gills, intestine, musculature
Hosts: *Abramis brama* (1,2,3,4,6,10)
Alburnus alburnus (1,10)
Blicca bjoerkna (1,2,6,10)
Carassius carassius (1,5,10)
Cyprinus carpio carpio (5,7,10)
Esox lucius (1,2,3,4,6,10)
Gobio gobio gobio (1,10)
Gymnocephalus cernuus (1,10)
Leucaspius delineatus (6)
Leuciscus cephalus (1,10)
L. leuciscus (1,10)
Pelecus cultratus (1,10)
Perca fluviatilis (1,2,6,9,10)
Phoxinus phoxinus (9,10)
Rutilus rutilus (1,2,6,9,10)
Sander lucioperca (1,10)
Scardinius erythrophthalmus (1,10)
Silurus glanis (1,10)
Tinca tinca (1,4,10)
Vimba vimba (1,8,10)
Dist.: Lakes Burtnieku, Durbes, Juglas, Rāznas, Sildu, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava, Rītupe, Salaca Rivers; Gulf of Riga
Records: 1. Shulman 1949 (Lake Rāznas; Kegums Water Reservoir; Daugava, Rītupe Rivers); 2. Reinsone 1955a (Lakes Burtnieku, Durbes, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lake Sīvers); 5. Grapmane 1957 (ponds); 6. Vismanis 1961 (Lake Burtnieku), 7. 1964 (ponds); 8. Vismanis, Spirina & Paršuta 1971 (Gulf of Riga); 9. Vismanis *et al.* 1989 (Lake Sildu); 10. Kirjusina & Vismanis 2004 (Lakes Burtnieku, Durbes, Juglas, Rāznas, Sildu, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava, Rītupe, Salaca Rivers)
Remarks: Adults occur in the intestine of predatory fish, while metacercariae are found in the musculature and gills of cyprinids and other prey species (see Bauer 1987).

Rhipidocotyle campanula (Dujardin, 1845) (F)
adult and metacercaria
Location: eyes, gills, intestine
Hosts: *Abramis brama* (2)
Alburnus alburnus (2)
Alburnoides bipunctatus (2)
Blicca bjoerkna (2)
Esox lucius (1,2)
Gymnocephalus cernuus (2)
Leuciscus leuciscus (2)
Perca fluviatilis (1,2)
Phoxinus phoxinus (1,2)
Rutilus rutilus (1,2)

Sander lucioperca (2)
Dist.: Lakes Juglas, Sildu, Slokas, Usmas, Žuguru; Daugava, Ogre, Salaca Rivers
Records: 1. Vismanis *et al.* 1989 (Lake Sildu); 2. Kirjusina & Vismanis 2004 (Lakes Juglas, Sildu, Slokas, Usmas, Žuguru; Daugava, Ogre, Salaca Rivers)
Remarks: Adults occur in the intestine of predatory fish, while metacercariae are found mainly in the musculature, gills and eyes of cyprinids (see Bauer 1987).

SUBORDER OPISTHORCHIATA

SUPERFAMILY OPISTHORCHIOIDEA

FAMILY HETEROPHYIDAE

Cryptocotyle concava (Creplin, 1825) (M)
Fischoeder, 1903 metacercaria
Location: gills
Host: *Platichthys flesus trachurus*
Dist.: Baltic Sea
Records: Vismanis & Kondratovičs 1994, 1995

Cryptocotyle sp. metacercaria (M)
Location: gills
Host: *Platichthys flesus trachurus*
Dist.: Gulf of Riga
Record: Vismanis, Volkova & Eglite 1984

SUBORDER MONORCHIATA

SUPERFAMILY MONORCHIOIDEA

FAMILY LISSORCHIIDAE

Asymphylodora imitans (F)
(Muehling, 1898) Looss, 1988
Location: intestine
Hosts: *Abramis brama* (1,2,3,5)
Blicca bjoerkna (1,2,4,5)
Rutilus rutilus (2,3,5)
Dist.: Lakes Burtnieku, Sīvers, Usmas; Daugava River
Records: 1. Shulman 1949 (Daugava River); 2. Reinsone 1955a (Lakes Burtnieku, Sīvers), 3. 1959 (Lake Sīvers); 4. Vismanis 1961 (Lake Burtnieku); 5. Kirjusina & Vismanis 2004 (Lakes Burtnieku, Sīvers, Usmas; Daugava River)

Asymphylodora tincae (Modeer, 1790) (F)
Lühe, 1909
Location: intestine
Host: *Tinca tinca*
Dist.: Lakes Burtnieku, Cirma, Dārza, Durbes, Lielauces, Liepājas Rāznas, Sildu, Sīvers, Slokas; Daugava River
Records: Shulman 1949 (Lake Rāznas, Daugava River); Reinsone 1955a (Lakes Burtnieku, Cirma, Durbes, Lielauces, Liepājas, Sīvers), 1955b (Lake Sīvers), 1959 (Lakes Lielauces, Liepājas, Sīvers); Grapmane 1957 (ponds); Vismanis 1961 (Lake Burtnieku); Vismanis *et al.* 1989 (Lake Sildu); Kirjusina & Vismanis 2004 (Lakes Burtnieku, Cirma, Dārza, Durbes, Lielauces, Liepājas Rāznas, Sildu, Sīvers, Slokas; Daugava River)

Asymphylodora sp. (F)
Location: intestine
Host: *Scardinius erythrophthalmus*
Dist.: Lake Sīvers
Record: Rinsone 1955b

Parasymphylodora markewitschi (F)
(Kulakovskaya, 1947)
Syn.: *Asymphylodora markewitschi* Kulakovskaya, 1947
Location: intestine
Host: *Scardinius erythrophthalmus*
Dist.: Lakes Liepājas, Rāznas, Rušons; Daugava River
Records: Shulman 1949 (Lakes Rāznas, Rušons; Daugava River); Reinsone 1955a (Lake Liepājas), 1959 (Lake Liepājas); Kirjusina & Vismanis 2004 (Lakes Liepājas, Rāznas, Rušons; Daugava River)

Palaeorchis incognitus Szidat, 1943 (F)
Location: intestine
Host: *Rutilus rutilus*
Dist.: Daugava Ri ver
Records: Shulman 1949; Kirjusina & Vismanis 2004

Palaeorchis unicus Szidat, 1943 (F)
Location: intestine
Host: *Blicca bjoerkna*
Dist.: Daugava River
Records: Shulman 1949; Kirjusina & Vismanis 2004

SUBORDER XIPHIDIATA

SUPERFAMILY ALLOCREADIOIDEA

FAMILY ALLOCREADIIDAE

Allocreadium isoporum (Looss, 1894) Odhner, 1901 (F)
Location: intestine
Hosts: *Abramis brama* (4)
Alburnus alburnus (1,2,4)
Blicca bjoerkna (1,2,3,4)
Carassius carassius (1,2,3,4)
Esox lucius (4)
Gobio gobio gobio (1,4)
Leuciscus cephalus (1,4)
L. idus (1,4)
L. leuciscus (4)
Rutilus rutilus (1,2,3,4)
Scardinius erythrophthalmus (1,2,3,4)
Tinca tinca (4)
Dist.: Lakes Alūksnes, Dārza, Durbes, Juglas, Lielauces, Liepājas, Rāznas, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava, Ogre Rivers
Records: 1. Shulman 1949 (Lake Rāznas, Kegums Water Reservoir, Daugava River); 2. Reinsone 1955a (Lakes Alūksnes, Durbes, Lielauces, Liepājas, Sīvers), 3. 1959 (Lakes Lielauces, Liepājas, Sīvers); 4. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Dārza, Durbes, Juglas, Lielauces, Liepājas, Rāznas, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava, Ogre Rivers)

Allocreadium transversale (Rudolphi, 1802) Odhner, 1901 (F)
Location: intestine
Hosts: *Carassius carassius* (1,2,3)
*Rutilus rutilus (*1,2,3)
Dist.: Lakes Černavu, Liepājas, Sīvers
Records: 1. Reinsone 1955a (Lakes Liepājas, Sīvers), 2. 1959 (Lakes Liepājas, Sīvers); 3. Kirjusina & Vismanis 2004 (Lakes Černavu, Liepājas, Sīvers)

Bunodera luciopercae (O.F. Müller, 1776) Lühe, 1909 (F)
Location: intestine
Hosts: *Esox lucius* (2,4)
Gymnocephalus cernuus (2,7)
Perca fluviatilis (1,2,3,4,5,6,7)
Sander lucioperca (1,7)
Dist.: Lakes Burtnieku, Cirma, Durbes, Juglas, Lielauces, Liepājas, Rāznas, Riču, Sildu, Sīvers, Slokas, Usmas; Daugava, Ogre, Salaca Rivers; Gulf of Riga
Records: 1. Shulman 1949 (Lake Rāznas, Daugava River, Gulf of Riga); 2. Reinsone 1955a (Lakes Burtnieku, Cirma, Durbes, Lielauces, Liepājas, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Lielauces, Liepājas, Sīvers); 5. Vismanis 1961 (Lake Burtnieku); 6. Vismanis *et al.* 1989 (Lake Sildu); 7. Kirjusina & Vismanis 2004 (Lakes Burtnieku, Cirma, Durbes, Juglas, Lielauces, Liepājas, Rāznas, Riču, Sildu, Sīvers, Slokas, Usmas; Daugava, Ogre, Salaca Rivers; Gulf of Riga)

Crepidostomum farionis (O.F.Müller, 1780) Lühe, 1909 (F)
Location: intestine
Host: *Coregonus lavaretus*
Dist.: Daugava River
Records: Shulman 1949; Kirjusina & Vismanis 2004

FAMILY OPECOELIDAE

Nicolla skrjabini (Ivanitsky, 1928) (F)
Syn.: *Coitocaecum skrjabini* Ivanitsky, 1928
Location: intestine
Hosts: *Gymnocephalus cernuus* (1,3)
Platichthys flesus trachurus (1,2,3)
Silurus glanis (1,3)
Dist.: Kegums Water Reservoir, Daugava River, Baltic Sea
Records: 1. Shulman 1949 (Kegums Water Reservoir, Daugava River); 2. Vismanis & Kondratovičs 1994 (Baltic Sea); 3. Kirjusina & Vismanis 2004 (Kegums Water Reservoir, Daugava River)

Sphaerostomum bramae (O.F. Müller, 1776) Lühe, 1909 (F)
Location: intestine
Hosts: *Abramis brama* (2,3,5)
Alburnus alburnus (1,2)
Anguilla anguilla (1,2,3,5)
Blicca bjoerkna (1,2,3,5)
Esox lucius (4)
Leucaspius delineatus (4)
Leuciscus cephalus (5)
L. idus (5)
Rutilus rutilus (2,3,5)
Vimba vimba (1,5)
Dist.: Lakes Burtnieku, Juglas, Kāla, Liepājas, Rāznas, Sīvers, Usmas, Žuguru; Daugava, Ogre Rivers; Gulf of Riga
Records: 1. Shulman 1949 (Lake Rāznas,

Daugava River, Gulf of Riga); 2. Reinsone 1955a (Lakes Burtnieku, Kāla, Liepājas, Sīvers), 3. 1959 (Lakes Liepājas, Sīvers); 4. Vismanis 1961 (Lake Burtnieku); 5. Kirjusina & Vismanis 2004 (Lakes Burtnieku, Juglas, Kāla, Liepājas, Rāznas, Sīvers, Usmas, Žuguru; Daugava, Ogre Rivers; Gulf of Riga)

Plagioporus angusticolle (Hausmann, 1896) Dobrovolny, 1939 (F)
Syn.: *Allocreadium angusticolle* Hausmann, 1896
Location: intestine
Hosts: *Alburnoides bipunctatus* (2)
Cottus gobio (1,2)
Leuciscus idus (1,2)
Dist.: Daugava, Ogre Rivers
Records: 1. Shulman 1949 (Daugava River); 2. Kirjusina & Vismanis 2004 (Daugava, Ogre Rivers)

SUPERFAMILY GORGODEROIDEA

FAMILY GORGODERIDAE

Phyllodistomum angulatum von Linstow, 1907 (F)
Location: urinary bladder
Hosts: *Perca fluviatilis*
Sander lucioperca
Dist.: Daugava River, Gulf of Riga
Records: Shulman 1949; Kirjusina & Vismanis 2004

Phyllodistomum elongatum Nybelin, 1926 (F)
Location: ureters, urinary bladder
Hosts: *Abramis brama* (1,3)
Aspius aspius (1,3)
Blicca bjoerkna (1,3)
Leuciscus leuciscus (1,5)
Rutilus rutilus (1,2,3)
Tinca tinca (3)
Vimba vimba (1,3)
Dist.: Lakes Dārza, Riču, Rušons, Sildu, Slokas; Kegums Water Reservoir; Daugava River
Records: 1. Shulman 1949 (Lake Rušons, Kegums Water Reservoir, Daugava River); 2. Vismanis *et al.* 1989 (Lake Sildu); 3. Kirjusina & Vismanis 2004 (Lakes Dārza, Riču, Rušons, Sildu, Slokas; Kegums Water Reservoir; Daugava River)

Phyllodistomum folium (Olfers, 1916) Braun, 1899 (F)
Location: ureters, urinary bladder
Hosts: *Abramis brama* (1,7)
Alburnus alburnus (1,7)
Carassius carassius (1,7)
Esox lucius (1,2,3,4,5,6,7)
Gasterosteus aculeatus (7)
Gymnocephalus cernuus (7)
Dist.: Lakes Burtnieku, Cirma, Durbes, Juglas, Kāla, Lielauces, Liepājas, Rāznas, Rušons, Sildu, Sīvers, Usmas, Žuguru; Kegums Water Reservoir; Daugava River
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir); 2. Reinsone 1955a (Lakes Burtnieku, Cirma, Durbes, Kāla, Lielauces, Liepājas, Sīvers), 3. 1955b (Lake Sivers), 4. 1959 (Lakes Lielauces, Liepājas, Sīvers); 5. Vismanis 1961 (Lake Burtnieku); 6. Vismanis *et al.* 1989 (Lake Sildu); 7. Kirjusina & Vismanis 2004 (Lakes Burtnieku, Cirma, Durbes, Juglas, Kāla, Lielauces, Liepājas, Rāznas, Rušons, Sildu, Sīvers, Usmas, Žuguru; Kegums Water Reservoir; Daugava River)

Phyllodistomum megalorchis Nybelin, 1926 (F)
Location: urinary bladder
Hosts: *Gymnocephalus cernuus*
Lota lota
Dist.: Lake Rāznas
Records: Shulman 1949; Kirjusina & Vismanis 2004

Phyllodistomum pseudofolium Nybelin, 1926 (F)
Location: ureters, urinary bladder
Hosts: *Gymnocephalus cernuus* (1,2,3,4,5)
Perca fluviatilis (2,4,5)
Dist.: Lakes Cirma, Liepājas, Rāznas, Sīvers; Kegums Water Reservoir
Records: 1. Shulman 1949 (Lake Rāznas, Kegums Water Reservoir); 2. Reinsone 1955a (Lakes Cirma, Liepājas, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Liepājas, Sīvers); 5. Kirjusina & Vismanis 2004 (Lakes Cirma, Liepājas, Rāznas, Sīvers; Kegums Water Reservoir)

Phyllodistomum simile Nybelin, 1926 (F)
Location: urinary bladder
Host: *Cottus gobio*
Dist.: Daugava River

Records: Shulman 1949; Kirjusina & Vismanis 2004

CLASS MONOGENOIDEA

SUBCLASS POLYONCHOINEA

ORDER GYRODACTYLIDEA

FAMILY GYRODACTYLIDAE

Gyrodactylus aeglefini (M)
Bychowsky and Polyansky, 1953
Location: gills
Host: *Gadus morhua callarias*
Dist.: Gulf of Riga, Baltic Sea
Records: Vismanis 1986, 1987; Vismanis, Volkova & Eglite 1986; Vismanis, Eglite & Volkova 1986 ; Kirjusina & Vismanis 2004 (Gulf of Riga)

Gyrodactylus cernuae (F,B)
Malmberg, 1957
Location: gills
Host: *Gymnocephalus cernuus*
Dist.: Lake Juglas
Record: Kirjusina & Vismanis 2004

Gyrodactylus elegans Nordmann, 1832 (F)
Location: gills, skin
Hosts: *Alburnus alburnus* (2)
Leucaspius delineatus (1)
Tinca tinca (1)
Dist.: Latvia (ponds)
Records: 1. Grapmane 1957; 2. Reinsone 1958
Remarks: Reports of *G. elegans* prior to 1964 should be treated with caution. Malmberg (1964) reported that the normal host is *Abramis brama*. Bauer (1985) noted that records from fishes other than *A. brama, A. sapa* or *Cyprinus carpio carpio* mostly do not involve either *G. katharineri* or *G. elegans*.

Gyrodactylus errabundus (B,M)
Malmberg, 1970
Location: skin
Host: *Zoarces viviparus*
Dist.: Gulf of Riga
Records: Vismanis, Volkova & Eglite 1984; Vismanis 1986

Gyrodactylus flexibiliradix (B,M)
Malmberg, 1970
Location: gills
Host: *Platichthys flesus trachurus*
Dist.: Gulf of Riga, Baltic Sea
Records: Vismanis, Volkova & Eglite 1986 (Gulf of Riga); Vismanis 1987 (Gulf of Riga); Vismanis & Kondratovičs 1994 (Baltic Sea), 1995 (Baltic Sea); Kirjusina & Vismanis 2004 (Gulf of Riga)

Gyrodactylus gasterostei Ergens, 1980 (F)
Location: gills
Host: *Rutilus rutilus*
Dist.: Lake Garmužas
Records: Kirjusina & Vismanis 2001, 2004

Gyrodactylus gobiensis Gläser, 1974 (F)
Location: gills
Host: *Gobio gobio gobio*
Dist.: Ogre River
Records: Kirjusina & Vismanis 2001, 2004

Gyrodactylus gobii Shulman, 1954 (F)
Location: fins, gills
Host: *Gobio gobio gobio*
Dist.: Lake Rāznas
Records: Shulman 1949; Kirjusina & Vismanis 2004

Gyrodactylus katharineri (F)
Malmberg, 1964
Location: gills, skin
Hosts: *Carassius auratus auratus* (1,2)
C. carassius (1)
Cyprinus carpio carpio (1,2,3,4,5,6)
Dist.: Latvia (ponds)
Records: 1. Grapmane 1957; 2. Reinsone 1958; 3. Akhmerov 1961; 4. Vismanis & Peslak 1963; 5. Vismanis 1964; 6. Kirjusina & Vismanis 2004
Remarks: This pathogenic species causes outbreaks of disease in fingerling and yearling carp in ponds during the winter-spring period.

Apparently the main hosts for *G. katharineri* are only *Cyprinus carpio carpio* and *Carassius carassius.* Other fishes probably are accidentally or temporarily infected. Previously, this species was confused with *G. elegans* von Nordman, 1832 (see Bauer 1985).

Gyrodactylus longoacuminatus (F)
Žitňan, 1964
Includes: *Gyrodactylus longoacuminatus* f. *typica*

Location: gills
Host: *Carassius auratus auratus*
Dist.: Salaca River
Records: Kirjusina & Vismanis 2001, 2004

Gyrodactylus markakulensis Gvosdev, 1950 (F)
Location: gills
Host: *Gobio gobio gobio*
Dist.: Lakes Rāznas
Record: Shulman 1949

Gyrodactylus medius Kathariner, 1893 (F)
Location: gills
Hosts: *Carassius auratus auratus* (2,6,7)
C. carassius (2,7)
Cyprinus carpio carpio (2,3,5)
C. carpio haematopterus (4)
Gasterosteus aculeatus (2)
Leucaspius delineatus (2)
Tinca tinca (2,7)
Dist.: Latvia (ponds)
Records: 1. Akhmerov & Grapmane 1954; 2. Grapmane 1957; 3. Akhmerov 1961; 4. Vismanis & Peslak 1963; 5. Vismanis 1964, 6. 1972; 7. Kirjusina & Vismanis 2004
Remarks: According to Bauer (1985), this species is specific to *Cyprinus carpio carpio*. Records from other fish species may involve misidentifications or temporary infections.

Gyrodactylus perlucidus Bychowsky and Polyansky, 1953 (B,M)
Location: gills
Host: *Zoarces viviparus*
Dist.: Gulf of Riga
Records: Vismanis, Volkova & Eglite 1984; Vismanis 1986, 1987; Kirjusina & Vismanis 2004

Gyrodactylus pharyngicus Malmberg, 1964 (M)
Location: gills
Host: *Gadus morhua callarias*
Dist.: Gulf of Riga
Records: Vismanis, Eglīte & Volkova 1986; Kirjusina & Vismanis 2004

Gyrodactylus prostae Ergens, 1963 (F)
Location: gills
Host: *Leuciscus idus*
Dist.: Salaca River
Records: Kirjusina & Vismanis 2001, 2004

Gyrodactylus rarus Wegener, 1910 (F,B)
Location: fins, gills
Host: *Gasterosteus aculeatus*
Dist.: Daugava River, Gulf of Riga
Records: Shulman 1949; Kirjusina & Vismanis 2004

Gyrodactylus truttae Gläser, 1974 (F)
Location: fins
Host: *Oncorhynchus mykiss*
Dist.: Latvia (tanks)
Record: Lullu, Vismanis & Bakhtina 1989

Gyrodactylus vimbi Shulman, 1954 (F)
Location: gills
Host: *Vimba vimba*
Dist.: Daugava River
Records: Shulman 1949; Kirjusina & Vismanis 2004

Gyrodactylus sp. (F)
Location: fins, gills
Hosts: *Coregonus peled* (2,3)
Esox lucius (3)
Leucaspius delineatus (2,3)
Pungitius pungitius (2,3)
Rutilus rutilus (1,3)
Vimba vimba (1,3)
Dist.: Lake Slokas, Kegums Water Reservoir, Daugava River
Records: 1. Shulman 1949 (Kegums Water Reservoir, Daugava River); 2. Grapmane 1962 (ponds); 3. Kirjusina & Vismanis 2004 (Lake Slokas, Kegums Water Reservoir, Daugava River, ponds)

ORDER DACTYLOGYRIDEA

SUBORDER DACTYLOGYRINEA

FAMILY DACTYLOGYRIDAE

Ancyrocephalus cruciatus (Wedl, 1857) Lühe, 1909 (F)
Location: gills
Host: *Misgurnus fossilis*
Dist.: Lake Višķu
Records: Kirjusina & Vismanis 2001, 2004

Ancyrocephalus paradoxus Creplin, 1839 (F)
Location: gills
Host: *Sander lucioperca*

Dist.: Lakes Juglas, Usmas; Daugava, River; Gulf of Riga
Records: Shulman 1949 (Daugava River, Gulf of Riga); Kirjusina & Vismanis 2004 (Lakes Juglas, Usmas; Daugava, River; Gulf of Riga)

Ancyrocephalus percae Ergens, 1966 (F)
Includes: *Ancyrocephalus paradoxus* auctorum
Location: gills
Host: *Perca fluviatilis*
Dist.: Lakes Burtnieku, Rāznas, Sildu, Sīvers, Usmas; Kegums Water Reservoir; Daugava River
Records: Shulman 1949 (Lake Rāznas, Kegums Water Reservoir, Daugava River); Reinsone 1955a (Lakes Burtnieku, Sīvers), 1959 (Lake Sīvers); Vismanis 1961 (Lake Burtnieku); Vismanis *et al*. 1989 (Lake Sildu); Kirjusina & Vismanis 2004 (Lakes Burtnieku, Rāznas, Sildu, Sīvers, Usmas; Kegums Water Reservoir; Daugava River)

Dactylogyrus achmerowi Gusev, 1955 (F)
Location: gills
Hosts: *Cyprinus carpio carpio* (2,4,5,6)
C. carpio haematopterus (1,3,4)
Dist.: Latvia (ponds)
Records: 1. Akhmerov & Grapmane 1954; 2. Grapmane 1957; 3. Akhmerov 1961; 4. Vismanis & Peslak 1963; 5. Vismanis 1964; 6. Kirjusina & Vismanis 2004
Remarks: This species is thought to have been carried to European carp farms with *Cyprinus carpio haematopterus* and distributed to natural waters (see Bauer 1985).

Dactylogyrus alatus (F)
von Linstow, 1878
Includes: *D. actylogyrus alatus* f. *typica*
Location: gills
Host: *Alburnus alburnus*
Dist.: Lakes Rušons, Slokas; Salaca River
Records: Shulman 1949 (Lake Rušons); Vismanis & Popov 1990 (Salaca River); Kirjusina & Vismanis 2004 (Lakes Rušons, Slokas; Salaca River)

Dactylogyrus amphibothrium (F)
Wagener, 1857
Location: gills
Host: *Gymnocephalus cernuus*
Dist.: Lakes Burtnieku, Cirma, Durbes, Juglas, Rāznas, Rušons, Sīvers, Usmas, Vilgāles; Kegums Water Reservoir; Daugava, Ogre Rivers
Records: Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava River); Reinsone 1955a (Lakes Burtnieku, Cirma, Durbes, Sīvers), 1959 (Lake Sīvers); Vismanis 1961 (Lake Burtnieku); Kirjusina & Vismanis 2004 (Lakes Burtnieku, Cirma, Durbes, Juglas, Rāznas, Rušons, Sīvers, Usmas, Vilgāles; Kegums Water Reservoir; Daugava, Ogre Rivers)

Dactylogyrus anchoratus (F)
(Dujardin, 1845) Wagener, 1857
Location: gills
Hosts: *Carassius auratus auratus* (5,12)
C. carassius (1,2,3,4,5,7,11,12)
Cyprinus carpio carpio (2,5,6,8,9,10,12)
C. carpio haematopterus (9)
Dist.: Lakes Lielauces, Liepājas, Rāznas, Sildu, Sīvers, Usmas; Daugava, Lielupe Rivers
Records: 1. Shulman 1949 (Lake Rāznas, Daugava River); 2. Akhmerov & Grapmane 1954 (ponds); 3. Reinsone 1955a (Lakes Lielauces, Liepājas, Sīvers), 4. 1955b (Lakes Sīvers), 5. 1958 (ponds), 6. 1959 (Lakes Lielauces, Liepājas, Sīvers); 7. Grapmane 1957 (ponds); 8. Akhmerov 1961 (ponds); 9. Vismanis & Peslak 1963 (ponds); 10. Vismanis 1964 (ponds); 11. Vismanis *et al.* 1989 (Lake Sildu); 12. Kirjusina & Vismanis 2004 (Lakes Lielauces, Liepājas, Rāznas, Sildu, Sīvers, Usmas; Daugava, Lielupe Rivers, ponds)
Remarks: This species is pathogenic to yearling common carp and can cause mortality (see Bauer 1985).

Dactylogyrus auriculatus (F)
(Nordmann, 1832) Diesing, 1850
Location: gills
Host: *Abramis brama*
Dist.: Lakes Burtnieku, Duņas, Slokas, Usmas, Vīragnas; Daugava, Lielupe, Salaca Rivers; Gulf of Riga
Records: Vismanis 1961 (Lake Burtnieku); Kirjusina & Vismanis 2004 (Lakes Burtnieku, Duņas, Slokas, Usmas, Vīragnas; Daugava, Lielupe, Salaca Rivers; Gulf of Riga)

Dactylogyrus baueri Gusev, 1955 (F)
Location: gills
Host: *Carassius carassius*
Dist.: Lakes Juglas, Slokas, Sunīšu, Vīragnas
Records: Vismanis & Popov 1993 (Lake

Vīragnas); Kirjusina & Vismanis 2004 (Lakes Juglas, Slokas, Sunīšu, Vīragnas)

Dactylogyrus caballeroi Prost, 1960 (F)
Location: gills
Host: *Rutilus rutilus*
Dist.: Lakes Sildu, Slokas, Usmas; Daugava River
Records: Vismanis *et al.* 1989 (Lake Sildu); Kirjusina & Vismanis 2004 (Lakes Sildu, Slokas, Usmas; Daugava River)

Dactylogyrus cordus Nybelin, 1937 (F)
Location: gills
Hosts: *Leuciscus cephalus* (1,2)
L. leuciscus (2)
Dist.: Lake Burtnieku, Ogre River
Records: 1. Vismanis 1961 (Lake Burtnieku); 2. Kirjusina & Vismanis 2004 (Lake Burtnieku, Ogre River)

Dactylogyrus cornoides (F)
Gläser and Gusev, 1967
Location: gills
Host: *Vimba vimba*
Dist.: Gauja, Salaca Rivers
Records: Vismanis & Popov 1990 (Gauja River); Kirjusina & Vismanis 2004 (Gauja, Salaca Rivers)

Dactylogyrus cornu von Linstow, 1878 (F)
Location: gills
Hosts: *Abramis brama* (4)
Blicca bjoerkna (1,2,4)
Vimba vimba (1,3,4)
Dist.: Lakes Burtnieku, Dzirnezers, Rāznas, Rušons, Usmas; Kegums Water Reservoir; Daugava, Lielupe, Salaca Rivers; Gulf of Riga
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava River; Gulf of Riga); 2. Vismanis 1961 (Lake Burtnieku); 3. Vismanis, Spirina & Paršuta 1971 (Gulf of Riga); 4. Kirjusina & Vismanis. 2004 (Lakes Burtnieku, Dzirnezers, Rāznas, Rušons, Usmas; Kegums Water Reservoir; Daugava, Lielupe, Salaca Rivers; Gulf of Riga)

Dactylogyrus crassus Kulwiec, 1927 (F)
Location: gills
Hosts: *Carassius carassius* (1,2)
Rutilus rutilus (2)
Dist.: Lakes Sildu, Rāznas; Daugava River
Records: 1. Shulman 1949 (Lake Rāznas, Daugava River); 2. Kirjusina & Vismanis 2004 (Lakes Sildu, Rāznas; Daugava River)

Dactylogyrus crucifer Wagener, 1857 (F)
Location: gills
Hosts: *Rutilus rutilus* (1,2,3,4,5,6)
Scardinius erythrophthalmus (2,6)
Dist.: Lakes Alūksnes, Burtnieku, Cirma, Duņas, Durbes, Dzirnezers, Juglas, Lielauces, Rāznas, Rušons, Sildu, Sīvers, Slokas, Usmas, Vilgāles, Vīragnas; Kegums Water Reservoir; Daugava, Lielupe, Ogre, Salaca Rivers
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava River); 2. Reinsone 1955a (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Lielauces, Sīvers), 3. 1959 (Lakes Lielauces, Sīvers); 4. Vismanis 1961 (Lake Burtnieku); 5. Vismanis *et al.* 1989 (Lake Sildu); 6. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Burtnieku, Cirma, Duņas, Durbes, Dzirnezers, Juglas, Lielauces, Rāznas, Rušons, Sildu, Sīvers, Slokas, Usmas, Vilgāles, Vīragnas; Kegums Water Reservoir; Daugava, Lielupe, Ogre, Salaca Rivers)
Remarks: This species is a parasite of the roach (*Rutilus rutilus*). Reports from other other fish species may involve temporary infections or misidentifications (see Bauer 1985).

Dactylogyrus cryptomeres (F)
Bychowsky, 1934
Includes: *D. cryptomeres* f. *typica*
Location: gills
Host: *Gobio gobio gobio*
Dist.: Ogre River
Record: Kirjusina & Vismanis 2004

Dactylogyrus difformis Wagener, 1857 (F)
Location: gills
Hosts: *Blicca bjoerkna* (2,4)
Scardinius erythrophthalmus (1,2,3,4,5)
Dist.: Lakes Burtnieku, Lielauces, Liepājas, Rāznas, Rušons, Sīvers, Slokas, Usmas; Daugava River
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Daugava River); 2. Reinsone 1955a (Lakes Lielauces, Liepājas, Sīvers), 3. 1959 (Lakes Lielauces, Liepājas, Sīvers); 4. Vismanis 1961 (Lake Burtnieku); 5. Kirjusina & Vismanis. 2004 (Lakes Lielauces, Liepājas,

Rāznas, Rušons, Sīvers, Slokas, Usmas; Daugava River)
Remarks: This species is a parasite of *Scardinius erythrophthalmus*. Reports from other other fish species may involve temporary infections or misidentifications (see Bauer 1985).

