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ROTIFERS (ROTATORIA) OF LAKE VÕRTSJÄRV

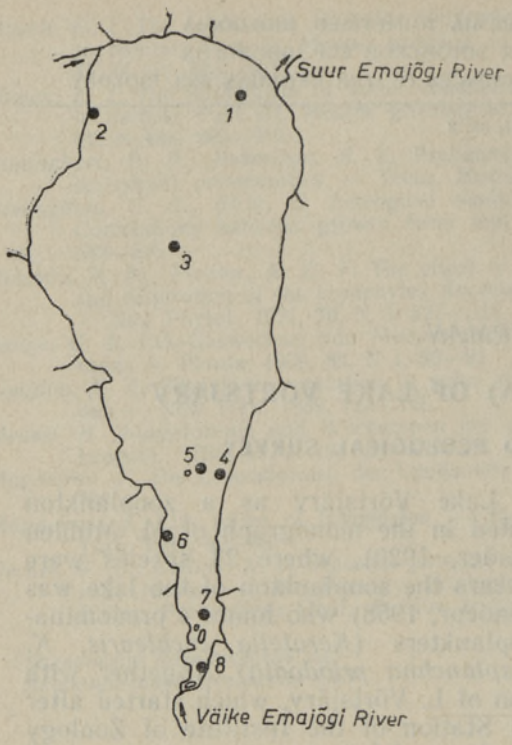
1. TAXONOMICAL AND ECOLOGICAL SURVEY

The first data on the rotifers of Lake Võrtsjärv as a zooplankton component of the lake were presented in the monograph of M. Mühlen and G. Schneider (Mühlen, Schneider, 1920), where 24 species were mentioned. In an interval of forty years the zooplankton of the lake was studied again by N. Schönberg (Шенберг, 1958) who found 4 predominating rotifer species among 63 zooplankters (*Keratella cochlearis*, *K. quadrata*, *Kellicottia longispina*, *Asplanchna priodonta*). Together with systematic studies of the zooplankton of L. Võrtsjärv, which started after the foundation of the Limnological Station of the Institute of Zoology and Botany of the Estonian SSR Academy of Sciences, there appeared an extensive series of papers dealing with the pelagic rotifer complex (Haberman, Mäemets, 1973; Haberman, 1974; 1975; 1976; 1978; 1983; 1984; Хаберман, Мяэметс, 1968; Хаберман, 1974; 1978; 1979; 1983; Хаберман et al., 1982; Кутикова, Хаберман, 1983; 1985).

Thus, a number of data have already accumulated about the pelagic rotifer complex of L. Võrtsjärv. The aim of the present paper is to determine as precisely as possible the species composition of rotifers both in the pelagic and the littoral of the lake and to characterize the seasonal successions and life cycles of the predominating rotifer species.

L. Võrtsjärv is a eutrophic shallow lake of an elongated shape (Figure), the length from north to south being 34.8 and the maximum width 14.8 km (mean width 7.8 km). The area of the lake is 270 km^2, and its mean depth amounts to 2.8 m (the greatest depth 6 m). The data about the chemical composition of the water in the last 20 years show that during the periods of 1962—1966 and 1971—1977 the eutrophication of the lake rose sharply (the phosphate load increased 5.4 times, the nitrate load 1.4 times). In the second half of the 1970s, however, together with the rise of the water level, there was a tendency towards a decrease in the concentration of nitrate and phosphate ions and the trophic level (Starast et al., 1984).

Due to the shallowness of the water of the lake and the strong influence of the wind, a well-developed thermal stratification has not been observed. At the northern point of the lake near the outflow of the Suur Emajõgi River, the mean temperature of the warmest month, July, is within the range of 17—21 °C, and in some days the water temperature may reach 25°. Such a high temperature of water may sometimes be retained in August as well. The gradual fall of the temperature is noticeable in the second half of August and in September. In October the temperature falls down to 10° and in November to 4°. During the period of the ice-cover, which is usually formed at the end of October or at the beginning of November (in the warm year of 1982 at the end



Lake Võrtsjärv with the positions of stations.

of December), the temperature is lowest, 0—0.2°. From January to March the water temperature remains at the level of 1—2°. In the second half of April the water temperature rises (6—8°), depending on the time of ice-melting. The highest density of water at 4° is achieved in the third decade of April. The rise of the water temperature up to 8—14° takes place in May, sometimes up to 18—20° at the end of May. The usual water temperature in June lies between 14—20° (Võrtsjärv, 1973).

