

# **PARASITE-HOST LIST**

**KINGDOM PROTISTA<sup>3</sup>****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 mortalities 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**

<sup>3</sup> Eukaryote 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 & Eglite 1984 (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*  
*Leucaspis 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 (see 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 Viragnas  
 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 PLEUROSOMATA

##### 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)  
*Leucaspis 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)  
*Leucaspis 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,  
 Lielaucis, Sivers, Slokas; Daugava, Ogre  
 Rivers  
 Records: 1. Shulman 1949 (Daugava River); 2.  
 Akhmerov & Grapmane 1954 (ponds); 3.  
 Reinsone 1955a (Lakes Burtnieku, Cirma,  
 Lielaucis, Sivers), 4. 1955b (Lake Sivers), 5.

1958 (ponds), 6. 1959 (Lakes Lielaucis,  
 Sivers); 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, Lielaucis,  
 Sivers, 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 *Leucaspis*  
*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)  
*Leucaspis 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 lwoffii* 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)  
*Trigloporus 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 jadratica* 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, skin  
 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)  
*Leucaspis 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, Lielaucis, 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, Lielaucis Sīvers), 1955b (Lake Sīvers), 1959 (Lakes Lielaucis, Sīvers); Vismanis 1961 (Lake Burtnieku); Vismanis *et al.* 1989 (Lake Sildu); Kirjusina & Vismanis 2004 (Lakes Alūksnes, Cirma, Durbes, Juglas, Lielaucis, 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 jadratica* 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 position 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<sup>4</sup>****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);

<sup>4</sup> 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, Lielaucis, 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, Lielaucis, Liepājas, Sīvers), 1955b (Lakes Lielaucis, Liepājas, Sīvers), 1959 (Lakes Lielaucis, Liepājas, Sīvers); Vismanis 1961 (Lake Burtnieku); Vismanis *et al.* 1989 (Lake Sildu); Kirjusina & Vismanis 2004 (Lakes Burtnieku, Cirma, Durbes, Kāla, Lielaucis, 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, Lielaucis, Liepājas, Rāznas, Rušons, Sīvers; Kegums Water Reservoir; Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Kegums Water Reservoir; Daugava River; Gulf of Riga); 2. Reinsone 1955a (Lakes Lielaucis, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Lielaucis, Sīvers); 5. Kirjusina & Vismanis 2004 (Lake Slokas)
- 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 Lielaucis, 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 Lielaucis, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Lielaucis, Sīvers); 5. Kirjusina & Vismanis 2004 (Lake Slokas)

#### FAMILY SPHAEROSPORIDAE

- Hoferellus cyprini* (Doflein, 1898) (F)  
 Mercier, 1908  
 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) (B)  
 Davis, 1944  
 Syn.: *Henneguya gasterostei*  
 Parisi, 1912  
 Location: urinary bladder  
 Host: *Gasterosteus aculeatus*  
 Dist.: Gulf of Riga  
 Records: Shulman 1949; Kirjusina & Vismanis 2004
- Myxobilatus platessae* (B,M)  
 (Bazikalova, 1932) Shulman and  
 Shulman-Albova, 1953  
 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 Rāzinas, 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, Rāzinas  
 Records: 1. Shulman 1949 (Lake Rāzinas); 2.  
 Reinsone 1955a (Lake Liepājas), 3. 1959  
 (Lake Liepājas); 4. Kirjusina & Vismanis  
 2004 (Lakes Liepājas, Rāzinas)