Dactylogyrus difformoides (F)
Gläser and Gusev, 1967
Location: gills
Hosts: *Rutilus rutilus* (1)
Scardinius erythrophthalmus (1,2)
Dist.: Lakes Kaņieris, Slokas, Usmas
Records: 1. Vismanis & Popov 1993 (Lake Kaņieris); 2. Kirjusina & Vismanis. 2004 (Lakes Kaņieris, Slokas, Usmas)

Dactylogyrus distinguendus (F)
Nybelin,1937
Location: gills
Hosts: *Abramis brama* (1,2)
Blicca bjoerkna (2)
Vimba vimba (1,2)
Dist.: Lakes Dzirnezers, Pelēča, Slokas; Daugava, Gauja Rivers
Records: 1. Vismanis & Popov 1990 (Daugava, Gauja Rivers); 2. Kirjusina & Vismanis 2004 (Lakes Dzirnezers, Pelēča, Slokas; Daugava, Gauja Rivers)

Dactylogyrus dulkeiti (F)
Bychowsky, 1936
Location: gills
Host: *Carassius carassius*
Dist.: Lakes Laidzes, Slokas, Sunīšu
Records: Kirjusina & Vismanis 2001 (Lakes Laidzes, Sunīšu), 2004 (Lakes Laidzes, Slokas, Sunīšu)

Dactylogyrus extensus (F)
Mueller and Van Cleave, 1932
Syn.: *Dactylogyrus solidus*
Akhmerov, 1948
Location: gills
Hosts: *Cyprinus carpio carpio*
(1,2,3,4,5,6,7,8,9,10)
C. carpio haematopterus (1,4,5)
Dist.: Lake Sildu
Records: 1. Akhmerov & Grapmane 1954 (ponds); 2. Grapmane 1957 (ponds); 3. Reinsone 1958 (ponds); 4. Akhmerov 1961 (ponds); 5. Vismanis & Peslak 1963 (ponds); 6. Vismanis 1964 (ponds); 7. 1972 (ponds); 8. Vismanis, Ivanova & Soldatkina 1975 (ponds); 9. Vismanis *et al.* 1989 (Lake Sildu); 10. Kirjusina & Vismanis. 2004 (Lake Sildu, ponds)
Remarks: This species undergoes intensive reproduction at water temperatures of 10 – 15 ^{o}C (occasionally at 5–10 ^{o}C). Thus, cases of disease are seen in carp at the end of winter. It is more pathogenic to carp of age 1 and 1+.

Dactylogyrus falcatus (Wedl, 1857) (F)
Diesing, 1858
Location: gills
Host: *Abramis brama*
Dist.: Lakes Burtnieku, Rušons, Usmas, Vīragnas; Kegums Water Reservoir; Daugava, Lielupe, Salaca Rivers
Records: Shulman 1949 (Lake Rušons, Kegums Water Reservoir, Daugava River); Vismanis 1961 (Lake Burtnieku); Kirjusina & Vismanis 2004 (Lakes Burtnieku, Rušons, Usmas, Vīragnas; Kegums Water Reservoir; Daugava, Lielupe, Salaca Rivers)

Dactylogyrus fallax Wagener, 1857 (F)
Location: gills
Hosts: *Alburnus alburnus* (3)
Blicca bjoerkna (1,3)
Leuciscus cephalus (3)
L. idus (3)
Rutilus rutilus (2,3)
Scardinius erythrophthalmus (3)
Vimba vimba (3)
Dist.: Lakes Burtnieku, Sildu, Slokas, Usmas; Daugava, Lielupe, Salaca Rivers
Records: 1. Vismanis 1961 (Lake Burtnieku); 2. Vismanis *et al.* 1989 (Lake Sildu); 3. Kirjusina & Vismanis 2004 (Lakes Burtnieku, Sildu, Slokas, Usmas; Daugava, Lielupe, Salaca Rivers)

Dactylogyrus folkmanovae (F)
Ergens, 1956
Location: gills
Host: *Leuciscus cephalus*
Dist.: Ogre River
Records: Kirjusina & Vismanis 2001, 2004
Remarks: This species has been considered a synonym of *D. nanus* Dogiel and Bychowsky, 1934 (see Gibson, Timofeeva & Gerasev 1996).

Dactylogyrus formosus Kulwiec, 1927 (F)
Location: gills
Host: *Carassius carassius*

Dist.: Lakes Rāznas, Sunīšu, Vīragnas, Višķu; Daugava River
Records: Shulman 1949 (Lake Rāznas, Daugava River); Kirjusina & Vismanis 2004 (Lakes Rāznas, Sunīšu, Vīragnas, Višķu; Daugava River)

Dactylogyrus fraternus Wegener, 1910 (F)
Location: gills
Hosts: *Alburnus alburnus* (1,2,4)
Leucaspius delineatus (3)
Dist.: Lakes Alūksnes, Burtnieku, Dzirnezers, Rāznas, Rušons; Kegums Water Reservoir; Daugava, Lielupe, Ogre Rivers; Gulf of Riga
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava River; Gulf of Riga); 2. Reinsone 1955a (Lakes Alūksnes, Burtnieku); 3. Vismanis 1961 (Lake Burtnieku); 4. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Burtnieku, Dzirnezers, Rāznas, Rušons; Kegums Water Reservoir; Daugava, Lielupe, Ogre Rivers; Gulf of Riga)

Dactylogyrus gobii Gvozdev, 1950 (F)
Location: gills
Host: *Gobio gobio gobio*
Dist.: Ogre River
Records: Kirjusina & Vismanis 2001, 2004

Dactylogyrus hemiamphibothrium (F)
Ergens, 1956
Location: gills
Host: *Gymnocephalus cernuus*
Dist.: Lakes Juglas, Usmas; Daugava, Ogre Rivers
Records: Vismanis & Popov 1990 (Lake Juglas, Daugava River); Kirjusina & Vismanis 2004 (Lakes Juglas, Usmas; Daugava, Ogre Rivers)

Dactylogyrus inexpectatus (F)
Izyumova in Gusev, 1955
Location: gills
Hosts: *Carassius auratus auratus* (1)
C. carassius (1,2)
Dist.: Lakes Duņas, Sildu; Salaca River
Records: 1. Vismanis & Popov 1990 (Lakes Duņas, Sildu); 2. Kirjusina & Vismanis 2004 (Lakes Duņas, Sildu; Salaca River)

Dactylogyrus intermedius (F)
Wegener, 1910
Location: gills
Host: *Carassius carassius*
Dist.: Lakes Duņas, Rāznas, Slokas, Vīragnas, Višķu; Daugava River
Records: Shulman 1949 (Lake Rāznas, Daugava River); Kirjusina & Vismanis 2004 (Lakes Duņas, Rāznas, Slokas, Vīragnas, Višķu; Daugava River)

Dactylogyrus izjumovae Gusev, 1966 (F)
Location: gills
Hosts: *Rutilus rutilus* (1)
Scardinius erythrophthalmus (1,2)
Dist.: Lakes Kaņieris, Slokas
Records: 1. Vismanis & Popov 1993 (Lake Kaņieris); 2. Kirjusina 2004 (Lake Slokas)

Dactylogyrus macracanthus (F)
Wegener, 1910
Location: gills
Host: *Tinca tinca*
Dist.: Lakes Lielauces, Rāznas, Sildu, Sīvers; Daugava River
Records: Shulman 1949 (Lake Rāznas, Daugava River); Akhmerov & Grapmane 1954 (ponds); Reinsone 1955a (Lakes Lielauces, Sīvers), 1955b (Lake Sīvers), 1959 (Lakes Lielauces, Sīvers); Grapmane 1957 (ponds); Vismanis *et al*. 1989 (Lake Sildu); Kirjusina & Vismanis 2004 (Lakes Lielauces, Rāznas, Sildu, Sīvers; Daugava River, ponds)

Dactylogyrus micracanthus (F)
Nybelin, 1937
Location: gills
Hosts: *Alburnus alburnus* (2)
Rutilus rutilus (1,2)
Dist.: Lakes Duņas, Slokas; Daugava River
Records: 1. Vismanis & Popov 1990 (Lake Duņas, Daugava River); 2. Kirjusina & Vismanis. 2004 (Lakes Duņas, Slokas; Daugava River)

Dactylogyrus minor Wagener, 1857 (F)
Location: gills
Host: *Alburnus alburnus*
Dist.: Lakes Rāznas, Rušons, Slokas; Kegums Water Reservoir; Daugava, Lielupe, Ogre Rivers; Gulf of Riga
Records: Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava River; Gulf of Riga); Kirjusina & Vismanis 2004 (Lakes Rāznas, Rušons, Slokas; Kegums Water Reservoir; Daugava, Lielupe, Ogre Rivers; Gulf of Riga)

Dactylogyrus minutus Kulwiec, 1927 (F)
Location: gills
Host: *Cyprinus carpio carpio*
Dist.: Latvia (ponds)
Records: Akhmerov & Grapmane 1954; Grapmane 1957; Akhmerov 1961; Kirjusina & Vismanis 2004

Dactylogyrus nanoides Gusev, 1966 (F)
Location: gills
Host: *Leuciscus cephalus*
Dist.: Ogre River
Records: Kirjusina & Vismanis 2001; 2004

Dactylogyrus nanus (F)
Dogiel and Bychowsky, 1934
Location: gills
Hosts: *Gymnocephalus cernuus* (2)
Rutilus rutilus (1,3,4)
Dist.: Lakes Dzirnezers, Juglas, Rāznas, Rušons, Sildu, Slokas, Usmas; Daugava River
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Daugava River); 2. Reinsone 1955b (Lake Sīvers); 3. Vismanis *et al.* 1989 (Lake Sildu); 4. Kirjusina & Vismanis 2004 (Lakes Dzirnezers, Juglas, Rāznas, Rušons, Sildu, Slokas, Usmas; Daugava River)

Dactylogyrus parvus Wegener, 1910 (F)
Location: gills
Host: *Alburnus alburnus*
Dist.: Lakes Dzirnezers, Rāznas, Rušons, Slokas; Kegums Water Reservoir; Daugava, Lielupe, Ogre Rivers; Gulf of Riga
Records: Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava River; Gulf of Riga); Kirjusina & Vismanis 2004 (Lakes Dzirnezers, Rāznas, Rušons, Slokas; Kegums Water Reservoir; Daugava, Lielupe, Ogre Rivers; Gulf of Riga)

Dactylogyrus ramulosus (F)
Malevitskaya, 1941
Location: gills
Hosts: *Leuciscus idus* (3)
Rutilus rutilus (1,2,3)
Dist.: Lake Sīvers, Salaca River
Records: 1. Reinsone 1955a (Lake Sīvers), 2. 1959 (Lake Sīvers); 3. Kirjusina & Vismanis 2004 (Lake Sīvers, Salaca River)

Dactylogyrus rutili Gläser, 1965 (F)
Location: gills
Host: *Rutilus rutilus*
Dist.: Lakes Okras, Sildu, Slokas, Usmas
Records: Vismanis *et al.* 1989 (Lake Sildu); Kirjusina & Vismanis 2004 (Lakes Okras, Sildu, Slokas, Usmas)

Dactylogyrus similis Wegener, 1910 (F)
Location: gills
Hosts: *Alburnus alburnus* (1,6)
Blicca bjoerkna (1,6)
Leucaspius delineatus (4)
Leuciscus idus (4,6)
Rutilus rutilus (1,2,3,4,5,6)
Scardinius erythrophthalmus (2,6)
Dist.: Lakes Burtnieku, Cirma, Dzirnezers, Sildu, Sīvers, Slokas, Usmas; Ogre, Daugava Rivers
Records: 1. Reinsone 1955a (Lakes Burtnieku, Cirma, Sīvers), 2. 1955b (Lake Sīvers), 3. 1959 (Lake Sīvers); 4. Vismanis 1961 (Lake Burtnieku); 5. Vismanis *et al.* 1989 (Lake Sildu); 6. Kirjusina & Vismanis 2004 (Lakes Burtnieku, Cirma, Dzirnezers, Sildu, Sīvers, Slokas, Usmas; Ogre, Daugava Rivers)

Dactylogyrus sphyrna (F)
von Linstow, 1878
Location: gills
Hosts: *Abramis brama* (2,3,6)
Blicca bjoerkna (1,2,3,6)
Rutilus rutilus (2,3,5,6)
Vimba vimba (1,4,6)
Dist.: Lakes Alūksnes, Durbes, Dzirnezers, Juglas, Lielauces, Rāznas, Rušons, Sildu, Sīvers, Slokas, Usmas, Vilgāles; Kegums Water Reservoir; Daugava, Gauja, Ogre, Salaca Rivers; Gulf of Riga
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava River; Gulf of Riga); 2. Reinsone 1955a (Lakes Alūksnes, Durbes, Lielauces, Sīvers), 3. 1959 (Lakes Lielauces, Sīvers); 4. Vismanis, Spirina & Paršuta 1971 (Gulf of Riga); 5. Vismanis *et al.* (Lake Sildu); 6. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Durbes, Dzirnezers, Juglas, Lielauces, Rāznas, Rušons, Sildu, Sīvers, Slokas, Usmas, Vilgāles; Kegums Water Reservoir; Daugava, Gauja, Ogre, Salaca Rivers; Gulf of Riga)

Dactylogyrus suecicus Nybelin, 1937 (F)
Location: gills
Host: *Rutilus rutilus*
Dist.: Lake Sildu

Records: Vismanis *et al.* 1989; Kirjusina & Vismanis 2004

Dactylogyrus tincae Gusev, 1965 (F)
Location: gills
Host: *Tinca tinca*
Dist.: Lakes Sildu, Slokas, Usmas, Zvejnieku
Records: Vismanis *et al.* 1989 (Lakes Sildu, Zvejnieku); Kirjusina & Vismanis 2004 (Lakes Sildu, Slokas, Usmas, Zvejnieku)

Dactylogyrus tuba von Linstow, 1878 (F)
Location: gills
Hosts: *Aspius aspius* (1)
Leuciscus idus (1,2)
L. leuciscus (2)
Dist.: Lake Rušons; Kegums Water Reservoir; Daugava, Ogre, Salaca Rivers
Records: 1. Shulman 1949 (Lake Rušons, Kegums Water Reservoir, Daugava River); 2. Kirjusina & Vismanis 2004 (Lake Rušons; Kegums Water Reservoir; Daugava, Ogre, Salaca Rivers)

Dactylogyrus vastator Nybelin, 1924 (F)
Location: gills
Hosts: *Carassius carassius* (1,2,3,5,6,11)
Cyprinus carpio carpio (2,4,6,7,8,9,10,11,12)
C. carpio haematopterus (2,7,8)
Dist.: Lakes Cirma, Lielauces, Rāznas, Sīvers, Slokas; Daugava River
Records: 1. Shulman 1949 (Lake Rāznas, Daugava River); 2. Akhmerov & Grapmane 1954 (ponds); 3. Reinsone 1955a (Lakes Cirma, Lielauces, Sīvers), 4. 1958 (ponds), 5. 1959 (Lakes Lielauces, Sīvers); 6. Grapmane 1957 (ponds); 7. Akhmerov 1961 (ponds); 8. Vismanis & Peslak 1963 (ponds); 9. Vismanis 1964 (ponds), 10. 1972 (ponds); 11. Vismanis, Ivanova & Soldatkina 1975 (ponds); 12. Kirjusina & Vismanis 2004 (Lakes Cirma, Lielauces, Rāznas, Sīvers, Slokas; Daugava River, ponds)
Remarks: This species is dangerous for carp fry, especially when water temperatures range from 20–25 °C. During spring and summer it caused mass mortalities in ponds (Vismanis 1972). Akhmerov (1961) noted *D. vastator* on carp of all ages.

Dactylogyrus vistulae Prost, 1957 (F)
Location: gills
Host: *Leuciscus cephalus*
Dist.: Ogre, Salaca Rivers
Records: Vismanis & Popov 1993 (Salaca River); Kirjusina & Vismanis 2004 (Ogre, Salaca Rivers)

Dactylogyrus wegeneri Kulwiec, 1927 (F)
Location: gills
Host: *Carassius carassius*
Dist.: Lakes Lielauces, Liepājas, Rāznas, Sildu; Daugava River
Records: Shulman 1949 (Lake Rāznas, Daugava River); Reinsone 1955a (Lakes Lielauces, Liepājas), 1959 (Lakes Lielauces, Liepājas); Vismanis *et al.* 1989 (Lake Sildu); Kirjusina & Vismanis 2004 (Lakes Lielauces, Liepājas, Rāznas, Sildu; Daugava River)

Dactylogyrus wunderi Bychowsky, 1931 (F)
Location: gills
Hosts: *Abramis brama* (1,2,4,5)
Blicca bjoerkna (2,3,5)
Dist.: Lakes Burtnieku, Cirma, Duņas, Liepājas, Rušons, Slokas, Usmas; Kegums Water Reservoir; Daugava, Salaca Rivers; Baltic Sea
Records: 1. Shulman 1949 (Lake Rušons, Kegums Water Reservoir, Daugava River); 2. Reinsone 1955a (Lakes Burtnieku, Cirma, Liepājas), 3. 1959 (Lake Liepājas); 4. Vismanis 1961 (Lake Burtnieku); 5. Kirjusina & Vismanis 2004 (Lakes Burtnieku, Cirma, Duņas, Liepājas, Rušons, Slokas, Usmas; Kegums Water Reservoir; Daugava, Salaca Rivers; Baltic Sea)

Dactylogyrus yinwenyingae Gusev in Bykhovskaya-Pavlovskaya *et al*. 1962 (F)
Location: nasal cavity
Hosts: *Abramis brama* (1,2)
Leuciscus cephalus (1)
L .idus (1)
Rutilus rutilus (1,2)
Dist.: Lake Vīragnas; Buļļupe, Ogre, Rivers
Records: 1. Vismanis & Popov 1993 (Salaca River); 2. . Kirjusina & Vismanis 2004 (Lake Vīragnas; Buļļupe, Ogre, Rivers)

Dactylogyrus zandti Bychowsky, 1933 (F)
Location: gills
Host*: Abramis brama*
Dist.: Lakes Duņas, Usmas; Buļļupe, Daugava Rivers; Gulf of Riga
Records: Vismanis & Popov 1990 (Lakes Duņas, Usmas; Gulf of Riga); Kirjusina & Vismanis 2004 (Lakes Duņas, Usmas; Buļļupe, Daugava Rivers; Gulf of Riga)

Dactylogyrus sp. (F)
Location: gills
Hosts: *Abramis brama* (2)
Leuciscus idus (2)
Perca fluviatilis (1)
Dist.: Lakes Duņas, Sīvers, Usmas
Records: 1. Reinsone 1955b (Lake Sīvers); 2. Kirjusina & Vismanis 2004 (Lakes Duņas, Usmas)

Pseudodactylogyrus anguillae (F,B,M?)
Ogawa and Egusa, 1976
Location: gills
Host: *Anguilla anguilla*
Dist.: Lake Usmas, Venta River, Gulf of Riga
Records: Kirjusina & Vismanis 2000 (Lake Usmas, Venta River, Gulf of Riga); Kirjusina & Vismanis 2001 (Lake Usmas, Venta River) 2004 (Lake Usmas, Venta River)

Pseudodactylogyrus bini (F,B,M?)
(Kikuchi, 1929) Gusev, 1965
Location: gills
Host: *Anguilla anguilla*
Dist.: Lake Usmas; Venta River, Gulf of Riga
Records: Kirjusina & Vismanis 2000 (Lake Usmas, Venta River, Gulf of Riga), 2001 (Lake Usmas, Venta River), 2004 (Lake Usmas, Venta River)

Thaparocleidus siluri (Zandt, 1924) (F)
Lim, 1996
Syn.: *Ancylodiscoides siluri*
Zandt, 1924
Location: gills
Host: *Silurus glanis*
Dist.: Daugava River
Records: Shulman 1949; Kirjusina & Vismanis 2004
Remarks: The synonomy follows Lim (1996).

SUBORDER TETRAONCHINEA

FAMILY TETRAONCHIDAE

Tetraonchus borealis (Olsson, 1893) (F)
Monticelli, 1905
Includes: *T. borealis* f. *typica*
Location: gills
Host: *Thymallus thymallus*
Dist.: Gauja River
Records: Kirjusina & Vismanis 2001, 2004

Tetraonchus monenteron (F)
(Wagener, 1857) Diesing, 1858
Location: gills
Host: *Esox lucius*
Dist.: Lakes Burtnieku, Cirma, Durbes, Juglas, Lielauces, Liepājas, Rāznas, Rušons, Sildu, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava River
Records: Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava River); Reinsone 1955a (Lakes Burtnieku, Cirma, Durbes, Lielauces, Liepājas, Sīvers), 1955b (Lake Sīvers), 1959 (Lakes Lielauces, Liepājas, Sīvers); Vismanis 1961 (Lake Burtnieku); Vismanis *et al.* 1989 (Lake Sildu); Kirjusina & Vismanis. 2004 (Lakes Burtnieku, Cirma, Durbes, Juglas, Lielauces, Liepājas, Rāznas, Rušons, Sildu, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava River)

Tetraonchus sp. (F)
Location: gills
Host: *Anguilla anguilla*
Dist.: Lake Liepājas
Records: Reinsone 1955a, 1959
Remarks: These reports are likely to involve misidentifications.

SUBCLASS HETERONCHOINEA

INFRASUBCLASS OLIGONCHOINEA

ORDER MAZOCRAEIDEA

SUBORDER DISCOCOTYLINEA

FAMILY DIPLOZOIDAE

Diplozoon paradoxum (F)
von Nordmann, 1832
Location: gills
Hosts: *Abramis brama* (3,6,10,11)
Alburnus alburnus (2,11)
Anguilla anguilla (5,11)
Aspius aspius (2)
Blicca bjoerkna (2,3,5,6,11)
Carassius carassius (3,4,5,11)
Cyprinus carpio carpio (8,11)
C. carpio haematopteus (7)
Esox lucius (5,11)
Gobio gobio gobio (2,11)
Leucaspius delineatus (6)
Pelecus cultratus (2,11)
Rutilus rutilus (2,3,4,5,6,11)
Scardinius erythrophthalmus (2,3,5,11)
Tinca tinca (11)

Vimba vimba (2,5,9,11)
fish (1)
Dist.: Lakes Burtnieku, Durbes, Juglas, Liepājas, Rāznas, Rušons, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava, Ogre, Salaca Rivers; Gulf of Riga
Records: 1. Trauberga 1936 (-); 2. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava River; Gulf of Riga); 3. Reinsone 1955a (Lakes Burtnieku, Durbes, Liepājas, Sīvers), 4. 1955b (Lake Sīvers), 5. 1959 (Lakes Liepājas, Sīvers); 6. Vismanis 1961 (Lake Burtnieku); 7. Akhmerov 1961 (ponds); 8. Vismanis & Peslak 1963 (ponds); 9. Vismanis, Spirina & Paršuta 1971 (Gulf of Riga); 10. Vismanis & Popov 1989 (Daugava, Salaca Rivers; Gulf of Riga); 11. Kirjusina & Vismanis 2004 (Lakes Burtnieku, Durbes, Juglas, Liepājas, Rāznas, Rušons, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava, Ogre, Salaca Rivers; Gulf of Riga, ponds)
Remarks: Reports of *Diplozoon paradoxum* made prior to 1985 should be treated with caution.

Diplozoon sp. (F)
Location: gills
Hosts: *Cyprinus carpio carpio* (1)
Oncorhynchus mykiss (2)
Dist.: Lake Dzirnezers
Records: 1. Vismanis 1964 (ponds); 2. Vismanis, Kuznetsova & Rakitsky 1983 (Lake Dzirnezers)
Remarks: The occurrence of *Diploozoon* on rainbow trout requires verification.

Eudiplozoon nipponicum (Goto, 1891) (F)
Khotenovsky, 1985
Location: gills
Hosts: *Carassius carassius* (1,2,3)
Cyprinus carpio carpio (1,3)
Dist.: Lake Sildu
Records: 1. Vismanis & Popov 1989 (natural waterbodies, ponds); 2. Vismanis *et al.* 1989 (Lake Sildu); 3. Kirjusina & Vismanis 2004 (ponds)
Remarks: This species is thought to be native to the Amur region and to have been spread to many countries via the movement of common carp.

Paradiplozoon alburni (F)
Khotenovsky, 1982
Location: gills
Hosts: *Alburnus alburnus* (2)
Leuciscus idus (2)
Scardinius erythrophthalmus (1)
Vimba vimba (2)
Dist.: Daugava, Salaca Rivers
Records: 1. Vismanis & Popov 1989 (Salaca River); 2. Kirjusina & Vismanis 2004 (Daugava, Salaca Rivers)

Paradiplozoon bliccae (F)
(Reichenbach-Klinke, 1961)
Location: gills
Hosts: *Abramis brama* (2)
Blicca bjoerkna (2)
Vimba vimba (1,2)
Dist.: Daugava, Gauja Rivers
Records: 1. Vismanis & Popov 1989 (Gauja River); 2. Kirjusina & Vismanis 2004 (Daugava, Gauja Rivers)

Paradiplozoon homoion gracile (F)
(Reichenbach-Klinke, 1961)
Khotenovsky, 1985
Location: gills
Host: *Gobio gobio gobio*
Dist.: Ogre River
Records: Kirjusina & Vismanis 2001, 2004

Paradiplozoon homoion homoion (F)
(Bychowsky and Nagibina, 1959)
Khotenovksy, 1985
Location: gills
Hosts: *Abramis brama* (2)
Blicca bjoerkna (1,2)
Gymnocephalus cernuus (2)
Leuciscus leuciscus (2)
Rutilus rutilus (1,2)
Vimba vimba (2)
Dist.: Lakes Burtnieku, Kišezers, Sildu, Slokas, Usmas; Daugava, Ogre, Salaca Rivers
Records: 1. Vismanis & Popov 1989 (Lakes Burtnieku, Kišezers, Sildu; Daugava, Salaca Rivers)[5]; 2. Kirjusina & Vismanis 2004 (Lake Kišezers, Daugava River)

Paradiplozoon zeller (Gyntovt, 1967) (F)
Khotenovsky, 1985
Location: gill
Hosts: *Gobio gobio gobio* (2)
Phoxinus phoxinus (1)
Dist.: Lake Sildu, Ogre River
Records: 1. Vismanis *et al.* 1989 (Lake Sildu); 2. Kirjusina & Vismanis 2004 (Lake Sildu, Ogre River)

[5]Data on parasite distribution was not given by individual host species and waterbody.

CLASS CESTODA

SUBCLASS CESTOIDEA

SUPERORDER EUCESTODA

ORDER SPATHEBOTHRIIDEA

FAMILY ACROBOTHRIIDAE

Cyathocephalus truncatus (Pallas, 1781) (F)
Kessler, 1868
Location: intestine
Hosts: *Esox lucius* (2)
Perca fluviatilis (2)
Salmo trutta morpha *fario* (1,2)
Dist.: Lakes Juglas, Lubāns; Līčupe River
Records: 1. Shulman 1949 (Liečupe River); 2. Kirjusina & Vismanis 2004 (Lakes Juglas, Lubāns; Līčupe River)
Remarks: Heavy infections of brown trout in ponds may cause mortality (see Bauer 1987).

ORDER CARYOPHYLLIDEA

FAMILY CARYOPHYLLAEIDAE

Archigetes brachyurus Mrázek, 1980 (F)
Syn.: *Glaridacris brachyurus* (Mrázek, 1908)
Location: intestine
Host: *Cyprinus carpio carpio*
Dist.: Latvia (ponds)
Records: Vismanis 1964; Kirjusina & Vismanis 2004

Caryophyllaeus fimbriceps (F)
Annenkova-Chlopina, 1919
Location: intestine
Hosts: *Abramis brama* (5)
Cyprinus carpio carpio (1,2,3,4,5)
C. carpio haematopterus (4)
Dist.: Daugava River
Records: 1. Grapmane 1957 (ponds); 2. Reinsone 1958 (ponds); 3. Akhmerov 1961 (ponds); 4. Vismanis & Peslak 1963 (ponds); 5. Kirjusina & Vismanis 2004 (Daugava River, ponds)
Remarks: This cestode is pathogenic to young carp; heavy infections may cause mortalities of yearling fish (see Bauer 1987).

Caryophyllaeus laticeps (Pallas, 1781) (F)
Lühe, 1910
Location: intestine
Hosts: *Abramis brama* (1,2,3,4,8)
Blicca bjoerkna (8)
Carassius carassius (1,5,8)
Cyprinus carpio carpio (5,6)
Rutilus rutilus (7,8)
Tinca tinca (5,8)
Dist.: Lakes Cirma, Dārza, Juglas, Kāla, Rušons, Sildu, Sīvers, Slokas, Usmas, Žuguru; Daugava, Ogre, Salaca Rivers; Gulf of Riga
Records: 1. Shulman 1949 (Lake Rušons, Daugava River, Gulf of Riga); 2. Reinsone 1955a (Lakes Cirma, Kāla, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lake Sīvers); 5. Grapmane 1957 (ponds); 6. Vismanis 1964 (ponds); 7. Vismanis *et al.* 1989 (Lake Sildu); 8. Kirjusina & Vismanis 2004 (Lakes Cirma, Dārza, Juglas, Kāla, Rušons, Sildu, Sīvers, Slokas, Usmas, Žuguru; Daugava, Ogre, Salaca Rivers; Gulf of Riga, ponds)

Caryophyllaeus sp. (F)
Location: intestine
Host: *Zoarces viviparus*
Dist.: Gulf of Riga
Record: Vismanis, Volkova & Eglite 1984
Remarks: This finding of a caryophyllaeid cestode in a marine fish is likely the result of accidental infection, perhaps via predation upon an infected cyprinid.

FAMILY LYTOCESTIDAE

Caryophyllaeides fennica (F)
(Schneider, 1902) Nybelin, 1922
Location: intestine
Hosts: *Blicca bjoerkna* (1,2)
Gasterosteus aculeatus (2)
Leuciscus idus (1,2)
Scardinius erythrophthalmus (2)
Vimba vimba (1,2)
Dist.: Lakes Rušons, Slokas; Daugava River
Records: 1. Shulman 1949 (Lake Rušons, Daugava River); 2. Kirjusina & Vismanis 2004 (Lakes Rušons, Slokas; Daugava River)

Khawia dubius (Szidat, 1937) (F)
Syn.: *Bothrioscolex dubius* Szidat, 1937
Location: intestine
Hosts: *Aspius aspius*
Gobio gobio gobio
Dist.: Lake Rāznas, Kegums Water Reservoir
Records: Shulman 1949; Kirjusina & Vismanis 2004

Khawia parva **(**Zmeev, 1936) (F)
Kulakovskaya, 1961
Location: intestine
Host: *Gasterosteus aculeatus*
Dist.: Daugava River
Records: Kirjusina & Vismanis 2002, 2004

Khawia rossittensis (Szidat, 1937) (F)
Syn.: *Bothrioscolex rossittensis* Szidat, 1937
Location: intestine
Host: *Carassius carassius*
Dist.: Lake Juglas, Daugava River
Records: Shulman 1949 (Daugava River); Kirjusina & Vismanis 2004 (Lake Juglas, Daugava River)

Khawia sinensis Hsü, 1935 (F)
Location: intestine
Host: *Cyprinus carpio carpio*
Dist.: Latvia (ponds)
Records: Vismanis 1964,1972; Kirjusina & Vismanis 2004
Remarks: This cestode may cause mortality of young fish in ponds. According to Bauer (1987), *Khawia sinensis* was introduced to Europe with the translocation of carp from the Amur River.