Hydrochemically the lake is divided into 3 parts (Figure): the northern part (stations 1—3), the southern (6—8) and the intermediate one (4, 5). The hydrochemical regime of the northern part is more constant in comparison with that of the intermediate one, and especially with the southern part, which, especially at the tip, is influenced by the river water and a very dense higher vegetation.

Materials were collected monthly from July 1980 to July 1982 at 8 standard lake stations. Station N 1 (depth 3 m) is situated at the northernmost point, near the outflow of the Suur Emajõgi River, station N 3 (depth 3—4 m) in the widest part of the lake; station N 5 (depth 6 m) in the deepest place of the lake; station N 7 (depth 1—2) not far (1.5—2 km) from the estuary of the Väike Emajõgi River near the islet Pähksaar. Littoral stations (depth about 1 m) have muddy grounds and dense higher vegetations:

at station N 2 mainly *Phragmites communis* and *Potamogeton perfoliatus*; N 4 — *Phragmites communis*, *Schoenoplectus lacustris*, *Potamogeton perfoliatus*, *P. lucens*, *P. pectinatus*, *P. gramineus*; N 6 — *Nuphar luteum*, *Myriophyllum spicatum*, *Potamogeton natans*, *P. perfoliatus*, *P. gramineus*, *P. lucens*, *Phragmites communis*, *Schoenoplectus lacustris*, *Elodea canadensis*, *Chara contraria*; N 8 — *Nuphar luteum*, *Sagittaria sagittifolia*, *Potamogeton perfoliatus*, *P. lucens*, *Stratiotes aloides*, *Elodea canadensis*, *Batrachium foeniculaceum*, *Tolypellopsis stelligera*, *Phragmites communis*, *Schoenoplectus lacustris*. In the southern most shallow part of the lake which is under a strong influence of the eutrophic Väike Emajõgi River, there grow nearly all higher aquatic plant species characteristic of the lake, filling all the underwater and surface areas of the southern part of the lake, and leaving open only the shipping line (Võrtsjärv, 1973).

The quantitative samples in the pelagic and littoral taken with a small quantitative Juday net of 70 μm mesh, were studied by usual methods of quantitative plankton analysis (Киселев, 1956) using the binocular

МБИ-1 and the microscope «Ergaval». 210 quantitative and 150 qualitative samples were examined. Psammonic and benthic littoral samples were collected sporadically in the summer months only.

The number of rotifer taxa belonging to planktonic and planktobenthic forms found in L. Võrtsjärv amounts to 150 (Table). The development of the planktonic rotifers bears a mass character. The hydrobiological peculiarities of L. Võrtsjärv are determined by very slight differences in the species composition of the planktonic complex of the pelagial and the littoral. The development of the planktonic species in the littoral often exceeds the development of the same species in the pelagial.

The predominating planktonic species in the lake are *Keratella quadrata frenzeli*, *K. cochlearis*, *Polyarthra luminosa*, *P. dolichoptera*, *Synchaeta verrucosa*, *S. oblonga*, *Filinia longiseta*, *F. terminalis*, *Trichocerca capucina* whose development is related to certain seasons. An essential number is reached in some years in case of *Asplanchna priodonta*, *A. girodi*, *Anuraeopsis fissa*, *Brachionus calyciflorus*, *B. angularis*, *Collotheca mutabilis*, *Gastropus stylifer*, *Keratella hiemalis*, *Polyarthra remata*, *P. major*, *Synchaeta stylata*, *S. grandis*, *S. pectinata*, *Trichocerca rousseleti*, *T. pusilla*.