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

*Chloromyxum mucronatum* (F)  
 Gurley, 1893  
 Location: urinary bladder  
 Host: *Lota lota*  
 Dist.: Lake Rāzinas, 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)  
*Leucaspilus 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, Lielaucis, 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, Lielaucis, Liepājas, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Lielaucis, Liepājas, Sīvers); 5. Vismanis 1961 (Lake Burtnieku); 6. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Burtnieku, Černavu, Cirma, Durbes, Juglas, Kāla, Lielaucis, 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 Lielaucis, 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 Lielaucis, Liepājas), 4. 1959 (Lakes Lielaucis, Liepājas); 5. Grapmane 1962 (ponds); 6. Kirjusina & Vismanis 2004 (Lakes Lielaucis, 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, Lielaucis, Riču, Sīvers; Kegums Water Reservoir  
 Records: 1. Shulman 1949 (Kegums Water Reservoir); 2. Reinsone 1955a (Lakes Burtnieku, Lielaucis, Sīvers); 3. 1955b (Lake Sīvers), 4. (Lakes Lielaucis, Sīvers); 5. Grapmane 1957 (ponds), 6. 1962 (ponds); 7. Vismanis 1961 (Lake Burtnieku); 8.

- Kirjusina & Vismanis 2004 (Lakes Burtnieku, Juglas, Lielaucis, Riču, Sīvers; Kegums Water Reservoir, ponds)
- Myxobolus dispar* Thélohan, 1895 (F)  
 Syn.: *Dispasporea 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, Lielaucis, 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, Lielaucis, Liepājas, Sīvers), 4. 1955b (Lake Sīvers), 5. 1958 (ponds), 6. 1959 (Lakes Lielaucis, Liepājas, Sīvers); 7. Grapmane 1957 (ponds), 8. 1962 (ponds); 9. Vismanis & Pešlak 1963 (ponds); 10. Vismanis 1964 (ponds); 11. Kirjusina & Vismanis 2004 (Lakes Cirma, Lielaucis, 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)  
*Leucaspis 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* Nemeček, 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 nemečeki* 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, intestine, 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* Nemeček, 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 fluviatilis*) 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, Lielaucis, Rāznas, Sīvers; Daugava River  
 Records: Shulman 1949 (Lake Rāznas, Daugava River); Reinsone 1955a (Lakes Cirma, Lielaucis, Sīvers), 1955b (Lake Sīvers), Reinsone 1959 (Lakes Lielaucis, Sīvers); Grapmane 1957 (ponds), 1962 (ponds); Kirjusina & Vismanis 2004 (Lakes Cirma, Lielaucis, 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,  
 Lielaucis, Liepājas, Rāznas, Riču, Rušons,  
 Sīvers, Slokas, Usmas; Kegums Water  
 Reservoir; Daugava, Ličupe, Lielupe Rivers;  
 Gulf of Riga  
 Records: 1. Shulman 1949 (Lakes Rāznas,  
 Rušons; Kegums Water Reservoir; Daugava,  
 Ličupe Rivers; Gulf of Riga); 2. Reinsone  
 1959 (Lakes Lielaucis, Liepājas, Sīvers); 3.  
 Kirjusina & Vismanis 2004 (Lakes Černavu,  
 Dārza, Riču; Daugava River)

**FAMILY DIPLOSTOMIDAE**

- Diplostomum commutatatum* (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)  
*Leucaspis 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, Lielaucis, 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. Reinsons 1955a (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Kāla, Lielaucis, Liepājas, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Lielaucis, 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, Lielaucis, 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 musclicola*  
 (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, Lielaucis, Liepājas, Riču, Sīvers, Usmas

Records: 1. Reinsone 1955a (Lakes Burtnieku, Cirma, Lielaucis, Liepājas, Sīvers), 2. 1955b (Lake Sīvers); 3. Vismanis 1961 (Lake Burtnieku); 4. Kirjusina & Vismanis 2004 (Lakes Burtnieku, Černavu, Cirma, Juglas, Lielaucis, 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 destruction, 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)

*Leucaspis 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, Lielaucis, 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, Lielaucis, Liepājas, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Lielaucis, 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, Lielaucis, 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)  
*Leucaspis 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) (F)  
 Lühe, 1909  
 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* (B,M)  
 (Rudolphi, 1802) Odhner, 1905  
 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)  
*Leucaspis 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* (F)

(Dujardin, 1845) 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, Lielaucis, Liepājas Rāznas, Sildu, Sīvers, Slokas; Daugava River