ORDER CYCLOPHYLLIDEA

FAMILY GRYPORHYNCHIDAE[6]

Neogryporhynchus cheilancristrotus (F)
(Wedl, 1955) Baer and Bona, 1960
metacestode
Location: intestinal wall [?]
Hosts*: Carassius carassius*
Cyprinus carpio carpio
Esox lucius
Tinca tinca
Dist.: Lake Engures; Daugava, Salaca Rivers
Records: Kirjusina & Vismanis. 2004 (Lake Engures; Daugava, Salaca Rivers, ponds)
Remarks: Adults of this species are intestinal parasites of piscivorous birds (herons – e.g. *Ardea*, *Botaurus*, *Nycticorax*), while copepods (*Mesocyclops oithonoides*) have been experimentally shown to serve as first intermediate hosts (see Scholz *et al.* 2004). Many species of fish act as second intermediate hosts, with infections being most frequent in cyprinids. Scholz *et al.* (2004) note that the typical site of infection in fish is in the intestinal lumen.

Paradilepis scolecina (Rudolphi, 1819) (F)
Hsü, 1935 metacestode
Location: kidney, intestine, intestinal wall, liver
Hosts: *Abramis brama* (2)
C. carassius (2)
Cyprinus carpio carpio (1,2)
Esox lucius (2)
Rutilus rutilus (2)
Tinca tinca (2)
Dist.: Ogre River
Records: 1. Kirjusina & Vismanis 2002 (Ogre River), 2. 2004 (ponds of Ogre River basin)
Remarks: Adults are frequent and widely distributed parasites of cormorants in Europe, Asia, Africa and Australia (see Scholz *et al.* 2004). Copepods (*Eudiaptomus graciloides*) have been shown experimentally to serve as first intermediate hosts, while a wide range of fishes (primarily cyprinids) act as second intermediate hosts, infections occurring in the mesenteries and liver.

Valipora campylancristrota (F)
(Wedl, 1855) Bauer and Bona, 1960
metacestode
Includes: *Cysticercus Dilepis unilateralis* auctorum
Location: bile ducts, gall bladder, intestine [?]
Hosts: *Carassius carassius* (2)
Cyprinus carpio carpio (1,2)
Tinca tinca (2)
Dist.: Lakes Dārza, Slokas, Usmas
Records: 1. Vismanis 1964 (ponds); 2. Kirjusina & Vismanis 2004 (Lakes Dārza, Slokas, Usmas, ponds)
Remarks: According to Scholz *et al.* (2004), definitive hosts for this cestode are herons (e.g. *Ardea cinerea*), while copepods serve as first intermediate hosts. A large number of fishes (primarily cyprinids) have been reported as second intermediate hosts, with the tench (*Tinca tinca*) being most commonly infected. These authors note that the gall bladder is the typical site of infection in fish, and that reports from the intestine are doubtful.

This species is of pathogenic importance, heavy infections causing valiporosis, a condition characterized by retardation of the host's growth and weight (see Scholz *et al.* 2004).

[6] Larval cestodes from fish belonging to this family were recently reviewed by Scholz *et al.* (2004).

ORDER TETRAPHYLLIDEA

Tetraphyllidea of Uncertain Taxonomic Position

Scolex pleuronectis O.F. Müller, 1788 (M)
plerocercoid
Location: intestine
Hosts: *Cottus poecilopus* (1)
Platichthys flesus trachurus (1,2,3,4)
Dist.: Gulf of Riga, Baltic Sea
Records: 1. Vismanis, Volkova & Eglite 1984 (Gulf of Riga); 2. Vismanis & Kondratovičs 1994 (Baltic Sea), 3. 1995 (Baltic Sea), 4. Kirjusina & Vismanis 2004 (Gulf of Riga)

ORDER PSEUDOPHYLLIDEA

FAMILY BOTHRIOCEPHALIDAE

Bothriocephalus acheilognathi (F)
Yamaguti, 1934
Syn.: *Clestobothrium opsariichthydis* (Yamaguti, 1934)
Bothriocephalus gowkongensis Yeh, 1955
Location: intestine
Host: *Cyprinus carpio carpio*
Dist.: Latvia (ponds)
Records: Vismanis & Jurkane 1967; Vismanis 1972; Kirjusina & Vismanis 2004
Remarks: Adults are common in more that 25 species of cyprinids and some predatious fishes. This tapeworm was introduced into Europe with the introduction of common carp from the Amur region and is now distributed in natural waters (see Bauer 1987). It is pathogenic to young carp, sometimes causing mortalities.

Bothriocephalus claviceps (F)
(Goeze, 1782) Rudolphi, 1810
Location: intestine
Host: *Anguilla anguilla*
Dist.: Lakes Rāznas, Rušons, Usmas; Kegums Water Reservoir; Venta River; Gulf of Riga
Records: Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Gulf of Riga); Kirjusina and Vismanis 2000 (Lake Usmas, Venta River, Gulf of Riga), 2004 (Lakes Rāznas, Rušons, Usmas; Kegums Water Reservoir; Venta River; Gulf of Riga)

Bothriocephalus scorpii (M)
(O.F. Müller, 1776) Rudolphi, 1808
Location: intestine
Hosts: *Belone acus* (1)
Gadus morhua callarias (2,3,6)
Platichthys flesus trachurus (1,4,5,6)
Psetta maxima (1,6)
Sprattus sprattus balticus (1 , 6)
Taurulus bubalis (1,6)
Zoarces viviparus (1,6)
Dist.: Daugava River, Gulf of Riga, Baltic Sea
Records: 1. Shulman 1949 (Daugava River, Gulf of Riga); 2. Vismanis, Volkova & Eglite 1986 (Gulf of Riga); 3 Vismanis, Eglite & Volkova. 1986 (Baltic Sea); 4. Vismanis & Kondratovičs 1994 (Baltic Sea), 5. 1995 (Baltic Sea); 6. Kirjusina & Vismanis 2004 (Daugava River, Gulf of Riga)

Bothriocephalus sp. (M)
Location: intestine
Hosts: *Platichthys flesus trachurus* (2)
Zoarces viviparus
Dist.: Gulf of Riga
Records: Vismanis, Volkova & Eglite 1984; 2. Kirjusina & Vismanis 2004

FAMILY DIPHYLLOBOTHRIIDAE

Diphyllobothrium dendriticum (F)
(Nitzsch, 1824) Lühe, 1910 plerocercoid
Includes: *Diphyllobothrium* larva C auctorum
Location: encapsulated on wall of esophagus, stomach, pyloric caeca
Host: *Salmo salar*
Dist.: Buļļupe, Daugava, Gauja, Lielupe, Vecdaugava Rivers; Gulf of Riga
Records: Shulman 1949 (Daugava River); Kirjusina & Vismanis 2004 (Buļļupe, Daugava, Gauja, Lielupe, Vecdaugava Rivers; Gulf of Riga)
Remarks: Definitive hosts are fish-eating birds; rarely mammals and man (proved experimentally). Optimal development occurs only in gulls (see Serdyukov 1979).

Diphyllobothrium ditremum (F)
(Creplin, 1825) Lühe, 1910 plerocercoid
Includes: *Diphyllobothrium* larva B auctorum
Location: encapsulated on wall of intestine and stomach

Hosts: *Coregonus albula* (1,2,3,4)
C. lavaretus (1,2,4)
Osmerus eperlanus (1,4)
O. eperlanus spirinchus (2,3,4)
Salmo salar (1,4)
Dist.: Lakes Cirma, Rāznas, Sīvers; Daugava River; Gulf of Riga
Records: 1. Shulman 1949 (Lake Rāznas, Daugava River, Gulf of Riga); 2. Reinsone 1955a (Lakes Cirma, Sīvers), 3. 1959 (Lake Sīvers); 4. Kirjusina & Vismanis 2004 (Lakes Cirma, Rāznas, Sīvers; Daugava River; Gulf of Riga)

Diphyllobothrium latum (F)
(Linnaeus, 1758) Lühe, 1910 plerocercoid
Includes: *Diphyllobothrium* larva A auctorum
Location: body cavity
Hosts: *Esox lucius* (2,4)
Lota lota (2,4)
Perca fluviatilis (3,4)
fish (1)
Dist.: Lakes Burtnieku, Juglas; Daugava River
Records: 1. Trauberga 1936 (-); 2. Shulman 1949 (Daugava River); 3. Reinsone 1955a (Lake Burtnieku); 4. Kirjusina & Vismanis 2004 (Lakes Burtnieku, Juglas; Daugava River)
Remarks: Definitive hosts are man and other piscivorous mammals.

Diphyllobothrium vogeli Kuhlow, 1953 (B)
plerocercoid
Location: encapsulated in body cavity
Host: *Gasterosteus aculeatus*
Dist.: Daugava River
Records: Kirjusina & Vismanis 2002, 2004

Diphyllobothrium sp. plerocercoid (F)
Location: encapsulated on intestinal wall
Hosts: *Coregonus albula*
Osmerus eperlanus spirinchus
Dist.: Lake Sīvers
Record: Reinsone 1955b

Ligula intestinalis (Linnaeus, 1758) (F)
Gmelin, 1890 plerocercoid
Location: body cavity, intestine [?]
Hosts: *Abramis brama* (3,7,8)
Blicca bjoerkna (3,7,8)
Cyprinus carpio carpio (5,6,8)
Esox lucius (3,4,8)
Leucaspius delineatus (7)
Leuciscus cephalus (2,7,8)
Perca fluviatilis (3,4,8)
Rutilus rutilus (3,4,7,8)
fish (1)
Dist.: Lakes Burtnieku, Cirmas, Durbes, Juglas, Lielauces, Liepājas, Slokas, Usmas; Daugava, Salaca Rivers
Records: 1. Trauberga 1936 (-) 2. Shulman 1949 (Daugava River); 3. Reinsone 1955a (Lakes Burtnieku, Cirmas, Durbes, Lielauces, Liepājas), 4. 1959 (Lakes Lielauces, Liepājas); 5. Grapmane 1957 (ponds), 6. 1961 (ponds); 7. Vismanis 1961 (Lake Burtnieku); 8. Kirjusina & Vismanis 2004 (Lakes Burtnieku, Cirmas, Durbes, Juglas, Lielauces, Liepājas, Slokas, Usmas; Daugava, Salaca Rivers)
Remarks: Plerocercoids of *L. intestinalis* cause epizootics among some cyprinids, especially in lakes and ponds (see Bauer 1987). Reports from the intestine of northern pike are probably temporary infections due to predation on cyprinid fishes.

Schistocephalus solidus (F)
(O.F. Müller, 1776) Steenstrup, 1857
plerocercoid
Syn.: *Schistocephalus dimorphus* Creplin, 1929
S. gasterostei (Fabricius, 1780)
Location: body cavity
Host: *Gasterosteus aculeatus*
Dist.: Daugava River, Gulf of Riga
Records: Shulman 1949 (Gulf of Riga); Grapmane 1957 (ponds); Kirjusina & Vismanis 2004 (Daugava River, Gulf of Riga)

FAMILY TRIAENOPHORIDAE

Eubothrium crassum (Bloch, 1779) (B,M)
Nybelin, 1922
Location: pyloric caeca, intestine
Hosts: *Salmo salar* (1,2)
S. trutta morpha *fario* (1,2)
Dist.: Daugava River, Gulf of Riga
Records: 1. Shulman 1949 (Daugava River); 2. Kirjusina & Vismanis 2004 (Daugava River, Gulf of Riga)

Eubothrium fragile (Rudolphi, 1802) (B)
Nybelin, 1922
Location: intestine
Host: *Alosa fallax fallax*
Dist.: Gulf of Riga
Records: Shulman 1949; Kirjusina & Vismanis 2004

Eubothrium sp. (F,B,M)
Location: intestine
Hosts: *Clupea harengus membras* (2,3,7)
Lampetra fluviatilis (1,2,3,7,8)
Platichthys flesus trachurus (4,5,6,7)
Dist.: Daugava River, Gulf of Riga, Baltic Sea
Records: 1. Shulman 1949 (Daugava River); 2. Vismanis, Eglite & Volkova 1981 (Gulf of Riga); 3. Vismanis, Volkova & Eglite 1984 (Gulf of Riga); 4. Vismanis & Kondratovičs 1994 (Baltic Sea), 5. 1995 (Baltic Sea); 6. Tabolina 1994 (Gulf of Riga); 7. Kirjusina & Vismanis 2004 (rivers entering the Gulf of Riga); 8. Kirjusina 2005 (Daugava River)
Remarks: These reports involve immature stages.

Triaenophorus nodulosus (Pallas, 1760) Rudolphi, 1819 (F)
adult and pleroceroid
Location: intestine, encapsulated in liver
Hosts: *Anguilla anguilla* (2,8)
Esox lucius (1, 2,3,4,5,8)
Gasterosteus aculeatus (1,8)
Gymnocephalus cernuus (1,2,3,5,8)
Lota lota (1,2,4, 8)
Osmerus eperlanus spirinchus (2,3,4,8)
Oncorhynchus mykiss (6,7)
Perca fluviatilis (1,2,3,4,5,8)
Dist.: Lakes Alūksnes, Burtnieku, Černavu, Cirma, Durbes, Indra, Juglas, Kāla, Lielauces, Liepājas, Rāznas, Rušons, Sīvers, Slokas, Usmas, Žuguru; Kegums Water Reservoir; Daugava, River; Gulf of Riga
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava River; Gulf of Riga); 2. Reinsone 1955a (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Kāla, Lielauces, Liepājas, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Lielauces, Liepājas, Sīvers); 5. Vismanis 1961 (Lake Burtnieku); 6. Lullu, *et al*. 1989 (tanks); 7. Lullu Vismanis & Bakhtina 1989 (tanks); 8. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Burtnieku, Černavu, Cirma, Durbes, Indra, Juglas, Kāla, Lielauces, Liepājas, Rāznas, Rušons, Sīvers, Slokas, Usmas, Žuguru; Kegums Water Reservoir; Daugava, River; Gulf of Riga)
Remarks: Adults are found in the intestine of the northern pike (*Esox lucius*), while plerocercoids infect the liver of many prey species. Plerocercoids are pathogenic to young fish, especially perch and trout in ponds.

ORDER PROTEOCEPHALIDEA

FAMILY PROTEOCEPHALIDAE

Proteocephalus cernuae (Gmelin, 1790) La Rue, 1911 (F)
Location: intestine
Hosts: *Gasterosteus aculeatus* (3)
Gymnocephalus cernuus (1,2,3)
Dist.: Lakes Cirma, Kāla, Rušons; Kegums Water Reservoir; Daugava River
Records: 1. Shulman 1949 (Lake Rušons, Kegums Water Reservoir, Daugava River); 2. Reinsone 1955a (Lakes Cirma, Kāla); 3. Kirjusina & Vismanis 2004 (Lakes Cirma, Kāla, Rušons; Kegums Water Reservoir; Daugava River)
Remarks: Scholz and Hanzelová (1998) note that reports of this species from hosts other than percids are either incorrect or the result of accidental infection.

Proteocephalus esocis (Schneider, 1905) La Rue, 1911 (F)
Location: intestine
Host: *Esox lucius*
Dist.: Lakes Juglas, Sīvers
Records: Reinsone 1955a (Lake Sīvers), 1959 (Lake Sīvers); Kirjusina & Vismanis 2004 (Lakes Juglas, Sīvers)
Remarks: Scholz and Hanzelová (1998) considered this taxon as a probable synonym of *P. percae* (O.F. Müller, 1780).

Proteocephalus filicollis (Rudolphi, 1802) Weinland, 1858 (F)
Location: intestine
Host: *Gasterosteus aculeatus*
Dist.: Daugava River, Gulf of Riga
Records: Shulman 1949 (Daugava River, Gulf of Riga); Reinsone 1958 (ponds); Kirjusina & Vismanis 2004 (Daugava River, Gulf of Riga)
Remarks: Scholz and Hanzelová (1998) note that this species is specific to the three-spined stickleback.

Proteocephalus longicollis (Zeder, 1800) Nufer, 1905 (F)
Syn.: *Proteocephalus exiguus* La Rue, 1911
P. neglectus La Rue, 1911
Location: intestine
Hosts: *Cobitis taenia* (1,5)
Coregonus albula (1,2,3,4,5)

C. lavaretus (1,5)
Osmerus eperlanus (1,5)
O. eperlanus spirinchus (2,3,4,5)
Salmo trutta morpha *fario* (1,5)
Dist.: Lakes Alūksnes, Rāznas, Sīvers; Daugava, Līčupe Rivers; Gulf of Riga
Records: 1. Shulman 1949 (Lakes Līčupe, Rāznas; Daugava River; Gulf of Riga); 2. Reinsone 1955a (Lakes Alūksnes, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lake Sīvers); 5. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Rāznas, Sīvers; Daugava, Līčupe Rivers; Gulf of Riga)

Proteocephalus macrocephalus (F)
(Creplin, 1825) Nufer, 1905
Location: intestine
Host: *Anguilla anguilla*
Dist.: Lakes Liepājas, Usmas; Gulf of Riga
Records: Shulman 1949 (Gulf of Riga); Reinsone 1955a (Lake Liepājas), 1959 (Lake Liepājas); Kirjusina & Vismanis 2004 (Lakes Liepājas, Usmas; Gulf of Riga)

Proteocephalus osculatus (F)
(Goeze, 1782) Nybelin, 1942
Location: intestine
Host: *Silurus glanis*
Dist.: Kegums Water Reservoir, Daugava River
Records: Shulman 1949; Kirjusina & Vismanis 2004

Proteocephalus percae (F)
(O.F. Müller, 1780) Railliet, 1899
Location: intestine
Hosts: *Esox lucius* (2,3,4,6)
Perca fluviatilis (1,2,3,4,5,6)
Zoarces viviparus (1,6)
Dist.: Lakes Burtnieku, Kāla, Liepājas, Rāznas, Sīvers, Usmas; Daugava River
Records: 1. Shulman 1949 (Lake Rāznas, Daugava River); 2. Reinsone 1955a (Lakes Burtnieku, Kāla, Liepājas, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Liepājas, Sīvers); 5. Vismanis 1961 (Lake Burtnieku); 6. Kirjusina & Vismanis 2004 (Lakes Burtnieku, Kāla, Liepājas, Rāznas, Sīvers, Usmas; Daugava River)
Remarks: The perch, *Perca fluviatilis*, is the principal definitive host of this cestode. Scholz and Hanzelová (1998) note that records from predacious fishes such as northern pike are due to post-cyclic infection resulting from consumption of perch.

Proteocephalus torulosus (F)
(Batsch, 1786) Nufer, 1905
Location: intestine
Hosts: *Alburnus alburnus* (1,2,5)
Leucaspius delineatus (3)
Leuciscus leuciscus (5)
Rutilus rutilus (1,5)
Vimba vimba (4)
Dist.: Lakes Alūksnes, Burtnieku, Rāznas Rušons; Daugava, Ogre, Salaca Rivers; Gulf of Riga
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Daugava River); 2. Reinsone 1955a (Lakes Alūksnes, Burtnieku); 3. Vismanis 1961 (Lake Burtnieku); 4. Vismanis, Spirina & Paršuta 1971 (Gulf of Riga); 5. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Burtnieku, Rāznas Rušons; Daugava, Ogre, Salaca Rivers)
Remarks: This species is restricted to cyprinid fishes (see Scholz and Hanzelová 1998).

Proteocephalus sp. (F)
Location: intestine
Hosts: *Esox lucius* (1,4)
Lampetra fluviatilis (1,2,3,4,5)
Osmerus eperlanus (3)
Dist.: Lakes Indra, Juglas, Rāznas, Daugava, Ogre Rivers; Gulf of Riga
Records: 1. Shulman 1949 (Lake Rāznas Daugava River); 2. Vismanis, Volkova & Eglite 1981 (Gulf of Riga) 3. 1984 (Gulf of Riga); 4. Kirjusina & Vismanis 2004 (Lakes Indra, Juglas, Rāznas, Daugava, Ogre Rivers) 5. Kirjusina 2005 (Daugava River)

PHYLUM NEMATODA

CLASS ADENOPHOREA

ORDER ENOPLIDA

SUPERFAMILY DIOCTOPHYMATOIDEA

FAMILY DIOCTOPHYMATIDAE

Eustrongyloides excisus (F)
Jägerskiöld, 1909 larva
Location: body cavity
Hosts: *Esox lucius*
Sander lucioperca
Dist.: Lakes Juglas, Slokas
Record: Kirjusina & Vismanis 2004
Remarks: Adults are parasitic in piscivorous birds (Pelecaniformes, Ciconiiformes and

Anseriformes) in Europe, Southeast Asia, the Middle East and Australia, while aquatic oligochaetes serve as first intermediate hosts (see Anderson 2000).

Eustrongyloides sp. larva (F)
Location: intestinal wall, mesenteries
Hosts: *Anguilla anguilla* (1,4)
Gymnocephalus cernuus (2,4)
Perca fluviatilis (2,3,4)
Silurus glanis (1,4)
Dist.: Lakes Burtnieku, Saukas; Kegums Water Reservoir; Daugava River
Records: 1. Shulman 1949 (Kegums Water Reservoir, Daugava River); 2. Reinsone 1955a (Lakes Burtnieku, Saukas); 3. Vismanis 1961 (Lake Burtnieku); 4. Kirjusina & Vismanis 2004 (Lake Burtnieku; Kegums Water Reservoir; Daugava River)

SUPERFAMILY TRICHUROIDEA

FAMILY CAPILLARIIDAE

Pseudocapillaria (*Pseudocapillaria*) *tomentosa* (Dujardin, 1843) Moravec, 1987 (F)
Syn.: *Capillaria tomentosa* Dujardin, 1843
Location: intestine
Hosts: *Abramis brama* (1,2)
Leuciscus cephalus (1,2)
L. idus (1,2)
Vimba vimba (1,2)
Dist.: Daugava River
Records: 1. Shulman 1949; 2. Kirjusina & Vismanis 2004
Remarks: This nematode is widely distributed in palearctic Eurasia and North America, but also occurs in the Oriental Region. The frequently heavy infections of *P. tomentosa* in pond-reared carp and other fishes of economic importance in some regions suggest that this species may be a dangerous parasite for fish in intensive pond culture, particularly in the breeding of carp fry (see Moravec 1994, 2001).

Schulmanela petruschewskii (Shulman, 1948) Ivashkin, 1964 (F)
Syn.: *Hepaticola petruschewskii* Shulman, 1948
Location: intestine, intestinal wall, liver, mesenteries
Hosts: *Cobitis taenia* (1,2)
Cyprinus carpio carpio (2)
Gymnocephalus cernuus (1,2)
Vimba vimba (2)
Dist.: Lake Usmas; Kegums Water Reservoir; Daugava, Ogre Rivers
Records: 1. Shulman 1949 (Kegums Water Reservoir); 2. Kirjusina & Vismanis 2004 (Lake Usmas; Kegums Water Reservoir; Daugava, Ogre Rivers, ponds)
Remarks: Heavy infections by this nematode have been reported to cause liver pathology in species such as grass carp and ruff, resulting in emaciation and sluggishness (see Moravec 2001).

SUBCLASS SECERNENTEA

ORDER ASCARIDIDA

SUPERFAMILY ASCARIDOIDEA

FAMILY ANISAKIDAE

Anisakis simplex (Rudolphi, 1809) Dujardin, 1845 larva (M)
Location: encapsulated or free in mesenteries, musculature
Hosts: *Clupea harengus membras* (4,5)
Gadus morhua callarias (1,2,3,5)
Dist.: Gulf of Riga, Baltic Sea
Records: 1. Vismanis, Volkova & Eglite 1984 (Gulf of Riga), 2. 1986 (Gulf of Riga), 3 1987 (Gulf of Riga); 4. Tshervontsev, Fetter & Vismanis 1994 (Baltic Sea); 5. Kirjusina & Vismanis 2004 (Baltic Sea)
Remarks: This nematode causes anisakosis, an important disease of man in countries where marine fish are consumed raw or undercooked.

Contracaecum microcephalum (Rudolphi, 1819) Baylis, 1920 larva (F)
Location: encapsulated in mesenteries and serosa
Host: *Abramis brama*
Dist.: Lakes Asteres, Slokas
Records: Kirjusina & Vismanis 2003, 2004
Remarks: Adults occur in piscivorous birds (Ciconiiformes, Anserinae), while copepods serve as first intermediate hosts (see Anderson 2000).

Contracaecum micropapillatum (Stossich, 1890) Baylis, 1920 larva (F)
Location: body cavity

Host: *Cyprinus carpio carpio*
Dist.: Latvia (ponds)
Record: Kirjusina & Vismanis 2004
Remarks: Adults occur in piscivorous birds (pelicans), while copepods serve as first intermediate hosts (see Anderson 2000).

Goezia sp. (F,B)
Location: intestine
Host: *Salmo salar*
Dist.: Daugava River
Records: Shulman 1949; Kirjusina & Vismanis 2004

Hysterothylacium aduncum (M)
(Rudolphi, 1802) Deardorff and Overstreet, 1981 adult and larva
Syn.: *Ascaris aduncа* Rudolphi, 1802
Contracaecum aduncum (Rudolphi, 1802)
Thynnascaris adunca (Rudolphi, 1802)
Location: intestine; encapsulated in liver, mesenteries
Hosts: *Alosa fallax fallax* (1,12)
Anguilla anguilla (1,12)
Belone belone (1,12)
Clupea harengus membras (2,3,5,12)
Cottus poecilopus (5)
Gadus morhua callarias (1,3,4,5,6,12)
Gasterosteus aculeatus (1,12)
Oncorhynchus mykiss (7,8)
Osmerus eperlanus (1,5,12)
Perca fluviatilis (1,12)
Platichthys flesus trachurus (1,3,5,6,9,10,11,12)
Psetta maxima (1,12)
Salmo salar (1,12)
S. trutta (1,12)
Triglopsis quadricornis (1,12)
Zoarces viviparus (1,3,5,6,12)
Dist.: Daugava River, Gulf of Riga, Baltic Sea
Records: 1. Shulman 1949 (Daugava River, Gulf of Riga); 2. Vismanis, Eglite & Volkova 1981 (Gulf of Riga), 3. 1982 (Gulf of Riga), 4. 1986 (Gulf of Riga); 5. Vismanis, Volkova & Eglite 1984 (Gulf of Riga); 6. Vismanis 1987 (Gulf of Riga); 7. Lullu *et al.* 1989 (basins); 8. Lullu, Vismanis & Bakhtina 1989 (tanks); 9. Vismanis & Kondratovičs 1994 (Baltic Sea), 10. 1995 (Baltic Sea); 11. Tabolina 1994 (Gulf of Riga &/or Baltic Sea); 12. Kirjusina & Vismanis 2004 (Daugava River, Gulf of Riga, Baltic Sea)
Remarks: Adult nematodes are parasitic in the digestive tract of marine and anadromous fishes, which may carry them into fresh water. Larvae occur mostly encapsulated in the abdominal cavity and serosa of the internal organs of prey fishes.

Older records under such names as *Contracaecum aduncum* should be treated with caution, as both larvae and adults of other congeneric species were apparently included under this name.

Raphidascaris acus (Bloch, 1779) (F,B)
Railliet and Henry, 1915 adult and larva
Location: gonads, intestine, liver, mesenteries
Hosts: *Abramis brama* (1,2,4,10)
Alburnoides bipunctatus (10)
Alburnus alburnus (1,10)
Anguilla anguilla (1,2,4,9,10)
Blicca bjoerkna (1,2,4,5,10)
Carassius carassius (1,2,4,10)
Coregonus lavaretus (1)
Esox lucius (1,2,3,4,5,10)
Gasterosteus aculeatus (1,10)
Gobio gobio gobio (1)
Gymnocephalus cernuus (1,10)
Leuciscus cephalus (1,10)
L. idus (1,10)
L. leuciscus (10)
Lota lota (1,2,4,10)
Perca fluviatilis (1,2,4,10)
Platichthys flesus trachurus (6,7,8)
Psetta maxima (1,10)
Rutilus rutilus (1,2,3,4,5,10)
Salmo salar (1,10)
S. trutta (1,10)
Sander lucioperca (1,10)
Scardinius erythrophthalmus (1,2,3,4,10)
Silurus glanis (1,10)
Tinca tinca (110)
Triglopsis quadricornis (1,10)
Vimba vimba (1,10)
Zoarces viviparus (1,6,10)
Dist.: Lakes Alūksnes, Burtnieku, Černavu, Cirma, Indra, Juglas, Kāla, Liepājas, Rāznas, Rušons, Sīvers, Slokas, Usmas, Žuguru; Kegums Water Reservoir; Daugava, Ogre, Salaca, Venta Rivers; Gulf of Riga; Baltic Sea
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava River; Gulf of Riga); 2. Reinsone 1955a (Lakes Alūksnes, Burtnieku, Cirma, Kāla, Liepājas, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Liepājas, Sīvers); 5. Vismanis 1961 (Lake Burtnieku); 6. Vismanis,

Volkova & Eglite 1984 (Gulf of Riga); 7. Vismanis & Kondratovičs 1994 (Baltic Sea), 8. 1995 (Baltic Sea); 9. Kirjusina & Vismanis 2000 (Lake Usmas, Venta River, Gulf of Riga), 10. 2004 (Lakes Alūksnes, Burtnieku, Černavu, Cirma, Indra, Juglas, Kāla, Liepājas, Rāznas, Rušons, Sīvers, Slokas, Usmas, Žuguru; Kegums Water Reservoir; Daugava, Ogre, Salaca Rivers; Gulf of Riga; Baltic Sea)

Remarks: Definitive hosts of *R. acus* are predatory fishes (*Esox lucius*, *Lota lota*, *Salmo trutta* and others) that acquire infections by ingesting other fishes harbouring the third-stage larvae. The latter act as intermediate or paratenic hosts (see Moravec 1994).

Raphidascaris gracillima (F)
(von Linstow, 1890) Skrjabin, 1923 larva
Location: liver
Hosts: *Gasterosteus aculeatus* (1,2)
Zoarces viviparus (1,2)
Dist.: Daugava River
Records: 1. Shulman 1949; 2. Kirjusina & Vismanis 2004

FAMILY ASCARIDIDAE

Pseudoterranova decipiens (M)
(Krabbe, 1878) Gibson, 1983 larva
Syn.: *Porrocaecum decipiens* (Krabbe, 1878)
Location: liver
Hosts: *Platichthys flesus trachurus* (1,2)
Taurulus bubalis (1,2)
Triglopsis quadricornis (1,2)
Salmo salar (1,2)
Dist.: Daugava River, Gulf of Riga, Baltic Sea
Records: 1. Shulman 1949; 2. Kirjusina & Vismanis 2004

Pseudoterranova sp. larva (M)
Includes: *Porrocaecum* sp. auctorum
Location: body cavity
Hosts: *Platichthys flesus trachurus* (1,2)
Zoarces viviparus (1)
Dist.: Gulf of Riga, Baltic Sea
Records: 1. Vismanis, Volkova & Eglite 1984 (Gulf of Riga); 2. Vismanis & Kondratovičs 1995 (Baltic Sea)

SUPERFAMILY SEURATOIDEA

FAMILY CUCULLANIDAE

Cucullanus cirratus O.F. Müller, 1777 (M)
Location: intestine
Host: *Gadus morhua callarias*
Dist.: Gulf of Riga
Records: Vismanis, Volkova & Eglite 1986; Vismanis, Eglite & Volkova 1986

Cucullanus heterochrous (M)
Rudolphi, 1802
Location: intestine
Hosts: *Leuciscus idus* (1,5)
Platichthys flesus trachurus (1,2,3,4)
Silurus glanis (1,5)
Dist.: Daugava River, Gulf of Riga, Baltic Sea
Records: 1. Shulman 1949 (Daugava River, Baltic Sea); 2. Vismanis, Volkova & Eglite 1984 (Gulf of Riga); 3. Vismanis & Kondratovičs 1994 (Baltic Sea), 4. 1995 (Baltic Sea); 5. Kirjusina & Vismanis 2004 (Daugava River, Gulf of Riga)
Remarks: This nematode is a parasite of various flatfishes of the families Pleuronectidae and Soleidae, some species of which occur mainly in river estuaries, sometimes penetrating upstream into fresh waters (see Moravec 1994).