The species diversity of rotifers in the littoral is considerably greater than in the pelagial. Greatest diversity is achieved by the species of the genera *Euchlanis*, *Lecane* and *Notholca*, of which *Euchlanis dilatata*, *E. lyra*, *E. deflexa*, *Lecane luna*, *L. lunaris*, *Notholca squamula* and also *Trichotria pocillum* are most frequent. All these leading species are distributed all over the world, their development is related to certain seasons.

The greatest role in the zooplankton of the lake is played by rotifers in cold seasons. Many of the predominating species can be considered as thermophobic (*Filinia terminalis*, *Keratella quadrata frenzeli*, *Polyarthra dolichoptera*, *Synchaeta verrucosa*).

Synchaeta verrucosa, a thermophobe stenoterm, is present in the plankton from October till May at temperatures of 0—14°. Its intensive development takes place in early spring (April) at temperatures of 2.1—5.5°. In May, at 6—14°, the number of *S. verrucosa* is insignificant and at the end of May it disappears from the plankton totally.

Polyarthra dolichoptera is found at almost the same range of temperatures. Appearing also in October at the temperature reaching 9°, its population increases rapidly and reaches sexual reproduction in October-November. However, considerable numbers of parthenogenetic females of *P. dolichoptera* are found in the zooplankton of the lake until May.

Filinia terminalis, although appearing somewhat later, i.e. in November, does not attain abundant numbers, and its development comes to an end also in May.

Of the above-mentioned complex of cold water rotifers, *Keratella hiemalis* appears to be most thermophobic, its development starting in January and finishing in April with sexual reproduction.

Asplanchna girodi is likewise noticed to occur in cold periods only.

Such cosmopolitans as *Keratella quadrata* and *K. cochlearis* are represented in L. Võrtsjärv by several morpho-ecological forms, due to which fact one may consider them yearly zooplankton components of the lake.

Keratella quadrata frenzeli starts developing in October. Its typical form I (total length 280—300 μ, length of the posterior spines 80—100 μ) reaches greatest abundance in February—March, finishing then with sexual reproduction. In April and May it is replaced by the population of *K. quadrata frenzeli* II which is characterized by longer posterior spines (total length 300—320 μ, length of the posterior spines 110—

List of rotifers occurring in L. Võrtsjärv
(Arabic numerals indicate stations shown in the Figure)

Taxon	Month	Plankton		Psammon
		Pelagial	Littoral	
1	2	4	3	5
Anuraeopsis fissa (Gosse)	VI, VII, IX	5, 7	6, 4	
Ascomorpha ecaudis Perty	VI		4	
Aspelta sp.	VIII			4
Asplanchna girodi Guerne	II—IV	5, 7	2, 4	
A. herricki Guerne	VI		4	
A. priodonta Gosse	V—VIII, X—XI	3, 5, 7	2, 4, 6, 7, 8	
A. priodonta helvetica Imhof	VI,			
Bdelloida gen sp.	VIII—XII	7	6, 8	
Bipalpus hudsoni (Imhof)	VI		6	
Brachionus angularis Gosse	IV—VII, X	3, 5, 7	2, 4, 8	
B. bennini Leiss.	V, VI		8	
B. calyciflorus typ. Pall.	I, IV—VIII, X, XI	5, 7	4, 8	
B. calyciflorus amphiceros Ehrb.	V, VI	1, 3, 5, 7	2, 4, 6, 8	
B. calyciflorus anuraeiformis Brehm	IV—VI, XI, XII	5	4, 8	
B. quadridentatus Herm.	V—VIII	7	6, 8	
B. sericus Rouss.	V		8	
B. urceus (Linn.)	IV—VI	7	8	
Bryceella stylata (Milne)	VIII			4
Cephalodella gibba (Ehrb.)	VI—XI		4, 6, 8	4
C. megalocephala (Glass.)	VI			4
C. sterea minor Donner	VI			4
Collotheca balatonica Varga	VI—XI	1, 3, 5, 7	2, 4	
C. mutabilis (Huds.)				
C. ornata (Ehrb.)	IV	1		
Cephalodella compacta Wiszn.	VIII			6
C. ventripes (Dix.-Nut.)	VII		6	
Colurella adriatica Ehrb.	V—VII		6, 8	
C. colurus (Ehrb.)	VIII	1, 5	6	6
C. uncinata (Müll.)	VII		6	
Conochilus unicornis Rouss.	III, V, VI, IX	1, 3, 5, 7	2, 4, 6	
Dicranophorus hercules typ. Wiszn.	VIII			4
D. hercules adenta Wulf.	VIII			4
D. lütkeni (Berg.)	VI			4
D. robustus europaeus Wulf.	VII			6
Dipleuchlanis propatula (Gosse)	IV, V		8	
Dissotrocha aculeata (Ehrb.)	VII		6	
Elosa spinifera Wiszn.	VIII		4	
Encentrum eurycephalum Wulf.	VI			4
E. marinum (Dujar.)	VIII			4
Eosphora thoides Wulf.	IV		4	
Euchlanis deflexa Gosse	V, VII—IX		4, 6, 8	
E. dilatata typ. Ehrb.	VI, VIII		2, 4, 6	
E. dilatata unisetata Leyd.	V, VI, VIII, IX	1, 3, 5, 7	2, 4, 6, 8	
E. incisa Carl.	VI		8	
E. lucksiana Hauer	VI—IX	1, 3, 5, 7	2, 4, 6, 8	
E. lyra Huds.	IV—X, XI	7	2, 4, 6, 8	
E. myersi Kut.	VII		7	
E. oropha Gosse	XII, II, III	3	2, 6	
E. pyriformis Gosse	VII	7	6	
E. triquetra Ehrb.	V, VIII		8	
Filinia longiseta (Ehrb.)	V—X	1, 3, 5, 7	2, 4, 6, 8	
F. terminalis (Plate)	I—V, X, XI	1, 3, 5, 7	2, 4, 6, 8	