Records: Shulman 1949 (Lake Rāznas, Daugava River); Reinsone 1955a (Lakes Burtnieku, Cirma, Durbes, Lielaucis, Liepājas, Sīvers), 1955b (Lake Sīvers), 1959 (Lakes Lielaucis, Liepājas, Sīvers); Grapmane 1957 (ponds); Vismanis 1961 (Lake Burtnieku); Vismanis *et al.* 1989 (Lake Sildu); Kirjusina & Vismanis 2004 (Lakes Burtnieku, Cirma, Dārza, Durbes, Lielaucis, Liepājas Rāznas, Sildu, Sīvers, Slokas; Daugava River)

*Asymphylodora* sp. (F)

Location: intestine

Host: *Scardinius erythrophthalmus*

Dist.: Lake Sīvers

Record: Reinsone 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 River

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) (F)

Odhner, 1901

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, Lielaucis, 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, Lielaucis, Liepājas, Sīvers), 3. 1959 (Lakes Lielaucis, Liepājas, Sīvers); 4. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Dārza, Durbes, Juglas, Lielaucis, Liepājas, Rāznas, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava, Ogre Rivers)

*Allocreadium transversale* (F)

(Rudolphi, 1802) Odhner, 1901

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* (F)

(O.F. Müller, 1776) Lühe, 1909

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, Lielaucis, 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, Lielaucis, Liepājas, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Lielaucis, Liepājas, Sīvers); 5. Vismanis 1961 (Lake Burtnieku); 6. Vismanis *et al.* 1989 (Lake Sildu); 7. Kirjusina & Vismanis 2004 (Lakes Burtnieku, Cirma, Durbes, Juglas, Lielaucis, Liepājas, Rāznas, Riču, Sildu, Sīvers, Slokas, Usmas; Daugava, Ogre, Salaca Rivers; Gulf of Riga)

*Crepidostomum farionis* (F)

(O.F. Müller, 1780) Lühe, 1909

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* (F)

(O.F. Müller, 1776) Lühe, 1909

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)

*Leucaspis 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* (F)  
(Hausmann, 1896) Dobrovolny, 1939  
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* (F)  
von Linstow, 1907  
Location: urinary bladder  
Hosts: *Perca fluviatilis*  
*Sander lucioperca*  
Dist.: Daugava River, Gulf of Riga  
Records: Shulman 1949; Kirjusina & Vismanis 2004

*Phyllodistomum elongatum* (F)  
Nybelin, 1926  
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) (F)  
Braun, 1899  
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, Lielaucis, 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, Lielaucis, Liepājas, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Lielaucis, Liepājas, Sīvers); 5. Vismanis 1961 (Lake Burtnieku); 6. Vismanis *et al.* 1989 (Lake Sildu); 7. Kirjusina & Vismanis 2004 (Lakes Burtnieku, Cirma, Durbes, Juglas, Kāla, Lielaucis, Liepājas, Rāznas, Rušons, Sildu, Sīvers, Usmas, Žuguru; Kegums Water Reservoir; Daugava River)

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

*Phyllodistomum pseudofolium* (F)  
Nybelin, 1926  
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)  
*Leucaspis 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 Garmuižas

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)

Žitņan, 1964

Includes: *Gyrodactylus longoacuminatus* f. *typica*

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

*Gyrodactylus markakulensis* (F)  
 Gvosdev, 1950  
 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)  
       *Leucaspis delineatus* (2)  
       *Tinca tinca* (2,7)  
 Dist.: Latvia (ponds)  
 Records: 1. Akhmerov & Grapmane 1954; 2. Grapmane 1957; 3. Akhmerov 1961; 4. Vismanis & Peshlak 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* (B,M)  
 Bychowsky and Polyansky, 1953  
 Location: gills  
 Host: *Zoarcis viviparus*  
 Dist.: Gulf of Riga  
 Records: Vismanis, Volkova & Eglite 1984; Vismanis 1986, 1987; Kirjusina & Vismanis 2004