Cucullanus truttae Fabricius, 1794 (F)
Syn.: *Dacnitis stelmioides* Vessichelli, 1910
D. truttae (Fabricius, 1794)
Location: abdominal cavity [?], intestine
Hosts: *Lampetra fluviatilis* (1,2,3,4,5)
Salmo salar (1,4)
Salmo trutta fario (1,4)
Dist.: Daugava, Līčupe Rivers; Gulf of Riga
Records: 1. Shulman 1949 (Daugava, Līčupe Rivers); 2. Vismanis, Eglite & Volkova 1981 (Gulf of Riga); 3. Vismanis, Volkova & Eglite 1984 (Gulf of Riga); 4. Kirjusina & Vismanis 2004 (rivers entering in Gulf of Riga); 5. Kirjusina 2005 (Daugava River)
Remarks: The principal hosts are various salmonids, but fully mature nematodes are also found in adult lamprey (Moravec 1994).

Dichelyne (*Cucullanellus*) *minutus* (M)
(Rudolphi, 1819) Petter, 1974
Syn.: *Cucullanellus minutus* (Rudolphi, 1819)
Location: intestine
Hosts: *Platichthys flesus trachurus*

(1,2,3,4,5,6)
Psetta maxima (1,6)
Dist.: Daugava River, Gulf of Riga, Baltic Sea
Records: 1. Shulman 1949 (Daugava River, Gulf of Riga, Baltic Sea); 2. Vismanis, Volkova & Eglite 1984 (Gulf of Riga); 3. Vismanis & Kondratovičs 1994 (Baltic Sea), 4. 1995 (Baltic Sea); 5. Tabolina 1994 (Gulf of Riga &/or Baltic Sea); 6. Kirjusina & Vismanis 2004 (Daugava River, Gulf of Riga, Baltic Sea)

ORDER SPIRURIDA

SUPERFAMILY APROCTOIDEA

FAMILY DESMIDOCERCIDAE

Desmidocercella numidica (F)
(Seurat, 1920) York and Maplestone, 1926 larva
Location: vitreous humor of eye
Hosts: *Perca fluviatilis* (1)
Scardinius erythrophthalmus (1,2)
Dist.: Lakes Sīvers, Slokas, Usmas
Records: 1. Kirjushina & Vismanis 2003 (Lakes Sīvers, Slokas), 2. 2004 (Lakes Slokas, Usmas)
Remarks: Adults occur in the air sacs of herons (Ardeidea) in Africa, North America and the former Soviet Union (see Anderson 2000).

Desmidocercella sp. larva (F)
Location: vitreous humor of eye
Hosts: *Lota lota* (1,2)
Perca fluviatilis (1,2)
Rutilus rutilus (1,2)
Dist.: Lakes Juglas, Sīvers, Slokas, Žuguru; Daugava River
Records: 1. Reinsone 1955 (Lake Sīvers); 2. Kirjusina & Vismanis 2004 (Lakes Juglas, Slokas, Žuguru; Daugava River)

SUPERFAMILY CAMALLANOIDEA

FAMILY CAMALLANIDAE

Camallanus (*Camallanus*) *lacustris* (F)
(Zoega, 1776) Railliet and Henry, 1915
Location: intestine, pyloric caeca
Hosts: *Anguilla anguilla* (1,7,8)
Esox lucius (1,2,3,4,5,6,8)
Gymnocephalus cernuus (1,2,3,4,5,8)
Lota lota (1,2,3,4,8)
Perca fluviatilis (1,2,3,4,5,6,8)
Sander lucioperca (5,8)
Dist.: Lakes Alūksnes, Burtnieku, Cirma, Durbes, Juglas, Kāla, Liepājas, Rāznas, Riču, Rušons, Sildu, Sīvers, Slokas, Usmas, Žuguru; Kegums Water Reservoir; Daugava, Ogre, Salaca, Venta Rivers; Gulf of Riga
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava River; Gulf of Riga); 2. Reinsone 1955a (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Kāla, Liepājas, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Liepājas, Sīvers); 5. Vismanis 1961 (Lake Burtnieku); 6. Vismanis *et al*. 1989 (Lake Sildu); 7. Kirjusina & Vismanis 2000 (Lake Usmas, Venta River, Gulf of Riga), 8. 2004 (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Juglas, Kāla, Liepājas, Rāznas, Riču, Rušons, Sildu, Sīvers, Slokas, Usmas, Žuguru; Kegums Water Reservoir; Daugava, Ogre, Salaca Rivers; Gulf of Riga)

Camallanus (*Camallanus*) *truncatus* (F)
(Rudolphi, 1814) Törnquist, 1931
Location: intestine
Hosts: *Esox lucius* (2)
Perca fluviatilis (1,2)
Psetta maxima (1,2)
Sander lucioperca (1,2)
Silurus glanis (1,2)
Dist.: Lake Slokas, Daugava River, Gulf of Riga
Records: 1. Shulman 1949 (Daugava River, Gulf of Riga); 2. Kirjusina & Vismanis 2004 (Lake Slokas, Daugava River, Gulf of Riga)
Remarks: Although the principal hosts of *Camallanus truncatus* seem to be fishes of the genus *Stizostedion*, it also occurs in other percids and in many fish species of different families (see Moravec 1994).

SUPERFAMILY DRACUNCULOIDEA

FAMILY ANGUILLICOLIDAE

Anguillicola crassus (F)
Kuwahara, Niimi and Itagaki, 1974
Location: swimbladder
Hosts: *Anguilla anguilla* (1,2,3,4,5)
Gymnocephalus cernuus (2,3,5)
Perca fluviatilis (2,3,5)
Dist.: Lakes Puzes, Usmas; Venta River; Gulf of Riga

Records: 1. Vismanis 1998 (Lake Usmas); 2. Vismanis, Kirjusina & Rodziņš 1999 (Lake Usmas); 3. Kirjusina & Vismanis 2000 (Lake Usmas, Venta River, Gulf of Riga), 4. 2001 (Lake Usmas, Venta River), 5. 2004 (Lakes Puzes, Usmas; Venta River)

Remarks: Principal definitive hosts are eels. Paratenic hosts of this parasite in Latvia are mainly ruff and rarely, perch. Mass mortality of eel in Lake Usmas was recorded by Kirjusina and Vismanis (2000).

FAMILY PHILOMETRIDAE

Philometra abdominalis Nybelin, 1928 (F)

Location: body cavity, under serosa of swimbladder wall

Host: *Rutilus rutilus*

Dist.: Lake Sildu, Lielupe River

Records: Vismanis & Popov 1990 (Lake Sildu); Kirjusina & Vismanis 2004 (Lake Sildu, Lielupe River)

Remarks: Gravid and subgravid females are found in the body cavity, while juveniles, males and unfertilized females locate under the serosa of the posterior portion of the swimbladder wall.

The life cycle has been shown to involve various copepods as intermediate hosts (see Anderson 2000).

Philometra obturans (Prenant, 1886) (F,B)
Skrjabin, Shikhobalova, Sobolev, Paramonov and Sudarikov, 1954

Syn.: *Filaria obturans* Prenant, 1886

Location: gill arteries, ventral aorta

Host: *Esox lucius*

Dist.: Lakes Juglas, Kāla, Rušons, Sīvers, Slokas

Records: Shulman 1949 (Lake Rušons); Reinsone 1955a (Lake Sīvers), 1955b (Lake Sīvers), 1959 (Lake Sīvers); Kirjusina & Vismanis 2004 (Lakes Juglas, Kāla, Rušons, Sīvers, Sloka)

Remarks: Various copepods serve as intermediate hosts, while perch and rudd may act as paratenic hosts. (see Anderson 2000). Gravid, subgravid and young fertilized females locate in the gill arteries and ventral aorta of the northern pike; unfertilized females and males are found in the abdominal cavity and vitreous humor of the eye.

Philometra ovata (Zeder, 1803) (F)
Skrjabin, 1923

Location: body cavity, under serosa of swimbladder

Hosts: *Abramis brama* (2,3)
Gymnocephalus cernuus (1,3)

Dist.: Lake Rušons; Daugava River

Records: 1. Shulman 1949 (Lake Rušons); 2. Vismanis & Popov 1990 (Daugava River); 3. Kirjusina & Vismanis 2004 (Lake Rušons; Daugava River)

Remarks: This philometrid is a common parasite of the body cavity of many species of cyprinids in Europe and Asia. Various species of copepod serve as intermediate hosts (see Anderson 2000). Gravid and subgravid females are found in the body cavity, while juveniles, males and unfertilized females occur under the serosa of the posterior part of the swimbladder

Philometra rischta Skrjabin, 1923 (F)

Location: tissues on inner surface of gill covers, under the skin of head

Host: *Rutilus rutilus*

Dist.: Lake Slokas

Records: Kirjusina & Vismanis 2001, 2004

Remarks: The location pertains to gravid, subgravid and young unfertilized females.

Philometroides cyprini (Ishii, 1931) (F)
Nakajima, 1970

Syn.: *Philometra lusii* Vismanis, 1962
Philometra lusiana Vismanis, 1966

Location: body cavity, serosa of swimbladder, skin under scales, scale beds

Host: *Cyprinus carpio carpio*

Dist.: Lake Sildu

Records: Vismanis 1962 (ponds), 1964 (ponds), 1967a (ponds), 1967b (ponds); 1972 (ponds); Vismanis & Peslak 1963 (ponds); Vismanis 1967 (ponds); Vismanis, Glagoleva & Kuznetsova 1981 (ponds); Vismanis *et al.* 1989 (Lake Sildu); Kirjusina & Vismanis 2004 (Lake Sildu, ponds)

Remarks: *Philometroides cyprini* is considered to be an introduced species that is specific to common carp (see Moravec *et al.* 2005).

Gravid and subgravid females are spirally coiled in the skin under the scales and in the beds of the scales; young fertilized females occur in the body cavity, while juveniles, males and unfertilized females are found mainly in the serosa of the swimbladder. Various species of copepod serve as intermediate hosts (see Anderson 2000).

Vasilkov *et al.* (1974) reported that mortality of infected 2–3 week old carp fry reached 40–50 percent or even more. In year two and older carp, the parasite causes a considerable decrease in commercial quality (see Moravec 1994).

Philometroides sanguinea (F)
(Rudolphi, 1819) Rasheed, 1963
Location: caudal fin, swimbladder wall
Host: *Carassius carassius*
Dist.: Lakes Černavu, Juglas, Sildu, Slokas, Žuguru
Records: Kirjushina & Vismanis 2003 (Lakes Černavu, Sildu), 2004 (Lakes Juglas, Slokas, Žuguru)
Remarks: Vismanis (1968) reported mass mortality of *Carassius carassius* caused by *Philometroides sanguinea* in Altay, USSR. This nematode is apparently specific to fishes of the genus *Carassius* (see Moravec 1994). Various copepods serve as intermediate hosts.

FAMILY SKRJABILLANIDAE

Skrjabillanus tincae (F)
Shigin and Shigina, 1958
Location: surface of intestine
Host: *Tinca tinca*
Dist.: Lake Slokas
Record: Kirjusina & Vismanis 2004

SUPERFAMILY THELAZIOIDEA

FAMILY RHABDOCHONIDAE

Rhabdochona denudata (F)
(Dujardin, 1845) Ralliet, 1916
Syn.: *Ichthyospirura filliformis* (Zschokke, 1884)
Location: intestine
Hosts: *Abramis brama* (1,2,3,4,5)
Alburnoides bipunctatus (5)
Alburnus alburnus (1,5)
Leucaspius delineatus (4)
Leuciscus cephalus (1,5)
Rutilus rutilus (1,2,3,4,5)
Sander lucioperca (5)
Dist.: Lakes Burtnieku, Lielauces, Sīvers; Kegums Water Reservoir; Daugava, Ogre Rivers
Records: 1. Shulman 1949 (Kegums Water Reservoir, Daugava River); 2. Reinsone 1955a (Lakes Burtnieku, Lielauces, Sīvers), 3. 1959 (Lakes Lielauces, Sīvers); 4. Vismanis 1961 (Lake Burtnieku); 5. Kirjusina & Vismanis 2004 (Lakes Burtnieku, Lielauces, Sīvers; Kegums Water Reservoir; Daugava, Ogre Rivers)
Remarks: This nematode parasitizes many species of cyprinids, largely members of the subfamily Leuciscinae (see Moravec 1994). Predators such as *Sander lucioperca* acquire accidental infections mostly through feeding on the definitive hosts.

SUPERFAMILY HABRONEMATOIDEA

FAMILY CYSTIDICOLIDAE

Ascarophis longispicula Zhukov, 1960 (M)
Location: intestine
Host: *Gadus morhua callarias*
Dist.: Gulf of Riga, Baltic Sea
Records: Vismanis, Volkova & Eglite 1986 (Gulf of Riga); Vismanis, Eglite & Volkova 1986 (Baltic Sea); Kirjusina & Vismanis 2004 (Gulf of Riga)

Ascarophis morrhuae (M)
van Beneden, 1871
Location: intestine
Hosts: *Gadus morhua callarias* (1,2)
Taurulus bubalis (1)
Triglopsis quadricornis (1,2)
Dist.: Gulf of Riga, Baltic Sea
Records: 1. Shulman 1949; 2. Kirjusina & Vismanis 2004

Ascarophis skrjabini (Layman, 1933) (M)
Polyansky, 1952
Syn.: *Cystidicola skrjabini* Layman, 1933
Location: intestine
Hosts: *Gadus morhua callarias* (1,3)
Zoarces viviparus (1,2,3)
Dist.: Daugava River, Gulf of Riga
Records: 1. Shulman 1949 (Daugava River, Gulf of Riga); 2. Vismanis, Volkova & Eglite 1984 (Gulf of Riga); 3. Kirjusina & Vismanis 2004 (Daugava River, Gulf of Riga)

Ascarophis sp. (M)
Location: intestine, stomach
Hosts: *Clupea harengus membras* (1,2)
Gadus morhua callarias (1,2,3,4)
Platichthys flesus trachurus (2,5,6)

Dist.: Gulf of Riga, Baltic Sea
Records: 1. Vismanis, Eglite & Volkova 1981 (Gulf of Riga), 2. 1986 (Baltic Sea); 3. Vismanis, Volkova & Eglite 1984 (Gulf of Riga), 4. 1986 (Gulf of Riga); 5. Vismanis & Kondratovičs 1994 (Baltic Sea), 6. 1995 (Baltic Sea)

Cystidicola farionis Fischer, 1798 (F)
Syn.: *Cystidicola impar* (Schneider, 1866)
Location: swimbladder
Hosts: *Clupea harengus membras* (10)
Coregonus lavaretus (1,10)
Gadus morhua callarias (4,5,6,7,10)
Lampetra fluviatilis (2,3,5,7,10,11)
Oncorhynchus mykiss (8,9)
Osmerus eperlanus (1,5,7,10)
Dist.: Daugava River, Gulf of Riga, Baltic Sea
Records: 1. Shulman 1949 (Daugava River); 2. Vismanis, Eglite & Volkova 1981 (Gulf of Riga), 3. 1982 (Gulf of Riga), 4. 1986 (Baltic Sea); 5. Vismanis, Volkova & Eglite 1984 (Gulf of Riga), 6. 1986 (Gulf of Riga); 7. Vismanis 1987 (Gulf of Riga); 8. Lullu *et al*. 1989 (tanks); 9. Lullu, Vismanis & Bakhtina 1989 (tanks); 10. Kirjusina & Vismanis 2004 (Daugava River, Gulf of Riga); 11. Kirjushina 2005 (Daugava River)
Remarks: The common definitive hosts of *C. farionis* are fishes of the families Salmonidae and Osmeridae. Species such as *Lampetra fluviatilis, Clupea harengus membras* and *Gadus morhua callarias* apparently are only facultative hosts, aquiring accidental infections by ingesting small salmonids or amphipod intermediate hosts (see Moravec 1994). Practically all *Osmerus eperlanus* are infected (Kirjusina and Vismanis 2004).

Cystidicoloides ephemeridarum (F)
(von Linstow, 1872) Moravec, 1981
Location: stomach
Hosts: *Thymallus thymallus* (2,3)
Zoarces viviparus (1)
Dist.: Gauja River, Gulf of Riga
Records: 1. Vismanis, Volkova & Eglite 1984 (Gulf of Riga); 2. Kirjusina & Vismanis 2001 (Gauja River); 3. Kirjusina & Vismanis 2004 (Gauja River)
Remarks: Common definitive hosts are fishes of the family Salmonidae; *Zoarces viviparous* is accidentally infected.

Unidentified Nematoda

Nematoda gen. sp. larva (F,B,M)
Location: intestinal wall, liver, mesenteries, eyes
Hosts: *Abramis brama* (1)
Alburnus alburnus (1)
Blicca bjoerkna (3)
Carassius carassius (3,5)
Cottus gobio (1)
Cyprinius carpio carpio (2,4)
Lampetra fluviatilis (1,8)
L. planeri (1)
Lota lota (3,5)
Perca fluviatilis (3,5)
Platichthys flesus trachurus (6,7)
Rutilus rutilus (1,3,5)
Scardinius erythrophthalmus (1)
Tinca tinca (3,5)
Zoarces viviparus (6,7)
Dist.: Lakes Cirma, Lielauces, Liepājas, Sīvers; Kegums Water Reservoir; Daugava River; Gulf of Riga
Records: 1. Shulman 1949 (Kegums Water Reservoir, Daugava River); 2. Vismanis 1964 (ponds); 3. Reinsone 1955a (Lakes Cirma, Lielauces, Liepājas, Sīvers), 4. 1959 (Lakes Lielauces, Liepājas, Sīvers); 5. Grapmane 1957 (ponds); 6. Vismanis, Volkova & Eglite 1984 (Gulf of Riga); 7. Vismanis 1987 (Gulf of Riga); 8. Kirjusina 2005 (Daugava River)

PHYLUM ACANTHOCEPHALA

CLASS PALEACANTHOCEPHALA

ORDER ECHINORHYNCHIDA

FAMILY ECHINORHYNCHIDAE

Acanthocephalus anguillae (F)
(O.F. Müller, 1780) Lühe, 1911
Location: intestine
Hosts: *Abramis brama* (1,2,6,7)
Alburnus alburnus (1,7)
Anguilla anguilla (1,2,5,7)
Aspius aspius (1,7)
Blicca bjoerkna (1,2,5,6,7)
Carassius carassius (1,2,3,5,7)
Cyprinus carpio carpio (4,7)
Esox lucius (1,7)
Gymnocephalus cernuus (1,7)
Leuciscus idus (1,6,7)
Lota lota (1,2,3,5,7)
Pelecus cultratus (1,7)

Rutilus rutilus (1,2,3,5,6,7)
Scardinius erythrophthalmus (2,5,7)
Silurus glanis (1,7)
Tinca tinca (1,2,3,5,7)
Vimba vimba (1,5,7)

Dist.: Lakes Burtnieku, Cirma, Juglas, Liepājas, Rāznas, Sīvers, Usmas; Kegums Water Reservoir, Gulf of Riga; Daugava River

Records: 1. Shulman 1949 (Lake Rāznas, Kegums Water Reservoir, Daugava River, Gulf of Riga); 2. Reinsone 1955a (Lakes Burtnieku, Cirma, Liepājas, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Liepājas, Sīvers); 5. Grapmane 1957 (ponds); 6. Vismanis 1961 (Lake Burtnieku); 7. Kirjusina & Vismanis 2004 (Lakes Burtnieku, Cirma, Juglas, Liepājas, Rāznas, Sīvers, Usmas; Kegums Water Reservoir, Gulf of Riga; Daugava River, ponds)

Acanthocephalus clavula (F)
(Dujardin, 1845) Grabda-Kazubska & Chubb, 1968

Syn.: *Echinorhynchus clavula* Dujardin, 1845
Pseudoechinorhynchus borealis (von Linstow, 1901)

Location: intestine

Hosts: *Anguilla anguilla* (1,2,3)
Gasterosteus aculeatus (4)
Gymnocephalus cernuus (1)
Lota lota (1)

Dist.: Lakes Liepājas, Rāznas; Daugava River

Records: 1. Shulman 1949 (Lake Rāznas, Daugava River); 2. Reinsone 1955a (Lake Liepājas), 3. 1959 (Lake Liepājas); 4. Kirjusina & Vismanis 2004 (Lakes Liepājas, Rāznas; Daugava River)

Acanthocephalus lucii (F)
(O.F. Müller, 1776) Lühe, 1911

Location: intestine

Hosts: *Abramis brama* (10)
Anguilla anguilla (1,2,4,9,10)
Blicca bjoerkna (1,10)
Carassius carassius (1,10)
Cyprinus carpio carpio (6,10)
Esox lucius (1,2,3,4,5,8,10)
Gasterosteus aculeatus (10)
Gobio gobio gobio (1,10)
Gymnocephalus cernuus (1,2,3,4,10)
Lota lota (1,2,3,4,5,10)
Perca fluviatilis (1,2,3,4,5,8,10)
Rutilus rutilus (1,2,4,10)
Sander lucioperca (10)
Silurus glanis (1,10)
Tinca tinca (1,10)
Vimba vimba (7,10)

Dist.: Lakes Alūksnes, Burtnieku, Cirma, Durbes, Juglas, Lielauces, Liepājas, Rāznas, Riču, Rušons, Sildu, Sīvers, Slokas, Usmas, Žuguru; Kegums Water Reservoir; Daugava, Salaca, Venta Rivers; Gulf of Riga

Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava River; Gulf of Riga); 2. Reinsone 1955a (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Lielauces, Liepājas, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Lielauces, Liepājas, Sīvers); 5. Vismanis 1961 (Lake Burtnieku), 6. 1964 (ponds); 7. Vismanis, Spirina & Paršuta 1971 (Gulf of Riga); 8. Vismanis *et al.* 1989 (Lake Sildu); 9. Kirjusina & Vismanis 2000 (Lake Usmas, Venta River, Gulf of Riga), 10. 2004 (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Juglas, Lielauces, Liepājas, Rāznas, Riču, Rušons, Sildu, Sīvers, Slokas, Usmas, Žuguru; Kegums Water Reservoir; Daugava, Salaca Rivers; Gulf of Riga; ponds)

Echinorhynchus cryophilus (F)
(Sokolovskaya, 1962) Amin, 1985

Syn.: *Metechinorhynchus cryophilus* Sokolovskaya, 1962

Location: intestine

Host: *Gasterosteus aculeatus*

Dist.: Daugava River

Record: Kirjusina & Vismanis 2004

Echinorhynchus gadi (M)
Zoega in O.F. Müller, 1776

Location: intestine

Hosts: *Abramis brama* (1,11)
Alosa fallax fallax (1,11)
Clupea harengus membras (2,3,4,5,7,11)
Cottus poecilopus (5)
Gadus morhua callarias (1,3,4,5,6,7,11)
Lampetra fluviatilis (2,3,5,11,12)
Osmerus eperlanus (3)
Platichthys flesus trachurus (3,4,5,7,8,9,10,11)
Salmo salar (1,11)
Vimba vimba (1,11)
Zoarces viviparus (3,4,5,7,11)

Dist.: Daugava River, Gulf of Riga, Baltic Sea
Records: 1. Shulman 1949 (Daugava River, Gulf of Riga, Baltic Sea); 2. Vismanis, Eglite & Volkova 1981 (Gulf of Riga), 3. 1982 (Gulf of Riga), 4. 1986 (Baltic Sea); 5. Vismanis, Volkova & Eglite 1984 (Gulf of Riga); 6. 1986 (Gulf of Riga); 7. Vismanis 1987 (Gulf of Riga); 8. Tabolina 1994 (Gulf of Riga &/or Baltic Sea); 9. Vismanis & Kondratovičs 1994 (Baltic Sea), 10. 1995 (Baltic Sea); 11. Kirjusina & Vismanis 2004 (Daugava River, Gulf of Riga, Baltic Sea); 12. Kirjusina 2005 (Daugava River)
Remarks: Heavy infections cause intestinal ulceration and reduce host condition (see Shulman and Shulman-Albova 1953).

Echinorhynchus salmonis (F)
O.F. Müller, 1784
Syn.: *Metechinorhynchus salmonis* (O.F. Müller, 1784)
Location: intestine
Hosts: *Anguilla anguilla* (1)
Clupea harengus membras (1)
Gasterosteus aculeatus (2)
Salmo salar (1)
S. trutta (1)
Dist.: Daugava River, Gulf of Riga, Baltic Sea
Records: 1. Shulman 1949 (Daugava River, Gulf of Riga, Baltic Sea); 2. Kirjusina & Vismanis 2004 (Daugava River)

Echinorhynchus truttae Schrank, 1788 (F)
Syn.: *Metechinorhynchus truttae* (Schrank, 1788)
Location: intestine
Hosts: *Cobitis taenia*
Salmo trutta fario
Dist.: Līčupe River
Records: Shulman 1949 (Līčupe River); Kirjusina & Vismanis 2004 (Līčupe River, hatchery)
Remarks: Heavy infection cases pathogenicity, especially in ponds (see Bauer 1987).

FAMILY POMPHORHYNCHIDAE

Pomphorhynchus laevis (F)
(Zoega in O.F. Müller, 1776)
Van Cleave, 1924
Location: intestine
Hosts: *Abramis brama* (1,11)
Anguilla anguilla (11)
Belone belone (1,11)
Carassius carassius (1,11)
Clupea harengus membras (1,2,3,5,11)
Cottus poecilpus (5)
Gadus morhua callarias (1,4,5,6,11)
Gasterosteus aculeatus (11)
Leuciscus idus (1,11)
Platichthys flesus trachurus (3,5,7,8,9,10,11)
Vimba vimba (11)
Zoarces viviparus (1,3,5,11)
Dist.: Lake Usmas, Daugava River, Gulf of Riga, Baltic Sea
Records: 1. Shulman 1949 (Daugava River, Gulf of Riga); 2. Vismanis, Eglite & Volkova 1981 (Gulf of Riga), 3. 1982 (Gulf of Riga), 4. 1986 (Baltic Sea); 5. Vismanis, Volkova & Eglite 1984 (Gulf of Riga), 6. 1986 (Gulf of Riga); 7. Vismanis 1987 (Gulf of Riga); 8. Vismanis & Kondratovičs 1994 (Baltic Sea); 9. Tabolina 1994 (Gulf of Riga &/or Baltic Sea); 10. Vismanis & Kondratovitch 1995 (Baltic Sea); 11. Kirjusina & Vismanis 2004 (Lake Usmas, Daugava River, Gulf of Riga)
Remarks: Heavy infections cause disease, the parasite's proboscis perforating the intestinal wall and fastening to the internal organs (see Bauer 1987).

ORDER POLYMORPHIDA

FAMILY POLYMORPHIDAE

Corynosoma semerme (Forssell, 1904) (M)
Lühe, 1911 juvenile
Location: body cavity, intestine, liver, mesenteries
Hosts: *Belone belone* (1,10)
Clupea harengus membras (2,3,5,7,10)
Gadus morhua callarias (3,4,5,6,7,10)
Lampetra fluviatilis (11)
Leuciscus idus (1,10)
Osmerus eperlanus (1,3,5,7,10)
Perca fluviatilis (10)
Platichthys flesus trachurus (1,3,5,7,8,9,10)
Psetta maxima (1,10)
Rutilus rutilus (1,10)
Sander lucioperca (10)
Scardinius erythrophthalmus (1,10)
Tinca tinca (1,10)
Zoarces viviparus (1,3,5,7,10)
Dist.: Daugava River; Gulf of Riga; Baltic Sea

Records: 1. Shulman 1949 (Daugava River, Gulf of Riga, Baltic Sea); 2. Vismanis, Eglite & Volkova 1981 (Gulf of Riga), 3. 1982 (Gulf of Riga), 4. 1986 (Baltic Sea); 5. Vismanis, Volkova & Eglite 1984 (Gulf of Riga), 6. 1986 (Gulf of Riga); 7. Vismanis 1987 (Gulf of Riga); 8. Vismanis & Kondratovičs 1994 (Baltic Sea), 9. 1995 (Baltic Sea); 10. Kirjusina & Vismanis 2004 (Gulf of Riga) 11. Kirjusina 2005 (Daugava, Gauja Rivers)

Corynosoma strumosum (M)
(Rudolphi, 1802) Lühe, 1904 juvenile
Location: body cavity, intestine, liver, mesenteries
Hosts: *Anguilla anguilla* (1,9)
Clupea harengus membras (2,3,5,7)
Gadus morhua callarias (1,3,4,5,6,7,9)
Lampetra fluviatilis (10)
Osmerus eperlanus (3,7)
Platichthys flesus trachurus (3,5,7,8,9)
Sander lucioperca (1,9)
Zoarces viviparus (3,5,7)
Dist.: Daugava River, Gulf of Riga, Baltic Sea
Records: 1. Shulman 1949 (Daugava River, Gulf of Riga); 2. Vismanis, Eglite & Volkova 1981 (Gulf of Riga), 3. 1982 (Gulf of Riga), 4. 1986 (Baltic Sea); 5. Vismanis, Volkova & Eglite 1984 (Gulf of Riga), 6. 1986 (Gulf of Riga), 7. 1987 (Gulf of Riga); 8. Vismanis & Kondratovičs 1995 (Baltic Sea); 9. Kirjusina & Vismanis 2004 (Daugava River, Gulf of Riga); 10. Kirjusina 2005 (Daugava River)

CLASS EOACANTHOCEPHALA

ORDER NEOACANTHOCEPHALA

FAMILY NEOECHINORHYNCHIDAE

Neoechinorhynchus rutili (F)
(O.F. Müller, 1780) Stiles & Hassall, 1905
Location: intestine
Hosts: *Abramis brama* (5)
Alburnus alburnus (1,5)
Anguilla anguilla (1,5)
Blicca bjorkna (1,5)
Carassius carassius (5)
Gasterosteus aculeatus (1,5)
Lota lota (1,5)
Rutilus rutilus (2,3,4,5)
Dist.: Lakes Juglas, Rāznas, Sīvers, Usmas, Žuguru; Daugava River; Gulf of Riga
Records: 1. Shulman 1949 (Lake Rāznas, Daugava River, Gulf of Riga); 2. Reinsone 1955a (Lake Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lake Sīvers); 5. Kirjusina & Vismanis 2004 (Lakes Juglas, Rāznas, Sīvers, Usmas, Žuguru; Daugava River; Gulf of Riga)
Remarks: Mass infection causes intestinal damage and mortality of one-year-old carp and trout (see Bauer 1987).