1	2	3	4	5
Gastropus stylifer Imhof	VI—X	1, 3, 5, 7	2, 4, 6, 8	
Kellicottia longispina (Kell.)	I—III, V—VII, XI, XII	1, 3, 5	2, 4, 8	
Keratella cochlearis typ. (Gosse)	I—VI, VIII—IX	1, 3, 5, 7	2, 4, 6, 8	
K. cochlearis macracantha (Laut.)	II—VI, X	1, 3, 5, 7	2, 4, 6, 8	
K. cochlearis tecta (Gosse)	VI—X	1, 3, 5, 7	2, 4, 6, 8	
K. hiemalis Carl.	I—IV, XI	5, 7	2, 4, 6, 8	
K. hispida (Laut.)	VI—VIII	1, 3, 5	2, 4, 6	
K. hispida ecauda Amman	VII	3		
K. irregularis typ. (Laut.)	VI—VII	5	2	
K. irregularis angulifera (Laut.)	V, VI	5, 7		
K. irregularis wartmanni (Asp. et Heusch.)	VI, VII, X	1, 3, 5, 7	4, 6	
K. quadrata frenzeli I (Eckst.)	I—IV, X—XII	1, 3, 5, 7	2, 4, 6	
K. quadrata frenzeli II	IV, V, X	1, 3, 5, 7	2, 4, 6	
K. quadrata frenzeli III	VI, X	1, 5	2, 8	
K. testudo (Ehrb.)	X	7		
Lecane (L.) *acronycha* Harr. et Myers	VI			
L. (L.) *clara* (Bryce)	X	7		
L. (L.) *elsa* Hauer	IV—VI		4, 8	
L. (L.) *flexilis* (Gosse)	VIII		6	
L. (L.) *ludwigii* (Eckst.)	VII, VIII		6	
L. (L.) *luna* (Müll.)	I, V—VIII, XII	1, 3, 7	2, 8, 6	
L. luna presumpta Ahlst.	VI		2	
L. (M.) *bulla* (Gosse)	IV—VIII		6, 8	
L. (M.) *closterocerca* (Schm.)	VIII		8	
L. (M.) *constricta* (Murr.)	VII		6	
L. (M.) *crenata* (Harr.)	X		8	
L. (M.) *latvica* (Berz.)	VI			4
L. (M.) *lunaris* (Ehrb.)	IV—VII, X		2, 4, 6, 8	
L. (M.) *psammophila* (Wiszn.)	VIII		4	
L. (M.) *punctata* (Murr.)	VIII			4
L. (M.) *stenroosi* (Meissn.)	VII—VIII	7	6	
L. (M.) *tethis* (Harr. et Myers)	VI			4
Lepadella acuminata (Ehrb.)	VII		6	
L. patella typ. (Müll.)	VI—VIII		4, 6, 8	
L. patella biloba Hauer	VI		8	
L. patella oblonga (Ehrb.)	VII		6	
L. ovalis (Müll.)	IV, VII, X, XII		6, 8	
Lindia truncata (Jenn.)	VIII		4	
Lophocharis naias Wulf.	IV, VI, VIII, IX		6, 8	
L. oxysternon (Gosse)	VIII		6	
Monommata grandis Tess.	IX		8	
Mytilina mucronata (Müll).	IV—VI, VIII, X		8, 6	
M. ventralis (Ehrb.)	VII, VIII		6, 8	
M. ventralis brevispina (Ehrb.)	VI		8	
Notholca acuminata (Ehrb.)	V, VI		8	
N. foliacea (Ehrb.)	V, VI		8	
N. labis Gosse	I, V—VII, IX—XI	7	2, 8	
N. squamula (Müll.)	II, III	3	2, 8, 4	
Notommata cyrtopus Gosse	VI			4
N. diasema Myers	VIII			4
Philodina citrina Ehrb.	VI			8
Platyias quadricornis (Ehrb.)	IV		8	
Polyarthra dolichoptera Idels.	I—V, X—XII	1, 3, 5, 7	2, 4, 6, 8	
P. euryptera Wierz.	VII, VIII	7	4, 8	
P. longiremis Carl.	VI, VIII		8	
P. luminosa Kut.	V—X	1, 3, 5, 7	2, 4, 6, 8	