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

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

*Ancyrocephalus paradoxus* (F)  
 Creplin, 1839  
 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 Lielaucis, 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 Lielaucis, Liepājas, Sīvers), 4. 1955b (Lakes Sīvers), 5. 1958 (ponds), 6. 1959 (Lakes Lielaucis, 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 Lielaucis, 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, Lielaucis, 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, Lielaucis, Sīvers), 3. 1959 (Lakes Lielaucis, 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, Lielaucis, 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 fish species may involve temporary infections or misidentifications (see Bauer 1985).
- Dactylogyrus cryptomeris* (F)  
Bychowsky, 1934  
Includes: *D. cryptomeris* 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, Lielaucis, Liepājas, Rāznas, Rušons, Sīvers, Slokas, Usmas; Daugava River  
Records: 1. Shulman 1949 (Lakes Rāznas, Rušons; Daugava River); 2. Reinsone 1955a (Lakes Lielaucis, Liepājas, Sīvers), 3. 1959 (Lakes Lielaucis, Liepājas, Sīvers); 4. Vismanis 1961 (Lake Burtnieku); 5. Kirjusina & Vismanis. 2004 (Lakes Lielaucis, 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 °C (occasionally at 5–10 °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)  
*Leucaspis 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 Lielaucis, Rāznas, Sildu, Sīvers; Daugava River  
 Records: Shulman 1949 (Lake Rāznas, Daugava River); Akhmerov & Grapmane 1954 (ponds); Reinsone 1955a (Lakes Lielaucis, Sīvers), 1955b (Lake Sīvers), 1959 (Lakes Lielaucis, Sīvers); Grapmane 1957 (ponds); Vismanis *et al.* 1989 (Lake Sildu); Kirjusina & Vismanis 2004 (Lakes Lielaucis, 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)  
*Leucaspis 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, Lielaucis, 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, Lielaucis, Sīvers), 3. 1959 (Lakes Lielaucis, Sīvers); 4. Vismanis, Spirina & Paršuta 1971 (Gulf of Riga); 5. Vismanis *et al.* (Lake Sildu); 6. Kirjusina & Vismanis 2004 (Lakes Alūksnes, Durbes, Dzirnezers, Juglas, Lielaucis, 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, Lielaucis, Rāznas, Sīvers, Slokas; Daugava River  
Records: 1. Shulman 1949 (Lake Rāznas, Daugava River); 2. Akhmerov & Grapmane 1954 (ponds); 3. Reinsone 1955a (Lakes Cirma, Lielaucis, Sīvers), 4. 1958 (ponds), 5. 1959 (Lakes Lielaucis, 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, Lielaucis, 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 Lielaucis, Liepājas, Rāznas, Sildu; Daugava River  
Records: Shulman 1949 (Lake Rāznas, Daugava River); Reinsone 1955a (Lakes Lielaucis, Liepājas), 1959 (Lakes Lielaucis, Liepājas); Vismanis *et al.* 1989 (Lake Sildu); Kirjusina & Vismanis 2004 (Lakes Lielaucis, Liepājas, Rāznas, Sildu; Daugava River)

*Dactylogyrus wunderi* (F)  
Bychowsky, 1931  
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* (F)  
Gusev in Bykhovskaya-Pavlovskaya *et al.* 1962  
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.: *Ancylo-discoides siluri*  
       Zandt, 1924  
 Location: gills  
 Host: *Silurus glanis*  
 Dist.: Daugava River  
 Records: Shulman 1949; Kirjusina &  
 Vismanis 2004  
 Remarks: The synonymy 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,  
 Lielaucis, 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, Lielaucis, Liepājas, Sīvers), 1955b  
 (Lake Sīvers), 1959 (Lakes Lielaucis, Liepājas,  
 Sīvers); Vismanis 1961 (Lake Burtnieku);  
 Vismanis *et al.* 1989 (Lake Sildu); Kirjusina &  
 Vismanis. 2004 (Lakes Burtnieku, Cirma,  
 Durbes, Juglas, Lielaucis, 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 DISCOCOTYLINAE

##### 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)  
       *Leucaspis 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. Reinsons 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 *Diplozoon* 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)  
Khotenovsky, 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)<sup>5</sup>; 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)

<sup>5</sup>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 (Līčupe 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* (Zmееv, 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.
- 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 (*Eudiptomus 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.