PHYLUM ANNELIDA

CLASS OLIGOCHAETA

ORDER HIRUDINIDA

SUBORDER RHYNCHOBDELLIDA

FAMILY GLOSSIPHONIIDAE

Hemiclepsis marginata (F)
(O.F. Müller, 1774) Vedjovsky, 1884
Location: gills
Hosts: *Carassius carassius* (1,3)
Perca fluviatilis (1,3)
Rutilus rutilus (1,3)
fish (2)
Dist.: Lake Rāznas
Records: 1. Shulman 1949; 2. Vismanis 1972 (ponds); 3. Kirjusina & Vismanis 2004

FAMILY PISCICOLIDAE

Piscicola geometra (F)
(Linnaeus, 1761) Blainville, 1818
Location: gill cavity, mouth, skin
Hosts: *Abramis brama* (2,4,5,6,9,18)
Alburnus alburnus (2,4,18)
Blicca bjoerkna (9,18)
Carassius auratus auratus (7,18)
C. carassius (2,4,6,7,18)
Coregonus peled (7,18)
Cottus poecilopus (13)
Cyprinus carpio carpio (3,7,8,10,18)
C. carpio haematopterus (9)
Esox lucius (4,5,6,9,16,18)
Gadus morhua callarias (13,14,15,18)
Gasterosteus aculeatus (18)
Gymnocephalus cernuus (2,4,5,6,18)
Lampetra fluviatilis (12,13,18)

Leucaspius delineatus (7,18)
Leuciscus cephalus (18)
Perca fluviatilis (2,4,5,6,8,9,18)
Platichthys flesus trachurus (17)
Pungitius pungitius (7,18)
Rutilus rutilus (2,4,5,6,8,18)
Scardinius erythrophthalmus (2,4,5,6,18)
Tinca tinca (4,6,7,18)
Zoarces viviparus (13)
fish (1,11)

Dist.: Lakes Alūksnes, Burtnieku, Cirma, Durbes, Juglas, Kāla, Lielauces, Rāznas, Sildu, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava, Lielupe Rivers; Gulf of Riga; Baltic Sea

Records: 1. Trauberga 1936 (-); 2. Shulman 1949 (Lake Rāznas, Kegums Water Reservoir); 3. Akhmerov & Grapmane 1954 (ponds); 4. Reinsone 1955a (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Kāla, Lielauces, Sīvers), 5. 1955b (Lake Sīvers), 6. 1959 (Lakes Lielauces, Sīvers); 7. Grapmane 1957 (ponds); 8. Akhmerov 1961 (ponds); 9. Vismanis 1961 (Lake Burtnieku), 10. 1964 (ponds), 11. 1972; 12. Vismanis, Eglite & Volkova 1981 (Gulf of Riga), 13. 1986 (Baltic Sea); 14. Vismanis, Volkova & Eglite 1984 (Gulf of Riga), 15. 1986 (Gulf of Riga); 16. Vismanis *et al.* 1989 (Lake Sildu); 17. Vismanis & Kondratovičs 1994 (Baltic Sea); 18. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Juglas, Kāla, Lielauces, Rāznas, Sildu, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava, Lielupe Rivers; Gulf of Riga)

Remarks: *Piscicola geometra* causes disease of fish in wintering ponds. This leech is a vector of blood parasites belonging to the genera *Trypanosoma* and *Cryptobia* (Golovina *et al.* 2003).

PHYLUM MOLLUSCA

CLASS PELECYPODA

ORDER EULAMELLIBRANCHIA

FAMILY UNIONIDAE

Anodonta complanata Ziegler in Rossmässler, 1835 (F) glochidium
Location: gills
Host: *Gasterosteus aculeatus*
Dist.: Daugava River
Record: Kirjusina & Vismanis 2004

Anodonta cygnea (Linnaeus, 1758) (F) glochidium
Location: fins, gills
Hosts: *Abramis brama*
Alburnus alburnus
Anguilla anguilla
Blicca bjoerkna
Gobio gobio gobio
Gymnocephalus cernuus
Esox lucius
Leuciscus cephalus
L. leuciscus
Perca fluviatilis
Rutilus rutilus
Sander lucioperca
Scardinius erythrophthalmus
Tinca tinca
Dist.: Lakes Juglas, Slokas, Usmas; Daugava, Ogre Rivers
Record: Kirjusina & Vismanis 2004

Anodonta sp. (F)
Location: gills
Host: *Anguilla anguilla*
Dist.: Lake Usmas, Venta River, Gulf of Riga
Record: Kirjusina & Vismanis 2000

Pseudanodonta kletti (Rossmaessler, 1835) (F) glochidium
Location: fins, gills
Hosts: *Esox lucius* (1,2)
Perca fluviatilis (1,2)
Phoxinus phoxinus (1,2)
Rutilus rutilus (1,2)
Dist.: Lake Sildu
Records: Kirjusina & Vismanis. 2003 (-), 2004

Unio pictorum (Linnaeus, 1758) (F) glochidium
Location: gills
Hosts: *Perca fluviatilis*
Rutilus rutilus
Salmo trutta morpha *fario*
Dist.: Lakes Juglas, Kišezers, Vīragnas; Daugava, Gauja, Ogre, Salaca, Venta Rivers
Record: Kirjusina & Vismanis 2004

Unio rostratus (Lamarck, 1799) (F) glochidium
Location: gills
Host: *Vimba vimba*
Dist.: Lielupe River
Record: Kirjusina & Vismanis 2004
Remarks: Heavy infestations can be pathogenic to fish (Stabnichenko and Stabinichenko 1980).

Unio tumidus Philipsson, 1788 (F)
glochidium
Location: fins, gills
Host: *Cyprinus carpio carpio*
Dist.: Latvia (ponds)
Record: Kirjusina & Vismanis 2004

Unidentified Unionidae

Unionidae gen. sp. glochidium (F)
Location: fins, gills, skin
Hosts: *Abramis brama* (2,4,6)
Alburnus alburnus (1,2,6)
Blicca bjoerkna (1,2,6)
Carassius. carassius (3,6)
Coregonus albula (2,6)
C. lavaretus (2,6)
Cyprinus carpio carpio (3,6)
Esox lucius (1,2,5,6)
Gasterosteus aculeatus (1,6)
Gobio gobio gobio (1,6)
Gymnocephalus cernuus (1,2,4,6)
Lota lota (1,6)
Perca fluviatilis (1,2,4,5,6)
Phoxinus phoxinus (5)
Rutilus rutilus (1,2,4,5,6)
Scardinius erythrophthalmus (1,2,4,6)
Tinca tinca (2,3,4,6)
Dist.: Lakes Alūksnes, Burtnieku, Cirma, Durbes, Rāznas, Sildu, Sīvers, Kegums Water Reservoir; Daugava River; Gulf of Riga
Records: 1. Shulman 1949 (Lake Rāznas, Kegums Water Reservoir, Daugava River, Gulf of Riga), 2. 1955a (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Sīvers); 3. Grapmane 1957 (ponds); 4. Reinsone 1959 (Lake Sīvers); 5. Vismanis *et al.* 1989 (Lake Sildu); 6. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Rāznas, Sildu, Sīvers, Kegums Water Reservoir; Daugava River; Gulf of Riga)

PHYLUM ARTHROPODA

SUBPHYLUM CRUSTACEA

CLASS MAXILLOPODA

SUBCLASS BRANCHIURA

ORDER ARGULOIDEA

FAMILY ARGULIDAE

Argulus coregoni Thorell, 1864 (F,B)
Location: gills
Host: *Clupea harengus membras*
Dist.: Gulf of Riga
Records: Shulman 1949; Vismanis, Eglite & Volkova 1981, 1984; Kirjusina & Vismanis 2004

Argulus foliaceus (Linnaeus, 1758) (F)
Jurine, 1806
Location: skin
Hosts: *Abramis brama* (4,5,10,19)
Alburnus alburnus (19)
Anguilla anguilla (2,4,7,19)
Blicca bjoerkna (4,19)
Carassius auratus auratus (8,19)
C. carassius (2,4,7,8,19)
Coregonus albula (4,5,6,19)
C. lavaretus (4,19)
C. peled (9,19)
Ctenopharyngodon idella (14)
Cyprinus carpio carpio (3,6,8,11,12,13,19)
Esox lucius (2,4,5,7,10,17,19)
Gasterosteus aculeatus (19)
Lampetra fluviatilis (15,16,19)
Leucaspius delineatus (9,19)
Oncorhynchus mykss (18)
Osmerus eperlanus spirinchus (4,5,7,19)
Perca fluviatilis (4,7,10,17,19)
Pungitius pungitius (8,19)
Rutilus rutilus (2,4,5,7,19)
Scardinius erythrophthalmus (2,4,5,7,19)
Tinca tinca (2,5,8,18,19)
fish (1)
Dist.: Lakes Alūksnes, Burtnieku, Cirma, Durbes, Kāla, Lielauces, Liepājas, Rāznas, Sildu, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava, Salaca Rivers; Gulf of Riga
Records: 1. Berzins 1936 (-); 2. Shulman 1949 (Lake Rāznas, Kegums Water Reservoir); 3. Akhmerov & Grapmane 1954 (ponds); 4. Reinsone 1955a (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Kāla, Lielauces, Liepājas, Sīvers), 5. 1955b (Lake Sīvers), 6. 1958 (ponds), 7. 1959 (Lakes Lielauces, Liepājas, Sīvers); 8. Grapmane 1957 (ponds), 9. 1962 (ponds); 10. Vismanis 1961 (Lake Burtnieku), 11. 1964 (ponds), 12. 1972 (ponds); 13. Vismanis & Peslak 1963 (ponds); 14. Vismanis & Musselius 1971 (ponds); 15. Vismanis, Eglite & Volkova 1981 (Gulf of Riga); 16. Vismanis, Volkova & Eglite 1984 (Gulf of Riga); 17. Vismanis *et al.* 1989 (Lake Sildu); 18. Lullu, Vismanis & Bakhtina 1989 (tanks);

19. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Kāla, Lielauces, Liepājas, Rāznas, Sildu, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava, Salaca Rivers; Gulf of Riga, ponds)

Remarks: This common crustacian can be a pathogen of fish in ponds and lakes, heavy infections causing mortality. It is also a vector of blood parasites and viral infections such as spring viremia of carp (SVC) (see Hoole *et al.* 2001,Golovina *et al.* 2003).

SUBCLASS COPEPODA

ORDER CYCLOPOIDA

FAMILY LERNAEIDAE

Lamproglena pulchella von Nordmann, 1832 (F)
Location: gills
Hosts: *Leuciscus cephalus* (1,2,3)
L. idus (3)
Dist.: Lake Usmas; Daugava, Salaca Rivers
Records: 1. Shulman 1949 (Daugava River); 2. Kirjusina & Vismanis 2001 (Salaca River), 3. 2004 (Lake Usmas, Daugava, Salaca Rivers)

Lernaea esocina (Burmeister, 1833) (F)
Location : skin
Host : Perca fluviatilis
Dist. : Kegums Water Reservoir
Record : Shulman 1949
Remarks: Kabata (1979) considered this species to be a synonym of *Lernaea cyprinacea* Linnaeus, 1758.

Lernaea cyprinacea Linnaeus, 1758 (F)
Location: skin
Hosts: *Carassius carassius* (3,4,5,6,7,8,9)
fish (1,2)
Dist.: Lakes Lielauces, Rāznas; Kegums Water Reservoir; Daugava River
Records: 1. Schneider 1910 (-); 2. Berzins 1936 (-); 3. Shulman 1949 (Lake Rāznas, Daugava River); 4. Akhmerov & Grapmane 1954 (ponds); 5. Reinsone 1955a (Lake Lielauces); 6. 1959 (Lake Lielauces); 7. Grapmane 1957 (ponds); 8. Vismanis 1972 (ponds, lakes); 9. Kirjusina & Vismanis 2004 (Lakes Lielauces, Rāznas; Kegums Water Reservoir; Daugava River)
Remarks: *Lernaea cyprinacea* is an important parasite of many species of fish. The female copepod localizes on the body, causing hemorrhagic lesions in the skin and musculature and in heavy infections, host mortality.

ORDER POECILOSTOMATOIDA

FAMILY ERGASILIDAE

Ergasilus briani Markevich, 1932 (F)
Location: gills
Hosts: *Abramis brama*
Carassius carassius
Leuciscus idus
Tinca tinca
Vimba vimba
Dist.: Lakes Rāznas, Rušons; Daugava River
Records: Shulman 1949; Kirjusina & Vismanis 2004

Ergasilus gibbus von Nordmann, 1832 (F)
Location: gills
Host: *Anguilla anguilla*
Dist.: Lakes Liepājas, Rušons; Kegums Water Reservoir, Gulf of Riga
Records: Shulman 1949 (Lake Rušons, Kegums Water Reservoir, Gulf of Riga); Reinsone 1955a (Lake Liepājas), 1959 (Lake Liepājas); Kirjusina & Vismanis 2004 (Lakes Liepājas, Rušons; Kegums Water Reservoir, Gulf of Riga)

Ergasilus sieboldi von Nordmann, 1832 (F)
Location: gills
Hosts: *Abramis brama* (1,2,3,4,6,10)
Alburnus alburnus (2,10)
Anguilla anguilla (10)
Aspius aspius (1,10)
Blicca bjoerkna (1,2,4,6,10)
Carassius auratus auratus (5)
C. carassius (1,2,4,10)
Coregonus albula (2,3,4,10)
C. lavaretus (2)
Esox lucius (1,2,3,4,6,10)
Gobio gobio gobio (1,10)
Gymnocephalus cernuus (1,2,3,4,10)
Leucaspius delineatus (6)
Leuciscus idus (1,10)
Oncorhynchus mykss (9)
Osmerus eperlanus (1,10)
O. eperlanus spirinchus (2,3,4,10)
Perca fluviatilis (1,2,3,4,6,10)

Rutilus rutilus (1,2,3,4,6,8,10)
Sander lucioperca (10)
Scardinius erythrophthalmus (1,2,3,4,10)
Silurus glanis (1,10)
Tinca tinca (1,2,4,5,6,10)
Vimba vimba (1,7,10)

Dist.: Lakes Alūksnes, Burtnieku, Černavu, Cirma, Dārza, Durbes, Indra, Juglas, Kāla, Lielauces, Rāznas, Riču, Rušons, Sildu, Sīvers, Slokas, Usmas, Žuguru; Kegums Water Reservoir; Daugava, Salaca Rivers; Gulf of Riga

Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir, Daugava River); 2. Reinsone 1955a (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Kāla, Lielauces, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Lielauces, Sīvers); 5. Grapmane 1957 (ponds); 6. Vismanis 1961 (Lake Burtnieku); 7. Vismanis, Spirina & Paršuta. 1971 (Gulf of Riga); 8. Vismanis *et al.* 1989 (Lake Sildu); 9. Lullu, Vismanis & Bakhtina 1989 (tanks); 10. Kirjusina & Vismanis 2004 (Kāla, Lielauces, Rāznas, Riču, Rušons, Sildu, Sīvers, Slokas, Usmas, Žuguru; Kegums Water Reservoir; Daugava, Salaca Rivers)

Remarks: Vismanis (1978) recorded mortality of farmed spawners of rainbow trout (*Oncorhynchus mykiss*) due to *Ergasilus sieboldi*. Intensities of infection exceeded 2500 parasites per fish.

Thersitina gasterostei (B)
(Pagenstecher, 1861) Norman, 1905
Location: gills
Host: *Gasterosteus aculeatus*
Dist.: Daugava River, Gulf of Riga
Records: Shulman 1949; Kirjusina & Vismanis 2004

ORDER SIPHONOSTOMATOIDA

FAMILY LERNAEOPODIDAE

Achtheres percarum (F)
von Nordmann, 1832
Location: gills
Hosts: *Perca fluviatilis* (1,2,3,4,5)
Sander lucioperca (1,5)
Dist.: Lakes Juglas, Rāznas, Riču, Sīvers, Usmas; Daugava River; Gulf of Riga
Records: 1. Shulman 1949 (Lake Rāznas, Daugava River, Gulf of Riga); 2. Reinsone 1955a (Lake Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lake Sīvers); 5. Kirjusina & Vismanis 2004 (Lakes Juglas, Rāznas, Riču, Sīvers, Usmas; Daugava River; Gulf of Riga)

Salminicola extensus (Kessler, 1868) (F)
Kabata, 1969
Syn.: *Achtheres extensus* (Kessler, 1868)
Location: base of fins
Host: *Coregonus lavaretus*
Dist.: Daugava River
Records: Shulman 1949; Kirjusina & Vismanis 2004

Tracheliastes maculatus Kollar, 1835 (F)
Location: skin
Host: *Abramis brama*
Dist.: Kegums Water Reservoir
Records: Shulman 1949; Kirjusina & Vismanis 2004

Tracheliastes polycolpus (F)
Nordmann, 1832
Location: skin
Host: *Leuciscus idus*
Dist.: Daugava River
Records: Shulman 1949; Kirjusina & Vismanis 2004

HOST-PARASITE LIST

CLASS CEPHALASPIDOMORPHI

ORDER PETRMYZONTIFORMES

FAMILY PETROMYZONTIDAE

Lampetra fluviatilis (Linnaeus, 1758)
European river lamprey
Upes nēģis
Речная минога
Status: native
Environment: freshwater, brackish, marine

- Digenea
  - *Diplostomum spathaceum* metacercaria (Daugava River, Gulf of Riga)
  - *D. petromyzifluviatilis* metacercaria (Daugava River, Gulf of Riga)
  - *Diplostomulum* sp. metacercaria (Gulf of Riga)
- Cestoda
  - *Eubothrium* sp. (Daugava River, Gulf of Riga)
  - *Proteocephalus* sp. (Daugava, Ogre Rivers; Gulf of Riga)
- Nematoda
  - *Cucullanus truttae* (Daugava River,Gulf of Riga)
  - *Cystidicola farionis* (Daugava River, Gulf of Riga)
  - Nematoda gen. sp. (Daugava River)
- Acanthocephala
  - *Corynosoma semerme* juvenile (Daugava, Gauja Rivers)
  - *C. strumosum* juvenile (Daugava River)
  - *Echinorhynchus gadi* (Daugava River, Gulf of Riga)
- Hirudinida
  - *Piscicola geometra* (Gulf of Riga)
- Crustacea
  - *Argulus foliaceus* (Gulf of Riga)

Remarks: The river lamprey is anadromous species. Adults occur in the Baltic Sea and Gulf of Riga, entering rivers for spawning. It is a commercially important species with an annual catch of 70–170 tonnes (Plikšs & Aleksejevs 1998).

Lampetra planeri (Bloch)
European brook lamprey
Evropeiskaja rutschjevnaja minoga
Status: native
Environment: freshwater,brackish, marine

- Nematoda
  - Nematoda gen. sp. larva

CLASS ACTINOPTERYGII

ORDER ANGUILLIFORMES

FAMILY ANGUILLIDAE

Anguilla anguilla (Linnaeus, 1758)
European eel
Zutis
Угорь
Status: native
Environment: freshwater, brackish, marine

- Protista
  - *Ichthyophthirius multifiliis* (tanks)
  - *Trypanosoma granulosum* (Lakes Raznas, Usmas; Gulf of Riga)
- Myxosporea
  - *Myxidium giardi* (Lakes Liepājas, Rāznas, Usmas; Kegums Water Reservoir; Gulf of Riga)
- Digenea
  - *Diplostomulum* sp. metacercaria (Lake Usmas)
  - *Diplostomum spathaceum* metacercaria (Lake Rāznas, Kegums Water Reservoir, Gulf of Riga)
  - *Sphaerostoma bramae* (Lakes Liepājas, Usmas, Gulf of Riga)
- Monogenoidea
  - *Diplozoon paradoxum* (Lake Liepājas)
  - *Pseudodactylogyrus anguillae* (Lake Usmas, Venta River, Gulf of Riga)
  - *P. bini* (Lake Usmas, Venta River, Gulf of Riga)
  - ?*Tetraonchus* sp. (Lake Liepājas)
- Cestoda
  - *Bothriocephalus claviceps* (Lakes Rāznas, Rušons, Usmas; Kegums Water Reservoir, Venta River; Gulf of Riga)
  - *Proteocephalus macrocephalus* (Lakes Liepājas, Usmas; Gulf of Riga)
  - *Triaenophorus nodulosus* plerocercoid (Lake Liepājas)
- Nematoda
  - *Anguillicola crassus* (Lakes Puzes, Raznas, Usmas; Venta River; Gulf of Riga)
  - *Camallanus lacustris*

(Lakes Rāznas, Usmas; Venta River; Gulf of Riga)
Eustrongyloides sp. larva (Kegums Water Reservoir)
Hysterothylacium aduncum (Gulf of Riga)
Raphidascaris acus (Lakes Liepājas, Usmas; Gulf of Riga)
Acanthocephala
Acanthocephalus anguillae (Lakes Liepājas, Rāznas, Usmas; Kegums Water Reservoir; Gulf of Riga)
A. clavula (Lakes Liepājas, Rāznas)
A. lucii (Lakes Liepājas, Rāznas, Rušons, Usmas; Venta River, Gulf of Riga)
Corynosoma strumosum juvenile (Gulf of Riga)
Echinorhynchus salmonis (Gulf of Riga)
Neoechinorhynchus rutili (Lake Usmas, Gulf of Riga)
Pomphorhynchus laevis (Lake Usmas)
Crustacea
Argulus foliaceus (Lakes Liepājas, Rāznas)
Ergasilus gibbus (Lakes Liepājas, Rušons; Kegums Water Reservoir; Gulf of Riga)
E. sieboldi (Lake Usmas)
Mollusca
Anodonta cygnea glochidium (Lake Usmas)

Remarks: This catadromous species has been stocked in at least 81 lakes from 1927 to 1989, larvae and young fish being imported from other European countries (Plikšs and Aleksejevs 1998).

ORDER CLUPEIFORMES

FAMILY CLUPEIDAE

Alosa fallax fallax (Lacepède, 1803) — Twaite shad; Palede; Финта
Status: native
Environment: freshwater, brackish, marine

Digenea
Diplostomum spathaceum metacercaria (Gulf of Riga)
Cestoda
Eubothrium fragile (Gulf of Riga)
Nematoda
Hysterothylacium aduncum (Gulf of Riga)
Acanthocephala
Echinorhynchus gadi (Gulf of Riga)

Remarks: The twait shad is an anadromous species, occurring as a variety in some lakes. It is distributed along the European coast from Scandinavia to North Africa; also in the Mediterranean. Rare in the Baltic and Latvia, this species is included in the Red Data Book of Latvia under category "3" (rare) (Plikšs and Aleksejevs 1998).

Clupea harengus membras Linnaeus, 1761 — Baltic herring; Reņģe; Салака
Status: native
Environment: marine

Protista
Eimeria sardinae (Gulf of Riga, Baltic Sea)
Digenea
Brachyphallus crenatus (Gulf of Riga)
Diplostomulum sp.metacercaria (Gulf of Riga)
Diplostomum spathaceum metacercaria (Daugava River, Gulf of Riga)
Cestoda
Eubothrium sp. (Gulf of Riga)
Nematoda
Anisakis simplex larva (Baltic Sea)
Ascarophis sp. (Gulf of Riga)
Cystidicola farionis (Gulf of Riga)
Hysterothylacium aduncum (Gulf of Riga)
Acanthocephala
Corynosoma semerme juvenile (Gulf of Riga)
C. strumosum juvenile (Gulf of Riga)
Echinorhynchus gadi (Gulf of Riga, Baltic Sea)
E. salmonis (Gulf of Riga)
Pomphorhynchus laevis (Gulf of Riga)
Crustacea
Argulus coregoni (Gulf of Riga)

Remarks: The Baltic herring is a subspecies of the Atlantic herring that is abundant throughout the Baltic Sea. Two ecological races are recognized, the spring spawning and the autumn spawning herring, which are divided into several open sea and gulf

populations (Plikšs and Aleksejevs 1998).

Sprattus sprattus balticus (Schneider, 1908) — Baltic sprat; Brētliņa; Килька
Status: native
Environment: marine
Cestoda
Bothriocephalus scorpii (Gulf of Riga)
Remarks: One of the three subspecies of the sprat, this fish is abundant in the Baltic Sea except in brackish bays (Plikšs and Aleksejevs 1998).

ORDER CYPRINIFORMES

FAMILY COBITIDAE

Cobitis taenia Linnaeus, 1758 — Spined loach; Akmeņgrauzis; Щиповка
Status: native
Environment: freshwater
Protista
Trichodina sp. (Ličupe River)
Digenea
Tylodelphys clavata metaceraria (Licupe River)
Cestoda
Proteocephalus longicollis (Licupe River)
Nematoda
Shulmanella petrushewski (Kegums Water Reservoir)
Acanthocephala
Echinorhynchus truttae (Licupe River)

Misgurnus fossilis (Linnaeus, 1758) — Weatherfish; Pīkste; Вьюн
Status: native
Environment: fresh water
Monogenoidea
Ancyrocephalus cruciatus (Lake Višķu)

FAMILY CYPRINIDAE

Abramis brama (Linnaeus, 1758) — Carp bream; Plaudis (Breksis); Лещ
Status: native
Environment: freshwater
Protista
Ichthyophthirius multifiliis (Lakes Burtnieku, Sīvers)
?*Trichodina domerguei* (Lake Sīvers, Kegums Water Reservoir)
T. nigra (Daugava River)
T. reticulata (Lake Sīvers)
Myxosporea
Myxobolus bramae (Lakes Burtnieku, Cirma, Durbes, Juglas, Kāla, Rušons, Sīvers, Usmas; Kegums Water Reservoir; Daugava River; Gulf of Riga)
M. ellipsoides (Lakes Burtnieku, Usmas)
M. exiguus (Lake Rušons, Kegums Water Reservoir, Daugava River)
M. gigas (Lakes Juglas, Raznas, Sildu)
M. macrocapsularis (Lakes Burtnieku, Cirma, Kāla, Rušons)
M. muelleri (Lakes Juglas, Sīvers; Daugava, Salaca Rivers)
M. musculi (Lake Juglas)
M. oviformis (Kegums Water Reservoir)
Thelohanellus oculileucisci (Daugava River)
Zschokkella nova (Kegums Water Reservoir)
Digenea
Allocreadium isoporum (Lake Dārza)
Asymphylodora imitans (Lake Sīvers, Daugava River)
Bucephalus polymorphus metacercaria (Lakes Burtnieku, Juglas, Sīvers, Usmas; Kegums Water Reservoir; Daugava River; Gulf of Riga)
Diplostomulum sp. metacercaria (Lakes Dārza, Usmas, Žuguru; Daugava River)
Diplostomum spathaceum metacercaria (Lakes Burtnieku, Cirma, Durbes, Juglas, Rušons, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava, Salaca Rivers; Gulf of Riga)
Hysteromorpha triloba metacercaria (Lakes Burtnieku, Cirma, Sīvers, Usmas)
Ichthyocotylurus platycephalus Metacercaria (Lakes Burtnieku, Cirma, Rušons;

Daugava River)
I. variegatus metacercaria (Daugava River)
Ornithodiplostomum scardinii metacercaria (Lake Dārza)
Paracoenogonimus ovatus metacercaria (Lakes Juglas, Lielauces, Rušons; Daugava River)
Phyllodistomum elongatum (Lake Rušons)
P. folium (Lakes Juglas, Rušons, Žuguru)
Posthodiplostomum cuticola metacercaria (Lakes Dārza, Dukānu, Juglas, Skolas, Žuguru; Daugava River)
Rhipidicotyle campanula (Lake Usmas, Daugava River)
Sphaerostoma bramae (Lakes Burtnieku, Juglas, Kāla, Sīvers, Usmas, Žuguru)
Tylodelphys clavata metacercaria (Lakes Burtnieku, Cirma, Dārza, Durbes, Juglas, Kāla, Rāznas, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava, Salaca Rivers; Gulf of Riga)

Monogenoidea
Dactylogyrus auriculatus (Lakes Duņu, Slokas, Usmas, Viragnas; Daugava, Lielupe, Salaca Rivers)
D. cornu (Lake Usmas)
D. distinguendus (Lake Slokas; Daugava, Gauja Rivers)
D. falcatus (Lakes Rušons, Usmas, Viragnas; Kegums Water Reservoir; Daugava, Lielupe, Salaca Rivers)
D. sphyrna (Lakes Durbes, Juglas, Sīvers, Slokas)
D. wunderi (Lakes Burtnieku, Cirma, Rušons, Slokas, Usmas; Kegums Water Reservoir; Daugava, Salaca Rivers)
D. yinwenyingae (Lake Viragnas, Salaca River)
D. zandti (Lakes Duņu, Usmas; Buļļupe, Daugava Rivers; Gulf of Riga)
Dactylogyrus sp. (Lake Duņu)
Diplozoon paradoxum (Lakes Burtnieku, Durbes, Juglas, Slokas, Usmas; Kegums Water Reservoir; Daugava Salaca Rivers)
Paradiplozoon blicae (Daugava River)
P. hamoion hamoion (Daugava River)

Cestoda
Caryophyllaeus fimbriceps (Daugava River)
C. laticeps (Lakes Cirma, Dārza, Juglas, Kāla, Rušons, Sīvers, Usmas, Žuguru; Kegums Water Reservoir; Daugava, Salaca Rivers)
Ligula intestinalis plerocercoid (Lakes Burtnieku, Durbes)
Paradilepis scolecina metacestode (-)

Nematoda
Contracaecum microcephalum (Lakes Asteres, Slokas)
Nematoda gen. sp. (Daugava River)
Philometra ovata (Daugava River)
Pseudocapillaria tomentosa (Daugava River)
Raphidascaris acus (Lakes Cirma, Kāla, Juglas, Sīvers, Slokas, Usmas; Daugava, Salaca Rivers)
Rhabdochona denudata (Lakes Burtnieku, Sīvers; Daugava River)

Acanthocephala
Acanthocephalus anguillae (Lake Burtnieku, Daugava River)
A. lucii (Lakes Burtnieku, Cirma, Juglas, Usmas, Žuguru; Daugava Salaca Rivers)
Echinorhynchus gadi (Gulf of Riga)
Neoechinorhynchus rutili (Lakes Juglas, Žuguru)
Pomphorhynchus laevis (Daugava River)

Hirudinida
Piscicola geometra (Lakes Burtnieku, Cirma, Kāla, Rušons, Sīvers, Usmas)

Mollusca
Anodonta cygnea glochidium (Daugava River)
Unionidae gen. sp. glochidium (Lakes Burtnieku, Durbes, Sīvers)

Crustacea
Argulus foliaceus (Lakes Burtnieku, Cirma, Durbes, Kāla, Sīvers, Usmas)
Ergasilus briani (Lake Rušons, Daugava River)
E sieboldi

(Lakes Burtnieku, Cirma, Dārza, Durbes, Kāla, Rušons, Sīvers, Skolas, Usmas, Žuguru; Daugava, Salaca Rivers)
Tracheliastes maculatus
(Kegums Water Reservoir)

Remarks: This species is found in many Latvian rivers and lakes, and along the seacoast near river mouths (Plikšs and Aleksejevs 1998).