1	2	3	4	5
P. major Burckh.	VII—X	7	2, 4, 8	
P. minor Voigt	VI, VII	7	8	
P. remata Skor.	V—VII, IX	7	4, 6, 8	
P. vulgaris Carl.	VII		8	
Pompholyx sulcata Huds.	VI		8	
Proalides wulferti Sud.	VIII	5		
Resticula gelida Harr. et Myers	III		4, 8	
Rotaria neptunia (Ehrb.)	VI	7	8	
R. rotatoria (Pall.)	VI		8	
R. tardigrada (Ehrb.)	VI			4
Scaridium longicaudum (Müll.)	VII		6	
Scephanoceros fimbriatus (Goldf.)	VIII		4	
Synchaeta grandis Zach.	V—X	7	2, 4, 6, 8	
S. kitina Rouss.	IV, VI, VIII, X	7	2, 4, 8	
S. longipes Gosse	IV, VI		4	
S. oblonga Ehrb.	IV, VIII—IX	5, 7	2, 6, 8	
S. pectinata Ehrb.	IV, IX—XI	5, 7	4, 8	
S. stylata Wierz.	V—IX	7	4, 8	
S. verrucosa Nipk.	I—IV, X—XII	1, 3, 5, 7	2, 4, 6, 8	
Testudinella patina (Herm.)	V, VII, X	7	4, 8	
Trichocerca capucina (Wierz. et Zach.)	VI—VIII, X	1, 3, 5, 7	2, 4, 6	
T. elongata (Gosse)	XII		8	
T. jenningsi Voigt	VI		4	
T. longiseta (Sch.)	VII		6	
T. pusilla (Laut.)	VI—IX	3, 7	6, 8	
T. rattus typ. (Müll.)	IX		8	
T. rattus carinata (Ehrb.)	VI—VIII		6, 8	
T. stylata (Gosse)	VII	7		
T. (D.) *porcellus* (Gosse)	VI, IX		8, 6	
T. (D.) *rousseleti* (Voigt)	VI—VIII	5, 7	2, 4, 8	
T. (D.) *ruttneri* Donn.	VI—VII		4, 6	
T. (*D.*) *similis* (Wierz.)	VIII	7		
T. (D.) *taurocephala* (Hauer)	VIII			4
T. (D.) *tenuior* (Gosse)	VI			8
Trichotria pocillum (Müll.)	VI—XI	1, 7, 5	2, 6, 8	
T. pocillum bergi (Meiss.)	V—VI, IX, X	7	6, 8	
T. similis (Stenr.)	IX—X	1, 5	2, 4	
T. tetractis typ. (Ehrb.)	IV	7	4	
T. tetractis caudata (Lucks)	VIII		4	
T. truncata (Whit.)	VIII—X	1	4, 6	
Wierzejskiella sabulosa (Wiszn.)	VI			4
Wierzejskiella velox (Wiszn.)	VI			4