## ORDER CYCLOPHYLLIDEA

### FAMILY GRYPORHYNCHIDAE<sup>6</sup>

- 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)
- 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).

<sup>6</sup> 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 than 25  
 species of cyprinids and some predatory  
 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)  
*Zoarcetes 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)  
*Zoarcetes viviparus*  
 Dist.: Gulf of Riga  
 Records: Vismanis, Volkova & Eglite 1984; 2.  
 Kirjusina & Vismanis 2004

**FAMILY DIPHYLLOBOTHRIDAE**

- 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 auctororum*

Location: body cavity  
 Hosts: *Esox lucius* (2,4)  
*Lota lota* (2,4)  
*Perca fluviatilis* (3,4)  
 fish (1)

Dist.: Lakes Burtņieku, Juglas; Daugava River  
 Records: 1. Trauberga 1936 (-); 2. Shulman 1949 (Daugava River); 3. Reinsone 1955a (Lake Burtņieku); 4. Kirjusina & Vismanis 2004 (Lakes Burtņieku, 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)  
*Leucaspis delineatus* (7)  
*Leuciscus cephalus* (2,7,8)

*Perca fluviatilis* (3,4,8)

*Rutilus rutilus* (3,4,7,8)  
 fish (1)

Dist.: Lakes Burtņieku, Cirmas, Durbes, Juglas, Lielaucis, Liepājas, Slokas, Usmas; Daugava, Salaca Rivers

Records: 1. Trauberga 1936 (-) 2. Shulman 1949 (Daugava River); 3. Reinsone 1955a (Lakes Burtņieku, Cirmas, Durbes, Lielaucis, Liepājas), 4. 1959 (Lakes Lielaucis, Liepājas); 5. Grapmane 1957 (ponds), 6. 1961 (ponds); 7. Vismanis 1961 (Lake Burtņieku); 8. Kirjusina & Vismanis 2004 (Lakes Burtņieku, Cirmas, Durbes, Juglas, Lielaucis, 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) (F)  
 Rudolphi, 1819 adult and plerocercoid  
 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,  
 Lielaucis, 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, Lielaucis, Liepājas, Sīvers), 3. 1955b  
 (Lake Sīvers), 4. 1959 (Lakes Lielaucis,  
 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, Lielaucis,  
 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* (F)  
 (Gmelin, 1790) La Rue, 1911  
 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* (F)  
 (Schneider, 1905) La Rue, 1911  
 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* (F)  
 (Rudolphi, 1802) Weinland, 1858  
 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* (F)  
 (Zeder, 1800) Nufer, 1905  
 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*) (F)  
*tomentosa* (Dujardin, 1843)  
 Moravec, 1987  
 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).

*Schulmanella petruschewskii* (F)  
 (Shulman, 1948) Ivashkin, 1964  
 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) (M)  
 Dujardin, 1845 larva  
 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* (F)  
 (Rudolphi, 1819) Baylis, 1920 larva  
 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* (F)  
 (Stossich, 1890) Baylis, 1920 larva  
 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 adunca* Rudolphi, 1802  
*Contracecum 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)  
*Trigloporus 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 *Contracecum 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)  
*Trigloporus quadricornis* (1,10)  
*Vimba vimba* (1,10)  
*Zoarces viviparus* (1,6,10)

Dist.: Lakes Alūksnes, Burtņieku, 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, Burtņieku, Cirma, Kāla, Liepājas, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Liepājas, Sīvers); 5. Vismanis 1961 (Lake Burtņieku); 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, Sivers, 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)  
*Trigloporus 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 &amp; 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 &amp; 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 &amp; 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 SKRJABILANIDAE