Alburnoides bipunctatus (Bloch, 1782) — Rifle minnow — Pavīķe — Быстрянка

Status: native

Environment: freshwater

Protista
Apiosoma sp. (Ogre River)
Ichthyophthirius multifiliis (Ogre River)
Trichodina nigra (Ogre River)
Trichodinella epizootica (Ogre River)

Digenea
Diplostomum spathaceum metacercaria (Kegums Water Reservoir)
Plagiophorus angusticolle (Ogre River)
Rhipidocotyle campanula (Ogre River)

Nematoda
Raphidascaris acus (Ogre River)
Rhabdochona denudata (Ogre River)

Alburnus alburnus (Linnaeus, 1758) — Bleak — Vīķe — Уклейка

Status: native

Environment: freshwater

Protista
?*Trichodina domerguei* (Lake Rāznas)
T. nigra (Lake Slokas)
T. reticulata (Lake Alūksnes)
Trichodina sp. (Salaca River, Gulf of Riga)

Myxosporea
Myxobolus bramae (Lakes Alūksnes, Burtnieku, Rāznas; Kegums Water Reservoir)
M. carassii (Kegums Water Reservoir)
M. ellipsoides (Lake Burtnieku, Kegums Water Reservoir)
M. oviformis (Lakes Alūksnes, Rušons; Kegums Water Reservoir)
Zschokkella nova (Lakes Rāznas, Rušons; Kegums Water Reservoir)

Digenea
Allocreadium isoporum (Lakes Alūksnes, Rāznas; Kegums Water Reservoir; Daugava River)
Bucephalus polymorphus (Lake Rāznas; Kegums Water Reservoir; Daugava, Salaca Rivers)
Diplostomulum sp. metacercaria (Salaca River)
Diplostomum spathaceum metacercaria (Lakes Burtnieku, Rušons; Kegums Water Reservoir; Daugava River; Gulf of Riga)
Ichthyocotylurus platycephalus metacercaria (Lake Burtnieku)
Paracoenogonimus ovatus metacercaria (Lake Rušons, Daugava River)
Phyllodistomum folium (Lake Rāznas)
Postodiplostomum cuticola metacercaria (Lake Rušons)
Rhipidocotyle campanula (Lake Slokas)
Sphaerostoma bramae (Lakes Burtnieku, Rāznas; Ogre River)
Tylodelphys clavata metacercaria (Lakes Alūksnes, Burtnieku)

Monogenoidea
Dactylogyrus alatus f. *typica* (Lakes Rušons, Slokas; Salaca River)
D. fallax (Salaca River)
D. fraternus (Lakes Alūksnes, Burtnieku, Dzirnezers, Rāznas, Rušons; Kegums Water Reservoir; Daugava, Ogre Rivers; Gulf of Riga)
D. micracanthus (Lake Slokas)
D. minor (Lakes Rāznas, Rušons, Slokas; Kegums Water Reservoir; Daugava, Lielupe, Ogre Rivers; Gulf of Riga)
D. parvus (Lakes Dzirnezers, Rāznas, Rušons, Slokas; Kegums Water Reservoir; Daugava, Lielupe, Ogre Rivers; Gulf of Riga)
D. similis (Lake Burtnieku)
Diplozoon paradoxum (Lake Rāznas, Salaca River)
?*Gyrodactylus elegans* (ponds)
Paradiplozoon alburni (Salaca River)

Cestoda
Proteocephalus torulosus
(Lakes Alūksnes, Burtnieku, Rāznas, Rušons; Salaca River)
Nematoda
Nematoda gen. sp.
(Kegums Water Reservoir, Daugava River)
Raphidascaris acus
(Lake Rāznas; Daugava, Ogre Rivers)
Rhabdochona denudata
(Kegums Water Reservoir, Daugava River)
Acanthocephala
Acanthocephalus anguillae
(Daugava River)
Neoechinorhynchus rutili
(Lake Rāznas)
Hirudinida
Piscicola geometra
(Lakes Alūksnes, Rāznas)
Mollusca
Anodonta cygnea glochidium
(Lake Slokas)
Unionidae gen. sp. glochidium
(Lakes Alūksnes, Rāznas)
Crustacea
Argulus foliaceus (Salaca River)
Ergasilus sieboldi (Lake Alūksnes)

Remarks: This species occurs in many Latvian rivers, lakes and coastal waters near river mouths. It is not found in small, closed, overgrown lakes (Plikšs and Aleksejevs 1998).

Aspius aspius (Linnaeus, 1758)
Syn.: *Aspius rapax* Agassiz, 1835
Asp
Salate
Жерех

Status: native
Environment: freshwater
Protista
Amphileptus sp.
(Kegums Water Reservoir)
Myxosporea
Myxobolus cycloides
(Kegums Water Reservoir)
M. dispar
(Kegums Water Reservoir)
M. exiguus
(Kegums Water Reservoir)
M. muelleri
(Kegums Water Reservoir)
M. nemetzeki
(Kegums Water Reservoir)
M. oviformis
(Kegums Water Reservoir)
Digenea
Diplostomum spathaceum metacercaria
(Kegums Water Reservoir)
Paracoenogonimus ovatus metacercaria
(Kegums Water Reservoir)
Phyllodistomum elongatum
(Kegums Water Reservoir)
Tylodelphys clavata metacercaria
(Kegums Water Reservoir)
Monogenoidea
Dactylogyrus tuba
(Kegums Water Reservoir)
Diplozoon paradoxum
(Kegums Water Reservoir)
Cestoda
Khawia dubius
(Kegums Water Reservoir)
Acanthocephala
Acanthocephalus anguillae
(Kegums Water Reservoir)
Crustacea
Ergasilus sieboldi
(Kegums Water Reservoir)

Blicca bjorkna (Linneaus, 1758)
White bream
Plicis
Густера

Status: native
Environment: freshwater
Protista
Amphileptus sp.
(Kegums Water Reservoir)
Ichthyobodo necator
(Daugava River)
Ichthyophthirius multifiliis
(Lake Burtnieku)
Trichodina reticulata
(Lake Rāznas, Kegums Water Reservoir, Daugava River)
Myxosporea
Chloromyxum fluviatile
(Lake Rāznas)
Myxidium rhodei (Lake Slokas)
Myxobolus bramae
(Lakes Burtnieku, Juglas, Rāznas, Rušons, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava River)
M. ellipsoides
(Lakes Burtnieku, Usmas; Daugava River)
M. exiguus
(Kegums Water Reservoir)
M. macrocapsularis
(Lake Cirma, Kegums Water Reservoir)
M. muelleri

(Lakes Slokas, Usmas; Daugava River)
M. oviformis
(Kegums Water Reservoir)
Zschokkella nova
(Kegums Water Reservoir)
Digenea
Allocreadium isoporum
(Lakes Juglas, Liepjas, Sīvers, Slokas; Daugava River)
Asymphylodora imitans
(Lakes Burtnieku, Usmas; Daugava River)
Bucephalus polymorphus metacercaria
(Lakes Burtnieku, Usmas; Kegums Water Reservoir; Daugava River)
Diplostomulum sp. metacercaria
(Lakes Juglas, Slokas)
Diplostomum spathaceum metacercaria
(Lakes Alūksnes, Burtnieku, Cirma, Liepājas, Rāznas, Rušons, Sīvers, Usmas; Kegums Water Reservoir; Daugava River)
Hysteromorpha triloba metacercaria
(Lakes Cirma, Liepājas, Sīvers)
Ichthyocotylurus platycephalus metacercaria
(Lakes Cirma, Julgas, Rāznas, Rušons, Usmas; Daugava River)
I. variegatus metacercaria
(Daugava River)
Palaeorchis unicus
(Daugava River)
Paracoenogonimus ovatus metacercaria
(Lakes Juglas, Rāznas, Rušons, Slokas, Usmas; Kegums Water Reservoir; Daugava River)
Phyllodistomum elongatum
(Kegums Water Reservoir)
Posthodiplostomum cuticola
(Lakes Rāznas, Slokas; Daugava River)
Rhipidocotyle campanula
(Lake Skolas, Daugava River)
Sphaerostomum bramae
(Lakes Juglas, Rāznas, Sīvers)
Tylodelphys clavata metacercaria
(Lakes Alūksnes, Burtnieku, Cirma, Juglas, Liepājas, Rāznas, Rušons, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava River)
Monogenoidea
Dactylogyrus cornu
(Lakes Dzirnezers,Rāznas, Rušons, Usmas; Kegums Water Reservoir; Daugava, Lielupe Rivers)
D. difformis
(Lakes Burtnieku, Sīvers)
D. distinguendus
(Lakes Dzirnezers, Pelēča)
D. fallax
(Lakes Burtnieku Slokas, Usmas,)
D. similis (Lake Cirma)
D. sphyrna
(Lakes Alūksnes, Juglas, Rāznas, Rušons, Sīvers, Slokas; Kegums Water Reservoir; Daugava River)
D. wunderi
(Lakes Burtnieku, Liepājas)
Diplozoon paradoxum
(Lakes Burtnieku, Juglas, Liepājas, Rušons, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava River)
Paradiplozoon blicae
(Daugava River)
P. hamoion hamoion
(Daugava River)
Cestoda
Caryophyllaeides fenica
(Lake Rušons, Daugava River)
Caryophyllaeus laticeps
(Lakes Slokas, Usmas)
Ligula intestinalis plerocercoid
(Lakes Burtnieku, Cirma, Juglas, Slokas, Usmas)
Nematoda
Agamonema sp. (Lake Cirma)
Raphidascaris acus
(Lakes Burtnieku, Cirma, Juglas, Rāznas, Sīvers, Slokas, Usmas; Daugava River)
Acanthocephala
Acanthocephalus anguillae
(Lakes Juglas, Rāznas, Sīvers, Usmas)
A. lucii
(Lake Rāznas, Daugava River)
Neoechinorhynchus rutili
(Lake Rāznas)
Hirudinida
Piscicola geometra
(Lakes Burtnieku, Slokas, Usmas)
Mollusca
Anodonta cygnea glochidium
(Lake Usmas)
Unionidae gen. sp. glochidium
(Lakes Burtnieku, Cirma; Kegums Water Reservoir)
Crustacea
Argulus foliaceus (Lake Cirma)
Ergasilus sieboldi
(Lakes Burtnieku, Cirma, Rušons, Sīvers, Usmas; Daugava River)

Carassius auratus auratus Goldfish
(Linnaeus, 1758) Sudrabkarūsa
Status: introduced Серебряный карась
Environment: fresh water
Protista
Chilodonella piscicola (ponds)
Ichthyophthirius multifiliis (ponds)
?*Trichodina domerguei* (ponds)
T. nigra (ponds)
T. pediculus (ponds)
T. reticulata (ponds)
Monogenoidea
Dactylogyrus anchoratus (ponds)
D. inexpectatus
(Lakes Duņas, Sildu)
*Gyrodactylus kathariner*i (ponds)
G. longoacuminatus (Salaca River)
G. medius (ponds)
Digenea
Ichthyocotylurus plathycephalus
metacercaria (ponds)
Hirudinida
Piscicola geometra (ponds)
Crustacea
Argulus foliaceus (ponds)
Remarks: Goldfish were imported to Latvia in 1948 and have been released into at least 181 lakes and many other waterbodies. Flooding of fish farms has distributed this species to connected rivers. Populations are established in several lakes and other waterbodies (Plikšs and Aleksejevs 1998).

Carassius carassius Crucian carp
(Linnaeus, 1758) Karūsa
Status: native Золотой карась
Environment: freshwater
Protista
Apiosoma sp. (ponds)
Chilodonella piscicola (ponds)
Eimeria sp. (ponds)
Ichthyobodo necator (Lake Rāznas)
Ichthyophthirius multifiliis (ponds)
?*Trichodina domerguei* (Lake Sīvers)
T. reticulata
(Lakes Rāznas, Slokas; Daugava River)
Trichodinella epizootica (Daugava River)
Myxosporea
Chloromyxum fluviatile (Rāznas)
Myxidium pfeifferi
(Lake Lielauces)
Myxobolus bramae
(Daugava River)
M. carrasii
(Lakes Lielauces, Liepājas, Rāznas; Daugava River)
M. dispar
(Lakes Lielauces, Liepājas; Daugava River)
M. ellipsoides
(Lake Rāznas, Daugava River)
M. muelleri (Lake Sildu)
M. thelohanellus (Lake Rāznas)
Zschokkella nova
(Lakes Lielauces, Rāznas, Slokas)
Digenea
Allocreadium isoporum
(Lakes Lielauces, Liepājas, Rāznas, Usmas; Daugava River)
A. transversale (Lake Liepājas)
Bucephalus polymorphus
(Lake Rāznas, Daugava River)
Diplostomulum sp.metacercaria
(Lake Slokas)
Diplostomum spathaceum
metacercaria
(Lake Juglas, Rāznas, Sīvers, Usmas; Daugava, Salaca Rivers)
Ichthyocotylurus platycephalus
metacercaria
(Lake Liepājas, Daugava River)
Paracoenogonimus ovatus
metacercaria
(Lakes Juglas, Rāznas, Slokas)
Phyllodistomum folium
(Lake Rāznas)
Posthodiplostomum cuticola
metacercaria (Lake Cirma)
Tylodelphys clavata metacercaria
(Lake Liepājas)
Monogenoidea
Dactylogyrus anchoratus
(Lakes Lielauces, Liepājas, Rāznas, Sīvers, Usmas; Daugava River)
D. baueri
(Lakes Juglas, Slokas, Sunīšu Vīragnas)
D. crassus
(Lake Rāznas, Daugava River)
D. dulkeiti
(Lakes Laidzes, Slokas, Sunīšu)
D. formosus
(Lakes Rāznas, Sunīšu, Vīragnas, Višķu; Daugava River)
D. inexpectatus
(Lakes Duņas, Sildu; Salaca River)
D. intermedius
(Lakes Duņas, Rāznas, Slokas,Vīragnas, Višķu; Daugava River)
D. vastator
(Lakes Cirma, Lielauces, Rāznas, Sīvers, Slokas; Daugava River)
D. wegeneri

(Lakes Lielauces, Liepājas, Rāznas, Sildu; Daugava River)
Diplozoon paradoxum (Lake Sīvers)
Eudiplozoon nipponicum (Lake Sīldu)
*Gyrodactylus kathariner*i (ponds)
G. medius (ponds)
Cestoda
Caryophyllaeus laticeps (Daugava River)
Khawia rossitensis (Lake Juglas, Daugava River)
Neogryporhynchus cheilancristrotus metacestode (Salaca River)
Paradilepis scolecina metacestode (-)
Valipora campilancristrota metacestode (Lakes Slokas,Usmas)
Nematoda
Nematoda gen. sp.(Lake Liepājas)
Philometroides sanguinea (Lakes Černavu, Juglas, Sildu, Slokas, Žuguru)
Raphidascaris acus (Lakes Liepājas, Rāznas, Slokas; Daugava River)
Acanthocephala
Acanthocephalus anguillae (Lakes Liepājas, Rāznas, Sīvers; Daugava River)
A. lucii (Daugava River)
Neoechinorhynchus rutili (Lake Juglas)
Pomphorhynchus laevis (Daugava River)
Hirudinida
Hemiclepsis marginata (Lake Rāznas)
Piscicola geometra (Lakes Lielauce, Rāznas)
Crustacea
Argulus foliaceus (Lakes Liepājas, Rāznas)
Ergasilus briani (Daugava River)
E. sieboldi (Lakes Cirma, Lielauce, Sīvers, Slokas, Usmas; Daugava River)
Lernaea cyprinacea (Lakes Lielauces, Rāznas; Daugava River)

Remarks: Crucian carp is one of the most common Latvian fishes, occurring in many rivers, lakes and ponds and in coastal waters near river mouths. From 1958 to 1996 it was restocked in at least 152 lakes (Plikšs and Aleksejevs 1998).

Ctenopharyngodon idella (Valenciennes, 1844) — Grass carp — Baltais amūrs — Белый амур

Status: exotic
Environment: freshwater
Protista
Chilodonella piscicola (ponds)
Ichthyophthirius multifiliis (ponds)
Trichodina sp. (ponds)
Myxosporea
Chloromyxum cristatum (ponds)
Digenea
Diplostomum spathaceum metacercaria (ponds)

Remarks: This Asian species was imported to Latvia about 1960 and stocked in some lakes and ponds. No naturally breeding populations have been recorded (Plikšs and Aleksejevs 1998).

Cyprinus carpio carpio Linnaeus, 1758 — Common carp — Karpa — Карп

Status: exotic
Environment: freshwater
Protista
Apiosoma piscicolum (ponds)
Apiosoma sp. (ponds)
Chilodonella piscicola (ponds)
Chloromyxum cristatum (ponds)
Eimeria sp. (ponds)
Epistylis lwoffi (ponds)
Goussia carpelli (ponds)
G. subepithelialis (ponds)
Ichthyophthirius multifiliis (ponds)
Trichodina acuta (ponds)
?*T. domerguei* (ponds)
T. mutabilis (ponds)
T. nigra (ponds)
T. pediculus (ponds)
T. reticulata (ponds)
Trichodinella epizootica (ponds)
T. subtilis (ponds)
Trypanosoma carassii (ponds)
Myxosporea
Chloromyxum cristatum (ponds)
C. koi (ponds)
Hoferellus cyprini (ponds)
Myxidium pfeiferi (ponds)
Myxobolus cyprini (ponds)
M. dispar (Lake Sivers)
M. ellipsoides (ponds)
Digenea
Bucephalus polymorphus (ponds)
Diplostomum spathaceum metacercaria (ponds)
Ichthyocotylurus plathycephalus metacercaria (ponds)
Posthodiplostomum cuticola metacercaria (ponds)
Sanguinicola inermis (ponds)

Tetracotyle sp. metacercaria (ponds)
Tylodelphys clavata metacercaria (ponds)
Monogenoidea
Dactylogyrus achmerowi (ponds)
D. anchoratus (ponds)
D. extensus (Lake Sildu)
D. minutus (ponds)
D. vastator (ponds)
Diplozoon paradoxum (ponds)
Diplozoon sp. (ponds)
Eudiplozoon nipponicum (Lake Sildu)
Gyrodactylus katarineri (ponds)
G. medius (ponds)
Cestoda
Archigetes brachyurus (ponds)
Bothriocephalus acheilognathi (ponds)
Caryophyllaeus fimbriceps (ponds)
C. laticeps (ponds)
Khawia sinensis (ponds)
Ligula intestinalis plerocercoid (ponds)
Neogryporhynchus cheilancristrotus metacestode (ponds)
Paradilepis scolecina metacestode (Ogre River)
Valipora campylancristrota metacestode (ponds)
Nematoda
Contracaecum micropapillatum (ponds)
Nematoda gen. sp. (ponds)
Philometroides cyprini (Lake Sildu)
Shulmanella petruschewskii (ponds)
Acanthocephala
Acanthocephalus anguillae (ponds)
A. lucii (ponds)
Hirudinida
Piscicola geometra (ponds)
Mollusca
Unio tumidus glochidium (ponds)
Crustacea
Argulus foliaceus (ponds)

Remarks: Common carp have been farmed in the territory of Latvia in fish ponds since the 13th Century. From 1949 to 1996, carp were restocked at least 196 lakes and other waterbodies (Plikšs and Aleksejevs 1998).

Cyprinus carpio haematopterus Amur carp
Martins, 1876 Amūras sazans
Status: exotic Амурский сазан
Environment: freshwater
Protista
Apiosoma sp. (ponds)
Chilodonella piscicola (ponds)
Goussia carpelli (ponds)
Ichthyophthirius multifiliis (ponds)
?*Trichodina domerguei* (ponds)
Digenea
Diplostomum spathaceum metacercaria (ponds)
Ichthyocotylurus plathycephalus metacercaria (ponds)
Posthodiplostomum cuticola metacercaria (ponds)
Tetracotyle sp. metacercaria (ponds)
Monogenoidea
Dactylogyrus achmerowi (ponds)
D. anchoratus (ponds)
D. extensus (Lake Sildu)
D. vastator (ponds)
Diplozoon paradoxum (ponds)
Gyrodactylus medius (ponds)
Cestoda
Caryophyllaeus fimbriceps (ponds)
Hirudinida
Piscicola geometra (ponds)

Leucaspis delineatus Belica
(Heckel, 1843) Ausleja
Status: native Верховка
Environment: freshwater
Protista
Apiosoma sp. (ponds)
Chilodonella piscicola (ponds)
Eimeria sp. (ponds)
Ichthyophthirius multifiliis (ponds)
Trichodina reticulata (ponds)
Myxosporea
Myxobolus bramae (Lake Burtnieku)
M. ellipsoides (Lake Burtnieku)
Digenea
Bucephalus polymorphus (Lake Burtnieku)
Diplostomum spathaceum metacercaria (Lake Burtnieku)
Ichthyocotylurus platycephalus metacercaria (ponds)
Sphaerostomum bramae (Lake Burtnieku)
Tylodelphys clavata metacercaria (Lake Burtnieku)
Monogenoidea
Dactylogyrus fraternus (Lake Burtnieku)
Diplozoon paradoxum (ponds)
D. similis (Lake Burtnieku)
?*Gyrodactylus elegans* (ponds)
G. medius (ponds)
Gyrodactylus sp. (ponds)

Cestoda
Ligula intestinalis plerocercoid (Lake Burtnieku)
Proteocephalus torulosus (Lake Burtnieku)
Nematoda
Rhabdochona denudata (Lake Burtnieku)
Hirudinida
Piscicola geometra (ponds)
Crustacea
Argulus foliaceus (ponds)

Remarks: This species occurs in many Latvian rivers and lakes, even in small, shallow, closed and overgrown lakes. It sometimes propagates spontaneously in fish ponds and is distributed along with cyprinids moved for stocking (Plikšs and Aleksejevs 1998).

Leuciscus cephalus (Linnaeus, 1758) European chub
Status: native Sapals
Environment: freshwater Голавль

Protista
Apiosoma campanulatum (Ogre River)
A. matthesi (Ogre River)
A. nasale (Ogre River)
A. poteriforme (Ogre River)
Trichodina nigra (Ogre River)
Myxosporea
Myxobolus bramae (Lake Burtnieku)
M. dispar (Daugava River)
M. minutus (Daugava, Lielupe, Ogre Rivers)
M. muelleri (Daugava, Ogre, Salaca Rivers)
Digenea
Allocreadium isoporum (Daugava River)
Bucephalus polymorphus (Daugava River)
Diplostomum spathaceum metacercaria (Lake Burtnieku, Daugava, Ogre Rivers)
Ichthyocotylurus platycephalus metacercaria (Daugava River)
Paracoenogonimus ovatus metacercaria (Daugava, Lielupe Rivers)
Posthodiplostomum cuticola metacercaria (Lielupe River)
Sphaerostomum bramae (Ogre River)
Tylodelphys clavata metacercaria (Lake Burtnieku)
Monogenoidea
Dactylogyrus cordus (Lake Burtnieku)
D. fallax (Salaca River)
D. folkmanovae (Ogre River)
D. nanoides (Ogre River)
D. vistulae (Ogre, Salaca Rivers)
D. yinwenyingae (Salaca River)
Cestoda
Ligula intestinalis plerocercoid (Lake Burtnieku, Daugava River)
Nematoda
Rhabdochona denudata (Daugava River)
Pseudocapillaria tomentosa (Daugava River)
Raphidascaris acus (Daugava, Ogre Rivers)
Mollusca
Anodonta cygnea glochidium (Ogre River)
Crustacea
Lamproglena pulchella (Daugava, Salaca Rivers)
Hirudinida
Piscicola geometra (Lielupe River)

Leuciscus idus (Linnaeus, 1758) Ide
Syn.: *Idus idus* (Linnaeus, 1758) Ālants
Status: native Язь
Environment: freshwater

Protista
Amphileptus sp. (Daugava River)
Myxosporea
Myxobolus exiguus (Daugava River)
M. muelleri (Daugava River)
M. nemetzeki (Daugava River)
Monogenoidea
Dactylogyrusfallax (Daugava River)
D. ramulosus (Salaca River)
D. similis (Lake Burtnieku, Daugava River)
D. tuba (Daugava, Rušons, Salaca Rivers)
D. yinwenyingae (Salaca River)
Dactylogyrus sp. (Lake Usmas)
Gyrodactylus prostae (Salaca River)
Paradiplozoon alburni (Daugava River)
Digenea
Allocreadium isoporum (Daugava River)
Diplostomum spathaceum metacercaria (Lake Rušons; Daugava, Salaca Rivers)
Ichthyocotylurus platycephalus metacercaria (Daugava River)
Paracoenogonimus ovatus

metacercaria (Daugava River)
Plagioporus angusticolle (Daugava River)
Posthodiplostomum cuticola metacercaria (Daugava River)
Sphaerostomum bramae (Daugava River)
Tylodelphys clavata metacercaria (Lake Usmas)
Cestoda
Caryophyllaeides fenica (Lake Rušons)
Nematoda
Cucullanus heterochrous (Daugava River)
Pseudocapillaria tomentosa (Daugava River)
Raphidascaris acus (Daugava, Salaca Rivers)
Acanthocephala
Acanthocephalus anguillae (Lake Burtnieku, Daugava River)
Corynosoma semerme juvenile (Daugava River)
Pomphorhynchus laevis (Daugava River)
Crustacea
Ergasilus briani (Daugava River)
*E. sieboldi (*Daugava River)
Lamproglena pulchella (Lake Usmas)
Tracheliastes polycolpus (Daugava River)

Leuciscus leuciscus (Linnaeus, 1758)
Syn.: *Leuciscus vulgaris* Fleming, 1828
Common dace
Baltais sapals
Елец
Status: native
Environment: freshwater
Protista
Amphileptus sp. (Rītupe River)
Trichodina nigra (Ogre River)
Myxosporea
Myxidium rhodei (Ogre River)
Myxobolus dipar (Rītupe River)
M. minutus (Rītupe River)
M. muelleri (Ogre, Rītupe Rivers)
M. nemetzeki (Rītupe River)
Digenea
Allocreadium isoporum (Ogre River)
Bucephalus polymorphus (Rītupe River)
Diplostomum spathaceum metacercaria (Ogre, Rītupe Rivers)
Paracoenogonimus ovatus metacercaria (Rītupe River)
Phyllodistomum elongatum (Rītupe River)
Rhipidocotyle campanula (Ogre River)
Tylodelphys clavata metacercaria (Ogre River)
Monogenoidea
Dactylogyrus cordus (Ogre River)
D. tuba (Ogre River)
Paradiplozoon homoion homoion (Ogre River)
Cestoda
Proteocephalus torulosus (Ogre River)
Nematoda
Raphidascaris acus (Ogre River)
Mollusca
Anodonta cygnea glochidium (Ogre River)

Pelecus cultratus (Linnaeus, 1758)
Sabrefish
Kaze
Чехонь
Status: native
Environment: freshwater, brackish
Digenea
Bucephalus polymorphus (Daugava River)
Diplostomum spathaceum metacercaria (Daugava River)
Monogenoidea
Diplozoon paradoxum (Daugava River)
Acanthocephala
Acanthocephalus anguillae (Daugava River)
Remarks: The sabrefish is an anadromous or species. It is included in the Red Data Book of Latvia under category “3” (rare) (Plikšs and Aleksejevs 1998).

Phoxinus phoxinus (Linnaeus, 1758)
Syn.: *Leuciscus phoxinus* (Linnaeus, 1758)
Eurasian minnow
Mailīte
Гольян
Status: native
Environment: freshwater
Protista
?*Trichodina domerguei* (Lake Sildu)
Myxosporea
Myxobolus lomi (Lake Sildu)
Digenea
Bucephalus polymorphus (Lake Sildu)
Diplostomum spathaceum

metacercaria (Lake Sildu)
Rhipidocotyle campanula (Lake Sildu)
Monogenoidea
Paradiplozoon zeller (Lake Sildu)
Mollusca
Pseudanadonta kletti (Lake Sildu)

Rutilus rutilus Roach
(Linnaeus, 1758) Rauda
Status: native Плотва
Environment: freshwater
Protista
Ichthyophthirius multifiliis (Lakes Burtnieku, Cirma, Juglas, Lielauces, Slokas, Sīvers)
Pleistophora mirandellae (Lake Viragnas)
?*Trichodina domerguei* (Lake Rušons)
T. nigra (Lake Sildu)
T. reticulata (Lake Burtnieku)
Myxosporea
Chloromyxum fluviatile (Lake Liepājas)
Myxidium pfeifferi (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Juglas, Kāla, Lielauces, Liepājas, Rāznas, Rušons, Sīvers; Kegums Water Reservoir)
M. rhodei (Lakes Sildu, Slokas, Usmas; Ogre River)
Myxobolus bramae (Lakes Alūksnes, Černavu, Cirma, Durbes, Juglas, Kāla, Lielauces, Liepājas, Rāznas, Riču, Rušons, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava River)
M. cycloides (Lakes Liepājas, Sīvers)
M. cyprini (Lakes Burtnieku, Juglas, Lielauces, Riču, Sīvers; Kegums Water Reservoir)
M. dispar (Lakes Rāznas, Rušons, Sīvers)
M. ellipsoides (Lakes Cirma, Durbes, Sīvers; Kegums Water Reservoir; Daugava River)
M. exiguus (Kegums Water Reservoir)
M. macrocapsularis (Lake Rāznas)
M. muelleri (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Juglas, Sildu, Sīvers, Slokas, Usmas; Daugava, Ogre, Salaca Rivers)
M. rutili (Lake Slokas)
Myxobolus sp. (Lake Durbes)
Thelohanellus fuhrmanni (Lake Durbes)
T. oculileucisci (Lake Sīvers)
Zschokkella nova (Lake Rāznas)
Digenea
Allocreadium isoporum (Lakes Alūksnes, Durbes, Lielauces, Liepājas, Sīvers; Daugava River)
A. transversale (Lakes Černavu, Sīvers)
Asymphylodora imitans (Lake Sīvers, Daugava River)
Bucephalus polymorphus metacercaria (Lakes Burtnieku, Durbes, Rāznas, Sildu, Slokas; Kegums Water Reservoir; Daugava, Salaca Rivers)
Diplostomulum sp. metacercaria (Lakes Burtnieku, Černavu, Juglas, Riča, Sildu, Sivers, Slokas; Daugava, Ogre Rivers)
Diplostomum commutatum metacercaria (Lake Sildu)
D. spathaceum metacercaria (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Kāla, Lielauces, Liepājas, Rāznas, Rušons, Sīvers, Usmas; Kegums Water Reservoir; Daugava, Salaca Rivers)
Hysteromorpha triloba metacercaria (Lakes Burtnieku, Černavu, Lielauces, Liepājas, Riču, Sīvers)
Ichthyocotylurus platycephalus metacercaria (Lakes, Cirma, Durbes, Sivers; Kegums Water Reservoir; Daugava River)
I. pileatus metacercaria (Lake Sīvers)
I. variegatus metacercaria (Daugava River)
Ornithodiplostomum scardinii metacercaria (Daugava River)
Palaeorchis incognitus (Daugava River)
Paracoenogonimus ovatus metacercaria (Lakes Černavu, Juglas, Rāznas, Riču, Rušons, Slokas, Usmas; Kegums Water Reservoir; Daugava River)
Phyllodistomum elongatum (Lakes Riču, Rušons, Sildu; Daugava River)
Posthodiplosomum brevicaudatum metacercaria

(Lake Riču, Daugava River)
P. cuticola metacercaria
(Lakes Cirma, Durbes, Juglas, Rušons, Riču, Slokas, Usmas; Daugava, Ogre, Salaca Rivers)
Rhipidocotyle campanula
(Lakes Juglas, Sildu, Slokas, Usmas; Daugava River)
Sphaerostomum bramae
(Lakes Liepājas, Sīvers)
Tylodelphys clavata metacercaria
(Lakes Alūksnes, Burtnieku, Černavu, Cirma, Durbes, Lielauces, Liepājas, Kāla, Rāznas, Riču, Rušons, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava, Salaca Rivers)
Monogenoidea
Dactylogyrus caballeroi
(Lakes Sildu, Slokas, Usmas; Daugava River)
D. crassus (Lake Sildu)
D. crucifer
(Lakes Alūksnes, Burtnieku, Duņas, Durbes, Dzirnezers, Juglas, Lielauces, Rāznas, Rušons, Sildu, Sīvers, Slokas, Usmas, Vilgales, Viragnas; Kegums Water Reservoir; Daugava, Lielupe, Ogre, Salaca Rivers)
D. diformoides (Lake Kanieris)
D. fallax
(Lakes Sildu, Slokas, Usmas; Salaca River)
D. izjumovae (Lake Kaņieris)
D. micracanthus
(Lake Duņas, Daugava River)
D. nanus
(Lakes Dzirnezers, Juglas, Rāznas, Rušons, Sildu, Slokas, Usmas; Daugava River)
D. ramulosus (Lake Sīvers)
D. rutili
(Lakes Okras, Sildu, Slokas, Usmas)
D. similis
(Lakes Burtnieku,Cirma, Sīvers, Slokas, Usmas; Daugava, Ogre Rivers)
D. sphyrna
(Lakes Juglas, Lielauces, Sildu, Sīvers, Slokas, Usmas; Daugava, Lielupe, Ogre, Salaca Rivers)
D. suecicus (Lake Sildu)
D. yinwenyingae
(Buļļupe, Ogre, Salaca Rivers)
Diplozoon paradoxum
(Lakes Burtnieku, Durbes, Juglas, Liepājas, Rāznas, Sīvers, Usmas; Daugava Ogre, Salaca Rivers)
Gyrodactylus gasterostei
(Lake Garmuižas)
Gyrodactylus sp.
(Kegums Water Reservoir)
Paradiplozoon homoion homoion
(Lakes Sildu, Slokas, Usmas; Daugava, Lielupe Rivers)
Cestoda
Caryophyllaeus laticeps
(Lakes Sildu, Slokas, Usmas; Ogre River)
Ligula intestinalis plerocercoid
(Lakes Burtnieku, Juglas, Lielauces, Usmas; Salaca River)
Paradilepis scolecina metacestode
(-)
Proteocephalus torulosus
(Daugava River)
Nematoda
Desmidocercella sp. (Lake Sivers)
Nematoda gen. sp.
(Lakes Cirma, Lielauces, Sīvers; Kegums Water Reservoir; Daugava River)
Philometra abdominalis
(Lake Sildu, Lielupe River)
P. rischta (Lake Slokas)
Raphidascaris acus
(Lakes Alūksnes, Burtnieku, Cirma, Liepājas, Rāznas, Rušons, Sīvers, Slokas; Daugava River)
Rhabdochona denudata
(Lakes Burtnieku, Lielauces; Daugava River)
Acanthocephala
Acanthocephalus anguillae
(Lakes Burtnieku, Sīvers; Daugava River)
A. lucii
(Lakes Juglas, Sīvers, Slokas, Usmas; Daugava River)
Corynosoma semerme juvenile
(Daugava River)
Neoechinorhynchus rutili
(Lake Sīvers, Daugava River)
Hirudinida
Hemiclepsis marginata (Lake Razna)
Piscicola geometra
(Lakes Burtnieku, Sīvers, Slokas; Kegums Water Reservoir)
Mollusca
Anodonta cygnea glochidium
(Lake Usmas; Daugava, Ogre Rivers)
Pseudanadonta kletti glochidium
(Lake Sildu)
Unio pictorum glochidium
(Lakes Juglas, Kišezers; Ogre River)
Unio sp.glochidium (Lake Sīvers)
Unionidae gen. sp. glochidium

(Lakes Alūksnes, Cirma, Rāznas, Sīvers)
Crustacea
Argulus foliaceus
(Lakes Alūksnes, Sīvers; Kegums Water Reservoir)
Ergasilus sieboldi
(Lakes Alūksnes, Burtnieku, Cirma, Durbes, Kāla, Rušons, Sildu, Sīvers, Slokas, Usmas; Daugava River)

Remarks: The roach is one of the most common fish species in Latvia. It occurs in rivers, lakes and coastal waters near river mouths (Plikšs and Aleksejevs 1998).