140 μ). In June *K. quadrata frenzeli* II is replaced by the population of *K. quadrata frenzeli* III with significantly shortened spines (total length 210—240, length of the posterior spines 44—64 μ). Sexual reproduction of the two latter forms has not been observed. A few representatives of all the three forms sometimes occur together in autumn (October), the most numerous of those species being always *K. quadrata frenzeli* I.

In the yearly life-cycle of *Keratella cochlearis* phenotypic variability is likewise revealed, although clear temporal boundaries of the existence of various forms in the lake are quite difficult to fix due to the nearly constant occurrence of a typical form in a certain quantity (total length 140—180 μ, length of the caudal spine 36—52 μ). It is absent only of July and August; appearing in September, it reaches sexual reproduction in a short interval of time. It remains one of the main zooplankton components of the lake until the beginning of the biological season in spring, when the form of *Keratella cochlearis macracantha* (total length

220—230 μ, length of the caudal spine 76—96 μ) starts occurring first as single individuals at the end of March and then attains the maximum in May. In June several forms of *Keratella cochlearis* occur: *typica, macracantha*, *tecta* and *pustulata*. The two last forms are found in warm seasons only (Eloranta, 1982). The total length of *Keratella cochlearis* f. *pustulata* is 160—196, length of the caudal spine 44—72 μ. The total length of the spineless form *tecta* is 104 μ.

During the ice-free period (from May to October) one may observe synchronous development of *Polyarthra luminosa* and *Filinia longiseta*. The latter replaces *Filinia terminalis* in spring zooplankton and recedes again after sexual reproduction in September—October. *Polyarthra luminosa* also behaves in the same manner: it develops from May to September during the absence of *P. dolichoptera* in the lake, and reaches sexual reproduction in September just before its disappearance from the zooplankton.

A change in the species (in the southern part of the lake) is noted also in the case of the *Synchaeta*. *Synchaeta verrucosa* is present in the lake from October until May, *S. oblonga* from May until October. Together with *S. oblonga* there appear sporadically *S. pectinata*, *S. grandis*, *S. stylata* and *S. kitina*.

The analysis of the life cycles of rotifers has led to the following remarks. First, in the yearly development cycle of rotifers of the planktonic complex it is possible to distinguish two main periods of sexual reproduction: in spring and in autumn, which correspond to the periods of the slightest stabilization of conditions in the lake environment. Second, the populations of different species realize their ability to preserve the resting stages in different ways. Such species as *Keratella hiemalis*, *Filinia longiseta* and *Polyarthra luminosa* undergo their sexual reproduction at the end of the population development, while *Polyarthra dolichoptera* and *Keratella cochlearis*, and partly *Asplanchna priodonta* nearly start their development in the lake with laying resting eggs. *Keratella quadrata frenzeli* attains the maximum population in the middle of its development period, when sexual reproduction also takes place. Consequently, the rotifers of L. Võrtsjärv have different cycles in their development, referred to as early cycle, midcycle and late cycle forms by C. E. King (King, 1980). The third, and most probably the predominating pelagic complex is monocyclic, as observed in the case of hydrobionts of northern latitudes.