*Skrjabillanus tincae* (F)  
Shigin and Shigina, 1958  
Location: surface of intestine  
Host: *Tinca tinca*  
Dist.: Lake Slokas  
Record: Kirjushina & 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)  
*Leucaspis delineatus* (4)  
*Leuciscus cephalus* (1,5)  
*Rutilus rutilus* (1,2,3,4,5)  
*Sander lucioperca* (5)  
Dist.: Lakes Burtnieku, Lielaucis, Sīvers; Kegums Water Reservoir; Daugava, Ogre Rivers  
Records: 1. Shulman 1949 (Kegums Water Reservoir, Daugava River); 2. Reinsone 1955a (Lakes Burtnieku, Lielaucis, Sīvers),

3. 1959 (Lakes Lielaucis, Sīvers); 4. Vismanis 1961 (Lake Burtnieku); 5. Kirjushina & Vismanis 2004 (Lakes Burtnieku, Lielaucis, 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); Kirjushina & Vismanis 2004 (Gulf of Riga)

*Ascarophis morrhuae* (M)  
van Beneden, 1871  
Location: intestine  
Hosts: *Gadus morhua callarias* (1,2)  
*Taurulus bubalis* (1)  
*Trigloporus quadricornis* (1,2)  
Dist.: Gulf of Riga, Baltic Sea  
Records: 1. Shulman 1949; 2. Kirjushina & 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. Kirjushina & 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, acquiring 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 viviparus* 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)  
*Cyprinus 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, Lielaucis, 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, Lielaucis, Liepājas, Sīvers), 4. 1959 (Lakes Lielaucis, 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, Lielaucē, 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, Lielaucē, Liepājas, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Lielaucē, 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, Lielaucē, 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)

*Leucaspis 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, Lielaucē, Rāznas, Sildu, Sīvers, Slokas, Usmas; Kegums Water Reservoir; Daugava, Lielupe Rivers; Gulf of Riga; Baltic Sea

Records: 1. Trauberger 1936 (-); 2. Shulman 1949 (Lake Rāznas, Kegums Water Reservoir); 3. Akhmerov & Grapmane 1954 (ponds); 4. Reinsone 1955a (Lakes Alūksnes, Burtnieku, Cirma, Durbes, Kāla, Lielaucē, Sīvers), 5. 1955b (Lake Sīvers), 6. 1959 (Lakes Lielaucē, 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, Lielaucē, 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* (F)  
 Ziegler in Rossmässler, 1835 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* (F)  
 (Rossmässler, 1835) 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) Location: gills  
 glochidium Host: *Clupea harengus membras*  
 Location: fins, gills Dist.: Gulf of Riga  
 Host: *Cyprinus carpio carpio* Records: Shulman 1949; Vismanis, Eglite &  
 Dist.: Latvia (ponds) Volkova 1981, 1984; Kirjusina & Vismanis  
 Record: Kirjusina & Vismanis 2004 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)

- 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)  
*Leucaspis 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, Lielaucē, 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,  
 Lielaucē, Liepājas, Sīvers), 5. 1955b (Lake  
 Sīvers), 6. 1958 (ponds), 7. 1959 (Lakes  
 Lielaucē, 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, Lielaucis, 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* (F)

von Nordmann, 1832

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 Lielaucis, 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 Lielaucis); 6. 1959 (Lake Lielaucis); 7. Grapmane 1957 (ponds); 8. Vismanis 1972 (ponds, lakes); 9. Kirjusina & Vismanis 2004 (Lakes Lielaucis, 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)

*Leucaspis delineatus* (6)

*Leuciscus idus* (1,10)

*Oncorhynchus mykiss* (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, Lielaucis, 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, Lielaucis, Sīvers), 3. 1955b (Lake Sīvers), 4. 1959 (Lakes Lielaucis, 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, Lielaucis, 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 LERNAEPODIDAE

- 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