Scardinius erythrophthalmus (Linnaeus, 1758) Rudd Rudulis Красноперка

Syn.: *Leuciscus erythophthalmus* (Linnaeus, 1758)

Status: native

Environment: freshwater

Protista
Ichthyophthirius multifiliis
(Lakes Cirma, Sīvers)
?*Trichodina domerguei*
(Lake Rāznas)
Myxosporea
Myxidium pfeifferi (Lake Sīvers)
Myxobolus bramae
(Lakes Lielauce, Rāznas, Rušons, Sīvers, Slokas Usmas; Daugava River)
M. cycloides (Lake Sīvers)
M .dispar (Lakes Cirma, Raznas)
M. ellipsoides (Lake Sīvers)
M. muelleri (Salaca River)
M. permagnus (Lake Burtnieku)
Zschokkella nova (Lake Sīvers)
Digenea
Allocreadium isoporum
(Lakes Rāznas, Sīvers, Slokas, Usmas)
Asymphylodora sp. (Lake Sīvers)
Bucephalus polymorphus
(Daugava, Salaca Rivers)
Diplostomulum sp. metacercaria
(Lake Slokas)
Diplostomum spathaceum metacercaria
(Lakes Cirma, Durbes, Lielauces, Liepājas, Rāznas, Rušons, Sīvers, Usmas; Daugava, Salaca Rivers)
Hysteromorpha triloba metacercaria
(Lake Sīvers)
Ornithodiplostomum scardini metacercaria
(Lakes Rāznas, Rušons, Slokas, Usmas; Daugava River)
Paracoenogonimus ovatus metacercaria
(Lakes Rāznas, Rušons, Slokas, Usmas; Daugava River)
Parasymphylodora markewitschi
(Lakes Liepājas, Rāznas, Rušons; Daugava River)
Posthodiplostomum brevicaudatum metacercaria (Lake Usmas)
P. cuticola metacercaria
(Lakes Cirma, Liepājas, Rāznas, Sīvers, Slokas, Usmas; Daugava River)
Tylodelphys clavata metacercaria
(Lakes Cirma, Durbes, Lielauces, Liepājas, Rāznas, Slokas, Sīvers, Usmas; Daugava River)
Monogenoidea
Dactylogyrus crucifer (Lake Cirma)
D. difformis
(Lakes Lielauces, Liepājas, Rāznas, Rušons, Sīvers, Slokas, Usmas; Daugava River)
D. difformoides
(Lakes Kanieris, Slokas, Usmas)
D. fallax (Lake Slokas)
D. izjumovae
(Lakes Kanieris, Slokas)
D. similis (Lakes Dzirnezers, Sīvers)
Diplozoon paradoxum
(Lakes Durbes, Liepājas; Daugava River)
Cestoda
Caryophyllaeides fenica
(Lake Slokas)
Nematoda
Desmidocercella numidica
(Lake Slokas, Usmas)
Nematoda gen. sp.
(Daugava River)
Raphidascaris acus
(Lakes Cirma, Rāznas, Sīvers, Slokas, Usmas)
Acanthocephala
Acanthocephalus anguillae
(Lake Sīvers)
Corynosoma semerme juvenile
(Daugava River)
Hirudinida
Piscicola geometra
(Lakes Rāznas, Sīvers)
Mollusca
Anodonta cygnea glochidium
(Lakes Slokas, Usmas)
Unionidae gen. sp. glochidium
(Lakes Rāznas Sīvers)
Crustacea
Argulus foliaceus
(Lakes Liepājas, Rāznas, Sīvers)
Ergasilus seiboldi

(Lakes Černavu, Cirma, Durbes, Riču, Rušons, Sīvers, Slokas, Usmas; Daugava River)

Tinca tinca Tench
(Linnaeus, 1758) Līnis
Status: native Линь
Environment: fresh water
Protista
Apiosoma sp. (ponds)
Ichthyophthirius multifiliis (Lake Sīvers)
?*Trichodina domerguei* (Lakes Sīvers, Rāznas; Daugava River)
T. fultoni (Lake Sildu)
T. reticulata (Lake Sīvers)
Trichodinella epizootica (Lake Sildu)
Myxosporea
Chloromyxum cristatum (Lake Sildu)
Myxidium pfeifferi (Lake Lielauces)
Myxobolus bramae (Daugava River)
M. cyprini (ponds)
M. dispar (ponds)
M. ellipsoides (Lake Rāznas, Daugava River)
M. muelleri (Lakes Sildu, Slokas)
Thelohanellus pyriformis (Lakes Cirma, Lielauces, Rāznas, Sīvers; Daugava River)
Zschokkella nova (Lake Rāznas)
Digenea
Allocreadium isoporum (Lakes Skolas, Usmas)
Asymphylodora tincae (Lakes Burtnieku, Cirma, Dārza, Durbes, Liepājas, Lielauces, Rāznas, Sildu, Sīvers, Slokas; Daugava, Lielupe Rivers)
Bucephalus polymorphus (Lakes Sivers, Skolas; Daugava River)
Diplostomulum sp. metacercaria (Daugava River)
Diplostomum spathaceum metacercaria (Lakes Liepājas, Sīvers, Skolas; Daugava River)
Hysteromorpha triloba metacercaria (Lake Cirma)
Ichthyocotylurus plathycephalus metacercaria (ponds)
Paracoenogonimus ovatus metacercaria (Lakes Dārza, Rāznas, Skolas; Daugava River)
Phyllodistomum elongatum (Lakes Dārza, Skolas)
Posthodiplostomum brevicaudatum metacercaria (Daugava River)
Tylodelphys clavata metacercaria (Lakes Dārza, Lielauces, Liepājas, Sīvers)
Monogenoidea
Dactylogyrus macracanthus (Lakes Lielauces, Sildu, Sīvers, Rāzna; Daugava River)
D. tincae (Lakes Sildu, Skolas, Usmas, Zveinieklu; Lielupe River)
Diplozoon paradoxum (Daugava River)
?*Gyrodactylus elegans* (ponds)
G. medius (ponds)
Cestoda
Caryophyllaeus laticeps (ponds)
Neogryporhynchus cheilancristrotus metacestode (Daugava River)
Paradilepis scolicina metacestode (Lake Skolas)
Valipora campylancristrota metacestode (Lake Dārza)
Nematoda
Nematoda gen. sp. (Lakes Lielauces, Liepājas)
Raphidascaris acus (Daugava, Lielupe Rivers)
Skrjabilanus tincae (Lake Skolas)
Acanthocephala
Acanthocephalus anguillae (Lakes Liepājas, Rāznas, Sīvers; Daugava River)
A. lucii (Lake Rāznas, Daugava River)
Corynosoma semerme juvenile (Daugava River)
Hirudinida
Piscicola geometra (Lake Sīvers)
Mollusca
Anodonta cygnea glochidium (Lakes Slokas, Usmas)
Unionidae gen. sp. glochidium (Lake Sīvers)
Crustacea
Argulus foleaceus (Lakes Rāznas, Sīvers, Skolas)
Ergasilus briani (Lake Rāznas. Daugava River)
E. sieboldi (Lakes Burtnieku, Cirma, Dārza, Durbes, Lielauces, Sīvers, Usmas; Daugava River)

Remarks: The tench is one of the most common Latvian fishes, occurring in many rivers, lakes, ponds, and coastal waters near river mouths. From 1955 to 1996, it was restocked in at least 120 lakes. It is also raised in fish farms (Plikšs and Aleksejevs 1998).

Vimba vimba Vimba
(Linnaeus, 1758) Vimba
Status: native Сырть
Environment: freshwater, brackish, marine

Protista
Trichodina sp. (Gulf of Riga)
Myxosporea
Myxobolus bramae (Daugava River, Gulf of Riga)
M. ellipsoides (Daugava, Salaca Rivers; Gulf of Riga)
M. muelleri (Daugava River)
M. oviformis (Daugava River, Gulf of Riga)
Zschokkella nova (Daugava River, Gulf of Riga)
Digenea
Bucephalus polymorphus (Daugava River, Gulf of Riga)
Diplostomulum sp. metacercaria (Daugava River)
Diplostomum spathaceum metacercaria (Daugava, Salaca Rivers; Gulf of Riga)
Ichthyocotylurus variegatus metacercaria (Daugava River)
I. platucephalus (Gulf of Riga)
Paracoenogonimus ovatus metacercaria (Daugava, Salaca Rivers)
Phyllodistomum elongatum (Daugava River)
Posthodiplostomum cuticola metacercaria (Daugava River)
Sphaerostoma bramae (Daugava River)
Tylodelphys clavata metacercaria (Daugava, Salaca Rivers)
Monogenoidea
Dactylogyrus cornoides (Gauja, Salaca Rivers)
D. cornu (Daugava, Lielupe, Salaca Rivers; Gulf of Riga)
D. distinguendus (Daugava, Gauja Rivers)
D. fallax (Lielupe River)
D. sphyrna (Lakes Dzirnezers, Vilgales; Daugava, Gauja Rivers; Gulf of Riga)
Diplozoon paradoxum (Daugava, Salaca Rivers; Gulf of Riga)
Gyrodactylus vimbi (Daugava River)
Gyrodactylus sp. (Daugava River)
Paradiplozoon alburni (Salaca River)
P. blicae (Gauja River)
P. homoion homoion (Daugava River)
Cestoda
Caryophyllaeides fenica (Daugava River)
Proteocephalus torulosus (Gulf of Riga)
Nematoda
Pseudocapillaria tomentosa (Daugava River)
Raphidascaris acus (Daugava River, Gulf of Riga)
Schulmanela petruschewskii (Daugava River)
Acanthocephala
Acanthocephalus anguillae (Daugava River)
A. lucii (Daugava, Salaca Rivers; Gulf of Riga)
Echinorhynchus gadi (Daugava River)
Pomphorhynchus laevis (Daugava River)
Mollusca
Unio rostratus glochidium (Lielupe River)
Crustacea
Ergasilus briani (Daugava River)
E. sieboldi (Daugava River, Gulf of Riga)

Remarks: The vimba is anadromous species with populations in some areas. In Latvia it occurs in coastal waters, rivers discharging directly into the sea and in coastal lakes. It has been restocked since 1970 (Plikšs and Aleksejevs 1998).

ORDER SILURIFORMES

FAMILY SILURIDAE

Silurus glanis Wels catfish
Linnaeus, 1758 Sams
Status: native Сом

Environment: fresh water
Protista
Ichthyophthirius multifiliis (Daugava River)
Trichodina sp. (Ličupe River)
Digenea
Bucephalus polymorphus (Daugava River)
Diplostomum spathaceum metacercaria (Daugava River)
Nicolla skrjabini (Kegums Water Reservoir, Daugava River)
Monogenoidea
Thaparocleidus siluri (Daugava River)
Cestoda
Proteocephalus osculatus (Kegums Water Reservoir, Daugava River)
Nematoda
Agamonema sp. larva (Kegums Water Reservoir)
Camallanus truncatus (Daugava River)
Eustrongylides sp. larva (Daugava River)
Cucullanus heterochrous (Daugava River)
Raphidascaris acus (Kegums Water Reservoir, Daugava River)
Acanthocephala
Acanthocephalus anguillae (Kegums Water Reservoir)
A. lucii (Kegums Water Reservoir)
Crustacea
Ergasilus sieboldi (Daugava River)

Remarks: In Latvia, the wels catfish occurs mostly in basin of the Daugava River and its tributary, the Aiviekste. A few specimens have also been caught in the Gulf of Riga. It is included in the Red Data Book of Latvia under category "3" (rare) (Plikšs and Aleksejevs 1998).

ORDER ESOCIFORMES

FAMILY ESOCIDAE

Esox lucius Linnaeus, 1758 — Northern pike; Līdaka; Щука

Status: native

Environment: fresh water

Protista
Apiosoma companulatum (Lake Sildu, Ogre River)
?*Trichodina domerguei* (Lake Rāzna, Kegums Water Reservoir)
T. esocis (Lake Sildu)
Trichodinella epizootica (Daugava River)
Myxosporea
Chloromyxum esocium (Lake Liepājas, Kegums Water Reservoir, Daugava River)
Henneguya lobosa (Lakes Burtnieku, Indra, Juglas, Rāznas, Slokas, Usmas; Kegums Water Reservoir)
H. ovipedra (Lakes Burtnieku Durbes, Rāznas, Sildu,Usmas)
H. psorospermica (Lakes Burtnieku, Sīvers; Kegums Water Reservoir)
H. schizura (Kegums Water Reservoir)
H. zschokkei (Lake Sildu)
Myxidium lieberkuehni (Lakes Burtnieku, Cirma, Durbes, Kāla, Lielauces, Liepājas, Rāznas, Rušons, Sildu Sīvers, Usmas; Kegums Water Reservoir; Daugava River)
Myxobolus anurum (Lakes Burtnieku, Cirma, Durbes, Juglas, Kāla, Liepājas, Rāznas, Rušons, Sildu, Sīvers, Usmas; Kegums Water Reservoir; Daugava River)
Digenea
Allocreadium isoporum (Lake Juglas)
Azygia lucii (Lakes Burtnieku, Cirma, Indra, Juglas, Kāla, Liepājas, Rāznas, Rušons, Sivers, Slokas, Usmas; Daugava River)
Bucephalus polymorphus (Lakes Burtnieku, Rāznas, Sīvers; Daugava River; Kegums Water Reservoir)
Bunodera luciopercae (Lakes Lielauces, Liepājas)
Diplostomulum sp. metacercaria (Lakes Černavu, Juglas, Slokas)
Diplostomum commutatum metacercaria (Lakes Slokas, Usmas; Daugava River)
D. spathaceum metacercaria (Lakes Burtnieku, Cirma, Durbes, Kāla, Liepājas, Rāznas, Rušons,

Sildu, Sīvers; Kegums Water Reservoir; Daugava River)
Ichthyocotylurus platycephalus metacercaria (Lake Sīvers)
Paracoenogonimus ovatus metacercaria (Lakes Černavu, Juglas, Rāznas, Rušons, Usmas; Kegums Water Reservoir; Daugava, Lielupe, Rivers)
Phyllodistomum folium (Lakes Burtnieku, Cirma, Durbes, Kāla, Lielauces, Liepājas, Rāznas, Rušons, Sildu, Sīvers; Kegums Water Reservoir)
Posthodiplostomum brevicaudatum metacercaria (Lake Usmas, Daugava River)
Rhipidocotyle campanula (Lakes Sildu, Usmas; Daugava River)
Sphaerostomum bramae (Lake Burtnieku)
Tylodelphys clavata metacercaria (Lakes Burtnieku, Cirma, Durbes, Indra, Juglas, Kāla, Lielauces, Liepājas, Rāznas, Rušons, Sīvers, Slokas, Usmas; Daugava River, Kegums Water Reservoir)

Monogenoidea
Diplozoon paradoxum (Lake Liepājas)
Gyrodactylus sp. (Lake Slokas)
Tetraonchus monenteron (Lakes Burtnieku, Cirma, Durbes, Juglas, Lielauces, Liepājas, Rāznas, Rušons, Sīvers, Sildu, Slokas, Usmas; Daugava River; Kegums Water Reservoir)

Cestoda
Cyathocephalus truncatus (Lake Juglas)
Diphyllobothrium latum plerocercoid (Lake Juglas, Daugava River)
Ligula intestinalis plerocercoid (Lake Liepājas)
Neogryporhynchus cheilancristrotus metacestode (Lake Engures)
Paradilepis scolecina metacestode (-)
Proteocephalus esocis (Lakes Juglas, Sīvers)
P. percae (Lakes Kāla, Sīvers)
Proteocephalus sp. (Lakes Indra, Juglas, Rāznas; Daugava River, rivers entering the Gulf of Riga)
Triaenophorus nodulosus (Lakes Burtnieku, Černavu, Cirma, Durbes, Indra, Juglas, Kāla Lielauces, Liepājas, Rāznas, Rušons, Sīvers, Slokas,Usmas, Žuguru; Kegums Water Reservoir; Daugava River)

Nematoda
Camallanus (*Camallanus*) *lacustris* (Lakes Burtnieku, Cirma, Juglas, Rāznas, Rušons, Sildu, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava River)
C. (*Camallanus*) *truncatus* (Lake Slokas)
Eustrongylides excisus larva (Lake Slokas)
Philometra obturans (Lakes Kāla, Juglas, Rušons, Sīvers, Slokas)
Raphidascaris acus (Lakes Burtnieku, Černavu, Cirma, Indra, Juglas, Liepājas, Rāznas, Rušons, Sīvers, Slokas, Usmas, Žuguru; Kegums Water Reservoir; Daugava, Lielupe Rivers)

Acanthocephala
Acanthocephalus anguillae (Lake Rāznas)
A. lucii (Lakes Burtnieku, Cirma, Juglas, Lielauces, Liepājas, Rāznas, Rušons, Sīvers, Slokas, Usmas, Žuguru; Daugava River)

Hirudinida
Piscicola geometra (Lakes Burtnieku, Cirma, Durbes, Juglas, Kāla, Lielauces, Sildu, Sīvers, Usmas)

Mollusca
Anodonta cygnea glochidium (Lakes Juglas, Slokas; Daugava River)
Pseudanadonta kletti glochidium (Lake Sivers)
Unionidae gen. sp. glochidium (Lakes Burtnieku, Cirma, Rāznas, Sildu)

Crustacea
Argulus foliaceus (Lakes Burtnieku, Cirma, Durbes, Kāla, Lielauces, Liepājas, Rāznas, Sildu, Sīvers, Slokas)
Ergasilus sieboldi (Lakes Burtnieku, Černavu, Cirma, Durbes, Indra, Juglas, Kāla, Lielauces, Rāznas, Rušons, Sīvers, Slokas, Usmas; Daugava River)

ORDER OSMERIFORMES

FAMILY OSMERIDAE

Osmerus eperlanus (Linnaeus, 1758) — European smelt; Salaka; Корюшка
Status: native
Environment: marine
- Digenea
  - *Diplostomulum* sp. metacercaria (Gulf of Riga)
  - *Diplostomum spathaceum* metacercaria (Daugava River, Gulf of Riga)
  - *Ichthyocotylurus erraticus* metacercaria (Daugava River)
- Cestoda
  - *Diphyllobothrium ditremum* plerocercoid (Gulf of Riga)
  - *Proteocephallus longicollis* (Daugava River, Gulf of Riga)
  - *Proteocephallus* sp. (Gulf of Riga)
- Nematoda
  - *Cystidicola farionis* (Daugava River, Gulf of Riga)
  - *Hysterothylacium aduncum* (Daugava River, Gulf of Riga)
- Acanthocephala
  - *Corynosoma semerme* juvenile (Daugava River, Gulf of Riga)
  - *C. strumosum* juvenile (Gulf of Riga)
  - *Echinorhynchus gadi* (Gulf of Riga)
- Crustacea
  - *Ergasilus sieboldi* (Daugava River)

Remarks: An anadromous or species that is distributed in northern Europe. Two varieties occur in Latvia: the anadromous smelt – *O. eperlanus eperlanus* – in coastal waters and the Gulf of Riga, and smelt – *O. eperlanus spirinchus* – found mainly in a few lakes (Plikšs and Aleksejevs 1998).

Osmerus eperlanus spirinchus (Pallas, 1814) — European smelt
Includes: *O. eperlanus eperlanus* morpha *spirinchus*
Status: native — Sņitka
Environment: freshwater — Снеток
- Digenea
  - *Diplostomum spathaceum* metacercaria (Lake Sīvers)
- Cestoda
  - *Diphyllobothrium ditremum* plerocercoid (Lake Sīvers)
  - *Diphyllobothrium* sp. plerocercoid (Lake Sīvers)
  - *Proteocephallus longicollis* (Lake Sīvers)
  - *Triaenophorus nodulosus* plerocercoid (Lake Sīvers)
- Crustacea
  - *Argulus foliaceus* (Lake Sīvers)
  - *Ergasilus sieboldi* (Lake Sīvers)

Remarks: This subspecies is considered a synonym of *E. eperlanus* by Froese and Pauly (2006).

ORDER SALMONIFORMES

FAMILY SALMONIDAE

Coregonus albula (Linnaeus, 1758) — Vendace; Repsis; Ряпушка
Status: native
Environment: freshwater
- Protista
  - ?*Trichodina domerguei* (Lake Rāznas)
- Myxosporea
  - *Henneguya zschokkei* (Lake Sīvers)
- Digenea
  - *Diplostomum spathaceum* metacercaria (Lakes Alūksnes, Sīvers)
  - *Ichthyocotylurus erraticus* metacercaria (Lakes Alūksnes, Rāznas, Sīvers)
  - *Tylodelphus clavata* metacercaria (Lake Alūksnes)
- Cestoda
  - *Diphyllobothrium ditremum* plerocercoid (Lakes Rāznas, Sīvers)
  - *Diphyllobothrium* sp. plerocercoid (Lake Sīvers)
  - *Proteocephalus longicollis* (Lakes Alūksnes, Rāznas, Sīvers)
- Crustacea
  - *Argulus foliaceus* (Lakes Alūksnes, Sīvers)
  - *Ergasilus sieboldi* (Lakes Rāznas, Sīvers)
- Mollusca
  - Unionidae gen. sp. glochidium (Lakes Alūksnes, Rāznas)

Remarks: This coregonid has been the subject of a restocking program since 1900. From 1939 to 1981, it was stocked into at least in 46 lakes, as well as some artificial reservoirs. It is included in the Red Data Book of Latvia under category “3” (rare) (Plikšs and Aleksejevs 1998).

Coregonus lavaretus Common whitefish
(Linnaeus, 1758) Sīga
Status: native? Сиг
Environment: freshwater, brackish
Myxosporea
Henneguya zschokkei (Lake Cirma)
Digenea
Crepidostomum farionis (Daugava River)
Diplostomum spathaceum metacercaria (Daugava River, Gulf of Riga)
Ichthyocotylurus erraticus metacercaria (Lake Cirma)
Tylodelphys clavata metacercaria (Lake Cirma)
Cestoda
Diphyllobothrium ditremum plerocercoid (Lake Cirma, Daugava River)
Proteocephalus longicollis (Daugava River, Gulf of Riga)
Nematoda
Cystidicola farionis (Daugava River)
Raphidascaris acus (Gulf of Riga)
Mollusca
Unionidae gen. sp. glochidium (Lake Cirma)
Crustacea
Achtheres foleaceus (Lake Cirma)
Ergasilus sieboldi (Lake Cirma)

Remarks: Several forms of this species – anadromous, and sea spawning – occur in Latvia. The sea spawning and anadromous whitefish are distributed along the sea coast and in the Gulf of Riga. The form (*C.lavaretus marranoides*) occurs mainly in the lakes of eastern Latvia. *Coregonus lavaretus ludoga* has been stocked since 1888; the anadromous whitefish from 1893 to 1961. This species is included in the Red Data Book of Latvia under category "2" (vulnerable) (Plikšs and Aleksejevs 1998).

Coregonus peled Peled
(Gmelin, 1783) Pelede
Status: exotic Пелядь
Environment: freshwater
Protista
Apiosoma sp. (ponds)
Trichodina reticulata (ponds)
Digenea
Diplostomum spathaceum metacercaria (ponds)
Monogenoidea
Gyrodactylus sp. (ponds)
Hirudinida
Piscicola geometra (ponds)
Crustacea
Argulus foliaceus (ponds)

Remarks: An anadromous or fresh water species that is distributed in the catchment area of the Arctic Ocean. It was introduced into Latvia in 1954 (Plikšs and Aleksejevs 1998). Froese and Pauly (2006) note that self-reproducing populations have become established in the wild.

Oncorhynchus mykiss Rainbow trout
(Walbaum, 1792) Varavīksnes forele
Syn.: *Salmo irideus* Gibbons, 1855 Радужная форель
S. gairdneri Richardson, 1836
Trutta iridea (Gibbons, 1855)
Status: exotic
Environment: fresh water
Protista
Apiosoma piscicolum (tanks)
Capriniana piscium (cages on Lake Dzirnezers)
Chilodonella piscicola (tanks)
Hexamita salmonis (tanks, hatchery)
Ichthyophthirius multifiliis (tanks)
Trichodina acuta (tanks)
T. nigra. (tanks)
Trichodinella epizootica (tanks)
Myxosporea
Chloromyxum truttae (hatchery)
Digenea
Diplostomulum sp. metacercaria (tanks)
Diplostomum spathaceum metacercaria (tanks)
Monogenoidea
?*Diplozoon* sp. (Lake Dzirnezers (cages))
Gyrodactylus truttae (tanks)
Cestoda
Triaenophorus nodulosus plerocercoid (tanks)
Nematoda
Cystidicola farionis (tanks)
Hysterothylacium aduncum (tanks)

Remarks: An anadromous or species, rainbow trout are native to western North America. The first attempted introduction into Latvia was in 1899. They are currently raised in fish farms; no feral populations have become established in Latvia and the Baltic Sea catchment area (Plikšs and Aleksejevs 1998).

Salmo salar Atlantic salmon
Linnaeus, 1758 Lasis
Status: native Лосось, семга

Environment: marine
Protista
Apiosoma piscicolum (tanks)
Hexamita salmonis (hatchery)
Trichodina nigra (hatchery)
Myxosporea
Chloromyxum truttae (hatchery)
Digenea
Brachyphallus crenatus (Daugava River)
Cestoda
Diphyllobothrium dendriticum (Rivers Buļļupe, Daugava, Gauja, Lielupe, Vecdaugava; Gulf of Riga)
D. ditremum plerocercoid (Daugava River)
Eubothrium crassum (Daugava River, Gulf of Riga)
Nematoda
Cucullsnus truttae (Daugava River)
Goezia sp. (Daugava River)
Hysterothylacium aduncum (Daugava River)
Pseudoterranova decipiens larva (Daugava River)
Raphidascaris acus (Daugava River)
Acanthocephala
Echinorhynchus gadi (Daugava River)
E. salmonis (Daugava River)
Remarks: An anadromous species, the Baltic salmon is considered a geographically isolated population, as no migrations out of the sea are observed (Plikšs and Aleksejevs 1998).

Salmo trutta Sea trout
Linnaeus, 1758 Taimiņš
Status: native Кумжа
Environment: brackishwater, marine
Cestoda
Eubothrium crassum (Daugava River)
Nematoda
Hysterothylacium aduncum (Daugava River)
Raphidascaris acus (Daugava River)
Acanthocephala
Echinorhynchus salmonis (Daugava River)
Remarks: An anadromous species. occurring in Latvia along the Baltic Sea coast and in the Gulf of Riga (Plikšs and Aleksejevs, 1998). Listed as *S. trutta trutta* by Froese and Pauly (2006).

Salmo trutta morpha *fario* Brown trout
Linnaeus, 1758 Strauta forele
Status: native Ручьевая форель
Environment: freshwater
Digenea
Diplostomum spathaceum metacercaria (River Liečupe)
Cestoda
Cyathocephalus truncatus (Liečupe River)
Eubothrium crassum (Daugava River)
Proteocephalus longicollis (Liečupe River)
Nematoda
Cucullanus truttae (Liečupe River)
Acanthocephala
Echinorhynchus truttae (Liečupe River)
Mollusca
Unio pictorum glochidium (rivers)
Remarks: The brown trout was restocked from 1898 to 1941, and imported from Czechoslovakia between 1958 and 1960 for stocking in lakes for recreational fishing (Plikšs and Aleksejevs 1998). This form is considered a synonym of *S. trutta trutta* by Froese and Pauly (2006).

Thymallus thymallus Grayling
(Linnaeus, 1758) Alata
Status: native Хариус
Environment: freshwater
Monogenoidea
Tetraonchus borealis (Gauja river basin)
Nematoda
Cystidicoloides ephemeridarum (Gauja River)
Remarks: In Latvia, grayling are found in the Gauja and Venta Rivers and their tributaries. The species is included in the Red Data Book of Latvia under category “3” (rare) (Plikšs and Aleksejevs 1998).

ORDER GADIFORMES

FAMILY GADIDAE

Gadus morhua callarias Baltic cod
(Linnaeus, 1758) Menca
Status: native Треска
Environment: marine
Protista
Goussia gadi (Baltic Sea)

Loma branchialis (Baltic Sea)
Trichodina cottidarum (Gulf of Riga)
T. murmanica (Gulf of Riga)
Trichodina sp. (Gulf of Riga, Baltic Sea)
Digenea
Diplostomulum sp. metacercaria (Baltic Sea)
Diplostomum spathaceum metacercaria (Daugava River, Gulf of Riga, Baltic Sea)
Monogenoidea
Gyrodactylus aeglefini (Gulf of Riga, Baltic Sea)
G. pharyngicus (Gulf of Riga)
Cestoda
Bothriocephalus scorpii (Gulf of Riga, Baltic Sea)
Nematoda
Anisakis simplex larva (Gulf of Riga)
Ascarophis longispicula (Gulf of Riga, Baltic Sea)
A. morhuae (Gulf of Riga, Baltic Sea)
A. skrjabini (Gulf of Riga)
Ascarophis sp. (Gulf of Riga, Baltic Sea)
Cucullanus cirratus (Gulf of Riga)
Cystidicola farionis (Gulf of Riga, Baltic Sea)
Hysterothylacium aduncum (Daugava River, Gulf of Riga)
Acanthocephala
Corynosoma semerme juvenile (Gulf of Riga, Baltic Sea)
C. strumosum juvenile (Gulf of Riga, Baltic Sea)
Echinorhynchus gadi (Daugava River, Gulf of Riga, Baltic Sea)
Pomphorhynchus laevis (Gulf of Riga, Baltic Sea)
Hirudinida
Piscicola geometra (Gulf of Riga, Baltic Sea)

Remarks: The Baltic cod is a marine demersal species. One of five subspecies of the Atlantic cod, its is adapted to the brackish waters of the Baltic Sea and is. common throughout the Baltic, its distribution fluctuating along with the stock's abundance (Plikšs & Aleksejevs 1998). The subspecies is considered a junior synonym of *G. morhua* by Froese and Pauly (2006).