The other less abundant rotifers belong mainly to more eurythermal species which are typical of the summer plankton in northern waterbodies. As a result of the rise in the trophic level of L. Võrtsjärv such species as *Asplanchna herricki* and *Bipalpus hudsoni* have almost disappeared, *Conochilus unicornis* and *Kellicottia longispina* being very rare.

In June, the first summer month, several thermophile species also appear in the plankton (*Anuraeopsis fissa*, *Trichocerca pusilla*, *Collotheca balatonica*, *Keratella hispida*, *K. irregularis wartmanni*, *Polyarthra longiremis*, *Trichocerca rousseleti*, *Euchlanis lucksiana*, several species of *Brachionus*). The majority of them continue their developing also in summer. A number of species, especially of the genus *Brachionus*, have been observed only at southern stations N 7 and N 8 which are subjected to the influence of river water.

About 60 per cent of the rotifers found in L. Võrtsjärv belong to planktobenthic and benthic forms. During the ice-free period the most essential species in the littoral are *Euchlanis lyra* and *E. dilatata unisetata*, during the ice-cover period — *Notholca squamula*. The complex of littoral forms mainly consists of phytophilic species of the genera

Mytilina, *Lophocharis*, *Trichocerca*, *Trichotria* and *Lecane* found mostly in spring and summer.

Analysing the species composition of rotifers in L. Võrtsjärv it should be mentioned that it consists of species that are widespread throughout the world. Among these, fullest development has been stated in the species characteristic of the waterbodies of northern and medium latitudes, principally in cold periods, i.e. the periods of a lower trophic level. In warm periods, when the trophic level is higher, only a few species tolerating strong eutrophication of the environment, are able to develop.

The division of rotifers according to the stations shows that the southern part of the lake reveals the highest trophic level. In that part of the lake, only the representatives of the genus *Brachionus* are observed, some of them being indicators of saprobity (e.g. *B. urceus*). The development of phytophilic species (*Lecane*, *Trichocerca*, *Mytilina*) is also characteristic of the southern littoral of the lake.

Due to the fact that during the 1970s L. Võrtsjärv underwent a considerable increase in eutrophication, the number of several rotifer species was subjected to a change. In the last three years one could observe a rise in the water level and a slight fall in the eutrophication of the lake (Starast et al., 1984), which serves to explain the slight increase of a number of species (*Kellicottia longispina* and *Conochilus unicornis*) which almost disappeared from the plankton during the 1970s.

Summing up the studies on the species composition of rotifers in L. Võrtsjärv it can be said that it reflects the specific nature of that waterbody.

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VÕRTSJÄRVE KERILOOMAD (*ROTATORIA*)

1. Faunistilis-ökoloogiline ülevaade

Võrtsjärv on 270 km² suurune madal eutroofne järv, mille pelagiaalist ja litoraalist on kindlaks tehtud 150 kerilooma taksonit (tabel). Domineerivad *Keratella quadrata frenzeli, K. cochlearis, Polyarthra luminosa, P. dolichoptera, Synchaeta verrucosa, S. oblonga, Filinia longiseta, F. terminalis* ja *Trichocerca capucina.*

Artiklis on esitatud fauna analüüs, antud ülevaade *Keratella quadrata frenzeli* ja *Keratella cochlearis*'e erinevatest morfo-ökoloogilistest vormidest ning analüüsitud domineerivate liikide elutsükleid.

Людмила КУТИКОВА, Юта ХАБЕРМАН

КОЛОВРАТКИ (*ROTATORIA*) ОЗЕРА ВЫРТСЪЯРВ

1. Эколого-фаунистический очерк

Озеро Выртсъярв принадлежит к крупным эвтрофным мелководным озерам, его площадь равна 270 км². В пелагиали и литорали установлено 150 таксонов коловраток. Доминируют *Keratella quadrata frenzeli, K. cochlearis, Polyarthra luminosa, P. dolichoptera, Synchaeta verrucosa, S. oblonga, Filinia longiseta, F. terminalis* и *Trichocerca capucina.*

В статье приводится фаунистический анализ, дается обзор различных морфо-экологических форм *Keratella quadrata frenzeli* и *Keratella cochlearis* и анализируются жизненные циклы доминирующих видов.