Lota lota (Linnaeus, 1758) — Burbot, Vēdzele, Налим

Status: native

Environment: freshwater

Protista
Hexamita salmonis (Lake Rāznas, Daugava River)
?*Trichodina domerguei* (Lake Rāznas)
Myxosporea
Caudomyxum nanum (Kegums Water Reservoir)
Chloromyxum dubium (Lake Rāznas, Kegums Water Reservoir)
C. mucronatum (Lake Rāznas, Kegums Water Reservoir)
Myxobolus cycloides (Lake Burtnieku)
M. muelleri (Lakes Rāznas, Sīvers; Daugava River)
Digenea
Diplostomum spathaceum metacercaria (Lakes Rāznas, Sīvers; Daugava River)
Neodiplostomulum sp. metacercaria (Lake Rāznas)
Phyllodistomum megalorchis (Lake Rāznas)
Tylodelphys clavata metacercaria (Lakes Rāznas, Sīvers)
Cestoda
Diphyllobothrium latum plerocercoid (Daugava River)
Triaenophorus nodulosus plerocercoid (Lakes Rāznas, Sīvers; Daugava River)
Nematoda
Desmidocercella sp. (Lake Sīvers)
Camallanus lacustris (Lakes Rāznas, Sīvers)
Nematoda gen. sp. (Lake Sīvers)
Raphidascaris acus (Lakes Rāznas, Sīvers; Daugava River)
Acanthocephala
Acanthocephalus anguillae (Lakes Rāznas, Sīvers; Daugava River)
A. clavula (Lakes Rāznas, Sīvers; Daugava River)
A. lucii

(Lakes Burtnieku, Rāznas, Sīvers; Daugava River)
Neoechinorhynchus rutili (Daugava River)
Mollusca
Unionidae gen. sp. glochidium (Daugava River)

Remarks: In Latvia the burbot occurs in many rivers and lakes, and in coastal waters near river mouths. It is not found in small, closed, overgrown lakes (Plikšs and Aleksejevs 1998).

ORDER GASTEROSTEIFORMES

FAMILY GASTEROSTEIDAE

Gasterosteus aculeatus Linnaeus, 1758 — Three-spined stickleback
Status: native — Trīsadatu stagars — Трехиглая колюшка
Environment: freshwater, brackish, marine

Protista
Apiosoma piscicolum (Daugava River)
Chilodonella piscicola (Daugava River)
Glugea anomala (Daugava River)
Ichthyophthirius multifiliis (Daugava River)
Trichodina domerguei (Daugava River, Gulf of Riga)
T. gasterostei (Daugava River)
T. teneidens (Daugava River)
Myxosporea
Myxobilatus gasterostei (Gulf of Riga)
Sphaerospora elegans (Daugava River, Gulf of Riga)
Digenea
Diplostomum pungeti metacercaria (Daugava River)
D. spathaceum metacercaria (Daugava River, Gulf of Riga)
Phyllodistomum folium (Daugava River)
Posthodiplostomum brevicaudatum metacercaria (Gulf of Riga)
Monogenoidea
Gyrodactylus medius (ponds)
G. rarus (Daugava River, Gulf of Riga)
Cestoda
Caryophyllaeides fenica (Daugava River)
Diphyllobothrium vogeli plerocercoid (Daugava River)
Khawia parva (Daugava River)
?*Proteocephalus cernuae* (Daugava River)
P. fillicollis (Daugava River, Gulf of Riga)
Schistocephalus solidus plerocercoid (Daugava River, Gulf of Riga)
Triaenophorus nodulosus plerocercoid (Daugava River)
Nematoda
Hysterothylacium aduncum (Daugava River, Gulf of Riga)
Raphidascaris acus (Daugava River, Gulf of Riga)
R.. gracillima (Daugava River)
Acanthocephala
Acanthocephalus clavula (Daugava River)
A. lucii (Daugava River)
Echinorhynchus cryophilus (Daugava River)
E. salmonis (Daugava River)
Neoechinorhynchus rutili (Daugava River, Gulf of Riga)
Pomphorhynchus laevis (Daugava River)
Hirudinida
Piscicola geometra (Daugava River)
Mollusca
Anodonta complanata glochidium (Daugava River)
Unionidae gen. sp. glochidium (Gulf of Riga)
Crustacea
Argulus foliaceus (Daugava River)
Thersetina gasterostei (Daugava River, Gulf of Riga)

Pungitius pungitius (Linnaeus, 1758) — Nine-spine stickleback
Status: native — Deviņadatu stagars — Девятииглая колюшка
Environment: freshwater, brackish, marine

Protista
Apiosoma sp. (ponds)
Chilodonella piscicola (ponds)
Ichthyophthirius multifiliis (ponds)
Trichodina domerguei (ponds)
T. reticulata (ponds)
Digenea
Ichthyocotylurus platycephalus metacercaria (ponds)
Monogenoidea
Gyrodactylus sp. (ponds)
Hirudinida
Piscicola geometra (ponds)

Crustacea
Argulus foliaceus (ponds)

Remarks: In Latvia the nine-spine stickleback occurs in coastal waters and rivers, artificial reservoirs and coastal lakes that are connected to the sea. It sometimes propagates in fish farms and is thus released along with cyprinids stocked in waterbodies not connected to the sea (Plikšs and Aleksejevs 1998).

ORDER BELONIFORMES

FAMILY BELONIDAE

Belone belone (Linnaeus, 1761) — Garpike, Vejzivs, Сарган
Status: native
Environment: marine
Digenea
Diplostomum spathaceum metacercaria (Gulf of Riga)
Cestoda
Bothriocephalus scorpii (Gulf of Riga)
Nematoda
Hysterothylacium aduncum (Gulf of Riga)
Acanthocephala
Corynosoma semerme juvenile (Gulf of Riga)
Pomphorhynchus laevis (Gulf of Riga)

Remarks: This species occurs in the Baltic Sea as far as the middle of the Gulf of Bothnia, and also in the gulfs of Riga and Finland (Plikšs & Aleksejevs 1998).

ORDER SCORPAENIFORMES

FAMILY COTTIDAE

Cottus gobio Linnaeus, 1758 — Bullhead, Platgalve, Подкаменщик
Status: native
Environment: freshwater
Digenea
Diplostomum spathaceum metacercaria (Daugava River)
Phyllodistomum simile (Daugava River)
Plagioporus angusticolle (Daugava River)
Nematoda
Nematoda gen. sp. (Daugava River)

Cottus poecilopus Heckel, 1837 — Alpine bullhead, Raibā platgalve, Пестроногий подкаменщик
Status: native
Environment: freshwater
Protista
Trichodina cottidarum (Gulf of Riga)
?*T. domerguei* (Gulf of Riga)
T. modesta (Gulf of Riga)
Digenea
Diplostomum spathaceum metacercaria (Gulf of Riga)
Nematoda
Hysterothylacium aduncum (Gulf of Riga)
Acanthocephala
Echinorhynchus gadi (Gulf of Riga)
Pomphorhynchus laevis (Gulf of Riga)
Hirudinida
Piscicola geometra (Gulf of Riga)

Taurulus bubalis (Euphrasen, 1786) — Longspined bullhead, Jūras dzeloņgalve, Бычек-буйвол
Status: native
Environment: marine
Protista
Microsporidium cotti (Gulf of Riga)
Trichodina cottidarum (Gulf of Riga)
Digenea
Diplostomum spathaceum metacercaria (Gulf of Riga)
Cestoda
Bothriocephalus scorpii (Gulf of Riga)
Nematoda
Ascarophis morhuae (Gulf of Riga)
Pseudoterranova decipiens larva (Gulf of Riga)

Remarks: This marine demersal species occurs in the Baltic Sea as far as the Gulf of Bothnia and middle of the Gulf of Finland. It is very rare in the coastal areas of Latvia, and is included in the Red Data Book of Latvia under category “3” (rare) (Plikšs & Aleksejevs 1998).

Triglopsis quadricornis (Linnaeus, 1758) — Fourhorn sculpin, Četrragu buļļzivs, Четырехрогий керчак
Status: native
Environment: marine
Protista
Trichodina cottidarum (Gulf of Riga)

Digenea
Diplostomum spathaceum
metacercaria (Gulf of Riga)
Nematoda
Ascarophis morhuae (Gulf of Riga)
Hysterothylacium aduncum
(Gulf of Riga)
Pseudoterranova decipiens larva
(Gulf of Riga)
Raphidascaris acus (Gulf of Riga)

ORDER PERCIFORMES

FAMILY GOBIIDAE

Gobio gobio gobio Gudgeon
(Linnaeus, 1758) Grundulis
Status: native Пескарь
Environment: freshwater
Protista
Apiosoma sp. (Ogre River)
?*Trichodina domerguei*
(Lake Rāznas)
Myxosporea
Myxobolus cycloides (Rāznas)
M. dispar (Lake Rāznas)
M. muelleri (Ogre River)
M. oviformis
(Lake Rāznas; Kegums Water Reservoir)
M. permagnus
(Lake Rāznas, Kegums Water Reservoir)
M. rotundus (Lake Rāznas)
Zschokkella nova (Lake Rāznas)
Digenea
Allocreaduim isoporum
(Daugava River)
Bucephalus polymorphus
(Kegums Water Reservoir, Daugava River)
Diplostomum spathaceum
metacercaria
(Lake Rāznas, Kegums Water Reservoir, Daugava, Ogre Rivers)
Ichthyocotylurus pileatus
metacercaria (Ogre River)
I. platycephalus metacercaria
(Daugava River)
Paracoenogonimus ovatus
metacercaria (Lake Rāznas)
Tylodelphys clavata metacercaria
(Ogre River)
Monogenoidea
Dactylogyrus cryptomeres
(Ogre River)
D. gobii (Ogre River)
Diplozoon paradoxum
(Lake Rāznas, Kegums Water Reservoir)
Gyrodactylus gobii (Lake Rāznas)
G. gobiensis (Ogre River)
G. markakulensis (Lake Rāznas)
Paradiplozoon homoion gracile
(Ogre River)
P. zeller (Ogre River)
Cestoda
Khawia dubius (Lake Rāznas)
Nematoda
Contracaecum sp. (Ogre River)
Raphidascaris acus (Lake Rāznas)
Acanthocephala
Acanthocephalus lucii
(Lake Rāznas)
Mollusca
Anodonta cygnea glochidium
(Ogre River)
Unionidae gen. sp. glochidium
(Lake Rāznas)
Crustacea
Ergasilus sieboldi (Lake Rāznas)
Remarks: This species occurs in many Latvian rivers and lakes, and rarely in the Gulf of Riga near river mouths. It has been moved through its use as a baitfish (Plikšs & Aleksejevs 1998).

FAMILY PERCIDAE

Gymnocephalus cernuus Ruffe
(Linnaeus, 1758) Ķīsis
Status: native Ерш
Environment: freshwater
Protista
Pleisthophora acerinae
(Lakes Kāla, Rāznas, Rušons)
Trichodinella epizootica
(Lakes Garmuižas, Rāznas; Daugava River)
Myxosporea
Henneguya creplini
(Daugava River)
Myxobolus anurum
(Daugava, Ogre Rivers)
M. magnus
(Kegums Water Reservoir, Daugava River)
Digenea
Bucephalus polymorphus
(Kegums Water Reservoir, Daugava River)
Bunodera luciopercae
(Lakes Cirma, Juglas, Usmas)
Diplostomulum sp. metacercaria

(Lake Usmas, Daugava River)
Diplostomum spathaceum
metacercaria
(Lakes Burtnieku, Cirma, Durbes, Juglas, Kāla, Rāznas, Rušons; Sīvers; Kegums Water Reservoir; Daugava, Ogre Rivers)
Ichthyocotylurus pileatus
metacercaria
(Lake Usmas, Ogre River)
I. platycephalus metacercaria
(Lakes Burtnieku, Cirma, Durbes, Kāla, Rāznas, Rušons, Sīvers; Kegums Water Reservoir; Daugava River)
I. variegatus
(Lakes Burtnieku, Juglas, Usmas; Daugava River)
Neodiplostomulum sp. metacercaria
(Kegums Water Reservoir)
Nicolla skrjabini
(Kegums Water Reservoir, Daugava River)
Paracoenogonimus ovatus
metacercaria
(Kegums Water Reservoir, Daugava River)
Phyllodistomum folium
(Lake Usmas)
P. megalorchis (Lake Rāznas)
P. pseudofolium
(Lakes Cirma, Rāznas, Sīvers; Kegums Water Reservoir)
Posthodiplostomum brevicaudatum
metacercaria
(Lake Usmas; Daugava, Ogre Rivers)
P. cuticola metacercaria
(Kegums Water Reservoir, Daugava River)
Rhipidocotyle campanula
(Lake Usmas, Ogre River)
Tylodelphys clavata metacercaria
(Lakes Burtnieku, Cirma, Durbes, Kāla, Juglas, Rāznas, Rušons, Sīvers, Usmas; Kegums Water Reservoir; Daugava River)
Monogenoidea
Dactylogyrus amphybothrium
(Lakes Burtnieku, Cirma, Durbes, Juglas, Rāznas, Rušons, Sīvers, Usmas,Vilgāles; Kegums Water Reservoir; Daugava, Ogre Rivers)
D. hemiamphybothrium
(Lakes Juglas, Usmas; Daugava, Ogre Rivers)
D. nanus (Lake Sīvers)
Gyrodactylus cernuuse
(Lake Juglas)
Paradiplozoon homoion homoion
(Daugava River)
Cestoda
Proteocephalus cernuae
(Lakes Cirma, Kāla, Rušons; Kegums Water Reservoir; Daugava River; Gulf of Riga)
Triaenophorus nodulosus
plerocercoid
(Lakes Burtnieku, Rāznas, Sīvers, Usmas)
Nematoda
Anguillicola crassus larva
(Lake Puzes, Usmas; Venta River; coastal waters)
Camallanus lacustris
(Lakes Burtnieku, Cirma, Juglas, Rāznas, Sīvers)
Eustrongylides sp. larva
(Lakes Burtnieku, Saukas)
Philometra ovata (Lake Rušons)
Raphidascaris acus
(Lake Rāznas, Daugava River)
Schulmanela petrushewskii
(Lake Usmas; Kegums Water Reservoir; Daugava, Ogre Rivers)
Acanthocephala
Acanthocephalus anguillae
(Kegums Water Reservoir)
A. clavula (Daugava River)
A. lucii
(Lakes Burtnieku, Cirma, Rāznas, Sīvers, Usmas; Daugava River)
Hirudinida
Piscicola geometra
(Lakes Cirma, Rāznas Sīvers)
Mollusca
Anodonta cygnea glochidium
(Lakes Juglas, Usmas; Daugava, Ogre Rivers)
Unionidae gen. sp. glochidium
(Lakes Cirma, Durbes, Rāznas, Sīvers; Kegums Water Reservoir)
Crustacea
Ergasilus sieboldi
(Lakes Cirma, Kāla, Juglas, Rāznas, Rušons, Sīvers, Usmas; Daugava River; Gulf of Riga)

Perca fluviatilis Linnaeus, 1758
Status: native
Environment: fresh water

European perch
Asaris
Окунь

Protista
Chilodonella piscicola (Lake Juglas)
Dermocystidium percae
(Lake Usmas, Daugava River)
Trichodina reticulata
(Lake Burtnieku)

T. urinaria
(Lakes Alūksnes, Cirma, Durbes, Juglas, Lielauces, Rāznas, Rušons, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava, Ogre, Salaca Rivers)
Trichodinella epizootica
(Daugava River)
Myxosporea
Henneguya psorospermica
(Lakes Burtnieku, Juglas, Kāla, Liepājas, Rāznas, Sildu, Sīvers Usmas; Kegums Water Reservoir; Lielupe River; Gulf of Riga)
Henneguya sp. (Lake Sīvers)
Myxobolus carassii (Daugava River)
M. ellipsoides
(Lake Usmas, Daugava River)
M. minutus (Lakes Slokas, Usmas)
M. musculi (Lakes Juglas, Usmas)
Digenea
Azygia lucii
(Lakes Juglas, Rušons, Sīvers, Slokas, Usmas; Daugava, Ogre Rivers; Gulf of Riga)
Bucephalus polymorphus
metacercaria
(Lakes Burtnieku, Rāznas, Sildu, Usmas; Daugava, Salaca Rivers)
Bunodera luciopercae
(Lakes Burtnieku, Durbes, Juglas, Lielauces, Liepājas, Rāznas, Riču, Sildu, Sīvers, Slokas, Usmas; Daugava, Ogre, Salaca Rivers; Gulf of Riga)
Diplostomulum sp. metacercaria
(Lakes Juglas, Riču, Žuguru; Daugava, Salaca Rivers)
Diplostomum spathaceum
metacercaria
(Lakes Alūksnes, Burtnieku, Cirma, Durbes, Kāla, Lielauces, Liepājas, Rāznas, Rušons, Sīvers, Slokas,Usmas; Kegums Water Reservoir; Daugava, Ogre Rivers; Gulf of Riga)
Ichthyocotylurus pileatus
metacercaria (Lake Usmas)
I. platycephalus metacercaria
(Lakes Burtnieku, Sīvers; Kegums Water Reservoir; Daugava River)
I .variegatus metacercaria
(Lakes Alūksnes, Burtnieku, Cirma, Durbes, Juglas, Kāla, Rāznas, Rušons, Sildu, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava River; Gulf of Riga)
Neodiplostomulum sp. metacercaria
(Kegums Water Reservoir)
Phyllodistomum angulatum
(Gulf of Riga)
P. pseudofolium (Lake Liepājas)
Paracoenogonimus ovatus
metacercaria
(Lakes Juglas, Slokas, Usmas)
Posthodiplostomum brevicaudatum
metacercaria
(Lakes Alūksnes, Burtnieku, Juglas, Kāla, Liepājas, Slokas, Usmas, Žuguru; Kegums Water Reservoir; Daugava, Ogre, Salaca Rivers; Gulf of Riga)
P. cuticola metacercaria
(Lakes Juglas, Slokas; Daugava River)
Rhipidocotyle campanula
(Lake Sildu, Usmas, Žuguru; Ogre River)
Tylodelphys clavata metacercaria
(Lakes Alūksnes, Burtnieku, Cirma, Durbes, Juglas, Kāla, Lielauces, Liepājas, Rāznas, Rušons, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava, Ogre, Salaca Rivers; Gulf of Riga)
Monogenoidea
Ancyrocephalus percae
(Lakes Burtnieku, Rāznas, Sīvers, Usmas; Kegums Water Reservoir; Daugava, Ogre Rivers)
Dactylogyrus sp. (Lake Sīvers)
Cestoda
Cyathocephalus truncatus
(Lake Juglas)
Diphyllobothrium latum
plerocercoid (Lake Burtnieku)
Ligula intestinalis plerocercoid
(Lake Lielauces)
Proteocephalus percae
(Lakes Burtnieku, Kāla, Liepājas, Rāznas, Sīvers, Usmas; Daugava River)
Triaenophorus nodulosus
plerocercoid
(Lakes Alūksnes, Burtnieku, Cirma, Juglas, Kāla, Lielauces, Rāznas, Rušons, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava River; Gulf of Riga)
Nematoda
Anguillicola crassus larva
(Lakes Puzes, Usmas; Venta River; coastal waters)
Camallanus lacustris
(Lakes Alūksnes Burtnieku, Cirma, Durbes, Juglas, Kāla, Liepājas, Rāznas, Riču, Rušons, Sildu, Sīvers, Slokas, Usmas, Žuguru; Kegums

Water Reservoir; Daugava, Ogre, Salaca Rivers; Gulf of Riga)
C.. truncatus (Gulf of Riga)
Desmidocerella numidica (natural waterbodies)
Desmidocerella sp. (Lakes Juglas, Sīvers, Slokas, Žuguru; Daugava River; Gulf of Riga)
Eustrongylides sp. larva (Lake Burtnieku)
Hysterothylacium aduncum (Gulf of Riga)
Nematoda gen. sp. (Lakes Cirma, Sīvers)
Raphidascaris acus (Lakes Rāznas, Rušons, Sīvers, Slokas; Kegums Water Reservoir; Daugava, Lielupe Rivers; Gulf of Riga)
Acanthocephala
Acanthocephalus lucii (Lakes Alūksnes, Burtnieku, Durbes, Lielauces, Liepājas, Rāznas, Riču, Rušons, Sildu, Sīvers, Skolas, Usmas, Žuguru; Kegums Water Reservoir; Daugava, Salaca Rivers; Gulf of Riga)
Corynosoma semerme juvenile (Gulf of Riga)
Hirudinida
Hemiclepsis marginata (Lake Rāznas)
Piscicola geometra (Lakes Alūksnes, Burtnieku, Rāznas, Sīvers)
Mollusca
Anodonta cygnea glochidium (Lakes Juglas, Slokas, Usmas; Daugava River)
Pseudanadonta kletti glochidium (Lake Sildu)
Unio pictorum glochidium (Gauja, Venta Rivers)
Unionidae gen. sp. glochidium (Lakes Alūksnes, Durbes, Rāznas, Sīldu, Sīvers; Daugava River)
Crustacea
Achtheres percarum (Lakes Alūksnes, Cirma, Lielauces, Liepājas, Rāznas, Riču, Sīvers; Daugava River)
Argulus foliaceus (Lakes Alūksnes, Burtnieku, Cirmas, Lielauces, Liepājas, Sildu)
Ergasilus sieboldi (Lakes Burtnieku, Cirma, Kāla, Lielauces, Liepājas, Rāznas, Rušons, Sīvers, Usmas)
Lernaea esocina (Kegums Water Reservoir)

Remarks: The perch is one of the most common species in Latvian coastal and inner waters. From 1969 to 1988, it was restocked in at least 55 lakes (Plikšs and Aleksejevs 1998).

Sander lucioperca (Linnaeus, 1758) Zander
Syn.: *Stizostedion lucioperca* (Linnaeus, 1758) Zandarts
Status: native Судак
Environment: freshwater
Protista
?*Trichodina domerguei* (Kegums Water Reservoir, Daugava River, Gulf of Riga)
T. reticulata (Lake Burtnieku)
Myxosporea
Myxobolus sandrae (Lake Juglas, Daugava River)
Monogenoidea
Ancyrocephalus paradoxus (Lakes Burtnieku, Juglas, Usmas; Daugava River, Gulf of Riga)
Digenea
Azygia lucii (Daugava River)
Bucephalus polymorphus (Lakes Juglas, Usmas; Kegums Water Reservoir, Daugava River)
Bunodera luciopercae (Daugava River)
Diplostomulum sp. metacercaria (Daugava River)
Diplostomum spathaceum metacercaria (Lake Juglas, Daugava River, Gulf of Riga)
Hysteromorpha triloba metacercaria metacercaria (Lake Juglas)
Ichthyocotylurus pileatus metacercaria (Lake Usmas)
I. platycephalus metacercaria (Lake Burtnieku, Kegums Water Reservoir, Daugava River, Gulf of Riga)
I. variegatus metacercaria (Lake Juglas, Daugava River)
Paracoenogonimus ovatus metacercaria (Lake Juglas, Kegums Water Reservoir, Daugava River)
Phyllodistomum angulatum (Daugava River)
Rhipidocotyle campanula (Lakes Juglas,Usmas; Daugava River)
Tylodelphys clavata metacercaria

(Kegums Water Reservoir, Daugava River)
Nematoda
Camallanus lacustris (Lake Burtnieku, Daugava River)
C. truncatus (Kegums Water Reservoir, Daugava River, Gulf of Riga)
Contracaecum sp. (Daugava River)
Eustrongylides excisus larva (Lake Juglas)
Raphidascaris acus (Lakes Juglas, Usmas; Kegums Water Reservoir; Daugava River; Gulf of Riga)
Rhabdochona denudata (Daugava River)
Acanthocephala
Acanthocephalus lucii (Lake Juglas)
Corynosoma semerme juvenile (Daugava River)
C. strumosum juvenile (Daugava River)
Mollusca
Anodonta cygnea glochidium (Lake Juglas)
Crustacea
Achtheres percarum (Lakes Juglas, Usmas; Kegums Water Reservoir; Daugava River; Gulf of Riga)
Ergasilus sieboldi (Daugava River)

Remarks: In Latvia, the pike-perch occurs in a few lakes and artificial reservoirs where populations have established after restocking. (Plikšs and Aleksejevs 1998).

FAMILY ZOARCIDAE

Zoarces viviparous (Linnaeus, 1758)
Status: native
Environment: marine
Viviparous blenny
Lucītis
Бельдюга

Protista
Dermocystidium sp. (Daugava River, Gulf of Riga)
Myxosporea
?*Myxidium macrocapsulare* (Gulf of Riga)
Digenea
Diplostomulum sp. metacercaria (Gulf of Riga)
Diplostomum spathaceum metacercaria (Daugava River, Gulf of Riga)
Posthodiplostomum brevicaudatum metacercaria (Gulf of Riga)
Monogenoidea
Gyrodactylus erraburdus (Gulf of Riga)
G. perlucidus (Gulf of Riga)
Cestoda
Bothriocephalus scorpii (Daugava River, Gulf of Riga)
?*Caryophyllaeus* sp. (Gulf of Riga)
Proteocephalus percae (Daugava River, Gulf of Riga)
Nematoda
Ascarophis skrjabini (Daugava River, Gulf of Riga)
Cystidicoloides ephemeridarum (Gulf of Riga)
Hysterothylacium aduncum (Daugava River, Gulf of Riga)
Pseudoterranova sp.larva (Gulf of Riga)
Raphidascaris acus (Daugava River, Gulf of Riga)
R. gracillima (Daugava River, Gulf of Riga)
Acanthocephala
Corynosoma semerme juvenile (Daugava River, Gulf of Riga)
C. strumosum juvenile (Gulf of Riga)
Echinorhynchus gadi (Daugava River, Gulf of Riga)
Pomphorhynchus laevis (Daugava River, Gulf of Riga)
Hirudinida
Piscicola geometra (Gulf of Riga)

Remarks: This marine demersal species occurs in the seas of North Europe, all along the Baltic coast. It is a commercially important fish in the Gulf of Riga (Plikšs and Aleksejevs 1998).

ORDER PLEURONECTIFORMES

FAMILY PLEURONECTIDAE

Platichthys flesus trachurus (Duncker, 1892)
Status: native
Environment: marine
Flounder
Plekste
Речная камбала

Protista
Glugea stephani (Baltic Sea)
Trichodina jadranica (Gulf of Riga, Baltic Sea)
T. raabei (Gulf of Riga, Baltic Sea)
Trichodina sp. (Daugava River, Gulf of Riga)
Myxosporea

Myxobilatus platessae
(Gulf of Riga, Baltic Sea)
Digenea
Cryptocotyle concava metacercaria
(Baltic Sea)
Cryptocotyle sp. metacercaria
(Gulf of Riga)
Diplostomulum sp. metacercaria
(Gulf of Riga, Baltic Sea)
Diplostomum spathaceum
metacercaria
(Daugava River, Gulf of Riga, Baltic Sea)
Nicolla skrjabini (Daugava River)
Posthodiplostomum brevicaudatum
metacercaria
(Daugava River, Gulf of Riga, Baltic Sea)
Monogenoidea
Gyrodactylus flexibiliradix
(Gulf of Riga, Baltic Sea)
Cestoda
Bothriocephalus scorpii
(Daugava River, Baltic Sea)
Bothriocephalus sp. (Gulf of Riga)
Eubothrium sp. (Baltic Sea)
Scolex pluronectis plerocercoid
(Gulf of Riga, Baltic Sea)
Nematoda
Cucullanus heterochrous
(Gulf of Riga, Baltic Sea)
Dichelyne minutus
(Daugava River, Gulf of Riga, Baltic Sea)
Hysterothylacium aduncum
(Daugava River, Gulf of Riga, Baltic Sea)
Nematoda gen. sp. (Gulf of Riga)
Pseudoterranova decipiens larva
(Daugava River, Gulf of Riga)
Pseudoterranova sp. larva
(Gulf of Riga, Baltic Sea)
Rapidascaris acus
(Gulf of Riga, Baltic Sea)
Acanthocephala
Corynosoma semerme juvenile
(Daugava River, Baltic Sea)
C. strumosum juvenile
(Gulf of Riga, Baltic Sea)
Echinorhynchus gadi
(Gulf of Riga, Baltic Sea)
Pomphorhynchus laevis
(Gulf of Riga, Baltic Sea)

Remarks: This Baltic subspecies of the European flounder is abudant throughout the Baltic, the northen part of Gulf of Bothnia and the eastern part of the Gulf of Finland. It occurs only rarely in the southern part of the Gulf of Riga. Two ecological races are recognized, the deep- spawning flounder and the bank- spawning flounder; only only the deep- spawning flounder is found in Latvian waters (Plikšs and Aleksejevs 1998).

It is listed as a junior synonym *of P. flesus* (Linnaeus, 1758) by Froese and Pauly (2006).

FAMILY SCOPHTHALMIDAE

Psetta maxima Turbot
(Linnaeus, 1758) Akmeņplekste
Status: native Тюрбо
Environment: marine
Protista
Glugea stephani (Baltic Sea)
Trichodina sp.
(Daugava River, Gulf of Riga)
Digenea
Diplostomum spathaceum
metacercaria (Gulf of Riga)
Cestoda
Bothriocephalus scorpii
(Gulf of Riga Baltic Sea)
Nematoda
Camallanus truncatus
(Gulf of Riga)
Dichelyne minutus (Baltic Sea)
Hysterothylacium aduncum
(Gulf of Riga Baltic Sea)
Raphidascaris acus (Baltic Sea)
Acanthocephala
Corynosoma semerme juvenile
(Baltic Sea)

Remarks: The turbot is a marine demersal species that occurs along the European coast. It is common in Baltic waters near the Latvian coast and in the Gulf of Riga (Plikšs and Aleksejevs 1998).

Unidentified Fish

"fish"
Status: unknown
Environment: freshwater
Protista
Trichodina acuta (-)
T. domerguei (-)
T. mutabilis (-)
T. nigra (-)
T. pediculus (-)
T. reticulata (-)
Monogenoidea
Diplozoon paradoxum (-)
Cestoda
Diphyllobothrium latum
plerocercoid (-)

Ligula intestinalis
plerocercoid (-)
Hirudinida
Hemiclepsis marginata (-)
Piscicola geometra (-)
Branchiura
Argulus folaceus (-)
Copepoda
Lernaea cyprinacea (-)

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PARASITE INDEX

HOST INDEX

The checklist summarizes information on the parasites of Latvian fish contained in the literature from the earliest known record (Trauberga, 1936) to the end of 2005. Included are 305 named species of parasites, distributed among the higher taxa as follows: Protista – 42, Myxozoa – 49, Digenea – 38, Monogenoidea – 81, Cestoda – 33, Nematoda – 31, Acanthocephala – 11, Hirudinida – 2, Mollusca – 6, Branchiura – 2 and Copepoda – 10. Also included are records of parasites not identified to species level. Parasites have been reported from 66 of the 114 species of marine and freshwater fish occurring in Latvian waters. The checklist is presented in the form of parasite-host and host-parasite lists. The parasite-host list is organized on a taxonomic basis and provides information for each parasite species on the environment (freshwater, brackish water, marine), the location (site of infection) in or on its host(s), the species of host(s) infected, the geographic distribution in Latvia and published sources for each host and locality record. The host-parasite list is organized according to the taxonomy of the hosts and includes, for each host, the English language, Latvian and Russian common names, the environment, status in Latvia (native or exotic) and information on the known Latvian distribution of the parasites. Additional information is given on points of systematic, possible misidentification, introductions, pathogenicity, etc. Complete references, a short supplementary literature list and parasites and host indexes are included.

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